RIFLES Model 721 Bolt Action & 722

CENTER-FIRE RIFLES

| MODEL | Introduced | SHIPMENT BY YEARS 1947 | 1948 | 1949 | 1950 | 1951 | 1952 | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 | 1963 | Total Shipments | Date Discontinued | Total Life of Model |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 721 | 1948 1/2 | 104 | 27556 | 32939 | 37266 | 39948 | 40664 | 35811 | 7778 | 8716 | 10438 | 7783 | 4568 | 5656 | 5303 | 5939 | 520 | --- | 270,989 | 1/2/62 | 14 Yrs. |
| 722 | 1948 1/2 | -- | 4778 | 11191 | 17216 | 23541 | 20479 | 18614 | 6241 | 13502 | 10522 | 6242 | 5231 | 4485 | 4566 | 3733 | 595 | --- | 150,936 | " | 14 Yrs. |
| 760 | 1952 2/6 | | | | | 92 | 63735 | 81428 | 85064 | 30099 | 23110 | 20766 | 15313 | 17237 | 24833 | 17933 | 8326 | 11092 | 404,028 | | 12 Yrs. |
| 740 | 1954 12/23 | | | | | | | 15 | 675 | 97620 | 50143 | 45224 | 25689 | 31144 | 886 | 878 | 2 | | 252,276 | 1/6/60 | 5 Yrs. |
| 725 | 1958 1/3 | | | | | | | | | | | 6 | 6367 | 4019 | 3311 | 2781 | 151 | | 16,635 | 1/2/62 | 4 Yrs. |
| 742 | 1960 1/6 | | | | | | | | | | | | | | 32205 | 31410 | 26127 | 31032 | 120,774 | | 4 Yrs. |
| 700 | 1962 1/10 | | | | | | | | | | | | | | | | 3729 | 41087 | 83,886 | | 2 Yrs. |
| XP-100 | 1963 3/6 | | | | | | | | | | | | | | | | 13 | 5572 | 5,577 | | 1 Yr. |
| 600 | 1963 12/6 | | | | | | | | | | | | | | | | | 100 | 100 | | 1 Yr. |

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| | | | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 |
|---|---|---|---|---|---|---|---|---|---|---|
| 721 | 30/06 | A-LO (Comb Stocks) | 2648 | 2929 | 2291 | 679 | 1 | - | 7 | - |
| | 30/06 | ADL-LO | 5 | 17 | 37 | 2 | | | | |
| | 30/06 | A-HI | 2655 | 3633 | 2348 | 492 | 1 | 1 | | |
| | 30/06 | ADL-HI | 57 | 104 | 125 | 5 | | | | |
| | 30/06 | BDL-HI | 42 | 40 | 31 | 7 | | | | |
| | 30/06 | A (All Purp. Stock) | | | 1 | 1618 | 3747 | 3160 | 3127 | [illegible] |
| | 30/06 | Action only | | | | 8 | 7 | | 2 | |
| 721 | 270 | A-LO | 1324 | 1200 | 1078 | 287 | | | | |
| | 270 | ADL-LO | 3 | 8 | 16 | | 1 | 9 | | |
| | 270 | A-HI | 1335 | 1799 | 1100 | 337 | 2 | | | |
| | 270 | ADL-HI | 43 | 51 | 81 | 7 | | 7 | | |
| | 270 | BDL-HI | 39 | 25 | 22 | 3 | | | | |
| | 270 | A (All Purp. Stock) | | | | 643 | 1360 | 1294 | 1394 | [illegible] |
| | 270 | Action only | | | | 7 | 12 | | | |
| 721 | 280 | A | | | | | | 403 | 172 | [illegible] |
| 721 | 300 Mag | A-Lo | 309 | 267 | 227 | 39 | | | | |
| | 300 Mag | ADL-LO | 4 | 8 | 9 | 1 | | | | |
| | 300 Mag | A-HI | 215 | 321 | 345 | 58 | | | | |
| | 300 Mag | ADL-HI | 9 | 20 | 52 | 7 | | | | |
| | 300 Mag | BDL-HI | 28 | 14 | 20 | 2 | | | | |
| | 300 Mag | A (All Purp. Stock) | | | | 360 | 515 | 428 | 304 | [illegible] |
| | 300 Mag | Action only | | | | 6 | 9 | 1 | 2 | |
| 721 | 264 Mag | A | | | | | | | 931 | [illegible] |
| 721 | All Cal. | -D | | 1 | | | | | | |
| | All Cal. | -F | | | | | | | | |
| | Not in present gun line | | | 1 | | | | | | |
| | Total M/721 | | 8716 | 10438 | 7783 | 4568 | 5656 | 5303 | 5939 | [illegible] |
| 722 | 308 | A-LO | 888 | 402 | 370 | 264 | 86 | | | |
| | 308 | ADL-LO | | | 3 | | | | | |
| | 308 | A-HI | 1250 | 408 | 316 | 238 | 76 | | | |
| | 308 | ADL-HI | 35 | 3 | 66 | 4 | 1 | 4 | | |
| | 308 | BDL-HI | 12 | 4 | 8 | 2 | | 7 | | |
| | 308 | A (All Purp. Stock) | | | | 3 | 489 | 613 | 547 | |
| | 308 | Action only | | | | | 12 | | | |

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| | | | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 |
|---|---|---|---|---|---|---|---|---|---|---|
| 722 | 300 Sav. | A-10 | 99 | 61 | 48 | 17 | 27 | 2 | | |
| | 300 Sav. | ADL-LO | 2 | | | | | | | |
| | 300 Sav. | A-H1 | 41 | 27 | 24 | 16 | 6 | | | |
| | 300 Sav. | ADL-Hi | 1 | 3 | 3 | | | | | |
| | 300 Sav. | BDL-H1 | 6 | 3 | | | | | | |
| 722 | 257 | A-LO | 708 | 413 | 221 | 122 | 1 | 5 | | |
| | 257 | ADL-LO | 5 | 1 | 3 | 2 | | | | |
| | 257 | A-H1 | 955 | 696 | 338 | 226 | | | | |
| | 257 | ADL-Hi | 25 | 7 | 18 | 1 | | | | |
| | 257 | BDL-Hi | 23 | 9 | 6 | 1 | | | | |
| | 257 | A (All Purp.Stock) | | | | 20 | 380 | 67 | | |
| | 257 | Action only. | | | | | 8 | | | |
| 722 | 244 | A-H1 | 4240 | 4119 | 1344 | 599 | 408 | 3 | | |
| | 244 | ADL-H1 | 143 | 150 | 71 | 21 | 2 | 12 | | |
| | 244 | BDL-H1 | 66 | 125 | 53 | 1 | | | | |
| | 244 | A (All Purp.Stock) | | | | 2 | 262 | 458 | 23 | 1 |
| | 244 | Action only | | | | 15 | 22 | | | |
| 722 | 222 | A-H1 | 4755 | 3888 | 3164 | 654 | | | | |
| | 222 | ADL-H1 | 83 | 91 | 104 | 23 | 1 | | | |
| | 222 | BDL-H1 | 165 | 111 | 80 | 7 | | | | |
| | 222 | A (All Purp.Stock) | | | | 1101 | 1921 | 1807 | 1489 | 470 |
| | 222 | Action only | | | | 4 | 34 | | | |
| 722 | 222 | Mag. -A | | | | 1887 | 725 | 540 | 574 | 42 |
| | 222 | Mag -Action only | | | | 11 | 24 | | | |
| 722 | 243 | A | | | | | | 1048 | 1100 | 38 |
| 722 | Not in Present Line | | | 1 | 2 | | | | | |
| | Total M/722 | | 13502 | 10522 | 6242 | 5231 | 4485 | 4566 | 3733 | 595 |
| | Total M/721 & 722 | | 22218 | 20960 | 13925 | 9799 | 10141 | 9869 | 9672 | 1115 |

1956 through 1961

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Model 722 – C.F. Bolt Action (Short Action)
Model 721 – C.F. Bolt Action
Rifle – (Long Action)

Introduced 1948 – First Production late 1947
Discontinued 1962 – Replaced by model 700
Same block of Serial numbers shared with the Short action model 722.
First Serial number 1100. Lower numbers were Model Test Rifles.

| Year | Prod. 721-722 | Serial Nos at end of yr. |
|---|---|---|
| START 1947 | 104 | 1204 |
| → 1948 | 32,334 | 33,538 |
| 1949 | 44,130 | 77,668 |
| 1950 | 54,482 | 132,150 ← .222 Caliber start |
| 1951 | 63,489 | 195,639 |
| 1952 | 61,143 | 256,781 |
| 1953 | 54,425 | 311,206 |
| 1954 | 14,019 | 325,225 |
| 1955 | 22,218 | 347,443 |
| 1956 | 20,960 | 368,403 |
| .222 Rem. Magnum 1957 | 14,015 | 382,418 (new Block Started at 400,000) |
| 1958 | 9,799 | 392,217 |
| 1959 | 10,141 | 402,358 |
| 1960 | 9,869 | 412,227 |
| 1961 | 9,674 | 421,899 |
| STOP → 1962 | 1,115 | 423,014 End. |

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## MISCELLANEOUS RIFLE INFORMATION

### MODEL 722

#### YEAR OF MANUFACTURE - M/722 - BY SERIAL

| | | |
|---|---|---|
| MARCH | 1950 | 111,000 |
| | 1951 | 200,000 |
| JULY | 1952 | 245,000 |
| | 1953 | 290,000 |
| OCT. | 1955 | 371,000 |
| FEB. | 1956 | 378,000 |
| OCT. | 1957 | 410,000 |

#### NEW SIGHT LINE JAN. 1958

| | |
|---|---|
| 30-06 ) | |
| 270 ) | |
| 300 MAG. ) | |
| 308 ) | AFTER #412,300 |
| 257 ) | |
| 244 ) | |
| 222 ) | |
| 243 1-60 ) | |
| 300 SAV. ) | NEVER IN N/S |

NOTES:

M/721 - 722 - SAME GUN - 721 LONG ACTIONS
- 722 SHORT ACTIONS
(300 SAV., .244 R, .257 ROB, .222R, .222 R MAG., .243 W)

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SHIPMENT RECORDS

| Models | | | |
|---|---|---|---|
| 37 | 721 | 722 | 725 |
| 605 | - | - | - |
| 758 | 39948 | 23541 | - |
| 829 | 40664 | 20479 | - |
| 648 | 35811 | 18614 | - |
| 242 | 7778 | 6241 | - |
| 45 | 8716 | 13502 | - |
| 1842 | 10438 | 10522 | - |
| 1339 | 7783 | 6242 | 6 |
| 5145 | 4568 | 5231 | 6367 |
| 2502 | 5656 | 4485 | 4019 |
| 3948 | 5303 | 4566 | 3311 |
| | 5939 | 3733 | 2781 |
| 17,903 | 520 | 595 | 151 |
| - | 173,124 | 117,751 | 16,635 |
| - | - | - | - |
| - | - | - | - |
| - | - | - | -

MODEL - 721 Rifle

YEAR OF MANUFACTURE - M/721 - BY SERIAL

| | | |
|---|---|---|
| MARCH | 1950 | 111,000 |
| | 1951 | 200,000 |
| JULY | 1952 | 245,000 |
| | 1953 | 290,000 |
| OCT. | 1955 | 371,000 |
| FEB. | 1956 | 378,000 |
| OCT. | 1957 | 410,000 |

Last # Dec 1962 460.000 Rem S/A

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## MODEL 721 - BOLT ACTION RIFLE (As Originally Introduced)

### - HISTORY -

| | |
|---|---|
| Introduced | 1948 |
| Caliber | 30-06 - 270 Win. - 300 H & H Magnum (Center Fire) |
| Action | Bolt - Solid Frame - Box Magazine SIDE EJECTION |
| Barrels | Round - Double Tapered - (6) Groove Rifling<br><br>Length - 24" for 30-06 and 270 Win.<br>Length - 26" for 300 H & H Magnum |
| No. of Shots | 5 - (4 in Magazine & 1 in Chamber) for 30-06 & 270 Win.<br>4 - (3 in Magazine & 1 in Chamber) for 300 H & H Magnum |
| Gun Length | 44-1/4" - 30-06 & 270 Win.<br>46-1/2" - 300 H & H Magnum |
| Stock | Length - 30-1/2" - Drop at Heel - 2-3/8" Drop at Comb - 1-7/8". American Walnut, Checkering on Pistol Grip and Fore-end for Grades Higher than A. |
| Grades | A (Std.); B (Special); D (Peerless); F (Premier) |
| Gun Weight | 7-1/4 lbs. - 30-6 & 270 Win.<br>8-1/2 " - 300 H & H Magnum |
| Sights | Front - Round Bead Mounted on Ramp<br>Rear - U Notch with Elevation Adj. |
| General | Design Features - [redacted] ENSHROUDED Bolt Head; Solid Double Locking Lugs on Bolt; Improved Extraction Principle; AND REMINGTON'S (PATENTED) RIFLING PROCESS. |

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MODEL 722 - BOLT ACTION (as originally introduced)

HIGH POWER RIFLE

| | |
|---|---|
| Introduced | 1948 in Cals. 300 Sav. & 257 Roberts<br>1951 in Cal. 222 Remington |
| Action | CENTER FIRE<br>Bolt-Solid Frame-Box Magazine Side Ejection |
| Barrel | Round-Double Tapered-(6) Groove Rifling<br><br>Length - 24" for Cals. 300 & 257<br>26" for Cal. 222 |
| No. of Shots | 5 - (4 in Magazine & 1 in Chamber) for 300 Sav. & 257 Roberts<br>6 - (5 in Magazine & 1 in Chamber) for 222 Remington |
| Gun Length | 43-1/4" - 300 Sav. & 257 Roberts<br>45-1/4" - 222 Remington |
| Stock | Length - 30-1/2" - Drop at Heel 2-7/8" - Drop at Comb 1-7/8", American Walnut Checkering on Pistol Grip and Fore-end for grades higher than A |
| Grades | A (St'd.); B (Special); D (Peerless); F (Premier) |
| Gun Weight | 7 lbs. - 300 Sav. & 257 Roberts<br>7-1/2 lbs. - 222 Remington |
| Sights | Front - Round Head Mounted on Ramp<br>Rear - U Notch with Elevation Adjustment |
| General | Design Features - SHROUDED [redacted] Bolt Head; Solid Double Locking Lugs on Bolt; Improved Extraction Principle; and Remington's [redacted] (Patented) Rifling Process |

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APPENDIX NO. 12 - MANUFACTURE OF BOLT AND RECEIVER OF REMINGTON MODEL 721 SPORTING RIFLES

FOREWORD: Through the kindness and courtesy of the Remington Arms Company plant at Ilion, New York, we give below an account of the extremely efficient, ingenious, and modern procedures used in the production of these parts. The authors recommend highly this particular rifle with its uniquely safe bolt; we were extremely well impressed by the general production efficiency of the plant. We point out that the descriptions below are those of the authors. The Remington company is not responsible for their shortcomings.

The basic Remington Model 721 is produced in three different models commercially. Any one of these can be purchased in premium grades so as to cost several hundred dollars; however, there are only two basic receivers and bolts. These are of the same internal and external diameter but vary in length. The longer receiver and bolt is used for the .270, the .30-06, and the .300 Holland & Holland Magnum. The Magnum is differently barreled and stocked so that there are actually two models using the longer receiver and bolt. The shorter is turned out for the Model 722 in calibers .222 Remington, .257 Remington-Roberts, and .300 Savage. The manufacturing operations on these two receivers and bolts are similar, save for the difference in length [redacted] of magazine openings and the other dimensions dependent upon these. The recessed bolt face varies with cartridge head diameter; there are three different diameters, one for each model.

THE BOLT

This part is actually of three-piece construction. It consists of a bolt head, a bolt body, or sleeve, and finally the bolt handle. These are brazed (pinned) together. Many economies are made possible by this process since all three components are produced from bar stock with little waste of material and machine time. The bolt handle is actually a forging made from bar stock.

The bolt head is the most important part of this assembly from the standpoint of Firearms Identifica-

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tion. It is machined from ASME 4140 annealed bar stock or its equivalent. The operations will be listed in a somewhat condensed form below. No effort will be made to reproduce a process chart, but only to indicate along general lines the methods followed in actual production.

1 - The bar stock is turned in a turret lathe externally along three diameters and faced, counterbored, and finally undercut internally to form the relief which will eventually house the spring steel ring extractor. The front portion of the firing pin hole is drilled; the part emerges when cut off completely finished in several aspects, as shown in the accompanying illustration. ~~It is pointed out, however, that the locking lugs are solid and extend all around the bolt head.~~

2 - The bolt head is placed in a fixture and has the extra metal milled from the annular ring so that the locking lugs emerge in their final form, slightly oversize.

3 - The bolt heads are now drilled in two different fixtures. The first drilling operation puts the gas relief hole into the firing pin chamber, and the securing pin hole into the ejector chamber. The second drilling operation completes the firing pin chamber, reaming it carefully to size internally, although the front portion was finished in the initial turret lathe operation. The ejector hole also is drilled in this second drilling jig.

4 - One of the most interesting operations from an identification standpoint is the burring of the ejector hole. This requires work with hand tools, made up especially to fit into the ejector hole and extractor undercut. One tool removes the raised burr; another countersinks the edge of the ejector hole gently. It is pointed out that these are hand operations and will vary considerably from one bolt head to another.

The bolt sleeve is machined from the same stock on a semi-automatic turret lathe with a close tolerance bore at one end to receive the rear of the bolt head snugly. Certain minor cuts are made in the rear of this sleeve to receive the safety detent and the projection of the cocking piece, etc. There is, of course, the thread at the rear of the sleeve for securing the firing pin housing.



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The sleeve and bolt head are assembled under pressure and brazed in position automatically. The sleeve assembly is then turned down to slightly above finished size, locating on the end of the bolt head and the rear portion of the sleeve proper. The assembly of sleeve and bolt head is now heat treated to Rockwell 38-44, C scale, which means about 195,000 pounds per square inch, and subjected to additional operations as follows:

1 - Finish grind top and bottom of the bolt lugs concentric with the rest of the assembly. A form wheel is used on a surface grinder.

2 - Finish grind the sleeve externally on a centerless grinder up to a stop.

3 - The bolt handle is brazed to the bolt sleeve. It should be noted that these brazing operations, although carried out carefully, do not have to stand maximum stress. It's a low temperature braze so as not to disturb the heat treatment of the piece. The bolt head carries all actual load; the bolt face and lugs are in one piece.

## THE RECEIVER

This is also made from annealed ASME 4140 or its equivalent; the operations in a simplified form are about as follows:

1 - In a turret lathe, the solid bar stock is drilled all the way through, counterbored, undercut, and threaded at the front end. It is also turned externally a bit oversize. The threads that will eventually receive the barrel and the shoulder that will eventually carry the locking lugs on the bolt are completely finished in this initial operation, as is the face of the receiver upon which the barrel will eventually bear.

2 - The receiver is now broached to exact diameter internally. It is then broached again to form the bolt lug splines to finished size. These operations are extremely efficient and produce cheaply completely accurate dimensions internally throughout the length of the receiver.

3 - Locating on the diameter of the receiver and on the splines, the outside of the receiver tube is turned to size and concentric with the inside.

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4 - The receivers now are subjected to plunge milling, profile milling, and broaching operations to produce the various contours, undercuts, and the like, to complete the loadings and ejection ports, the magazine well, and to receive the trigger mechanism and the like. These operations are done extremely efficiently with a minimum of trouble, and produce, where necessary, extremely close tolerances. The broaching is particularly noteworthy. Broaches are expensive; however, once made they will continue to produce thousands and thousands of parts exactly alike as to dimensions. Economies of this type largely account for the first class quality of this rifle at a comparatively moderate price.

ASSEMBLY OF RECEIVER, BOLT, AND BARREL

It will be seen from the above that final assembly of a barrel into a receiver is not controlled in any way. The barrel in a semi-finished condition is screwed in tight to the receiver, and the sighting surfaces milled on it in relation to its position in the receiver. In other words, interchangeability of barrels with receivers is not necessary and is not desirable in a commercial weapon since major repairs should be done only at the factory.

Further, when the receiver and barrel are ~~completed as~~ assembled into one integral piece, the particular bolt to be used with it is assembled in a rather novel manner. A chambering reamer operated by a rod extending down the bore adjusts the head space, if necessary, ~~in that particular~~ to this bolt. In most instances, the chamber in a barrel is slightly too short and is finished to size for that particular bolt. In this way, it is not necessary to hold the manufacturing tolerances so close as to lead to extreme cost. Each individual ~~bolt~~ rifle, however, has almost exactly minimum head space when finished in this way. When the operation is completed the serial number of the barrel-receiver combination is etched into the bolt sleeve. Therefore, these bolts are not interchangeable. This is of no importance whatever in a commercial rifle. Actually, however, the variations ~~in~~ encountered if bolts are inadvertantly interchanged are never dangerous. The process greatly decreases the cost of manufacture and is one of the methods used to produce such precise work so efficiently.



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## MODEL 721 DEVELOPMENT

The first successful bolt action rifle to be manufactured in the United States was the Remington-Lee. The basic design of this arm was nearly identical with present day bolt action arms. In the Lee, the bolt head was separate from the bolt body, but this bolt head had locking lugs which locked in the receiver bridge in the same manner as modern bolt rifles. Soon after the Lee rifle proved satisfactory, many modifications of this action were brought out by European countries - some of these modified Lee's were made by Remington. All bolt rifles show the influence of the Lee rifle, and some show a very marked resemblance, such as the Austrian Mannlicher, the British Lee Enfield, the Krag-Jergensen used by Denmark and later by the United States, the Belgian Mauser (1888), the French Lebel (1890), the first German Mauser (1888), the Russian Nagant, and others. Most of these modifications used a single column box much like the Lee. A few used a tubular magazine patterned after the Henry rifle, a Winchester, and the Remington-Keene, an unsuccessful bolt action which was manufactured before the Lee.

Then Paul Mauser, in 1898, developed a double column flash box magazine and further modified the Lee action for higher pressure smokeless powder cartridges. Incidentally, Paul Mauser did most of his development work here at Ilion. Following the development of the Mauser, practically all countries adopted this rifle, or modifications, for their standard military arm. The United States paid a considerable sum (after a lawsuit) for the 1903 Springfield modification.

The present commercial high-power bolt actions are also based on the Mauser. The M/720 Remington is the M/30 Remington with a few minor changes. The M/30 was brought out by Remington after the last World War to meet the demand for a high-power bolt action by the men who had been trained on the Springfield. It was merely a sporting version of the 1917 Enfield manufactured by Remington and Winchester during the last war, originally for the British as the Pattern 14 and finally as the 1917 for the United States. Many finished and partially finished parts were purchased from the Government.

Soon after the introduction of the Remington M/30, Winchester placed the competing M/54 on the market in a much wider variety of calibers. The M/54 was designed from the beginning as a sporting arm and with its selection in calibers took more than its share of the market. In 1936 Winchester revised the M/54 with a new and better trigger, a new safety (no better than the old one), a new bolt handle to allow a lower mounting of telescope sights, and a new and better stock. This rifle was the M/70. It captured a still larger share of the bolt action market.

A few years after the introduction of the M/70 Winchester, Remington introduced the M/720, a revision of the M/30, principally in looks. The M/720 continued to use the 1917 Enfield parts purchased after the last war. However, most of the parts which were near completion are used, and to produce M/720 rifles in any quantity it would be necessary to add tooling to pick up parts further back in process. High-spot tooling estimates indicate that the cost would be prohibitive.

The retail price of the basic M/720 and M/70 is now $78.45. The price in 1939 was $59.95 for the Remington and $61.25 for the Winchester. Naturally, very few of these rifles have been sold to the average hunter. The average man would be foolish to pay $60. or $80. for a piece of equipment which he would use a maximum of two weeks out of the year. Those who buy the M/720 and M/70 either have

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more money than the average, or are confirmed gun bugs who prefer bolt actions for their performance. Bolt actions have in the past been chambered for higher intensity cartridges than other types. Bolt actions have, in general, been more accurate than other types, presumably due to their stronger breeching.

Within limits, and other things being equal, a lower selling price means a larger volume of sales. This is adequately illustrated in the gun business by the Remington 500 Series, a class of low-priced bolt action .22-caliber rifles, the Winchester lever action M/94, and Marlin M/36, the only two commercial low priced repeating center fire rifles adequate for deer hunting. Another low priced center fire, no longer available in quantity, is the Government Krag for the .30-40 cartridge. The .30-40 is in a power class about midway between the M/94 - .30-30 and the Springfield .30-06. The Government disposed of a number of these Krags at the nominal sum of $1.50, which explains the large volume of .30-40 cartridge sales.

Remington decided that a new center fire rifle was needed to compete in price with the Winchester M/94. Its only requisite was that it should be a right-hand operated high-power rifle, but not a lever action. Considerable time and thought was given to the different types of actions, such as the straight pull bolt, a spring returned straight pull, and conventional bolt actions. It was decided that the conventional bolt action is most readily adapted to low cost manufacture. The real reasons for the high cost of the present models is that they were not originally designed for low cost manufacture and the parts are not processed in the simplest and lowest cost manner.

In the design of the M/721, and all other guns, the questions which must be continually asked are:

1) What simple method of manufacture can be used to make the part? Can it be (a) screw machined; (b) blanked and formed; (c) simple machine cuts?

2) Is the part designed so it can be made with the fewest number of operations?

3) Can the part be made with standard tools?

4) What is the largest tolerance which can be allowed on each dimension to give satisfactory functioning, endurance, and appearance?

Considering separately each major part necessary for a bolt action rifle, what can be done to reduce the cost of manufacture through design alone?

The Stock contributes so much to the appearance and to the handling qualities and is tied down so thoroughly by convention that very little can be done by design alone to reduce the manufacturing cost. Cost reduction on the Stock must be done mainly by process changes, including new methods and new machines. Some reduction in cost can be made by making sure that the smallest number of simple cuts are used for inletting and by making sure that the new methods and new machines will work on the Stock as designed.

Barrel - The barrel is also mainly a process problem.

Receiver - By studying the high-power bolt action receiver, it was found that approximately twenty (20) machining operations would produce a receiver which would meet the requirements; the M/721 was designed accordingly. When these



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twenty operations are compared with more than 100 used on the M/720 and the Springfield, it will be seen that a major cost reduction results.

Bolt - At first glance the bolt looks like a pretty tough problem. The extractor and ejector can be changed, but the main part of the bolt must remain much the same as previous types. It is usually taken for granted that a reduction in the number of parts will reduce the cost. This is not always the case, because several simple parts may be fastened together in some manner to make a quite complicated part. This was done on the M/721 bolt. The original complicated one-piece bolt was broken up to make four comparatively simple parts - the bolt head, bolt body, bolt handle, and ball. These parts can be made with screw machines, plus a few relatively simple milling machine operations, and can be brazed or welded together by new methods to make the finished bolt. The ejector and extractor had already been simplified for use in the M/760 pump action. The ejector consists of a spring-loaded plunger, such as is used in the M/81. The extractor is essentially a snap ring which engages the notch in the cartridge rim.

Fire Control - The conventional high-power bolt action fire control usually consists of a sear and trigger and actuating springs. The sear and trigger have in the past been forged and milled to the proper shape, as were practically all small parts. The trigger release, which resulted from the design of these parts, was very poor, usually resulting in a length of pull from 1/8" to 1/4", depedding on whether you asked for a single-stage or a double-stage pull. This was necessary from the safety standpoint when this type of release was used. Winchester recognized this fault and corrected it by using a blocked sear type in the M/70. In this type the trigger blocks the sear into contact with the cocking piece. When the trigger is pulled, the block is removed and the force of the main spring cams the sear away, allowing the firing pin to fall. A similar mechanism is used in the M/721.

The parts in the M/721 fire control are all blanked and formed, except pins, screws, and springs. Screw adjustments are provided which eliminate filing and fitting in assembly.

Other Parts - The remaining essential parts - the magazine, cartridge follower, trigger guard, safety, and bolt stop are blanked and formed. The cartridge feeding surfaces are formed on the magazine in place of profiling them in the receiver, as in previous bolt actions.

The relative strength of the M/721 is greater than either the M/720 or the M/70, having approximately 20 percent greater locking area than the M/720 and 40 percent greater area than the M/70.

The estimated commercial cost of the M/721 is $20.16. At 8% profit to Remington the retail price would be $40.00. The M/720 commercial cost on the same basis, but not including tool amortization, would be $67.00, resulting in a retail price of $133. to return an 8% profit to Remington.



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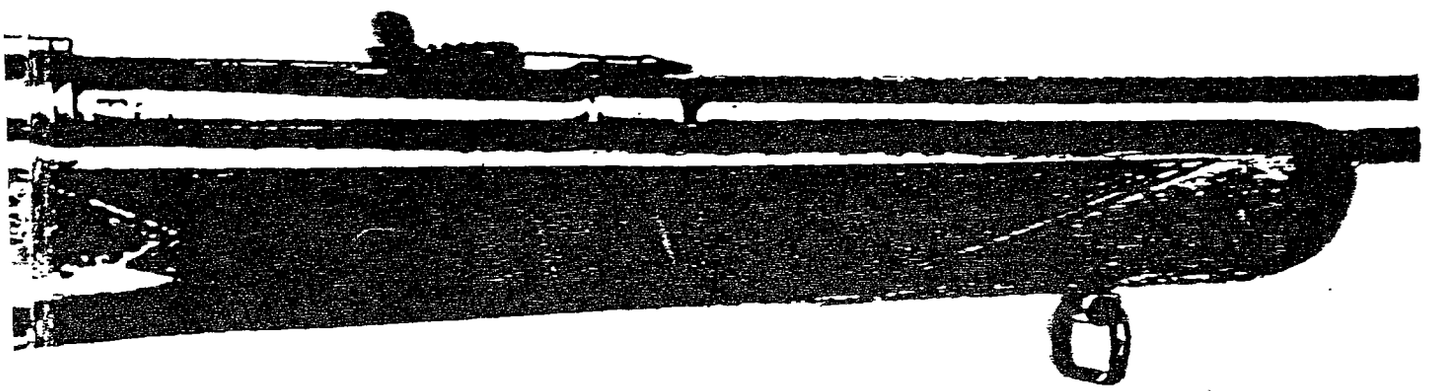
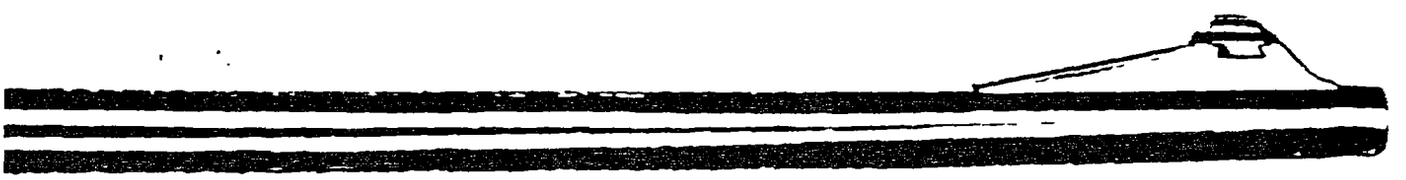
R2527052



MODEL 721
GRADE "B"
SHEET NO. 10
REV. 1-25-49



MODEL 721
GRADE "B"
SHEET NO. 12
REV. 1-25-49

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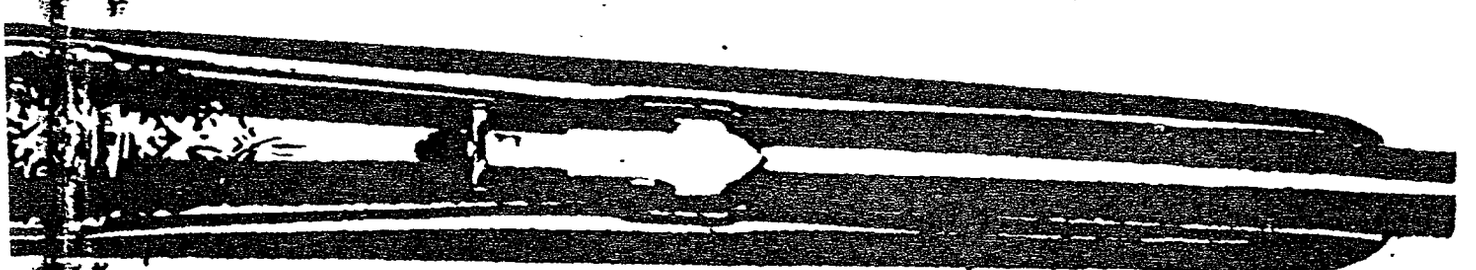

MODEL 721

GRADE "D"

SHEET NO. 15

DATE 4/21/48

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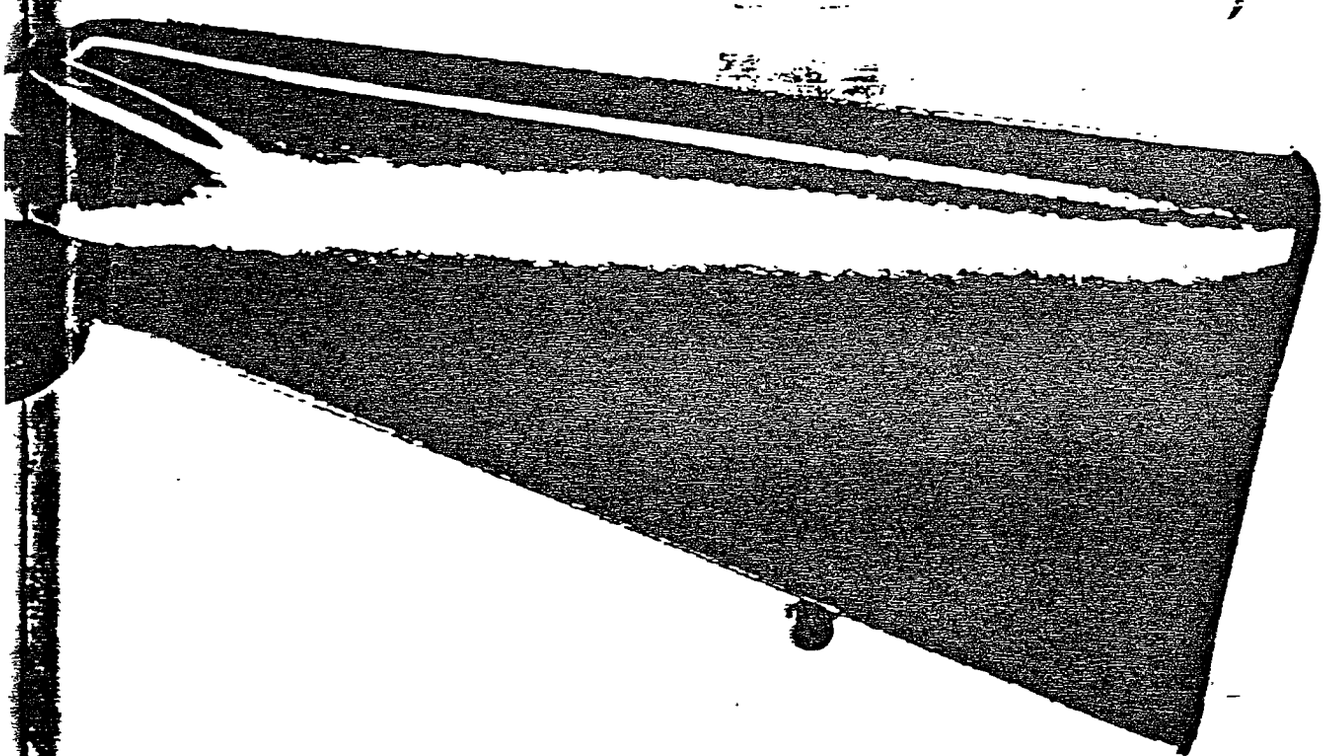

MODEL 721

GRADE "D"

SHEET NO. 16

DATE 4/21/48

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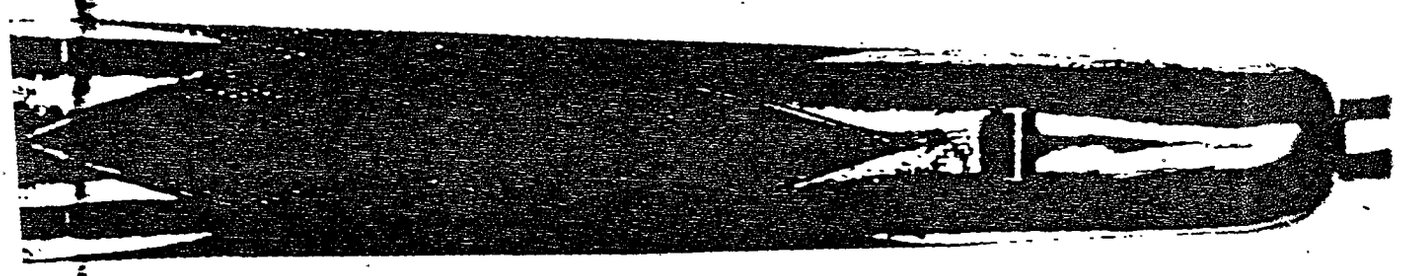

MODEL 721

GRADE "D"

SHEET NO. 17

DATE 4/21/48

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
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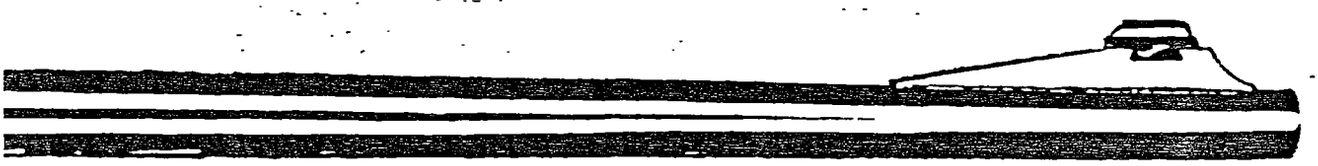

MODEL 721

GRADE "D"

SHEET NO. 18

DATE 4/21/48

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
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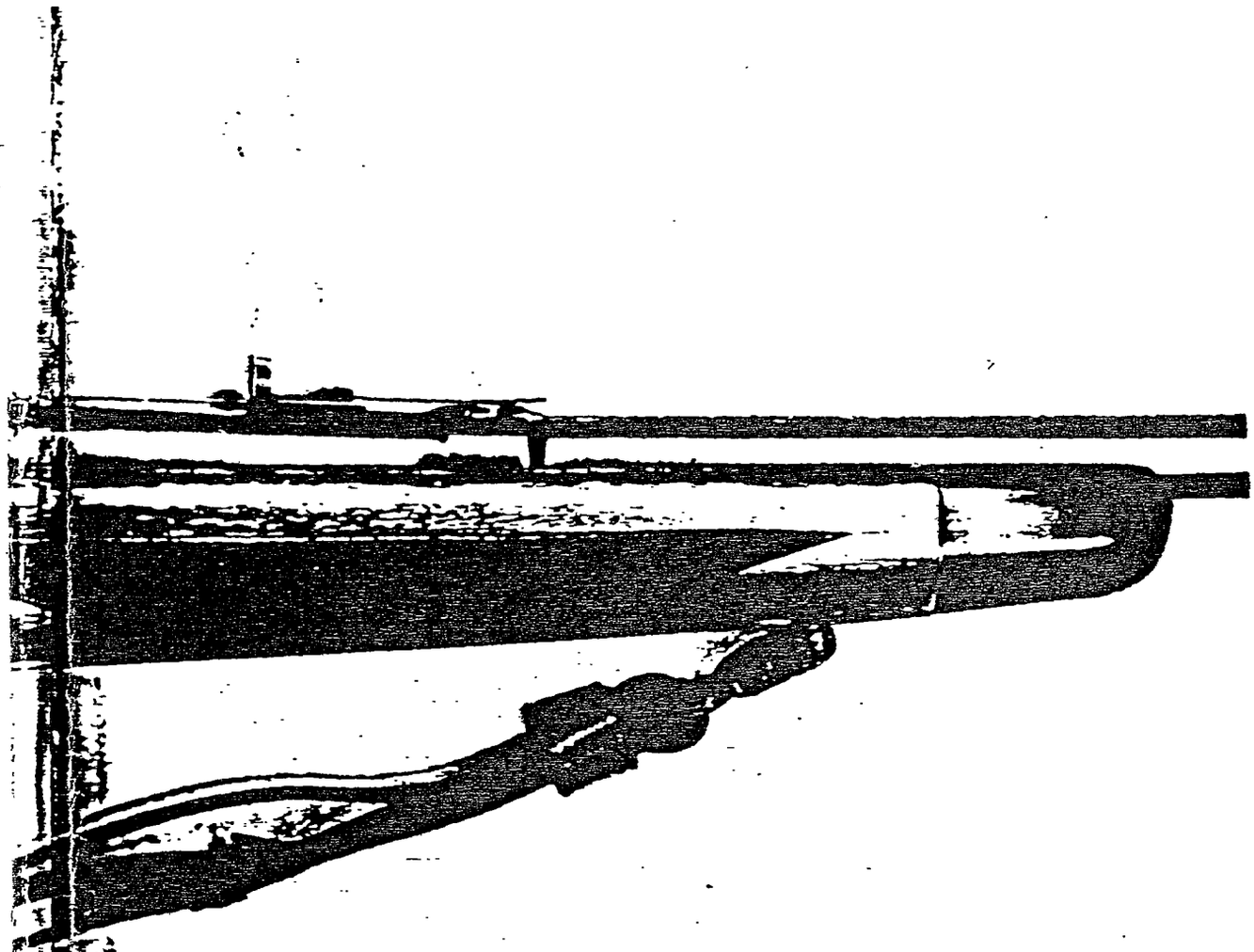
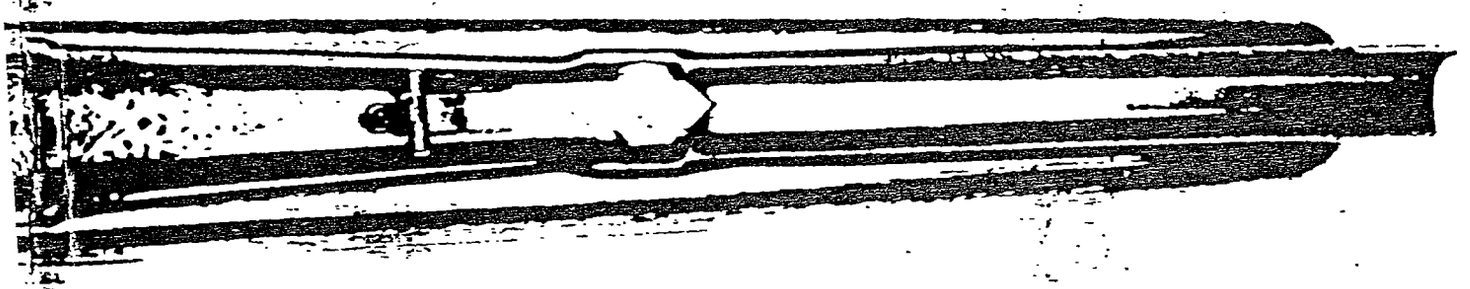


MODEL 721

GRADE "F"

SHEET NO. 21

DATE 4/20/48



MODEL 721

GRADE "F"

SHEET NO. 22

DATE 4/20/48

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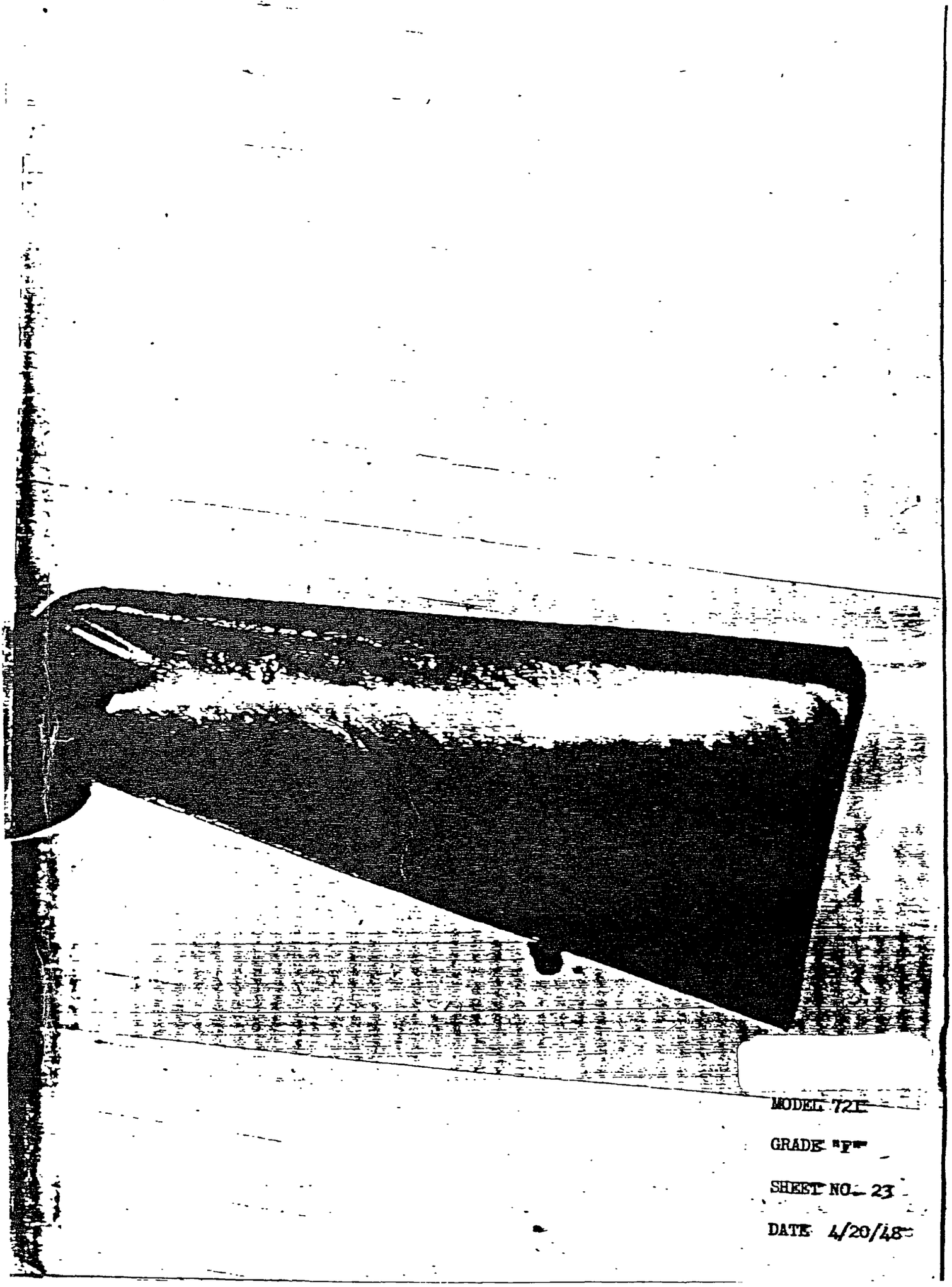


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[redacted] M/721-722 History Dec. 23, 1948

1. Description of method used prior to Improvement

The Model 721-722 Center Fire Bolt Action Rifles were the first of the new Remington Post-War Sporting Arms and were announced on January 1, 1948. The Model 721 replaced the Model 720, which was manufactured prior to the war to compete with the Winchester Model 70, and essentially represented an improved version of the earlier Model 30 and the Remington Enfield Military Rifle. With the exception of some minor functioning difficulties, the Model 720 was considered an excellent high power bolt action rifle, however, from a manufacturing standpoint it was not economical to build and the relative high cost limited its volume. There was also a definite need for a rifle which could meet the lower priced competition of the Winchester Model 94, Marlin Model 36, and the Savage Model 40.

2. Description of the Improvement

Late in 1942 an initial design investigation was started to develop a new Remington High Power Bolt Action Rifle which could be processed by modern methods and at a cost to permit a low selling price required to achieve volume production. The present desirable features of a rifle in this class were to be retained, and if possible, further improvements were to be designed to increase consumer acceptance.

The bolt action rifle is basically one of the most simple to produce, however, conventional requirements, as well as features of the Mauser M/98 Action, have in the past influenced design to the extent that manufacturing

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cost was adversely affected. For example, the Receiver and Bolt in the Model 1917 Enfield required over 250 operations in process, whereas in the Model 721 it has been possible to reduce this figure by more than 75%. Interchangeability of parts between calibers has also been achieved to a high degree. All parts in the Model 721 are interchangeable between calibers except the Barrel and Bolt Head and in a similar manner very little change is required to produce the companion Model 722 in its three smaller calibers. Not only does this reduce the investment cost in machinery and working capital, but it also contributes to lower manufacturing cost.

The new Models 721-722 have met with unusually wide acceptance and the design has been described by some writers as the first significant improvement in this type of arm since the introduction of the Mauser. In addition, the objective of low manufacturing cost has been met and opportunities for still further economies are being foreseen.

3. Estimated Savings to December 31, 1948

This information is being compiled by J. P. Bilgrem.

4. Source of Savings, etc.

This information is being compiled by J. P. Bilgrem.

5. Merits of Gun

A brochure prepared by the Sales Department entitled "What The Experts Say About the New Remington Models 721 & 722 Big Game Rifles" contains excerpts from illustrated Technical articles as published in various trade magazines and is made a part of this file.

The Extractor used in Models 721-722 is the subject of a patent application, having been developed primarily for another Remington Center Fire Rifle. It is the opinion of the Patent Attorneys that other features and



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R2527063

improvements incorporated in the design of Models 721-722 are free of any patent infringements.

6. Practice in other Remington locations

Not applicable.

SPECIFIC INFORMATION:

1. Subject of title to be used in designation of case

Model 721-722 Bolt Action High Power Center Fire Rifle.

2. Names of Employees

Merle E. Walker
Homer W. Young

3. Position held at time of original suggestion

Merle E. Walker - Engineer-A-Mechanical Research
Homer W. Young - Engineer-A-Mechanical Research

4. Current position held

Merle E. Walker - Gun Designer
Homer W. Young - Gun Designer

5. Amount of previous awards

None

6. Recommended percentage on which award is based:

A. Originality and Ingenuity - 12-1/2%

A high degree of originality and ingenuity was demonstrated by E. E. Walker in designing "a new hunting rifle fundamentally different from any previous arm ever produced anywhere" (Quoting Col. E. F. Sheldon, Shooting Editor, OUTDOORS MAGAZINE, April 1948.) Its attractive lines, light weight, and fine Trigger have resulted in an unusual customer acceptance. Also, by the proper use of



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formed metal parts, together with simplified construction of machined parts, it was possible to obtain lower product cost and at the same time a gain in additional competitive advantage by offering these rifles at a reasonable selling price.

The factor for originality and ingenuity would be evaluated as 15% in the case of H. E. Walker.

One of the principal design features of the Models 721-722 is the shrouded bolt head which provides additional support to the cartridge case, thus increases its strength considerably beyond that possible with the conventional hook type Extractor. Comparative tests indicate the Models 721-722 as being the strongest action ever built in the range of cartridges handled. The enclosed bolt head is made possible by using a new and novel ring type of Extractor which was designed originally for another Remington experimental rifle, Model 760. A principal contributor to the design of the Extractor was Homer W. Young who displayed unusual ingenuity in conceiving a means of coining the lips on the Extractor Ring at a time when it appeared that this design would have to be abandoned and a conventional extraction system used. A factor of 10% has been assigned to H. W. Young for originality and ingenuity in his contribution to the Models 721-722. The overall factor of 12-1/2% is the average for the two individuals.

B. How Much of the Problem was a part of the employee's work - 50%

A factor of 50% applies to each of the employees in connection with this development because of specific assignments.

C. Length of time during which savings will continue - 125%

Calculations for projects covering developments of New Arms



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are based on an expected life of ten (10) years. Therefore, a use factor of 125% would apply.

B. Summary of Percentage Factors

Factor (A) x Factor (B) x Factor (C) = Overall Factor

12-1/2% x 50% x 125% = 7.8%

7. Award is to be divided between two (2) employees

Since the novel Extractor makes possible the Shrouded Bolt Head and represents one of the most noteworthy features in the Model 721-722 Rifles, it is the opinion of Supervision that E. W. Young should share 40% of the award justified for the development of these two new Rifles. The remaining features and improvements have resulted from the efforts of the principal designer, H. H. Walker, who all therefore should be the recipient of the remaining 60% of the award.

Attachments:

Brochure "What the Experts Say About the New Remington Models 721 & 722 Big Game Rifles"

Letter: R. S. Foote to S. M. Alvis - 11/11/48.

SMA:LJ

SM Alvis

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cc: R.A. Williamson
E.J. Kuhlman

Ilion, New York
June 28, 1960

D. E. MILLER

MODELS 721-722 SPORTER STOCK

In talking with Merle Walker there seems to be some question in our minds that the proposed new sporter stock will not pose a problem for you. We feel certain that if it is tooled up in such a way as to come off the machining operations with the indicated dimensions, it is possible to accomplish the sanding within the proposed Methods & Standards recommended time.

We would be glad to assist in completion of development for this job and demonstrating the technique; otherwise we feel prone to suggest that it not be attempted.

S. M. Alvis
Ilion Research Division

SMA:T

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R2527067

MODELS 721 - 722 CENTER FIRE RIFLES

Introduced 1948

Discontinued 1962

Summary of Calibers and Barrels

| | Caliber | Barrel Length |
|---|---|---|
| Model 721 | 30-06 | 24" & 22" |
| | 300 Magnum | 26" & 24" |
| | 270 Win. | 24" & 22" |
| | 280 Rem. | 22" |
| | 264 Win. Mag. | 22" |
| Model 722 | 308 | 24" & 22" |
| | 300 Sav. | 24" & 22" |
| | 257 | 24" & 22" |
| | 244 | 24" & 22" |
| | 222 | 26" & 24" |
| | 222 Mag. | 24" |
| | 243 | 22" |

SMAlvis:T
July 1970

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KINZER V. REMINGTON

Sam
For your info
W


# JAC WELLER

Post Office Box 149
PRINCETON, NEW JERSEY 08540


30 November 1972

Dear Wayne,

In cleaning out an old filing cabinet I came across an Appendix to my Firearms Book written in 1953. This refers to the manufacture of the old Model 721 and 722 Remington Bold Action Rifle. I sent it along to you fellows then but your Chief of Research asked me not to include it; it wasn't included. As I recall, the excuse was that your competitors would know more of your process engineering than you wanted them to know. The Remington individuals involved at the time were surprised that I was able to put together something of this sort in a relatively short time at Ilion. *

I don't need this paper back. After you have chuckled over the mistakes that it probably contains, toss it in the waste basket.

Best regards.

Sincerely,

JacW

JAC WELLER

JacW/mb

Enc. - Appendix

*Probably "vetoed" by DOC - SMA

Wayne E. Leek, Esq.
Manager,
Firearms Research & Design
Remington Arms Company
Ilion, New York

REMINGTON ARMS CO.
RECEIVED
DEC 4 1972
FIREARMS DESIGN


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R2527069

Ilion —

(16)

RECEIVED

JAN 09 1976

CONSUMER SERVICE

January 7, 1976
R#1 County Line Rd.
Crystal Mich, 48818

RECEIVED
JAN 13 1976
ARMS SERVICE

Dear Sirs,

Recently I aquired a Remington model 721 in 264 Magnum Cal. Could you please tell me something about this rifle, such as when made, how many so on and so forth.

Ser No is 448118, could you also tell me, is this gun a collector item, and if so about what is it's value?

Thank You
Kenneth T Roberts

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R2527070

Model 721
264 WIN. MAG. cartridge

January 19, 1976

Mr. Kenneth T. Roberts
R. #1 County Line Rd.
Crystal, Michigan 48818

Dear Mr. Roberts:

You have one of the last Remington Model 721 rifles manufactured in late 1961, and one of the first Remington rifles chambered for the .264 Win. Mag.

Our records do not reveal exactly how many of the 721 rifles were chambered for the .264 cartridge; however, this model was discontinued during 1962 and the New Model (Remington Model 700) was offered in the .264 Win. Mag. cartridge.

We are not able to assess the value of your rifle.

Sincerely,

L.K. Goodstal
Curator-Remington Museum

LKG:tpp

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STUART OTTESON
6724 CANEEL COURT
SPRINGFIELD, VA. 22152

m/721

January 30, 1979

Mr. Sam Alvis
46 Armory Street
Ilion, New York 13357

Dear Sam:

I had been waiting to write until I got a chance to get up to Bridgeport and try to search out some more photographs, possibly something in Remington's patent files. But things seemed to keep slipping, and I must apologize for not replying to your letter sooner.

Unfortunately, so far we haven't really been able to find the kind of pictures I was hoping for -- something lending an air of "authenticity" to the story. Those "testing" pictures of the 721 would have been absolutely perfect, except we would have to find actual photographs. The brochure pictures, besides being small, are half-tones (screened) and so ending up with a legible reproduction in print from them would be virtually impossible.

The pictures of Mike Walker and Homer Young are good quality, but I'm afraid too far removed from the days of the 721/722 project to be used. Your incentive-bonus write-up for them had some excellent information in it, and it will be very helpful. I guess the frustrating thing is that I've been fortunate in getting some great information from you and Mike, but as far as photographs go, you would think the 721 was developed before the time of Mathew Brady.

I'm reluctant to ask you to look for any more photos, because you've already done more than I have any right to expect. But if you could find even some "mug" shots from the 1940's of Walker, Howell, Young, and Leek, this might be the best way available to show what these key individuals in the project looked like. Of course if you should ever run across photos of those 721 tests, I could always use them, because I believe they would have significant and permanent value. It makes me shudder to think that someone probably threw them in a trash can.

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January 30, 1979

Sam, I owe you a lot more postage than for just that recent package. I'm not sure what it adds up to, but since you may hopefully be sending more material some time, I'm enclosing a check for a hundred stamps (at least before they go up in price again).

Best regards,

Stuart

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To:
Dick Dietz – This is Company proprietary info.

Total gun quantities:

M/720 - - - 2,427
M/721 - - - - 270,989
M/722 - - - - 150,936
M/725 - - - - 16,629
M/600 - - - - 94,028
M/660 - - - - 50,536

Serial number blocks:

M/720 - - - - 40,000 to 42,427
M/721 } together at 1,100 ~~to~~ 423,014
M/722 }
M/725 - - - - 700,000 to 716,700
M/600 - - - 1,000 to 131,552 from 1963
M/660 ~~to~~ 1968. During November 1968 ~~the number system was changed and started with the M/660 block at 6,200,000. The M/660 and M/600 were numbered in this same block, up to 6,222,957.~~

L. Goodstal 9/15/82

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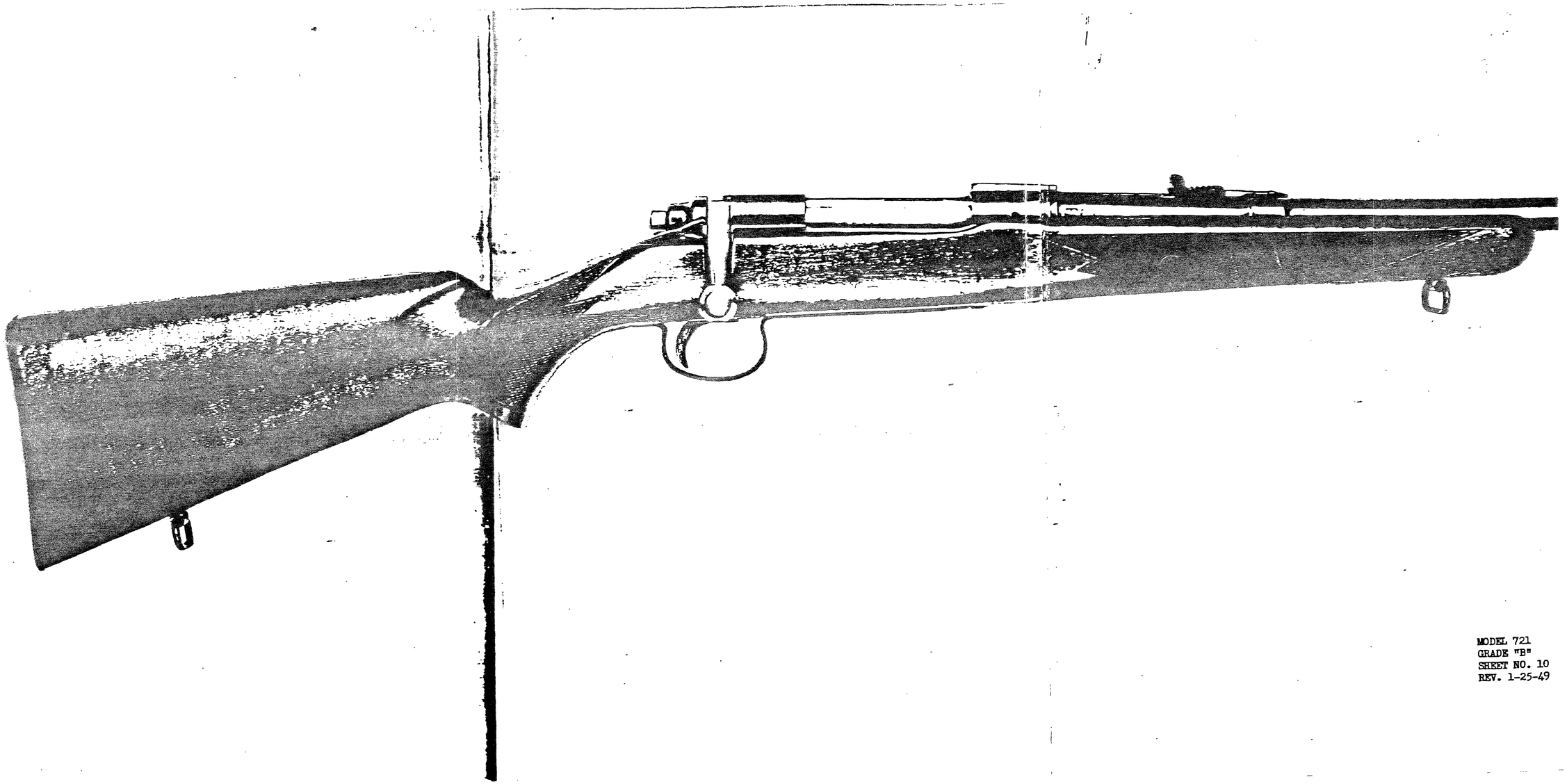

MODEL 721
GRADE "B"
SHEET NO. 10
REV. 1-25-49

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Final Assem.

M/721-722

NOTE

1. The OBSOLETE Process Records in this folder are filed in order of operation numbers. Each operation is marked with a colored tissue dividing sheet.
2. Each operation may have several OBSOLETE sheets. Where this is true they have been put in order according to the date when they were OBSOLETED, the latest date being on top.
3. All sketch sheets precede their operation sheets and are separated from them by colored tissue.

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TPR-1

# PROCESS RECORD

[illegible]

ISSUED BY:

TECHNICAL DEPARTMENT

ARMS DIVISION

REMINGTON ARMS COMPANY

ILION, NEW YORK

ISSUED TO: _____

DEPARTMENT

TPR-2 REV

| PART: Final Assembly | PART No. |
|---|---|

## SEQUENCE OF OPERATIONS

| OPER. NO. | OPERATION | DEPT. |
|---|---|---|
| 2 | Assemble Follower Group | |
| 4 | Assemble Firing Pin Group | |
| 6 | Assemble Trigger Group | |
| 8 | Engrave Serial Number on Receiver | |
| 10 | Fit and Head Bolt assembly to Barrel assembly | |
| 12 | Engrave Serial Number on Bolt | |
| 14 | Ream Ejector Hole, assemble Extractor, Ejector Spring and Ejector Pin | |
| 16 | Assemble Sights and Receiver Plug Screws | |
| 18 | Assemble Firing Pin assembly into Bolt, Trigger assembly, Bolt Stop, and Receiver. | |
| 20 | Assemble Stock to Action etc. | |
| 22 | Install Follower and check function | |
| 24 | First Inspection | |
| 26, 28, 30 | Target and Test | |
| 32 | Check for Live Ammunition | |
| 34 | Final Inspection. | |

COMPILED BY: [signature] APPROVAL & DATE:

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

H. H. SULLIVAN, INC.

OBSOLETE APR 22 1947

Retyp. 6

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KINZER V. REMINGTON

TPR-2 REV

| PART: FINAL ASSEMBLY | PART No. FINAL ASSEMBLY |
|---|---|

## SEQUENCE OF OPERATIONS

| OPER. NO. | OPERATION | DEPT. |
|---|---|---|
| | Final Chamber Reaming | |
| | Engrave Serial Number on Receiver | |
| | Engrave ~~Mark~~ Serial Number on Bolt | |
| | Assembly of Bolt | |
| | Assemble Trigger Assembly, Bolt Stop & Receiver | |
| | Assemble Sights | |
| | Final Assembly | |
| | First Inspection | |
| | Target and Test | |
| | Check for Live Ammunition | |
| | Final Inspection | |

| COMPILED BY: MHL 4-10 | APPROVAL & DATE: MHL 4-10-47 JM 4/10 |
|---|---|

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

H. H. SULLIVAN, INC.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON
R2527079

R-2

PART: FINAL ASSEMBLY

PART No. FINAL ASSEMBLY

DATE MAR 18 1947

## SEQUENCE OF OPERATIONS

| SEQ. NO. | OPER. NO. | OPERATION | DEPT |
|---|---|---|---|
| 2 | 1 | Engrave Serial Number on Receiver | |
| 4 | 2 | Assemble Trigger Assembly, Bolt Stop & Receiver. | |
| 1 | 3 | Final Chamber Reaming | |
| 5 | 4 | Assemble Sights. | |
| 6 | 5 | Final Assembly. | |
| 3 | 6 | Mark Serial Number on Bolt. | |
| 7 | 10 | First Inspection. | |
| 8 | 11 | Target and Test. | |
| 9 | 12 | Check for Live Ammunition. | |
| 10 | 13 | Final Inspection | |

COMPILED BY

APPROVAL & DATE.

REMINGTON ARMS COMPANY, INC., ILION, N.Y.

REVISED AUG 26 1946

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
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R2527080

PART: FINAL ASSEMBLY

PART No. FINAL ASSEMBLY

## SEQUENCE OF OPERATIONS

| SEQ. NO. | OPER. NO. | OPERATION | DEPT. |
|---|---|---|---|
| 1 | 1 | Engrave Serial Number | |
| 2 | 2 | Assemble Trigger Assembly, Bolt Stop & Receiver. | |
| 3 | 3 | Final Chamber Reaming | |
| 5 | 4 | Assemble Sights. | |
| 6 | 5 | Final Assembly. | |
| 4 | 6 | Mark Serial Number on Bolt. | |
| 7 | 10 | First Inspection. | |
| 8 | 11 | Target and Test. | |
| 9 | 12 | Check for Live Ammunition. | |
| 10 | 13 | Final Inspection | |

COMPILED BY:

APPROVAL & DATE: 5/30/43

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

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KINZER V. REMINGTON

R2527081

PART: FINAL ASSEMBLY

PART: FINAL [illegible]

## SEQUENCE OF OPERATIONS

| OPER. NO. | OPERATION | DEPT. |
|---|---|---|
| | Final Chamber Reaming | |
| | Engrave Serial Number on Receiver | |
| | Engrave Serial Number on Bolt | |
| | [illegible] Serial Number on Bolt | |
| | Assembly of Bolt | |
| | Assemble Trigger Assembly, Bolt Stop & Receiver | |
| | Assemble Sights | |
| | Final Assembly | |
| | First Inspection | |
| | Target and Test | |
| | Check for Live Ammunition | |
| | Final Inspection | |

COMPILED BY: [illegible] APPROVAL & DATE: [illegible] [redacted]

REMINGTON ARMS COMPANY, INC. ILION, N.Y.

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KINZER V. REMINGTON

TPR 2 REV

| PART: FINAL ASSEMBLY | PART No FINAL ASSEMBLY |
|---|---|

SEQUENCE OF OPERATIONS

| OPER. NO. | OPERATION | DEPT |
|---|---|---|
| 4 | ASSEM. FIRING PIN ASSEMBLY<br>Final Chamber Reaming<br>Engrave Serial Number on Receiver<br>[illegible] Serial Number [illegible]<br>Assembly of Bolt<br>Assemble Trigger Assembly, Bolt Stop & Receiver<br>Assemble Sights<br>Final Assembly<br>First Inspection<br>Target and Test<br>Check for Live Ammunition<br>Final Inspection | 4 |

| COMPILED BY | APPROVAL & DATE |
|---|---|

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

R2527083

TPR-2

| PART: 721-722 Final Assembly | PART No. Final Assembly |
|---|---|

OBSOLETE

## SEQUENCE OF OPERATIONS

| SEQ. NO. | OPER. NO. | OPERATION | DEPT. |
|---|---|---|---|
| | 1 | Engrave Serial Number. | |
| | 2. | Assemble Trigger Seat Assembly, Bolt Stop, Spring, & Receiver | |
| | 3. | Machine Chamber | |
| | 4. | Assemble Sights | |
| | 5. | Final Assembly | |

| COMPILED BY: | APPROVAL & DATE: |
|---|---|

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON
R2527084

Final assembly

Register Sheet obsoleted 1-27-47

M H Smith

See Barrel assembly 17000 for signed sheet

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

TPR-17

| PART: FINAL ASSEMBLY | PART No. FINAL ASSEMBLY |
|---|---|

## REGISTER OF ALL PROCESS RECORD REVISIONS

| DATE | DESCRIPTION OF CHANGE |
|---|---|
| 4/4/46 | OBSOLETE<br>Operation Number 1 - Added operation and fixture to be designed.<br>Operation Number 2 - Added special machine and tooling to be designed. |
| 7/25/46 | Added Colmonoy Application for Reamers B-51592 to Operation Number 3. |
| 7/25/46 | Added Reamer Tubes B-90098W, B-90098U, B-90098V to Operation Number 3. |
| 7/25/46 | Added following gages to Operation Number 3:<br>B-52086W,V C-52093 C-52095W<br>B-51994W,V C-52094 C-52093W<br>B-51995W,V C-52095 C-52094W<br>B-52084W,V C-52096 C-50297W<br>B-52085W,V C-52097 |
| 7/25/46 | Added Forming Guide A-52347 to Operation Number 1. |
| 7/25/46 | Changed Sequence of Operations from 1, 2, 3, 4, 5, 6, to 1, 2, 3, 5, 6, 4. |
| 7/25/46 | Changed name of Operation Number 3 from Machine Chamber to Final Chamber Reaming. |
| 7/25/46 | Changed Step Gage to Flush Pin Gage B-52089 on Operation Number 10. |
| 7/29/46 | Assigned Operation Number 10 to First Inspection.<br>Assigned Operation Number 11 to Target & Test.<br>Assigned Operation Number 12 to Check for Live Ammunition.<br>Assigned Operation Number 13 to Final Inspection. |

| COMPILED BY: | APPROVAL & DATE: MVPL 8/20/46 |
|---|---|

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

Re-Type
8/20/46

| PART: Final Assembly | PART No. Final Assembly |
|---|---|

REGISTER OF ALL PROCESS RECORD REVISIONS

OBSOLETE

| DATE | DESCRIPTION OF CHANGE |
|---|---|
| | Op. #1 - Added operation and fixture to be designed. |
| | Op. #2 - Added special machine and tooling to be designed. |
| 7-23-46 | added no's. To oper. #3. |
| | C-51591 |
| | C-51886 |
| | C-51887 |
| | C-51888 |
| | C-51889 |
| | B-90098-W |
| | B-90098-V |
| | B-90098-U |
| | B-51995-W |
| | B-51995-V |
| | B-52086-W |
| | B-52086-V |
| | B-51994-W |
| | B-51994-V |
| | B-52084-W |
| | B-52084-V |
| | B-52085-W |
| | B-52085-V |
| | C-52093 |
| | C-52094 |
| | C-52095 |
| | B-52096 |
| | C-52097 |
| | C-52093-W |
| | C-52094-W |
| | C-52095-W |
| | C-52097-W |
| | D-51580 |
| | C-52431 |

COMPILED BY: | APPROVAL & DATE.

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

TPR-17

| PART: Final Assembly | SPECIMEN | PART No. Final Assembly |
|---|---|---|

REGISTER OF ALL PROCESS RECORD REVISIONS

| DATE | DESCRIPTION OF CHANGE |
|---|---|
| 1/4/46 | Op. #1 - Added operation and fixture to be designed.<br>Op. #3 - Added Special machine and tooling to be designed. |

| COMPILED BY: | APPROVAL & DATE: |
|---|---|

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

OBSOLETE MAR 18 1947

FINAL ASSEMBLY

PART No. 4/&21 & 722
FINAL ASSEMBLY

OPERATION: ENGRAVE SERIAL NUMBER ON BOLT

OPER. No.: 1

## PROCESS RECORD

EQUIPMENT: Gorton ? U Engraver

SPEED.

FEED: HAND

MAX. PROD. PER HOUR:

COOLANT: None

| TOOLS & GAUGES | | TOOL HOLDERS, JIGS & FIXTURES | |
|---|---|---|---|
| TYPE | No. | TYPE | No |
| 1 Engraving Cutter | A 52926 | 1 Fixture | D 52915 |
| 1 Collet Bushing (Dwg. # B 80109W) | Gorton 29619 D | 1 Forming Guide | A 52947 |

LAW 1947

FINAL TECHNICAL PROCESS RECORD DATE .....

SKETCH

EQUALIZER

STOP

SERIAL NO.

NO WHEEL ON MACHINE

CLAMPS

OPERATOR

PLAN VIEW

COMPILED BY.

APPROVAL & DATE

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

REVISED 2-7-1946

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

TPR-9

| PART: FINAL ASSEMBLY | PART No. FINAL ASSEMBLY |
|---|---|
| OPERATION: ENGRAVE SERIAL NUMBER | OPER. No.: 1 |

ORSOLETE DEC 27 1945

## PROCESS RECORD

EQUIPMENT: Gorton 3U Engraver

SPEED:

FEED: Hand

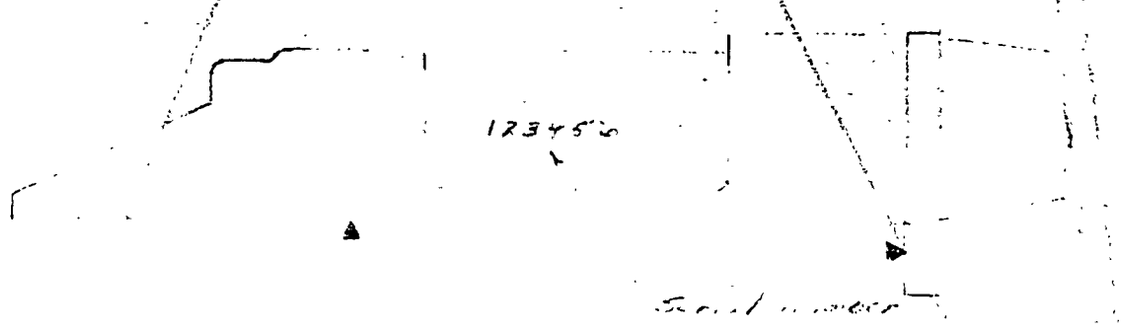
MAX. PROD. PER HOUR: 50

COOLANT: None

| TOOLS & GAUGES | | TOOL HOLDERS, JIGS & FIXTURES | |
|---|---|---|---|
| TYPE | No | TYPE | No |
| 1-Engraving Cutter | Purchase | 1-Fixture to locate on O.D. and barrel bracket | [redacted] |
| | | 1-Forming Guide | A-52347 |

SKETCH

new sheet fr. 12/70




| COMPILED BY: | APPROVAL & DATE: |
|---|---|

REMINGTON ARMS COMPANY, INC. REVISED AUG 26 1945


CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

R2527090

| PART: FINAL ASSEMBLY | PART No. FINAL ASSEMBLY |
|---|---|
| OPERATION: ENGRAVE SERIAL NUMBER | OPER. No.: 1 |

OBSOLETE

## PROCESS RECORD

EQUIPMENT: Gorton 3U Engraver

SPEED: FEED: Hand

MAX. PROD. PER HOUR: 50 COOLANT: None

| TOOLS & GAUGES | | TOOL HOLDERS, JIGS & FIXTURES | |
|---|---|---|---|
| TYPE | No. | TYPE | No. |
| 1. Engraving Cutter | Purchase | 1.- Fixture to locate on O.D. and barrel bracket | D-52332 |
| | | Forming Guide | A-52347 |

SKETCH

| COMPILED BY: | APPROVAL & DATE: |
|---|---|

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

TPR-9

| PART: 721-722 Final Assembly | PART No. Final Assembly |
|---|---|
| OPERATION: Engrave Serial Number | OPER. No.: 1 |

## PROCESS RECORD

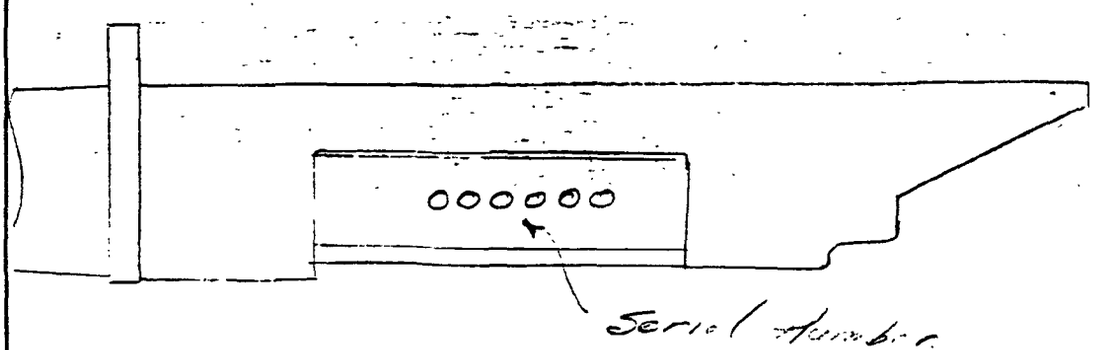
EQUIPMENT: Gorton Engraver

SPEED: FEED:

MAX. PROD. PER HOUR: COOLANT:

| TOOLS & GAUGES | | TOOL HOLDERS, JIGS & FIXTURES | |
|---|---|---|---|
| TYPE | No. | TYPE | No |
| Engraving Cutter | Purchased | Fixture Locates on O.D. of barrel bracket | Design |
| | | FORMING & Guide | Purchased |
| | | Numbering Head | Purchased |

SKETCH




| COMPILED BY: | APPROVAL & DATE: |
|---|---|

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

TPR-20

| PART: Final Assembly | PART No. |
|---|---|
| OPERATION: Assemble Follower Group 17115Y-721 17116Y-722 | OPER. No.: 2. |

1. Assemble Magazine Spring (17028-721) - (17891-722) and Follower (17027-721) - (17056-722).

Retyped
OBSOLETE
APR 22 1947

| COMPILED BY: MKS. | APPROVAL & DATE: |
|---|---|

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

TPK-20

PART: FINAL ASSEMBLY | PART No. FINAL ASSEMBLY

OPERATION: ASSEMBLE TRIGGER ASSEMBLY, BOLT STOP & RECEIVER | OPER. No.: 2

Revised OBSOLETE MAR 18 1947

PROCESS RECORD - ASSEMBLY

| STEP | TOOLS* | REMARKS |
|---|---|---|
| 1. Insert Trigger Assembly, 17036-Y. | | |
| 2. Start Bolt Stop Pin, 17037-W, and Sear Pin, 17037-V, from Right Side. | | |
| 3. Insert Bolt Stop Spring, 17014, and Bolt Stop, 17015. | | |
| 4. Drive out Dummy Pins with Bolt Stop Pin and Sear Pin. | | |
| 5. Insert Bolt and push safety on. | | There must be clearance between Sear and Trigger. |

* Use normal complement of Hand Tools to Assemble as Required.

FINAL TECHNICAL PROCESS RECORD DATE .....

MWD

COMPILED BY. | APPROVAL & DATE.

REMINGTON ARMS COMPANY, INC. ILION, N. Y.

REVISED AUG 26 1946

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON
R2527094

TPR-10

| PART: 721 + 722 Final Assembly | PART No. Final Assembly |
|---|---|
| OPERATION: Assemble Trigger Assembly, Bolt Stop + Receiver | OPER. No.: 2 |

## PROCESS RECORD

EQUIPMENT:

MAX. PROD. PER HOUR: COOLANT:

| STATION | | | TOOLS & GAUGES | | TOOL HOLDERS & FIXTURES | |
|---|---|---|---|---|---|---|
| STEPS | SPEED | FEED | TYPE | No. | TYPE | No. |
| 1.) Insert Trigger Assembly | | | | | | |
| 2.) start fire Control Hole Pins from right side. | | | Hammer | | | |
| 3.) Insert bolt stop spring + bolt stop | | | | | | |
| 4. Drive out Dummy Pins with fire Control Hole Pins. | | | Hammer + Drift Punch | | | |
| 5. Insert bolt + push [illegible] "in". Check to make sure there is clearance between [illegible] + trigger. | | | | | | |

COMPILED BY: APPROVAL & DATE:

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

See A 1

| PART: FINAL ASSEMBLY | PART No. FINAL ASSEMBLY |
|---|---|
| OPERATION: FINAL CHAMBER REAMING | OPER. No.: 3 |

## PROCESS RECORD

EQUIPMENT: Special Chambering Machine

SPEED: FEED: Hand

MAX. PROD. PER HOUR: COOLANT:

| TOOLS & GAUGES | | TOOL HOLDERS, JIGS & FIXTURES | |
|---|---|---|---|
| TYPE | No. | TYPE | No. |
| .257 Robts. | C-52094 | | |
| .300 Sav. | C-52095 | | |
| Chamber Heading Dummy Master for Cdg. Rim C'bore .300 H & H Mag. | B-52096 4 | | |
| Chamber Heading Dummy Master for Shoulder .300 H & H Mag. | C-52097 | | |
| Taper Test Plug for Master .30-06 Added use | | | |
| .270 Win. | C-52093W | | |
| .257 Robts. | C-52094W | | |
| .300 Sav. | C-52095W | | |
| .300 H & H Mag. for Ctg. Rim Counterbore Shoulder | C-52097W | | |

COMPILED BY: APPROVAL & DATE:

REMINGTON ARMS COMPANY, INC. REVISED OCT 18 1946;

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

FPR-6

| PART: FINAL ASSEMBLY | PART No. FINAL ASSEMBLY |
|---|---|
| OPERATION: FINAL CHAMBER REAMING | OPER. No.: 3 |

Changed Reamed by Anil 4-9-47

## PROCESS RECORD

EQUIPMENT: Special Chambering Machine

SPEED: FEED: Hand

MAX. PROD. PER HOUR: COOLANT:

| TOOLS & GAUGES | | TOOL HOLDERS. JIGS & FIXTURES | |
|---|---|---|---|
| TYPE | No. | TYPE | No. |
| Reamer: | B53277 | Reamer Tube: | |
| .30-06 | ~~C-51591~~ | .30-06, .300 H & H Mag., .300 Sav. | B-90098W |
| .257 Robts. | ~~C-51886~~ | | |
| .270 Win. | ~~C-51887~~ | | |
| .300 H & H Mag. | ~~C-51888~~ | .270 Win | N-90098V |
| | | .257 Robts. | B-90098U |
| .300 Sav. | ~~C-51889~~ | | |
| | | Fixture | B-51580 |
| Hand Reamer Assembly | | | |
| .300 H & H Mag. Ctge. Rim Counterbore, | C-52431 | | |
| Heading Dummy | | | |
| .30-06 & Added Use | | | |
| .270 Win. | | | |
| Go | B-51995W | | |
| No Go | B-51995V | | |
| .257 Robts. | | | |
| Go | B-52086W | | |
| No Go | B-52086V | | |
| .300 Sav. | | | |
| Go | B-51994W | | |
| No Go | B-51994V | | |
| .300 H & H Mag. Ctge. Rim Counterbore | | | |
| Go | B-52084W | | |
| No Go | B-52084V | | |
| .300 H & H Mag. Shoulder | | | |
| Go | B-52085W | | |
| .300 H & H Mag. No Go | B-52085V | | |
| Chamber Heading Dummy | | | |
| Master | | | |
| .30-06 & Added Use | | | |
| .270 Win. | C-52093 | | |

| COMPILED BY: | APPROVAL & DATE: 7-11-47 |
|---|---|

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

H. H. SULLIVAN, INC.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

R2527097

Sheet 3

| PART: FINAL ASSEMBLY | PART No. FINAL ASSEMBLY |
|---|---|
| OPERATION: FINAL CHAMBER REAMING | OPER. No.: 3 |

## PROCESS RECORD

EQUIPMENT: Special Chambering Machine

SPEED: FEED: Hand

MAX. PROD. PER HOUR: COOLANT:

3/31/47 ELD

| TOOLS & GAUGES | | TOOL HOLDERS, JIGS & FIXTURES | |
|---|---|---|---|
| TYPE | No. | TYPE | No. |
| Reamer: | | Reamer Tube: | |
| .30-06 | C-51591 | .30-06, .300 H & H Mag., .300 Sav. | B-90098W |
| .257 Robts. | C-51886 | | |
| .270 Win. | C-51887 | .270 Win | N-90098V |
| .300 H & H Mag. | C-51888 | .257 Robts. | B-90098U |
| .300 Sav. | C-51889 | | |
| | | Fixture | B-51580 |
| Hand Reamer Assembly | | T95 8/29/46 | |
| .300 H & H Mag. Ctge. Rim Counterbore | C-52431 | | |
| Heading Dummy | | | |
| .30-06 & Added Use | | | |
| .270 Win. | | | |
| Go | B-51995W | C-52031 | |
| No Go | B-51995V | | |
| .257 Robts. | | | |
| Go | B-52086W | | |
| No Go | B-52086V | | |
| .300 Sav. | | | |
| Go | B-51994W | | |
| No Go | B-51994V | | |
| .300 H & H Mag. Ctge. Rim Counterbore | | | |
| Go | B-52084W | | |
| No Go | B-52084V | | |
| .300 H & H Mag. Shoulder | | | |
| Go | B-52085W | | |
| .300 H & H Mag. No Go | B-52085V | | |
| Chamber Heading Dummy Master | | | |
| .30-06 & Added Use | | | |
| .270 Win. | C-52093 | | |

| COMPILED BY: | APPROVAL & DATE: |
|---|---|

REVISED Oct 18 1946

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

R2527098

| PART: 721-722 Final Assembly | PART No. Final Assy. |
|---|---|
| OPERATION: Machine Chamber | OPER. No.: 3 |

## PROCESS RECORD

EQUIPMENT: Special Machine (Design)

SPEED: FEED:

MAX. PROD. PER HOUR: COOLANT:

| TOOLS & GAUGES | | TOOL HOLDERS, JIGS & FIXTURES | |
|---|---|---|---|
| TYPE | No. | TYPE | No |
| 1 Special Reamer for following calibers<br>300 Sav.<br>257 Roberts<br>270 Win.<br>300 Mag.<br>30-06 | Design | 1- Fixture<br>1- Set Mat & Min. Heating Plugs for same Calibers. | Design<br>Available |

SKETCH

| COMPILED BY: | APPROVAL & DATE: |
|---|---|

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

TPR-10

PART: Final Assembly. | PART No. —

OPERATION: Assemble Firing Pin Group 17223YW-721 17223YV-722 | OPER. No.: 4

## PROCESS RECORD

EQUIPMENT: Delta Drill Press #17-510 with Turret Head

MAX. PROD. PER HOUR: | COOLANT:

| STATION | | | TOOLS & GAUGES | | TOOL HOLDERS & FIXTURES | |
|---|---|---|---|---|---|---|
| STEPS | SPEED | FEED | TYPE | No. | TYPE | No. |
| 1. Assemble Firing Pin (17021W-721) (17021V-722) Main Spring (17029W-721) (17029V-722) Bolt Plug (17012) and Firing Pin Head (17023) | | | | | | |
| 2. Compress in fixture | | | | | Fixture | D5-2025 |
| 3. Drill and Ream Firing Pin Cross Pin Hole | 3000 Hand | | #43 IDrill (B-90054M) | Std | Fixture #32 Jacobs Chuck (B-90085V) | D52025 Std |
| | | | .0934 Reamer (B-90079T) | Std RS4 | | |
| 4. Insert Firing Pin Cross Pin (17022) | | | | | | |
| 5. Insert U clamp | | | U clamp | B5-2037 | | |
| 6. Remove from fixture | | | | | | |

COMPILED BY: MKS | APPROVAL & DATE:

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

OBSOLETE APR 22 1941

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

TPR-20

| PART: FINAL ASSEMBLY | PART No. FINAL ASSEMBLY |
|---|---|
| OPERATION: ASSEMBLE SIGHTS | OPER. No.: 4 |

OBSOLETE MAR 18 1947

PROCESS RECORD - ASSEMBLY

| STEP | TOOLS * | REMARKS |
|---|---|---|
| 1. Insert Front Sight, 17026, ~~flush with~~ center on Ramp | | Must be tight in Dovetail |
| 2. Insert Rear Open Sight Assembly, 17030-Y, and Open Sight Step, 17033-W | | Must be tight in Dovetail |

* Use normal complement of Hand tools to Assemble as required.

FINAL TECHNICAL PROCESS RECORD DATE ....

| COMPILED BY: | APPROVAL & DATE: |
|---|---|

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

REVISED AUG 26 1946

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

R2527101

| PART: FINAL ASSEMBLY | PART No. FINAL ASSEMBLY |
|---|---|
| OPERATION: ASSEMBLE SIGHTS | OPER. No.: 4 |

PROCESS RECORD - ASSEMBLY

| STEP | TOOLS * | REMARKS |
|---|---|---|
| 1. Insert Front Sight, 17026, ~~Elevator~~ with Ramp | Vise Jaws C-53325 | Must be tight in Dovetail |
| 2. Insert Rear Open Sight Assembly, 17030-Y, and Open Sight Step, 17033-W | Vise Jaws C-53325 4/18/47 | Must be tight in Dovetail |

* Use normal complement of Hand tools to Assemble as required.

FINAL TECHNICAL PROCESS RECORD DATE MAR 18 1947

| COMPILED BY: | APPROVAL & DATE: |
|---|---|

REMINGTON ARMS COMPANY, INC., ILION, N.Y.

REVISED MAR 18 1947

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

R2527102

TPB-10

PART [redacted] Barrel Assembly | PART No [redacted]

OPERATION ASSEMBLE | OPER No 3 4

## PROCESS RECORD

EQUIPMENT Delta Single Spindle Drill Pre #17-21C Plus Turret Head

MAX PROD PER HOUR | COOLANT Soluble Oil

| STATION | | | TOOLS & GAUGES | | TOOL HOLDERS & FIXTURES | |
|---|---|---|---|---|---|---|
| STEPS | SPEED | FEED | TYPE | No | TYPE | No |
| 1-Assemble Firing Pin 17021-W,V Main Spring 17029-W,V Bolt Plug-17012 | | | | | | |
| ~~2-Compress Main Spring 17029-W,V and Bolt Plug-17012~~ | | | | | 1-Fixture | D52025 |
| 3-Insert Firing Pin Head-17023 [redacted]. | | | "U" Clamp | B52037 | 1-Fixture | D52025 |
| 4-Drill and Ream Firing Pin Hole through Firing Pin Head | 3000 | Hand | #43 H.S.S. Drill 0.0934 Reamer | B90054H B90079T | 1-Fixture 1-#32 Jacobs Chuck | D-52025 B90085V |
| 5-Insert Firing Pin Cross Pin 17022 | | | | | 1-Fixture | D-52045 |
| 6 Remove from fixture | | | | | | |

AUTHORIZED TEMPORARY APR 10 19[illegible]

COMPILED BY | APPROVAL & DATE MFJ 5/20/46

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

TPR-10

| PART: 721-722 Final Assembly | PART No. Final Assembly |
|---|---|
| OPERATION: Assemble Sights | OPER. No.: 4 |

OBSOLETE

## PROCESS RECORD

EQUIPMENT:

MAX. PROD. PER HOUR: COOLANT:

| STATION | | | TOOLS & GAUGES | | TOOL HOLDERS & FIXTURES | |
|---|---|---|---|---|---|---|
| STEPS | SPEED | FEED | TYPE | No | TYPE | No |
| 1.) Insert front sight flush with ramp. | | | Fiber hammer | | | |
| 2.) Insert Rear open sight and open sight step | | | Fiber Hammer | | | |

COMPILED BY: APPROVAL & DATE:

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

TPR-20

PART: FINAL ASSEMBLY | PART No. FINAL ASSEMBLY

OPERATION: FINAL ASSEMBLY | OPER. No.: 5

Revised OBSOLETE MAR 18 1947

PROCESS RECORD - ASSEMBLY

| STEP | TOOLS * | REMARKS |
|---|---|---|
| 1. Check and set Trigger Pull at 4 to 5 lbs. | | |
| 2. Position Stock 17035-W - Bottomed | | Check that barrel bracket lug contacts back of recoil shoulder in stock |
| 3. Insert Magazine and Follower Assembly, 17115. | | |
| 4. Insert Trigger Guard, 17054-W and Trigger Guide Plate, 17055. | | |
| 5. Insert Front Guard Screw, 17025-W and Rear Guard Screw, 17025-V., Guard screw 17580 | | |
| 6. Insert Receiver Plug Screws (4), 17034. | | |
| 7. Tighten Butt Plate Screws. | | |

* Use normal complement of Hand tools to Assemble as Required.

FINAL TECHNICAL PROCESS RECORD DATE ....

COMPILED BY: | APPROVAL & DATE:

REMINGTON ARMS COMPANY, INC., [illegible]

REVISED AUG 26 1948

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON
R2527105

TPR-10

| PART: 721-722 Final Assembly | PART No. Final Assembly |
|---|---|
| OPERATION: Final Assembly | OPER. No.: 5 |

OBSOLETE

## PROCESS RECORD

EQUIPMENT:

MAX. PROD. PER HOUR: COOLANT:

| STATION | | | TOOLS & GAUGES | | TOOL HOLDERS & FIXTURES | |
|---|---|---|---|---|---|---|
| STEPS | SPEED | FEED | TYPE | No. | TYPE | No. |
| 1) Check and set trigger pull at 4-5# | | | Trigger Scale 1/8" Screw Driver | | | |
| 2) Position stock | | | | | | |
| 3. Insert magazine follower + spring | | | | | | |
| 4 Insert floor plate, Trigger guide plate, + Trigger guard | | | | | | |
| 5 Insert fast + rear stock screws | | | 1/4" Hole Screw Driver | | | |
| 6) Insert hole escape plug screws | | | 1/8" Hole Screw Driver | | | |
| 7) Tighten set hole screws | | | 1/4" Hole Screw Driver | | | |

COMPILED BY: APPROVAL & DATE:

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

Retyped APR 22 1947

PART: ~~TRIGGER GUARD~~ Trigger Assembly. PART No. [redacted]

OPERATION: ~~ASSEMBLY~~ Assemble Trigger Group 17036Y OPER. No.: 6

| STEP | TOOL & GAGES TYPE | NO. | REMARKS |
|---|---|---|---|
| 1. Insert Trigger 17048 in Housing 17039 and install Trigger Pin 17037 | | | Pin must be flush |
| 2. Install Trigger Connector 17050 | | | |
| 3. Install Trigger Stop Screw 17053 | | | |
| 4. Install Trigger Adjusting Screw 17049 Butt End. | | | |
| 5. Install Trigger Adjusting Screw 17049 front End, and Trigger Spring 17978 | | | |
| 6. Assemble following:<br>a. Bolt Stop Release 17038<br>b. Safety Pivot Pin 17043<br>c. Safety 17040<br>d. Safety Detent Ball 17041<br>e. Safety Detent Spring 17042<br>f. Safety Snap Washer 17044 | | | |
| 7. Install Sear 17946, Safety Cam 17495, Sear Spring 17047 and dummy pins. | Dummy Pins | A-51468 | |
| 8. Adjust Butt End Trigger Adjusting screw | | | Apply pressure on Sear and tighten screw until Sear falls then back up 1/4 turn. |
| 9. Adjust Trigger Stop Screw | | | Tighten Trigger Stop Screw until Trigger will not disengage Sear. Apply pressure on Sear and Trigger and back up Trigger Stop Screw until Sear falls. |
| *Use normal complement of hand tools to perform above assembly. | | | |

FINAL TECHNICAL PROCESS RECORD DATE MAR 20 1947

COMPILED BY. M.H.Smith 3-18-47 APPROVAL & DATE:

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

H. H. SULLIVAN, INC.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON
R2527107

TPR-9

| PART: FINAL ASSEMBLY | PART No. M/721 & 722 FINAL ASSEMBLY |
|---|---|
| OPERATION: MARK SERIAL NUMBER ON BOLT | OPER. No.: 6 |

Obsolete Revised 4-9-47

## PROCESS RECORD

EQUIPMENT: Gorton 3-U Engraver

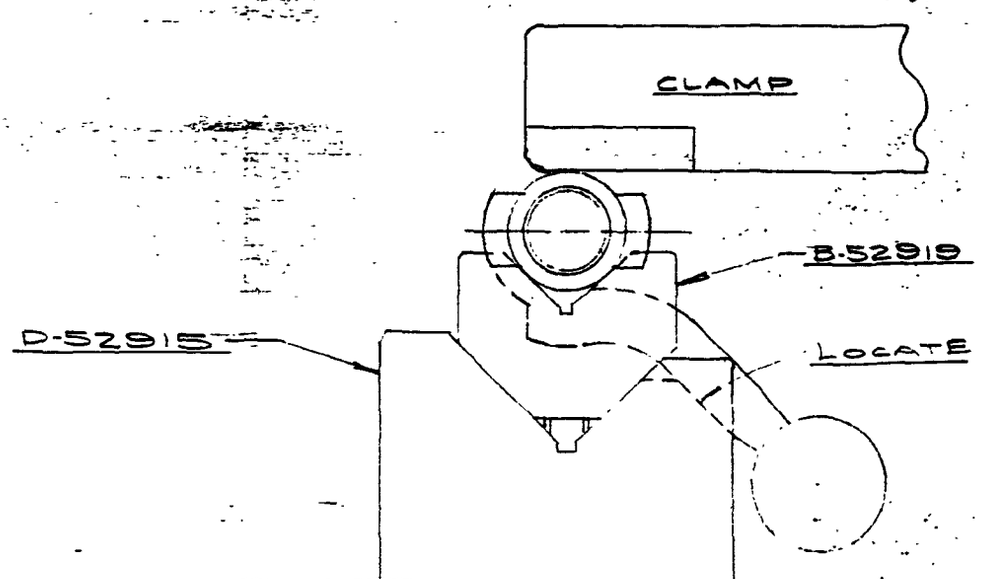
SPEED: FEED: Hand

MAX. PROD. PER HOUR: 50 COOLANT: None

| TOOLS & GAUGES | | TOOL HOLDERS, JIGS & FIXTURES | |
|---|---|---|---|
| TYPE | No. | TYPE | No. |
| 1-Engraving Cutter | A-52926 | 1-Fixture | D-52915 |
| 1-Collet Bushing (Dwg. # B-80129W) | Gorton #9619-D | 1-Adapter | B-52919 |
| | | 1-Forming Guide | A-52925 |

NOTE: After Serial No. is engraved, Final Assembly operation on Bolt should be performed per Process Record for Part # 17255Y out.

SKETCH




| COMPILED BY: | APPROVAL & DATE: |
|---|---|
| | 12/27 |

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

| PART: FINAL ASSEMBLY | PART No. M/721 & 722 FINAL ASSEMBLY |
|---|---|
| OPERATION: MARK SERIAL NUMBER ON BOLT | OPER. No.: 6 |

OBSOLETE MAR 18 1947

## PROCESS RECORD

EQUIPMENT: Gorton 3 U Engraver

SPEED:

FEED: Hand

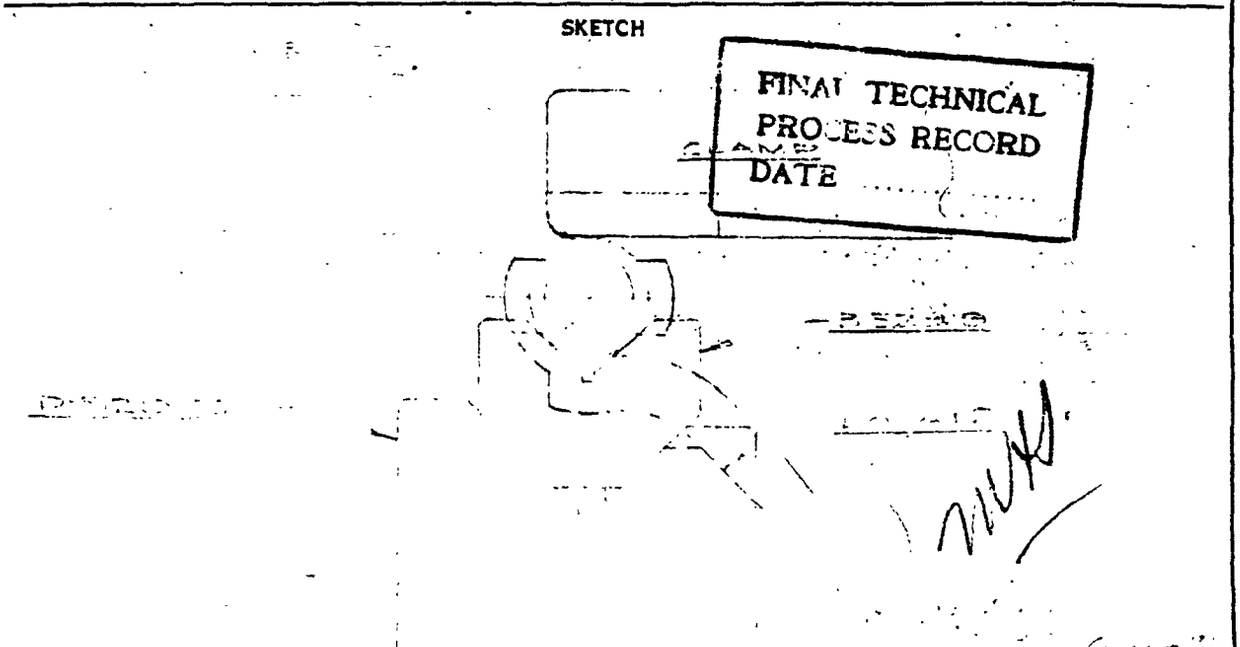
MAX. PROD. PER HOUR: 50

COOLANT: None

| TOOLS & GAUGES | | TOOL HOLDERS, JIGS & FIXTURES | |
|---|---|---|---|
| TYPE | No. | TYPE | No |
| 1 Engraving Cutter | A 52926 | 1 Fixture | D-52915 |
| 1 Collet Bushing (Dwg. 4 B 80109W) | Gorton #9619 D | 1 Adapter | B-52919 |
| | | 1 Forming Guide | A-52925 |

Note after serial no. is engraved, Final assembly operation on bolt should be performed per Process Record for part # 17255Y

SKETCH




COMPILED BY:

APPROVAL & DATE

REMINGTON ARMS COMPANY, INC. REVISED DEC 27 1946

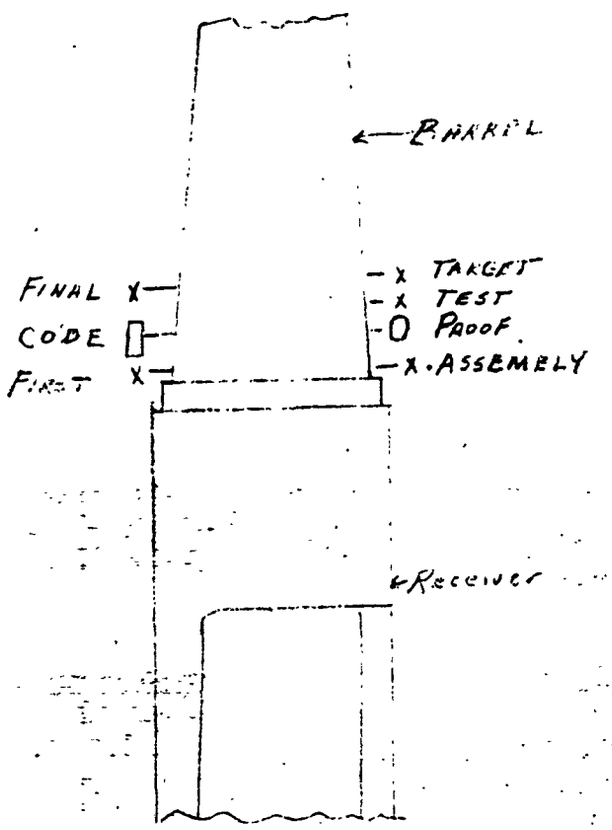

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

R2527109

| PART: FINAL ASSEMBLY | PART No. FINAL ASSEMBLY |
|---|---|
| OPERATION: FIRST INSPECTION<br>TARGET & TEST<br>FINAL INSPECTION | OPER. No.: |

PROCESS RECORD — ILLUSTRATION SKETCH

LOCATION OF ASSEMBLY, INSPECTION, &
CODE STAMPS




| COMPILED BY: | APPROVAL & DATE. |
|---|---|

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

H. H. SULLIVAN INC.

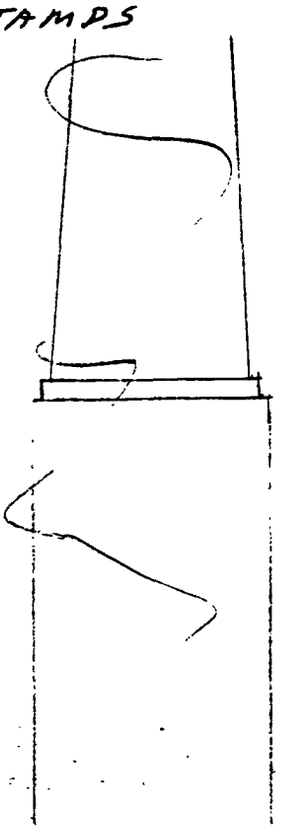
CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

TPR-7

| PART: FINAL ASSEMBLY | PART No. FINAL ASSEMBLY |
|---|---|
| OPERATION: FIRST INSPECTION TARGET & TEST FIDAL INSPECTION IV | OPER. No.: |

PROCESS RECORD — ILLUSTRATION SKETCH

LOCATION OF ASSEMBLY, INSPECTION & CODE STAMPS



| COMPILED BY: | APPROVAL & DATE: |
|---|---|

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

H. H. SULLIVAN INC.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

TPR-11

ORCHETE
REVISED APR 8 1947

| PART: FINAL ASSEMBLY | PART No. |
|---|---|
| OPERATION: FIRST INSPECTION | OPER. No.: 10 |

## PROCESS RECORD — INSPECTION

| GAUGES TYPE | GAUGES No. | USE | LIMITS MAX. | LIMITS MIN. |
|---|---|---|---|---|
| 11. Outside Appearance. | | | | |
| a. Barrel | Visual | 1. Color Uniform<br>2. No serious mars or scratches<br>3. Marking clear.<br>4. Rifling Present | | |
| b. Sights | Visual | 1. Color Uniform<br>2. No serious mars or scratches<br>3. Front Sight Ramp<br>(a) Sides smooth-no vertical lines<br>(b) Serrated<br>(c) [redacted] Brass Visible To Regular Standard<br>(d) Sight tight in dovetail<br>4. Rear Sight tight in dovetail | | |
| Feeler Gage | | (a) Opening Under Front End of rear sight at Barrel<br>(b) No circular groove at weld | .015 | |
| c. Receiver | Visual | 1. Uniform Color c. Spring tension on step. b. Step can be moved & set<br>2. No serious mars or scratches<br>3. All edges smooth not sharp<br>4. Marking clear-not too deep<br>5. Plug Screws in Place. Side plug screw 1/2 visible<br>6. Gas hole present and fully visible<br>7. Top of rear tang & bolt handle stop smooth-Match rest of Receiver<br>8. Sides of ejection port and rails smooth-Match well with rest of Receiver | | |
| d. Stock | Visual | 1. No checks or mutilation that cannot be removed at Final<br>2. No sharp edges | | |
| Feeler Gages | | 3. Barrel & Receiver Space uniform | even [redacted].030 | |
| | | 4. Margin at right side rail wood [redacted] | | |
| | | steel | .020 | |
| | | 5. Margin around tang wood | .020 | |
| | | both sides even steel | .005 | |
| uniform appearance. Must be some opening | | 6. Gap at rear of Trigger Guard | [redacted] | [redacted] |
| | | 7. Margin at Trigger Guide Plate | | |
| | | Good uniform appearance ~~wood~~ | ~~.010~~ | |
| | | ~~steel~~ | ~~.010~~ | |

| COMPILED BY: | APPROVAL & DATE: |
|---|---|
| | MW 3/20/47 |

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

M M SULLIVAN INC

OBSOLETE REVISED APR 8 1941

| PART: FINAL ASSEMBLY | PART No. |
|---|---|
| OPERATION: FIRST INSPECTION | OPER. No.: 10 |

PROCESS RECORD — INSPECTION

| GAUGES | | USE | LIMITS | |
|---|---|---|---|---|
| TYPE | No. | | MAX. | MIN. |
| | | 8. Bolt must seat on Receiver & clear wood | | |
| | | 9. Barrel should bed at muzzle end of Stock | | |
| e. Butt Plate | Visual | 1. Uniform Color | | |
| | | 2. No rough edges | | |
| | | 3. Screws tight | | |
| f. Trigger Guard | Visual | 1. Uniform Color. Direction of polish lines uniform | | |
| | | 2. No serious mars or scratches | | |
| | | 3. Magazine Bottom tight on Stock | | |
| | | 4. Guard Screws tight Heads flush or below guard | | |
| g. TRIGGER | | 5. Clearance of Trigger & Guard | | .090 |
| 2. Function | | 1. Visual: finish, color etc | | |
| a. Heading | | 1. All calibers - Min. | | |
| Nim 30-06 | C-52093W | Insert heading plug in chamber. Bolt should lock. | | |
| .300 Sav. | C-52095W | Accept if snug | | |
| .300 Mag. | C-52097W | | | |
| .270 Win. | C-52093W | 2. All calibers - Max. | | |
| .257 Rob. | C-52094W | Insert in chamber and close action. Bolt Handle must | | |
| Max. 30-06 | C-52093V | stand. | | |
| .300 Sav. | C-52095V | | | |
| .300 Mag. | C-52097V | | | |
| .270 Win. | C-52093V | | | |
| .257 Rob. | C-52094V | | | |
| b. Action | | 1. Load 2 dummies into magazine and depress full depth with wood plug and release quickly Dummy must not jump past receiver Rail. | | |
| | | 2. Load 2 more dummies to fill magazine. Depress cartridges. Bolt must pass over top dummy but not clearance enough to allow 5 dummies in magazine. | | |
| | | 3. Place 1 dummy in chamber. Feed dummy from magazine. Point of bullet from magazine must not strike primer of dummy in chamber. Push 2nd dummy back into magazine. Depress dummies in magazine and close | | |

| COMPILED BY: | APPROVAL & DATE: MWS 3/25/47 |
|---|---|

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

H. H. SULLIVAN, INC.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

TPR-11

OBSOLETE REV: D APR 8 1947

| PART: FINAL ASSEMBLY | PART No. |
|---|---|
| OPERATION: FIRST INSPECTION | OPER. No.: 10 |

PROCESS RECORD — INSPECTION

| GAUGES | | USE | LIMITS | |
|---|---|---|---|---|
| TYPE | No. | | MAX. | MIN. |
| | | bolt. Bolt must ride over dummy-no bind. | | |
| | | 4. Operate bolt. Must eject dummy in chamber and feed and eject all dummies properly at normal speed without missed feeds, binding or stemming at top of chamber. | | |
| b. Action (Cont.) | | 5. Operate Bolt 3 times empty and fire-no bind, Bolt Handle must raise and lower easily. | | |
| | | 6. Apply pressure on Bolt Handle up and down-must not cramp or bind. | | |
| | | 7. Close Bolt-must cam Follower down WITHOUT cutting | | |
| | | 8. Open and close Bolt forcibly 3 times-Firing Pin must not follow down. | | |
| | | 9. Hold Bolt Handle down and pull Trigger-gun must fire instantly, no lag due to Firing Pin bind. | | |
| | | 10. Cock gun and drop Bolt approx. 6" to floor. Must not fire until Trigger is pulled. | | |
| | | 11. Check Safety. Should snap in Detent in both off and on position. Should work no harder than sample. Must clear wood. No sharp edges. Bolt must not open on Safe. Safe on-pull Trigger-must not fire-release safe-must not fire until Trigger is pulled. | — | |
| | | 12. Check Trigger pull-no perceptible creep or bind. | 6# | 4# |
| | | 13. Depress Bolt Stop Release and remove Bolt | | |
| 3. Bolt | | | | |
| a. Bolt Plug | Visual | 1. Finish<br>(a) Uniform color<br>(b) No serious mars or scratches | | |

| COMPILED BY: | APPROVAL & DATE: TWO 3/26/47 |
|---|---|

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

R2527114

TPR-11

PART: FINAL ASSEMBLY | PART No.

OPERATION: FIRST INSPECTION | OPER. No.: 10

## PROCESS RECORD — INSPECTION

| GAUGES | | USE | LIMITS | |
|---|---|---|---|---|
| TYPE | No. | | MAX. | MIN. |
| | | 2. Fit-Rotational Clearance of Bolt Plug on Firing Pin Head must permit match at end of Bolt Handle a left rear of Bolt with flat on Bolt Plug. | | |
| b. Firing Pin Head | Visual | 1. Finish<br>(a) Color bright<br>(b) No serious mars or scratches<br>2. No sharp edges | | |
| c. Bolt Body AND HANDLE | Visual | 1. Finish<br>(a) Bright<br>(b) No serious mars or scratches<br>(c) Back of Bolt Lugs must be smooth, no burrs<br>(d) No brass visible except thin line at joints. | | |
| d. Bolt Head | Visual | 1. Finish<br>(a) Bright<br>(b) No serious mars or scratches<br>(c) Gas escape hole present. | | |
| e. Extractor | Visual | 1. Tension-no bind-use dummy to check if Extractor receives shell head without bind.<br>2. Check claw for sharp edge<br>3. Claw opposite Ejector. CHECK ejector pin for tightness | | |
| f. Firing Pin | | 1. Release Firing Pin Head by turning Bolt Plug. Check Firing Pin Point-no mars. | | |
| Flush Pin | B-52089 | 2. Check Firing Pin protrusion<br>3. Recock Firing Pin and replace in gun.<br>4. Pull Bolt back. Bolt stop must hold. | .075 | .045 |
| 4. Mark and Check Tags etc. | | 1. See that gun is empty<br>2. Check for Assembly stamp<br>3. Match spec. tag with gun<br>(a) Caliber<br>(b) [redacted]<br>(c) Model No.<br>(d) Serial No.<br>(e) Barrel Length | | |

COMPILED BY:

APPROVAL & DATE: [illegible] 3/28/47

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

H. H. SULLIVAN, INC.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON
R2527115

TPR-11

OBSOLETE
REVISED APR 8 1947

| PART: FINAL ASSEMBLY | PART No. |
|---|---|
| OPERATION: FIRST INSPECTION | OPER. No.: 10 |

PROCESS RECORD — INSPECTION

| GAUGES | | USE | LIMITS | |
|---|---|---|---|---|
| TYPE | No. | | MAX. | MIN. |
| | | (f) Grade<br>4. All markings clear and legible<br>5. Check for agreement of Bolt and Receiver Serial Numbers.<br>6. Stamp First Inspection mark (see Sketch)<br>7. Send to Target and Test. | | |

| COMPILED BY: | APPROVAL & DATE: 3/26/47 |
|---|---|

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

| PART: FINAL ASSEMBLY | PART No. [redacted] |
|---|---|
| OPERATION: TARGET AND TEST | OPER. No.: 10 |

PROCESS RECORD — INSPECTION

| GAUGES TYPE | GAUGES No | USE | LIMITS MAX. | LIMITS MIN. |
|---|---|---|---|---|
| Proof Test | | 1. Visual for First Inspection mark.<br>2. Fire one proof cartridge. Check for cracks, distortion etc.<br>3. Stamp proof mark on barrel (see sketch) | | |
| Align Sights and Target Gun | | 1. Check for proof marks.<br>2. Place muzzle through port<br>3. Load 4 cartridges in magazine and one in chamber and fire to align sights. Check for feeding, extraction, ejection<br>4. Check tightness of sights<br>5. Fire 5 shots at 100 yards. All shots within 3" circle.<br>6. Stamp Target and Test mark (see sketch) | | |

all sheets
Obsolete
MWH 4/15/47

COMPILED BY:

APPROVAL & DATE: MWH 1-1-47

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

R2527117

TPR-61

OBSOLETE APR 15 1941

| PART: FINAL ASSEMBLY | PART No. |
|---|---|
| OPERATION: TARGET AND TEST | OPER. No.: 10 |

PROCESS RECORD — INSPECTION

| GAUGES | | USE | LIMITS | |
|---|---|---|---|---|
| TYPE | No. | | MAX. | MIN. |
| Proof Test | | 1. Visual for First Inspection mark.<br>2. Fire one proof cartridge. Check for cracks, distortion etc.<br>3. Stamp proof mark on barrel (see sketch) | | |
| Align Sights and Target Gun | | 1. Check for proof marks.<br>2. Place muzzle through port<br>3. Load 4 cartridges in magazine and one in chamber and fire to align sights. Check for feeding, extraction, ejection<br>4. Check tightness of sights<br>5. Fire 5 shots at 100 yards. ~~All shots within 3" circle~~.<br>6. Stamp Target and Test mark (see sketch) | 3½" | GROUP |

* One flyer acceptable if felt to be caused by holding. (Same as M/81-141)

| COMPILED BY: | APPROVAL & DATE: JWR 5/15/41 |
|---|---|

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

TPR-11

PART: FINAL ASSEMBLY | PART No.

OPERATION: FIRST INSPECTION | OPER. No.: 1

## PROCESS RECORD — INSPECTION

| GAUGES TYPE | GAUGES No. | USE | LIMITS MAX. | LIMITS MIN. |
|---|---|---|---|---|
| d. Stock (Cont.) | | 5. Margin around Tang wood<br>both sides even steel | .020<br>.005 | |
| | | 6. Gap at rear of Trigger Guard uniform appearance. ~~Must be some opening~~ | | |
| | | 7. Margin at Trigger Guide Plate Good uniform appearance | | |
| | | 8. Bolt must seat on Receiver & clear wood | | |
| | | 9. Barrel should bed at Muzzle end of Stock | | |
| e. Butt Plate | Visual | 1. Uniform color<br>2. No rough edges<br>3. Screws tight | | |
| f. Trigger Guard | Visual | 1. Uniform color. Direction of polish lines uniform<br>2. No serious mars or scratches<br>3. Magazine Bottom tight on Stock<br>4. Guard Screws tight Heads flush or below Guard<br>5. Clearance of Trigger & Guard | | .040 |
| g. Trigger | | 1. Visual - Finish, color etc. | | |
| 2. Function | | | | |
| a. Heading | | 1. All calibers - Min. Insert Heading Plug in Chamber. Bolt should lock. Accept if snug | | |
| Min. 30-06 | C-52093W | | | |
| .300 Sav. | C-52095W | | | |
| .300 Mag. | C-52097W | | | |
| .270 Win. | C-52093W | | | |
| .257 Rob. | C-52094W | | | |
| Max. 30-06 | C-52093V | 2. All calibers - Max. Insert in chamber and close action. Bolt Handle must stand | | |
| .300 Sav. | C-52095V | | | |
| .300 Mag. | C-52097V | | | |
| .270 Win. | C-52093V | | | |
| .257 Rob. | C-52094V | | | |
| b. Action | | 1. Load 2 dummies into Magazine and depress full depth with wood plug and release quickly Dummy must not jump past Receiver Rail. | | |
| | | 2. Load 2 more dummies to fill Magazine. Depress cartridges Bolt must pass over top dummy | | |

Absolute Remove Butt Plate 4-10-47

COMPILED BY: | APPROVAL & DATE: 4-10-41-147

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

H. H. SULLIVAN, INC.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON
R2527119

| PART: FINAL ASSEMBLY | PART No. Final Assembly |
|---|---|
| OPERATION: FIRST INSPECTION | OPER. No.: 10 |

ONSOLETE REVISED MAR 25 1947

## PROCESS RECORD — INSPECTION

| GAUGES TYPE | GAUGES No | USE | LIMITS MAX. | LIMITS MIN |
|---|---|---|---|---|
| Trigger Guard | Visual | 1. Finish<br>a. Uniform color<br>b. No serious mars or scratches<br>~~2. No bow in trigger guard~~ ?<br>Check for tight. Should be flush or below Trigger must clear guard bow. | | |
| Guard Screws<br>Receiver | Visual | 1. Finish<br>a. Uniform Color<br>b. No serious mars or scratches<br>2. All exposed edges should be ~~chamfered~~. smooth - not sharp (Broken)<br>3. Scope screws ~~holes~~ present ? - (all position [illegible])<br>4. Firing pin head slot - free of multilation. Rear guard screw flush [illegible]<br>5. Magazine edge must be below bullet ramp edge.<br>Gas hole present & fully visible | | |
| Bolt Plug | Visual | 1. Finish<br>a. Uniform color<br>b. No serious mars & scratches<br>2. Fit - Rotational clearance of bolt plug on F.P. Head must permit match at end of bolt handle at left rear of bolt with flat on bolt plug. | | |
| Firing Pin Head | Visual | 1. Finish<br>a. Uniform Color<br>b. No serious mars or scratches<br>2. No sharp edges. - ? | | |
| Bolt | Visual | 1. Finish<br>a. Must be bright<br>b. No serious mars or scratches<br>c. Back of bolt lugs must be ~~ground finish~~ smooth ? no bow<br>d. No brass visible except in corners of brazed joints. - ? | | |

Remove Bolt

COMPILED BY S. H. Quist

APPROVAL & DATE.

REVISED AUG 26 1946

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

R2527120

PART: FINAL ASSEMBLY | PART No. FINAL ASSEMBLY

OPERATION: FIRST INSPECTION | OPER. No. 10

OBSOLETE REVISED MAR 25 1947

## PROCESS RECORD — INSPECTION

| GAUGES | No. | USE | LIMITS Max | LIMITS Min. |
|---|---|---|---|---|
| | | 3. Rear Sight (Cont.) b. Both Sights aligned, square & central with Butt. | | |
| Feeler Gage | | 4. Opening under front end or rear sight at barrel. | 0.015 | |
| Assembly Heading Plugs | | 1. All calibers - Min. Insert Heading Plug in Chamber and close Action Bolt should lock - accept if snug. | | |
| Min. .30-06 | C-52093W | | | |
| .300 Sav. | C-52095W | | | |
| .300 Mag. | C-52097W | | | |
| .270 Win. | C-52093W | | | |
| .257 Robts | C-52094W | | | |
| Max. .30-06 | C-52093V | 2. All calibers - Max. Insert in chamber & close Action - Bolt must ~~not lock and safe not go on.~~ stand. | | |
| .300 Sav. | C-52095V | | | |
| .300 Mag. | C-52097V | | | |
| .270 Win. | C-52093V | | | |
| .257 Robts | C-52094V | | | |
| Function | | 1. Load (2) dummies into magazine & depress full depth with wood plug screw driver & release quickly - cartridge must not jump past Receiver rails. | | |
| | | 2. Load 2 more to fill magazine-depress (4) cartridges-should have overdraw and Bolt must pass over top dummy. | | |
| | | 3. Operate Bolt-must feed and eject properly at normal speed without missed feeds or binding or stemming at top of chamber | | |
| | | 4. Load (1) dummy cartridge into chamber-Close Bolt with normal speed-extractor must ride over rim of dummy with no bind and open Bolt to eject dummy. | | |
| | | 5. Operate Bolt (3) times and fire - no bind - Bolt. | | |

29 Close 1 dummy in chamber. Feed dummy from magazine. Point of bullet from magazine must not strike primer of dummy in chamber.

COMPILED BY: S. H. Quist | APPROVAL & DATE

REMINGTON ARMS COMPANY, INC., ILION, N.Y. REVISED AUG 26 194

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON
R2527121

PART: FINAL ASSEMBLY | PART No. FINAL ASSEMBLY

OPERATION: FIRST INSPECTION | OPER. No.: 10

## PROCESS RECORD — INSPECTION

| GAUGES TYPE | GAUGES No | USE | LIMITS MAX | LIMITS MIN. |
|---|---|---|---|---|
| Assembly | Visual | 1. See that gun is empty.<br>2. Check for assembly<br>Stamp ~~left~~ side of Barrel<br>3. Match specification tag with gun for:<br>a. Caliber marking<br>b. Patent marking<br>c. Model Number<br>d. Serial Number (~~bolt~~)<br>e. Barrel overall length<br>f. Grade<br>4. All markings to be clear & legible<br>5. Check for agreement of Bolt and Receiver Serial Numbers. | | |
| Butt Plates | Visual | 1. Finish<br>a. Uniform color<br>b. No rough edges<br>c. ~~Edges Chamfered~~.<br>2. Butt Plate Screws (2) tight. | | |
| Stock | Visual | 1. No checks or mutilations that can not be repaired at final inspection<br>2. Safety Lever must clear stock.<br>3. ~~Stock Screws (2) tight.~~<br>4. No sharp edges.<br>5. ~~Barrel must seat in frame and return to same spot when pulled away and pushed from side to side.~~ | | |
| Feeler Gage | | 6. Barrel Receiver space. | ~~0.015~~ .030 | |
| Feeler Gage | | 7. Margin at right side rail - Wood | ~~0.015~~ .030 | |
| | | Steel | 0.010 | .020 |
| Feeler Gage | | 8. Margin around Receiver Tang-Wood | 0.015 | .020 |
| | | Steel | 0.005 | |
| Feeler Gage | | 9. Gap at Rear of Trigger Guard | ~~0.015~~ .030 | .030 |
| Feeler Gage | | 10. Margin at Trigger Guide Plate-Steel | ~~0.005~~ +.010 | |

COMPILED BY: S. H. QUIST | APPROVAL & DATE:

REMINGTON ARMS COMPANY, INC., ILION, N.Y.

REVISED AUG 26 1946

H. H. SULLIVAN, INC.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON
R2527122

TPR 11



| PART: FINAL ASSEMBLY | PART No. FINAL ASSEMBLY |
|---|---|
| OPERATION: FIRST INSPECTION | OPER. No.: 10 |

OBSOLETE MAR 24 1944

## PROCESS RECORD — INSPECTION

| GAUGES Type | GAUGES No. | USE | LIMITS Max. | LIMITS Min. |
|---|---|---|---|---|
| Function | | 5. (Cont.) handle must raise and lower easily. | | |
| | | 6. Apply pressure on Bolt Handle up & down - must not cramp or bind. | | |
| | | 7. Close Bolt - must cam follower down in moving forward. | | |
| | | 8. Open & close Bolt forcibly (3) times - firing pin must not follow down. | | |
| | | 9. Hold Bolt Handle down & pull Trigger -gun must fire instantly no lag due to Firing Pin bind, | | |
| | | 10. Bolt Handle must seat on receiver stop and clear stock. | | |
| | | 11. Drop Butt 6" to floor - must not fire until trigger is pulled. | | |
| | | 12. Safety should snap both on and off when pushed in either direction. Bolt must not open with safe on. | | |
| Scale | | 13. Check Trigger pull - no perceptible creep or bind. | 6# | 4# |
| | | 14. Depress Bolt Stop Release & remove Bolt - no bind. | | |
| Put in with bolt inspection | | 15. Release Firing Pin by turning Bolt Plug - check Firing Pin point - no mars. | | |
| Flush Pin | B-52089 | 16. Firing Pin Protrusion | 0.075 | 0.045 |

[signature]

| COMPILED BY. S. H. Quist | APPROVAL & DATE |
|---|---|

REMINGTON ARMS COMPANY, INC., [illegible] REVISED AUG 2 6 [illegible]

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

| PART: FINAL ASSEMBLY | PART No. Final Assembly |
|---|---|
| OPERATION: FIRST INSPECTION | OPER. No.: 10 |

OBSOLETE MAR 24 1947

PROCESS RECORD — INSPECTION

| GAUGES | | USE | LIMITS | |
|---|---|---|---|---|
| TYPE | No | | MAX. | MIN. |
| Reassemble | | 1. Cock firing pin by retracting firing pinhead with special tool<br>2. Insert bolt past bolt stop - no bind.<br>3. Pull back bolt to test - bolt stop should hold. | | |
| Stamp | | 1. First inspection mark in bolt handle slot of stock. | | |
| | | To Gallery for Target & Test | | |

COMPILED BY: S. H. Quist

APPROVAL & DATE:

REVISED AUG 25 [illegible]

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

TPR-11

| PART: FINAL ASSEMBLY | PART No. Final Assembly |
|---|---|
| OPERATION: FIRST INSPECTION | OPER. No.: 10 |

OBSOLETE MAR 24 1947

## PROCESS RECORD — INSPECTION

| GAUGES TYPE | GAUGES No. | USE | LIMITS MAX. | LIMITS MIN. |
|---|---|---|---|---|
| Bolt Head | Visual | 1. Finish<br>a. Must be bright<br>b. No serious mars or scratches<br>Gas escape hole present | | |
| Extractor | Visual | 1. Tension - no bind - use dummy shell to check if extractor receives shell head without bind.<br>2. Check Claw for sharp edge.<br>Claw approx ejects | | |
| Safety | Visual | 1. Finish<br>a. Color uniform<br>b. No serious mars or scratches<br>2. ~~Safety Detent ball must snap [illegible] both ways.~~<br>~~Check [illegible] action~~ | | |
| Barrel Bracket | Visual | 1. Barrel Bracket must rest against recoil pad in stock.<br>2. Chamfered edge should face barrel. | Procedure checks 1 on a trunk? | |
| Barrel | Visual | 1. Finish<br>a. Color uniform<br>b. No serious mars or scratches<br>c. No pilot marks at crowning<br>2. Rifling - present (expert)<br>marking | | |
| Sights | Visual | 1. Finish<br>a. Color Uniform<br>b. No serious mars or scratches.<br>2. Front Sight<br>a. Top of Ramp - Cross marked<br>b. No bright brass visible<br>c. Dovetail tight in base-test with copper hammer.<br>3. Rear Sight<br>a. Dovetail tight in base-test with copper hammer | | |

check

COMPILED BY: S. H. Quist

APPROVAL & DATE

REVISED AUG 26 1948

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

R2527125

R-11

| PART: FINAL ASSEMBLY | PART No. Final Assembly |
|---|---|
| OPERATION: FIRST INSPECTION | OPER. No.: 10 |

PROCESS RECORD — INSPECTION

| GAUGES | | USE | LIMITS | |
|---|---|---|---|---|
| TYPE | No. | | MAX. | MIN. |
| Trigger Guard | Visual | 1. Finish<br>a. Uniform color<br>b. No serious mars or scratches<br>2. No bow in trigger guard | | |
| Receiver | Visual | 1. Finish<br>a. Uniform Color<br>b. No serious mars or scratches<br>2. All exposed edges should be chamfered.<br>3. Scope screw holes present<br>4. Firing pin head slot - free of multilation.<br>5. Magazine edge must be below bullet ramp edge. | | |
| Bolt Plug | Visual | 1. Finish<br>a. Uniform color<br>b. No serious mars & scratches<br>2. Fit - Rotational clearance of bolt plug on F.P. Head must permit match at end of bolt handle at left rear of bolt with flat on bolt plug. | | |
| Firing Pin Head | Visual | 1. Finish<br>a. Uniform Color<br>b. No serious mars or scratches<br>2. No sharp edges. | | |
| Bolt | Visual | 1. Finish<br>a. Must be bright<br>b. No serious mars or scratches<br>c. Back of bolt lugs must be ground finish<br>d. No brass visible except in corners of brazed joints. | | |

COMPILED BY: S. H. Quist

APPROVAL & DATE: MWH 8/20/42

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

TPR-11

| PART: FINAL ASSEMBLY | PART No. Final Assembly |
|---|---|
| OPERATION: FIRST INSPECTION | OPER. No.: 10 |

## PROCESS RECORD — INSPECTION

| GAUGES | | USE | LIMITS | |
|---|---|---|---|---|
| TYPE | No. | | MAX. | MIN. |
| Bolt Head | Visual | 1. Finish<br>a. Must be bright<br>b. No serious mars or scratches | | |
| Extractor | Visual | 1. Tension - no bind - use dummy shell to check if extractor receives shell head without bind.<br>2. Check Claw for sharp edge. | | |
| Safety | Visual | 1. Finish<br>a. Color uniform<br>b. No serious mars or scratches<br>2. Safety Detent ball must snap safety both ways. | | |
| Barrel Bracket | Visual | 1. Barrel Bracket must rest against recoil pad in stock.<br>2. Chamfered edge should face barrel. | | |
| Barrel | Visual | 1. Finish<br>a. Color uniform<br>b. No serious mars or scratches<br>c. No pilot marks at crowning<br>2. Rifling - present | | |
| Sights | Visual | 1. Finish<br>a. Color Uniform<br>b. No serious mars or scratches.<br>2. Front Sight<br>a. Top of Ramp - Cross marked<br>b. No bright brass visible<br>c. Dovetail tight in base-test with copper hammer.<br>3. Rear Sight<br>a. Dovetail tight in base-test with copper hammer | | |

COMPILED BY: S. H. Quist | APPROVAL & DATE: [illegible] 8/19/44

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

TPR 11

| PART: FINAL ASSEMBLY | PART No. FINAL ASSEMBLY |
|---|---|
| OPERATION: FIRST INSPECTION | OPER. No. 10 |

## PROCESS RECORD — INSPECTION

| GAUGES | | USE | LIMITS | |
|---|---|---|---|---|
| Type | No. | | Max. | Min. |
| | | 3. Rear Sight (Cont.)<br>b. Both Sights aligned, square & central with Butt. | | |
| Feeler Gage | | 4. Opening under front end or near sight at barrel. | 0.015 | |
| Assembly<br>Heading Plugs<br>Min. .30-06<br>.300 Sav.<br>.300 Mag.<br>.270 Win.<br>.257 Robts | <br><br>C-52093W<br>C-52095W<br>C-52097W<br>C-52093W<br>C-52094W | 1. All calibers - Min. Insert Heading Plug in Chamber and close Action Bolt should lock - accept if snug. | | |
| Max. .30-06<br>.300 Sav.<br>.300 Mag.<br>.270 Win.<br>.257 Robts | C-52093V<br>C-52095V<br>C-52097V<br>C-52093V<br>C-52094V | 2. All calibers - Max. Insert in chamber & close Action - Bolt must not lock and safe not go on. | | |
| Function | | 1. Load (2) dummies into magazine & depress full depth with wood plug screw driver & release quickly - cartridge must not jump past Receiver rails. | | |
| | | 2.. Load 2 more to fill magazine-depress (4) cartridges-should have overdraw and Bolt must pass over top dummy. | | |
| | | 3. Operate Bolt-must feed and eject properly at normal speed without missed feeds or binding of stemming at top of chamber | | |
| | | 4. Load (1) dummy cartridge into chamber-Close Bolt with normal speel-extractor must ride over rim of dummy with no bind and open Bolt to eject. dummy. | | |
| | | 5. Operate Bolt (3) times and fire - no bind - Bolt. | | |

COMPILED BY: S. H. Quist | APPROVAL & DATE:

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON
R2527128

TPR 11

| PART: FINAL ASSEMBLY | PART No. FINAL ASSEMBLY |
|---|---|
| OPERATION: FIRST INSPECTION | OPER. No.: 10 |

## PROCESS RECORD — INSPECTION

| GAUGES | | USE | LIMITS | |
|---|---|---|---|---|
| Type | No. | | Max. | Min. |
| Function | | 5. (Cont.) handle must raise and lower easily. | | |
| | | 6. Apply pressure on Bolt Handle up & down - must not cramp or bind. | | |
| | | 7. Close Bolt - must cam follower down in moving forward. | | |
| | | 8. Open & close Bolt forcibly (3) times - firing pin must not follow down. | | |
| | | 9. Hold Bolt Handle down & pull Trigger -gun must fire instantly no lag due to Firing Pin bind, | | |
| | | 10. Bolt Handle must seat on receiver stop and clear stock. | | |
| | | 11. Drop Butt 6" to floor - must not fire until trigger is pulled. | | |
| | | 12. Safety should snap both on and off when pushed in either direction. | | |
| Scale | | 13. Check Trigger pull - no perceptible creep or bind. | 6# | 4# |
| | | 14. Depress Bolt Stop Release & remove Bolt - no bind. | | |
| | | 15. Release Firing Pin by turning Bolt Plug - check Firing Pin point - no mars. | | |
| Flush Pin | B-52089 | 16. Firing Pin Protrusion | 0.075 | 0.045 |

COMPILED BY: S. H. Quist | APPROVAL & DATE:

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

R2527129

TPR-11

| PART: FINAL ASSEMBLY | PART No. FINAL ASSEMBLY |
|---|---|
| OPERATION: FIRST INSPECTION | OPER. No.: 10 |

## PROCESS RECORD — INSPECTION

| GAUGES | | USE | LIMITS | |
|---|---|---|---|---|
| TYPE | No. | | MAX. | MIN. |
| Assembly | Visual | 1. See that gun is empty. | | |
| | | 2. Check for assembly Stamp left side of Barrel | | |
| | | 3. Match specification tag with gun for: | | |
| | | a. Caliber marking | | |
| | | b. Patent marking | | |
| | | c. Model Number | | |
| | | d. Serial Number | | |
| | | e. Barrel overall length | | |
| | | f. Grade | | |
| | | 4. All markings to be clear & legible | | |
| | | 5. Check for agreement of Bolt and Receiver Serial Numbers. | | |
| Butt Plates | Visual | 1. Finish | | |
| | | a. Uniform color | | |
| | | b. No rough edges | | |
| | | c. Edges Chamfered. | | |
| | | 2. Butt Plate Screws (2) tight. | | |
| Stock | Visual | 1. No checks or mutilations that can not be repaired at final inspection | | |
| | | 2. Safety Lever must clear stock. | | |
| | | 3. Stock Screws (2) tight. | | |
| | | 4. No sharp edges. | | |
| | | 5. Barrel must seat in forend and return to same spot when pulled away and pushed from side to side. | | |
| Feeler Gage | | 6. Barrel Receiver space. | 0.015 | |
| Feeler Gage | | 7. Margin at right side rail - Wood | 0.015 | |
| | | Steel | 0.010 | |
| Feeler Gage | | 8. Margin around Receiver Tang-Wood | 0.015 | |
| | | Steel | 0.005 | |
| Feeler Gage | | 9. Gap at Rear of Trigger Guard | 0.015 | 0.030 |
| Feeler Gage | | 10. Margin at Trigger Guide Plate-Steel | 0.005 | |

| COMPILED BY: S. H. QUIST | APPROVAL & DATE: [signature] 1/30/46 |
|---|---|

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

H. H. SULLIVAN, INC.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON
R2527130

| PART: FINAL ASSEMBLY | PART No. Final Assembly |
|---|---|
| OPERATION: FIRST INSPECTION | OPER. No.: 10 |

**PROCESS RECORD — INSPECTION**

| GAUGES | | USE | LIMITS | |
|---|---|---|---|---|
| TYPE | No. | | MAX. | MIN. |
| Reassemble | | 1. Cock firing pin by retracting firing pinhead with special tool<br>2. Insert bolt past bolt stop - no bind.<br>3. Pull back bolt to test - bolt stop should hold. | | |
| Stamp | | 1. First inspection mark in bolt handle slot of stock. | | |
| | To Gallery for Target & Test | | | |

| COMPILED BY: S. H. Quist | APPROVAL & DATE: MVKJ 8/20/46 |
|---|---|

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

TPR-11

| PART: FINAL ASSEMBLY | PART No. |
|---|---|
| OPERATION: FIRST INSPECTION | OPER. No.: 10 |

## PROCESS RECORD — INSPECTION

| GAUGES TYPE | GAUGES No. | USE | LIMITS MAX. | LIMITS MIN. |
|---|---|---|---|---|
| 1. Outside Appearance. | | | | |
| a. Barrel | Visual | 1. Color Uniform<br>2. No serious mars or scratches<br>3. Marking clear.<br>4. Rifling Present | | |
| b. Sights | Visual | 1. Color Uniform<br>2. No serious mars or scratches<br>3. Front Sight Ramp<br>(a) Serrated (SIDES SMOOTH - NO VERTICAL LINES)<br>(b) No Brass Visible<br>(c) Sight tight in dovetail<br>4. Rear Sight tight in dovetail | | |
| Feeler Gage | | (a) Opening Under Front End of rear sight at Barrel<br>(b) NO CIRCULAR GROOVE AT WELD. | .015 | |
| c. Receiver | Visual | 1. Uniform Color<br>2. No serious mars or scratches<br>3. All edges smooth not sharp<br>4. Marking clear - NOT TOO DEEP<br>5. Plug Screws in Place. side plug screw ½ visible<br>6. Gas hole present and fully visible<br>7. Top of rear tang & bolt handle stop smooth - MATCH REST of receiver<br>8. Sides of Ejection port and rails smooth - match well with rest of receiver | | |
| d. Stock | Visual | 1. No checks or mutilation that cannot be removed at Final<br>~~2. Safety must clear wood~~<br>2 ~~3.~~ No sharp edges | | |
| Feeler Gages | | 3 ~~4.~~ Barrel & Receiver Space | .030 | |
| | | 4 ~~5.~~ Margin at right side rail wood | [illegible] | flush |
| | | steel | .020 | |
| | | 5 ~~6.~~ Margin around tang wood | .020 | |
| | | Both sides even steel | .005 | |
| | | 6 ~~7.~~ Gap at rear of Trigger Guard | .030 | .015 |
| | | 7 ~~8.~~ Margin at Trigger Guide Plate handle wood | .010 | |
| | | steel | .010 | |
| | | 8. Bolt must seat on receiver & clear wood<br>9 ~~10.~~ Barrel should bed at muzzle end of stock | | |
| e. Butt Plate | Visual | 1. Uniform Color<br>2. No rough edges<br>3. Screws tight | | |

COMPILED BY: | APPROVAL & DATE:

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

H. H. SULLIVAN, INC. Plant

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

TPR-11

| PART: FINAL ASSEMBLY | PART No. |
|---|---|
| OPERATION: FIRST INSPECTION | OPER. No.: 10 |

PROCESS RECORD — INSPECTION

| | GAUGES TYPE | GAUGES No. | USE | LIMITS MAX. | LIMITS MIN. |
|---|---|---|---|---|---|
| f. | Trigger Guard | Visual | 1. Uniform Color. Direction of polishlines uniform<br>2. No serious mars or scratches<br>3. Magazine Bottom tight on stock<br>4. Guard Screws tight<br>Heads flush or below guard<br>5. Clearance of trigger a guard | | .075 |
| 2. | Function | | | | |
| a. | Heading | | 1. All calibers - Min. | | |
| | Min 30-06 | C-52093W | Insert heading plug in chamber. Bolt should lock. Accept if snug | | |
| | .300 Sav. | C-52095W | | | |
| | .300 Mag. | C-52097W | | | |
| | .270 Win. | C-52093W | | | |
| | .257 Robt | C-52094W | 2. All calibers - Max. Insert in chamber and close action. Bolt Handle must stand. | | |
| | Max.30-06 | C-52093V | | | |
| | .300 Sav. | C-52095V | | | |
| | .300 Mag. | C-52097V | | | |
| | .270 Win. | C-52093V | | | |
| | .257 Rob. | C-52094V | | | |
| b. | Action | | 1. Load 2 dummies into magazine and depress full depth with wood plug and release quickly Dummy must not jump past receiver Rail.<br>2. Load 2 more dummies to fill magazine. Depress cartridges. Bolt must pass over top dummy but not clearance enoughtto allow 5 dummies in magazine.<br>3. Place 1 dummy in chamber. Feed dummy from magazine. Point of bullet from magazine must not strike primer of dummy in chamber. Push 2nd dummy back into magazine. Depress dummies in magazine and close bolt. Bolt must ride over dummy - no bind.<br>4. Operate bolt. Must eject dummy in chamber and feed and eject all dummies properly at normal speed without missed feeds, binding or stemming at top of chamber. | | |

| COMPILED BY: | APPROVAL & DATE: |
|---|---|

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

TPR-41

PART: FINAL ASSEMBLY | PART No.

OPERATION: FIRST INSPECTION | OPER. No.: 10

## PROCESS RECORD — INSPECTION

| GAUGES TYPE | GAUGES No. | USE | LIMITS MAX. | LIMITS MIN. |
|---|---|---|---|---|
| b. Action (Cont.) | | 5. Operate Bolt 3 times empty and fire - no bind, Bolt Handle must raise and lower easily.<br>6. Apply pressure on Bolt Handle up and down - must not cramp or bind.<br>7. Close Bolt - must cam Follower down.<br>8. Open and close Bolt forcibly 3 times - Firing Pin must not follow down.<br>9. Hold Bolt Handle down and pull Trigger - gun must fire instantly, no lag due to Firing Pin bind.<br>~~10. Bolt must seat on Receiver and clear wood.~~<br>16 11. Cock gun and drop Bolt approx. 6" to floor. Must not fire until trigger is pulled.<br>11 ~~12.~~ Check Safety. Should snap in Detent in both off and on position. Bolt must not open on Safe. Safe on - full trigger - must not fire - release safe - must not fire until trigger is pulled. SHOULD WORK NO HARDER THAN SAMPLE, MUST CLEAR | | |
| | | 12 ~~13.~~ Check trigger pull - no perceptible creep or bind. | 6# | 4# |
| | | 13 ~~14.~~ Depress Bolt Stop Release and remove Bolt | | |
| 3. Bolt<br>a. Bolt Plug | Visual | 1. Finish<br>(a). Uniform color<br>(b) No serious mars or scratches.<br>2. Fit-Rotational Clearance of Bolt Plug on Firing Pin Head must permit match at end of Bolt Handle a left rear of Bolt with flat on Bolt Plug. | | |
| b. Firing Pin Head | Visual | 1. Finish<br>(a) Color bright<br>(b) No serious mars or scratches | | |

COMPILED BY: | APPROVAL & DATE:

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

TPB-11

| PART: FINAL ASSEMBLY | PART No. |
|---|---|
| OPERATION: FIRST INSPECTION | OPER. No.: 10 |

PROCESS RECORD — INSPECTION

| | GAUGES | | USE | LIMITS | |
|---|---|---|---|---|---|
| | TYPE | No. | | MAX. | MIN. |
| | b. Firing Pin Head (Cont.) | | 2. No sharp edges | | |
| | c. Bolt Body | Visual | 1. Finish<br>(a) Bright<br>(b) No serious mars or scratches<br>(c) Back of Bolt Lugs must be smooth, no burrs<br>(d) No brass visible except thin line at joints. | | |
| | d. Bolt Head | Visual | 1. Finish<br>(a) Bright<br>(b) No serious mars or scratches<br>(c) Gas escape hole present. | | |
| | e. Extractor | Visual | 1. Tension - no bind - use dummy to check if Extractor receives shell head without bind.<br>2. Check claw for sharp edge<br>3. Claw opposite Ejector | | |
| | f. Firing Pin<br>Flush Pin | B-52089 | 1. Release Firing Pin Head by turning Bolt Plug. Check Firing Pin Point - no mars.<br>2. Check Firing Pin protrusion<br>3. Recock Firing Pin and replace in gun.<br>4. Pull Bolt back. Bolt stop must hold | .075 | .045 |
| 4. | Mark and Check Tages etc. | | 1. See that gun is empty.<br>2. Check for Assembly stamp<br>3. Match spec. tag with gun.<br>(a) Caliber<br>(b) Patent<br>(c) Model No.<br>(d) Serial No.<br>(e) Barrel Length<br>(f) Grade<br>4. All markings clear and legible.<br>5. Check for agreement of Bolt and Receiver Serial Numbers. | | |

COMPILED BY: | APPROVAL & DATE:

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON
R2527135

TPR-11

| PART: FINAL ASSEMBLY | PART No. |
|---|---|
| OPERATION: FIRST INSPECTION | OPER. No.: 10 |

PROCESS RECORD — INSPECTION

| | GAUGES | | USE | LIMITS | |
|---|---|---|---|---|---|
| | TYPE | No. | | MAX. | MIN. |
| 4. | (Cont.) | | 6. Stamp First Inspection mark (see Sketch)<br>7. Send to Target and Test. | | |

| COMPILED BY: | APPROVAL & DATE: |
|---|---|

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

M. H. SULLIVAN, INC.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

TPR-11

PART: Final Assembly | PART No.

OPERATION: FIRST INSPECTION | OPER. No.: 10

PROCESS RECORD — INSPECTION

| | GAUGES TYPE | GAUGES No. | USE | LIMITS MAX. | LIMITS MIN. |
|---|---|---|---|---|---|
| 1. | Outside Appearance | | | | |
| | a. Barrel | Visual | 1. Color Uniform<br>2. No serious Mars or Scratches<br>3. Marking Clear<br>4. Rifling present. | | |
| | b. Sights | Visual | 1. Color uniform<br>2. No serious mars or scratches<br>3. Front Sight Ramp:<br>(a) serrated<br>(b) No brass visible<br>(c) Sight tight in dovetail<br>4. Rear sight tight in dovetail | | |
| | Feeler Gage | | (a) opening under front end of rear sight at barrel | .015 | |
| | c. Receiver | Visual | 1. Uniform color<br>2. No serious Mars or scratches<br>3. All Edges smooth-not sharp<br>4. Marking clear<br>5. Plug screws in place<br>6. Gas hole present & fully visible | | |
| | d. Stock | Visual | 1. No checks or mutilation that cannot be removed at Final<br>2. Safety must clear Wood<br>3. No sharp edges | | |
| | Feeler Gages | | 4. Barrel & Receiver Space | .030 | |
| | | | 5. Margin at right side rail Wood | .030 | |
| | | | steel | .030 | |
| | | | 6. Margin around Tang wood | .020 | |
| | | | steel | .005 | |
| | | | 7. Gap at rear of trigger guard | .030 | .01 |
| | | | 8. Margin at Trigger Guide Plate Wood | .010 | |
| | | | steel | .010 | |

COMPILED BY: | APPROVAL & DATE:

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

H. H. SULLIVAN, INC.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON
R2527137

TPR-11

PART: Final assembly | PART No.

OPERATION: Final Inspection | OPER. No.: 10

OBSOLETE

## PROCESS RECORD — INSPECTION

| GAUGES TYPE | GAUGES No. | USE | LIMITS MAX. | LIMITS MIN. |
|---|---|---|---|---|
| e Butt Plate | Visual | 1. Uniform color<br>2. No Rough edges<br>3. Screws tight. | | |
| f. Trigger Guard | Visual | 1. Uniform Color<br>2 No serious mars or scratches<br>3. Magazine Bottom tight on stock.<br>4. Guard screws tight Heads Flush or below guard | | |
| 2. Function | | | | |
| a. Heading min 30-06 | C-52093W | 1. All calibers - Min insert heading plug in chamber, Bolt should lock. accept if snug. | | |
| .300 Sav. | C-52095W | | | |
| .300 Mag. | C-52097W | | | |
| .270 Win. | C-52093W | | | |
| .257 Rob. | C-52094W | | | |
| Max .3006 | C-52093✓ | 2 all calibers - Max insert in chamber and close action - Bolt handle must stand. | | |
| .300 SAV. | C-52095✓ | | | |
| .300 Mag | C-52097✓ | | | |
| b .270 Win. | C-52093✓ | | | |
| .257 Rob. | C-52094✓ | | | |
| b action | | 1. Load 2 dummies into magazine and depress [illegible] with wood plug and release quickly. Dummy must [illegible] | | |
| | | 2. [illegible] dummies to [illegible] Depress cartridges. Bolt must pass over top dummy but not clearance enough to allow 3rd dummy to [illegible] | | |

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REMINGTON ARMS COMPANY, INC., ILION, N. Y.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

TPR-11

PART: Final assembly

PART No.

OBSOLETE

OPERATION: Final Inspection

OPER. No.: 10

## PROCESS RECORD — INSPECTION

| GAUGES | | USE | LIMITS | |
|---|---|---|---|---|
| TYPE | No. | | MAX. | MIN. |
| action (continued) | | 3. Place 1 dummy in chamber. Feed dummy from magazine. Point of bullet from magazine must not strike primer of dummy in chamber. Push 2nd dummy back into magazine. Depress dummies in magazine and close bolt. Bolt must not close on dummy - no bind.<br>4. Operate bolt. Must eject dummy in chamber and feed and eject all dummies properly at normal speed without missed feeds, binding or stemming at top of chamber.<br>5. Operate bolt 3 times with empty and fire - no bind. Bolt handle must raise and lower easily.<br>6 apply forward on bolt handle up and down - must not cramp or bind.<br>7 Close bolt - must cam | | |

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CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

TPR-11

4

| PART: Final assembly | PART No. |
|---|---|
| OPERATION: First Inspection | OPER. No.: 10 |

Retained

OBSOLETE

## PROCESS RECORD — INSPECTION

| GAUGES TYPE | GAUGES No. | USE | LIMITS MAX. | LIMITS MIN. |
|---|---|---|---|---|
| acts 1941 continued | | 8 Open and close bolt forcibly 3 times - firing pin must not follow down. | | |
| | | 9 Hold Bolt Handle down and pull trigger - gun must fire instantly, no lag due to firing pin bind | | |
| | | 10 Bolt must seat on receiver and clear wood. | | |
| | | 11 Cock gun and drop butt approx 6" to floor. must not fire until trigger is pulled. | | |
| | | 12. check safety. should snap in detent in both off and on position, Bolt must not open on safe | | |
| safe on - pull trigger - must not fire - release safe - must not fire until trigger is pulled. | | 13 check trigger pull - no perceptible creep or bind | 6# | 4# |
| | | 14 Depress bolt stop release and [illegible] bolt | | |
| 3 Bolt. a Bolt Plug | | 1. Finish a uniform color b no serious mars or scratches | | |

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H. H. SULLIVAN, INC.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

TPR-11

5

| PART: Final assembly | PART No. |
|---|---|
| OPERATION: Fuel Inspection | OPER. No.: 10 |

OBSOLETE

MAR 24 1947

## PROCESS RECORD — INSPECTION

| GAUGES TYPE | GAUGES No. | USE | LIMITS MAX. | LIMITS MIN. |
|---|---|---|---|---|
| Bolt plug (continued) | Visual | 2 Fit - Rotational clearance of bolt plug on FP head [illegible] permit match at end of bolt handle a left rear of bolt with flat on bolt plug. | | |
| b Firing Pin head | Visual | 1. Finish<br>a. Color bright<br>b. no serious mars or scratches<br>2. No sharp edges | | |
| c Bolt Body | Visual | 1. Finish<br>a. Bright<br>b. no serious mars or scratches<br>c. Back of bolt lugs must be smooth, no burrs<br>d. No brass visible except thin line at joints. | | |
| d. Bolt Head | Visual | 1. Finish<br>a. Bright<br>b. no serious mars or scratches<br>c. Gas [illegible] hole [illegible] | | |

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KINZER V. REMINGTON

TPR-11

6

| PART: Final Assembly | PART No. |
|---|---|
| OPERATION: First Inspection | OPER. No.: 10 |

OBSOLETE

24 1947

## PROCESS RECORD — INSPECTION

| GAUGES TYPE | GAUGES No. | USE | LIMITS MAX. | LIMITS MIN. |
|---|---|---|---|---|
| e. Extractor | Visual | 1. Tension - no bind - use dummy to check if extractor receives shell head without bind. 2. Check claw for sharp edge. 3. Claw opposite ejector. | | |
| f. Firing Pin | | 1. Release Firing Pin Head by turning Bolt plug. check Firing Pin point - no mars. | | |
| Flush Pin | B52089 | 2. Check F.P. protrusion | .075 | .045 |
| | | 3. Recock Firing Pin and relay in Gun 4. Pull bolt back. Bolt stop must hold. | | |
| 4 Mark and check tags etc. | | 1. See that gun is empty 2. check for assembly stamp 3. Match Spec. tag with gun a caliber b Patent c model no d Serial no e Barrel length f grade 4 all markings clear and legible | | |

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|---|---|

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R2527142

TPR-11

PART: Final assembly | PART No. 7

OPERATION: First Inspection | OPER. No.: 10

OBSOLETE

## PROCESS RECORD — INSPECTION

MAR 24 1961

| GAUGES | | USE | LIMITS | |
|---|---|---|---|---|
| TYPE | No. | | MAX. | MIN. |
| 4 continued | | 5 check for agreement of Bolt and receiver Serial numbers 6. Stamp I at inspection mark (see sheet) 7. Send to Target and Test. | | |

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OBSOLETE

| PART: FINAL ASSEMBLY | PART No. Final Assembly |
|---|---|
| OPERATION: FIRST INSPECTION | OPER. No. 10 |

PROCESS RECORD — INSPECTION

| GAUGES TYPE | GAUGES No. | USE | LIMITS MAX. | LIMITS MIN. |
|---|---|---|---|---|
| Bolt Head | Visual | 1. Finish<br>a. Must be bright<br>b. No serious mars or scratches | | |
| Extractor | Visual | 1. Tension - no bind - use dummy shell to check if extractor receives shell head without bind.<br>2. Check Claw for sharp edge. | | |
| Safety | Visual | 1. Finish<br>a. Color uniform<br>b. No serious mars or scratches<br>2. Safety Detent ball must snap safety both ways. | | |
| Barrel Bracket | Visual | 1. Barrel Bracket must rest against recoil pad in stock.<br>2. Chamfered edge should face barrel. | | |
| Barrel | Visual | 1. Finish<br>a. Color uniform<br>b. No serious mars or scratches<br>c. No pilot marks at crowning<br>2. Rifling - present | | |
| Sights | Visual | 1. Finish<br>a. Color Uniform<br>b. No serious mars or scratches.<br>2. Front Sight<br>a. Top of Ramp - Cross marked<br>b. No bright brass vivible<br>c. Dovetail tight in base-test with copper hammer.<br>3. Rear Sight<br>a. Dovetail tight in base-test with copper hammer | | |

COMPILED BY: H. Hunt | APPROVAL & DATE:

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

PART: FINAL ASSEMBLY | PART No. [redacted]

OPERATION: FIRST INSPECTION | OPER. No.: 10

## PROCESS RECORD — INSPECTION

| | GAUGES TYPE | GAUGES No. | USE | LIMITS MAX. | LIMITS MIN. |
|---|---|---|---|---|---|
| 1. | Outside Appearance. | | | | |
| | a. Barrel | Visual | 1. Color Uniform<br>2. No serious mars or scratches<br>3. Marking clear.<br>4. Rifling Present | | |
| | b. Sights | Visual | 1. Color Uniform<br>2. No serious mars or scratches<br>3. Front Sight Ramp<br>(a) Sides smooth-no vertical lines<br>(b) Serrated<br>(c) [redacted] Brass Visible TO REGULAR STANDARDS<br>(d) Sight tight in dovetail<br>4. Rear Sight tight in dovetail | | |
| | Feeler Gage | | (a) Opening Under Front End of rear sight at Barrel | .015 | |
| | | | (b) No circular groove at weld | | |
| | c. Receiver | Visual | 1. Uniform Color (E) SPRING TENSION ON STEP (D) STEP CAN BE MOVED & SET<br>2. No serious mars or scratches<br>3. All edges smooth not sharp<br>4. Marking clear-not too deep<br>5. Plug Screws in Place. Side plug screw 1/2 visible<br>6. Gas hole present and [redacted] visible<br>7. Top of rear tang & bolt handle stop smooth-Match rest of Receiver<br>8. Sides of ejection port and rails smooth-Match well with rest of Receiver | | |
| | d. Stock | Visual | 1. No checks or mutilation that cannot be removed at final<br>2. No sharp edges | | |
| | Feeler Gages | | 3. Barrel & Receiver Space UNIFORM & EVEN [redacted]<br>4. Margin at right side rail [redacted]<br>STEEL .020, WOOD .030 [redacted].020<br>5. Margin around tang both sides even wood .020 steel .005<br>6. Gap at rear of Trigger Guard [redacted]<br>7. Margin at Trigger Guide Plate [redacted] | | |
| | UNIFORM IN APPEARANCE MUST BE SOME OPENING → | | GOOD UNIFORM APPEARANCE [redacted] | | |

COMPILED BY:

APPROVAL & DATE: 11-3-41

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H. SULLIVAN, INC.

PART: FINAL ASSEMBLY | PART No.:

OPERATION: FIRST INSPECTION | OPER. No.: 10

PROCESS RECORD — INSPECTION

| GAUGES TYPE | GAUGES No. | USE | LIMITS MAX. | LIMITS MIN. |
|---|---|---|---|---|
| | | 2. Fit-Rotational Clearance of Bolt Plug on Firing Pin Head must permit match at end of Bolt Handle a left rear of Bolt with flat on Bolt Plug. | | |
| b. Firing Pin Head | Visual | 1. Finish<br>(a) Color bright<br>(b) No serious mars or scratches<br>2. No sharp edges | | |
| c. Bolt Body AND HANDLE | Visual | 1. Finish<br>(a) Bright<br>(b) No serious mars or scratches<br>(c) Back of Bolt Lugs must be smooth, no burrs<br>(d) [redacted] brass visible [redacted] — thin line at joints. | | |
| d. Bolt Head | Visual | 1. Finish<br>(a) Bright<br>(b) No serious mars or scratches<br>(c) Gas escape hole present. | | |
| e. Extractor | Visual | 1. Tension-no bind-use dummy to check if Extractor receives shell head without bind.<br>2. Check claw for sharp edge<br>3. Claw opposite Ejector — CHECK EXTRACTOR PIN FOR TIGHTNESS | | |
| f. Firing Pin | | 1. Release Firing Pin Head by turning Bolt Plug. Check Firing Pin Point-no mars. | | |
| Flush Pin | B-52089 | 2. Check Firing Pin protrusion | .075 | .045 |
| | | 3. Recock Firing Pin and replace in gun. | | |
| | | 4. Pull Bolt back. Bolt stop must hold. | | |
| 4. Mark and Check Tags etc. | | 1. See that gun is empty<br>2. Check for Assembly stamp<br>3. Match spec. tag with gun<br>(a) Caliber<br>[redacted]<br>(c) Model No.<br>(d) Serial No.<br>(e) Barrel Length | | |

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APPROVAL & DATE: [illegible] 3/28/[illegible]

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

M. SULLIVAN, INC.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

R2527146

PART: FINAL ASSEMBLY | PART No.:

OPERATION: FIRST INSPECTION | OPER. No.: 10

PROCESS RECORD — INSPECTION

| GAUGES TYPE | GAUGES No. | USE | LIMITS MAX. | LIMITS MIN. |
|---|---|---|---|---|
| | | bolt. Bolt must ride over dummy-no bind. | | |
| | | 4. Operate bolt. Must eject dummy in chamber and feed and eject all dummies properly at normal speed without missed feeds, binding or stemming at top of chamber. | | |
| b. Action (Cont.) | | 5. Operate Bolt 3 times empty and fire-no bind, Bolt Handle must raise and lower easily. | | |
| | | 6. Apply pressure on Bolt Handle up and down-must not cramp or bind. | | |
| | | 7. Close Bolt-must cam Follower down. WITHOUT CUTTING | | |
| | | 8. Open and close Bolt forcibly 3 times-Firing Pin must not follow down. | | |
| | | 9. Hold Bolt Handle down and pull Trigger-gun must fire instantly, no lag due to Firing Pin bind. | | |
| | | 10. Cock gun and drop Bolt approx. 6" to floor. Must not fire until Trigger is pulled. | | |
| | | 11. Check Safety. Should snap in Detent in both off and on position. Should work no harder than sample. Must clear wood. No sharp edges. Bolt must not open on Safe. Safe on-pull Trigger-must not fire-release safe-must not fire until Trigger is pulled. | | |
| | | 12. Check Trigger pull-no perceptible creep or bind. | 6# | 4# |
| | | 13. Depress Bolt Stop Release and remove Bolt | | |
| 3. Bolt | | | | |
| a. Bolt Plug | Visual | 1. Finish (a) Uniform color (b) No serious mars or scratches | | |

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H. H. SULLIVAN, INC.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

R2527147

PART: FINAL ASSEMBLY | PART No.:

OPERATION: FIRST INSPECTION | OPER. No.: 10

PROCESS RECORD — INSPECTION

| GAUGES TYPE | GAUGES No. | USE | LIMITS MAX. | LIMITS MIN. |
|---|---|---|---|---|
| | | 8. Bolt must seat on Receiver & clear wood | | |
| | | 9. Barrel should bed at muzzle end of Stock | | |
| e. Butt Plate | Visual | 1. Uniform Color | | |
| | | 2. No rough edges | | |
| | | 3. Screws tight | | |
| f. Trigger Guard | Visual | 1. Uniform Color. Direction of polish lines uniform | | |
| | | 2. No serious mars or scratches | | |
| | | 3. Magazine Bottom tight on Stock | | |
| | | 4. Guard Screws tight Heads flush or below guard | | .040 |
| 9 TRIGGER | | 5. Clearance of Trigger & Guard | | [illegible] |
| 2. Function | | 1. VISUAL - FINISH, COLOR ETC. | | |
| a. Heading | | 1. All calibers - Min. Insert heading plug in chamber. Bolt should lock. Accept if snug | | |
| Nim 30-06 | C-52093W | | | |
| .300 Sav. | C-52095W | | | |
| .300 Mag. | C-52097W | | | |
| .270 Win. | C-52093W | 2. All calibers - Max. Insert in chamber and close action. Bolt Handle must stand. | | |
| .257 Rob. | C-52094W | | | |
| Max. 30-06 | C-52093V | | | |
| .300 Sav. | C-52095V | | | |
| .300 Mag. | C-52097V | | | |
| .270 Win. | C-52093V | | | |
| .257 Rob. | C-52094V | | | |
| b. Action | | 1. Load 2 dummies into magazine and depress full depth with wood plug and release quickly Dummy must not jump past receiver Rail. | | |
| | | 2. Load 2 more dummies to fill magazine. Depress cartridges. Bolt must pass over top dummy but not clearance enough to allow 5 dummies in magazine. | | |
| | | 3. Place 1 dummy in chamber. Feed dummy from magazine. Point of bullet from magazine must not strike primer of dummy in chamber. Push 2nd dummy back into magazine. Depress dummies in magazine and close | | |

COMPILED BY: | APPROVAL & DATE: [illegible] 3/2/47

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Lovith

| PART: FINAL ASSEMBLY | PART No. |
|---|---|
| OPERATION: TARGET AND TEST | OPER. No.: 10 |

PROCESS RECORD — INSPECTION

| GAUGES | | USE | LIMITS | |
|---|---|---|---|---|
| TYPE | No | | MAX. | MIN. |
| Proof Test | | 1. Visual for First Inspection mark.<br>2. Fire one proof cartridge. Check for cracks, distortion etc.<br>3. Stamp proof mark on barrel (see sketch) | | |
| Align Sights and Target Gun | | 1. Check for proof marks.<br>2. Place muzzle through port<br>3. Load 4 cartridges in magazine and one in chamber and fire to align sights. Check for feeding, extraction, ejection<br>4. Check tightness of sights<br>5. Fire 5 shots at 100 yards. ~~All shots within 3" circle.~~<br>6. Stamp Target and Test mark (see sketch) | 3 1/2" | Group * |

* One flyer acceptable if felt to be caused by holding (same as M181-141)

| COMPILED BY: | APPROVAL & DATE: WHS 1/147 |
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PART: FINAL ASSEMBLY | PART No.:

OPERATION: FIRST INSPECTION | OPER. No.: 10

PROCESS RECORD — INSPECTION

| GAUGES | | USE | LIMITS | |
|---|---|---|---|---|
| TYPE | No. | | MAX. | MIN. |
| | | (f) Grade<br>4. All markings clear and legible<br>5. Check for agreement of Bolt and Receiver Serial Numbers.<br>6. Stamp First Inspection mark (see Sketch)<br>7. Send to Target and Test. | | |

COMPILED BY:

APPROVAL & DATE: 3/26/41

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

C. H. SULLIVAN, INC.

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KINZER V. REMINGTON

TPR-19

| PART: Final Assembly | 1 | PART No. |
|---|---|---|

First Inspection

| Component | Check | Key Points |
|---|---|---|
| Assembly | Chamber, Magazine & Receiver | No ammunition rifle empty, follower visible. |
| | Assembly Stamp | Left side of barrel. |
| | Specification Tag | Match with gun<br>a. Caliber Marking<br>b. Patent Marking<br>c. Model Number<br>d. Serial Number<br>e. Barrel overall length<br>f. Grade |
| | All Marking | Clear & Legible |
| Stock | No bad checks or multilations. | That cannot be repairec at final inspection. |
| | Fit along barrel & receiver | Max. gap 0.015 |
| | Margin at Receiver rail, right side | Max 0.010 steel or 0.015 wood. |
| | No sharp edges | |
| | Margin around receiver tang | Wood max. 1/64", steel max. 0.005" |
| | Opening at rear of trigger guard | Min. 0.015 Go. & Max. 0.030 No. Go. |
| | Safe Lever | Must clear stock |
| | Steel margin at Trigger Guard | Max. 0.005 |

COMPILED BY: L. H. Quat | APPROVAL & DATE:

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CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

TPR-19

| PART: Final Assembly | 2 | PART No. |
|---|---|---|

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First Inspection

| Component | Check | Key Points |
|---|---|---|
| Stock | Stock Screws (2) | Tight |
| | Butt Plate | Present |
| | Barrel Must Seat | Neither Springy or dead. |
| | Butt Plate Screws (2) | Tight |
| Sights | Color | Uniform, good finish, marss & burrs slight |
| Front | Top of Ramp | Cross matted |
| | Ramp | No Brass visible |
| | ~~Dead Bolt Shape~~ | ~~Blade stoped at front of bead~~. |
| | Dovetail Tight in Base. | Test with copper hammer. |
| Rear | Tight in Dovetail | Test with copper hammer. |
| | Opening under front end. | At barrel, Max. 0.015 |
| | Both sights aligned and square | Lined up with butt. |
| | Sights central | |

COMPILED BY: S. H. Quist | APPROVAL & DATE:

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KINZER V. REMINGTON
R2527152

FR-19

| PART: Final Assembly | 3 | PART No. |
|---|---|---|

OBSOLETE

First Inspection

| Component | Check | Key Points |
|---|---|---|
| Barrel | Finish | Color uniform, no mars or scratches. |
| | Crowning | Present - no pilot marks |
| | Rifling | Present |
| Receiver | Finish | Color uniform, no mars or scratches or burrs. |
| | Sharp edges | All exposed edges should be chamfered. |
| | Scope Hole Screws | Present |
| | Bolt Hole | Good finish per sample |
| | Firing Pin Head Slot | Not jammed at rear. |
| | Magazine Edge | Must be below bullet ramp edge |
| Bolt | Finish | Bright, Mars & Burrs slight |
| | Rear of Locking Lugs | Good finish |
| Bolt Plug | Finish | Uniform color |
| | Fit | Ledge match with bolt Ledge, left rear. |
| Firing Pin Head | Finish | Color uniform |
| | Outside, edge, rear end. | Not sharp |

COMPILED BY: L. H. Quest | APPROVAL & DATE:

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KINZER V. REMINGTON

TPR-19

| PART: 4 Final Assembly | PART No. |
|---|---|

REVISED

First Inspection

| Component | Check | Key Points |
|---|---|---|
| Bolt Head | Finish | Bright - no mars or scratches |
| | Face | Good Finish |
| | Firing Pin Hole | Not excessively large. |
| Extractor | Tension, No bind | Use dummy shell to check if extractor receives shell head without bind. |
| | Claw | Sharp edge. |
| Barrel Bracket | Assembly | Barrel bracket must rest against recoil pad in stock. |
| | | Chamfered edge should face barrel. |
| Safety | Sear lift | Safety must lift sear 0.010 max. Sight thru inspection hole. |
| | Safety Dentent Ball | Must snap safety both ways. |

COMPILED BY: S. H. Quest | APPROVAL & DATE:

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KINZER V. REMINGTON
R2527154

TPR-19

PART: 5 | PART No.

Final Assembly

OBSOLETE

First Inspection

| Component | Check | Key Points |
|---|---|---|
| Trigger Guard | Finish | Color Uniform - slight mars or scratches. |
| | Fit | No bow in trigger guard after assembly |
| Heading | All calibers - Min. | Insert heading plug in chamber & close action Bolt should lock - accept if snug. |
| | All calibers - Max. | Insert in chamber & close action - bolt must not lock and safe not go on. |
| Function | Load 2 dummies into magazine | Depress full depth with screw driver & release quickly - cartridges must not jump past receiver rails. |
| | Load 2 more to fill magazine | Depress 4 cartridges - should have overdraw and bolt must pass over top dummy. |
| | Operate bolt | Must feed & eject properly at normal speed without missed feeds or binding or steaming at top of chamber. |

COMPILED BY: S. H. Quest | APPROVAL & DATE:

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TPR-19

| PART: Final Assembly | 6 | PART No. |
|---|---|---|

| Component | Check | Key Points |
|---|---|---|
| Function Cont. | Load 1 dummy cartridge into chamber - Close bolt with normal speed. | ~~Close bolt with normal speed~~ - extractor must ride over rim of dummy and no bind ~~and open bolt to eject dummy~~. |
| | Operate bolt - 3 times and fire. | No bind - bolt handle raises and lowers easily |
| | Apply pressure on bolt handle - up & down | Must not cramp or bind. |
| | Open bolt, twist firing pin head to right & close bolt slowly | Firing Pin Head must not catch on receiver. |
| | Repeat above test to left. | Ditto |
| | Close Bolt | Must cam follower down in moving forward. |
| | Follow Down Test - open & close bolt forcibly 3 times. | Firing pin must not follow down. |
| | Hold Bolt Handle down and pull trigger | Gun must fire instantly no lag due to firing pin head bind. |

| COMPILED BY: L. H. Quist | APPROVAL & DATE: |
|---|---|

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KINZER V. REMINGTON
R2527156

TPR-19

PART: Final Assembly

PART No.

## First Inspection

| Component | Check | Key Points |
|---|---|---|
| Function | Bolt Handle | Must seat on receiver stop and clear stock. |
| | Jar off Test-drop butt 6" to floor | Must not fire until trigger is pulled. |
| | Safe, Push on (to rear) & push on rear of firing pin head while pulling trigger. | Must not fire - notches not click |
| | Push Safe off with thumb | Should snap forward to stop-no bind. |
| | Push Safe on. | No bind. |
| | Snap Safety off fast with thumb | Must not fire until trigger is pulled. |
| | Trigger pull Min.- 4# Max - 5# | No creep or bind as per sample |
| | Depress bolt stop release in front of trigger | Remove bolt - no bind. |
| | Release firing pin by turning bolt plug | Check point of firing pin - no mars |

COMPILED BY: S. H. Peet

APPROVAL & DATE:

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R2527157

FR-19

PART: Final Assembly

OBSOLETE

8

PART No.

## First Inspection

| Component | Check | Key Points |
|---|---|---|
| | Firing Pin Protusion | To step limits 0.045 - 0.075 |
| Reassemble | Cock firing pin | By retracting firing pin Head with special tool |
| | Insert bolt in rear of receiver | Push by bolt stop with no bind. |
| | Pull back bolt to test | Bolt stop should hold. |
| Stamp | First Inspection Mark | In bolt handle slot of stock. |
| | To Gallery for Target & Test | |

COMPILED BY: S. H. Faust

APPROVAL & DATE:

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KINZER V. REMINGTON

| PART: FINAL ASSEMBLY | PART No. FINAL ASSEMBLY |
|---|---|
| OPERATION: TARGET & TEST | OPER. No.: 11 |

OBSOLETE MAR 24 1947

## PROCESS RECORD — INSPECTION

| GAUGES TYPE | GAUGES No. | USE | LIMITS MAX. | LIMITS MIN. |
|---|---|---|---|---|
| Proof Test | | 1. Visual for first inspection mark. | | |
| | | 2. Fire one proof cartridge - check for cracks, distortion, etc. | | |
| | | 3. Stamp proof mark on barrel - on rear right side of barrel. see sketch | | |
| Align Sights & Target Gun | | 1. Check for proof mark. | | |
| | | 2. Load four cartridges & run through action without firing - check for feeding, extraction, ejection and marking case or bullet. Load 4 cart, in mag one in chamber | | |
| | | 3. ~~Reload~~ and fire to align sights at 100 yd & recheck as for step 2 above. check tightness of sights 3½" | | |
| Accuracy Test | 720 | 1. Fire (5) shots at 100 yds - all shots must fall in 3" circle. | | |
| | -3" at 120 | 2. ~~Repeat above if first test fails - 100% of 10 shots in 4" circle - 80% in 3" circle.~~ | | |
| | | 3. ~~If second test fails return for repair.~~ | | |
| | | 4. Stamp target and test mark on right hand side of barrel. see sketch | | |
| | | TO LIVE AMMUNITION INSPECTOR | | |

COMPILED BY: S. H. Quist. APPROVAL & DATE: [illegible]

REMINGTON ARMS COMPANY, INC. REVISED AUG 26 1949

R. H. SULLIVAN INC

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON R2527159

| PART: Final assembly | PART No. |
|---|---|
| OPERATION: Target and Test | OPER. No.: 11 |

PROCESS RECORD — INSPECTION

| GAUGES | | USE | LIMITS | |
|---|---|---|---|---|
| TYPE | No. | | MAX. | MIN. |
| Proof Act | | 1. Visual for 1st inspection mark<br>2. Fire one proof cartridge check for cracks distortion etc.<br>3. Stamp proof mark on barrel (see sketch) | | |
| align sights and target gun. | | 1. Check for proof mark<br>2. Place muzzle through port<br>3 Load 4 cartridges in magazine and one in chamber. and fire to align sights. check for feeding, extraction ejection<br>4. Check tightness of sights<br>5. Fire 5 shots at 100 yards. all shots within 3" circle.<br>6. Stamp target and test mark (see sketch) | | |

| COMPILED BY: | APPROVAL & DATE: |
|---|---|

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

| PART: FINAL ASSEMBLY | PART No. FINAL ASSEMBLY |
|---|---|
| OPERATION: TARGET & TEST | OPER. No.: 11 |

## PROCESS RECORD — INSPECTION

| GAUGES | | USE | LIMITS | |
|---|---|---|---|---|
| TYPE | No. | | MAX. | MIN. |
| Proof Test | | 1. Visual for first inspection mark.<br>2. Fire one proof cartridge - check for cracks, distortion, etc.<br>3. Stamp proof mark on barrel - on rear right side of barrel. | | |
| Align Sights & Target Gun | | 1. Check for proof mark.<br>2. Load four cartridges & run through action without firing - check feed feeding, extraction, ejection and marki marking case or bullet.<br>3. Reload and fire to align sights at 100 yd & recheck as for step 2 above. | | |
| Accuracy Test | | 1. Fire (5) shot at 100 yds - all shots must fall in 3" circle.<br>2. Repeat above if first test fails - 100% of 10 shots in 4" circle - 80% in 3" circle.<br>3. If second test fails return for repair.<br>4. Stamp target and test mark on right hand side of barrel.<br><br>TO LIVE AMMUNITION INSPECTOR | | |

| COMPILED BY: S. H. Quist. | APPROVAL & DATE: [signature] 8/30/46 |
|---|---|

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

H. N. SULLIVAN, INC.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON
R2527161

Retyped

OBSOLETE

| PART: FINAL ASSEMBLY | PART No. FINAL ASSEMBLY |
|---|---|
| OPERATION: CHECK FOR LIVE AMMUNITION in Gallery | OPER. No.: 12 |

## PROCESS RECORD — INSPECTION

| GAUGES | | USE | LIMITS | |
|---|---|---|---|---|
| Type | No. | | Max | Min. |
| | Visual | Check for Live Ammunition in Chamber, Magazine and Receiver. Follower must be visible. | | |

COMPILED BY:

APPROVAL & DATE [illegible]

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

REVISED AUG 2 [illegible] 1946

OBSOLETE MAR 24 1967

| PART: FINAL ASSEMBLY | PART No. Final Assembly |
|---|---|
| OPERATION: FINAL INSPECTION | OPER. No.: 13 |

PROCESS RECORD — INSPECTION

| GAUGES TYPE | GAUGES No. | USE | LIMITS MAX. | LIMITS MIN. |
|---|---|---|---|---|
| Assembly | Visual | 1. Check for live ammunition chamber, magazine, and receiver empty, follower visible.<br>2. Check stamps:<br>a. Assembly - On barrel left side rear.<br>b. First inspection - In bolt handle slot of stock<br>c. Proof - (REP) On rear right side of barrel<br>d. Target & test - On rear right side of barrel.<br>3. Tag - must match with gun. | | |
| Stock | Visual | 1. Finish - no check, mars and only slight scratches<br>2. Set screws tight in stock, mars and burrs slight and no bad projections.<br>3. Barrel must seat and return to same position when pulled away and moved from side to side. | | |
| Barrel | Visual | 1. Finish<br>a. Color uniform<br>b. No serious mars or scratches.<br>c. No jams at muzzle crown.<br>d. Accept 1/16" light ring around bore. | | |
| Sights (Front & Rear) | Visual | 1. Finish<br>a. Color uniform<br>b. No serious mars or scratches<br>2. Check both sights for tightness in dovetail with | | |

COMPILED BY: S. H. Quist | APPROVAL & DATE:

REMINGTON ARMS COMPANY, INC. BRIDGEPORT, CONN. REVISED AUG 25

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

| PART: FINAL ASSEMBLY | PART No. Final Assembly |
|---|---|
| OPERATION: FINAL INSPECTION | OPER. No.: 13 |

OBSOLETE MAR 24 1947

## PROCESS RECORD — INSPECTION

| GAUGES TYPE | GAUGES No | USE | LIMITS MAX. | LIMITS MIN |
|---|---|---|---|---|
| Cont. Sights (Front & Rear) | Visual | Check for mutilation and excessive off center<br>2. cont. light blow of copper hammer - if sight moves repair and re-target. | | |
| | | 3. Both sights must be aligned and square with butt. | | |
| Function<br>.30-06<br>.300 Sav.<br>.300 Mag.<br>.257 Rob't.<br>.270 Win | <br>C-52093V<br>C-52095V<br>C-52097V<br>C-52093V<br>C-52094V | 1. Max. heading plug - insert in chamber, close action - bolt should not lock and safe should not go on. ~~Accept if very snug.~~ | | |
| | | 2. Operate bolt (3) times and fire - no bind, bolt handle raises and lowers easily. | | |
| | | 3. Open and close bolt forcibly (3) times - trigger must not follow down. | | |
| | | 4. Push "On" safe - no bind. | | |
| | | 5. Push safe off with thumb - no bind, must not fire until trigger is pulled. | | |
| Scale | | 6. Trigger pull - no perceptible creep or bind trigger must retract after firing. | 6-1 6# | 4# |
| Function last | Visual | Remove bolt<br>7. Wire brush and wipe bore - check for rust or other defects. | | |
| Assembly | | 1. Insert bolt - no bind by bolt stop | | |
| | | 2. Pull back bolt to test - bolt stop must stop bolt. | | |
| Stamp | | 1. Final inspection mark on left side rear of barrel. per sketch | | |

(above 1st) Safe on - pull trigger - trigger must not fire. Push safe off - must not fire

| COMPILED BY S. H. Quist | APPROVAL & DATE. |
|---|---|

REMINGTON ARMS COMPANY, INC. REVISED AUG 26 1946

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

R2527164

| PART: FINAL ASSEMBLY | PART No. Final Assembly |
|---|---|
| OPERATION: FINAL INSPECTION | OPER. No.: 13 |

OBSOLETE MAR 24 1947

PROCESS RECORD — INSPECTION

| GAUGES TYPE | GAUGES No. | USE | LIMITS MAX | LIMITS MIN |
|---|---|---|---|---|
| Stamp (Cont.) | | 1. Date code mark on left side rear of barrel.<br>2 Barrel inspection mark<br>3. Sign tag | | |
| | Send to | Warehouse | | |

COMPILED BY S. H. Quist | APPROVAL & DATE

REMINGTON ARMS COMPANY, INC., REVISED AUG 26 1946

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

ATPR 11

| PART: FINAL ASSEMBLY | PART No. FINAL ASSEMBLY |
|---|---|
| OPERATION: CHECK FOR LIVE AMMUNITION | OPER. No.: 12 |

## PROCESS RECORD — INSPECTION

| GAUGES | | USE | LIMITS | |
|---|---|---|---|---|
| Type | No. | | Max. | Min. |
| | Visual | Check for Live Ammunition in Chamber, Magazine and Receiver. Follower must be visible. | | |

| COMPILED BY: | APPROVAL & DATE: WVS 2/20/42 |
|---|---|

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON
R2527166

| PART: Final Assembly | PART No. |
|---|---|
| OPERATION: Final Inspection | OPER. No.: 13 |

OBSOLETE

## PROCESS RECORD — INSPECTION

| | GAUGES TYPE | GAUGES No. | USE | LIMITS MAX. | LIMITS MIN. |
|---|---|---|---|---|---|
| 1. | | | Check for live ammunition — chamber, magazine empty - follower visible. | | |
| 2. | Outside appearance | | | | |
| | a. Barrel | | 1 Finish<br>a. Color uniform<br>b. no serious mars or scratches<br>c. no jams at muzzle crown.<br>d. accept 1/16" light ring around bore | | |
| | b. Sights | | 1 Finish<br>a check for mutilation<br>b. Excessive off center. | | |
| | c Stock | | 1. Finish no checks, mars only slight scratches<br>2 check screws tight ... stock, mars & burns slight, no bad projections | | |

COMPILED BY:

APPROVAL & DATE: M.P.

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

H. H. SULLIVAN, INC.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

TPR-11

Re-typed

OBSOLETE

MAR 2[illegible]

| PART: Final Assembly | PART No. |
|---|---|
| OPERATION: Final Inspection | OPER. No.: 13 |

## PROCESS RECORD — INSPECTION

| GAUGES TYPE | GAUGES No. | USE | LIMITS MAX. | LIMITS MIN. |
|---|---|---|---|---|
| 2, Function | | 1. Max Heading Plug Insert in chamber, close bolt. Bolt must not lock. Safe must not go on. | | |
| 30-06 | C-52093 ✓ | | | |
| 300 Sav | C-52095 ✓ | | | |
| 300 mag | C-52097 ✓ | | | |
| 270 Win | C-52093 ✓ | | | |
| 257 Roll | C-52094 ✓ | | | |
| | | 2 Operate bolt 3 times and fire - no bind bolt handle raise and lowers easily. | | |
| | | 3 Open and close bolt forcibly 3 times. Trigger must not follow down | | |
| | | 4 Push safe on - no bind pull trigger - must not fire - release safe - must not fire until trigger is pulled. | | |
| Scale | | 5 Trigger pull - no perceptible creep or bind. trigger must retact after firing. | 6# | 4# |
| | | 6 Remove bolt. | | |

COMPILED BY:

APPROVAL & DATE: [illegible]

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

H. H. SULLIVAN, INC.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

TPR-11

OBSOLETE

PART: Final assembly | PART No.

OPERATION: Final Inspection | OPER. No.: 13

## PROCESS RECORD — INSPECTION

| GAUGES | | USE | LIMITS | |
|---|---|---|---|---|
| TYPE | No. | | MAX. | MIN. |
| | | 7. Wire brush and wipe bore, check for rust and other defects. | | |
| | | 8. Insert bolt - no bind | | |
| | | 9. Pull back bolt - bolt stop must hold. | | |
| 4 Check Tags & Stamps | | 1 check for proofmark (REP) | | |
| | | 2 check for Target & test mark. | | |
| | | 3 check Tag - must match gun. | | |
| 5 Final Marks | | 1. Date code mark (see sketch) | | |
| | | 2. Final inspection mark (see sketch) | | |
| | | 3. Sight tag | | |
| | | Send to Warehouse. | | |

COMPILED BY: | APPROVAL & DATE: Insp.

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

H. H. SULLIVAN, INC.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

| PART: FINAL ASSEMBLY | PART No. Final Assembly |
|---|---|
| OPERATION: FINAL INSPECTION | OPER. No.: 13 |

**PROCESS RECORD — INSPECTION**

| GAUGES | | USE | LIMITS | |
|---|---|---|---|---|
| TYPE | No. | | MAX. | MIN. |
| Assembly | Visual | 1. Check for live ammunition chamber, magazine, and receiver empty, follower visible.<br>2. Check stamps:<br>a. Assembly - On barrel left side rear.<br>b. First inspection - In bolt handle slot of stock<br>c. Proof - (REP) On rear right side of barrel<br>d. Target & test - On rear right side of barrel.<br>3. Tag - must match with gun. | | |
| Stock | Visual | 1. Finish - no check, mars and only slight scratches<br>2. Set screws tight in stock, mars and burrs slight and no bad projections.<br>3. Barrel must seat and return to same position when pulled away and moved from side to side. | | |
| Barrel | Visual | 1. Finish<br>a. Color uniform<br>b. No serious mars or scratches.<br>c. No jams at muzzle crown.<br>d. Accept 1/16" light ring around bore. | | |
| Sights (Front & Rear) | Visual | 1. Finish<br>a. Color uniform<br>b. No serious mars or scratches<br>2. Check both sights for tightness in dovetail with | | |

COMPILED BY: S. H. Quist

APPROVAL & DATE: WHS 8/20/46

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

PART: FINAL ASSEMBLY | PART No.

OPERATION: FINAL INSPECTION | OPER. No.: 13

## PROCESS RECORD — INSPECTION

| | GAUGES TYPE | GAUGES No. | USE | LIMITS MAX. | LIMITS MIN. |
|---|---|---|---|---|---|
| 1. | | | Check for live ammunition ~~0~~ chamber, magazine empty, follower invisible.. | | |
| 2. | Outer appearance<br>a. Barrel | | 1. Finish<br>(a) Color uniform<br>(b) No serious mars or scratches<br>(c) No jams at muzzle crown<br>(d) Accept 1/16" light ring around bore | | |
| | b. Sights | | 1. Finish<br>(a) Check for mutilation<br>(b) Excessive off center | | |
| | c. Stock | | 1. Finish - no checks mars, only slight scratches.<br>2. Check screws tight in Stock mars and burrs slight, no bad projections. | | |
| 3. | Function<br>30-06<br>300 Sav.<br>300 Mag.<br>270 Win.<br>257 Rob't | <br>C-52093V<br>C-52095V<br>C-52097V<br>C-52093V<br>C-52094V | 1. Max. Heading Plug Insert in Chamber, close Bolt Bolt must not lock., Safe must not go on. *Remove Heading Plug*<br>2. Operate Bolt 3 times and fire no bind, Bolt Handle raise and lowers easily.<br>3. Open and close Bolt forcibly 3 times. Trigger must not follow down.<br>4. Push safe on - no bind - pull trigger - must not fire - release safe - must not fire until trigger is pulled Bolt Handle must not lift on Safe. | | |
| | Scale | | 5. Trigger pull - no preceptible creep or bind. ~~Trigger must retract after firing~~ | 6# | 4# |
| | | | 6. Remove Bolt & *check No against Rec. & gun tag*<br>7. Wire brush and wipe bore, check for rust and other defects. | | |

COMPILED BY: | APPROVAL & DATE:

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

| PART: FINAL ASSEMBLY | PART No. Final Assembly |
|---|---|
| OPERATION: FINAL INSPECTION | OPER. No.: 13 |

**PROCESS RECORD — INSPECTION**

| GAUGES | | USE | LIMITS | |
|---|---|---|---|---|
| TYPE | No. | | MAX. | MIN. |
| Cont. Sights (Front & Rear) | Visual | 2. cont. light blow of copper hammer - if sight moves repair and re-target. | | |
| | | 3. Both sights must be aligned and square with butt. | | |
| Function .30-06 .300 Sav. .300 Mag. .257 Rob't. .270 Win | C-52093V C-52095V C-52097V C-52093V C-52094V | 1. Max. heading plug - insert in chamber, close action - bolt should not lock and safe should not go on. Accept if very snug. | | |
| | | 2. Operate bolt (3) times and fire - no bind, bolt handle raises and lowers easily. | | |
| | | 3. Open and close bolt forcibly (3) times - trigger must not follow down. | | |
| | | 4. Push "On" safe - no bind. | | |
| | | 5. Push safe off with thumb - no bind, must not fire until trigger is pulled. | | |
| Scale | | 6. Trigger pull - no perceptible creep or bind trigger must retract after firing. | 5# | 4# |
| Function | Visual | 7. Wire brush and wipe bore - check for rust or other defects. | | |
| Assembly | | 1. Insert bolt - no bind by bolt stop | | |
| | | 2. Pull back bolt to test - bolt stop must stop bolt. | | |
| Stamp | | 1. Final inspection mark on left side rear of barrel. | | |

COMPILED BY: S. H. Quist | APPROVAL & DATE: MKL 8/20/46

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

PART: FINAL ASSEMBLY | PART No.

OPERATION: FINAL INSPECTION | OPER. No.: 13

PROCESS RECORD — INSPECTION

| | GAUGES | | USE | LIMITS | |
|---|---|---|---|---|---|
| | TYPE | No. | | MAX. | MIN. |
| | | | 8. Insert Bolt - no bind.<br>9. Pull back Bolt - Bolt Stop must hold. | | |
| 4. | Check tags and Stamps | | 1. Check for Proofmark (REP)<br>2. Check for Target and Test mark.<br>3. Check Tags - must match gun | | |
| 5. | Final Marks | | 1. Date code mark (see sketch)<br>2. Final inspection mark (see Sketch)<br>3. Sign Tag.<br><br>SEND TO WAREHOUSE | | |

COMPILED BY: | APPROVAL & DATE:

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

H. K. SULLIVAN, INC.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

| PART: FINAL ASSEMBLY | PART No. Final Assembly |
|---|---|
| OPERATION: FINAL INSPECTION | OPER. No.: 13 |

**PROCESS RECORD — INSPECTION**

| GAUGES | | USE | LIMITS | |
|---|---|---|---|---|
| TYPE | No. | | MAX. | MIN. |
| Stamp (Cont.) | | 2. Date code mark on left side rear of barrel.<br>3. Sign tag | | |
| | Send to | Warehouse | | |

COMPILED BY: S. H. Quist | APPROVAL & DATE: MKL 8/30/46

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

TPR-11

| PART: FINAL ASSEMBLY | PART No. |
|---|---|
| OPERATION: FINAL INSPECTION | OPER. No.: 13 |

OBSOLETE (as of 15 1947)

## PROCESS RECORD — INSPECTION

| | GAUGES TYPE | GAUGES No. | USE | LIMITS MAX. | LIMITS MIN. |
|---|---|---|---|---|---|
| 1. | | | Check for live ammunition in chamber, magazine empty, follower invisible. | | |
| 2 | Outer appearance<br>a. Barrel | | 1. Finish<br>(a) Color uniform<br>(b) No serious mars or scratches<br>(c) No jams at muzzle crown<br>(d) Accept 1/16" light ring around bore | | |
| | b. Sights | | 1. Finish<br>(a) Check for mutilation<br>(b) Excessive off center | | |
| | c. Stock | | 1. Finish - no checks mars, only slight scratches.<br>2. Check screws tight in Stock mars and burrs slight, no bad projections. | | |
| 3. | Function<br>30-06<br>300 Sav.<br>300 Mag.<br>270 Win.<br>257 Rob't | <br>C-52093V<br>C-52095V<br>C-52097V<br>C-52093V<br>C-52094V | 1. Max. Heading Plug Insert in Chamber, close Bolt Bolt must not lock. Safe must not go on. Remove Heading Plug.<br>2. Operate Bolt 3 times and fire no bind, Bolt Handle raise and lowers easily.<br>3. Open and close Bolt forcibly 3 times. Trigger must not follow down.<br>4. Push safe on - no bind - pull trigger - must not fire - release safe - must not fire until trigger is pulled Bolt Handle must not dirt on Safe.<br>5. Trigger pull - no preceptible creep or bind. Trigger must retract after firing<br>6. Remove Bolt & Check No. against Receiver & Gun<br>7. Wire brush and wipe bore, check for rust and other defects. | | 6# 4# |
| | Scale | | | | |

| COMPILED BY: | APPROVAL & DATE: |
|---|---|

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

H. H. SULLIVAN, INC.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON
R2527175

PR-20

Retyped
OBSOLETE
APR 22 1941

| PART: FINAL ASSEMBLY | PART No. ~~FINAL ASSEMBLY~~ |
|---|---|
| OPERATION: Ream Ejector Hole, Assemble Extractor, Ejector Spring ~~ASSEMBLY OF BOLT~~ and Ejector Pin | OPER. No.: 14 |

PROCESS RECORD - ASSEMBLY

| STEP | TOOLS & GAGES TYPE | NO. | REMARKS |
|---|---|---|---|
| 1. Ream Ejector Hole | | | |
| 2. Insert Extractor (17020-W all calibers except .300 mag) (17020 V - 300 H.H. mag) | | | Claw must be opposite Ejector Hole |
| 3. Insert Ejector Sprg. 17019 and Ejector 17017 | Fixture | C51730 | |
| 4. Insert Ejector Pin 17018 | Fixture | C51730 | |
| 4. ~~Screw Firing Pin Assembly 17223YW, YV into Bolt Body Assembly 17005W,V~~ ~~Remove V Clamp~~ | ~~Put in Oil~~ | | |

| COMPILED BY: MVP | APPROVAL & DATE: ~~MVP~~ 4/10/47 |
|---|---|

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

H. H. SULLIVAN, INC.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

TPR-20

| PART: FINAL ASSEMBLY | PART No. ~~FINAL ASSEMBLY~~ |
|---|---|
| OPERATION: ASSEMBLE SIGHTS & Receiver Plug Screws | OPER. No. ~~1~~ 16 |

Retyped OBSOLETE APR 22 1941

PROCESS RECORD - ASSEMBLY

| STEP | TOOLS * | REMARKS |
|---|---|---|
| 1. Insert Front Sight, 17026, ~~center on~~ Ramp | Vise Jaws C-53325 | Must be tight in Dovetail |
| 2. Insert Rear Open Sight Assembly, 17030-Y, and Open Sight Step, 17033-W | Vise Jaws C-53325 | Must be tight in Dovetail |
| 3, Insert (4) Receiver Plug Screws. 17034 | | |

* Use normal complement of Hand tools to Assemble as required.

| COMPILED BY: MHL | APPROVAL & DATE: ~~MHL 6/30/41~~ |
|---|---|

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

R2527177

PR-20

Returned
DE SOLETE
APR 22 1947

| PART: FINAL ASSEMBLY | PART No. FINAL ASSEMBLY |
|---|---|
| OPERATION: ASSEMBLE Firing Pin assembly into bolt TRIGGER ASSEMBLY, BOLT STOP & RECEIVER | OPER. No.: 18 |

PROCESS RECORD - ASSEMBLY

| STEP | TOOLS* | REMARKS |
|---|---|---|
| 1. Screw Firing Pin assembly (17223YW-721)(17223YV)722 into Bolt Assembly (17005YW 721 except .300 mag)(17005YV-721-300 Mag)(17005YU-722) | | |
| 2. Insert Trigger Assembly, 17036-Y. | | |
| 3. Start Bolt Stop Pin, 17037-W, and Sear Pin, 17037-V, from Right Side. | | |
| 4. Insert Bolt Stop Spring, 17014, and Bolt Stop, 17013. | | |
| 5. Drive out Dummy Pins with Bolt Stop Pin and Sear Pin. | | |
| 6. Insert Bolt and push safety on. | | There must be clearance between Sear and Trigger. |
| 7 Dry Safety and Bolt action and adjust if necessary | | |
| 8. Check & set trigger full 4# to 6# | | |

* Use normal complement of Hand Tools to Assemble as Required.

| COMPILED BY: MHK | APPROVAL & DATE: |
|---|---|

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

TPR-20

| PART: Final Assembly | PART No. |
|---|---|
| OPERATION: Action Inspection | OPER. No.: 19 |

RECEIVED FTF APR 24 1947

1. With action in fired position, cock bolt handle while pressing forward firmly. Immediately close handle. Bolt must stay locked.

2. Raise bolt handle. Observe sear and trigger connector through right side inspection hole. Must be definite clearance between sear and trigger connector.

3 Close bolt. While moving safety to safe position firing pin head must move slightly to rear.

4. Observe sear through inspection hole on left side. When safety is moved to safe position sear must raise slightly.

5 Remove bolt. Press upward on rear end of sear and safety cam. There should be no upward movement. Replace bolt.

6. Check all screws in housing. Should be snug fit.

| COMPILED BY: JWP | APPROVAL & DATE: |
|---|---|

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

PR-20

| PART: Final Assembly | PART No. |
|---|---|
| OPERATION: Assembly of stock to action etc. | OPER. No.: 20 |

1. Tighten (1) Butt Plate Screws

2. assemble and fit stock (17035 W-721) (17035 V-722) to Barrel assembly (17000 YW, 30-06-Y-V-270 Win-Y-U .300 H & H Mag) 721, (17000 YS .257 Rob. YT .300 Sav) 722,

3. assemble magazine (17027-721) (17057-722)

4. assemble Trigger Guard (17054 W-721) (17054 V 722) and Trigger Guide Plate 17055.

5. Insert Front Guard Screw (17025-W-721) (17025 V 722) and Rear Guard Screw 17025 V and Center Guard Screw 17580.

6. Check Safety for Bind on stock and fit if necessary.

Use normal complement of hand tools to complete assembly

| COMPILED BY: MP | APPROVAL & DATE: |
|---|---|

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

OBSOLETE APR 22 1947

| PART: FINAL ASSEMBLY | PART No. FINAL ASSEMBLY |
|---|---|
| OPERATION: FINAL ASSEMBLY | OPER. No.: 20 |

PROCESS RECORD - ASSEMBLY

| STEP | TOOLS * | REMARKS |
|---|---|---|
| 1. Check and set Trigger Pull at 4 to 5 lbs. | | |
| 2. Position Stock 17035-W Bottom up | | Check that Barrel Bracket Lug contacts back of Recoil Shoulder in Stock |
| 3. Insert Magazine & Follower Assembly, 17115. | 01 22 | |
| 4. Insert Trigger Guard, 17054-W and Trigger Guide Plate, 17055. | | |
| 5. Insert Front Guard Screw, 17025-W and Rear Guard Screw, 17025-V, Center Guard Screw 17580 check safety | | |
| 6. Insert Receiver Plug Screws (4), 17034. | | |
| 7. Tighten Butt Plate Screws. | | |

* Use normal complement of Hand tools to Assemble as Required.

| COMPILED BY: | APPROVAL & DATE: |
|---|---|
| [illegible] | [illegible] 8/20/46 |

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

R2527181

| PART: Final Assembly. | PART No. |
|---|---|
| OPERATION: Install Follower and check function. | OPER. No.: 22 |

1. Assemble Follower assembly 17115-Y~~-~~ 721 or 17116Y 722 in magazine.

2. Try dummy shells ~~in magazine~~ for feeding and ejection and adjust if necessary.

3 Check Trigger Pull 4# to 6# and adjust if necessary.

| COMPILED BY: WPS | APPROVAL & DATE: |
|---|---|

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

APR 22 1941

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

| PART: Final Assembly | PART No. |
|---|---|
| OPERATION: Check for Live Ammunition | OPER. No.: 32. |

Check gun for live ammunition before leaving gallery. Chamber must be empty and Follower visible.

| COMPILED BY: MPJ. | APPROVAL & DATE: |
|---|---|

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

APR 22 1947

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

DESIGN FOR MODEL 721 BOLT ACTION
HIGH POWER RIFLE FTD-151
(formerly FTS-3483)

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

J.O. Clifford R.H. Grace
H.A. Brown R.M. Smith
S.M. Alvis W. Holloway
P.B.Rutherford H.J.Hackman
J. Hammond V. DeReus

Project No. FD-721 (Part I - 5 Cals.)

Project Title BOLT ACTION HIGH POWER RIFLE

FINANCIAL STATUS AS OF September 27, 1948

| | Total Estimate | Allocation of Auth. Funds | Spent This Week | Total Expended | Balance Unexpended |
|---|---|---|---|---|---|
| **FD-721-1 - DEVELOPMENT** | | | | | |
| Design | | | | | |
| Investigation | $ 556.00 | $ 556.00 | $ .00 | $ 556.20 | $ (.20) |
| Design | 15,008.00 | 15,008.00 | 184.21 | 12,564.21 | 443.79 |
| Design Revisions | 20,737.00 | 20,737.00 | - 4.35 | 17,080.66 | 3,656.34 |
| Model Making | 15,892.00 | 15,892.00 | .00 | 15,592.10 | 299.90 |
| Sub-Total - - | $ 48,175.00 | $ 48,175.00 | $ 188.66 | $ 45,778.26 | $ 4,396.74 |
| Specifications | | | | | |
| Testing Guns | $ 11,685.00 | $ 11,685.00 | $ .00 | $ 7,948.42 | $ 3,736.58 |
| Specifications | 7,285.00 | 7,285.00 | 1.84 | 8,551.51 | (1,276.51) |
| Sub-Total - - | $ 18,970.00 | $ 18,970.00 | $ 1.84 | $ 16,509.93 | $ 2,460.07 |
| Product Engineering | | | | | |
| Process Engineering | $ 61,957.00 | $ 61,957.00 | $ 797.92 | $ 52,201.00 | $ 9,756.00 |
| Trial Run | 16,516.00 | 16,516.00 | 171.58 | 237.64 | 16,278.36 |
| Sub-Total - - | $ 78,455.00 | $ 78,455.00 | $ 969.24 | $ 52,438.64 | $ 26,014.32 |
| Tool Design | | | | | |
| Tool Design | $ 78,017.00 | $ 78,017.00 | $ 147.88 | $ 80,567.75 | $ (2,550.75) |
| Tool Design Revisions | 12,500.00 | 12,500.00 | 437.61 | 6,422.84 | 6,077.16 |
| Tool Revisions | 15,000.00 | 15,000.00 | .00 | .00 | 15,000.00 |
| Sub-Total - - | $105,517.00 | $105,517.00 | $ 585.17 | $ 86,990.59 | $ 18,526.41 |
| Administration | | | | | |
| Engineering Files | $ 5,700.00 | $ 5,700.00 | $ 17.14 | $ 3,559.88 | $ 2,140.12 |
| Project Engineering | 10,250.00 | 10,250.00 | 185.25 | 185.25 | 10,064.75 |
| Sub-Total - - | $ 15,950.00 | $ 15,950.00 | $ 200.39 | $ 3,525.13 | $ 12,424.87 |
| TOTAL - - - - | $267,065.00 | $267,065.00 | $1,914.60 | $203,257.59 | $ 63,827.41 |
| **FD-721-2 - TOOLING** | $178,309.00 | $178,309.00 | $ | $ | $178,309.00 |
| **FD-721-3 - SPEC. MACH. & EQUIP.** | $ .00 | $ .00 | $ | $ | $ .00 |
| **FD-721-4 - STAND. MACH. & EQUIP.** | $574,527.00 | $574,527.00 | $ | $ | $574,527.00 |
| **FD-721-5 - PRODUCTION AIDS** | $ 24,819.00 | $ 24,819.00 | $ | $ | $ 24,819.00 |
| **FD-721-6 - PILOT OPERATIONS** | | | | | |
| Quality Audit | $ 6,366.00 | $ 6,366.00 | $ 251.34 | $ 251.34 | $ 6,114.66 |
| Methods Engineering | 1,650.00 | 1,650.00 | .00 | .00 | 1,650.00 |
| Machine Changes & Add. | 4,114.00 | 4,114.00 | 115.12 | 115.12 | 3,998.88 |
| Machine Rearrangement | 2,690.00 | 2,690.00 | 19.87 | 19.87 | 2,670.13 |
| Pilot Lot Manufacture | 58,715.00 | 58,715.00 | 1,556.96 | 29,566.10 | 9,148.90 |
| Tool Replacement | 5,528.00 | 5,528.00 | 4.97 | 4.97 | 5,523.03 |
| Credit for O.K. Guns | (4,410.00) | (4,410.00) | | | (4,410.00) |
| Sub-Total - - | $ 52,653.00 | $ 52,653.00 | $1,718.26 | $ 29,937.40 | $ 22,715.60 |
| GRAND TOTAL - - - - | $897,575.00 | $897,575.00 | $3,824.86 | $253,174.79 | $644,196.21 |

FD-721-1 & 721-6 - Subject to Distribution Adjustment

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON
R2527185

CC: S. M. Alvis
H. A. Brown
R. H. Grace
J. Hammond
R. A. A. Hentschel
P. B. Rutherford
M. H. Smith

REC. R.A.A.H. APR 15 1946

# PROGRESS REPORT

## Barrel Steel - Physical Property Test

Period: November 5, 1945 to April 10, 1946
Project: FTD-151 P.O. 70068
Amount Authorized: $750.00 Amount Spent: $712.66
Previous Progress Reports - None
Prepared by: C. F. Benner

## Introduction

Information concerning barrel strength properties are of an emperical nature and it was felt that these values should be proven to be practical, or that values be determined by the test for use as a practical basis for designing rifle barrels.

## Objective

To determine physical properties at which rifle barrels will fail under proof firing and conversely to determine physical properties of a rifle barrel of a safe minimum cross section that will withstand proof firing and pass safety tests for firing under abnormal conditions (plugged bore).

## Work Program

1. Chemical analysis of blanks
2. Magnetic analysis of blanks
3. Jominy hardenability of blanks
4. Heat treatment to physical properties as follows

| | Yield p.s.i. | No. Blanks | Calibers To Be Tested |
|---|---|---|---|
| a. | 70000 | 9 | .300 Mag. M-721 & 760<br>.270 M-760 |
| b. | 80000 | 9 | .300 Mag. M-721 & 760, .270 M-760 |
| c. | 90000 | 6 | .300 Mag. M-760, .270 M-760 |
| d. | 100000 | 3 | .300 Mag. M-760 |

5. Turn blanks over to Design for manufacture.

## Conclusions

Conclusions to be drawn on completion of firing test.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

## Future Program

Future Program as seen at this time will only concern the completion of the testing program which has been interrupted because of the more urgent requirements of the M/721.

## Patent Situation

Not involved in this study.

## Experimental Details

1. Chemical Analysis of Blanks
   Group I - 1-5/16" dia. blanks
   C-.37, Mn-.78, Cr-.14, Mo-0

   Group II- 1-3/8" dia. blanks
   C-.37, Mn-.93, Cr-.90, Mo-.16

2. Jominy Hardenability Test
   Group I - 1-5/16" dia. blanks - Rc48 at 3/8"
   Rc33½ at ¾"

   Group II- 1-3/8" dia. blanks - Rc53 at 3/8"
   Rc42½ at ¾"

3. Heat Treatment - 100000 p.s.i. - yield - 1-3/8" dia. blanks
   a. Heat to 1550°F - Hold 2 hrs. at heat
      Oil Quench - 3 min. max. in oil
      Temper 1225°F - 2 hrs.
      Brinell Hardness 255-255-255
   b. Physical Properties
      Yield (p.s.i.) 101,500
      Tensile (p.s.i.) 121,750
      Elongation - 21½"
      Reduction in Area - 66%

4. Heat Treatment - 90,000 p.s.i. yield - 1-3/8" dia. blanks.
   a. Heat to 1550°F - Hold 2 hrs. at heat
      Oil Quench - 3 min. max. in oil
      Temper at 1260°F - 2 hrs.
      Brinell Hardness 223-235-235-241-241
   b. Physical Properties - Blank having 223 Brinell used.
      Yield (p.s.i.) - 85,000
      Tensile (p.s.i.) - 106,000
      Elongation - 23%
      Reduction in Area - 67%
      Blank having 241 Brinell hardness
      Yield (p.s.i.) - 94,800
      Tensile (p.s.i.) - 113,000
      Elongation - 24%
      Reduction in Area - 66%

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KINZER V. REMINGTON

5. Heat Treatment - 80,000 p.s.i. yield - 1-5/16" dia. blanks
   a. Heat to 1550°F - Hold 2 hrs. at heat
      Oil Quench - 3 min. max. in oil
      Temper at 1350°F - 2 hrs.
      Brinell Hardness - 207(7) - 217-202
   b. Physical Properties - Blank having 207 Brinell hardness
      Yield (p.s.i.) - 80,700
      Tensile (p.s.i.) 99,750
      Elongation - 26½%
      Reduction in Area - 68%

6. Heat Treatment - 70,000 p.s.i. yield
   Cold rolled stock will be used to obtain barrels having this yield.

7. All barrel blanks have been marked for identification as follows and stored for future use:

   #1 through #6 incl. - 85,000 - 94,000
   #7 through #9 incl. -100,000
   #10 through #19 incl. - 80,000

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

. O. Clifford
. A. Brown
S. M. Alvis
P.B.Rutherford
J. Hammond
R.H. Grace
R.M. Smith
W. Holloway

Project No. FTD-151

Project Title Bolt Action High Power Rifle

Model M/721 & 722

FINANCIAL STATUS AS OF June 14, 1946

| | AUTHORIZED ALLOCATION | TOTAL AMOUNT EXPENDED | UNEXPENDED BALANCE |
|---|---|---|---|
| **DESIGN - -** | | | |
| Investigation | $ 500.00 | $ 500.00 | $ .00 |
| Design | 12,410.00 | 12,410.00 | .00 |
| Model Making | 13,672.00 | 13,672.00 | .00 |
| Design Revisions | 16,000.00 | 14,979.86 | 1,020.14 |
| Sub-Total - - | $ 42,582.00 | $ 41,561.86 | $ 1,020.14 |
| **SPECIFICATIONS - -** | | | |
| Testing | $ 9,200.00 | $ 8,572.28 | $ 627.72 |
| Specifications | 4,000.00 | 7,255.99 | (3,255.99) |
| Engineering Files | 2,818.00 | 1,478.83 | 1,339.17 |
| Sub-Total - - | $ 16,018.00 | $ 17,307.10 | $ (1,289.10) |
| **PROCESS ENGINEERING - -** | | | |
| Process Development | $ 3,500.00 | $ 3,631.81 | $ (131.81) |
| Processing | 26,000.00 | 33,413.52 | (7,413.52) |
| Trial Run | 7,500.00 | 66.36 | 7,433.64 |
| Sub-Total - - | $ 37,000.00 | $ 37,111.69 | $ (111.69) |
| **TOOL DESIGN - -** | | | |
| Design | $ 41,000.00 | $ 75,071.09 | $(34,071.09) |
| Process Sketching | 4,000.00 | 1,609.88 | 2,390.12 |
| Tool Revisions | 12,500.00 | 1,912.50 | 10,587.50 |
| Sub-Total - - | $ 57,500.00 | $ 78,593.47 | $(21,093.47) |
| **MISCELLANEOUS** | | | |
| Consumer- Accept. Eval. | $ 1,500.00 | $ 33.44 | $ 1,466.56 |
| Pilot Operations | 19,500.00 | 14,605.63 | 4,894.37 |
| Sub-Total - - | $ 21,000.00 | $ 14,639.07 | $ 6,360.93 |
| GRAND TOTAL - - | $174,100.00 | $189,213.19 | $(15,113.19) |

| EXPENDITURES For Week Ending | 6/14/46 |
|---|---|
| Design | $ 177.47 |
| Specifications | 70.81 |
| Process Eng. | 595.24 |
| Tool Design | 1,935.31 |
| Miscellaneous | 1,553.92 |
| TOTAL - - | $ 4,332.75 |

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

O. Clifford
A. Brown
G. M. Alvis ✓
P.B. Rutherford
J. Hammond
R.H. Grace
R.M. Smith
W. Holloway

Project No. FTD-151

Project Title Bolt Action High Power Rifle

Model M/721 & 722

FINANCIAL STATUS AS OF May 3, 1946

| | AUTHORIZED ALLOCATION | TOTAL AMOUNT EXPENDED | UNEXPENDED BALANCE |
|---|---|---|---|
| **DESIGN - -** | | | |
| Investigation | $ 500.00 | $ 500.00 | $ .00 |
| Design | 12,410.00 | 12,410.00 | .00 |
| Model Making | 13,672.00 | 13,672.00 | .00 |
| Design Revisions | 16,000.00 | 13,813.16 | 2,186.84 |
| Sub-Total - - | $ 42,582.00 | $ 40,395.16 | $ 2,186.84 |
| **SPECIFICATIONS - -** | | | |
| Testing | $ 9,200.00 | $ 8,504.52 | $ 695.48 |
| Specifications | 4,000.00 | 6,951.87 | (2,951.88) * |
| Engineering Files | 2,818.00 | 1,212.42 | 1,605.58 |
| Sub-Total - - | $ 16,018.00 | $ 16,668.81 | $ (650.82) |
| **PROCESS ENGINEERING - -** | | | |
| Process Development | $ 3,500.00 | $ 3,131.81 | $ 368.19 |
| Processing | 26,000.00 | 30,229.50 | (4,229.50) |
| Trial Run | 7,500.00 | 9.98 | 7,490.02 |
| Sub-Total - - | $ 37,000.00 | $ 33,371.29 | $ 3,628.71 |
| **TOOL DESIGN - -** | | | |
| Design | $ 41,000.00 | $ 58,208.43 | $(17,208.43) |
| Process Sketching | 4,000.00 | 1,420.02 | 2,579.98 |
| Tool Revisions | 12,500.00 | 900.29 | 11,599.71 |
| Sub-Total - - | $ 57,500.00 | $ 60,528.74 | $(3,028.74) |
| **MISCELLANEOUS - -** | | | |
| Consumer - Accept.Eval. | $ 1,500.00 | $ 33.44 | $ 1,466.56 |
| Pilot Operations | 19,500.00 | 9,018.45 | 10,481.55 |
| Sub-Total - - | $ 21,000.00 | $ 9,051.89 | $11,948.11 |
| GRAND TOTAL - - | $174,100.00 | $160,015.89 | $14,084.11 |

**EXPENDITURES For Week Ending** 5/3/46

| | |
|---|---|
| Design | $ 171.21 |
| Specifications | 1,897.88 |
| Process Eng. | 3,217.01 |
| Tool Design | 5,021.96 |
| Miscellaneous | 1,022.95 |
| TOTAL - - - | $ 11,331.01 |

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

O. Clifford
A. Brown
A.A. Hentschel
B. Rutherford
Hammond
H. Grace
M. Smith
Holloway

Project No. ETD-151

Project Title Bolt Action High Power Rifle

Model M/721 & 722

REC. R.A.A.H. MAY 2 1946

FINANCIAL STATUS AS OF April 26, 1946

| | AUTHORIZED ALLOCATION | TOTAL AMOUNT EXPENDED | BALANCE UNEXPENDED |
|---|---|---|---|
| **DESIGN - -** | | | |
| Investigation | $ 500.00 | $ 500.00 | $ .00 |
| Design | 12,410.00 | 12,410.00 | .00 |
| Model Making | 13,672.00 | 13,672.00 | .00 |
| Design Revisions | 16,000.00 | 13,641.95 | 2,358.05 |
| Sub-Total - - | $ 42,582.00 | $ 40,223.95 | $ 2,358.05 |
| **SPECIFICATIONS - -** | | | |
| Testing | $ 9,200.00 | $ 8,504.52 | $ 695.48 |
| Specifications | 4,000.00 | 5,328.87 | (1,328.87) |
| Engineering Files | 2,818.00 | 937.54 | 1,880.46 |
| Sub-Total - - | $ 16,018.00 | $ 14,770.93 | $ 1,247.07 |
| **PROCESS ENGINEERING - -** | | | |
| Process Development | $ 3,500.00 | $ 3,131.81 | $ 368.19 |
| Processing | 26,000.00 | 27,012.49 | (1,012.49) |
| Trial Run | 7,500.00 | 9.98 | 7,490.02 |
| Sub-Total - - | $ 37,000.00 | $ 30,154.28 | $ 6,845.72 |
| **TOOL DESIGN - -** | | | |
| Design | $ 41,000.00 | $ 53,348.49 | $(12,348.49) |
| Process Sketching | 4,000.00 | 1,420.02 | 2,579.98 |
| Tool Revisions | 12,500.00 | 738.27 | 11,761.73 |
| Sub-Total - - | $ 57,500.00 | $ 55,506.78 | $ 1,993.22 |
| **MISCELLANEOUS - -** | | | |
| Consumer - Accept.Eval. | $ 1,500.00 | $ 33.44 | $ 1,466.56 |
| Pilot Operations | 19,500.00 | 7,995.50 | 11,504.50 |
| Sub-Total - - | $ 21,000.00 | $ 8,028.94 | $12,971.06 |
| GRAND TOTAL | $174,100.00 | $148,684.88 | $25,415.12 |

EXPENDITURES For Week Ending 4/26/46

| | |
|---|---|
| Design | $ 101.55 |
| Specifications | 331.19 |
| Process Engineering | 326.68 |
| Tool Design | 2,476.40 |
| Miscellaneous | 1,063.90 |
| TOTAL - - - | $4,299.72 |

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

C. O. Clifford
H. A. Brown
R.A.A. Hentschel
P. B. Rutherford
J. Hammond
R. H. Grace
R. M. Smith
W. Holloway

Project No. FTD-151

Project Title Bolt Action High Power Rifle

Model M/721 & 722

C. R.A.A.H. APR 24 1946

FINANCIAL STATUS AS OF April 19, 1946

| | AUTHORIZED ALLOCATION | TOTAL AMOUNT EXPENDED | UNEXPENDED BALANCE |
|---|---|---|---|
| **DESIGN - -** | | | |
| Investigation | $ 500.00 | $ 500.00 | $ .00 |
| Design | 12,410.00 | 12,410.00 | .00 |
| Model Making | 13,672.00 | 13,672.00 | .00 |
| Design Revisions | 16,000.00 | 13,540.40 | 2,459.60 |
| Sub-Total - - | $ 42,582.00 | $ 40,122.40 | $ 2,459.60 |
| **SPECIFICATIONS - -** | | | |
| Testing | $ 9,200.00 | $ 8,502.45 | $ 697.55 |
| Specifications | 4,000.00 | 5,050.41 | * (1,050.41) |
| Engineering Files | 2,818.00 | 886.88 | 1,931.12 |
| Sub-Total - - | $ 16,018.00 | $ 14,439.74 | $ 1,578.26 |
| **PROCESS ENGINEERING --** | | | |
| Process Development | $ 3,500.00 | $ 3,131.81 | $ 368.19 |
| Processing | 26,000.00 | 26,695.79 | * (695.79) |
| Trial Run | 7,500.00 | .00 | 7,500.00 |
| Sub-Total - - | $ 37,000.00 | $ 29,827.60 | $ 7,172.40 |
| **TOOL DESIGN - -** | | | |
| Design | $ 41,000.00 | $ 51,036.07 | * $(10,036.07) |
| Process Sketching | 4,000.00 | 1,420.02 | 2,579.98 |
| Tool Revisions | 12,500.00 | 574.29 | 11,925.71 |
| Sub-Total - - | $ 57,500.00 | $ 53,030.38 | $ 4,469.62 |
| **MISCELLANEOUS - -** | | | |
| Consumer - Accpt. Eval. | $ 1,500.00 | $ 33.44 | $ 1,466.56 |
| Pilot Operations | 19,500.00 | 6,931.60 | 12,568.40 |
| Die Casting | | | |
| Sub-Total - - | $ 21,000.00 | $ 6,965.04 | $14,034.96 |
| GRAND TOTAL | $174,100.00 | $144,385.16 | $29,714.84 |

**EXPENDITURES For Week Ending 4/19/46**

| | |
|---|---|
| Design | $ 32.90 |
| Specifications | 503.09 |
| Process Engineering | 202.70 |
| Tool Design | 1,979.42 |
| Miscellaneous | 989.14 |
| TOTAL | $3,707.25 |

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

G. O. Clifford
H. A. Brown
R.A.A. Rentschel
P. B. Rutherford
J. Hammond
R. H. Grace
R. M. Smith
W. Holloway

Project No. FTD-151

Project Title Bolt Action High Power Rifle

Model M/721 & 722

REC. R.A.A.H
APR 18 1946

FINANCIAL STATUS AS OF April 12, 1946

| | ALLOCATION OF AUTH. FUNDS | TOTAL AMOUNT EXPENDED | BALANCE UNEXPENDED |
|---|---|---|---|
| **DESIGN - -** | | | |
| Investigation | $ 500.00 | $ 500.00 | $ .00 |
| Design | 12,410.00 | 12,410.00 | .00 |
| Model Making | 13,672.00 | 13,672.00 | .00 |
| Design Revisions | 16,000.00 | 13,507.50 | 2,492.50 |
| Sub-Total - - | $ 42,582.00 | $ 40,089.50 | $ 2,492.50 |
| **SPECIFICATIONS - -** | | | |
| Testing | $ 9,200.00 | $ 8,500.18 | $ 699.82 |
| Specifications | 4,000.00 | 4,606.77 | (606.77) |
| Engineering Files | 2,818.00 | 829.70 | 1,988.30 |
| Sub-Total - - | $ 16,018.00 | $ 13,936.65 | $ 2,081.35 |
| **PROCESS ENGINEERING --** | | | |
| Process Development | $ 3,500.00 | $ 3,131.81 | $ 368.19 |
| Processing | 26,000.00 | 26,493.09 | (493.09) |
| Trial Run | 7,500.00 | .00 | 7,500.00 |
| Sub-Total - - | $ 37,000.00 | $ 29,624.90 | $ 7,375.10 |
| **TOOL DESIGN - -** | | | |
| Design | $ 41,000.00 | $ 49,311.61 | $(8,311.61) |
| Process Sketching | 4,000.00 | 1,416.36 | 2,583.64 |
| Tool Revisions | 12,500.00 | 322.99 | 12,177.01 |
| Sub-Total - - | $ 57,500.00 | $ 51,050.96 | $ 6,449.04 |
| **MISCELLANEOUS - -** | | | |
| Consumer - Accpt. Eval. | $ 1,500.00 | $ 33.44 | $ 1,466.56 |
| Pilot Operations | 19,500.00 | 5,942.46 | 13,557.54 |
| Contingencies | .00 | .00 | .00 |
| Sub-Total - - | $ 21,000.00 | $ 5,975.90 | $15,024.10 |
| GRAND TOTAL | $174,100.00 | $140,677.91 | $33,422.09 |

**EXPENDITURES For Week Ending 4/12/46**

| | |
|---|---|
| Design | $ 7.99 |
| Specifications | 519.18 |
| Process Engineering | 282.75 |
| Tool Design | 6,814.85 |
| Miscellaneous | 805.43 |
| TOTAL | $8,430.20 |

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

O. Clifford
A. A. Brown
R.A.A. Hentschel ✓
P. B. Rutherford
J. Hammond
R. H. Grace
R. M. Smith
W. Holloway

REC. R.A.A.H.
APR 11 1946

Project No. FTD-151

Project Title Bolt Action High Power Rifle

Model M/721 & 722

FINANCIAL STATUS AS OF April 5, 1946

| | ALLOCATION OF AUTH. FUNDS | TOTAL EXPENDED | BALANCE UNEXPENDED |
|---|---|---|---|
| **DESIGN - -** | | | |
| Investigation | $ 500.00 | $ 500.00 | $ .00 |
| Design | 12,410.00 | 12,410.00 | .00 |
| Model Making | 13,672.00 | 13,672.00 | .00 |
| Design Revisions | 16.000.00 | 13.499.51 | 2.500.49 |
| Sub-Total - - | $ 42,582.00 | $ 40,081.51 | $ 2,500.49 |
| **SPECIFICATIONS - -** | | | |
| Testing | $ 9,200.00 | $ 8,489.63 | $ 710.37 |
| Specifications | 4,000.00 | 4,181.72 | (181.72) |
| Engineering Files | 2,818.00 | 746.12 | 2,071.88 |
| Sub-Total - - | $ 16,018.00 | $ 13,417.47 | $ 2,600.53 |
| **PROCESS ENGINEERING - -** | | | |
| Process Development | $ 3,500.00 | $ 3,131.81 | $ 368.19 |
| Processing | 26,000.00 | 26,210.34 | (210.34) |
| Trial Run | 7,500.00 | .00 | 7,500.00 |
| Sub-Total - - | $ 37,000.00 | $ 29,342.15 | $ 7,657.85 |
| **TOOL DESIGN - -** | | | |
| Design | $ 41,000.00 | $ 42,764.84 | $(1,764.84) |
| Process Sketching | 4,000.00 | 1,416.36 | 2,583.64 |
| Tool Revisions | 12.500.00 | 54.91 | 12,445.09 |
| Sub-Total - - | $ 57,500.00 | $ 44,236.11 | $13,263.89 |
| **MISCELLANEOUS - -** | | | |
| Consumer - Accept. Eval. | $ 1,500.00 | $ 33.44 | $ 1,466.56 |
| Pilot Operations | 19,500.00 | 5,137.03 | 14,362.97 |
| Contingencies | .00 | .00 | .00 |
| Sub-Total - - | $ 21,000.00 | $ 5,170.47 | $15,829.53 |
| TOTAL | $174,100.00 | $132,247.71 | $41,852.29 |

| EXPENDITURES For Week Ending | 4/5/46 |
|---|---|
| Design | $ 148.04 |
| Specifications | 654.46 |
| Process Engineering | 117.97 |
| Tool Design | 2,211.36 |
| Miscellaneous | 596.57 |
| TOTAL | $3,728.40 |

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

O. Clifford
G. R. McCormick
R.A.A. Hentschel
P. B. Rutherford
J. Hammond
R. H. Grace
R. M. Smith
W. Holloway

REC. R.A.A.H. APR 5 1946

Project No. FTD-151

Project Title Bolt Action High Power Rifle

Model M/721 & 722

FINANCIAL STATUS AS OF March 29, 1946

| | AUTHORIZED ALLOCATION | TOTAL AMOUNT EXPENDED | UNEXPENDED BALANCE |
|---|---|---|---|
| **DESIGN - -** | | | |
| Investigation | $ 500.00 | $ 500.00 | $ .00 |
| Design | 12,410.00 | 12,410.00 | .00 |
| Model Making | 13,672.00 | 13,672.00 | .00 |
| Design Revisions | 16,000.00 | 13,351.47 | 2,648.53 |
| Sub-Total - - | $ 42,582.00 | $ 39,933.47 | $ 2,648.53 |
| **SPECIFICATIONS - -** | | | |
| Testing | $ 9,200.00 | $ 8,394.38 | $ 805.62 |
| Specifications | 4,000.00 | 3,680.47 | 319.53 |
| Engineering Files | 2,818.00 | 688.16 | 2,129.84 |
| Sub-Total - - | $ 16,018.00 | $ 12,763.01 | $ 3,254.99 |
| **PROCESS ENGINEERING - -** | | | |
| Process Development | $ 3,500.00 | $ 3,123.87 | $ 376.13 |
| Processing | 26,000.00 | 26,100.31 | (100.31) |
| Trial Run | 7,500.00 | .00 | 7,500.00 |
| Sub-Total - - | $ 37,000.00 | $ 29,224.18 | $ 7,775.82 |
| **TOOL DESIGN - -** | | | |
| Design | $ 41,000.00 | $ 40,561.30 | $ 438.70 |
| Process Sketching | 4,000.00 | 1,412.45 | 2,587.55 |
| Tool Revisions | 12,500.00 | 51.00 | 12,449.00 |
| Sub-Total - - | $ 57,500.00 | $ 42,024.75 | $15,475.25 |
| **MISCELLANEOUS - -** | | | |
| Consumer - Accept. Eval. | $ 1,500.00 | $ 33.44 | $ 1,466.56 |
| Pilot Operations | 19,500.00 | 4,540.46 | 14,959.54 |
| Contingencies | .00 | .00 | .00 |
| Sub-Total - - | $ 21,000.00 | $ 4,573.90 | $16,426.10 |
| GRAND TOTAL | $174,100.00 | $128,519.31 | $45,580.69 |

| EXPENDITURES For Week Ending | 3/29/46 |
|---|---|
| Design | $ 246.84 |
| Specifications | 354.35 |
| Process Engineering | 231.12 |
| * Tool Design | 117.87 |
| Miscellaneous | 487.52 |
| TOTAL - - | $1,437.70 |

* Actual expenditures for the week amounted to $2,814.49 against which were credited cancelled commitments in the amount of $2,696.62 leaving $117.87 net.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

J. Clifford
R. McCormick
A. A. Hentschel
B. Rutherford
J. Hammond
R. H. Grace
R. M. Smith
W. Holloway

Project No. FTD-151

Project Title Bolt Action High Power Rifle

Model M/720 & 721

REC. R.A.A.H. APR 2 1946

FINANCIAL STATUS AS OF March 22, 1946

| | AUTHORIZED ALLOCATION | TOTAL AMOUNT EXPENDED | UNEXPENDED BALANCE |
|---|---|---|---|
| DESIGN - - | | | |
| Investigation | $ 500.00 | $ 500.00 | $ .00 |
| Design | 12,410.00 | 12,410.00 | .00 |
| Model Making | 15,672.00 | 15,672.00 | .00 |
| Design Revisions | 16,000.00 | 15,104.63 | 2,895.37 |
| Sub-Total ——— | $ 42,582.00 | $ 39,686.63 | $ 2,895.37 |
| SPECIFICATIONS - - | | | |
| Testing | $ 9,200.00 | $ 8,381.13 | $ 818.87 |
| Specifications | 4,000.00 | 3,416.73 | 583.27 |
| Engineering Files | 2,818.00 | 610.80 | 2,207.20 |
| Sub-Total ——— | $ 16,018.00 | $ 12,408.66 | $ 3,609.34 |
| PROCESS ENGINEERING - - | | | |
| Process Development | $ 3,500.00 | $ 3,084.18 | $ 415.82 |
| Processing | 26,000.00 | 25,908.88 | 91.12 |
| Trial Run | 7,500.00 | .00 | 7,500.00 |
| Sub-Total ——— | $ 37,000.00 | $ 28,993.06 | $ 8,006.94 |
| TOOL DESIGN - - | | | |
| Design | $ 41,000.00 | $ 40,448.48 | $ 551.52 |
| Process Sketching | 4,000.00 | 1,407.40 | 2,592.60 |
| Tool Revisions | 12,500.00 | 51.00 | 12,449.00 |
| Sub-Total ——— | $ 57,500.00 | $ 41,906.88 | $15,595.12 |
| MISCELLANEOUS - - | | | |
| Consumer - Accpt. Eval. | $ 1,500.00 | $ 53.44 | $ 1,466.56 |
| Pilot Operations | 19,500.00 | 4,052.94 | 15,447.06 |
| Contingencies | .00 | .00 | .00 |
| Sub-Total ——— | $ 21,000.00 | $ 4,086.38 | $16,913.62 |
| GRAND TOTAL - - - - - | $174,100.00 | $127,081.61 | $47,018.39 |

EXPENDITURES For Week Ending 5/22/46

| | |
|---|---|
| Design | $ 159.11 |
| Specifications | 492.05 |
| Process Engineering | 765.68 |
| Tool Design | 5,516.22 |
| Miscellaneous | 617.55 |
| TOTAL | $7,350.36 |

NOTE: Total Amount Authorized and Total Estimate Are Identical.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

W. O. Clifford
G. R. McCormick
R.A.A. Hentschel
P. B. Rutherford
J. Hammond
R. H. Grace
R. M. Smith
W. Holloway

Project No. FTD-151

Project Title Bolt Action High Power Rifle

Model M/720 & 721

FINANCIAL STATUS AS OF March 15, 1946

| | AUTHORIZED ALLOCATION | TOTAL AMOUNT EXPENDED | UNEXPENDED BALANCE |
|---|---|---|---|
| DESIGN - - | | | |
| Investigation | $ 500.00 | $ 500.00 | $ .00 |
| Design | 12,410.00 | 12,410.00 | .00 |
| Model Making | 15,672.00 | 15,672.00 | .00 |
| Design Revisions | 16,000.00 | 12,945.52 | 3,054.48 |
| Sub-Total - - | $ 42,582.00 | $ 39,527.52 | $ 3,054.48 |
| SPECIFICATIONS - - | | | |
| Testing | $ 9,200.00 | $ 8,337.09 | $ 862.91 |
| Specifications | 4,000.00 | 3,053.69 | 946.31 |
| Engineering Files | 2,818.00 | 525.83 | 2,292.17 |
| Sub-Total - - | $ 16,018.00 | $ 11,916.61 | $ 4,101.39 |
| PROCESS ENGINEERING - - | | | |
| Process Development | $ 3,500.00 | $ 3,074.93 | $ 425.07 |
| Processing | 26,000.00 | 25,152.50 | 847.50 |
| Trial Run | 7,500.00 | .00 | 7,500.00 |
| Sub-Total - - | $ 37,000.00 | $ 28,227.43 | $ 8,772.57 |
| TOOL DESIGN - - | | | |
| Design | $ 41,000.00 | $ 35,158.44 | $ 5,841.56 |
| Process Sketching | 4,000.00 | 1,407.40 | 2,592.60 |
| Tool Revisions | 12,500.00 | 24.82 | 12,475.18 |
| Sub-Total - - | $ 57,500.00 | $ 36,590.66 | $20,909.34 |
| MISCELLANEOUS - - | | | |
| Consumer-Accpt. Eval. | $ 1,500.00 | $ 33.44 | $ 1,466.56 |
| Pilot Operations | 19,500.00 | 3,435.59 | 16,064.41 |
| Contingencies | .00 | .00 | .00 |
| Sub-Total - - | $ 21,000.00 | $ 3,469.03 | $17,530.97 |
| GRAND TOTAL | $174,100.00 | $119,731.25 | $54,368.75 |

EXPENDITURES For Week Ending 3/15/46

| | |
|---|---|
| Design | $ 299.58 |
| Specifications | 348.74 |
| Process Engineering | 694.86 |
| Tool Design | 4,669.15 |
| Miscellaneous | 417.78 |
| TOTAL | $6,429.89 |

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

O. Clifford
R. McCormick
R.A.A. Hentschel
P. B. Rutherford
J. Hammond
R. H. Grace
R. M. Smith
W. Holloway

R.A.A.H.
MAR 19 1946

Project No. FTD-151

Project Title Bolt Action High Power Rifle

Model M/721 & 722

FINANCIAL STATUS as of March 8, 1946

| | Allocation of Auth. Funds | Total Expended | Balance Unexpended |
|---|---|---|---|
| DESIGN - - | | | |
| Investigation | $ 500.00 | $ 500.00 | $ .00 |
| Design | 12,410.00 | 12,410.00 | .00 |
| Model Making | 13,672.00 | 13,672.00 | .00 |
| Design Revisions | 16,000.00 | 12,646.14 | 3,353.86 |
| Sub-Total - - | $ 42,582.00 | $ 39,228.14 | $ 3,353.86 |
| SPECIFICATIONS - - | | | |
| Testing | $ 9,200.00 | $ 8,298.79 | $ 901.21 |
| Specifications | 4,000.00 | 2,817.82 | 1,182.18 |
| Engineering Files | 2,818.00 | 451.26 | 2,366.74 |
| Sub-Total - - | $ 16,018.00 | $ 11,567.87 | $ 4,450.13 |
| PROCESS ENGINEERING - - | | | |
| Process Development | $ 3,500.00 | $ 3,074.93 | $ 425.07 |
| Processing | 26,000.00 | 24,457.64 | 1,542.36 |
| Trial Run | 7,500.00 | .00 | 7,500.00 |
| Sub-Total - - | $ 37,000.00 | $ 27,532.57 | $ 9,467.43 |
| TOOL DESIGN - - | | | |
| Design | $ 41,000.00 | $ 30,548.19 | $10,451.81 |
| Process Sketching | 4,000.00 | 1,373.34 | 2,626.66 |
| Tool Revisions | 12,500.00 | .00 | 12,500.00 |
| Sub-Total | $ 57,500.00 | $ 31,921.53 | $25,578.47 |
| MISCELLANEOUS - - | | | |
| Consumer-Accept.Eval. | $ 1,500.00 | $ 33.44 | $ 1,466.56 |
| Pilot Operations | 19,500.00 | 3,017.81 | 16,482.19 |
| Contingencies | .00 | .00 | .00 |
| Sub-Total | $ 21,000.00 | $ 3,051.25 | $17,948.75 |
| GRAND TOTAL | $174,100.00 | $113,301.36 | $60,798.64 |

EXPENDITURES For Week Ending 3/8/46

| | |
|---|---|
| Design | $ 385.57 |
| Specifications | 371.15 |
| Process Engineering | 401.27 |
| Tool Design | 1,553.64 |
| Miscellaneous | 542.84 |
| TOTAL | $3,252.47 |

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

W. O. Clifford
G. R. McCormick
R. A. A. Hentschel
P. B. Rutherford
J. Hammond)
M. Smith )
R. H. Grace
R. M. Smith
W. Holloway

Project No. FTD-151

Project Title Bolt Action High Power Rifle

Model M/721 & 722

REC. R.A.A.H. MAR 14 1946

FINANCIAL STATUS as of March 1, 1946

| | AUTHORIZED ALLOCATION | TOTAL AMOUNT EXPENDED | UNEXPENDED BALANCE |
|---|---|---|---|
| DESIGN — | | | |
| Investigation | $ 500.00 | $ 500.00 | $ .00 |
| Design | 12,410.00 | 12,410.00 | .00 |
| Model Making | 15,672.00 | 15,672.00 | .00 |
| Design Revisions | 16,000.00 | 12,262.57 | 3,737.43 |
| Sub-Total - - | $ 42,582.00 | $ 38,844.57 | $ 3,737.43 |
| SPECIFICATIONS - - | | | |
| Testing | $ 9,200.00 | $ 8,110.76 | $ 1,089.24 |
| Specifications | 4,000.00 | 2,674.99 | 1,325.01 |
| Engineering Files | 2,818.00 | 410.97 | 2,407.03 |
| Sub-Total - - | $ 16,018.00 | $ 11,196.72 | $ 4,821.28 |
| PROCESS ENGINEERING - - | | | |
| Process Development | $ 3,500.00 | $ 3,074.93 | $ 425.07 |
| Processing | 26,000.00 | 24,056.37 | 1,943.63 |
| Trial Run | 7,500.00 | .00 | 7,500.00 |
| Sub-Total - - | $ 37,000.00 | $ 27,131.30 | $ 9,868.70 |
| TOOL DESIGN - - | | | |
| Design | $ 41,000.00 | $ 29,014.55 | $11,985.45 |
| Process Sketching | 4,000.00 | 1,373.34 | 2,626.66 |
| Tool Revisions | 12,500.00 | .00 | 12,500.00 |
| Sub-Total - - | $ 57,500.00 | $ 30,387.89 | $27,112.11 |
| MISCELLANEOUS - - | | | |
| Consumer-Accpt.Eval. | $ 1,500.00 | $ 33.44 | $ 1,466.56 |
| Pilot Operations | 19,500.00 | 2,474.97 | 17,025.03 |
| Contingencies | .00 | .00 | .00 |
| Sub-Total - - | $ 21,000.00 | $ 2,508.41 | $18,491.59 |
| GRAND TOTAL — | $174,100.00 | $110,068.89 | $64,031.11 |

EXPENDITURES for Week Ending 3/1/46

| | |
|---|---|
| Design | $ 447.96 |
| Specifications | 358.57 |
| Process Engineering | 554.12 |
| Tool Design | 2,236.87 |
| Miscellaneous | 284.64 |
| TOTAL | $ 3,881.96 |

Note: The total amount authorized and total estimate are identical.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

C. Clifford
A. McCormick
A.A. Hentschel
B. Rutherford
Hammond)
Smith )
R. H. Grace
P. M. Smith
W. Holloway

Project No. FTD-151

Project Title Bolt Action High Power Rifle

Model M/721 7 &22

FINANCIAL STATUS as of Feb. 22, 1946

REC. R.A.A.H.
MAR 6 1946

| | AUTHORIZED ALLOCATION | TOTAL AMOUNT EXPENDED | UNEXPENDED BALANCE |
|---|---|---|---|
| **DESIGN - -** | | | |
| Investigation | $ 500.00 | $ 500.00 | $ .00 |
| Design | 12,410.00 | 12,410.00 | .00 |
| Model Making | 13,672.00 | 13,672.00 | .00 |
| Design Revisions | 16.000.00 | 11,814.61 | 4,185.39 |
| Sub-Total - - - - | $ 42,582.00 | $ 38,396.61 | $ 4,185.39 |
| **SPECIFICATIONS —** | | | |
| Testing | $ 9,200.00 | $ 8,011.56 | $ 1,188.44 |
| Specifications | 4,000.00 | 2,638.82 | 1,361.18 |
| Engineering Files | 2,818.00 | 187.97 | 2,630.03 |
| Sub-Total - - - - | $ 16,018.00 | $ 10,838.35 | $ 5,179.65 |
| **PROCESS ENGINEERING - -** | | | |
| Process Development | $ 3,500.00 | $ 3,056.95 | $ 443.05 |
| Processing | 26,000.00 | 23,520.23 | 2,479.77 |
| Trial Run | 7.500.00 | .00 | 7,500.00 |
| Sub-Total - - - - | $ 37,000.00 | $ 26,577.18 | $10,422.82 |
| **TOOL DESIGN - -** | | | |
| Design | $ 41,000.00 | $ 26,777.68 | $14,222.32 |
| Process Sketching | 4,000.00 | 1,373.34 | 2,626.66 |
| Tool Revisions | 12.500.00 | .00 | 12.500.00 |
| Sub-Total - - - - | $ 57,500.00 | $ 28,151.02 | $29,348.98 |
| **MISCELLANEOUS - -** | | | |
| Consumer - Accpt. Eval. | $ 1,500.00 | $ 33.44 | $ 1,466.56 |
| Pilot Operations | 19,500.00 | 2,190.33 | 17,309. 67 |
| Sub-Total - - - - | $ 21,000.00 | $ 2,225.77 | $18,776.23 |
| GRAND TOTAL - - - | $174,100.00 | $103,136.93 | $67,913.07 |

EXPENDITURES for Week Ending Feb. 22, 1946

| | |
|---|---|
| Design | $ 311.41 |
| Specifications | 336.21 |
| Process Engineering | 331.84 |
| Tool Design | 1,214.64 |
| Miscellaneous | 650.84 |
| TOTAL | $3,044.91 |

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON
R2527200

[redacted]

REC. R.A.A.H.
FEB 28 1946

Project No. [redacted]

Project Title [redacted]

FINANCIAL STATUS AS OF February 15, 1946

| | AUTHORIZED ALLOCATION | TOTAL AMOUNT EXPENDED | UNEXPENDED BALANCE |
|---|---|---|---|
| DESIGN-- | | | |
| Investigation | $ [redacted] | $ [redacted] | $ .00 |
| Design | [redacted] | [redacted] | .00 |
| Model Making | [redacted] | [redacted] | .00 |
| Design Revisions | [redacted] | [redacted] | [redacted] |
| Sub-Total | $ [redacted] | $ [redacted] | $ [redacted] |
| SPECIFICATIONS-- | | | |
| Testing | $ [redacted] | $ [redacted] | $ [redacted] |
| Specifications | [redacted] | [redacted] | [redacted] |
| Engineering Files | [redacted] | .00 | [redacted] |
| Sub-Total | $ [redacted] | $ [redacted] | $ [redacted] |
| PROCESS ENGINEERING-- | | | |
| Process Development | $ [redacted] | $ [redacted] | $ [redacted] |
| Processing | [redacted] | [redacted] | [redacted] |
| [redacted] | | | |
| Trial Run | [redacted] | .00 | [redacted] |
| Sub-Total | $ [redacted] | $ [redacted] | [redacted] |
| TOOL DESIGN-- | | | |
| [redacted] | $ | $ | $ |
| Design | [redacted] | [redacted] | [redacted] |
| Process Sketching | [redacted] | [redacted] | [redacted] |
| Tool Revisions | [redacted] | .00 | [redacted] |
| Sub-Total | $ [redacted] | $ [redacted] | [redacted] |
| MISCELLANEOUS-- | | | |
| Consumer Accpt. Eval. | $ [redacted] | $ [redacted] | $ [redacted] |
| [redacted] | | | |
| Pilot Operations | [redacted] | [redacted] | [redacted] |
| Die Casting | | | |
| Sub-Total | $ [redacted] | $ [redacted] | [redacted] |
| GRAND TOTAL | [redacted] | [redacted] | [redacted] |

EXPENDITURES for Week Ending 2/15/46

| | |
|---|---|
| Design | [redacted] |
| Specifications | [redacted] |
| Process Engineering | [redacted] |
| Tool Design | [redacted] |
| Miscellaneous | [redacted] |
| TOTAL | [redacted] |

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON
R2527201

G. O. Clifford
G. L. McCormick
L.A.A. Hamilton
F. E. Hitchcock
J. Remington
E. Smith
R. E. Gross
R. E. Smith
V. Kolarsky
File

Project No. PTD-151

Project Title M/721 & 722 Bolt Action High Power Rifle

FINANCIAL STATUS AS OF February 8, 1946

| | AUTHORIZED ALLOCATION | TOTAL AMOUNT EXPENDED | UNEXPENDED BALANCE |
|---|---|---|---|
| DESIGN-- | | | |
| Investigation | $ 500.00 | $ 500.00 | $ .00 |
| Design | 12,410.00 | 12,410.00 | .00 |
| Model Making | 15,672.00 | 15,701.57 | (29.57) |
| Design Revisions | 16,000.00 | 11,269.65 | 4,730.35 |
| Sub-Total | $ 42,582.00 | $37,880.92 | $ 4,701.08 |
| SPECIFICATIONS-- | | | |
| Testing | $ 9,200.00 | $ 7,926.03 | $ 1,273.97 |
| Specifications | 4,000.00 | 2,345.52 | 1,654.48 |
| Engineering Files | 2,818.00 | .00 | 2,818.00 |
| Sub-Total | $ 16,018.00 | $10,271.55 | $ 5,746.45 |
| PROCESS ENGINEERING-- | | | |
| Process Development | $ 5,500.00 | $ 2,981.11 | $ 518.89 |
| Processing | 26,000.00 | 22,358.80 | 3,641.20 |
| [redacted] | | | |
| Trial Run | 7,500.00 | .00 | 7,500.00 |
| Sub-Total | $ 37,000.00 | $25,339.91 | $11,660.09 |
| TOOL DESIGN-- | | | |
| [redacted] | | | |
| Design | $ 41,000.00 | $21,467.51 | $19,532.49 |
| Process Sketching | 4,000.00 | 1,329.74 | 2,670.26 |
| Tool Revisions | 12,500.00 | .00 | 12,500.00 |
| Sub-Total | $ 57,500.00 | $22,797.05 | $34,702.95 |
| MISCELLANEOUS-- | | | |
| Consumer Accpt. Eval. | $ 1,500.00 | $ 33.44 | $ 1,466.56 |
| [redacted] | | | |
| Pilot Operations | 19,500.00 | 989.96 | 18,510.04 |
| Die Casting | | | |
| Sub-Total | $ 21,000.00 | $ 1,025.40 | $19,976.60 |
| GRAND TOTAL | $174,100.00 | $97,312.83 | $76,787.17 |

EXPENDITURES for Week Ending 2/8/46

| | |
|---|---|
| Design | $ 292.24 |
| Specifications | 171.44 |
| Process Engineering | 1,005.58 |
| Tool Design | 2,587.69 |
| Miscellaneous | 199.56 |
| TOTAL | $4,256.21 |

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON
R2527202

[redacted]

REC. R.A.A.H. FEB 5 1946

Project No. [redacted]

Project Title M/721 & 722 Bolt Action High Power Rifle

FINANCIAL STATUS AS OF January 25, 1946

| | AUTHORIZED ALLOCATION | TOTAL AMOUNT EXPENDED | UNEXPENDED BALANCE |
|---|---|---|---|
| DESIGN-- | | | |
| Investigation | $ 5,000.00 | $ 5,000.00 | $ .00 |
| Design | 12,700.00 | 7,930.00 | 4,770.00 |
| Model Making | 14,900.00 | 13,662.43 | 1,237.57 |
| Design Revisions | 10,500.00 | 10,785.19 | (285.19) |
| Sub-Total | $ 43,100.00 | $37,377.81 | $ 5,722.19 |
| SPECIFICATIONS-- | | | |
| Testing | $ 6,500.00 | $ 7,720.75 | $(1,220.75) |
| Specifications | 2,200.00 | 2,255.50 | (55.50) |
| Engineering Files | 1,000.00 | .00 | 1,000.00 |
| Sub-Total | $ 9,700.00 | $ 9,954.54 | $ (254.54) |
| PROCESS ENGINEERING-- | | | |
| Process Development | $ 2,500.00 | $ 2,760.68 | $ (260.68) |
| Processing | 7,000.00 | 20,282.15 | (13,282.15) |
| Methods Engineering | 5,000.00 | .00 | 5,000.00 |
| Trial Run | | | |
| Sub-Total | $ 14,500.00 | $23,292.83 | $(8,792.83) |
| TOOL DESIGN-- | | | |
| Design Procurement | $ 35,000.00 | $12,211.25 | $22,788.75 |
| Design | 10,000.00 | 5,786.73 | 4,213.27 |
| Process Sketching | 3,000.00 | 1,310.45 | 1,689.55 |
| Tool Revisions | | | |
| Sub-Total | $ 48,000.00 | $19,308.43 | $28,691.57 |
| MISCELLANEOUS-- | | | |
| Consumer Accpt. Eval. | $ 3,000.00 | $ 33.44 | $ 2,966.56 |
| Pilot Plant Procurement | 1,000.00 | .00 | 1,000.00 |
| Pilot Operations | 11,000.00 | 790.40 | 11,000.00 |
| Die Casting | | | |
| Sub-Total | $ 15,000.00 | $ 823.84 | $14,976.16 |
| GRAND TOTAL | $121,100.00 | $90,717.25 | $30,382.75 |

EXPENDITURES for Week Ending 1/25/46

| | |
|---|---|
| Design | $ 105.06 |
| Specifications | 175.27 |
| Process Engineering | 1,015.61 |
| Tool Design | 1,744.85 |
| Miscellaneous | 10.42 |
| TOTAL | $3,049.61 |

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

G. O. Clifford
G. L. McCombie
R. L. A. Kozlowski
F. E. Hollingsworth
J. Hammond
H. Smith
R. E. Grace
R. H. Smith
W. Halliday

REC. R.A.A.H. JAN 29 1946

Project No. 722-141

Project Title Bolt Action High Power Rifle - M/721 & 722

FINANCIAL STATUS AS OF Jan. 18, 1946

| | AUTHORIZED ALLOCATION | TOTAL AMOUNT EXPENDED | UNEXPENDED BALANCE |
|---|---|---|---|
| DESIGN-- | | | |
| Investigation | $ 5,000.00 | $ 5,000.00 | $ .00 |
| Design | 12,700.00 | 7,910.00 | 4,790.00 |
| Model Making | 14,000.00 | 12,662.63 | 1,337.37 |
| Design Revisions | 10,400.00 | 10,580.16 | (180.16) |
| Sub-Total | $ 46,100.00 | $37,252.73 | $ 8,847.21 |
| SPECIFICATIONS-- | | | |
| Testing | $ 6,800.00 | $ 7,897.62 | $(1,097.62) |
| Specifications | 2,200.00 | 2,181.45 | 18.55 |
| Engineering Files | 1,000.00 | .00 | 1,000.00 |
| Sub-Total | $ 9,700.00 | $ 9,779.07 | $ (79.07) |
| PROCESS ENGINEERING-- | | | |
| Process Development | $ 2,800.00 | $ 2,821.51 | $ (21.51) |
| Processing | 7,000.00 | 19,757.71 | (12,757.71) |
| Methods Engineering | 5,000.00 | .00 | 5,000.00 |
| Trial Run | | | |
| Sub-Total | $ 14,800.00 | $22,279.22 | $(7,779.22) |
| TOOL DESIGN-- | | | |
| Design Procurement | $ 36,000.00 | $11,068.33 | $25,931.67 |
| Design | 10,000.00 | 5,231.35 | 4,768.65 |
| Process Sketching | 5,000.00 | 1,264.10 | 1,735.90 |
| Tool Revisions | | | |
| Sub-Total | $ 48,000.00 | $17,565.78 | $30,434.22 |
| MISCELLANEOUS-- | | | |
| Consumer Accpt. Eval. | $ 3,000.00 | $ 33.44 | $ 2,966.56 |
| Pilot Plant Procurement | 1,000.00 | .00 | 1,000.00 |
| Pilot Operations | 11,800.00 | 780.00 | 11,020.00 |
| Die Casting | | | |
| Sub-Total | $ 15,800.00 | $ 813.44 | $14,986.56 |
| GRAND TOTAL | $151,100.00 | $87,688.24 | $45,451.76 |

EXPENDITURES for Week Ending 1/18/46

| | |
|---|---|
| Design | $ 286.06 |
| Specifications | 286.82 |
| Process Engineering | 1,122.88 |
| Tool Design | 4,597.55 |
| Miscellaneous | |
| TOTAL | $6,152.51 |

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON
R2527204

REC. R.A.A.
JAN 28 1946

CC: W. Holloway
R. A. A. Kentschel
P. B. Rutherford
J. Hammond
R. H. Grace
R. M. Smith

January 28, 1946

TO: F. Selwood

FROM: G. L. Smith

SUBJECT: CORRECTION OF WORK ORDERS PROJECT FTD-151

Please correct the following Work Orders to read "Transfer charges to FTD-151-1" :

70270
70271
70306

Please correct the following Work Orders to read "Transfer charges to FTD-151-2" :

| | | | |
|---|---|---|---|
| 70272 | 70241 | 70127 | 70201 |
| 70273 | 70259 | 70131 | 70202 |
| 70274 | 70262 | 70150 | 70203 |
| 70275 | 70294 | 70151 | 70204 |
| 70276 | 70297 | 70152 | 70205 |
| 70277 | 70300 | 70179 | 70206 |
| 70278 | 70142 | 70245 | 70207 |
| 70280 | 70178 | 70280 | 70208 |
| 70024 | 70056 | 70282 | 70209 |
| 70029 | 70057 | 70295 | 70148 |
| 70128 | 70058 | 70298 | 70195 |
| 70008 | 70059 | 70312 | 70232 |
| 70068 | 70040 | 70194 | 70244 |
| 70139 | 70041 | 70196 | 70261 |
| 70140 | 70043 | 70199 | 70293 |
| 70290 | 70103 | 70200 | 70296 |
| 70279 | | | |

G L Smith

G. L. Smith
Project Engineer
Arms Division
Technical Department

GLS:lc

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

CC: G. R. McCormick
H. A. A. Hentschel
P. B. Rutherford
R. M. Grace
W. Holloway
J. Hammond
R. M. Smith

REC. R.A.A.H.
JAN 21 1946

January 18, 1946

TO: F. Selwood

FROM: G. L. Smith

SUBJECT: CHANGE IN NUMBERS - PROJECT FTS-5485

Please close out the following plant orders effective immediately:

| | | | |
|---|---|---|---|
| 17064 | 17264 | 70159 | 17291 |
| 17065 | 17265 | 70170 | |
| 17066 | 17266 | 70000 | |
| 17013 | 17267 | 70018 | |
| 17248 | 17268 | 70042 | |
| 17108 | 17283 | 70044 | |

G. L. Smith
Project Engineer
Arms Division
Technical Department

GLS/lc

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

cc: R. A. A. Hentschel
F. B. Rutherford
S. M. Alvis
W. Holloway
J. Hammond
R. H. Smith
R. H. Grace

January 18, 1946

TO: G. R. McCormick

FROM: G. L. Smith

SUBJECT: M/721 & 722 - PROJECT [redacted]

Effective immediately the subject project is changed to PEM-151. Below is a list of all open Work Orders on this project on which charges can be accepted:

| Present Number | Description | Old Number |
|---|---|---|
| 70270 | Provide Parts - Walker | 17084 |
| 70271 | Final Drawings - " | [redacted] |
| 70272 | Specifications - Grace | [redacted] |
| 70273 | Testing - Hess | [redacted] |
| 70274 | Bolt Head - Benner | [redacted] |
| 70275 | Procurement Purchased Parts - R. H. Smith | [redacted] |
| 70276 | Process - Receivers - Quist | [redacted] |
| 70277 | Process - Bolt Assembly - Quist | [redacted] |
| 70278 | Process - Stock & Barrel - Travastino | [redacted] |
| 70279 | Process - General Engineering - R. H. Smith | [redacted] |
| 70280 | Process - Stock - R. H. Smith | [redacted] |
| 70281 | .270 Winchester Caliber - | |
| 70282 | Engineering Files - W. Holloway | |
| 70128 | Rem. Roberts Caliber Testing | |
| 70006 | Process - Small Auto Screw Mach.Parts - R. H. Smith | |
| 70068 | Barrel Property Test - G. Benner | |
| 70156 | Bronze Handle & Bolt - G. Benner | |
| 70140 | Bronze Ball to Handle - G. Benner | |
| 70142 | Bronze Front Sight Ramp - G. Benner | |
| 70178 | Writing Process Sheets - R. H. Smith | |
| 70056 | Trigger Stop Screw - R. H. Smith | |
| 70057 | Trigger Adjusting Screw - R. H. Smith | |
| 70058 | Safety Pivot Pin - R. H. Smith | |
| 70059 | Bolt Stop Pin,Sear & Trigger Pin - R. H. Smith | |
| 70060 | Receiver Plug Screw - R. H. Smith | |
| 70061 | Front and Rear Guard Screw - R. H. Smith | |
| 70062 | Ejector Pin - R. H. Smith | |
| 70105 | Bolt Head Induction Heating Fixtures | |
| 70127 | Process Sketching Receiver - R. H. Smith | |

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

| Present Number | Description | Old Number |
|---|---|---|
| 70151 | Design Tools and Gages, Bolt Handle - R.M.Smith | |
| 70150 | Cost of Gage Design - R.M. Smith | |
| 70153 | Cost of Writing Proc. Insp. Sheets - R.M. Smith | |
| 70152 | Proc. Sketching Tools, Fixtures and Gages - R.M. Smith | |
| 70178 | Gage Design for Purchased Parts - R.M. Smith | |
| 70194 | Design Tools & Gages Ejector - R.M. Smith | |
| 70196 | Bolt Body - R. M. Smith | |
| 70198 | Bolt Assembly - R. M. Smith | |
| 70200 | Trigger Assembly - R. M. Smith | |
| 70201 | Design Procurement Cutting Tools etc. - R.M. Smith | |
| 70202 | Design Detail of Gages etc. - R.M. Smith | |
| 70203 | Check Design Tooling Furnished - R.M. Smith | |
| 70204 | Check Design Tooling Furnished - R.M. Smith | |
| 70205 | Check Design Tooling Furnished - R.M. Smith | |
| 70206 | Check Design Tooling Furnished - R.M. Smith | |
| 70207 | Check Design Tooling Furnished - R.M. Smith | |
| 70208 | Check Design Tooling Furnished - R.M. Smith | |
| 70209 | Check Design Tooling Furnished - R.M. Smith | |
| 70149 | Consumer Acceptance Evaluation - S. Alvis | |
| 70195 | 4120 Ft. Form Stock - A. Travostino | |
| 70252 | Stock Process - G. Moss | |
| 70241 | Cold Rolled Barrel - R. Grace | |
| 70245 | 30 - 06 Testing - G. Kirchen | |
| 70244 | .220 Swift Testing - G. Kirchen | |
| 70259 | Process Mainspring - Gilmore | |
| 70260 | Process Sketching for Main Spring - Gilmore | |
| 70261 | Tool Design for Main Spring - Gilmore | |
| 70262 | Design and Detail Gages, Jigs, etc. - Gilmore | |

All personnel working on the subject project should be immediately informed of these changes. No charges will be accepted after today on any of the 17,000 series plant orders.

G. L. Smith
Project Engineer
Arms Division
Technical Department

GLS/lc

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

Hentschel

# TECHNICAL EXPERIMENT APPROPRIATION REQUEST

Division - Technical
Section - Research Works Ilion
Group: Arms

Date June 29, 1945.

Project No. FTS-3483

Part V
(Formerly: Plant Order L-3121, Project B-425)

Proposed Expenditures (This Part) $ 60,000.

For account of:

| | |
|---|---|
| Category B | |
| | R & M |
| C | 60,000. |
| D | |
| E | |
| Other | |
| Previous Parts | 71,100. |
| TOTAL | $ 131,100. |

Distribution by Plants:

| | |
|---|---|
| Bridgeport | % |
| Ilion | 100 % |
| Kings Mills | % |
| Findlay | % |

APPROVED: AUG 1 DATE 1945
E. MORRIS
PROJECT ENGINEER
TECHNICAL DIVISION

Authorization is requested to undertake the following investigation in accordance with the attached description:

RECEIVED
AUG 24 1945
W. HOLLOWAY

TITLE: DESIGN FOR MODEL 721 BOLT ACTION HIGH POWER RIFLE

To be commenced On approval

To be completed _____ Prepared by G.R.McCormick

This project conforms to Products Committee Action in Minute #10, dated 7-6-45

Approved:

G. R. McCormick 6-30-45
H. R. Dorr 6-30-45
E. Morris 7-3-45
R. W. Steele 7-5-45
A. J. Greene 7-6-45
B. E. Strader 7-9-45
W. E. Gregg 7-17-45
M. Ellis 7-17-45
R. B. Howard 7-17-45
H. N. Meixner 7-18-45
P. W. Hoge 7-21-45
E. E. Ley 7-23-45
J. W. Thwing 7-24-45
W. A. Haldeman 7-24-45
A. W. Vaughan 7-24-45
G. O. Clifford 7-25-45
R. H. Coleman 7-25-45
M. R. Warden 7-26-45
R. D. Jack 7-26-45
E. L. Bergland 7-26-45 for R & M. Com.
D. F. Carpenter 7-27-45

Authorized: C. K. Davis
8-1-45

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON
R2527209

PROJECT

DESIGN FOR MODEL 721 BOLT ACTION HIGH POWER RIFLE

PART V

INTRODUCTION:

This project was initiated to design, develop and engineer a Bolt Action Center Fire Rifle to take its place as the lowest cost, repeating, center fire rifle in the Remington line.

On August 12, 1942 a plant order in the sum of $200.00 was approved to cover the preparation of an exploratory project for this purpose. On December 12, 1942 a Part II in the sum of $11,500. was approved to investigate designs for this arm. This Part II designated the original plant order as Part I to the project.

On August 8, 1944 a Part III in the sum of $35,000. was approved to continue the development of the basic bolt action design. This part included the preparation of detail drawings, initiation of process record work, and the building of additional models for test and for submission for consumer acceptance evaluation in the field. Essential work outlined in this part has been completed.

On December 4, 1944 a Part IV to the project in the amount of $24,400. was approved. Money in this part was assigned to tool design as it was foreseen at that time that there was a possibility of immediate initiation of this phase of the work. Due to the urgency of military work, no appreciable tool design work has been completed at this point. These funds remain intact as indicated in Table I.

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KINZER V. REMINGTON

R2527210

The status of the work at the present time is that the model guns appear to be highly satisfactory from the cost, safety, and appearance standpoints. Minor alterations in Stock design to meet the requirements of the Products Committee are currently under way. A comprehensive, statistically controlled, functional evaluation has been made, indicating the arm to be most satisfactory. Minor difficulties developed in the Extractor in this test and the Extractor has been redesigned and is currently under test with considerable promise of success. A new and more convenient Bolt Stop Release has been incorporated in the models to be submitted to Products Committee for approval.

Five models in all have been built, one in .30-06 caliber, two in .300 Magnum caliber, and two in .300 Savage caliber. Sufficient models for consumer acceptance evaluation will be turned over to the Development Division on completion of necessary test work.

Immediate work in progress involves the minor variations in the design necessary to incorporate the various calibers designated by the Products Committee.

DESCRIPTION OF PROPOSED WORK:

Under this Part of the project it is proposed to continue work on this arm, in accordance with the attached Schedule. This work will involve the investigation, design, model making, and testing, contingent upon the ultimate list of ammunition to be incorporated in the arm. Necessary engineering work, including process development, process engineering, process & methods engineering, preparation of specifications, and the initiation of tool design work, with the essential contingent items will be undertaken. Detail of the scope of this work is indicated on the Schedule.



CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON
R2527211

COST OF PROPOSED WORK:

| | |
|---|---|
| Investigation | $ 5,000. |
| Design | (2,360.)* |
| Model Making | 4,090. |
| Testing & Revising | 1,740. |
| Production Drawings | 1,130. |
| Process Development | 2,500. |
| Process Engineering | 11,300. |
| Process & Methods Engineering | 6,000. |
| Specifications | 1,000. |
| Tool Design | 28,600. |
| Engineering Files | 1,000. |
| Total | $ 60,000. |

(*) See Table I

NOTE:
All salary and wage figures included Technical Department overhead at 100%

The above estimates for individual items are approximate and may vary, subject to the overall limitation of $60,000.

PATENT SITUATION:

The Patent Division reports that the design is free of patent infringement and contains little, if any, patentable novelty. Any additional features developed for this arm will be submitted promptly to the Patent Division for opinion.

REMARKS:

The economics of this arm are shown in the following Tables II and III attached. As a result of introducing this arm in place of the M/720,



CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON
R2527212

gross savings before amortization of development are indicated to be $2,579,081.00 over a twelve year period. Net savings over the same period, after deduction of development cost, 4-1/2% Undistributed Expense, and 40% Federal Taxes, are indicated to be $1,378,627. This shows a net return of 37.6% on a total expenditure of $306,400.

This project conforms with Products Committee Action in Minute #10, dated July 6, 1945.

Estimated labor ccost over the twelve year period shows a reduction in labor cost of approximately $200,000., or an average of about five (5) men.

The Ilion Works Management is in concurrence as to Technical feasibility and in general agreement with cost estimates as they appear in this project.

The form of this project has been discussed with the R. & M. Group at Ilion, and it is their belief that it conforms to the presently accepted method of preparing and presenting such projects. In general, the R. & M. Group feels that the statements contained in the project are correct and in accordance with the information at hand to which they have access.

Total estimated expenditures for the introduction of this model are herein estimated at $306,400. This compares with a total figure given in the Arms Study original report for "total new money" of $237,800. The difference is accounted for by the inclusion in this project of money for process development, process engineering, specifications, and process & methods engineering, as well as contingent items which are a part of the introduction of a new arm. Expenditures of this type were previously absorbed in the operating overhead as they were largely performed by plant supervisory personnel. They are now the function of the Engineering Section, of the



CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON
R2527213

Technical Department, and as such are a part of the cost of introducing a model. Additional funds for this purpose were added to the original Arms Study estimated by the Engineering Dept. and were included in the estimate presented to the Board of Directors for the Reconversion & Modernization Program.

That portion of the funds requested herewith which will be expended in 1945 are included in the Technical Department budget for 1945.



CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON
R2527214

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

TABLE I

| | Estimated Total Requirements to Complete Development | Estimated Total Requirements to Dec. 31, 1945 | Amount Authorized Parts I-IV | Amount Spent to May 1,1945 | Balance Unexpended May 1,1945 | Amount Requested Part V (Balance of 1945) |
|---|---|---|---|---|---|---|
| Investigation | $ 5,000. | $ 5,000. | $ --- | $ 5,000. | $ (5,000.) | $ 5,000. |
| Design | 12,700. | 12,700. | 15,060. | 7,910. | 7,150. | (2,360.)* |
| Model Making | 14,900. | 14,900. | 10,810. | 11,631. | ( 821.) | 4,090. |
| Testing & Revising | 6,100. | 6,100. | 4,360. | 3,168. | 1,192. | 1,740. |
| Production Drawings | 4,400. | 4,400. | 3,270. | 16. | 3,254. | 1,130. |
| Testing | 6,500. | 6,500. | 6,500. | 6,054. | 446. | --- |
| Consumer Acceptance | 3,000. | 3,000. | 3,000. | --- | 3,000. | --- |
| Process Development | 2,500. | 2,500. | --- | 745. | ( 745.) | 2,500. |
| Process Engineering | 13,800. | 13,800. | 2,500. | 1,981. | 519. | 11,300. |
| Process & Methods Eng. | 13,500. | 6,000. | --- | --- | --- | 6,000. |
| Specifications | 2,200. | 2,200. | 1,200. | 363. | 837. | 1,000. |
| Tool Design | 53,000. | 53,000. | 24,400. | 83. | 24,317. | 28,600. |
| Engineering Files | 2,000. | 1,000. | --- | --- | --- | 1,000. |
| Set Up Pilot Operations | 17,000. | --- | --- | --- | --- | --- |
| Tool Revisions | 12,500. | --- | --- | --- | --- | --- |
| Trial Run | 5,000. | --- | --- | --- | --- | --- |
| Total | $ 174,100. | $ 131,100. | $ 71,100. | $ 36,951. | $ 34,149. | $ 60,000. |
| Tool Manufacture | 132,300. | | | | | |
| Total | $ 306,400. | | | | | |

(*) Due to reallocation of funds within total estimate to allow investigation of additional calibers.

R2527215

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

## TABLE II

### COMPUTATION OF GROSS PROFIT OR LOSS M/720 VS. M/721-722
### (1947-1958 INCLUSIVE)

| | Total Including M/720 | | | | | | Total Including M/721-722 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3rd Post War Year 1947 | 4th Post War Year 1948 | 5th Post War Year 1949 | Normal Post War Year 1950 | 1951-1958 | Total | 3rd Post War Year 1947 | 4th Post War Year 1948 | 5th Post War Year 1949 | Normal Post War Year 1950 | 1951-1958 | Total | Difference |
| Sales Forecast - Qty. | 294,360 | 238,900 | 183,950 | 206,400 | 1,651,200 | 2,574,810 | 311,160 | 251,400 | 194,050 | 219,400 | 1,755,200 | 2,731,210 | 156,400 |
| Outside Sales | 4,600,286. | 3,868,960. | 3,068,946. | 3,675,693. | 29,405,544. | 44,619,429. | 4,933,198. | 4,114,360. | 3,269,550. | 3,942,513. | 31,540,104. | 47,799,725. | 3,180,296. |
| Factory Cost: | | | | | | | | | | | | | |
| Direct Material | 418,255. | 354,763. | 277,620. | 352,601. | 2,820,808. | 4,224,047. | 458,167. | 384,488. | 301,609. | 383,371. | 3,066,968. | 4,594,603. | 370,556. |
| Direct Labor | 819,297. | 689,221. | 550,876. | 520,002. | 4,160,016. | 6,739,412. | 836,201. | 700,546. | 561,289. | 538,092. | 4,304,736. | 6,940,864. | 201,452. |
| Expense: | | | | | | | | | | | | | |
| Direct & Indirect | 1,778,842. | 1,635,744. | 1,423,661. | 1,440,170. | 11,521,360. | 17,799,777. | 1,780,701. | 1,636,990. | 1,424,806. | 1,442,160. | 11,537,280. | 17,821,937. | 22,160. |
| Fixed | 285,052. | 271,829. | 248,587. | 242,943. | 1,943,544. | 2,991,955. | 285,052. | 271,829. | 248,587. | 242,943. | 1,943,544. | 2,991,955. | --- |
| Total Expense | 2,063,894. | 1,907,573. | 1,672,248. | 1,683,113. | 13,464,904. | 20,791,732. | 2,065,753. | 1,908,819. | 1,673,393. | 1,685,103. | 13,480,824. | 20,813,892. | 22,160. |
| Total F.C. | 3,301,446. | 2,951,557. | 2,500,744. | 2,555,716. | 20,445,728. | 31,755,191. | 3,360,121. | 2,993,853. | 2,536,291. | 2,606,566. | 20,852,528. | 32,349,359. | 594,168. |
| Reserve for Inv.Adj. | 99,043. | 88,547. | 75,022. | 51,114. | 408,912. | 722,638. | 100,804. | 89,816. | 76,089. | 52,131. | 417,048. | 735,888. | 13,250. |
| Deferred Tool Cost | 135,342. | 115,330. | 88,743. | 120,152. | 961,216. | 1,420,783. | 124,488. | 106,298. | 82,409. | 115,580. | 924,640. | 1,353,415. | (67,368.) |
| Total Factory Cost | 3,535,831. | 3,155,434. | 2,664,509. | 2,726,982. | 21,815,856. | 33,898,612. | 3,585,413. | 3,189,967. | 2,694,789. | 2,774,277. | 22,194,216. | 34,438,662. | 540,050. |
| G.&A. Selling & Del. | 714,516. | 608,067. | 498,242. | 587,842. | 4,702,736. | 7,111,403. | 714,516. | 608,067. | 498,242. | 587,842. | 4,702,736. | 7,111,403. | --- |
| Total Comm. Cost | 4,250,347. | 3,763,501. | 3,162,751. | 3,314,824. | 26,518,592. | 41,010,015. | 4,299,929. | 3,798,034. | 3,193,031. | 3,362,119. | 26,896,952. | 41,550,065. | 540,050. |
| Net Profit or Loss (before taxes) | 349,939. | 105,459. | (93,805.) | 360,869. | 2,886,952. | 3,609,414. | 633,269. | 316,326. | 76,519. | 580,394. | 4,643,152. | 6,249,660. | 2,640,246. |
| Adjustment of Sales Price -(Original M/721-722 @ $23.50 ) (Revised M/721 - $23.89; M/722 - $21.83) | | | | | | | | | | | | | (74,765.) |
| Adjusted Total Difference | | | | | | | | | | | | | 2,565,481. |
| Adjustment of Tooling Cost - (Original $171,700; Revised $185,300.) | | | | | | | | | | | | | 13,600. |
| Adjusted Total Difference | | | | | | | | | | | | | 2,579,081. |

NOTE:
Original selling price and tooling cost included in Arms Study figures.
Revised selling price and tooling costs represent current estimate.

M/720 VS. M/721-722

| | |
|---|---|
| Gross Savings (Before Dev. Amor.) | 2,579,081. |
| Less: M/721-722 Development (Not Inc. Tooling) | 173,100. |
| Gross Savings | 2,405,981. |
| Less: 4.5% Undistributed Expense | 106,269. |
| 40% Federal Taxes | 919,085. |
| Net Savings - 12 Yr. Period | 1,378,627. |
| " " - Average Year | 114,886. |
| Total Expenditure | 305,400. (After deduction of $1,000. for o.k. guns - See Table I) |
| Net % Return on Expenditure | 37.6 |

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## METHOD OF ESTABLISHING PROFIT & LOSS CALCULATION IN TABLE II
## M/720 VS. M/721-722

The figures used for the Profit & Loss calculation on the right-hand side of the Report, which includes the new model gun, were taken from the Arms Study Report.

To determine the Profit & Loss calculation appearing on the left-hand side of the Report, which includes the old model gun and excludes the new model gun, the following steps were taken:

Quantities - Arms Study total, less new model gun total (Forecast #5), plus old model gun total (Forecast #4).

Example (Normal Year)

| | |
|---|---|
| Arms Study Total | 219,400 |
| Less - Model 721-722 | 15,000 |
| Plus - Model 720 | 2,000 |
| Adjusted Total | 206,400 |

Net Receipts - Arms Study total, less new model gun net receipts, plus old model gun net receipts, based on quantities above.

Example (Normal Year)

| | |
|---|---|
| Arms Study Total | $3,942,513. |
| Less - Model 721-722 | 352,500. |
| 15,000 x 23.50 | |
| Plus - Model 720 | 85,680. |
| 2,000 x 42.84 | |
| Adjusted Total | 3,675,693. |

Direct Material - Arms Study total, less new model gun, plus old model gun at rates used in Arms Study.

Example (Normal Year)

| | |
|---|---|
| Arms Study Total | 383,371. |
| Less - Model 721-722 | 34,950. |
| 15,000 x 2.33 | |
| Plus - Model 720 | 4,180. |
| 2,000 x 2.09 | |
| Adjusted Total | 352,601. |

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Direct Labor - Arms Study total, less new model gun, plus old model gun at rates used in Arms Study.

Example (Normal Year)

| | |
|---|---|
| Arms Study Total | $538,092. |
| Less - Model 721-722 15,000 x 3.01 | 45,150. |
| Plus - Model 720 2,000 x 13.53 | 27,060. |
| Adjusted Total | 520,002. |

Direct and Indirect Expense - Arms Study total adjusted by 11% of total change in labor costs between calculation including new model gun and calculation including old model gun. This adjustment is for change in cost of Industrial Relations expense. No other adjustment made as difference in total direct cost did not appear to justify change in this item.

Example (Normal Year)

| | |
|---|---|
| Direct Labor reduction (See Direct Labor caption-this report) | $ 18,090. |
| 11% | 1,990. |
| Arms Study Total | 1,442,160. |
| Adjusted Total | 1,440,170. |

Fixed Expense - Arms Study total used. No change.

Inventory Adjustment - 3rd, 4th, and 5th Post-War Years were computed at 9% of Factory Cost. Normal Year was figured at 2% of Factory Cost.

Deferred Tool Cost - Arms Study total, less new model gun cost, plus old model gun cost. Old model gun cost established as follows:

Original cost of tooling was divided by the number of guns sold, plus forecast of future sales. An anticipated expenditure of $78,000. for tooling if M/720 is continued in line was divided by forecast of sales to establish unit cost of this item. The two units thus established were added to determine unit cost applicable to future sales.

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Example

| | | | |
|---|---|---|---|
| M/720 original tooling cost | | $209,717. | |
| Units to 1947 | 13,313 | | |
| Units 1948 | 2,500 | | |
| Units 1949 | 1,900 | | |
| Units 1950-1958 | 18,000 | | |
| Total Units | 35,713 | | |
| Unit Cost 209,717 ÷ 35,713 | | | 5.87 |
| Additional tooling cost | | $78,000. | |
| Units 1947 | 3,200 | | |
| Units 1948 | 2,500 | | |
| Units 1949 | 1,900 | | |
| Units 1950-1958 | 18,000 | | |
| Total Units | 25,600 | | |
| Unit Cost 78,000. ÷ 25,600 | | | 3.05 |
| Total Unit Cost | | | 8.92 |

Normal Year - 2,000 x 8.92 = $ 17,840.

| | |
|---|---|
| Arms Study Total | 115,580. |
| Less - Model 721-722 15,000 x .88 | 13,268. |
| Plus Model 720 2,000 x 8.92 | 17,840. |
| Adjusted Total | 120,152. |

G. & A. Expense - Arms Study Total used. No change.

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## TABLE III

## COST ELEMENT COMPARISON

## MODEL 720 VS. MODEL 721-722

## Based on Normal Year of 12-Year Calculation

| | MODEL 720 | | MODEL 721-722 | | Net Gain or Loss |
|---|---|---|---|---|---|
| | Unit | Total | Unit | Total | |
| Quantity | 2,000 | | 15,000 | | |
| Net Sales | $ 42.84 | $ 85,680. | $ 23.17 | $ 347,535. | $ 261,855. |
| Material | 2.09 | 4,180. | 2.33 | 34,950. | (30,770.) |
| Labor | 13.53 | 27,060. | 3.01 | 45,150. | (18,090.) |
| Industrial Relations | 1.48 | 2,960. | .33 | 4,950. | ( 1,990.) |
| Inv. Adj. (on above) | .32 | 633. | .11 | 1,650. | ( 1,017.) |
| Deferred Tool Cost | 8.92 | 17,840. | .95 | 14,318. | 3,522. |
| Sub-Total | 26.34 | 52,673. | 6.66 | 101,018. | (48,345.) |
| Out-of-Pocket Gain | 19.55 | 33,007. | 16.51 | 247,567. | 213,510.* |
| Burden (Industrial Relations excluded) | 39.85 | 79,708. | 9.10 | 136,460. | ** |
| Inv. Adj. (On Burden) | .80 | 1,594. | .19 | 2,780. | ** |
| G. & A. Expense | 6.81 | 13,623. | 3.53 | 52,875. | ** |
| Indicated Gross Profit or Loss | (30.96) | (61,918.) | 3.69 | 55,452. | ** |

| | | |
|---|---|---|
| Normal Year Gain including M/721-722 | $ 580,394. | |
| Normal Year Gain including M/720 | 360,869. | |
| | $ 219,525. | |
| Adjustment of Sales Price - Orig. Price M/721-722 - $23.50 ea. Revised Price M/721 - $23.89 Revised Price M/722 - 21.83 | 4,965. | $ 214,560. |
| Adj. of Tooling Cost - Original M/721-722 Unit Cost $ .88 - Revised $ .95 | 1,050. | 213,510.* |

( *) $213,510. is the difference between Model 720 and Model 721-722 based on calculation of Gross Profit or Loss in Normal Year.

(**) These items are not included in "Indicated Profit or Loss". Manner of handling these items subject to interpretation.

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# MASTER SCHEDULE
## DEVELOPMENT OF MODELS 721 & 722

| ACTIVITY | 1943 J F M A M J J A S O N D | 1944 J F M A M J J A S O N D | 1945 J F M A M J J A S O N D | 1946 J F M A M J J A S O N D | 1947 J F M A M J J A S O N D | 1948 J F M |
|---|---|---|---|---|---|---|
| TOTAL PROJECT | 0 5 10 | 15 20 25 30 35 | 40 45 50 60 70 80 90 100 110 120 130 140 150 160 170 174,100 | | | |
| SPECIFIC REQUIREMENTS | $0 | | | | | |
| INVESTIGATION | $5000 | | | | | |
| ARMS PRODUCTS COMMITTEE APPROVALS | $0 | $0 | $0 | $0 | $0 | |
| DESIGN | $7964 | | $4716 | | | |
| WORKING DRAWINGS | $0 | | | | | |
| COST ESTIMATING | $0 | $0 $0 | | $0 | $0 | |
| MODEL MAKING | $3900 | $7474 | $3942 | | | |
| TESTING & REVISING | $924 | | $1234 | $3942 | | |
| PRODUCTION DRAWINGS | $58 | | | $4384 | | |
| TESTING | $6053 | | $447 | | | |
| CONSUMER ACCEPTANCE EVALUATION | | | $5000 | | | |
| PROCESS DEVELOPMENT | $670 | | $1830 | | | |
| PROCESS ENGINEERING | $1981 | | $2819 | | | |
| PROCESS & METHODS ENGINEERING | | | $6000 | $7500 | | |
| SPECIFICATIONS | $361 | | $839 | | | |
| TOOL DESIGN | $83 | | $2917 | | | |
| ENGINEERING FILES | | | $2000 | | | |
| TOOL MANUFACTURE | | | $32300 (PLANT) | | | |
| MACHINERY PROCUREMENT | | | (PLANT) | | | |
| SET UP & PILOT OPERATIONS | | | | $17000 | | |
| FINAL REVISIONS | | | | $2500 | | |
| FINAL RUN | | | | $5000 | | |
| PRODUCTION MANUFACTURING | | | | | | |
| DISTRIBUTION TO WAREHOUSE | | | | | | |
| | | | | | | RE-ANNOUNCEMENT |

R2527221

Hentschel

# TECHNICAL DEPARTMENT PROJECT

Plant ~~Bridgeport~~ Ilion
Division ARMS
Section

Project No. FTS-3483

Part No. VI

Proposed Expenditures
(This Part) $ 43,000

Date of
First Issue

For Account of:
TECH. DEPT.

Revised Issue Date

Category B
" C 43,000
" D
" E
Other
Previous Parts 131,100

TOTAL $ 174,100

Distribution by Plants:

Bridgeport %
Ilion 100 %
Findlay %

R & M Class 1A

AUTHORIZED: FE (DATE)
PROJECT ENGINEER
TECHNICAL DEPARTMENT

Authorization is requested to undertake the work described and outlined under the following title.

TITLE:

DESIGN FOR MODEL 721 BOLT ACTION HIGH POWER RIFLE

To be commenced

G. R. McCormick
(Prepared by)

To be completed

V. E. Senior
(Issued by)

This Project is ____X____ included in the approved Technical Departmen. Program and Budget, 1946.

Those examining Project for information please initial.
Those examining Project for approval please sign.

| INITIAL | DATE | SIGNATURE | DATE | SIGNATURE | DATE |
|---|---|---|---|---|---|
| | | G. R. McCormick | 12/21/45 | | |
| | | R. W. Hughes | 12/21/45 | G. O. Clifford | 1/15/46 |
| | | H. R. Dorr | 12/21/45 | M. R. Warden | 1/15/46 |
| | | W. G. Burckel | 12/25/45 | B. F. Strader | 1/24/46 |
| | | T. D. Coffin | 12/27/45 | D. F. Carpenter | 1/24/46 |
| | | H. A. Brown | 1/2/46 | C. B. Wells | 1/24/46 |
| | | R. W. Steele | 1/4/46 | R. H. Coleman | |
| | | A. J. Greene | 1/7/46 | AUTHORIZED: | |
| | | H. N. Meixner | 1/8/46 | C. K. Davis | 2/1/46 |
| | | R. D. Jack | 1/11/46 | | |

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PROJECT

DESIGN FOR MODEL 721 HIGH POWER BOLT ACTION RIFLE

PART VI

INTRODUCTION:

Development work on the M/721 High Power Bolt Action Center Fire Rifle was initiated in 1942. The purpose of the work was to design, develop and engineer a bolt action center fire rifle to be the lowest cost repeating center fire rifle in the Remington line.

Work has progressed on this arm to a point where satisfactory designs have been developed from which models have been built, and successfully tested. Currently the arm is being processed for production. Tools are being designed and procured, and pilot line machine tool equipment is on order. The arm is scheduled to be announced in January 1947, at which time it is expected that three months' production will be in the warehouse for distribution.

In addition to the development work and engineering work under way, projects have been approved for tool procurement and for pilot line machine tools, which projects are independent of this design project.

This project constitutes a request for the balance of the Technical Department funds forecasted as required for this model and allocated in general as indicated in Table I. It is expected that the funds requested in this Part of the project will constitute all that is necessary for the Technical Department work on this model.

DESCRIPTION OF PROPOSED WORK:

It is proposed to continue work on this arm in accordance with the attached schedule. This work will consist of (a) design revisions necessary for best processing, (b) all phases of the

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engineering work, (c) tool design and (d) pilot lot operations. It is estimated that within the scope of this Part of the project, all Technical Department work will be completed on this arm.

COST OF PROPOSED WORK:

The cost of proposed work under this Part of the project is $43,000., this sum to be allocated, in general, as indicated in Table I, attached hereto.

Funds requested herewith constitute estimated requirements to complete the development of this arm in addition to funds already authorized and unexpended as of January 1, 1946. This expenditure has been forecasted in the 1946 Arms Division budget as follows:

| | |
|---|---|
| Technical Dept. Salaries and Wages | $2,633 |
| Technical Dept. Expense @ 80% | 2,107 |
| Assistance from plants | 2,600 |
| Stores and Supplies | 1,560 |
| Misc. Project Charges | 34,100 |
| Total | $43,000 |

PATENT SITUATION:

The Patent Division reports that the design is free of patent infringement and contains little, if any, patentable novelty. Any additional features developed for this arm will be submitted promptly to the Patent Division for opinion.

REMARKS:

This project conforms with Products Committee action in Minute # 2 dated January 24, 1946.

Estimated labor cost over the 12-year period shows a reduction of approximately $200,000, or an average of about 5 men.

Funds requested herewith will be expended in 1946 and are included in the Technical Department budget for that year.

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## TABLE I

| | Est. Total Requirements to Complete Development | Amount Authorized Parts I-V | Est. Amount Spent to Dec.31,1945 | Balance Unexpended Dec.31,1945 | Amount Requested Part VI |
|---|---|---|---|---|---|
| Investigation | $ 5,000 | $ 5,000 | $ 5,000 | $ 0 | $ 0 |
| Design | 7,910 | 12,700 | 7,910 | 4,790 | ( 4,790) |
| Model Making | 14,000 | 14,900 | 14,000 | 900 | ( 900) |
| Design Revisions | 11,500 | 6,100 | 10,000 | (3,900) | 5,400 |
| Production Drawings | 0 | 4,400 | 0 | 4,400 | ( 4,400) |
| Testing | 7,250 | 6,500 | 7,250 | ( 750) | 750 |
| Consumer Acceptance Evaluation | 3,000 | 3,000 | 1,500 | 1,500 | 0 |
| Specifications | 4,000 | 2,200 | 3,500 | (1,300) | 1,800 |
| Engineering Files | 3,000 | 1,000 | 500 | 500 | 2,000 |
| Process Development | 7,500 | 2,500 | 3,000 | ( 500) | 5,000 |
| Process Engineering | 16,440 | 13,800 | 16,440 | (2,640) | 2,640 |
| Process & Methods Engineering | 0 | 6,000 | 0 | 6,000 | (6,000) |
| Trial Run (Technical Approval) | 7,500 | 0 | 0 | 0 | 7,500 |
| Tool Design | 16,000 | 53,000 | 6,000 | 47,000 | (37,000) |
| Tool Design Procurement | 35,000 | 0 | 1,000 | (1,000) | 35,000 |
| Tool Design Revisions | 12,500 | 0 | 500 | ( 500) | 12,500 |
| Process Sketching | 4,000 | 0 | 1,000 | (1,000) | 4,000 |
| Pilot Operations | 19,500 | 0 | 0 | 0 | 19,500 |
| Total | 174,100 | 131,100 | 77,600 | 53,500 | 43,000 |
| Tool Manufacture | 132,300 | | | | |
| Total | $306,400 | | | | |

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TABLE II

COMPUTATION OF GROSS PROFIT OR LOSS M/720 VS M/721-722
(1947-1958 INCLUSIVE)

| | Total Including M/720 | | | | | | Total Including M/721-722 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3rd Post War Year 1947 | 4th Post War Year 1948 | 5th Post War Year 1949 | Normal Post War Year 1959 | 1951-1958 | Total | 3rd Post War Year 1947 | 4th Post War Year 1948 | 5th Post War Year 1949 | Normal Post War Year 1950 | 1951-1958 | Total | Difference |
| Sales Forecast - Qty. | 294,360 | 238,900 | 183,950 | 206,400 | 1,651,200 | 2,574,810 | 311,160 | 251,400 | 194,050 | 219,400 | 1,755,200 | 2,731,210 | 156,400 |
| Outside Sales | 4,600,286 | 3,868,960 | 3,068,946 | 3,675,693 | 29,405,544 | 44,619,429 | 4,933,198 | 4,114,360 | 3,269,550 | 3,942,513 | 31,540,104 | 47,799,725 | 3,180,296 |
| Factory Cost: | | | | | | | | | | | | | |
| Direct Material | 418,255 | 354,763 | 277,620 | 352,601 | 2,820,808 | 4,224,047 | 458,167 | 384,488 | 301,609 | 383,371 | 3,066,968 | 4,594,603 | 370,556 |
| Direct Labor | 819,297 | 689,221 | 550,876 | 520,002 | 4,160,016 | 6,739,412 | 836,201 | 700,546 | 561,289 | 536,092 | 4,304,736 | 6,940,864 | 201,452 |
| Expense: | | | | | | | | | | | | | |
| Direct & Indirect | 1,778,842 | 1,635,744 | 1,423,661 | 1,440,170 | 11,521,360 | 17,799,777 | 1,780,701 | 1,636,990 | 1,424,806 | 1,442,160 | 11,537,280 | 17,821,937 | 22,160 |
| Fixed | 285,052 | 271,829 | 248,587 | 242,943 | 1,943,544 | 2,991,955 | 285,052 | 271,829 | 248,587 | 242,943 | 1,943,544 | 2,991,955 | -- |
| Total Expense | 2,063,894 | 1,907,573 | 1,672,248 | 1,683,113 | 13,464,904 | 20,791,732 | 2,065,753 | 1,908,819 | 1,673,393 | 1,685,103 | 13,480,824 | 20,813,892 | 22,160 |
| Total F.C. | 3,301,446 | 2,951,557 | 2,500,744 | 2,555,716 | 20,445,728 | 31,755,191 | 3,360,121 | 2,993,853 | 2,536,291 | 2,606,566 | 20,852,528 | 32,349,359 | 594,168 |
| Reserve for Inv.Adj. | 99,043 | 88,547 | 75,022 | 51,114 | 408,912 | 722,638 | 100,804 | 89,816 | 76,089 | 52,131 | 417,048 | 735,888 | 13,250 |
| Deferred Tool Cost | 135,342 | 115,330 | 98,743 | 120,152 | 961,216 | 1,420,783 | 124,488 | 106,298 | 82,409 | 115,580 | 924,640 | 1,353,415 | (67,368) |
| Total Factory Cost | 3,535,831 | 3,155,434 | 2,664,509 | 2,726,982 | 21,815,856 | 33,898,612 | 3,585,413 | 3,189,967 | 2,694,789 | 2,774,277 | 22,194,216 | 34,438,662 | 540,050 |
| G. & A. Selling & Del. | 714,516 | 608,067 | 498,242 | 587,842 | 4,702,736 | 7,111,403 | 714,516 | 608,067 | 498,242 | 587,842 | 4,702,736 | 7,111,403 | -- |
| Total Comm. Cost | 4,250,347 | 3,763,501 | 3,162,751 | 3,314,824 | 26,518,592 | 41,010,015 | 4,299,929 | 3,798,034 | 3,193,031 | 3,362,119 | 26,896,952 | 41,550,065 | 540,050 |
| Net Profit or Loss (before taxes) | 349,939 | 105,459 | (93,805) | 360,869 | 2,886,952 | 3,609,414 | 633,269 | 316,326 | 76,519 | 580,394 | 4,643,152 | 6,249,660 | 2,640,246 |
| Adjustment of Sales Price - (Original M/721-722 @ $23.50 (Revised M/721 - @$23.89; M/722 - $21.83) | | | | | | | | | | | | | (74,765 |
| Adjusted Total Difference | | | | | | | | | | | | | 2,565,481 |
| Adjustment of Tooling Cost - (Original $171,700; Revised $185,300) | | | | | | | | | | | | | -13,600 |
| Adjusted Total Difference | | | | | | | | | | | | | 2,551,881 |

M/720 VS. M/721-722

| | |
|---|---|
| Gross Savings (Before Dev. Amor.) | 2,551,881 |
| Less: M/721-722 Development (Not Inc. Tooling) | 173,100 |
| Gross Savings | 2,378,781 |
| Less: 4.5% Undistributed Expense | 107,045 |
| 40% Federal Taxes | 908,694 |
| Net Savings - 12 Yr. Period | 1,363,042 |
| " " - Average Year | 113,587 |
| Total Expenditure | 305,400 (After deduction of $1,000 for o.k. guns - See Table I) |
| Net % Return on Expenditure | 37.2% |

NOTE:
Original selling price and tooling cost included in Arms Study figures.
Revised selling price and tooling costs represent current estimate.

Revised 1-17-46

R2527226

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# MASTER SCHEDULE
## DEVELOPMENT OF MODELS 721 & 722

| ACTIVITY | 1943 J F M A M J J A S O N D | 1944 J F M A M J J A S O N D | 1945 J F M A M J J A S O N D | 1946 J F M A M J J A S O N D | 1947 J F M A M J J A S O N D | 1948 J F M |
|---|---|---|---|---|---|---|
| TOTAL PROJECT | 0 5 10 | 15 20 | 25 30 35 40 45 50 60 75 | 85 105 115 125 135 145 155 185 170 174100 | | |
| GENERAL REQUIREMENTS<br>INVESTIGATION | $0<br>$5000 | | | | | |
| PRODUCTS COMM. APPROVALS<br>DESIGN | $0 | $0<br>$7910 | | $0 | $0 | |
| COST ESTIMATING<br>MODEL MAKING | $0 | $0 $0<br>$3600 | $0<br>$10100 | $0 $0 | $0 | |
| DESIGN REVISIONS<br>TESTING | | $924 | $6251 | $10576<br>$999 | | |
| CONSUMER ACC. EVALUATION<br>SPECIFICATIONS | | | $363 | $3000<br>$3637 | | |
| ENGINEERING FILES<br>PROCESS DEVELOPMENT | | | $744 | $3000<br>$8756 | | |
| PROCESS ENGINEERING<br>TRIAL RUN (TECH. APPROVAL) | | | $1981 | $14459<br>$7500 | | |
| TOOL DESIGN<br>TOOL DESIGN PROCUREMENT | | | $83 | $15917<br>$35000 | | |
| TOOL DESIGN REVISIONS<br>PROCESS SKETCHING | | | | $12500<br>$4000 | | |
| PILOT OPERATIONS<br>MATERIAL PROCUREMENT | | | | $19500<br>PLANT | | |
| MACHINERY PROCUREMENT<br>TOOL MANUFACTURE | | | | PLANT<br>PLANT | | |
| SET UP FOR PRODUCTION<br>TRIAL RUN | | | | PLANT<br>PLANT | | |
| COMPONENT MANUFACTURE<br>WAREHOUSE PRODUCTION | | | | PLANT<br>PLANT ← ANNOUNCEMENT | | |

R2527227

LAB. I - DWR. 84 STRENGTH TESTS
M72.1 STRENGTH TEST

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C O P Y

MANAGEMENT MEETING

7/22/47

It is to be expected that a High Power Bolt Action Rifle shall be strong. In the Model 721 design this objective has been achieved without adversely affecting gun weight (Max. 7# 12 oz. for 30-06) - (Minute #21 - 1944), or cost, or appearance and balance.

The keystone to this achievement is the shrouded Bolt Head made possible by a new Extractor design, a small spring steel component purchased at a cost of $.085 each. The shrouded Bolt Head and Extractor design was originally conceived for the Models 760 and 740 and applied later to the Model 721. Later in this discussion we shall show exhibits of test results which demonstrate the importance of such an insignificant looking part.

To determine the ultimate strength of the Model 721, we have performed unusual tests which I would like to review with the assistance of the color chart and mechanism layout and samples of "Wreckage".

The important strength features may be listed as follows:

1. Shrouded Bolt Head.
2. Large Locking Area.
3. Solid Firing Pin.
4. Large Area on Barrel Bracket to absorb recoil.
5. Heavy Breech Section.
6. Stronger Stock around Magazine.

(Discuss these features with exhibits).

OTHER FEATURES

Adjustable Target Type Fire Control

Low Scope Mounting

Light Weight

Good lines and balance

Adaptable to High Grade Finish

Suited for [illegible]

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R2527229

Strength Features

1. Shrouded Bolt Head made possible by Extractor design.
   a. Maximum gap at chamber less than thickness of brass in cartridge.
   b. Exhibit A - Cross cut section of M/721 showing head of brass cartridge case being supported by shrouded head - barrel and receiver section. Bolt containing cartridge which produced excessive pressure.
   Exhibit B - Sample Extractor and Bolt - M/721, 30-06 cartridge.
2. Exhibits of strength tests of M/721 and other standard actions.
   a. Comparison of strength features.
   b. Exhibit C - 9 calibers. Cartridges actually fired through a 30-06 M/721. No damage to gun.
   c. Exhibit [redacted] - Comparison of locking area of Bolt Lugs (Springfield, M/70 and M/721 Bolts).
3. Solid Firing Pin
   a. Exhibit E - M/721 and Springfield. Refer to construction drawing.
      1. The firing pin in the M/721 pre pilot line gun withstood 10,000 dry cycles without breakage.
4. Area of Barrel Bracket in Stock
   a. M/721 area twice that of Enfield and M/70. 30% larger than M/70.
5. Heavier Breech and Barrel Section than Mauser, Springfield or M/70.
6. Stock section around Magazine stronger than all other types of bolt action rifles.
7. Other Features -
   a. Adjustable target type fire control.
   b. Low scope mounting.
   c. Light weight.
   d. Good lines
   e. Adaptable for high grade finish
   f. M/721 Action ideally suited for handloading and those interested in wildcat loads because of its superior strength features.

Condition of Guns as shown on Chart

Model 721

B. Annealed Extractor

E. Breech pressure forced Ejector into Firing Pin hole in Bolt Body.

G. Breech pressure cocked Firing Pin

L. "

M. " . Stock broke because of recoil.

N. Breech pressure cocked Firing Pin. Bolt Lugs frozen to Action. Bolt Handle broken attempting to unlock gun. Strength of gun undetermined.

Model 721 (without shrouded Bolt Head)

B. Excessive breech gas pressure cracked stock.

E. Excessive breech gas pressure disintegrated stock.

F. "

J. Excessive breech gas pressure cocked Firing Pin.

K. Excessive breech gas pressure disintegrated stock. Brass from ruptured cartridge leaving gun. Primer left primer pocket.

L. Action failed. Final strength of gun.

Model 1917 Enfield

B. Excessive breech gas pressure.

F. Broken Extractor caused by breech gas pressure.

G. Stock disintegrated by breech gas pressure.

J. Excessive breech gas pressure cocked Firing Pin.

K. "

L. Breech gas pressure deformed Bolt Stop.

M. Left rail of Receiver deformed. Accomplished by breech gas pressure. Further final strength of gun undetermined.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

R2527231

German Mauser

B. Excessive breech gas pressure.

E. Breech gas pressure broke Extractor.

F. Breech gas pressure cocked Firing Pin.

G. Breech gas pressure cocked Firing Pin and disintegrated stock.

L. Final strength of gun. Face of Bolt Head completely cracked.

Model 70 Winchester

B. Excessive breech gas pressure.

D. "

E. "

F. Excessive breech gas pressure cocked Firing Pin. Broke Extractor.

G. Brass from ruptured cartridge leaving gun and lodging in bolt sleeve. Primer leaves primer pocket.

J. "

K. Stock disintegrated because of excessive gas pressure. Brass from ruptured cartridge leaving gun.

L. Final strength of gun. Receiver disintegrated.

1903 Springfield

B. Excessive breech gas pressure cocks Firing Pin.

D. "

E. Excessive breech gas pressure broke Extractor.

F. Brass from ruptured cartridge case leaving gun, lodging in bolt sleeve. Primer leaves primer pocket.

G. "

J. Final strength of gun. Receiver cracked on right side of breech ring. Stock disintegrated.

W. E. Leek/mc
7/18/47

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KINZER V. REMINGTON

R2527232

cc: [illegible]

December 7, 1950

TO: S. M. Alvis

FROM: [illegible]

SUBJECT: [illegible]

Four Model 721 rifles were recently tested to compare two styles of Bolt. Data is recorded below.

Load - 4 - 22-gr. slug lodged in [illegible] and super-proof load of 3.4 grams proof powder with a 22-gr. bullet

No. 1 - New Style Receiver

Copper brazed, decarburized and heat treated bolt to give a soft shroud.

Results: Barrel failed over chamber, apparently caused by a seam in the barrel.
Receiver ring split
Stock damaged
Bolt intact

No. 2 - New Style Receiver

Bolt - Same as No. 1

Results: Bottom lug of receiver failed in shear.
Bolt lugs set back enough to shear off bolt handle and leave shroud unsupported.
Bolt shroud failed
Firing pin blown to rear past cocked position.
Stock shattered.
Magazine and floor plate bent.

No. 3 - Old Style Receiver

Bolt - Brazed and heat treated simultaneously.

Results: Bolt head separated from bolt sleeve.
Bolt handle torn off.
Bottom lug of receiver failed
Shroud blown from bolt.
Bolt head in receiver but out of line badly.
Stock shattered.
Magazine and floor plate bent.

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KINZER V. REMINGTON

No. 4 - New Style Receiver

Bolt - same as No. 3

Results: Bottom lug of receiver failed in shear.
Top lug of bolt sheared off.
Bolt shroud blown off.
Bolt handle sheared off.
Bolt blown to rear until stopped by bottom bolt lug wedging in fire control slot.

A receiver with a different loading ramp cut is being made and will be tested and reported on at a later date.

It is our belief that these tests should be continued and an effort made to standardize the test for more uniform results.

R. L. Avery
R. L. Avery
Arms Technical Division

WLA:LJ

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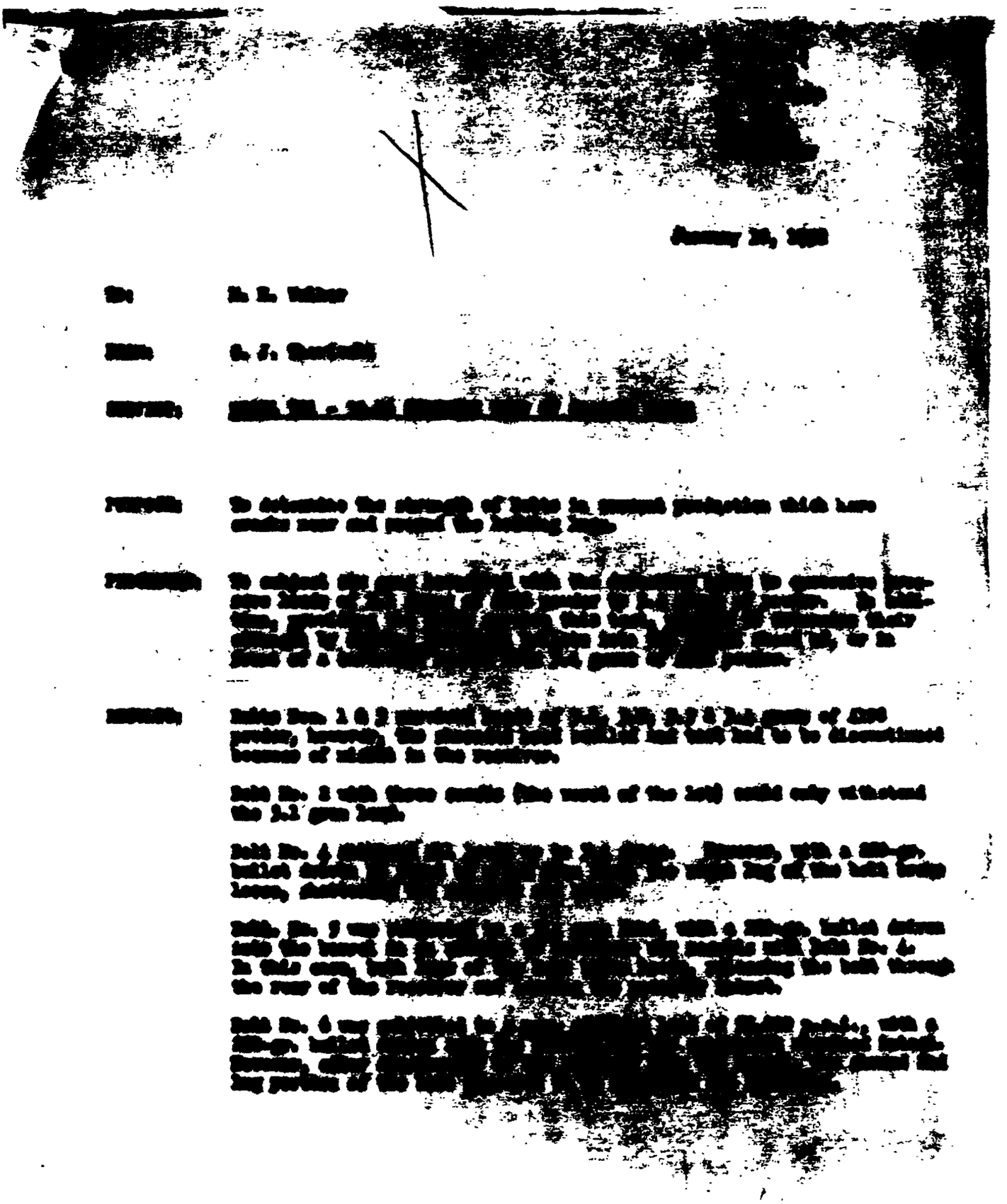
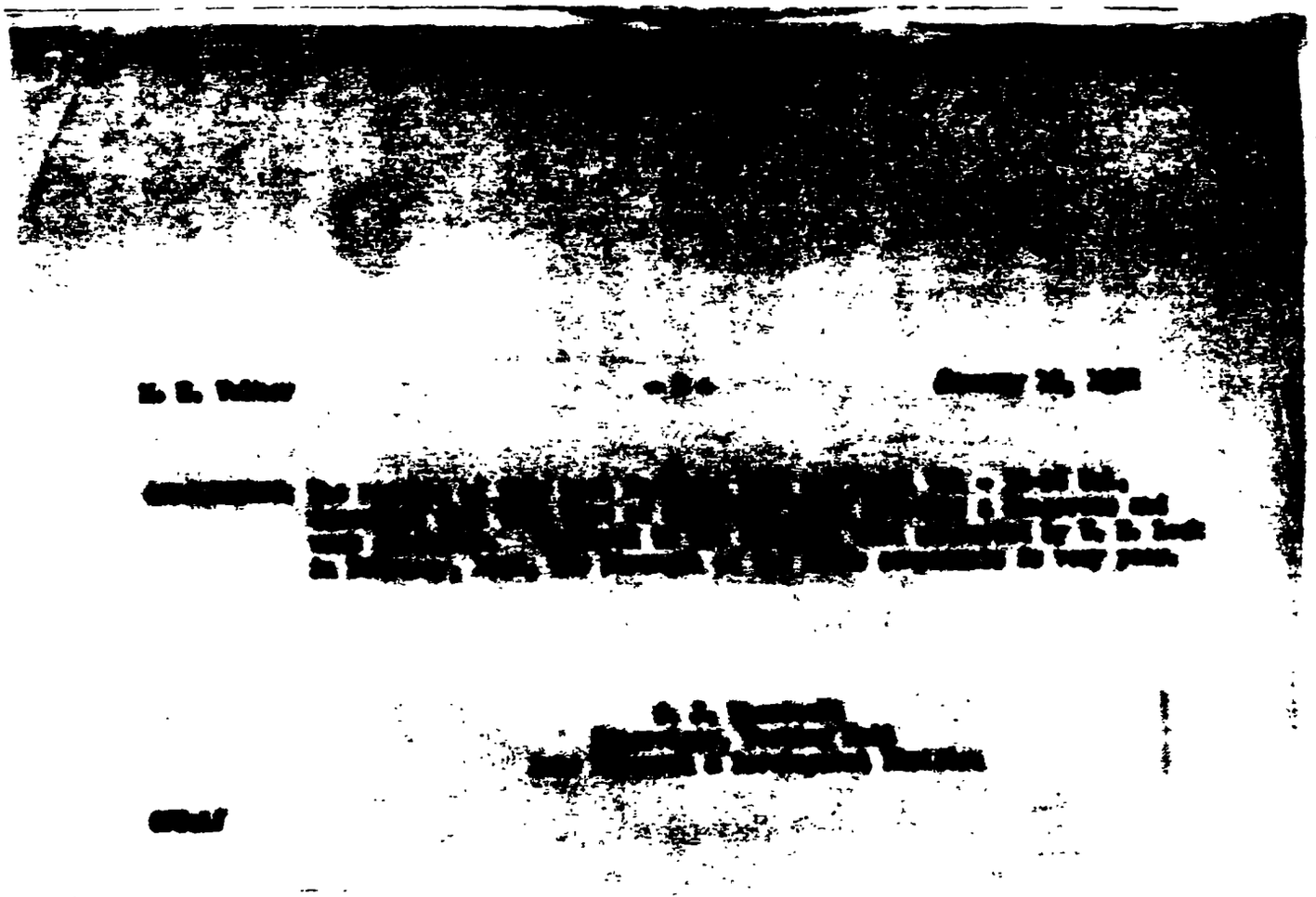
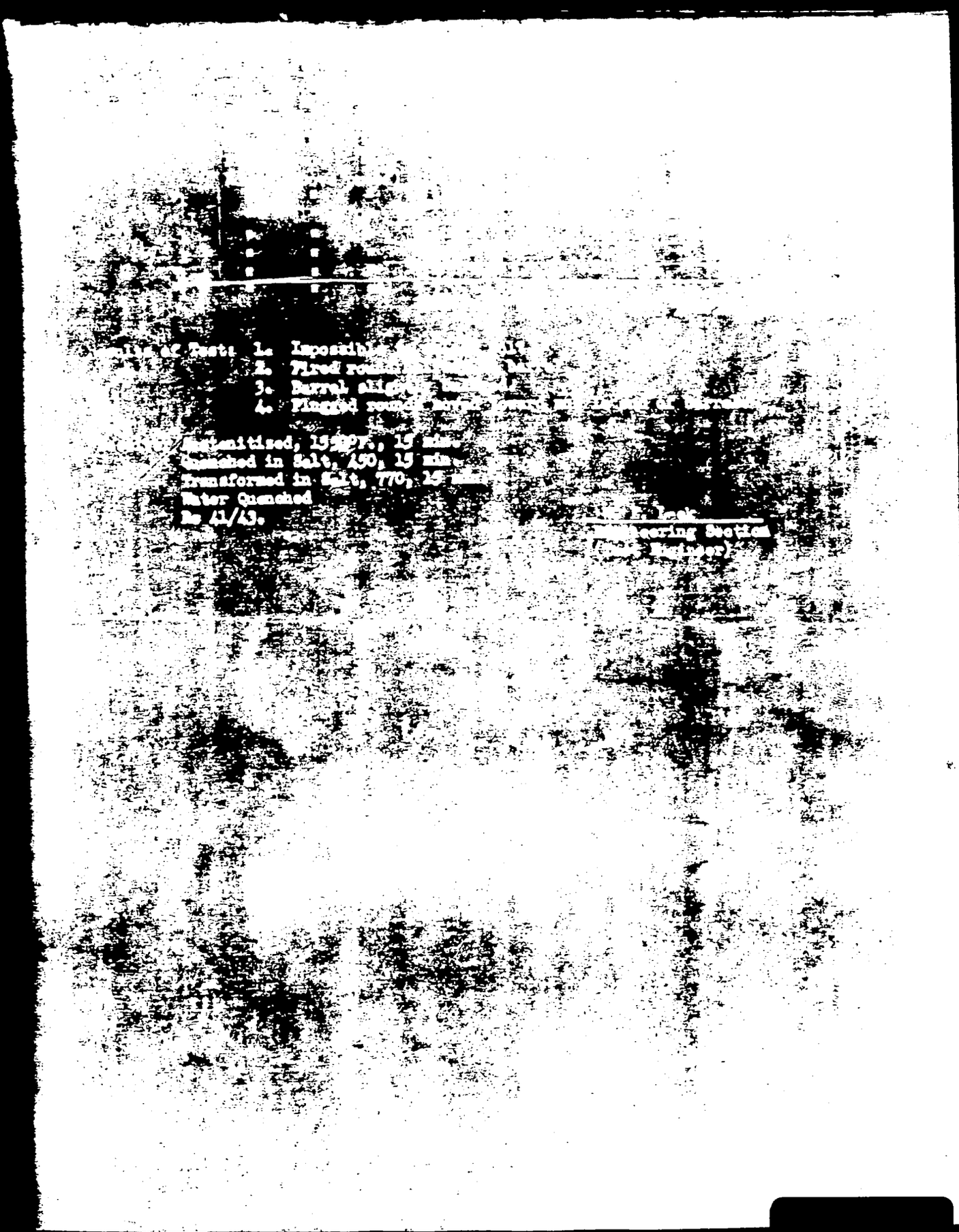
KINZER V. REMINGTON







[illegible] of Test: 1. Impossible [illegible]
2. Fired rou[illegible]
3. Barrel alig[illegible]
4. Plugged round [illegible]

[illegible]tenitized, 15[illegible]°F., 15 min.
Quenched in Salt, 450, 15 min.
Transformed in Salt, 770, 15 [illegible]
Water Quenched
Re 41/43.

[illegible] Lock
[illegible]ering Section
([illegible] Engineer)

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

Ilion, New York
February 8, 1962

TO: R.J. SERVICE

SUBJECT: STRENGTH TEST - M/700 - 7 MM REM MAGNUM

MODIFIED M/7[illegible]2 EXTRACTOR

Powder - 4198 Lot #58 [redacted]

1. 3.4 grams - Opened hard by hand.

2. 3.5 grams - Opened with pipe. Ejector and Extractor OK. Blown primer. Dummy OK.

3. 3.6 grams - Opened with pipe. Extracted OK. Ejected by hand. Brass under ext. Blown primer. Dummy OK.

4. 3.7 grams - Opened with pipe. Hammered bolt open. Ext. OK. Vise used to eject shell and remove ctg. from face of bolt. Ejector free. Brass under ext. Poor ejection with Dummy. Blown primer.

5. 3.8 grams - Opened with pipe. Hammered bolt open. Hammered bolt handle to extract shell. Handle brace failed. Ext. claw pulled through rim of ctg. in vise. Blown primer. Case head expanded in barrel C'bore. Dummy extracted and ejected OK.

Test stopped due to bolt handle brace failure.

W.R. Goegin
Test Lab.

WRG:pb

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
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CC: W.K.Leak
G.M.Calhoun
J.H.Lewis

RD-49-S

# REMINGTON ARMS COMPANY, INC.

INTER-DEPARTMENTAL CORRESPONDENCE

Remington PETERS

"CONFINE YOUR LETTER TO ONE SUBJECT ONLY"_____ May 15, 1951

TO: C. J. Theriault

FROM: S. M. Alvis

SUBJECT: MODEL 721 PATENT

We have been requested by the Patent Attorney to obtain additional information relative to strength of the action of the M/721 & 77 design, specifically as it pertains to the shrouded head bolt construction.

It is desired that a comparative test be made to determine difference in strength between a regular M/721 action and one with the recess ground off of the breech end of the barrel. We have results of previous tests where the bolt was ground off flush.

Incidentally, it is understood that Bridgeport will also again need the display which we have from the comparative strength test.

Please charge cost of this work to No. 73153, and to conserve rifles it is suggested that, if possible, the actions submitted to this test be selected from available visual sub-standard guns.

SMA

S. M. Alvis
Arms Technical Division

SMA:LJ

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KINZER V. REMINGTON

G-88-REM

# DON'T SAY IT—WRITE IT

TO H. J. Scott DATE 5-16-51

FROM S. M. Alvis

For your information, we have been requested by Bridgeport to conduct some additional ultimate strength tests for the Model 721 action. This apparently is needed by the Patent Attorney in connection with a patent question. The test will be similar to some of those previously run and will be under supervision of C. J. Theriault. According to Wayne Lock, you were interested in being kept informed of any test of this nature being run, especially in view of the fact that there has been a change in personnel for supervising the testing work. We do not entertain any idea that the work will not be carefully done and in accordance with the training of H. E. Lock.

S. M. Alvis
Arms Technical Division

SMA:LJ

CC: C.J.Theriault

THE SAFE WAY IS THE RIGHT WAY

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KINZER V. REMINGTON

D. P. Report in '47 folder

CC:

April 30th, 1947

TO: H. A. Brown

FROM: W. E. Leek

SUBJECT: STRENGTH FEATURES
M/721 REMINGTON VS. M/70 WINCHESTER

Attached is a brief report of the results obtained by subjecting M/721 Remington and M/70 Winchester rifles to tests of destruction. Numerous other strength tests on the M/721 are covered in a report of pre-pilot testing dated 4/17/47.

In every condition the chamber end of the barrel was plugged with 3 - 220 grain bullets in such a manner that the nose of a loaded round would contact the base of the nearest bullet in the barrel.

The reader's attention is directed to the fact that if the design of the gun will prevent a cartridge case rupture, fracture of the Barrel, Bolt and Receiver will not occur. It is the objective of these tests to prove that such a design is inherent in the M/721 Remington action, making its strength superior to the M/70 Winchester action.

W.E.L.

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STRENGTH FEATURES

M/721 - Photograph A and B show cross section of the Barrel, Bolt and Receiver. Standard ammunition used.

Section A - 1. Slight rupture of base of cartridge case allowed only by expansion of shrouded Bolt Ring.

2. Ring of shrouded Bolt Head, although expanded, retained base of ruptured cartridge.

3. No apparent effect on Barrel.

4. No apparent effect on Receiver.

Section B - 1. Bolt beyond inletted ring unaffected.

2. Receiver unaffected.

Results of Test

1. Impossible to unlock Bolt.
2. Measurements show no movement of the 4 - 220 grain ledged bullets.
3. Firing Pin moved rearward past cocking position but was retained in Bolt.

M/70 Winchester - Photograph C (top). Standard ammunition used.

Results of Test

1. Measurements show no movement of the 4 - 220 grain ledged bullets
2. Barrel was apparently unaffected by this test.
3. Receiver completely fractured as shown in photograph
4. Bolt unaffected but unlocked and moved rearward.
5. The head of the cartridge case had disintegrated.

M/721 - Photograph C (bottom). Same conditions but with a shell, containing 72 ~~grains of Bullet powder above normal proof loading~~ high pressure above proof pressure.

Results of Test

1. Impossible to unlock Bolt.
2. Bolt Handle was broken when subjected to abnormal unlocking pressure.
3. Firing Pin moved rearward past the cocking position but was retained in Bolt.

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KINZER V. REMINGTON

4. Pressure exerted apparently had no affect on the Bolt, Barrel or Receiver with the exception of swelling the ring of the shrouded Bolt Head.

5. Measurements show that enough force was developed by the shell loaded above proof loading to push the 4 - 220 grain bullets out of the Barrel.

Discussion:

These tests prove that the shrouded Bolt Head in the M/721 Action completely retains the base of the cartridge, not allowing it to expand sufficiently to cause complete rupturing of the cartridge case. On the other hand, in the M/70 Winchester, the base of the cartridge is not retained within the Bolt and under certain conditions of excess pressure or defective ammunition, this design will allow the cartridge case to expand unsupported to such a degree that the base of the cartridge case will rupture, directing the expanding powder gases against the Receiver section, causing the receiver to fracture.

Conclusion:

It is to be concluded that the design of the M/721 does prevent cartridge case rupture under conditions of excessive chamber pressure or defective ammunition, and that the strength of the M/721 Action is superior to the M/70 Winchester.

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KINZER V. REMINGTON

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KINZER V. REMINGTON

6-65-REM

# DON'T SAY IT—WRITE IT

TO M. H. Walker DATE [illegible]

FROM S. M. Alvis

Regarding proposal to adopt a powdered metal Trigger for the M/[illegible], after discussing with others in our group, can find no possibilities of trouble unless the physical characteristics of the proposed metal are too brittle at sub-zero temperatures. Believe that this information is probably from Dixon, therefore, suggest checking and advise.

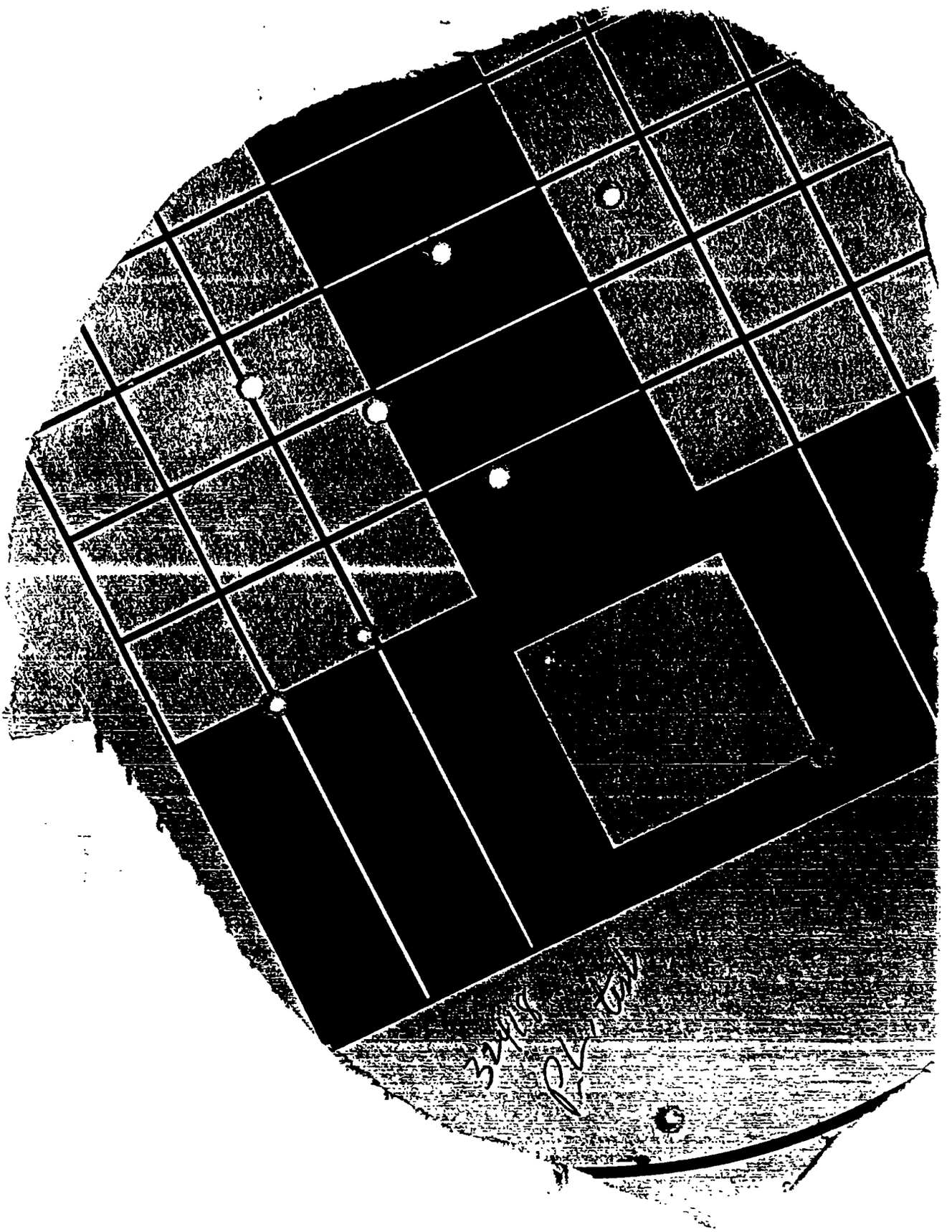
S. M. Alvis
Arms Technical Division

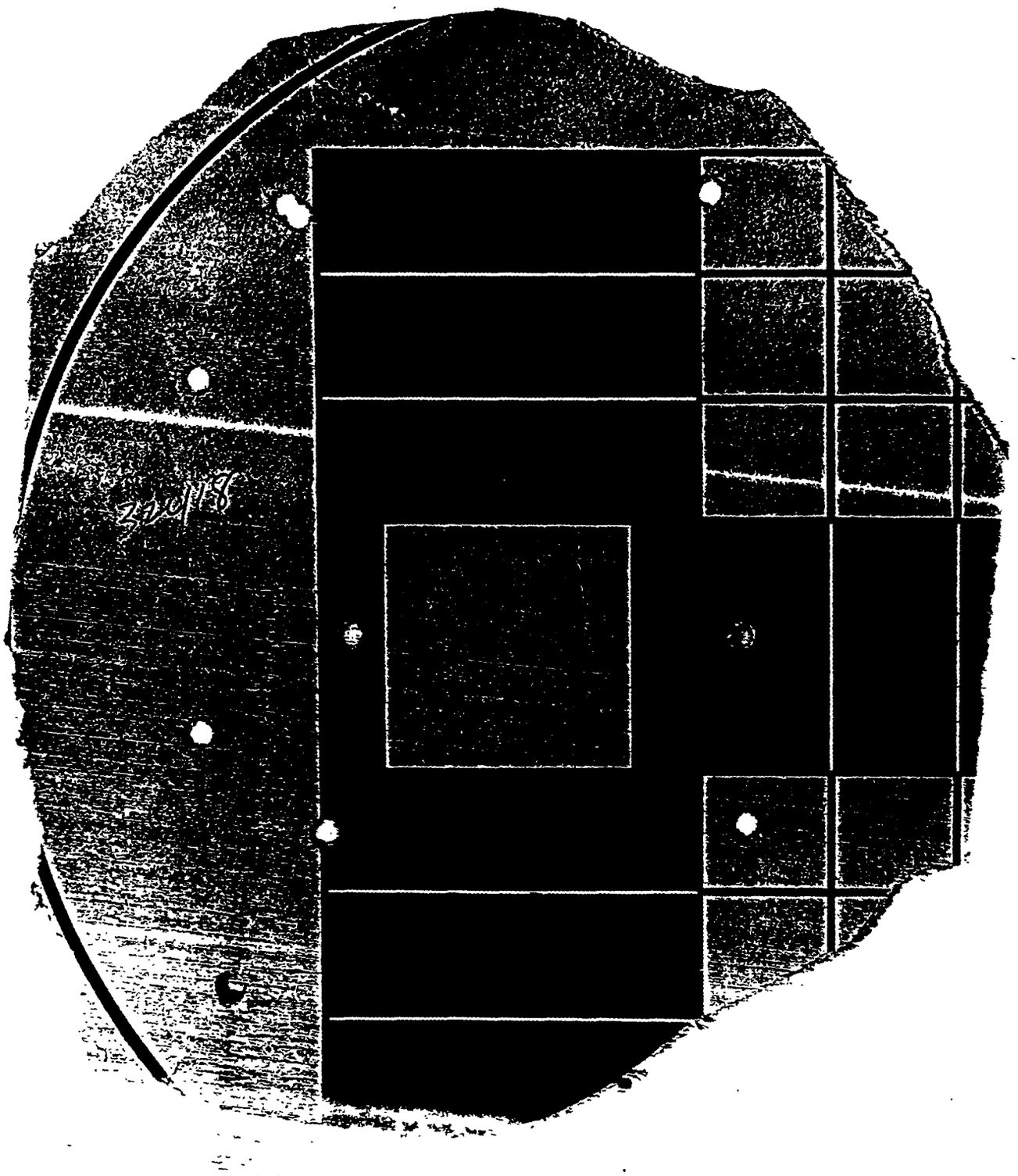
[illegible]

CC: W.E.Leek
C.J.Theriault

THE SAFE WAY IS THE RIGHT WAY

M1721 - .270 WIN PILOT LINE TEST





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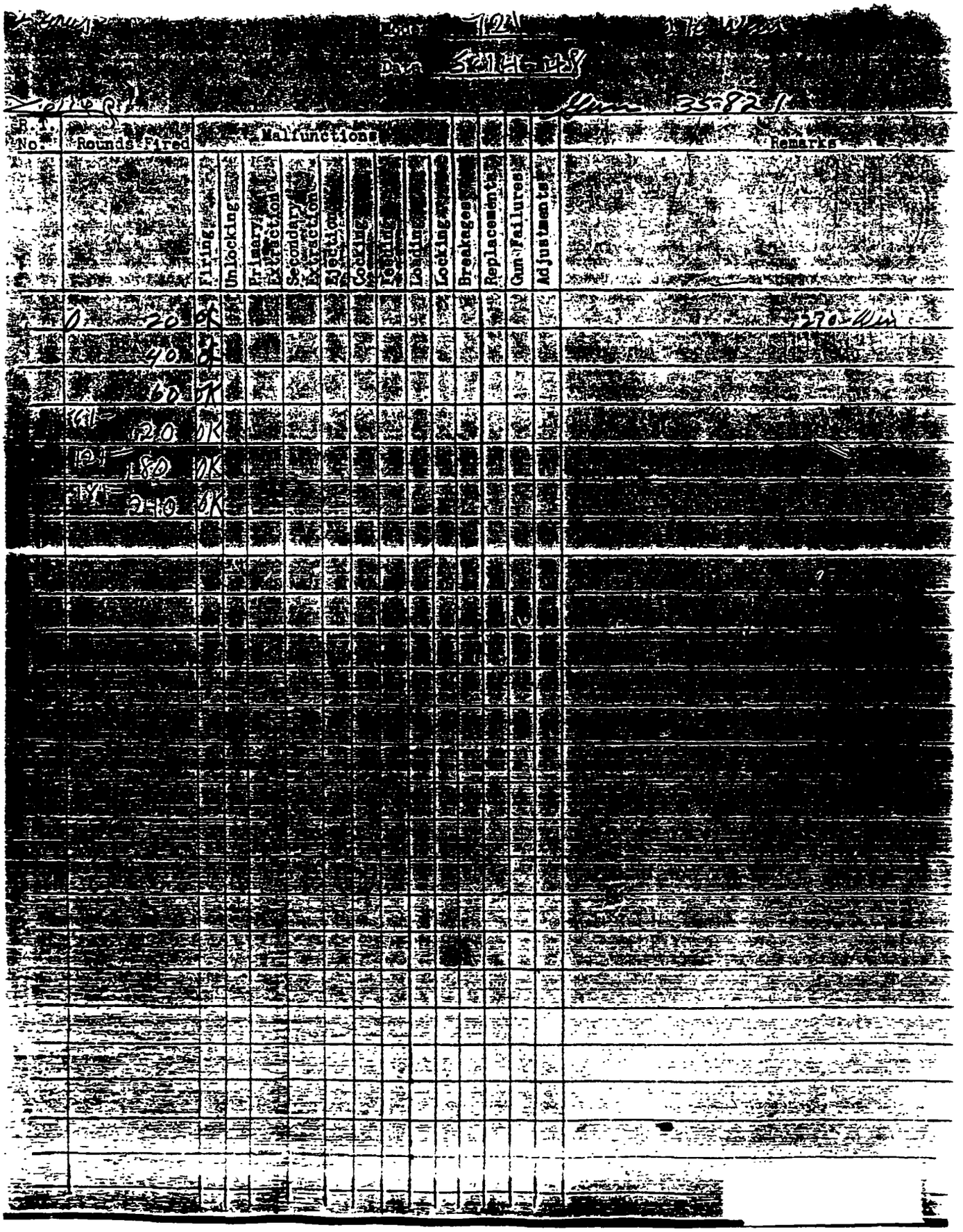
KINZER V. REMINGTON



| B.T. No. | Rounds Fired | Malfunctions | | | | | | | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Firing | Unlocking | Primary Extraction | Secondary Extraction | Ejection | Cocking | Feeding | Loading | Locking | Breakages | Replacements | Gun Failures | Adjustments | |
| | 20 | OK | | | | | | | | | | | | | 270 Win |
| | 40 | OK | | | | | | | | | | | | | |
| | 60 | OK | | | | | | | | | | | | | |
| | 120 | OK | | | | | | | | | | | | | |
| | 180 | OK | | | | | | | | | | | | | |
| | 210 | OK | | | | | | | | | | | | | |

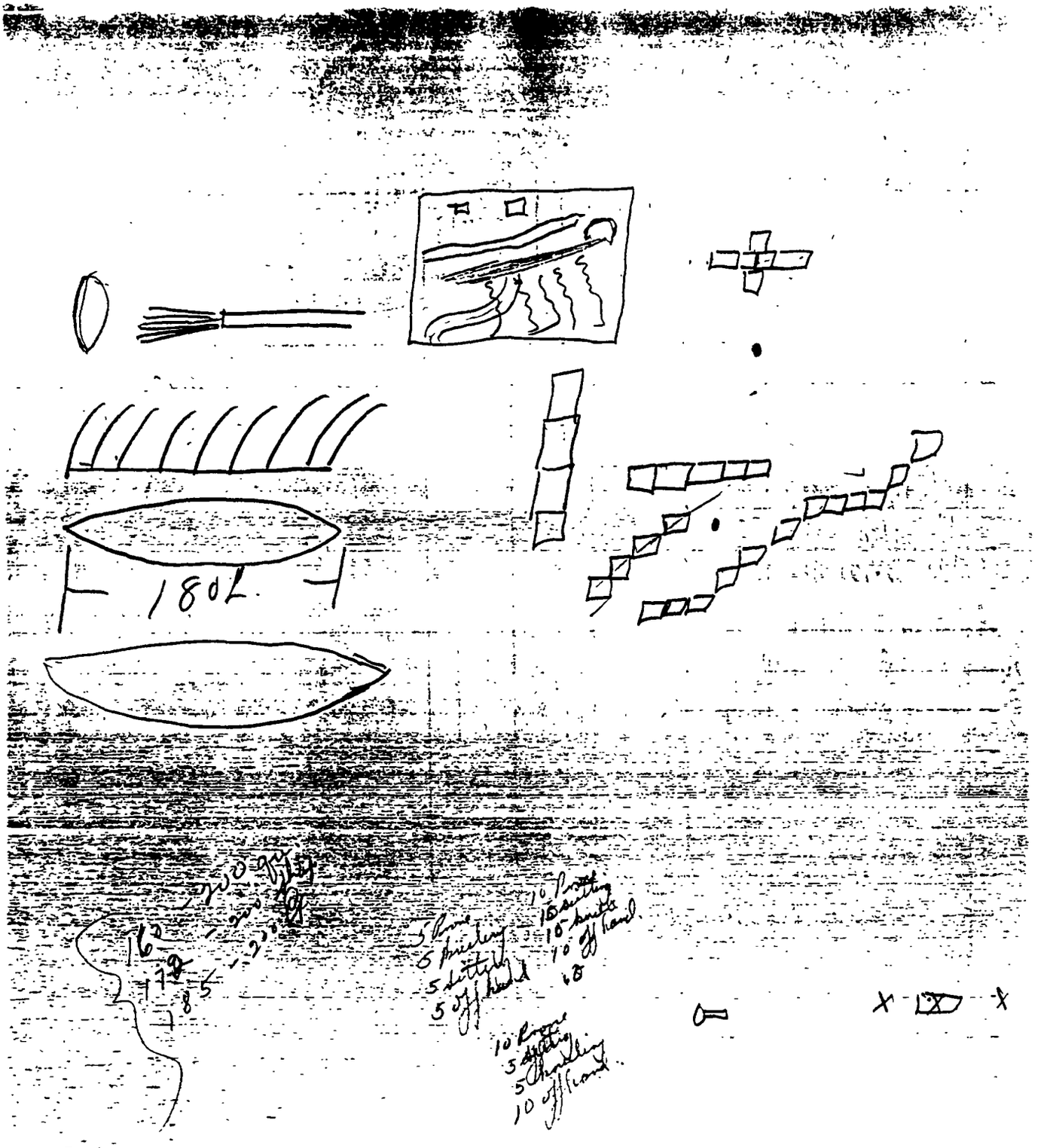
CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON
R2527250

Model 721 270 Cal

Date 5/14

DOLLER Gun # 32418

| R.T. No. | Rounds Fired | Malfunctions: Firing | Unlocking | Primary Extraction | Secondary Extraction | Ejection | Cocking | Feeding | Loading | Locking | Breakages | Replacements | Gun Failures | Adjustments | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 – 20 | OK | | | | | | | | | | | | | 270 Win |
| | 40 | OK | | | | | | | | | | | | | " |
| | 60 | OK | | | | | | | | | | | | | " |
| | 61 – 120 | OK | | | | | | | | | | | | | |
| | 121 – 180 | OK | | | | | | | | | | | | | |
| | 181 – 240 | OK | | | | | | | | | | | | | |


180L

Sheet # 2 Model 721 270 Win

Date 5-14-48

Gun # 35826

| R.T. No. | Rounds Fired | Malfunctions | | | | | | | | | | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Firing | Unlocking | Primary Extraction | Secondary Extraction | Ejection | Cocking | Feeding | Loading | Locking | Breakages | Replacements | Gun Failures | Adjustments | Win Ammo |
| | 0 | | | | | | | | | | | | | | |
| | 0-60 | OK | | | | | | | | | | | | | |
| | 61-120 | OK | | | | | | | | | | | | | |
| | 121-180 | OK | | | | | | | | | | | | | |
| | 181-240 | OK | | | | | | | | | | | | | |

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KINZER V. REMINGTON

R2527252

Model 721 270 Win

Date 5-14-48

Gun # 32568

| R.T. No. | Rounds Fired | Malfunctions | | | | | | | | | | | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Firing | Unlocking | Primary Extraction | Secondary Extraction | Ejection | Cocking | Feeding | Loading | Locking | Breakages | Replacements | Gun Failures | Adjustments | | |
| | 0 | | | | | | | | | | | | | | | Win Ammo |
| | 0 - 60 | 1 | | | | | | | | | | | | | | Hang-fire (Faulty Ammo) |
| | 61 - 120 | OK | | | | | | | | | | | | | | |
| | 121 - 180 | OK | | | | | | | | | | | | | | |
| | 181 - 240 | OK | | | | | | | | | | | | | | |

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KINZER V. REMINGTON

Model 721 270 WIN

Date 5-14-48

Gun # 32437

| R.T. No. | Rounds Fired | Malfunctions: Firing | Unlocking | Primary Extraction | Secondary Extraction | Ejection | Cocking | Feeding | Loading | Locking | Breakages | Replacements | Gun Failures | Adjustments | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 - 30 | OK | | | | | | | | | | | | | 270 Winchester |
| | 30 | OK | | | | | | | | | | | | | " |
| 31 - | 40 | OK | | | | | | | | | | | | | " |
| | 60 | OK | | | | | | | | | | | | | " |
| 61 - | 120 | OK | | | | | | | | | | | | | |
| 121 - | 180 | OK | | | | | | | | | | | | | |
| 181 - | 246 | OK | | | | | | 1 | | | | | | | |

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2 Shot

Model 721 270 Win

Date 5-14-49

ZOLLER

Gun 32480

| R.T. No. | Rounds Fired | Malfunctions: Firing | Unlocking | Primary Extraction | Secondary Extraction | Ejection | Cocking | Feeding | Loading | Locking | Breakages | Replacements | Gun Failures | Adjustments | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 – 20 | OK | | | | | | | | | | | | | 270 Winchester |
| | 21 – 30 | OK | | | | | | | | | | | | | " |
| | 40 | OK | | | | | | | | | | | | | " |
| | 60 | OK | | | | | | | | | | | | | " |
| | 61 – 120 | OK | | | | | | | | | | | | | |
| | 121 – 180 | OK | | | | | | | | | | | | | |
| | 181 – 240 | | | 11 | | | | | | | | | | | fail to extract S.M |
| | | | | 11 | | | | | | | | | | | " " " S.M |
| | | | | | | 1 | | | | | | | | | fail to eject F |

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KINZER V. REMINGTON

Model 721 270 Win

Date 5-14-48

Gun # 35816

| R.T. No. | Rounds Fired | Malfunctions | | | | | | | | | | | Replacements | Gun Failures | Adjustments | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Firing | Unlocking | Primary Extraction | Secondary Extraction | Ejection | Cocking | Feeding | Loading | Locking | Breakages | | | | | |
| | 0 | | | | | | | | | | | | | | | Win Ammo |
| | 0 - 60 | | | | | | | 11 | | | | | | | | overrides 2nd Shell |
| | | | | | | | | 11 | | | | | | | | " " " |
| | | | | | | | | 11 | | | | | | | | " " " |
| | | | | | | | | 1 | | | | | | | | " " " |
| | 61 - 120 | | | | | | | 11 | | | | | | | | " " " |
| | 121 - 180 | OK | | | | | | | | | | | | | | |
| | 181 - 240 | OK | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | Bad Mag |

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

Sheet #2 Model 721 270 Win

Date 5-14-48

Gun # 32487

| R.T. No. | Rounds Fired | Malfunctions: Firing | Unlocking | Primary Extraction | Secondary Extraction | Ejection | Cocking | Feeding | Loading | Locking | Breakages | Replacements | Gun Failures | Adjustments | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | | | | | | | | | | | | | | Win. Ammo |
| | 0- 60 | | | | | 1 | | | | | | | | | fail to eject S |
| | | | | | | 11 | | | | | | | | | " " " SS |
| | | | | 11 | 1 | 1 | | | | | | | | | " " extract MS |
| | | | | 11 | | | | | | | | | | | fail to extract SF |
| | | | | 11 | | | | | | | | | | | " " " SM |
| | | | | 1 | | | | | | | | | | | " " " S |
| | | | | | | | | | | | | 1 | | | Gun failure 4 mal in 20 rds |
| | 61- 120 | OK | | | | | | | | | | | | | |
| | 121- 180 | | | 1 | | | | | | | | | | | fail to extract F |
| | 181- 240 | | | 11 | 1 | | | | | | | | | | " " " SMM |
| | | | | 9 | 23 | | | | | | | | | | Bad ertiator |

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

Wayne

cc: W.K. Faulkner
H.J. Hackman
R.W. Grace
H.A. Brown-File

May 19, 1948

TO: W. H. Davis

FROM: S. M. Alvis

SUBJECT: MODEL 721 - CAL. 270 PILOT LINE TESTING

The following results of pilot testing of Cal. 270 is for your information and guidance in advance of the formal report which will be issued as soon as accuracy testing has been completed.

Eight (8) guns were selected at random and given a functional test of 240 rounds each; 5 were found to be o.k., and one rifle, #32480, had 4 primary extraction malfunctions and one failure to eject in 240 Rds. for a performance of 2%.

Gun #33616 had 4 bolt overrides and these always occurred with the second cartridge from top out of a full loaded magazine. Examination of the gun shows that one side of the magazine at the lips is badly deformed and we believe is responsible for this difficulty. We have not as yet altered this gun in order that your people can inspect it.

In rifle #32487 there were 14 malfunctions and one gun failure due to a total of 4 malfunctions in 20 rounds; 9 of these were for primary extraction, 2 on secondary extraction, 3 on ejection. Examination of the Bolt Assembly indicated that the Extractor was bent and probably responsible for the difficulty. We have installed a new Extractor and are requesting the Test Unit to re-check the gun and determine if this corrects the trouble.

Will advise as to results.

S. M. Alvis,
Ilion Technical Division

SMA:LJ

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

Model _____

Date _____

| No. | Rounds Fired | Malfunctions | | | | | | | | | | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Firing | Unlocking | Primary Extraction | Secondary Extraction | Ejection | Cocking | Feeding | Loading | Locking | Breakages | Replacements | Gun Failures | Adjustments | |
| | | | | | | | | | | | | | | | |

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

Air Gauge Grooves

| Gun # 32437 | #35821 | #32480 | # 32418 |
|---|---|---|---|
| 0" - .2779 | 0" - .2786 | 0" - .2778 | 0" - .2775 |
| 1" - .2789 | 1" - .2789 | 1" - .2786 | 1" - .2787 |
| 2" - .2789 | 2" - .2788 | 2" - .2786 | 2" - .2786 |
| 3" - .2789 | 3" - .2788 | 3" - .2785 | 3" - .2785 |
| 4" - .2786 | 4" - .2785 | 4" - .2784 | 4" - .2784 |
| 5" - .2784 | 5" - .2784 | 5" - .2783 | 5" - .2784 |
| 6" - .2784 | 6" - .2784 | 6" - .2783 | 6" - .2784 |
| 7" - .2784 | 7" - .2784 | 7" - .2782 | 7" - .2784 |
| 8" - .2784 | 8" - .2783 | 8" - .2782 | 8" - .2784 |
| 9" - .2784 | 9" - .2783 | 9" - .2783 | 9" - .2783 |
| 10" - .2784 | 10" - .2783 | 10" - .2783 | 10" - .2783 |
| 11" - .2784 | 11" - .2783 | 11" - .2783 | 11" - .2783 |
| 12" - .2784 | 12" - .2782 | 12" - .2783 | 12" - .2783 |
| 13" - .2784 | 13" - .2781 | 13" - .2783 | 13" - .2782 |
| 14" - .2784 | 14" - .2781 | 14" - .2783 | 14" - .2782 |
| 15" - .2784 | 15" - .2781 | 15" - .2783 | 15" - .2782 |
| 16" - .2783 | 16" - .2781 | 16" - .2783 | 16" - .2782 |
| 17" - .2783 | 17" - .2780 | 17" - .2783 | 17" - .2782 |
| 18" - .2783 | 18" - .2780 | 18" - .2782 | 18" - .2782 |
| 19" - .2783 | 19" - .2780 | 19" - .2782 | 19" - .2781 |
| 20" - .2782 | 20" - .2782 | 20" - .2782 | 20" - .2781 |
| 21" - .2780 | 21" - .2781 | 21" - .2781 | 21" - .2781 |

| Bore - Min Plug Plug Gauge Go | Plug Gauge Go | Plug Gauge Go | Plug Gauge Go |
|---|---|---|---|
| .270 | .2695 | .2695 | .269 |

11/21-22 Target Audit

CC: J. C. Albrechtson
S. W. Fisher
A. D. Gordon
H. J. Hackman
W. E. Leek
W. B. Parsons

September 30th, 1949

TO: D. Chambers

FROM: W. A. Best

SUBJECT: COMPETITIVE AMMUNITION

Please arrange to maintain in Stores the following competitive ammunition. This is to be kept current by reordering each 6 months and issuing to gallery upon receipt of new lot of all old competitive stores.

| | 12 Ga. | 16 Ga. | 20 Ga. | 28 Ga. | 410 Ga. |
|---|---|---|---|---|---|
| Western Heavy | 1000 | 1000 | 1000 | 500 | 500 |
| Winchester Heavy | 1000 | 1000 | 1000 | 500 | 500 |
| Western Light | 1000 | 1000 | 1000 | 500 | 500 |
| Winchester Light | 1000 | 1000 | 1000 | 500 | 500 |

| | 22 S Gallery | 22 S H.S. | 22 L.R. Reg. | 22 L.R. H.S. |
|---|---|---|---|---|
| Western | 10,000 | 10,000 | 10,000 | 10,000 |
| Winchester | 10,000 | 10,000 | 10,000 | 10,000 |

| | 300 H&H | 30-06 | 300 Sav. | 35 | 32 | 30 | 270 | 257 |
|---|---|---|---|---|---|---|---|---|
| Western | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Winchester | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |

W. A. Best
Chief Supv. Prod. Insp.

WAB:TP

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

CC: E. K. Wheat

October 7, 1948

TO: W. A. Best (?)
S. B. Fisher (?)

FROM: P. H. Eccleston

SUBJECT: CENTER FIRE ACCURACY - QUALITY LEVEL TEST

The following test has been designed to ascertain the present quality level of the M/721-722 Rifle with respect to grouping characteristics. Every effort should be made to conduct the test in a normal manner so that actual production conditions are reflected.

1. Scope of test

   a. 30/06 and 270 calibers only to be recorded.

   b. Only guns shot from accuracy device to be considered.

2. Ammunition

   a. Standard range ammunition.

3. Recording

   a. Seating shots to be disregarded.

   b. Extreme spread of the shots effecting the decision to pass or reject the gun to be tallied on sheets provided.

   c. Separate sheet to be used for each caliber.

P. H. Eccleston
P. H. Eccleston
Ammunition Division

PHE/al

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON
R2527263

5/5 3 1/2

4/5 3

3/5 2 1/2

fire 3 shots ok if 2 1/2

4th 3 "

5 or 2 1/2

5 gons 3 - 3sh ... Ave 1 1/2

3 - 4 — — 2 1/2

3 - 5 — 3 1/2

Compact ratio

Use Spec Lot 30 06

Devise -

[illegible]/29/4[illegible]
30/06 Cal
Rg Ar[illegible]
Quality Audit

| Gun No | Extreme Spread (Device) E.S. 5/5 | E.S. 4/5 | E.S. 3/5 | Extreme Spread (Shoulder) E.S. 5/5 | E.S. 4/5 | E.S. 3/5 |
|---|---|---|---|---|---|---|
| 85268 | 4.2 | 3.05 | 2.2 | 4.9 | 3.1 | 2.2 |
| | 2.9 | 1.9 | 1.0 | 3.9 | 3.5 | 1.7 |
| | 3.2 | 1.7 | 1.0 | 4.1 | 2.0 | .3 |
| | 5)10.3 | 6.65 | 4.2 | 16.9 | 8.6 | 4.2 |
| 83989 | 2.4 | 2.3 | 1.4 | 1.8 | 1.3 | 1.2 |
| | 4.0 | 2.8 | 1.2 | 2.9 | 1.3 | .9 |
| | 2.7 | 1.3 | .9 | 2.8 | 1.8 | .8 |
| | 9.1 | 6.4 | 3.5 | 7.4 | 4.4 | 2.9 |
| 83057 | 2.75 | .9 | .2 | 2.0 | 1.4 | .7 |
| | 4.1 | 2.5 | .75 | 2.5 | 1.5 | .8 |
| | 2.3 | 1.8 | .6 | 2.5 | 2.0 | 1.4 |
| | 9.15 | 5.2 | 1.65 | 7.0 | 4.9 | 2.9 |
| 87391 | 4.1 | 2.2 | 1.4 | | | |
| | 2.5 | 1.7 | 1.5 | | | |
| | 2.0 | 1.8 | 1.7 | | | |
| | 8.6 | 6.7 | 4.6 | | | |
| 84800 | 3.8 | 3.1 | 1.6 | | | |
| | 3.5 | 1.7 | 1.2 | | | |
| | 2.8 | 2.5 | 1.9 | | | |
| | 10.1 | 7.3 | 4.7 | | | |
| 83387 | 5.15 | 4.6 | 2.2 | | | |
| | 4.15 | 1.9 | 1.55 | | | |
| | 3.30 | 1.4 | .9 | | | |
| | 13.60 | 7.9 | 4.65 | | | |
| $\bar{x}$ | 3.36 | 2.2 | 1.3 | 3.5 | 1.99 | 1.12 |

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

9/12/49 30/06 Cal. M/721 Quality Audit

TEST No I

| Gun No. | Device EV | Device EH | Device ES | Device MR | Shoulder EV | Shoulder EH | Shoulder ES | Shoulder MR | PI |
|---|---|---|---|---|---|---|---|---|---|
| # 85268 | 2.9 | 4.2 | 4.2 | 1.5 | 1.3 | 3.9 | 3.9 | 1.6 | 3.9 Lc 1.6 Hi |
| | 2.4 | 1.4 | 2.9 | .8 | 4.7 | 1.7 | 4.9 | 1.7 | 4.6 Lc 1.8 Hi |
| | 2.2 | 2.1 | 3.2 | 1.0 | 2.5 | 3.2 | 4.1 | 1.5 | 5.1 Lc 1.2 Hi |
| | 2.5 | 2.6 | 3.43 | 1.1 | 2.8 | 2.9 | 4.3 | 1.6 | |
| # 83989 | 2.4 | 2.1 | 2.4 | 1.17 | 1.8 | 2.0 | 2.8 | .88 | 3.4 Lc .7 Hi |
| | 3.8 | 1.0 | 4.0 | 1.3 | 1.4 | 1.8 | 1.8 | .84 | 4.1 Lc .35 Lo |
| | .8 | 2.7 | 2.7 | .8 | 2.6 | 1.8 | 2.9 | .9 | 3.9 Lc .6 Lo |
| | 2.3 | 1.9 | 3.03 | 1.09 | 1.9 | 1.8 | 2.5 | .87 | |
| # 83057 | 2.6 | .7 | 2.75 | .64 | 1.4 | 2.0 | 2.0 | .7 | 2.6 Lc 1.1 Hi |
| | 3.85 | 1.8 | 4.1 | 1.6 | .8 | 2.5 | 2.5 | .84 | 1.4 Lc .4 Hi |
| | 1.8 | 2.45 | 2.3 | .86 | 2.1 | 1.9 | 2.5 | 1.08 | 2.1 Lc .6 Hi |
| | 2.75 | 1.55 | 3.05 | 1.03 | 1.4 | 2.1 | 2.3 | .87 | |

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

Check with Bill [illegible] on 4/5 & 3/5

## 721 & 722 Group Test #2 9-22-79

| Model | Gun Number | Cal. | E.V | E.H. | E.S. | M.R |
|---|---|---|---|---|---|---|
| 721 | 87391 | 30-06 | 3.2 | 3.7 | 4.1 X | 1.38 |
| | | | 1.45 | 2.75 | 2.50 | 1.13 |
| | | | 2. | 1.55 | 2.05 | .90 |
| 721 | 84800 | 30-06 | 3.75 | 1.25 | 3.80 X | 1.44 |
| | | | 1.60 | 3.90 | 3.50 X | 1.15 |
| | | | 2.45 | 2.05 | 2.80 | 1.23 |
| 721 | 83387 | 30-06 | 5.10 | 1.90 | 5.15 X | 1.99 |
| | | | 3.80 | 3.00 | 4.15 X | 1.20 |
| | | | .80 | 3.25 | 3.30 | 1.02 |
| | | | | | 3.34 | |
| | | | | | 31.30 | |

Min 2.05, 5.15 Diff = 3.1"

E.S. Max 3 1/2"

E.V. = Extreme Vertical
E.H. = " Horizontal
E.S. = " Spread
M.R. = Mean Radius

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

RD-2545

REMINGTON ARMS COMPANY, INC.

ENGINEERING DEPARTMENT (DUPONT) COMPUTATION SHEET SHEET NO. 1

TITLE OF PROJ. TARGET - QUALITY AUDIT 17/721-22 PROJ. NO.

SUBJECT GROUPS - 5 shot (1) / GUN - REGULAR AUDIT GUNS WORKS

EXTREME SPREAD COMPUTER E. R. Hart DATE 6 - 6 - 1956

| DATE | 30-06 | 300 SAV | 300 MAG. | 270 | 257 | 222 | GUN |
|---|---|---|---|---|---|---|---|
| 6-7-50 | | 3.1 | | 2.2 | | | |
| | | 2.5 | | 2.9 | | | |
| 6-8 | | | | 3.4 | | | |
| | | | | .8 | | | |
| | | | | 2.1 | | | |
| | R.T W/W | | | 4.7 X | 3.4 | 3.6 | |
| 6/9 | 3.5 1.8 | | | RT - 1.3 | 6/14 | | |
| | 2.9 1.6 | | | | | | |
| | 3.6 1.7 | | | | | | |
| | 2.3 2* | | | | | | |
| 6/12 | | | | | | 3.0 - 2.4 | |
| | | | | | | 1.8 | |
| | | | | | | 1.4 | |
| | | | | | | 1.8 | |
| | | | | 3.6 | | | |
| 6/13 | | | | 3.3 | | | |
| | | | | 4.0 | 5 .. below | | |
| | | | | 3.9 | " | | |
| | | | | RT | | | |
| 6/14 | | | | 4.0 - 1.5 | | | |
| | | | | 3.7 - 2.3 | | | |
| | | | | ~~4.9 - 1.3~~ | | | |
| | | | | 3.6 - 1.9 | | | |
| 6/15 | | | | | 1.9 | | |
| | | | | | 1.4 | | |
| | | | | | 2.0 | | |
| | | 1.9 | | | | | |
| 6/16 | | | | 2.3 | | | |
| | | | | 2.9 | | | |
| | | | | 4.7 - 3.2 | | | |
| | | | | 3.0 | | | |

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

Quality Audit - GUN # 124548

NON GROUPER. 300 MAG.

| Bore Diam | | Groove Diam | |
|---|---|---|---|
| muzzle - | 3011 | muzzle - | .3090 |
| to 3" | 3011 | 1" | .3089 |
| 4" | 3009 | 5" | .3086 |
| 5" | 3007 | 10" | .3084 |
| 10" | 3004 | 15" | .3084 |
| 15" | 3005 | 20" | .3084 |
| 17" | 3007 | | |
| 20" | 3006 | | |
| 21" | 3007 | | |

Variation - .0007 Variation .0006

Were brushed with Hoppis before air gaged -

Carden
28 June 50.

AD 1563

270 ✓

ITEM: Quality Audit Guns  OPERATION: Target

DIMENSION: Extreme Spread  MACHINE NO: Accuracy Device

DATE SAMPLED:  NUMBER SAMPLED:  COMP. BY: E

| Class Interval | Number Found Within Each Interval. | f | d | fd | f(d)² |
|---|---|---|---|---|---|
| 0 | | | 0 | | |
| ½ | | | 1 | | |
| 1 | IIII | 4 | 2 | 8 | 16 |
| 1½ | III | 3 | 3 | 9 | 27 |
| 2 | IIII | 6 | 4 | 24 | 96 |
| 2½ | IIII | 4 | 5 | 20 | 100 |
| 3 | IIIII | 9 | 6 | 48 | 288 |
| 3½ | IIIIII | 8 | 7 | 56 | 392 |
| 4 | II | 2 | 8 | 16 | 128 |
| 4½ | II | 2 | 9 | 18 | 162 |
| 5 | | | 10 | | |
| 5½ | | | | | |
| 6 | | | | | |
| 6½ | | | | | |
| 7 | | | | | |
| 7½ | | | | | |
| 8 | | | | | |
| | | N=37 | +199 | 1209 | |
| | | | −0 | | |
| | | | Σfd= | Σf(d)² | |

ci = Class Interval
f = Total Number Within a Class Interval
d = Deviation in Class Units from Selected Origin
N = Total Number Sampled

$\bar{X}$ = Origin ± $\frac{\Sigma fd}{N}(ci)$

Origin = _____

$\frac{\Sigma fd}{N} = \frac{199}{37} = 5.37$

ci = .5

$\frac{\Sigma fd}{N}(ci) = 2.68$

$\bar{X} = 2.68$

$\sigma = ci\sqrt{\frac{\Sigma f(d)^2}{N} - \left(\frac{\Sigma fd}{N}\right)^2}$

$\frac{\Sigma f(d)^2}{N} = \frac{1209}{37} = 32.67$

$-\left(\frac{\Sigma fd}{N}\right)^2 = -(\quad)^2 = 28.83$

D = 3.84

$\sqrt{D}$ = 1.96

ci = .5

$\sigma = ci\sqrt{D}$ = .98

$N\sigma^2$ = _____

Aug 22, 1950

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

G-88-REM

# DON'T SAY IT—WRITE IT

To _____ DATE _____

FROM _____

Quality Audit Gun # 124548 - 300 Mag

Non Grouping - Variation .0006 .3011 - .3005

Re loaded - reduced variation by .0003

Shoulder shot by gauge \ 2.6 was (3.7 - 3.9)

Returned to Quality Audit

PLAN FOR YOUR SAFETY BEFORE YOU START THE JOB

R2527271

CC: W. A. [illegible]
S. W. [illegible]
H. J. [illegible]
E. Sapp
W. J. [illegible]
M. H. Walker
[illegible]

June 6th, 1950

TO: W. [illegible]
C. Urtz

FROM: A. D. Gordon

SUBJECT: M/721-722 TARGET TEST

Confirming our conversation of June 2nd, effective as of June 5th please set up the following procedure for targeting M/721-722 rifles in order to gather data on accuracy:

1. All regular audit guns to be included (to be shot by Gallery man).
2. Two warmer shots in jack - run up another target.
3. Shoot one 5-shot group.
4. Secure target.
5. Record gun number and caliber on target.
6. Turn all targets into Quality Control office.

A. D. Gordon, Supvr.
Quality Control

ADG:MF

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

CC: R. K. Wheat

October 5, 1949

TO: W. A. Best (2)
S. W. Fisher (2)

FROM: P. H. Eccleston

SUBJECT: SHOOTER VARIATION TEST

In December 1948, a test was made to determine the individual characteristics of targeters with respect to point-of-impact. It was found that a wide variation in point-of-impact existed between targeters when shooting the same gun. As a result of this information an individual specification for point-of-impact was established for each targeter.

Since it is quite possible that targeters may optically vary from time-to-time, it appears advisable to recheck on the individual characteristics and re-establish specifications accordingly. The following test is designed for this purpose.

Scope of Test

1. All high power rifle targeters and bore sighters to participate in test.

2. Use M/721 - 30/06 Cal.
Use M/722 - .257 Cal.

3. Test to be extended over 5 days

Procedure

1. Select test guns (good groupers).

2. Use standard range ammunition.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

SUBJECT: SHOOTER VARIATION TEST

Procedure (cont'd)

3. Clean and wire brush guns before each target.

4. Shoot one warmer shot off target.

5. Each shooter to shoot one 5 shot target each gun at the beginning and end of the shift.

6. Targets to be retained and identified as to date, beginning or end of shift, caliber and shooter.

P. H. Eccleston
Arms Technical Division

PHE/ml

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

FD-721

BOLT ACTION HIGH POWER CENTER FIRE RIFLE

~~J.A. Roberts~~
R&M Control - Ilion

File

R D 1386-REV.

REMINGTON ARMS COMPANY, INC.

# APPROPRIATION REQUEST

Department Technical  Works Ilion  Project No. FD-721 Part III

Request for $ 17,170. Reduction  Date 4/13/48

Category Established Product

Title MODEL 721-722 BOLT ACTION HIGH POWER CENTER FIRE RIFLE

Parts I & II - Previously Authorized - $1,113,170.
Part III - This Request - (17,170.) Reduction
$1,096,000.

This project is included in Forecast No. 2 in the amount of $79,790.

To be commenced Upon Approval

To be ready for use

To be physically completed Sept. 1948

Estimate prepared by

K. C. Gilmore  4/12/48 Date

| | | Date |
|---|---|---|
| Approved ~~or Authorized~~ | H. A. Brown | 4-14-48 |
| Approved ~~or Authorized~~ | H. K. Faulkner | 4-14-48 |
| | J. M. Christman | 4-16-48 |
| Approved ~~or Authorized~~ | G. O. Clifford | 4-18-48 |
| | R. H. Coleman | 4-20-48 |
| Approved ~~or Authorized~~ | W.F.H.Mattlage | 4-20-48 |
| | M. R. Warden | 4-20-48 |
| Approved ~~or Authorized~~ | C. K. Davis, President and General Manager | 4-22-48 |
| Authorized | BOARD OF DIRECTORS | 4-30-48 |

Approved as to form, accounting aspects, and rules compliance

R. D. Jack, Treasurer or Assistant Treasurer  4-20-48 Date

R.D. Jack, Secretary

Preliminary approvals:

| | Date | | Date |
|---|---|---|---|
| | | | |
| | | | |
| | | | |

ml
4/13/48

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

RT-154

REMINGTON ARMS COMPANY, INC.

SUMMARY OF ESTIMATED EXPENDITURES

PROJECT NO. FD-721 - Ilion WORKS

| | Labor | Material | Total |
|---|---|---|---|
| Land | $ ------- | $ ------- | $ --------- |
| Manufacturing buildings | ------- | ------- | --------- |
| Manufacturing equipment | ------- | 401,527 | 401,527 |
| Power and service facilities | ------- | ------- | --------- |
| Tooling | 94,075 | 198,800 | 292,875 |
| Dismantling and rearranging | ------- | ------- | --------- |
| Product development | 401,598 | ------- | 401,598 |
| Machine development | ------- | ------- | --------- |
| Project administration | ------- | ------- | --------- |
| Other | ------- | ------- | --------- |
| | $ 495,673 | $ 600,327 | $ 1,096,000 |
| Provision for advancing wages and material prices | ------- | ------- | --------- |
| TOTAL | $ 495,673 | $ 600,327 | $ 1,096,000 |

ACCOUNTING DISTRIBUTION OF EXPENDITURES

| | Expenditures Previous Parts | Expenditures This Part | Adjusting Entries | Final Net Results in Accounts |
|---|---|---|---|---|
| Plant increase | $ 701,402 | $( 7,000)Red. | *$(2,935.48) | $ 691,466.52 |
| Operations | 411,768 | (10,170)Red. | -------- | 401,598.00 |
| Depreciation | ------- | ------ | * 2,935.48 | 2,935.48 |
| | $ 1,113,170 | $(17,170)Red. | | $1,096,000.00 |

*Write off of five worn obsolete type of machines used for cutter sharpening. (See schedule in Project FI-172)

ml
4/13/48

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

REMINGTON ARMS COMPANY, INC.

GENERAL INFORMATION

PROJECT NO. FD-721 Part III - Ilion Works

INTRODUCTION:

Part II of this project authorized funds in the total amount of $1,113,170 to complete all work required to place Model 721-722 Rifles in production in eight calibers, including three new Remington calibers as follows:

280 Remington
224 Remington
222 Remington

A review of the program involved in adding these three new Remington cartridges to the ammunition line and providing Model 721 and 722 Rifles to handle them indicated insufficient economic justification for calibers 280 Remington and 224 Remington. Deletion of these two calibers was recommended in a combined meeting of the Arms and Ammunition Product Committees on March 26, 1948.

DESCRIPTION OF PROPOSED WORK:

In conformance with this decision, all work on the development of Model 721 for caliber 280 Remington and Model 722 for caliber 224 Remington has been stopped. Development of Model 722 for caliber 222 Remington, however, will be completed for production.

REMARKS:

A revision in Estimated Earnings and Return on Investment is attached. Net Earnings of $140,736 are estimated with a return of 11.7%.

The R & M Estimate approved April 1, 1948, included the $1,113,700 authorized in Part II and this project therefore anticipates an underrun of $17,170.

ml
4/15/48

Revised 4-16-48
WEG:hsk

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

REMINGTON ARMS COMPANY, INC.

ESTIMATED EARNINGS AND RETURN ON INVESTMENT

Project No. FD-721 Part III - Ilion Works
6 Cal.

CATEGORY: ESTABLISHED PRODUCT

| | Normal Year | | |
|---|---|---|---|
| | Operation before Project No. FD-721 | Operation after Project No. FD-721 | Results from Project No. FD-721 |
| Quantity | 262,010 | 274,810 | 12,800 |
| Outside Sales | $6,229,197 | $6,618,387 | $ 389,190 |
| Less: Mill cost | $4,962,070 | $5,107,982 | $ (145,912) |
| Selling and administrative expense | 661,839 | 661,839 | ------- |
| | $5,623,909 | $5,769,821 | $ (145,912) |
| Operative Earnings | $ 605,288 | $ 848,566 | $ 243,278 |
| Less: All other expense @ 11% (excludes Federal taxes on income) | | | 26,761 |
| Net earnings before Federal taxes on income | | | $ 216,517 |
| Less: Federal taxes on income @ 35% | | | 75,781 |
| NET EARNINGS | | | $ 140,736 |
| INVESTMENT | | | |
| Total appropriation request under this project (including development) | | | $1,096,000 |
| Less: Amount included therein for manufacturing facilities subject to allocation: | | | |
| Equipment | $ 401,527 | | |
| Tooling | 292,875 | | 694,402 |
| | | | $ 401,598 |
| Add: Investment in facilities used directly in this operation and applicable service and other manufacturing facilities | | | 819,341 |
| Total investment | | | $1,220,939 |
| Working capital | | | 386,724 |
| Total capital required | | | $1,607,663 |
| Less: Portion of this project to be charged to operations (including development) or depreciation reserve | | | 401,598 |
| Total investment after completion of this project | | | $1,206,065 |
| RETURN ON INVESTMENT | | | |
| Total capital required | | | 8.8% |
| Total investment after completion of this project | | | 11.7% |

ml
4/15/48

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

REMINGTON ARMS COMPANY, INC.

ESTIMATE OF SAVINGS
Present Model vs. Proposed Model

BASED ON NORMAL YEAR

PROJECT NO. FD-721 Part III - Ilion WORKS
6 Cal.

| | Total Line Including Present Model | Proposed Model | Difference |
|---|---|---|---|
| Quantity | 262,010 | 274,810 | 12,800 |
| Outside Sales | $6,229,197 | $6,618,387 | $ 389,190 |
| Factory costs: | | | |
| Direct Material | 836,874 | 919,266 | (82,392) |
| Direct Labor | 822,043 | 864,807 | (42,764) |
| Expense: | | | |
| Direct and Indirect | 2,790,632 | 2,797,303 | (6,671) |
| Fixed | 250,000 | 250,000 | |
| Inventory adjustment | 93,991 | 96,628 | (2,637) |
| Deferred tooling cost | 168,530 | 179,978 | (11,448) |
| Total factory cost | $4,962,070 | $5,107,982 | $(145,912) |
| Selling and administrative expense | 661,839 | 661,839 | ------- |
| | $5,623,909 | $5,769,821 | $(145,912) |
| Operative earnings | $ 605,288 | $ 848,566 | $ 243,278 |
| Less: All other expense @ 11% | | | 26,761 |
| Estimated savings before Federal taxes on income | | | $ 216,517 |
| Less: Federal taxes on income @ 35% | | | 75,781 |
| Estimated net savings (normal year) | | | $ 140,736 |
| Total estimated expenditure, excluding $250,000 of equipment for other models | | | $ 846,000 |
| Net return on expenditure | | | 16.6% |
| Total estimated expenditure, excluding $401,527 of equipment* | | | $ 694,473 |
| Net return on expenditure | | | 20.3% |

*Equipment for general use which would have to be purchased on a necessity basis at a reasonably early date.

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CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

REMINGTON ARMS COMPANY, INC.

DETAIL ESTIMATE OF EXPENDITURES
M/721-722 - Project FD-721 - Part III

| | Amount Previously Authorized | Amount Requested This Part | Added Cost To Complete | Total Estimated Cost |
|---|---|---|---|---|
| **DEVELOPMENT (FD-721-1)** | | | | |
| Design | | | | |
| Investigation | $ 1,061 | $-------- | $------- | $ 1,061 |
| Design | 15,616 | -------- | ------- | 15,616 |
| Design Revisions | 33,053 | (1,003) | ------- | 32,050 |
| Model Making | 18,080 | ----- | ------- | 18,080 |
| | $ 67,810 | $ (1,003) | $------- | $ 66,807 |
| Specifications | | | | |
| Testing | $ 20,687 | $ (1,000) | $------- | $ 19,687 |
| Specifications | 8,213 | ----- | ------- | 8,213 |
| | $ 28,900 | $ (1,000) | $------- | $ 27,900 |
| Product Engineering | | | | |
| Process Engineering | $ 94,700 | $ (1,500) | $------- | $ 93,200 |
| Trial Run | 29,950 | (1,000) | ------- | 28,950 |
| | $ 124,650 | $ (2,500) | $------- | $ 122,150 |
| Tooling Revisions | | | | |
| Tool Design Revisions | $ 35,400 | $ ----- | $------- | $ 35,400 |
| Tool Revisions | 46,935 | (935) | ------- | 46,000 |
| | $ 82,335 | $ (935) | $------- | $ 81,400 |
| Administrative | | | | |
| Engineering Files | $ 6,219 | $ (851) | $------- | $ 5,368 |
| Project Engineering | 15,381 | (1,381) | ------- | 14,000 |
| | $ 21,600 | $ (2,232) | $------- | $ 19,368 |
| **TOOLING (FD-721-2)** | | | | |
| Design | $ 96,075 | $ (3,000) | $------- | $ 93,075 |
| Tools | 203,800 | (4,000) | ------- | 199,800 |
| | $ 299,875 | $ (7,000) | $------- | $ 292,875 |
| **SPECIAL MACHINERY (FD-721-3)** | ------- | ----- | ------- | ------- |
| **STANDARD MACHINERY (FD-721-4)** | 374,527 | $ ----- | $------- | $ 374,527 |
| **PRODUCTION AIDS (FD-721-5)** | $ 27,000 | $ ----- | $------- | $ 27,000 |
| **PILOT OPERATIONS (FD-721-6)** | | | | |
| Quality Audit | $ 3,230 | $ ----- | $------- | $ 3,230 |
| Methods Engineering | 1,460 | ----- | ------- | 1,460 |
| Machine Changes&Additions | 10,060 | (3,500) | ------- | 6,560 |
| Machine Rearrangement | 1,900 | ----- | ------- | 1,900 |
| Pilot Lot Manufacture | 61,823 | 2,000 | ------- | 63,823 |
| Tool Replacement | 8,000 | (1,000) | ------- | 7,000 |
| Credit for O.K. Guns | ------ | ----- | ------- | ------ |
| | $ 86,473 | $ (2,500) | $------- | $ 83,973 |
| SUB TOTAL | $ 411,768 | $(10,170) | $------- | $ 401,598 |
| CONTINGENCIES | ------- | ------ | ------- | ------- |
| TOTAL | $1,113,170 | $(17,170) | $------- | $1,096,000 |

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CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

TECHNICAL DEPARTMENT PROJECT - FINANCIAL CLOSING NOTICE

RECEIVED MAR 17 1950 TECHNICAL DEPT.

PLANT - Ilion PROJECT - FD-721

DIVISION - Arms CLOSING DATE - February 21, 1950

TITLE - Model 721-722 Bolt Action High Power Center Fire Rifles

All work on the subject project having been completed, the project is to be closed out in its entirety.

Preliminary Approvals

| | |
|---|---|
| D Hahn | Technical Dept. Manager |
| A Hahn | Engrg. Service Division Supvr. |
| [illegible] | Works Accountant |
| H Gaulkner | Plant Manager |

Approvals

| | |
|---|---|
| [illegible] | Technical Director |
| [illegible] | Treasurer or Asst. Treasurer |
| [illegible] | Director of Production |
| [illegible] | Vice President and Assistant General Manager |

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CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

## SUMMARY OF EXPENDITURES
## PROJECT FD-721

| | Expended | Authorized | (OverRun) Underrun |
|---|---|---|---|
| Manufacturing Equipment | 398,851 39 | 401 527 [illegible] | 2 675 61 |
| Tooling | 293,983 90 | 292 875 [illegible] | ( 1 108 90) |
| Dismantling & Rearrangement | 947.79 | | ( 947 79) |
| Product Development | 379,307.17 | 401,598.00 | 22,290.83 |
| Other | 615.96 | - | ( 615.96) |
| | 1,073,706.21 | 1,096,000.00 | 22,293.79 |
| | UnderRun | | 2.0% |

| | Account | Authorized | Expended | UnderRun |
|---|---|---|---|---|
| 721-1 Development | Operations | 317,625.00 | 297,823.74 | 19,801.26 |
| 721-2 Tooling | Pl.Incr.* | 292,875.00 | 293,983.90 | ( 1,108.90) |
| 721-4 Standard Machinery | Pl.Incr.* | 374,527.00 | 373,742.56 | 784.44 |
| | Depreciation | | 3.85 | ( 3.85) |
| 721-5 Production Aids | Pl.Incr.* | 27,000.00 | 25,108.83 | 1,891.17 |
| | Depreciation | | 943.94 | ( 943.94) |
| | Operations | | 615.96 | ( 615.96) |
| 721-6 Pilot Operations | Operations | 83,973.00 | 81,483.43 | 2,489.57 |
| | | 1,096,000.00 | 1,073,706.21 | 22,293.79 |
| | | | | 2.0% |

*Detail attached.

Cutter Grinder #10956 written off on PIT-RI-461
Cutter Grinder # 8608 written off on PIT-RI-661
Bench Lathes #2266 & #2873 and attachments are required for present volume of production.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

# DETAIL OF EXPENDITURES
## PROJECT FD-721

| | Expended | Authorized | (OverRun) UnderRun |
|---|---|---|---|
| **Development** | | | |
| Design (1) | | | |
| Investigation | 551.11 | 1,061.00 | 509.89 |
| Design | 15,143.13 | 15,616.00 | 472.87 |
| Design Revisions | 33,098.07 | 32,050.00 | ( 1,048.07) |
| Model Making | 19,326.69 | 18,080.00 | ( 1,246.69) |
| | 68,119.00 | 66,807.00 | ( 1,312.00) |
| Specifications | | | |
| Testing | 19,785.11 | 19,687.00 | ( 98.11) |
| Specifications | 9,516.96 | 8,213.00 | ( 1,303 96) |
| | 29,302 07 | 27,900 00 | ( 1,402.07) |
| Product Engineering | | | |
| Process Engineering | 87,326.86 | 93,200.00 | 5,873.14 |
| Trial Run | 24,382.26 | 28,950.00 | 4,567.74 |
| | 111,709.12 | 122,150.00 | 10,440.88 |
| Tooling Revisions | | | |
| Tool Design Revisions | 33,864.43 | 35,400.00 | 1,535.57 |
| Tool Revisions | 36,953.40 | 46,000.00 | 9,046.60 |
| | 70,817 83 | 81 400 00 | 10 582 17 |
| Administrative | | | |
| Engineering Files | 5,367 79 | 5 368 00 | 21 |
| Project Engineering | 12,507.93 | 14,000 00 | 1,492 07 |
| | 17,875.72 | 19,368 00 | 1,492 28 |
| **Tooling (2)** | | | |
| Design | 89,110.39 | 93,075.00 | 3,964.61 |
| Tools | 204,873.51 | 199,800.00 | ( 5,073.51) |
| | 293,983.90 | 292,875.00 | ( 1,108.90) |
| **Special Machinery (3)** | - | - | - |
| **Standard Machinery (4)** | 373,746.41 | 374,527.00 | 780.59 |
| **Production Aids (5)** | 26,668.73 | 27,000.00 | 331.27 |
| **Pilot Operations (6)** | | | |
| Quality Audit | 2,829.81 | 3,230.00 | 400.19 |
| Methods Engineering | 1,210.27 | 1,460.00 | 249.73 |
| Mach.Changes & Additions | 6,083 58 | 6,560.00 | 476.42 |
| Mach. Rearrangement | 2,189 37 | 1,900 00 | ( 289 37) |
| Pilot Lot Mfg. | 64,740 68 | 63 823 00 | ( 917 68) |
| Tool Replacement | 4,795.07 | 7 000 00 | 2 204 93 |
| Credit for OK Guns | ( 275 35) | - | 275 35 |
| | 31,483 43 | 83 073 00 | 2,489 57 |
| Sub Total (1-6) | 379,397 17 | 401 598 00 | 22,200.83 |
| Total | 1,073.706.21 | 1,096,000.00 | 22,293.79 |

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

# PLANT INCREASE DETAIL
## PROJECT FD-721

721-2 Tooling

| | | |
|---|---|---|
| Design | $ 89,110.39 | $ |
| Tools | 204,873.51 | 293,983.90 |

721-4 Standard Machinery

| Inv.No. | W.O.No. | Description | |
|---|---|---|---|
| 12184 | 80704 | Dennison Press | 1,169.49 |
| 11869 | 80705 | Drill Sharpener | 1,450.85 |
| 12413 | | Install.Charges | 85.84 |
| 12366 | 80707 | Lathe | 1,768.45 |
| 12367 | | Motor | 35.00 |
| 11875 | 80710 | J&L Lathe | 8,032.14 |
| 11890 &) | | Motors | 290.00 |
| 12376 ) | | | |
| 22024 | 80712 | Lathe | 2,763.52 |
| 11884 | 80714 | Cincinnati Grinder | 3,601.75 |
| 12150 &) | | Motors | 105.00 |
| 12151 ) | | | |
| 12401 | 80716 | LaPointe Broach | 5,334.69 |
| 12438 | | Motor | 130.00 |
| 12193 | 80717 | Porter Cable Sander | 1,301.97 |
| 12418 | | Motor | 78.06 |
| 11878 | 80719 | Landis Grinder | 6,454.25 |
| 11996 &) | | Motors | 170.00 |
| 11997 ) | | | |
| 12302 | 80725 | Sellers Grinder | 457.75 |
| 11877 | 80726 | Lipe Lathe | 2,904.06 |
| 11995 | | Motor | 110.00 |
| 12369 | 80727 | Lipe Lathe | 3,206.96 |
| 12373 | | Motor | 112.00 |
| 12370 | 80728 | Lipe Lathe | 2,861.68 |
| 12374 | | Motor | 112.00 |
| 12371 | 80729 | Lipe Lathe | 2,818.03 |
| 12375 | | Motor | 112.00 |
| 12446 | 80733 | Cincinnati Miller | 3,006.48 |
| 12445 | 80734 | Cincinnati Miller | 2,777.56 |
| 22013 | | Motor | 25.00 |
| 12379 | 80735 | Cincinnati Miller | 5,622.91 |
| 12386 &) | | Motors | 96.06 |
| 22007 ) | | | |
| 12404 | 80736 | Thread Miller | 4,627.38 |
| 12423 | | Motor | 35.00 |
| 12308 | 80737 | Delta Motor | 27.60 |
| 12307 | 80738 | Delta Drill Press | 73.80 |
| 12320 | 80739 | Dip Tank | 89.10 |
| 12380 | 80741 | Cincinnati Miller | 3,783.20 |
| 12387 | | Motor | 64.08 |
| 11876 | 80744 | Screw Machine | 5,444.79 |
| 12302 | 80745 | Sellers Gr.Cabinet | 76.09 |
| 12382 | 80763 | Screw Machine | 13,171.82 |
| 12419 | | Motor | 293.00 |
| 12439 | 80900 | LaPointe Broach | 5,760.63 |
| 12440 | | Motor | 220.00 |

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

721-4 Standard Machinery Continued

| Inv.No. | W.O.No. | Description | |
|---|---|---|---|
| 12378 | 80901 | Cincinnati Miller | 6,471.73 |
| 12385 | | Motor | 82.72 |
| 12402 | 80902 | Cincinnati Miller | 2,895.06 |
| 12462 | 81409 | Base for Tocco Brazer | 333.01 |
| 12479 | 81502 | Cincinnati Miller | 5,360.03 |
| 12480 &) 12481 ) | | Motors | 75.00 |
| 11876 | 81508 | Pulley Shafts for Screw Machine | 32.70 |
| 12342 | 81511 | Modern Bond Shavers | 217.38 |
| 12343 | | (2) | 217.39 |
| 12368 &) 12372 ) | | Motors | 30.00<br>30.00 |
| 6235-6-) 7-8 ) | 81516 | Lyons Tool Toters | 45.85 |
| 12470 | 81517 | Cincinnati Profiler | 15,706.29 |
| 12471-2-) 3-4 ) | 81517 | Motors | 170.00 |
| 12394 | 81519 | Barnes Driller | 40,365.04 |
| 22636-7-) 8-9-40 ) 41-2-3-) 4-22703) | | Motors | 1,886.60 |
| 22645 | | Motor | 465.00 |
| 12396 | 81520 | Barnes Reamer | 41,052.53 |
| 22167-8-) 9-70) | | Motors | 1,114.00 |
| 22174 | 81521 | Kingsbury Miller | 10,026.78 |
| 12384 | 81523 | Lipe Lathe | 1,889.01 |
| 12389 | | Motor | 99.63 |
| 11878 | 81528) 81529) | Parts for Landis Grinder | 201.93<br>1,405.03 |
| 12383 | 81532 | Drill Press, 2 Spdl. | 2,055.87 |
| 12415 | 81533 | " " , 3 Spdl. | 4,652.82 |
| 12414 | 81534 | " " , 3 Spdl. | 2,571.35 |
| 12476 | 81536 | Cincinnati Miller | 6,637.27 |
| 12477 &) 12478 ) | | Motors | 153.00 |
| 12441 | 81542 | Chucking Machine | 25,888.65 |
| 12442-3) -4) | | Motors | 358.00 |
| 12361 | 81544 | Carboloy Grinder | 1,430.35 |
| 12453 | 81545 | LaPointe Broach | 3,742.79 |
| 12454 &) 12455 ) | | Motors | 43.00 |
| 22037 | 81546 | Surface Grinder | 3,658.49 |
| 22079-80-81-82 | | Motors | 335.00 |
| 12492 | 81549 | Gorton Engraver | 1,351.49 |

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON
R2527286

721-4 Standard Machinery Continued

| Inv.No. | W.O.No. | Description | |
|---|---|---|---|
| 12489)<br>22093)<br>22334) | 81557 | Screw Machines | 13,330.42 |
| 22335&6)<br>22094-5) | | Motors | 260.00 |
| 12381 | 81558 | Cincinnati Grinder | 33,613.88 |
| 12388 )<br>12398 )<br>12447-8)<br>-9) | | Motors | 759.00 |
| 12484 | 81559 | Marking Machine | 3,155.87 |
| 23538 | 81560 | Steel Shelving | 220.12 |
| 11878 | 81575 | Water Nozzle for Landis Grinder | 38.91 |
| 22058 | 81577 | Logan Assembly Machine | 3,528.02 |
| 22059 | | Motor | 90.00 |
| 12489)<br>22334)<br>22093)<br>22700) | 81579 | Attach. for Screw Machines | 2,965.00 |
| 11876 | 81584 | Parts for Screw Mach. | 14.73 |
| 12382 | 81586 | Feed Gears - Screw Machine | 80.97 |
| 12371)<br>11877)<br>12369)<br>12370)<br>12371) | 81587 | Switches for Carbo Lathes (4) | 357.13 |
| 12397 | 81593 | Hoffman Filter | 1,563.60 |
| 12398 &)<br>12399 ) | | Motors | 128.00 |
| 11875 | 81595 | Concrete Pad for Lathe | 665.58 |
| 12460 | 81596 | Conversion of Dbl.End Countersinking Machine to 2 D/Ps #23929 & 23930 | 2,457.71 |
| 22015 &)<br>22017 ) | | Motors | 110.00 |
| 11878 | 81602 | Grinder Parts | 379.52 |
| 12414)<br>12415)<br>12383) | 81603 | Parts for Drill Presses | 108.19 |
| Various )<br>Machines )<br>46-1 ) | 81607<br>81608 | Design Work<br>" " | 771.21<br>1,002.48 |
| 22047 | 81610 | Final Assem Reamer | 653.25 |
| 22523 | | Motor | 20.00 |
| 11875 | 81612 | Bar Feed | 207.30 |
| 12453 | 81617 | Inst.Broach | 229.13 |
| 12182 | 81618 | Inst.Comparator | 71.88 |
| 12401 | 81628 | Coolant Lines on Broach | 36.71 |

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

721-4 Standard Machinery Continued

| Inv.No. | W.O.No. | Description | |
|---|---|---|---|
| 12389 | 81629 | Parts for Motors | 23.63 |
| 22563 | 81631 | E-C Sander | 394.63 |
| 12493 | 81632 | Trolley | 81.48 |
| 22711 | | Hoist | 115.67 |
| 12379-80) 12445-6 ) | 81637 | Blow Guns on Cinn. Millers | 46.40 |
| 12462 | 90220 | Tocco Brazer | 11,870.18 |
| - | 90252 | Cuprodine System | 1,949.68 |
| - | 90253 | Cuprodine piping | 1,215.29 |
| 12330 ) 22600-1-) 2-3-4 ) | 90254 | Cuprodine Tanks | 710.00 |
| 22605 | | | |
| - | | Cuprodine Piping | 427.79 |
| - | 90257 | Cuprodine Design | 656.98 |
| - | 91201 | Design - tempering | 219.06 |
| 12382 | 91202 | Oil Filter-Scr.Mach. | 66.10 |
| 12453 | 91203 | Magnetic Chuck | 272.75 |
| | 91204 | Arbor Support for Cincinnati Miller | 80.64 |
| 22046 | 91205 | Hoist Assembly | 850.66 |
| 22607 | 91205 | Hoist Assembly | 209.00 |
| 12379-12402) 12378-12380) 12445-12446) 22025-12476) 12479-22029) 22632-22042) | 91206 | Trip dogs on 12 machines | 103.93 |
| 23492 | 91208 | Hot Oil Tempering Bath | 127.84 |
| 22052 | 91209 | Gorton Grinder | 770.28 |
| 22053 | | Motor | 25.00 |
| 22562 | 91210 | Sellers Grinder | 1,164.20 |
| 22583 | | Motor | 80.00 |
| 22026 | 91211 | Tap Grinder | 600.41 |
| 23492 | 91212 | 6 Oil Heaters for Tempering Bath | 120.83 |
| 12441 | 91213 | Centering Device | 600.78 |
| 22090 | 91214 | Roto-Clone | 266.41 |
| 22091 | | Motor | 40.00 |
| 22034 | 91215 | Sellers Grinder | 335.10 |
| 22134 | | Motor | 22.00 |
| 22355 | 91216 | Hob Sharpener | 3,934.38 |
| 22357-6 | | Motor | 107.00 |
| 11875 | 91217 | Slide Support | 154.41 |
| 12396 | 91222 | Install Reamer | 1,367.42 |
| 12402 | 91223 | Time Delay for Cincinnati Miller | 265.00 |
| 12394) 12416) 22527) | 91224 | Engrg. Design and Layout for Barnes Drillers | 721.18 |

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON
R2527288

721-4 Standard Machinery Continued

| Inv.No. | W.O.No. | Description | | |
|---|---|---|---|---|
| 22750 | 91225 | Surface Grinder | 1,699 58 | |
| 22038 | 92803 | Router | 1,140.78 | |
| 22618 | | Freq. Changer | 374.86 | |
| - | 92806 | Exhaust pipe for above | 1.74 | $ 373,742.56 |

721-5 Production Aids

| | | | |
|---|---|---|---|
| 23551) 23552) | 81888 | 2 Barrel Racks | 420.91 |
| - | 81256 | Browning Racks (8) | 1,249.55 |
| 12429 | 81566 | Comparator | 2,867.27 |
| 12408 | 90118 | Comparator | 3,232.48 |
| - | 90131 | 4 Assembly trays | 47.87 |
| - | 90148 | Benches 46-1 | 403.57 |
| 6243to6282 | 90149 | Rack Conveyors (40) | 3,342.57 |
| - | | 400 Metal Trays | 3,052.53 |
| 23537 | 90150 | Rack for Steel | 189.12 |
| - | 90151 | 35 Steel Trucks | 332.10 |
| - | 90152 | 17 Steel Trucks | 1,033.03 |
| - | 90153 | 50 Barrel Trucks | 478.86 |
| - | 90154 | Exhaust for Dip Tanks | 76.87 |
| - | 90155 | 180 wood bottoms in barrel trays | 681.73 |
| - | 90156 | " " " " " | 488.14 |
| - | 90159 | 120 Assembly Bins | 65.93 |
| - | | 80 " " | 75.23 |
| 12405) 12406) & | 90160 12407 | Plast-O-Dip tanks | 150.58 128.70 |
| 12461) 12409) | 90162 | Stanley Bench Grinders | 46.06 46.06 |
| 19851 | 90163 | Kardex File | 145.06 |
| 19129-19067) -19153) | 90164 | Lyons Racks | 314.61 |
| 6551-2-3 | 90165 | Tool stands | 67.98 |
| - | 90166 | 500 Stacking tote pans "B" | 1,259.20 |
| 23540 | 90168 | Gr. Wheel rack | 104.35 |
| 23541-2-3-4) 5-6-7) | 90169 | Tool Crib Racks | 419.22 |
| 6219 & 6292 | 90170 | Truck for Compar. Screens | 73.47 |
| 12408 | 90171 | Rack for Comparator | 149.28 |
| - | 90173 | 4 Assembly Trays | 29.88 |
| - | 90174 | 4 Assembly Trays | 45.50 |
| - | 90202 | Design & Layout Time for Prod. Aids | 813.21 |
| 6554-6556 | 90209 | 2 Rack Conveyors | 180.40 |
| - - | 90211 | Burn-Off Rack | 185.40 |
| 6293 | 90218 | 6-Wheel Truck | 39.95 |

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

721-5 Production Aids Continued

| Inv.No. | W.O.No. | Description | | |
|---|---|---|---|---|
| 23539 | 90226 | Matching Rack for M721 B.Plates | 80.26 | |
| 12494-5 | 90236 | Wash tanks, etc. | 38.75 | |
| 22051 | | Floor pan | 18.49 | |
| - | | Exhaust Pipe | 178.07 | |
| - | | Steam & water | 261.60 | |
| 12486 | | Fan, etc. | 130.45 | |
| 12475 | 90237 | Hoist & Reel | 362.72 | |
| - | 91401 | 4 Wire Baskets (oil quench) | 42.60 | |
| - | 91402 | Lindberg Racks & Baskets (7) | 506.31 | |
| 23541 | 91403 | Arbor Rack | 82 93 | |
| 22596 | 91404 | Move Hoist & Clean | 15.73 | |
| | 91405 | Portable Support Truck | 105.71 | |
| - | 91406 | Temp. Controller | 190.61 | |
| - | 91407 | Blow pipe for brazing | 4.41 | |
| - | 91408 | Tray lifting fixture | 13 36 | |
| 12462 | 91409 | Modify Tocco Brazer. | 115.86 | |
| 12462 | 91410 | Tocco Valves | 12.04 | |
| - | 91411 | Gage Rack | 24 17 | |
| 12441 | 91412 | Tray for Machine #21441 | 41 47 | |
| 12382 | 91413 | Chute on Screw Mach. | 9.96 | |
| - | 91414 | Reamer Rack | 18.97 | |
| 12439 | 91415 | Rack on Broach #12439 | 12.18 | |
| 12378 &) 12476 ) | 91416 | 3 Chip baskets for Miller | 40.22 | |
| - | 91417 | 500 Inv. # Tags on 500 Tote Pans | 31.59 | |
| 6427-6428 | 91420 | 2 Stock Trucks | 122.23 | |
| 6487to6518 | 91421 | 28 Gage Benches -Wood | 235.18 | |
| - | 91422 | 3 Wash Racks | 125.79 | |
| | | 6 Pickling baskets | | 25,108.83 |

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CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON
R2527290

REMINGTON ARMS COMPANY, INC.

# APPROPRIATION REQUEST

Department Technical Works Elizabethtown Project No. ED-721 PART III

Request for $ 17,170. REDUCTION Date 4/13/48

Category ESTABLISHED PRODUCT

Title MODEL 721-722 BOLT ACTION HIGH POWER CENTER FIRE RIFLE.

PARTS I + II - PREVIOUSLY AUTHORIZED - $1,113,170.

PART III - THIS REQUEST (17,170.) REDUCTION.

$1,096,000.

This project is included in Forecast No. 2 in the amount of $ 79,790.

To be commenced upon approval

To be ready for use

To be physically completed Sept. 1948.

Estimate prepared by [signature] 4/12/48 Date

Approved as to form, accounting aspects, and rules compliance

Treasurer or Assistant Treasurer — Date

| | Date |
|---|---|
| Approved or Authorized | |
| Approved or Authorized | |
| Approved or Authorized | |
| Approved or Authorized | |
| Approved or Authorized | |
| President and General Manager | |
| Authorized BOARD OF DIRECTORS | |
| Secretary | |

Preliminary approvals:

| | Date | | Date |
|---|---|---|---|
| | | | |
| | | | |
| | | | |

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

RT-154

REMINGTON ARMS COMPANY, INC.

SUMMARY OF ESTIMATED EXPENDITURES

PROJECT NO. FD721 - Ilion WORKS

| | Labor | Material | Total |
|---|---|---|---|
| Land | — | — | — |
| Manufacturing buildings | — | — | — |
| Manufacturing equipment | — | 401,527 | 401,527 |
| Power and service facilities | — | — | — |
| Tooling | 94,075 | 198,800 | 292,875 |
| Dismantling and rearranging | — | — | — |
| Product development | 401,598 | — | 401,598 |
| Machine development | — | — | — |
| Project administration | — | — | — |
| Other | — | — | — |
| | $495,673 | $600,327 | $1,096,000 |
| Provision for advancing wages and material prices | — | — | — |
| TOTAL | $495,673 | $600,327 | $1,096,000 |

ACCOUNTING DISTRIBUTION OF EXPENDITURES

| | EXPENDITURES PREVIOUS PARTS | Expenditures This ~~Request~~ PART | Adjusting Entries | Final Net Results in Accounts |
|---|---|---|---|---|
| Plant increase | $701,402. | (7,000.) RED. | $(2,935.48) | 691,466.52 |
| Operations | 411,768. | (10,170.) RED. | — | 401,598. |
| Depreciation | — | — | * 2,935.48 | 2,935.48 |
| | $1,113,170. | ($17,170.) RED. | | $1,096,000.00 |

* Write off of five worn obsolete type of machines used for cutter sharpeners. (See schedule in Project FI-172)

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General Information

Project No. FD721 PART II - Gun Works.

Introduction:

Part II of this Project authorized funds in the total amount of $1,113,170. to complete all work incident to place Model 721-722 Rifles in production in eight calibers, including three new Remington calibers as follows:-

280 Remington
224 Remington
222 Remington

A review of the program involved in adding these three new Remington cartridges to the ammunition line and providing Model 721 and 722 Rifles to handle them indicated insufficient economic justification for calibers 280 Remington and 224 Remington. Deletion of these two calibers was recommended in a confidential meeting of the Arms and Ammunition Product Committee on Mar. 26, 1958 ~~and approved by Management on~~

Date

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Description of Proposed Work

In conformance with this decision, all work on the development of Model 721 for caliber 280 Remington and Model 722 for caliber 224 Remington has been stopped. Development of Model 722 for caliber 222 Remington, however, will be completed for production.

Remarks

A recision in Estimated Earnings and Return on Investment is attached. The Total Investment after completion of this project is reduced by $ 40,700 from $ 1,246,765 to $ 1,206,065, Net Earnings are increased ~~(or decreased)~~ by $ 213,162 and the Return on Investment is increased ~~decreased~~ from 13.1 % to 12.2 %.

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cc: C. K. Davis
D. F. Carpenter
W. U. Reisinger
B. E. Strader
M. R. Warden
J. F. Craig
E. C. Hadley
H. Gregg.

Bridgeport, Connecticut
March 24, 1948

TO: W. L. CLAY (18)

FROM: G. O. CLIFFORD

SUBJECT: NEW CENTER FIRE CARTRIDGES
~~280 REM - 224 REM - 222 REM~~

In accordance with the Products Committee Chairman's request of March 5, 1948, we submit herewith the attached study covering the overall story of guns and ammunition on the subject calibers.

The results of this study indicate the return on the combination gun and ammunition development is only 10.8%. Therefore, the project should be examined in view of this information, to determine if there are any other reasons why it should be continued. It was also found that the ballistics of the cartridges developed are approximately those of the original objectives.

It is suggested the report and recommendations be reviewed at a combined meeting of the Arms and Ammunition Divisions of the Products Committee.

G O Clifford
Technical Director

GHJ/fgh
Attachs.

Decided to drop 280 & 224 but keep 222 Rem

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I SUMMARY

Purpose of Study

The proposal to develop a line of new "Remington" high power center fire cartridges has been under consideration for a number of years. Experimental work with the cartridges has been underway since January 1946 and recently culminated in pilot production runs (up to 6000) of the following:

| | | |
|---|---|---|
| .280 | Remington- | 150 gr. S.P.C.L. |
| .280 | " | 130 gr. S.P.C.L. |
| .224 | " | 56 gr. S.P. |
| .222 | " | 48 gr. S.P. |

The major portion of the gun development and tooling of the new model rifles to accommodate the three new calibers is yet to be done.

There has always been considerable question as to the economics of the three new cartridge and gun developments. Recent information indicates a $2.00 increase in each rifle cost for the Caliber .224 Remington. Further review indicates the ballistics of some items are less desirable than was anticipated. In view of this the March 4, 1948 meeting of the Products Committee recommended the discontinuance of gun and cartridge work on the Caliber .280 Remington until a final decision is reached on the 130 gr. bullet design, which was followed by a request for a complete review of the program.

The work reported herein includes an economic and ballistic evaluation based on current information.

Results

1. Economics of the new cartridges based on Pointed S.P. bullets in .224 Remington, .222 Remington and S.P.C.L. bullet in .280 Remington, 150 gr. and pointed core-lokt in .280-130 gr. are as follows:

| | Cash Outlay | Working Capital | Total Investment | Net Gain | | % Return |
|---|---|---|---|---|---|---|
| .280-150 gr. S.P.C.L. | $ 7,020) | $10,260 | 40,880 | 1950) | 5780 | 14.1 |
| .280-130 gr. Pointed C.L. | 23,600) | | | 3830) | | |
| .224 Rem.-56 gr.S.P.Pointed | 16,270 | 770 | 17,040 | 388 | | 2.3 |
| .222 Rem.-48 gr.S.P.Pointed | 12,570 | 5,300 | 17,870 | 2420 | | 13.6 |
| Total | $59,460 | 16,330 | 75,790 | 8588 | | 11.3 |

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2. Economics of the new model guns chambered for the new calibers are as follows:

Note: Based on M/721-722 only.

| | Added Quantity | Cash Outlay | Working Capital | Total | Net Gain | % Return |
|---|---|---|---|---|---|---|
| .280 Rem. M/721 | * 500 | $13,108 | $29,000 | 42,108 | 3,032 | 7.2% |
| .224 Rem. M/722 | 330 | 13,108 | 4,700 | 17,808 | 2,113 | 11.9% |
| .222 Rem. M/722 | 1000 | 49,308 | 14,000 | 63,308 | 7,687 | 12.1% |
| Total | 1830 | $75,524 | $47,700 | 123,224 | 12,832 | 10.4% |

3. Economics of the new cartridge-gun combination are as follows:

| | Cash Outlay & Working Capital | Net Gain | % Return |
|---|---|---|---|
| .280 Rem. | $ 82,988 | $ 8,812 | 10.6% |
| .224 Rem. | 34,848 | 2,501 | 7.2% |
| .222 Rem. | 81,178 | 10,107 | 12.5% |
| Total | $ 199,014 | $21,420 | 10.8% |

Expended to date-all calibers guns and ammunition - $47,584
Return on unexpended balance - $21,420 ÷ $151,430 - 14.1%

4. According to the records the ballistics developed for the three new cartridges are very close to the original ballistic objectives. It may be pointed out the original objectives envisioned new center fire cartridges for the new model rifles having the "Remington" name and with only marginal ballistic advantage over existing competitive cartridges.

Recommendations

1- The economics are border line, therefore, a decision as to continuance of the project should be based upon a realistic evaluation of the intangible advantages.

2- If it is decided to go ahead with the development we recommend the bullet design of the .280 Remington caliber be limited to either the S.P.C.L. design or the pointed so-called "nib nose" design.

* Normal Sales Forecast of 2000, .280 Remington caliber and decrease of 1500 in 270 caliber

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# BIBLIOGRAPHY


Exhibit A — Cost Evaluation Summary - New Center Fire Cartridges

Exhibit B — Cost Evaluation Summary - 280 Rem - 224 Rem - 222 Rem Calibers for Model 721/22 Guns

Exhibit C — Historical information on ballistics of new Center Fire cartridges

-1 Letter dated August 19, 1944 - From J. H. Hodgson to H.A.Brown
Subject: Proposed New Cartridges

-2 Letter dated September 7, 1944 - From H. A. Brown to J. H. Hodgson
Subject: Center Fire Ammunition Development

-3 Letter dated September 18, 1944 - From E. L. Wemple to C. B. Wells
Subject: New Center Fire Cartridges

-4 Tabulation showing ballistics of new Center Fire cartridges compared to objective

-5 Historical account of Products Committee action on new Center Fire cartridge development.



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Exhibit A

## NEW CENTER FIRE CARTRIDGES

## SUMMARY COST EVALUATION 3-22-48

Order of Magnitude Estimates - Accuracy of Costs - 0 to ± 30%

| | 280-150 gr. S.P.C.L. | 280-130 gr. Pointed C.L. | 224-56 gr. S.P. | 222-48 gr. S.P. | Total |
|---|---|---|---|---|---|
| Normal Sales Volume-Rem. | 88 M | 190 M | 24 M | 190 M | 492M |
| Peters | 13 | 29 | 4 | 29 | 75 |
| Total | 101 | 219 | 28 | 219 | 567 |
| Outside Sales $ | $7,700 | $16,700 | $1,800 | $9,200 | $35,400 |
| Gross Margin | 3,260 | 6,400 | 650 | 4,050 | |
| Less 8% of all other Exp. | 260 | 510 | 52 | 320 | |
| | 3,000 | 5,890 | 598 | 3,73 | |
| Less 35% | 1,050 | 2,060 | 210 | 1,310 | |
| Net Prospective Gain | 1,950 | 3,830 | 388 | 2,42 | 8,588 |
| **Expenditure:** | | | | | |
| Technical Division | 5,550 | 14,600 | 14,800 | 11,100 | |
| Plant | 1,470 | 9,000 | 1,470 | 1,470 | |
| Total | 7,020 | 23,600 | 16,270 | 12,57 | $59,460 |
| Added Working Capital | 3,220 | 7,040 | 770 | 5,300 | 16,330 |
| Total Investment | 10,240 | 30,640 | 17,040 | 17,870 | 75,790 |
| Return on Investment | 19% | 12.5% | 2.3% | 13.6% | 11.3% |
| Unexpended | $1,500 | $20,600 | $2,000 | $1,500 | $25,600 |

Revised 3/22/48 for new Normal Sales Forecast.
GHJ/dd

R2527299

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**REMINGTON ARMS COMPANY, INC.** **EXHIBIT B**

**COST EVALUATION - SUMMARY**
**M/721-722 - Added Calibers 280 Rem., 222 Rem. and 224 Rem.**

| | M/721 | | | | | M/722 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Basic 3 Calibers | Add 280 Rem. | Deduct Part Of 270 Rem. | Net Add For 280 Rem. | 4 Calibers | 2 Calibers | Add 222 Rem. | 3 Calibers | Add 224 Rem. | 4 Calibers |
| Sales Quantity | 11,430 | 2,000 | 1,500 | 500 | 11,930 | 2,370 | 1,000 | 3,370 | 330 | 3,700 |
| Outside Sales | 499,605 | 87,420 | 65,565 | 21,855 | 521,460 | 97,075 | 40,960 | 138,035 | 13,517 | 151,552 |
| Factory Cost | | | | | | | | | | |
| Direct Material | 70,752 | 12,380 | 9,285 | 3,095 | 73,847 | 14,670 | 6,210 | 20,880 | 2,828 | 23,708 |
| Direct Labor | 59,207 | 10,360 | 7,770 | 2,590 | 61,797 | 12,277 | 5,230 | 17,507 | 1,709 | 19,216 |
| Mfg. Expense | 162,083 | 27,350 | 20,513 | 6,837 | 168,920 | 49,319 | 13,807 | 63,126 | 4,512 | 67,638 |
| Plant Overhead | 56,668 | - | - | - | 56,668 | 17,575 | - | 17,575 | - | 17,575 |
| Inv. Adjustment | 6,917 | 1,002 | 751 | 251 | 7,168 | 1,859 | 505 | 2,364 | 181 | 2,545 |
| Tool Amortization | 22,905 | 3,840 | - | 3,840 | 26,745 | 7,104 | 1,920 | 9,024 | 634 | 9,658 |
| Total | 378,532 | 54,932 | 38,319 | 16,613 | 395,145 | 102,804 | 27,672 | 130,476 | 9,864 | 140,340 |
| Admin. & Sales Expense | 52,146 | - | - | - | 52,146 | 15,155 | - | 15,155 | - | 15,155 |
| Total Commercial Cost | 430,678 | 54,932 | 38,319 | 16,613 | 447,291 | 117,959 | 27,672 | 145,631 | 9,864 | 155,495 |
| Operative Earnings | 68,927 | 32,488 | 27,246 | 5,242 | 74,169 | (20,884) | 13,288 | (7,596) | 3,653 | (3,943 |
| Net Earnings | 39,874 | 18,794 | 15,762 | 3,032 | 42,906 | - | 7,687 | - | 2,113 | - |
| Investment | 920,677 | 32,600 | - | 32,600 | 953,277 | 255,588 | 29,600 | 285,188 | 8,300 | 293,488 |
| Development Cost | 215,426 | 9,508 | - | 9,508 | 224,934 | 143,618 | 33,708 | 177,326 | 9,508 | 186,834 |
| Total | 1,136,103 | 42,108 | - | 42,108 | 1,178,211 | 399,206 | 63,308 | 462,514 | 17,808 | 480,322 |
| Net % Return | | | | 7.2% | | | 12.1% | | 11.9% | |

WEG:hsk
3-23-48

R2527300

Exhibit C-1

cc: A. E. Buchanan, Jr.
G. O. Clifford
R. E. Evans
G. R. McCormick

Bridgeport, Connecticut
August 19, 1944

TO: H. A. BROWN

FROM: J. H. HODGSON

SUBJECT: PROPOSED NEW CARTRIDGES

Because of the excessive variety of ammunition now being manufactured here, it is thought that new cartridges should be considered for production only if they meet one of the following qualifications:

1. Will fill a performance deficiency in the line of products - such as a high power low cost rimfire cartridge like the .267 Rim Fire.

2. Provide more universal performance and will, therefore, actually obsolete several products now being made.

3. Will be capable of withstanding higher pressures than existing ammunition and, therefore, when combined with a gun which is stronger than competitors, will furnish a combination which will offer better performance than is now available.

This last qualification will be difficult to meet as ammunition is in general loaded to maximum safe pressure limits and even a slight increase results in case casualties or primer difficulties.

The proposed new cartridges are evaluated on this basis below.

A. .284 Remington Magnum

Proposed Bullets - 139 grain M Core Lokt, 139 grain Pointed Soft Point, and 175 grain Pointed Soft Point.

Ballistics

| | | |
|---|---|---|
| 139 grain M Core Lokt | M.V. 3280 ft/sec. | M.E. 3320 ft. lbs/sec. |
| 139 grain Pointed Soft Point | M.V. 3380 ft/sec. | M.E. 3500 ft. lbs/sec. |
| 175 grain Pointed Soft Point | M.V. 3060 ft/sec. | M.E. 3640 ft. lbs/sec. |

Established cartridges within 500 ft. lbs. per sec. muzzle energy.

1. .300 Magnum

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KINZER V. REMINGTON

Comments:

There should be some demand for a cartridge of this type for long range big game hunting. However, as .300 Magnum has the same ballistic potential and is already established, it would seem better to develop additional bullets for the latter rather than design a new cartridge. If the Pointed Core Lokt bullet now being developed proves successful, that this be used universally rather than carrying both Mushroom and Pointed Soft Point types.

B. .280 Remington

Proposed Bullets - 139 grain Mushroom Core Lokt, 139 grain Pointed Soft Point and 175 grain Pointed Soft point.

Ballistics

139 grain Mushroom Core Lokt M.V. 3080 ft/sec. M.E. 2930 ft. lbs/sec.
139 grain Pointed Soft Point M.V. 3230 ft/sec. M.E. 3220 ft. lbs/sec.
175 grain Pointed Soft Point M.V. 2660 ft/sec. M.E. 2750 ft. lbs/sec.

Established cartridges within ± 500 ft. lbs. per sec. muzzle energy.

1. .300 Magnum
2. .30-06 Springfield
3. .270 Winchester
4. .348 Winchester

Comments:

As the .30-06 Springfield is too well established to be affected seriously by other cartridges having the same ballistics and as the proposed new cartridge offers nothing not available in this and the .270 Winchester, the production of this cartridge is not recommended.

C. .276 Remington

Proposed Bullets - 130 grain Mushroom Core Lokt, 150 grain Soft Point Core Lokt.

Ballistics

130 grain Mushroom Core Lokt M.V. 2830 ft/sec. M.E. 2310 ft.lbs/sec.
150 grain Soft Point Core Lokt M.V. 2420 ft/sec. M.E. 1950 ft.lbs/sec.

Established cartridges within ± 500 ft, lbs. per sec. muzzle energy.

1. 7 m/m Mauser
2. 7.92 m/m Mauser
3. 8m/m Lebel
4. .220 Swift
5. .257 Remington-Roberts
6. .270 Winchester
7. .30-30 Winchester
8. .30 Remington
9. .300 Savage
10. .30-40 Krag

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11. .303 Savage
12. .303 British
13. .32 Remington
14. .32 Winchester
15. .348 Winchester
16. .35 Remington
17. .35 Winchester
18. .401 Winchester
19. .405 Winchester
20. .45-70 High Velocity

Comments:

In view of the excessive number of cartridges available with approximately the same muzzle energy and because these cartridges are used mainly for deer and medium game hunting which does not have critical ballistic requirements, the production of this cartridge is not recommended.

D. .224 Remington

Proposed Bullets - 48 grain Pointed Soft Point, 55 grain Mushroom.

Ballistics

48 grain Pointed Soft Point M.V. 4200 ft/sec. M.E. 1880 ft.lbs/sec.
55 grain Mushroom M.V. 3950 ft/sec. M.E. 1910 ft.lbs/sec.

Established cartridges within ± 300 ft. lbs. per sec. muzzle energy.

1. 6.5 m/m Mannlicher
2. .220 Swift
3. .25-35 Winchester
4. .250 Savage
5. .257 Remington-Roberts
6. .30-30 Winchester
7. .30 Remington
8. .300 Savage
9. .30-.40 Krag
10. .303 Savage
11. .32 Remington
12. .32 Winchester

Comments:

All the cartridges in the above list do not compare directly with the proposed .224 Remington for specific use on predatory game but are shown as "all around" cartridges which can successfully be used in this type of shooting. They also have the advantages of other uses and, therefore, represent sales competition to this product. It is thought that the great majority of shooters would prefer a more adaptable cartridge than this and as there is sufficient choice available for vermin cartridges, its production is not recommended unless it can be shown that it will definitely obsolete several other cartridges.

E. .220 Remington

Proposed Bullets - 45 grain Soft Point.

Ballistics

45 grain soft Point M.V. 3150 ft./sec. M.E. 990 ft.lbs/sec.

Established cartridges within ± 300 ft. lbs. per sec. muzzle energy.
(.22 to .30 Cal.)

1. .213 Bee
2. .219 Zipper
3. .22 Hornet
4. .22 Savage
5. .25-20 Winchester
6. .30 Carbine

Comments:

This cartridge is a border-line case. It offers attractive ballistics for woodchuck and crow shooting but this is countered by a fairly wide selection of other cartridges in the same range for a rather limited field of shooting. If it could be counted on to obsolete .218 Bee, the .22 Hornet, the .25-20 Winchester and the .32-20 Winchester, its production is recommended otherwise not.

General:

The classification of established cartridges with approximately the same ballistic performance as the proposed cartridge is known to be somewhat empirical and open to criticism. It is, however, intended to show the wide selection already available to shooters and to indicate the complexity of manufacturing all these items.

As the comments on the above cartridges largely represent only the manufacturing view point and are probably somewhat prejudiced in favor of simplification, it is suggested that this program be discussed at the next Staff Meeting.

Engineering Superintendent
Ammunition Section

JHH/hb

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KINZER V. REMINGTON

Exhibit C-2

CC: A. E. Buchanan, Jr.)
G. O. Clifford ) 1
R. E. Evans
G. R. McCormick

Bridgeport, Connecticut
September 7, 1944

TO: J. H. HODGSON

FROM: H. A. BROWN

SUBJECT: CENTER FIRE AMMUNITION DEVELOPMENT

Your comments contained in your letter of August 19 are interesting. It is true that a wide selection of center fire cartridges is available for sportsmen; conceivably more than are actually needed. However, obsolescence of calibers for which a quantity of guns is at present available consumes appreciable time because of the traditional pride not only of ownership of old guns but also of continuing use of these guns.

This situation, however, has not prevented competition from developing new cartridges identified by their name, thereby gaining valuable prestige in the market. The 1942 listing of center fire ammunition includes 73 calibers. Eliminating "Miscellaneous" and "Foreign" and using only those cartridges which carry an Arms Company name, we have 51 cartridges, divided as follows:

| Name | Number | Percent |
|---|---|---|
| Winchester | 23 | 45.1% |
| Colt | 11 | 21.5 |
| Remington | 5 | 9.8 |
| Smith and Wesson | 5 | 9.8 |
| Savage | 4 | 7.8 |
| Springfield, Krag, Government | 3 | 6.0 |
| | 51 | 100.0 |

In addition to the above, some miscellaneous items are recognized by the trade as Winchester developments: .218 Bee, .219 Zipper, .220 Swift. Winchester and Western also are credited with sponsoring the .300 and .375 Magnums. The .22 Hornet was developed at the Springfield Armory but was promoted commercially by Winchester. In this picture there is a glaring dearth of

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SUBJECT: CENTER FIRE AMMUNITION DEVELOPMENT

"Remington" calibers.

Sportsmen, when buying ammunition of Remington manufacture, are undoubtedly speaking the names Winchester, Savage, Springfield, etc., to the clerk in making their wants known. The .30/30 cartridge is known as ".30/30 Winchester" or "Winchester Center Fire (WCF)" and not as ".30/30 Remington" or"Remington Center Fire". The name is ".270 Winchester"; not ".270 Remington" - ".300 Savage"; not ".300 Remington". In only five of the 73 items listed for sale does the name Remington identify the cartridge.

To impress the trade with the fact that we can and do contribute to new developments in the ammunition field, we have proposed new "Remington" calibers. These, we believe, are susceptible to relatively simple, inexpensive and prompt development so as to be available for our new guns which are being designed wisely to handle greater pressures than present standards. This objective in gun design, therefore, will permit further improvement to ammunition in the future whereby even greater speed, pressure, power and flatter trajectory can be achieved.

The proposed bullets have been selected from existing designs to obtain greater sustained velocity and flatter trajectory. Undoubtedly better bullets will, and should be, conceived in the future and introduced as improvements to keep the line "alive".

In your discussion you have listed established cartridges within plus or minus 500 foot pounds muzzle energy of the proposed new items. In our opinion, this consideration is too broad. On such a premise, the following more recent popular cartridges could not have justified development:

| | |
|---|---|
| .22 Hornet | .300 Savage |
| .220 Swift | .270 Winchester |
| .250 Savage | .35 Remington |

These cartridges, however, were introduced and they definitely increased trade prestige of the identifying names. Remington's contribution has been mighty meagre. We hope it can be revived promptly and kept "alive" in the future.

The superior performance of new cartridges should eventually replace existing ones and in their adaptation to our new gun designs they will stimulate arms sales.

HAB:MR

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Exhibit C-3

cc: G. O. Clifford
R. E. Evans

Bridgeport, Connecticut
September 18, 1945

TO: C. B. WELLS

FROM: E. L. WEMPLE

SUBJECT: NEW CENTER FIRE CARTRIDGES

In recent years a number of suggestions have been received for Remington to develop and market new design center fire cartridges. Herewith is material which lists and describes many of the proposed center fire cartridges. The same type of descriptive material is supplied for existing center fire cartridges. The proposed new cartridges considered are:

| | |
|---|---|
| 220 Remington | 308 Remington Magnum |
| 224 Remington | 359 Remington Magnum |
| 276 Remington | 400 Remington Magnum |
| 258 Remington | 450 Remington Magnum |
| 280 Remington | Donaldson Wasp |
| 350 Remington | 22 High Velocity |
| 284 Remington Magnum | 333 OKH |

The material is arranged as follows:

1. Proposed new Remington cartridges with descriptive material.

2. A letter by J. H. Hodgson listing present cartridges that would compete with several of the proposed new cartridges.

3. A board showing appearance samples and some descriptive material for some of the proposed new cartridges.

4. Comments on each of the new cartridges relative to the manner in which the new cartridge would fit into the present line.

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SUBJECT: NEW CENTER FIRE CARTRIDGES

5. Full descriptive material on existing rifle cartridges grouped as follows:

a. 22 Cal.
b. 25 Cal.
c. 270 Cal.
d. 30 Cal.
e. 32 Cal.
f. 35 Cal.
g. 375 Magnum and 30 Cal.
h. 40 Cal.
i. 44 Cal.

6. A tabulation showing factory cost, commercial cost and net selling price for typical center fire cartridges at 1939 and at 1945 costs.

E. L. Wemple, Manager
Development Division
Technical Department

ELW:MR
Att.

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COMMENTS ON
PROPOSED NEW CENTER FIRE CARTRIDGES

220 REMINGTON

$70.00 M retail price is too high. Comparable cartridges sell for much less money.

224 REMINGTON

This cartridge has a higher velocity than competing cartridges except the 220 Swift and it does have a slightly higher energy than the 220 Swift. The 224 Remington might have some advantage over competition if the 4,000 f/s velocity can be regularly obtained and if the accuracy is equal to or better than the Hornet, Swift and Zipper.

276 REMINGTON

It is planned to sell this at the same price as the 300 Savage, yet it has lower velocity and bullet energy.

258 REMINGTON

This cartridge lies between the 257 Roberts 100 grain bullet with 2800 f/s velocity and the 30-06 110 grain bullet with 3280 f/s velocity.

280 REMINGTON

This cartridge is almost identical with 30-06 and 270 Winchester and would not appear to have any advantage over those cartridges.

350 REMINGTON

This cartridge has the same ballistic characteristics as the 35 Newton. It is slightly more powerful than the 30-06 220 grain cartridge and has much more power than the 348 Winchester, 35 Winchester and 35 Remington.

284 REMINGTON MAGNUM

This cartridge is almost identical with the 300 Magnum.

308 REMINGTON MAGNUM

This cartridge is more powerful than the 300 Magnum but is not as powerful as the 375 Magnum. It would probably be a small sales volume item.



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R2527309

COMMENTS ON
PROPOSED NEW CENTER FIRE CARTRIDGES

359 REMINGTON MAGNUM

This cartridge compares with the 375 Magnum but has a slightly lower velocity and lower 300 yard bullet energy.

400 REMINGTON MAGNUM

This cartridge is somewhat more powerful at 300 yards than the 375 Magnum.

450 REMINGTON MAGNUM

This cartridge is more powerful than the 375 Magnum.

---

THE DONALDSON WASP

This cartridge has the same characteristics as the 224 Remington but has a rimmed case.

22 HIGH VELOCITY (G. R. McCormick)

This cartridge has the same ballistic characteristics as the 224 Remington but has a larger case. Personnel in the Ammunition Technical Division are not familiar with this cartridge and considerable investigation work is needed.

333 OKH

This cartridge, with its different bullet weights, has approximately the velocity and energy of the 350 Remington, 359 Remington and 450 Remington Magnums but has a much smaller case. Much additional investigation work would be necessary to determine if this would be a practical cartridge to load and sell. Such problems as sensitivity, pressure and load technique would require thorough investigation.

ELW:MR
9-18-45

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

Exhibit C-4

## TABULATION SHOWING BALLISTICS OF NEW CENTER FIRE CARTRIDGES COMPARED TO OBJECTIVE

| | .222 REMINGTON | | | .224 REMINGTON | | | |
|---|---|---|---|---|---|---|---|
| | Green Board 11-8-45 .220 Rem. 45 gr. S.P. (Approx.) | Dec.-1946 Report .222 Rem. 48 gr. S.P. | Nov.-1947 Development .222 Rem. 48 gr. S.P. | Green Board 11-8-45 .224 Rem. 48 gr. S.P. (Approx.) | Green Board 11-8-45 .224 Rem. 55 gr. S.P. (Approx.) | Dec.-1946 Report .224 Rem. 66 gr. S.P. | 10-1-47 Development .224 Rem. 56 gr. S.P. |
| **Velocity-Muzzle** | | 3110 | 3150 | | | 4000 | 3954 |
| Instrumental | 3000 | | 3000 | 4000 | 3900 | | 3800 |
| 100 yds. | | 2690 | 2690 | | | 3485 | 3380 |
| 200 " | | | 2100 | | | | 2854 |
| 300 " | | | 1670 | | | | 2378 |
| 500 " | | | 1100 | | | | 1598 |
| **Energy - Muzzle** | | 1030 | 1056 | | | 1990 | 1942 |
| 100 yds. | | 775 | 714 | | | 1510 | 1419 |
| 200 " | | | 470 | | | | 1012 |
| 300 " | | | 297 | | | | 702 |
| 500 " | | | 129 | | | | 317 |
| **Pressure-Max.Aver.(10)** | | | 50000 | | | | 51000 |
| **Trajectory-Bullet Drop** | | | | | | | |
| 100 yds. | | | | | | | |
| 200 " | | | | | | | |
| 300 " | | | | | | | |
| **Accuracy-M.R.-200 yds.** | | | 1.5" | | | | 1.5" |

GHJ:dd
3-24-48

R252731

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

.280 REMINGTON

Exhibit C-4

| | Green Board 11-8-45 Products Committee | | | Dec.-1946 Report | May - Oct. 1947 Development | | |
|---|---|---|---|---|---|---|---|
| | .280 Rem. 139 Pt.S.P. Proposed Cartridge (Approx.) | .280 Rem. 139 Mush. Proposed Cartridge (Approx.) | .280 Rem. 175 Pt.S.P. Proposed Cartridge (Approx.) | .280 Rem. 150 Pointed Core Lokt | - .280 Remington - 150 S.P. Core Lokt | 130 S.P. Core Lokt | 130 Pointed Core Lokt |
| Velocity-Muzzle | | | | 2910 | 2906 | 3148 | 3175 |
| Instrumental | 3150 | 3000 | 2650 | | 2800 | 3000 | 3065 |
| 100 yds. | | | | 2670 | 2526 | 2628 | 2775 |
| 200 " | | | | | 2209 | 2215 | 2440 |
| 300 " | | | | | 1937 | 1876 | 2150 |
| 500 " | | | | | 1517 | 1393 | 1685 |
| Energy - Muzzle | | | | 2930 | 2810 | 2857 | 2906 |
| 100 yds. | | | | 2380 | 2123 | 1991 | 2220 |
| 200 " | | | | | 1623 | 1415 | 1717 |
| 300 " | | | | | 1250 | 1015 | 1333 |
| 500 " | | | | | 765 | 560 | 819 |
| Pressure-Max.Aver.(10) | | | | | 50000 | 52000 | |
| Trajectory-Bullet Drop | | | | | | | |
| 100 yds. | | | | | 2.3" | 2.0" | 1.9" |
| 200 " | | | | | 10.0" | 9.0" | 8.4" |
| 300 " | | | | | 24.9" | 23.3" | 20.9" |

GHJ:dd
3-24-48

R2527312

CC: S. M. Alvis
G. M. Calhoun
H. K. Faulkner
K. C. Gilmore (5)
A. J. Greene
W.F.H.Mattlage
J. J. Phillips
A. J. Seckner
Ilion Tech. File

ADVICE OF PHYSICAL COMPLETION

Technical Department

WORKS - Ilion

DATE - 12/19/49

PROJECT - FD-721

TO: G. W. Radley

FROM: K. C. Gilmore

SUBJECT: MODEL 721-722 BOLT ACTION HIGH POWER CENTER FIRE RIFLE

All work having been completed on this project, it is now being physically closed in its entirety.

K. C. Gilmore
Arms Technical Division

Requested by

D. M. Alvis
Approved by

ml
12/19/49

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

CC: W. E. Gregg

Ilion, New York
April 14, 1948

TO: W. C. Burckel

FROM: K. C. Gilmore

SUBJECT: PROJECT FD-721 Part III
MODEL 721-722 BOLT ACTION HIGH POWER CENTER FIRE RIFLE

We are transmitting herewith forty nine (49) copies of the subject Project. The copy containing Ilion's signatures has been forwarded to W. E. Gregg, as per his request, for review prior to securing the Bridgeport signatures.

I would suggest that you contact Mr. Gregg and have him turn over the copy containing the signatures to you for circulation at Bridgeport so that all necessary approvals are secured.

(SIGNED) K. C. GILMORE

K. C. Gilmore
Supervisor-Control Unit
Ilion Technical Division

ml
att. 49

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

✓ Technical File - Ilion

R D 1386-REV.

REMINGTON ARMS COMPANY, INC.

# APPROPRIATION REQUEST

Department Technical Works Ilion Project No. FD-721 Part III

Request for $ 17,170. Reduction Date 4/13/48

Category Established Product

Title MODEL 721-722 BOLT ACTION HIGH POWER CENTER FIRE RIFLE

Parts I & II - Previously Authorized - $ 1,113,170.
Part III - This Request - (17,170.) Reduction
$ 1,096,000.

This project is included in Forecast No. 2 in the amount of $ 79,790.

To be commenced upon approval.

To be ready for use

To be physically completed Sept. 1948

Estimate prepared by

K. C. Gilmore 4/12/48
Date

Approved as to form, accounting aspects, and rules compliance

R. D. Jack 4/20/48
Treasurer or Assistant Treasurer — Date

| | | Date |
|---|---|---|
| Approved | H. A. Brown | 4-14-48 |
| Approved | H. K. Faulkner | 4-14-48 |
| | J. M. Christman | 4-16-48 |
| Approved | G. O. Clifford | 4-18-48 |
| | R. H. Coleman | 4-20-48 |
| Approved | W.F.H.Mattlage | 4-20-48 |
| | M. R. Warden | 4-20-48 |
| Approved | C. K. Davis | 4-22-48 |
| | President and General Manager | |
| Authorized | BOARD OF DIRECTORS | 4-30-48 |
| | R. D. Jack, Secretary | |

Preliminary approvals:

| | Date | | Date |
|---|---|---|---|
| | | | |
| | | | |
| | | | |

(Subdivision I)

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

RT-154

REMINGTON ARMS COMPANY, INC.

SUMMARY OF ESTIMATED EXPENDITURES

PROJECT NO. FD-721 - Ilion WORKS

| | Labor | Material | Total |
|---|---|---|---|
| Land | $ ------- | $ ------- | $ --------- |
| Manufacturing buildings | ------- | ------- | --------- |
| Manufacturing equipment | ------- | 401,527 | 401,527 |
| Power and service facilities | ------- | ------- | --------- |
| Tooling | 94,075 | 198,800 | 292,875 |
| Dismantling and rearranging | ------- | ------- | --------- |
| Product development | 401,598 | ------- | 401,598 |
| Machine development | ------- | ------- | --------- |
| Project administration | ------- | ------- | --------- |
| Other | ------- | ------- | --------- |
| | $ 495,673 | $ 600,327 | $ 1,096,000 |
| Provision for advancing wages and material prices | ------- | ------- | --------- |
| TOTAL | $ 495,673 | $ 600,327 | $ 1,096,000 |

ACCOUNTING DISTRIBUTION OF EXPENDITURES

| | Expenditures Previous Parts | Expenditures This Part | Adjusting Entries | Final Net Results in Accounts |
|---|---|---|---|---|
| Plant increase | $ 701,402 | $( 7,000)Red. | *$(2,935.48) | $ 691,466.52 |
| Operations | 411,768 | (10,170)Red. | -------- | 401,598.00 |
| Depreciation | ------- | ------ | * 2,935.48 | 2,935.48 |
| | $ 1,113,170 | $(17,170)Red. | | $1,096,000.00 |

*Write off of five worn obsolete type of machines used for cutter sharpening. (See schedule in Project FI-172)

ml
4/13/48

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

REMINGTON ARMS COMPANY, INC.

GENERAL INFORMATION

PROJECT NO. FD-721 Part III - Ilion Works

INTRODUCTION:

Part II of this project authorized funds in the total amount of $1,113,170 to complete all work required to place Model 721-722 Rifles in production in eight calibers, including three new Remington calibers as follows:

280 Remington
224 Remington
222 Remington

A review of the program involved in adding these three new Remington cartridges to the ammunition line and providing Model 721 and 722 Rifles to handle them indicated insufficient economic justification for calibers 280 Remington and 224 Remington. Deletion of these two calibers was recommended in a combined meeting of the Arms and Ammunition Product Committees on March 26, 1948.

DESCRIPTION OF PROPOSED WORK:

In conformance with this decision, all work on the development of Model 721 for caliber 280 Remington and Model 722 for caliber 224 Remington has been stopped. Development of Model 722 for caliber 222 Remington, however, will be completed for production.

REMARKS:

A revision in Estimated Earnings and Return on Investment is attached. Net Earnings of $140,736 are estimated with a return of 11.7%.

The R & M Estimate approved April 1, 1948, included the $1,113,700 authorized in Part II and this project therefore anticipates an underrun of $17,170.

ml
4/15/48

Revised 4-16-48
WEG:hsk

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

REMINGTON ARMS COMPANY, INC.

ESTIMATED EARNINGS AND RETURN ON INVESTMENT

Project No. FD-721 Part III - Ilion Works
6 Cal.

CATEGORY: ESTABLISHED PRODUCT

| | Normal Year | | |
|---|---|---|---|
| | Operation before Project No. FD-721 | Operation after Project No. FD-721 | Results from Project No. FD-721 |
| Quantity | 262,010 | 274,810 | 12,800 |
| Outside Sales | $6,229,197 | $6,618,387 | $ 389,190 |
| Less: Mill cost | $4,962,070 | $5,107,982 | $ (145,912) |
| Selling and administrative expense | 661,839 | 661,839 | ------- |
| | $5,623,909 | $5,769,821 | $ (145,912) |
| Operative Earnings | $ 605,288 | $ 848,566 | $ 243,278 |
| Less: All other expense @ 11% (excludes Federal taxes on income) | | | 26,761 |
| Net earnings before Federal taxes on income | | | $ 216,517 |
| Less: Federal taxes on income @ 35% | | | 75,781 |
| NET EARNINGS | | | $ 140,736 |
| INVESTMENT | | | |
| Total appropriation request under this project (including development) | | | $1,096,000 |
| Less: Amount included therein for manufacturing facilities subject to allocation: | | | |
| Equipment | $ 401,527 | | |
| Tooling | 292,875 | | 694,402 |
| | | | $ 401,598 |
| Add: Investment in facilities used directly in this operation and applicable service and other manufacturing facilities | | | 819,341 |
| Total investment | | | $1,220,939 |
| Working capital | | | 386,724 |
| Total capital required | | | $1,607,663 |
| Less: Portion of this project to be charged to operations (including development) or depreciation reserve | | | 401,598 |
| Total investment after completion of this project | | | $1,206,065 |
| RETURN ON INVESTMENT | | | |
| Total capital required | | | 8.8% |
| Total investment after completion of this project | | | 11.7% |

ml
4/15/48

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

REMINGTON ARMS COMPANY, INC.

ESTIMATE OF SAVINGS
Present Model vs. Proposed Model

BASED ON NORMAL YEAR

PROJECT NO. FD-721 Part III - Ilion WORKS
6 Cal.

| | Total Line Including Present Model | Proposed Model | Difference |
|---|---|---|---|
| Quantity | 262,010 | 274,810 | 12,800 |
| Outside Sales | $6,229,197 | $6,618,387 | $ 389,190 |
| Factory costs: | | | |
| Direct Material | 836,874 | 919,266 | (82,392) |
| Direct Labor | 822,043 | 864,807 | (42,764) |
| Expense: | | | |
| Direct and Indirect | 2,790,632 | 2,797,303 | (6,671) |
| Fixed | 250,000 | 250,000 | |
| Inventory adjustment | 93,991 | 96,628 | (2,637) |
| Deferred tooling cost | 168,530 | 179,978 | (11,448) |
| Total factory cost | $4,962,070 | $5,107,982 | $(145,912) |
| Selling and administrative expense | 661,839 | 661,839 | ------- |
| | $5,623,909 | $5,769,821 | $(145,912) |
| Operative earnings | $ 605,288 | $ 848,566 | $ 243,278 |
| Less: All other expense @ 11% | | | 26,761 |
| Estimated savings before Federal taxes on income | | | $ 216,517 |
| Less: Federal taxes on income @ 35% | | | 75,781 |
| Estimated net savings (normal year) | | | $ 140,736 |
| Total estimated expenditure, excluding $250,000 of equipment for other models | | | $ 846,000 |
| Net return on expenditure | | | 16.6% |
| Total estimated expenditure, excluding $401,527 of equipment* | | | $ 694,473 |
| Net return on expenditure | | | 20.3% |

*Equipment for general use which would have to be purchased on a necessity basis at a reasonably early date.

nl
4/14/48

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

REMINGTON ARMS COMPANY, INC.

DETAIL ESTIMATE OF EXPENDITURES
M/721-722 - Project FD-721 - Part III

| | Amount Previously Authorized | Amount Requested This Part | Added Cost To Complete | Total Estimated Cost |
|---|---|---|---|---|
| **DEVELOPMENT (FD-721-1)** | | | | |
| Design | | | | |
| Investigation | $ 1,061 | $-------- | $------- | $ 1,061 |
| Design | 15,616 | -------- | ------- | 15,616 |
| Design Revisions | 33,053 | (1,003) | ------- | 32,050 |
| Model Making | 18,080 | ----- | ------- | 18,080 |
| | $ 67,810 | $ (1,003) | $------- | $ 66,807 |
| Specifications | | | | |
| Testing | $ 20,687 | $ (1,000) | $------- | $ 19,687 |
| Specifications | 8,213 | ----- | ------- | 8,213 |
| | $ 28,900 | $ (1,000) | $------- | $ 27,900 |
| Product Engineering | | | | |
| Process Engineering | $ 94,700 | $ (1,500) | $------- | $ 93,200 |
| Trial Run | 29,950 | (1,000) | ------- | 28,950 |
| | $ 124,650 | $ (2,500) | $------- | $ 122,150 |
| Tooling Revisions | | | | |
| Tool Design Revisions | $ 35,400 | $ ----- | $------- | $ 35,400 |
| Tool Revisions | 46,935 | (935) | ------- | 46,000 |
| | $ 82,335 | $ (935) | $------- | $ 81,400 |
| Administrative | | | | |
| Engineering Files | $ 6,219 | $ (851) | $------- | $ 5,368 |
| Project Engineering | 15,381 | (1,381) | ------- | 14,000 |
| | $ 21,600 | $ (2,232) | $------- | $ 19,368 |
| **TOOLING (FD-721-2)** | | | | |
| Design | $ 96,075 | $ (3,000) | $------- | $ 93,075 |
| Tools | 203,800 | (4,000) | ------- | 199,800 |
| | $ 299,875 | $ (7,000) | $------- | $ 292,875 |
| **SPECIAL MACHINERY (FD-721-3)** | ------- | ----- | ------- | ------- |
| **STANDARD MACHINERY (FD-721-4)** | 374,527 | $ ----- | $------- | $ 374,527 |
| **PRODUCTION AIDS (FD-721-5)** | $ 27,000 | $ ----- | $------- | $ 27,000 |
| **PILOT OPERATIONS (FD-721-6)** | | | | |
| Quality Audit | $ 3,230 | $ ----- | $------- | $ 3,230 |
| Methods Engineering | 1,460 | ----- | ------- | 1,460 |
| Machine Changes&Additions | 10,060 | (3,500) | ------- | 6,560 |
| Machine Rearrangement | 1,900 | ----- | ------- | 1,900 |
| Pilot Lot Manufacture | 61,823 | 2,000 | ------- | 63,823 |
| Tool Replacement | 8,000 | (1,000) | ------- | 7,000 |
| Credit for O.K. Guns | ------ | ----- | ------- | ------ |
| | $ 86,473 | $ (2,500) | $------- | $ 83,973 |
| SUB TOTAL | $ 411,768 | $(10,170) | $------- | $ 401,598 |
| CONTINGENCIES | ------- | ------ | ------- | ------- |
| TOTAL | $1,113,170 | $(17,170) | $------- | $1,096,000 |

ml
4/13/48

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

sent to Bridgport 9/12/47

RD-1386 Rev. 5-47

REMINGTON ARMS COMPANY, INC.

# A P P R O P R I A T I O N  R E Q U E S T

Department Technical  Works Ilion  Project No. FD-721 Part II

Request for $ 140,273  Date 9/11/47

Category Established Product

Title Model 721-722 Bolt Action High Power Center Fire Rifle

This project is included in Forecast No. 4 in the amount of $ 140,273

To be commenced Upon Approval

To be ready for use June 1948

To be physically completed

Estimated prepared by

K. C. Gilmore  9/11/47 Date

Approved as to form, accounting aspects, and rules compliance

Treasurer or Assistant Treasurer  Date

| | Date |
|---|---|
| Approved or Authorized | |
| Approved or Authorized | |
| Approved or Authorized | |
| Approved or Authorized | |
| Approved or Authorized | |
| President and General Manager | |
| Authorized BOARD OF DIRECTORS | |
| Secretary | |

Preliminary approvals:

| | Date | | Date |
|---|---|---|---|
| | | | |
| | | | |
| | | | |

ml

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

RT-154

REMINGTON ARMS COMPANY, INC.

SUMMARY OF ESTIMATED EXPENDITURES

PROJECT NO. FD-721 - Ilion WORKS

| | Labor | Material | Total |
|---|---|---|---|
| Land | $ --- | $ --- | $ --- |
| Manufacturing buildings | --- | --- | --- |
| Manufacturing equipment | --- | 401,527 | 401,527 |
| Pow er and service facilities | --- | --- | --- |
| Tooling | 96,075 | 203,800 | 299,875 |
| Dismantling and rearranging | --- | --- | --- |
| Product development | 411,768 | --- | 411,768 |
| Machine development | --- | --- | --- |
| Project administration | --- | --- | --- |
| Other | --- | --- | --- |
| | $ 507,843 | $ 605,327 | $ 1,113,170 |
| Provision for advancing wages and material prices | --- | --- | --- |
| TOTAL | $ 507,843 | $ 605,327 | $ 1,113,170 |

ACCOUNTING DISTRIBUTION OF EXPENDITURES

| | Expenditures Previous Part | Expenditures This Part | Adjusting Entries | Final Net Results in Accounts |
|---|---|---|---|---|
| Plant increase | $ 689,547 | $ 11,855 | *$(2,935.48) | $ 698,466.52 |
| Operations | 283,350 | 128,418 | --- | 411,768.00 |
| Depreciation | --- | --- | * 2,935.48 | 2,935.48 |
| | $ 972,897 | $ 140,273 | | $ 1,113,170.00 |

*Write off of five worn obsolete type of machines used for cutter sharpeners. (See schedule in Project FI-172)

ml 9/11/47

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

REMINGTON ARMS CO., INC.

GENERAL INFORMATION

PROJECT NO. FD-721 - Ilion WORKS

INTRODUCTION:

Part II of this Project requests additional authorization of $140,273 and reallocation of funds in the amount of $75,524 authorized on December 27, 1946 under Project AD-721, Part I.

These funds are necessary to complete all work required to place Model 721-722 Rifle in production in 8 calibers.

DESCRIPTION OF PROPOSED WORK:

Additional funds requested will cover unpredicted overruns in the various categories as follows:

| | AUTHORIZED | SPENT 8/31/47 | ESTIMATED TOTAL | ESTIMATED (OVERRUN) |
|---|---|---|---|---|
| Design Specifications and Testing | $ 88,355 | $ 74,424 | $ 96,710 | $( 8,355) |
| Processing | 68,337 | 84,509 | 94,700 | ( 26,363) |
| Trial and Pilot Operations | 75,773 | 96,594 | 116,423 | ( 40,650) |
| Tool Design, Tooling and Tooling Revisions | 320,036 | 331,766 | 382,210 | ( 62,174) |
| Machinery and Production Aids | 399,346 | 401,972 | 401,527 | ( 2,181) |
| Administrative | 21,050 | 16,193 | 21,600 | ( 550) |
| Total Cost *$ | 972,897 | $1,005,458 | $1,113,170 | $(140,273) |
| Indicated % Overrun | | | | 15% |

*Includes:

| | |
|---|---|
| FD-721, Part I, authorized for | $ 897,373 |
| AD-721, Part I, authorized for | 75,524 |
| Total | $ 972,897 |

Additional Technical service is necessary to obtain production to required quality standards. The cost of a study on cutting tools to improve tool mortality has been required.

Change in the design of the fire control to avoid patent infringement has been necessary subsequent to the authorization of Part I. Further Engineering work is required in connection with parts purchased from outside vendors in order to obtain necessary quality standards.



CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON
R2527323

REMINGTON ARMS CO., INC.

GENERAL INFORMATION

PROJECT NO. FD-721 - Ilion WORKS

REMARKS:

The revisions to processing and tooling during trial and pilot operations to establish production of components to required standards of quality were much greater than anticipated in September 1946 when Part I of this Project was authorized.

Included in the total expenditure on this Project is $401,527. for Machinery and Production Aids, of which $250,000. covers new machine capacity which is not required exclusively for Model 721 and 722 production, and is available for other models.

It was originally intended to perform the development work for the .280 caliber in the Model 721, .224 caliber and .222 caliber in the Model 722 under Project AD-721, Part I, for $75,524. It is now proposed to combine Project AD-721 with Project FD-721 and complete all work under Part II of this Project.



CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON
R2527324

REMINGTON ARMS COMPANY, INC.

ESTIMATED EARNINGS AND RETURN ON INVESTMENT
PROJECT NO. FB-721, PART II - ILION WORKS
CATEGORY: ESTABLISHED PRODUCT

| | Normal Year | | |
|---|---|---|---|
| | Operation Before Project No. FB-721 | Operation After Project No. FB-721 | Results From Project No. FB-721 |
| Quantity | 239,610 | 253,240 | 13,630 |
| Outside Sales | $5,533,946 | $5,952,046 | $ 396,100 |
| Less: Mill Cost | $4,359,095 | $4,514,391 | $ (154,498) |
| Selling and Administrative Expense | 889,807 | 889,807 | - |
| | $5,249,700 | $5,404,198 | $ (154,498) |
| Operative Earnings | $ 284,246 | $ 527,848 | $ 243,602 |
| Less: All Other Expense @ 5% (excludes Federal taxes on income) | | | 19,488 |
| Net Earnings before Federal taxes on income | | | $ 224,114 |
| Less: Federal taxes on income @ 35% | | | 78,440 |
| Net Earnings | | | $ 145,674 |
| Investment | | | |
| Total appropriation requested under this project (including development) | | | $1,113,170 |
| Less: Amount included therein for manufacturing facilities subject to allocation - | | | |
| Equipment $401,587 | | | |
| Tooling 299,875 | | | 701,462 |
| | | | $ 411,768 |
| Add: Investment in facilities used directly in this operation and applicable service and other manufacturing facilities | | | 703,530 |
| Total Investment | | | $1,115,298 |
| Working Capital | | | 372,000 |
| Total Capital Required | | | $1,487,298 |
| Less: Portion of this project to be charged to operations (including development) or depreciation reserve | | | 411,768 |
| Total Investment after completion of this project | | | $1,115,530 |
| Return on Investment | | | |
| Total Capital Required | | | 9.5% |
| Total Investment after completion of this project | | | 13.1% |

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

PROJECT FD-721-PART II

COMPUTATION OF GROSS PROFIT OR (LOSS)
M/720 vs. M/721-722 (8 calibers)

BASED ON NORMAL YEAR OF 12 YEAR SALES

| | TOTAL LINE INCLUDING M/720 | M/721-722 | Difference |
|---|---|---|---|
| Quantity | 239,610 | 253,240 | 13,630 |
| Outside Sales | $ 5,533,946 | $ 5,932,046 | $ 398,100 |
| Factory Costs | | | |
| Direct Material | 772,377 | 859,878 | (87,501) |
| Direct Labor | 714,998 | 760,030 | (45,032) |
| Expense | | | |
| Direct & Indirect | 2,367,473 | 2,374,498 | (7,025) |
| Fixed | 238,412 | 238,412 | ----- |
| Total Expense | 2,605,885 | 2,612,910 | (7,025) |
| Total Factory Cost | $ 4,093,260 | $ 4,232,818 | $ (139,558) |
| Inventory Adjustment | $ 81,864 | $ 84,656 | $ (2,792) |
| Deferred Tooling Cost | 184,769 | 196,917 | (12,148) |
| Total Factory Cost | $ 4,359,893 | $ 4,514,391 | $ (154,498) |
| General and Administrative | $ 889,807 | $ 889,807 | ------- |
| Commercial Cost | $ 5,249,700 | $ 5,404,198 | $ (154,498) |
| Gross Profit or (loss) | $ 284,246 | $ 527,848 | $ 243,602 |
| Less: 8% All Other Expense | | | 19,488 |
| Estimated Savings Before Federal Taxes | | | 224,114 |
| Less: 35% Federal Income Taxes | | | 78,440 |
| Prospective Net Savings (Normal Year) | | | 145,674 |
| Total Estimated Expenditure including $150,000 of equipment | | | 861,643 |
| Net % Return on Expenditures | | | 16.9% |
| * Total Estimated Expenditures excluding $401,527 equipment | | | 711,643 |
| Net % Return on Expenditures | | | 20.5% |

*This is on the basis that all equipment included in this Project of $401,527 was of a general use and would have to be purchased on a necessity basis at a reasonably early date.

ml 9/16/47

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

DETAIL ESTIMATE OF EXPENDITURES
M/721-722 (PROJECT FD-721)
(For Part II)

| | Total Requirements to Complete | Amount Authorized | Amount Expended to 8/31/47 | Balance Unexpended 8/31/47 | Amount Requested This Part |
|---|---|---|---|---|---|
| Development (FD-721-1) | $ 325,295 | $ 225,343 | $ 265,144 | $ (39,801) | $ 99,952 |
| Design | 67,810 | 60,985 | 55,799 | 5,186 | 6,825 |
| Investigation | 1,061 | 1,048 | 551 | 497 | 13 |
| Design | 15,616 | 15,408 | 14,158 | 1,250 | 208 |
| Design Revisions | 33,053 | 27,237 | 23,958 | 3,279 | 5,816 |
| Model Making | 18,080 | 17,292 | 17,132 | 160 | 788 |
| Specifications | 28,900 | 27,370 | 18,625 | 8,745 | 1,530 |
| Testing | 20,687 | 19,385 | 11,001 | 8,384 | 1,302 |
| Specifications | 8,213 | 7,985 | 7,624 | 361 | 228 |
| Product Engineering | 124,650 | 86,103 | 106,160 | (20,057) | 38,547 |
| Process Engineering | 94,700 | 68,337 | 84,509 | (16,172) | 26,363 |
| Trial Run | 29,950 | 17,766 | 21,651 | (3,885) | 12,184 |
| Tooling Revisions | 82,335 | 29,835 | 68,367 | (38,532) | 52,500 |
| Tool Design Revisions | 35,400 | 13,400 | 33,381 | (19,981) | 22,000 |
| Tool Revisions | 46,935 | 16,435 | 34,986 | (18,551) | 30,500 |
| Administrative | 21,600 | 21,050 | 16,193 | 4,857 | 550 |
| Engineering Files | 6,219 | 6,600 | 5,368 | 1,232 | (381) |
| Project Engineering | 15,381 | 14,450 | 10,825 | 3,625 | 931 |
| Contingencies | | | | | |
| Tooling (FD-721-2) | 299,875 | 290,201 | 263,399 | 26,802 | 9,674 |
| Design | 96,075 | 89,092 | 84,444 | 4,648 | 6,983 |
| Tools | 203,800 | 201,109 | 178,955 | 22,154 | 2,691 |
| Special Machinery (FD-721-3) | --- | --- | --- | --- | --- |
| Standard Machinery (FD-721-4) | 374,527 | 374,527 | 375,465 | (938) | --- |
| Production Aids (FD-721-5) | 27,000 | 24,819 | 26,507 | (1,688) | 2,181 |
| Pilot Operations (FD-721-6) | 86,473 | 58,007 | 74,943 | (16,936) | 28,466 |
| Quality Audit | 3,230 | 6,766 | 2,831 | 3,935 | (3,536) |
| Methods Engineering | 1,460 | 1,900 | 1,210 | 690 | (440) |
| Machine Changes & Additions | 10,060 | 4,114 | 5,025 | (911) | 5,946 |
| Machine Rearrangement | 1,900 | 2,690 | 1,932 | 758 | (790) |
| Pilot Lot Manufacture | 61,823 | 44,065 | 59,548 | (15,483) | 17,758 |
| Tool Replacement | 8,000 | 5,528 | 4,672 | 856 | 2,472 |
| Credit for O.K. Guns | --- | (7,056) | (275) | (6,781) | 7,056 |
| Total | $ 1,113,170 | $* 972,897 | $ 1,005,458 | $ (32,561) | $ 140,273 |

*Includes:
FD-721, Part I, authorized for $ 897,373
AD-721, Part I, authorized for 75,524
Total $ 972,897

ml 9/16/47

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON
R2527327

Given to Acctg 9/16/47

Serial work sheet
9/18/47

9/16/47

RD-1386 Rev. 5-47

REMINGTON ARMS COMPANY, INC.

# A P P R O P R I A T I O N  R E Q U E S T

Department Technical  Works Ilion  Project No. FD-721 Part II

Request for $ 140,273  Date 9/11/47

Category ~~G - R & M~~ ESTABLISHED PRODUCT

Title Model 721-722 Bolt Action High Power Center Fire Rifle

This project is included in Forecast No. 4 in the amount of $ 140,273

To be commenced Upon Approval

To be ready for use June 1948

To be physically completed

Estimated prepared by

K. C. Gilmore  9/11/47 Date

Approved as to form, accounting aspects, and rules compliance

Treasurer or Assistant Treasurer  Date

| | Date |
|---|---|
| Approved or Authorized | |
| Approved or Authorized | |
| Approved or Authorized | |
| Approved or Authorized | |
| Approved or Authorized | |
| President and General Manager | |
| Authorized BOARD OF DIRECTORS | |
| Secretary | |

Preliminary approvals:

| | Date | | Date |
|---|---|---|---|
| | | | |
| | | | |
| | | | |

ml

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

RT-154

REMINGTON ARMS COMPANY, INC.

## SUMMARY OF ESTIMATED EXPENDITURES

PROJECT NO. FD-721 - Ilion WORKS

| | Labor | Material | Total |
|---|---|---|---|
| Land | $ --- | $ --- | $ --- |
| Manufacturing buildings | --- | --- | --- |
| Manufacturing equipment | --- | 401,527 | 401,527 |
| Pow er and service facilities | --- | --- | --- |
| Tooling | 96,075 | 203,800 | 299,875 |
| Dismantling and rearranging | --- | --- | --- |
| Product development | 411,768 | --- | 411,768 |
| Machine development | --- | --- | --- |
| Project administration | --- | --- | --- |
| Other | --- | --- | --- |
| | $ 507,843 | $ 605,327 | $ 1,113,170 |
| Provision for advancing wages and material prices | --- | --- | --- |
| TOTAL | $ 507,843 | $ 605,327 | $ 1,113,170 |

## ACCOUNTING DISTRIBUTION OF EXPENDITURES

| | Expenditures Previous Part | Expenditures This Part | Adjusting Entries | Final Net Results in Accounts |
|---|---|---|---|---|
| Plant increase | $ 689,547 | $ 11,855 | *$(2,935.48) | $ 698,466.52 |
| Operations | 283,350 | 128,418 | --- | 411,768.00 |
| Depreciation | --- | --- | * 2,935.48 | 2,935.48 |
| | $ 972,897 | $ 140,273 | | $ 1,113,170.00 |

*Write off of five worn obsolete type of machines used for cutter sharpeners. (See schedule in Project FI-172)

ml 9/11/47

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

REMINGTON ARMS CO., INC.

GENERAL INFORMATION

PROJECT NO. FD-721 - Ilion WORKS

INTRODUCTION:

Part II of this Project requests additional authorization of $140,273 and reallocation of funds in the amount of $75,524 authorized on December 27, 1946 under Project AD-721, Part I.

These funds are necessary to complete all work required to place Model 721-722 Rifle in production in 8 calibers.

DESCRIPTION OF PROPOSED WORK:

Additional funds requested will cover unpredicted overruns in the various categories as follows:

| | AUTHORIZED | SPENT 8/31/47 | ESTIMATED TOTAL | ESTIMATED (OVERRUN) |
|---|---|---|---|---|
| Design Specifications and Testing | $ 88,355 | $ 74,424 | $ 96,710 | $( 8,355) |
| Processing | 68,337 | 84,509 | 94,700 | ( 26,363) |
| Trial and Pilot Operations | 75,773 | 96,594 | 116,423 | ( 40,650) |
| Tool Design, Tooling and Tooling Revisions | 320,036 | 331,766 | 382,210 | ( 62,174) |
| Machinery and Production Aids | 399,346 | 401,972 | 401,527 | ( 2,181) |
| Administrative | 21,050 | 16,193 | 21,600 | ( 550) |
| Total Cost * | $ 972,897 | $1,005,458 | $1,113,170 | $(140,273) |
| Indicated % Overrun | | | | 15% |

*Includes:

| | |
|---|---|
| FD-721, Part I, authorized for | $ 897,373 |
| AD-721, Part I, authorized for | 75,524 |
| Total | $ 972,897 |

Additional Technical service is necessary to obtain production to required quality standards. The cost of a study on cutting tools to improve tool mortality has been required.

Change in the design of the fire control to avoid patent infringement has been necessary subsequent to the authorization of Part I. Further Engineering work is required in connection with parts purchased from outside vendors in order to obtain necessary quality standards.



CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON
R2527330

REMINGTON ARMS CO., INC.

GENERAL INFORMATION

PROJECT NO. FD-721 - Ilion WORKS

REMARKS:

The revisions to processing and tooling during trial and pilot operations to establish production of components to required standards of quality were much greater than anticipated in September 1946 when Part I of this Project was authorized.

Included in the total expenditure on this Project is $401,527. for Machinery and Production Aids, of which $250,000. covers new machine capacity which is not required exclusively for Model 721 and 722 production, and is available for other models.

It was originally intended to perform the development work for the .280 caliber in the Model 721, [redacted] .224 caliber and .222 caliber in the Model 722 under Project AD-721, Part I, for $75,524. It is now proposed to combine Project AD-721 with Project FD-721 and complete all work under Part II of this Project.



CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

R2527331

REMINGTON ARMS COMPANY, INC.

ESTIMATED EARNINGS AND RETURN ON INVESTMENT
PROJECT NO. FD-721, PART II - ILION WORKS
CATEGORY: ESTABLISHED PRODUCT

| | Normal Year | | |
|---|---|---|---|
| | Operation Before Project No.FD-721 | Operation After Project No.FD-721 | Results From Project No.FD-721 |
| Quantity | 239,610 | 253,240 | 13,630 |
| Outside Sales | $ 5,533,946 | $ 5,932,046 | $ 398,100 |
| Less: Mill cost | $ 4,359,893 | $ 4,514,391 | $ (154,498) |
| Selling and administrative expense | 889,807 | 889,807 | |
| | $ 5,249,700 | $ 5,404,198 | $ (154,498) |
| Operative Earnings | $ 284,246 | $ 527,848 | $ 243,602 |
| Less: All other expense @ 8% (excludes Federal taxes on income) | | | 19,488 |
| Net earnings before Federal taxes on income | | | $ 224,114 |
| Less: Federal taxes on income @ 35% | | | 78,440 |
| Net Earnings | | | $ 145,674 |

Investment

| | |
|---|---|
| Total appropriation requested under this project (including development). | $ 1,113,170 |
| Amount included therein for manufacturing facilities subject to allocation (deducted). | 401,527 |
| Investment in facilities used directly in this operation. | 490,655 |
| Applicable service and other manufacturing facilities. | |
| Total Investment | $ 1,202,298 |
| Working Capital | ~~137,200~~ 325,000 |
| Total Capital Required | 1,527,298 ~~$ 1,339,498~~ |
| Less: Portion of this project to be charged to operations (including development) or depreciation reserve. | $ 411,768 |
| Total investment after completion of this project | 1,115,530 ~~$ 927,830~~ |

Return on Investment

| | |
|---|---|
| Total capital required | 9.5% ~~10.9%~~ |
| Total investment after completion of this project | 13.1% ~~15.1%~~ |

ml 9/16/47

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON
R2527332

REMINGTON ARMS COMPANY, INC.

ESTIMATED EARNINGS AND RETURN ON INVESTMENT
PROJECT NO. FD-721, PART II - ILION WORKS
CATEGORY: ESTABLISHED PRODUCT

| | Normal Year | | |
|---|---|---|---|
| | Operation Before Project No.FD-721 | Operation After Project No.FD-721 | Results From Project No.FD-721 |
| Quantity | 239,610 | 253,240 | 13,630 |
| Outside Sales | $ 5,533,946 | $ 5,932,046 | $ 398,100 |
| Less: Mill cost | $ 4,359,893 | $ 4,514,391 | $ (154,498) |
| Selling and administrative expense | 889,807 | 889,807 | |
| | $ 5,249,700 | $ 5,404,198 | $ (154,498) |
| Operative Earnings | $ 284,246 | $ 527,848 | $ 243,602 |
| Less: All other expense @ 8% (excludes Federal taxes on income) | | | 19,488 |
| Net earnings before Federal taxes on income | | | $ 224,114 |
| Less: Federal taxes on income @ 35% | | | 78,440 |
| Net Earnings | | | $ 145,674 |

Investment

| | |
|---|---|
| Total appropriation requested under this project (including development). | $ 1,113,170 |
| Amount included therein for manufacturing facilities subject to allocation (deducted). | 401,527 |
| Existing investment in facilities used directly in this operation. | 1,134,825 |
| Applicable service and other manufacturing facilities. | |
| Total Investment | $ 1,846,468 |
| Working Capital | ~~137,200~~ 125,000 |
| Total Capital Required (including facilities to be retired) | 2,171,468<br>$ ~~1,983,668~~ |
| Less: Investment to be retired and portion of this project to be charged to operations (including development) or depreciation reserve. | $ 1,055,938 |
| Total investment after completion of this project | $ ~~927,730~~ 1,115,530 |

Return on Investment

| | |
|---|---|
| Total capital required (including facilitées to be retired) | 6.7%<br>~~9.3%~~ |
| Total investment after completion of this project | 13.1%<br>~~15.7%~~ |

ml 9/16/47

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

PROJECT FD-721-PART II

COMPUTATION OF GROSS PROFIT OR (LOSS)
M/720 vs. M/721-722 (8 calibers)

BASED ON NORMAL YEAR OF 12 YEAR SALES

| | TOTAL LINE INCLUDING M/720 | M/721-722 | Difference |
|---|---|---|---|
| Quantity | 239,610 | 253,240 | 13,630 |
| Outside Sales | $ 5,533,946 | $ 5,932,046 | $ 398,100 |
| Factory Costs | | | |
| Direct Material | 772,377 | 859,878 | (87,501) |
| Direct Labor | 714,998 | 760,030 | (45,032) |
| Expense | | | |
| Direct & Indirect | 2,367,473 | 2,374,498 | (7,025) |
| Fixed | 238,412 | 238,412 | ----- |
| Total Expense | 2,605,885 | 2,612,910 | (7,025) |
| Total Factory Cost | $ 4,093,260 | $ 4,232,818 | $ (139,558) |
| Inventory Adjustment | $ 81,864 | $ 84,656 | $ (2,792) |
| Deferred Tooling Cost | 184,769 | 196,917 | (12,148) |
| Total Factory Cost | $ 4,359,893 | $ 4,514,391 | $ (154,498) |
| General and Administrative | $ 889,807 | $ 889,807 | ------- |
| Commercial Cost | $ 5,249,700 | $ 5,404,198 | $ (154,498) |
| Gross Profit or (less) | $ 284,246 | $ 527,848 | $ 243,602 |
| Less: 8% All Other Expense | | | 19,488 |
| Estimated Savings Before Federal Taxes | | | 224,114 |
| Less: 35% Federal Income Taxes | | | 78,440 |
| Prospective Net Savings (Normal Year) | | | 145,674 |
| Total Estimated Expenditure including $150,000 of equipment | | | 861,643 |
| Net % Return ON EXPENDITURES | | | 16.9% |
| * Total Estimated Expenditures excluding $401,527 equipment | | | 711,643 |
| Net % Return ON EXPENDITURES | | | 20.5% |

*This is on the basis that all equipment included in this Project of $401,527 was of a general use and would have to be purchased on a necessity basis at a reasonably early date.

ml 9/16/47

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

DETAIL ESTIMATE OF EXPENDITURES
M/721-722 (PROJECT FD-721)
(For Part II)

| | Total Requirements to Complete | Amount Authorized | Amount Expended to 8/31/47 | Balance Unexpended 8/31/47 | Amount Requested This Part |
|---|---|---|---|---|---|
| Development (FD-721-1) | $ 325,295 | $ 225,343 | $ 265,144 | $ (39,801) | $ 99,952 |
| Design | 67,310 | 60,985 | 55,799 | 5,186 | 6,825 |
| Investigation | 1,061 | 1,048 | 551 | 497 | 13 |
| Design | 15,616 | 15,408 | 14,158 | 1,250 | 208 |
| Design Revisions | 33,053 | 27,237 | 23,958 | 3,279 | 5,816 |
| Model Making | 18,080 | 17,292 | 17,132 | 160 | 788 |
| Specifications | 28,900 | 27,370 | 18,625 | 8,745 | 1,530 |
| Testing | 20,687 | 19,385 | 11,001 | 8,384 | 1,302 |
| Specifications | 8,213 | 7,985 | 7,624 | 361 | 228 |
| Product Engineering | 124,650 | 86,103 | 106,160 | (20,057) | 38,547 |
| Process Engineering | 94,700 | 68,337 | 84,509 | (16,172) | 26,363 |
| Trial Run | 29,950 | 17,766 | 21,651 | (3,885) | 12,184 |
| Tooling Revisions | 82,335 | 29,835 | 68,367 | (38,532) | 52,500 |
| Tool Design Revisions | 35,400 | 13,400 | 33,381 | (19,981) | 22,000 |
| Tool Revisions | 46,935 | 16,435 | 34,986 | (18,551) | 30,500 |
| Administrative | 21,600 | 21,050 | 16,193 | 4,857 | 550 |
| Engineering Files | 6,219 | 6,600 | 5,368 | 1,232 | (381) |
| Project Engineering | 15,381 | 14,450 | 10,825 | 3,625 | 931 |
| Contingencies | | | | | |
| Tooling (FD-721-2) | 299,875 | 290,201 | 263,399 | 26,802 | 9,674 |
| Design | 96,075 | 89,092 | 84,444 | 4,648 | 6,983 |
| Tools | 203,800 | 201,109 | 178,955 | 22,154 | 2,691 |
| Special Machinery (FD-721-3) | --- | --- | --- | --- | --- |
| Standard Machinery (FD-721-4) | 374,527 | 374,527 | 375,465 | (938) | --- |
| Production Aids (FD-721-5) | 27,000 | 24,819 | 26,507 | (1,688) | 2,181 |
| Pilot Operations (FD-721-6) | 86,473 | 58,007 | 74,943 | (16,936) | 28,466 |
| Quality Audit | 3,230 | 6,766 | 2,831 | 3,935 | (3,536) |
| Methods Engineering | 1,460 | 1,900 | 1,210 | 690 | (440) |
| Machine Changes & Additions | 10,060 | 4,114 | 5,025 | (911) | 5,946 |
| Machine Rearrangement | 1,900 | 2,690 | 1,932 | 758 | (790) |
| Pilot Lot Manufacture | 61,823 | 44,065 | 59,548 | (15,483) | 17,758 |
| Tool Replacement | 8,000 | 5,528 | 4,672 | 856 | 2,472 |
| Credit for O.K. Guns | --- | (7,056) | (275) | (6,781) | 7,056 |
| Total | $ 1,113,170 | $* 972,897 | $ 1,005,458 | $ (32,561) | $ 140,273 |

*Includes:

| | |
|---|---|
| FD-721, Part I, authorized for | $ 897,373 |
| AD-721, Part I, authorized for | 75,524 |
| Total | $ 972,897 |

ml 9/16/47

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON
R2527335

REMINGTON ARMS CO., INC.

GENERAL INFORMATION

PROJECT NO. FD-721 - Ilion WORKS

INTRODUCTION:

Part II of this Project requests additional authorization of $140,273 and reallocation of funds in the amount of $75,524 authorized under Project AD-721, Part I.

These funds are necessary to complete all work required to place Model 721-722 Rifle in production in 8 calibers.

DESCRIPTION OF PROPOSED WORK:

Additional funds requested will cover unpredicted overruns in the various categories as follows:

| | AUTHORIZED | SPENT 8/31/47 | ESTIMATED TOTAL | ESTIMATED (OVERRUN) |
|---|---|---|---|---|
| Design Specifications and Testing | $ 88,355 | $ 74,424 | $ 96,710 | $( 8,355) |
| Processing | 68,337 | 84,509 | 94,700 | ( 26,363) |
| Trial and Pilot Operations | 75,773 | 96,594 | 116,423 | ( 40,650) |
| Tool Design, Tooling and Tooling Revisions | 320,036 | 331,766 | 382,210 | ( 62,174) |
| Machinery and Production Aids | 399,346 | 401,972 | 401,527 | ( 2,181) |
| Administrative | 21,050 | 16,193 | 21,600 | ( 550) |
| Total Cost | $* 972,897 | $1,005,458 | $1,113,170 | $(140,273) |
| Indicated % Overrun | | | | 15% |

Additional Technical service is necessary to ~~establish sustained~~ obtain production to required quality standards. The cost of a study on cutting tools, [redacted], to improve tool mortality ~~is included~~ has been required.

Change in the design of the fire control to avoid patent infringement has been necessary subsequent to the authorization of Part I. Further Engineering work is required in connection with parts purchased from outside vendors in order to obtain necessary quality standards.

~~All phases of the development work to put the three additional calibers, .280, .224, and .222, into production will be completed under this Part.~~

ml 9/11/47



* Includes
FD721 Pt I authorized for $897,373
AD721 Pt I " 75,524
TOTAL $972,897

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON
R2527336

REMINGTON ARMS CO., INC.

GENERAL INFORMATION

PROJECT NO. FD-721 - Ilion WORKS

REMARKS:

~~The extent of work required for~~ during The revisions to processing and tooling ~~and for~~ trial and pilot operations to establish production of components to required standards of quality were ~~not~~ much greater than anticipated in September 1946 when Part I to the Project was authorized. ~~At the time of the estimate for Part I, no provision for advancing [illegible] as has subsequently been done on Projects for other new models. This would have amounted to $55,000.~~

~~We had hoped to complete the Project within a 10% overrun but will be unable to do so and provide necessary Technical service. We underestimated the contingencies of cost to provide new methods and facilities for successful production within the estimate as prepared in September 1946. This additional authorization is requested to finish the job.~~

Included In the total expenditures on this Project, is $401,527 for machinery and production aids ~~is a quarter of~~ $250,000 ~~a million dollars~~ of ~~new machine capacity which is not required exclusively for Model 721 and 722 production but~~ which is available for other models.

It was originally intended to perform the development work for the ~~necessary to include the~~ .280 caliber in the M/721 and the .224 caliber and .222 caliber in the M/722, under Project AD-721 ~~for [illegible]~~ $75,524 ~~[illegible]~~, It is now proposed ~~to~~ to combine AD721 with FD721 and complete ~~this~~ all work under Part II of this Project.

~~The proposed addition of these calibers is in accordance with Products Committee action, [illegible] - July 11, 1946.~~

ml 9/11/47



CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

R2527337

REMINGTON ARMS COMPANY, INC.

ESTIMATED EARNINGS AND RETURN ON INVESTMENT
PROJECT NO. FD-721, PART II - ILION WORKS
CATEGORY: ESTABLISHED PRODUCT

Normal Years

| | Operation Before Project No.FD-721 | Operation After Project No.FD-721 | Results From Project No.FD-721 |
|---|---|---|---|
| Quantity | 239,610 | 253,240 | 13,630 |
| Outside Sales | $5,533,946 | $5,932,046 | $ 398,100 |
| Less: Mill cost | $4,359,893 | $4,514,391 | $ (154,498) |
| Selling and administrative expense | 889,807 | 889,807 | |
| | $5,249,700 | $5,404,198 | $ (154,498) |
| Operative Earnings | $ 284,246 | $ 527,848 | $ 243,602 |
| Less: All other expense @ 8% (excludes Federal taxes on income) | | | 19,488 |
| Net earnings before Federal taxes on income | | | $ 224,114 |
| Less: Federal taxes on income @ 35% | | | 78,440 |
| Net Earnings | | | $ 145,674 |

Investment

| | |
|---|---|
| Total appropriation requested under this project (including development). | $1,113,170 |
| Amount included therein for manufacturing facilities subject to allocation (deducted). | 401,527 |
| Investment in facilities used directly in this operation. | 490,655 |
| Applicable service and other manufacturing facilities. | |
| Total Investment | $1,202,298 |
| Working Capital | 137,200 |
| Total Capital Required | $1,339,498 |
| Less: Portion of this project to be charged to operations (including development) or depreciation reserve. | $ 411,768 |
| Total investment after completion of this project | $ 927,730 |

Return on Investment

| | |
|---|---|
| Total capital required | 10.9% |
| Total investment after completion of this project | 15.7% |

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9/16/47

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

REMINGTON ARMS COMPANY, INC.

ESTIMATED EARNINGS AND RETURN ON INVESTMENT
PROJECT NO. FD-721, PART II - ILION WORKS
CATEGORY: ESTABLISHED PRODUCT

| | Operation Before Project No.FD-721 | Operation After Project No.FD-721 | Results From Project No.FD-721 |
|---|---|---|---|
| Quantity | 239,610 | 253,240 | 13,630 |
| Outside Sales | $5,533,946 | $5,932,046 | $ 398,100 |
| Less: Mill cost | $4,359,893 | $4,514,391 | $ (154,498) |
| Selling and administrative expense | 889,807 | 889,807 | |
| | $5,249,700 | $5,404,198 | $ (154,498) |
| Operative Earnings | $ 284,246 | $ 527,848 | $ 243,602 |
| Less: All other expense @ 8% (excludes Federal taxes on income) | | | 19,488 |
| Net earnings before Federal taxes on income | | | $ 224,114 |
| Less: Federal taxes on income @ 35% | | | 78,440 |
| Net Earnings | | | $ 145,674 |

Investment

| | |
|---|---|
| Total appropriation requested under this project (including development). | $1,113,170 |
| Amount included therein for manufacturing facilities subject to allocation (deducted). | 401,527 |
| Existing investment in facilities used directly in this operation. | 1,134,825 |
| Applicable service and other manufacturing facilities. | |
| Total Investment | $1,846,468 |
| Working Capital | 137,200 |
| Total Capital Required (including facilities to be retired) | $1,983,668 |
| Less: Investment to be retired and portion of this project to be charged to operations (including development) or depreciation reserve. | $1,055,938 |
| Total investment after completion of this project | $ 927,730 |

Return on Investment

| | |
|---|---|
| Total capital required (including facilities to be retired) | 7.3% |
| Total investment after completion of this project | 15.7% |

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9/16/47

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KINZER V. REMINGTON

2nd

Project FO-7721 - Part II

COMPUTATION OF GROSS PROFIT OR (LOSS)
M/720 vs. M/721-722 (8 calibers)

BASED ON NORMAL YEAR OF 12 YEAR SALES

| | TOTAL LINE INCLUDING M/720 | M/721-722 | Difference |
|---|---|---|---|
| Quantity | 239,610 | 253,240 | 13,630 |
| Outside Sales | $ 5,533,946 | $ 5,932,046 | $ 398,100 |
| Factory Costs | | | |
| Direct Material | 772,377 | 859,878 | (87,501) |
| Direct Labor | 714,998 | 760,030 | (45,032) |
| Expense | | | |
| Direct & Indirect | 2,367,473 | 2,374,498 | (7,025) |
| Fixed | 238,412 | 238,412 | ----- |
| Total Expense | 2,605,885 | 2,612,910 | (7,025) |
| Total Factory Cost | $ 4,093,260 | $ 4,232,818 | $ (139,558) |
| Inventory Adjustment | $ 81,864 | $ 84,656 | $ (2,792) |
| Deferred Tooling Cost | 184,769 | 196,917 | (12,148) |
| Total Factory Cost | $ 4,359,893 | $ 4,514,391 | $ (154,498) |
| General and Administrative | $ 889,807 | $ 889,807 | ------ |
| Commercial Cost | $ 5,249,700 | $ 5,404,198 | $ (154,498) |
| Gross Profit or (loss) | $ 284,246 | $ 527,848 | $ 243,602 |

~~Less: Depreciation & Design~~

~~Est. Savings Before All Other Expense & Federal Taxes~~ ~~209,288~~ ~~145,674~~

Less: 8% All Other Expense ~~16,743~~ 19488

Estimated Savings Before Federal Taxes ~~192,545~~ 224114

Less: 35% Federal Income Taxes ~~67,391~~ 78440

Prospective Net Savings (Normal Year) ~~125,154~~ 145674

* Total Estimated Expenditures excluding* 401,527 equipment 711,643

Net % Return ~~17.6%~~ 20.5%

Total Estimated Expenditure including $150,000 of equipment 861,643

Net % Return 16.9%

ml 9/11/47

* This is on the basis that all equipment scheduled in this project of $401,527 was of a general use and would have to be purchased on a necessity basis at a reasonably early date.

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R2527340

Last Sheet

# Demil Estimate of Expenditures

M/721-722 (PROJECT FD-721)
~~Model 7 (Shotguns)~~
(For Part II)

| | Total Requirements to Complete | Amount Authorized | Amount Expended to 8/31/47 | Balance Unexpended 8/31/47 | Amount Requested This Part |
|---|---|---|---|---|---|
| Development (FD-721-1) | $ 325,295 | $ 225,343 | $ 265,144 | $ (39,801) | $ 99,952 |
| Design | 67,810 | 60,985 | 55,799 | 5,186 | 6,825 |
| Investigation | 1,061 | 1,048 | 551 | 497 | 13 |
| Design | 15,616 | 15,408 | 14,158 | 1,250 | 208 |
| Design Revisions | 33,053 | 27,237 | 23,958 | 3,279 | 5,816 |
| Model Making | 18,080 | 17,292 | 17,132 | 160 | 788 |
| Specifications | 28,900 | 27,370 | 18,625 | 8,745 | 1,530 |
| Testing | 20,687 | 19,385 | 11,001 | 8,384 | 1,302 |
| Specifications | 8,213 | 7,985 | 7,624 | 361 | 228 |
| Product Engineering | 124,650 | 86,103 | 106,160 | (20,057) | 38,547 |
| Process Engineering | 94,700 | 68,337 | 84,509 | (16,172) | 26,363 |
| Trial Run | 29,950 | 17,766 | 21,651 | (3,885) | 12,184 |
| Tooling Revisions | 82,335 | 29,835 | 68,367 | (38,532) | 52,500 |
| Tool Design Revisions | 35,400 | 13,400 | 33,381 | (19,981) | 22,000 |
| Tool Revisions | 46,935 | 16,435 | 34,986 | (18,551) | 30,500 |
| Administrative | 21,600 | 21,050 | 16,193 | 4,857 | 550 |
| Engineering Files | 5,219 | 6,600 | 5,368 | 1,232 | (381) |
| Project Engineering | 15,381 | 14,450 | 10,825 | 3,625 | 931 |
| Contingencies | | | | | |
| Tooling (FD-721-2) | 299,875 | 290,201 | 263,399 | 26,802 | 9,674 |
| Design | 96,075 | 89,092 | 84,444 | 4,648 | 6,983 |
| Tools | 203,800 | 201,109 | 178,955 | 22,154 | 2,691 |
| Special Machinery (FD-721-3) | --- | --- | --- | --- | --- |
| Standard Machinery (FD-721-4) | 374,527 | 374,527 | 375,465 | (938) | --- |
| Production Aids (FD-721-5) | 27,000 | 24,819 | 26,507 | (1,688) | 2,181 |
| Pilot Operations (FD-721-6) | 86,473 | 58,007 | 74,943 | (16,936) | 28,466 |
| Quality Audit | 3,230 | 6,766 | 2,831 | 3,935 | (3,536) |
| Methods Engineering | 1,460 | 1,900 | 1,210 | 690 | (440) |
| Machine Changes & Additions | 10,060 | 4,114 | 5,025 | (911) | 5,946 |
| Machine Rearrangement | 1,900 | 2,690 | 1,932 | 758 | (790) |
| Pilot Lot Manufacture | 61,823 | 44,065 | 59,548 | (15,483) | 17,758 |
| Tool Replacement | 8,000 | 5,528 | 4,672 | 856 | 2,472 |
| Credit for O.K. Guns | --- | (7,056) | (275) | (6,781) | 7,056 |
| Total | $ 1,113,170 | $ *972,897 | $ 1,005,458 | $ (32,561) | $ 140,273 |
| ~~Total of 1,2,3&6(Basis For Economics)~~ | ~~$ 711,417~~ | ~~$ 583,881~~ | ~~$ 604,705~~ | ~~$ (20,824)~~ | ~~$ 106,712~~ |

ml 9/11/47

* Includes:
FD 721 Pt I authorized for * 897,373
AD 721 Pt I " " * 75,524
Total 972,897

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Oral

TABLE III

SAVINGS CALCULATION
MODEL 720 vs. MODEL 721-722

BASED ON NORMAL YEAR OF 12 YEARS SALES

| | MODEL 720 Unit | MODEL 720 Total | MODEL 721 Unit | MODEL 721 Total | Model 722 Unit | Model 722 Total | M/721-722 vs. M/720 Gain or (Loss) |
|---|---|---|---|---|---|---|---|
| Quantity | | 2,000 | | 11,930 | | 3,700 | 13,630 |
| Outside Sales | $58.65 | $117,300 | $33.60 | $400,848 | $30.96 | $114,552 | $398,100 |
| Direct Material | 4.[illegible] | 8,780 | 6.16 | 73,[illegible] | 6.16 | 22,792 | (87,501) |
| Direct Labor | 1[illegible] | [illegible],900 | 5.05 | 60,[illegible]47 | 5.05 | 18,685 | (45,032) |
| Industrial Relations 15.6% | 2.[illegible] | [illegible],288 | .79 | [illegible],[illegible]98 | .79 | 2,915 | (7,025) |
| Inventory Adjustment (on above) 2% | .48 | 959 | .24 | 2,863 | .24 | 888 | (2,792) |
| Deferred Tooling Cost | [illegible].02 | 17,840 | 1.92 | 22,889 | 1.92 | 7,099 | (12,148) |
| Sub Total | [illegible].38 | 66,767 | 14.16 | 168,886 | 14.16 | 52,379 | (154,498) |
| Out of Pocket Gain | 25.27 | 50,533 | 19.44 | 231,962 | 16.80 | 62,173 | 243,602 |
| Less Development [illegible] Design Cost (1/12 of [illegible],768) | | | | | | | 34,314 |
| Est. Savings before all other Expenses and Federal Taxes | | | | | | | 209,288 |
| Less 8% all other Expense | | | | | | | 16,743 |
| Est. Savings before Federal Taxes | | | | | | | 192,545 |
| Less 35% Federal Income Taxes | | | | | | | 67,391 |
| Prospective Net Savings (Normal Year) | | | | | | | 125,154 |
| Total Estimated Expenditure | | | | | | | 711,643 |
| Net % Return | | | | | | | 17.6% |

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R2527342

1st sheet

REMINGTON ARMS COMPANY, INC.

Estimated Earnings and Return on Investment

PROJECT NO. FB-721 - Ilion WORKS

Category - Established Product

| | |
|---|---|
| Net Earnings - Model 721 | $ ~~125,184~~ |
| Total Estimated Expenditure | ~~771,643~~ |
| Net % Return | ~~16.2%~~ |
| Appropriation Request | $ 1,~~113,170~~ |
| ~~Permanent Investment in Ilion before R&M~~ | ~~6,357,530~~ |
| ~~Estimated Expenditure - Balance R & M Program~~ | |
| Total Estimated Expenditure on R & M | $ 7,470,700 |
| ~~Add: Present Investment~~ | 16,882,127 |
| Total before Retirements | $ 14,352,827 |
| Retirements & depreciation and charges to operation | |
| Working Capital | 2,901,817 |
| Grand Total | $ 17,254,644 |
| Less: Write-off - Expenditure & Present Investment to be retired | 7,074,635 |
| Total Investment after R & M Program | $ 10,180,009 |
| Portion of [redacted] Total Applicable to Model 721-722 (before retirements) | $ 1,571,898 |
| " " " Retirement " " " " | |
| Portion of Total Investment After R & M Applicable to Model 721-722 | 927,429 |
| % Return on Grand Total* | 7.96% |
| % Return on Total Investment 721-722 | 13.49% |

*Return cannot be considered individually because of tie-in with other models.

ml 9/11/47

Portion applicable to 721-722
Investment before retirements
" " after "

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R2527343

TECHNICAL DEPARTMENT ARMS DEVELOPMENT PROJECT

Plant Ilion — Project No. FD-721 — No. I
Division Arms — Date of First Issue Sept. 17, 1946
Section Design and Engineering — Revised Issue No. 1 — Date Oct. 17, 1946

Proposed Expenditures (This Part) $42,704

| | Dist. | Previous Parts | This Part | Total |
|---|---|---|---|---|
| Development | Oper."C" | $194,974 | $72,091 | $267,065 |
| Tooling | P. I. | 132,300 | 46,009 | 178,309 |
| Special Mach. | Oper."B" | 0 | 0 | 0 |
| Standard Mach. | P. I. | 471,838 | (97,311) | 374,527 |
| Standard Mach. | Depr. | 0 | 0 | 0 |
| Production Aids | P. I. | 20,059 | 0 | 20,059 |
| Production Aids | Depr. | 280 | 0 | 280 |
| Production Aids | Oper. | 4,310 | 0 | 4,310 |
| Production Aids | Res. for Tools | 170 | 0 | 170 |
| Pilot Operations | Oper."C" | 30,738 | 21,915 | 52,653 |
| Total | | $854,669 | $42,704 | $897,373 |

| | |
|---|---|
| Plant Inc. | $569,959.52 |
| Operations: | |
| Plant | $ 4,310.00 |
| Cat. B | $ 0 |
| Cat. C. | $319,718.00 |
| Total Oper. | $324,028.00 |
| Depreciation | $ 3,215.48 |
| Res. for Tools | $ 170.00 |
| Total | $897,373.00 |

| Recapitulation: | This Part | Total Expenditure | Total Adjustment | Total Total |
|---|---|---|---|---|
| Plant Increase | $(51,302) | $572,895 | *$(2,935.48) | $569,959.52 |
| Operations | 94,006 | 324,028 | | 324,028.00 |
| Depreciation | 0 | 280 | 2,935.48 | 3,215.48 |
| Reserve for Tools | 0 | 170 | 0 | 170.00 |
| Total | $ 42,704 | $897,373 | 0 | $897,373.00 |

* Write-off of five worn obsolete type of machines used for cutter sharpeners. (See schedule in Project FI-172.)

TITLE: MODEL 721-722 BOLT ACTION HIGH POWER CENTER FIRE RIFLE

To be commenced on approval — H. J. Hackman (Prepared by)
To be completed April, 1947 — W. Holloway (Issued by)
This Project is - included in the approved Technical Dept. Program and Budget.

Those examining Project for information please initial.
Those examining Project for approval please sign.

| Initial | Date | Signature | Date | Signature | Date |
|---|---|---|---|---|---|
| | | | | | |
| | | H. A. Brown | 9/17 | | |
| | | G. O. Clifford | 9/18 | | |
| | | R. D. Jack | -- | | |
| | | | | AUTHORIZED by the Board of Directors | |
| | | | | Sept. 27, 1946 | |

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TECHNICAL DEPARTMENT ARMS DEVELOPMENT PROJECT

Plant Ilion — Project No. FD-721 — Part No. I
Division Arms — Date of First Issue Sept. 17, 1946
Section Design and Engineering — Revised Issue No. - — Date -

Proposed Expenditures (This Part) $43,334

| | Dist. | Previous Parts | This Part | Total |
|---|---|---|---|---|
| Development | Oper."C" | $194,974 | $ 72,091 | $267,065 |
| Tooling | P. I. | 132,300 | 46,009 | 178,309 |
| Special Mach. | Oper."B" | 0 | 0 | 0 |
| Standard Mach. | P. I. | 471,208 | (96,681) | 374,527 |
| Standard Mach. | Depr. | 0 | 0 | 0 |
| Production Aids | P. I. | 24,819 | 0 | 24,819 |
| Pilot Operations | Oper."C" | 30,738 | 21,915 | 52,653 |
| Total | | $854,039 | $ 43,334 | $897,373 |

| | |
|---|---|
| Plant Inc. | $577,655 |
| Operations: | |
| Cat. B | $ 0 |
| Cat. C | $317,718 |
| Total Oper. | $317,718 |
| Depreciation | $ 0 |
| Total | $897,373 |

| Recapitulation: | This Part | Total Expenditure | Total Adjustment | Total |
|---|---|---|---|---|
| Plant Increase | $(50,672) | $577,655 | $ 0 | $577,655 |
| Operations | 94,006 | 319,718 | 0 | 317,718 |
| Depreciation | 0 | 0 | 0 | 0 |
| Total | $ 43,334 | $897,373 | $ 0 | $897,373 |

TITLE: MODEL 721-722 BOLT ACTION HIGH POWER CENTER FIRE RIFLE

To be commenced on approval — H. J. Hackman (Prepared by)

To be completed April, 1947 — W. Holloway (Issued by)

This Project is - included in the approved Technical Dept. Program and Budget.

Those examining Project for information please initial.
Those examining Project for approval please sign.

| Initial | Date | Signature | Date | Signature | Date |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | AUTHORIZED: | |

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R2527345

PROJECT

MODEL 721-722 BOLT ACTION HIGH POWER CENTER FIRE RIFLE

PART I

INTRODUCTION:

In order to clarify the control of expenditures and to allocate charges to the several classifications of an Arms Development project, a procedure has been compiled and approved which places the responsibility for all phases of the work in the Technical Department. This project is presented to activate this new policy and to request additional funds to complete the development of the M/721-722 rifle.

At the present time, projects totaling $854,039 have been authorized to cover the development of this arm. These are listed as follows:

| | | |
|---|---|---|
| FTD-151 | Design & Engineering of M/721-722 Rifle | $225,712 |
| FI-123 | Tooling | 132,300 |
| FTI-5 | Machinery & Equipment | 424,913 |
| FI-172 | Purchase Tool Sharpening Equipment | 7,800 |
| FI-171 | Purchase Tocco Induction Heating Unit | 12,225 |
| FI-173 | Cuprodine & Deplate Facilities | 6,270 |
| FI-160 | Additional Equipment for M/721 Production | 20,000 |
| FI-180 | Material Handling Equipment | 21,000 |
| FI-178 | Purchase Comparator | 3,819 |
| Total | | $854,039 |

Funds provided by these projects have been reallocated to the proposed project FD-721 and distributed as follows:

| | | |
|---|---|---|
| FD-721-1 | Development | $194,974 |
| FD-721-2 | Tooling | 132,300 |
| FD-721-3 | Special Machinery | 0 |
| FD-721-4 | Standard Machinery | 471,208 |
| FD-721-5 | Production Aids | 24,819 |
| FD-721-6 | Pilot Operations | 30,738 |
| Total | | $854,039 |

Allocation of these funds in accordance with the procedure has been made as indicated by Table I attached. A survey of the estimated requirements to complete the development of this arm in the

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five calibers now planned, namely, .300 H & H Magnum, .300 Savage, .30-06 Springfield, .257 Rem. Roberts and .270 Winchester, indicates the need for an additional $43,334.

This increase over previous estimates has been caused, in part, by each of the following:

1. The M/721 being the first of the new guns on the Development Program has absorbed considerable excess expense due to lack of experience in the application of new types of machines and methods and has covered much of the expense of setting up procedures and methods of operation which will ultimately benefit succeeding models.
2. The initial shipments of purchased parts from outside vendors have resulted in a rather high rate of rejections, necessitating additional Technical assistance to obtain the required quality.
3. Many items of expense not previously charged to the development of a new model and not contemplated in past estimates have now been properly included in this project.

   In addition to the increased development cost, a check of raw material, purchased part and labor costs indicates further increases in these categories, all having an adverse effect on the economics of the arm. A re-evaluation using all latest information reduces the Net Return on the Expenditure for the average year from 40.6% to 22.7%.

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DESCRIPTION OF PROPOSED WORK:

It is proposed to complete the development work for the five calibers listed above in accordance with the attached schedule. It was originally intended that the .220 Swift and the .22 Hornet would be included in this model, but the cost to make the necessary changes to adapt these cartridges to the M/721 did not appear justified.

Consideration is now being given to three other calibers: namely, the .280 Remington, the .224 Remington and the .222 Remington. The cost and economics of including these cartridges in the model will be presented in a Part II to this project.

COST OF PROPOSED WORK:

Funds requested herewith constitute estimated requirements to complete the development of this arm, in addition to funds already authorized. Additional authorization required to complete the five calibers is estimated at $43,334, to be allocated as indicated in Table I attached hereto.

The expenditure forecasted in the 1946 Arms Division Budget to cover Development and Pilot Operations only was $171,004. Under this project, requirements for the same activities to be performed during the year 1946 amount to $206,151, exceeding the budget by $35,147.

PATENT SITUATION:

A survey of the pertinent classes of patents indicates no infringement or probable patentable novelty.

REMARKS:

It will be noted from Table I that an additional $43,334 is required to complete the five calibers in this arm. However, the

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classifications on which the economics are based have been increased by $140,015. This reduction in the overall authorization requirements is caused by an underrun of $96,681 in the Standard Machinery category.

A comparison of the funds provided by the R & M re-estimate of 5/1/56 and those now required for the Development, Tooling, Special Machinery and Pilot Operations shows an increase of approximately $140,000. No direct comparison by individual models can be made in the Standard Machinery category. However, a recent check estimate of the total funds required for new machinery indicates no reduction in the overall funds required. Therefore, it is believed this request will exceed the R & M re-estimate by approximately $140,000.

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FD-721-732 (PROJECT FD-721)

TABLE 4
(For Part I)

| | Total Requirements to Complete | Amount Authorized | Amount Expended to September 10, 1946 | Balance Unexpended September 10, 1946 | Amount Requested |
|---|---|---|---|---|---|
| Development (FD-721-1) | $267,065 | $194,97[illegible] | $204,397 | $(9,423) | $ 72,091 |
| Design | 18,175 | 11,1[illegible] | 13,175 | (2,020) | 7,020 |
| Investigation | 538 | 538 | 538 | (5) | 5 |
| Design | 13,008 | 12,[illegible]10 | 13,008 | (598) | 598 |
| Design Revisions | 20,737 | 13,672 | 16,037 | (2,365) | 7,065 |
| Model Making | 13,892 | 11,5[illegible]0 | 13,592 | 948 | (648) |
| Specifications | 18,970 | 20,[illegible]97 | 15,180 | 5,817 | (2,027) |
| Testing | 11,685 | 10,375 | 8,815 | 1,490 | 1,380 |
| Specifications | 7,285 | 10,[illegible]12 | 6,365 | 4,327 | (3,407) |
| Product Engineering | 78,453 | 47,[illegible]02 | 54,990 | (7,128) | 30,591 |
| Process Engineering | 61,937 | 41,[illegible]62 | 49,945 | (8,083) | 20,075 |
| Trial Run | 16,516 | 6,000 | 5,045 | 955 | 10,516 |
| Tool Design | 105,517 | 82,[illegible]00 | 84,778 | (2,018) | 22,757 |
| Tool Design | 73,017 | 70,2[illegible]0 | 76,578 | (6,318) | 7,757 |
| Tool Design Revisions | 12,500 | 12,5[illegible]0 | 6,455 | 6,045 | 0 |
| Tool Revisions | 15,000 | 0 | 1,745 | (1,745) | 15,000 |
| Administrative | 15,950 | 2,2[illegible]0 | 6,274 | (4,074) | 13,750 |
| Engineering Files | 5,700 | 2,2[illegible]0 | 3,024 | (824) | 3,500 |
| Project Engineering | 10,250 | 0 | 3,250 | (3,250) | 10,250 |
| Contingencies | 0 | 0 | 0 | 0 | 0 |
| Tooling (FD-721-2) | 178,309 | 132,3[illegible]0 | 142,809 | (10,50[illegible]) | 46,009 |
| Special Machinery (FD-721-3) | 0 | 0 | 0 | 0 | 0 |
| Standard Machinery (FD-721-4) | 374,527 | [illegible]71,2[illegible] | 338,222 | 132,986 | (96,681) |
| Production Aids (FD-721-5) | 24,819 | [illegible] | 17,398 | 7,421 | 0 |
| Pilot Operations (FD-721-6) | 52,653 | 30,[illegible] | 22,024 | 8,714 | 21,915 |
| Quality Audit | 6,366 | [illegible] | 1,416 | (1,416) | 6,366 |
| Methods Engineering | 1,650 | 0 | 0 | 0 | 1,650 |
| Machine Changes & Additions | 4,114 | 0 | 0 | 0 | 4,114 |
| Machine Rearrangement | 2,690 | [illegible] | 534 | (534) | 2,690 |
| Pilot Lot Manufacture | 38,715 | 30,73[illegible] | 11,0[illegible]6 | 10,892 | 7,977 |
| Tool Replacement | 3,528 | 2[illegible] | 228 | (228) | 3,528 |
| Credit for OK Guns | (4,410) | [illegible] | 0 | 0 | (4,410) |
| Total | $897,373 | $854,03[illegible] | $724,850 | $129,19[illegible] | $ 43,334 |
| Total of 1, 2, 3, & 6 (Basis for Economics) | $498,027 | $358,01[illegible] | $36[illegible],230 | $(11,218) | $140,015 |

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R2527350

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TABLE II
COMPUTATION OF GROSS PROFIT OR LOSS
MODEL 720 VS. MODEL 721-722
(1947-1958 INCLUSIVE)

| | 3rd Post War Year 1947 | 4th Post War Year 1948 | 5th Post War Year 1949 | Normal Post War Year 1950 | 1951-1958 | 12 Year Total 1947-1958 | 3rd Post War Year 1947 | 4th Post War Year 1948 | 5th Post War Year 1949 | Normal Post War Year 1950 | 1951-1958 | 12 Year Total 1947-1958 | Differences |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Quantity | 303,300 | 321,655 | 249,055 | 217,150 | 1,737,200 | 2,828,360 | 320,250 | 338,455 | 260,355 | 228,950 | 1,831,600 | 2,979,610 | 151,250 |
| Outside Sales | $6,453,853 | $7,054,934 | $5,422,762 | $4,650,205 | $37,201,840 | $60,783,594 | $6,823,842 | $7,441,062 | $5,673,653 | $4,927,701 | $39,421,608 | $64,287,866 | $3,504,472 |
| Factory Costs: | | | | | | | | | | | | | |
| Direct Material | 456,277 | 740,136 | 562,866 | 513,604 | 4,108,832 | 6,383,715 | 559,364 | 838,080 | 629,767 | 581,670 | 4,653,360 | 7,262,241 | 878,526 |
| Direct Labor | 1,211,171 | 1,060,770 | 818,614 | 599,088 | 4,792,704 | 8,482,347 | 1,212,986 | 1,072,154 | 821,905 | 610,194 | 4,881,552 | 8,598,773 | 116,426 |
| Expense - Direct & Indirect | 2,517,839 | 2,209,793 | 2,011,984 | 1,998,816 | 15,990,528 | 24,758,960 | 2,548,117 | 2,211,558 | 2,012,494 | 2,000,538 | 16,004,304 | 24,777,011 | 18,051 |
| Fixed Expense | 268,982 | 285,052 | 271,829 | 252,816 | 2,022,528 | 3,101,207 | 268,982 | 285,052 | 271,829 | 252,816 | 2,022,528 | 3,101,207 | --- |
| Total Expense | 2,816,821 | 2,494,845 | 2,283,813 | 2,251,632 | 18,013,056 | 27,860,167 | 2,817,099 | 2,496,610 | 2,284,323 | 2,253,354 | 18,026,832 | 27,878,218 | 18,051 |
| Total | 4,186,269 | 4,295,751 | 3,665,293 | 3,364,324 | 26,914,592 | 42,726,229 | 4,589,431 | 4,406,844 | 3,735,995 | 3,445,218 | 27,561,744 | 43,739,232 | 1,013,003 |
| Inventory Adjustment | 134,588 | 128,873 | 109,959 | 67,286 | 538,288 | 978,994 | 137,683 | 132,205 | 112,080 | 68,904 | 551,232 | 1,002,104 | 23,110 |
| Deferred Tooling Cost | 231,500 | 176,619 | 120,018 | 107,137 | 857,096 | 1,492,370 | 220,541 | 171,675 | 115,002 | 105,581 | 844,618 | 1,456,447 | (35,923) |
| Factory Cost | 4,852,357 | 4,601,243 | 3,895,270 | 3,538,747 | 28,309,976 | 46,197,593 | 4,947,655 | 4,710,724 | 3,962,077 | 3,619,703 | 28,957,621 | 46,197,783 | 1,000,190 |
| General & Administrative | 1,023,576 | 1,116,159 | 858,559 | 746,667 | 5,973,336 | 9,718,297 | 1,023,576 | 1,116,159 | 858,559 | 746,667 | 5,973,336 | 9,718,297 | --- |
| Commercial Cost | 5,875,933 | 5,717,402 | 4,753,829 | 4,285,414 | 34,283,312 | 55,915,890 | 5,971,231 | 5,826,883 | 4,820,636 | 4,366,370 | 34,930,960 | 55,916,080 | 1,000,190 |
| Profit (or Loss) | $ 577,920 | $1,337,532 | $ 668,933 | $364,791 | $2,918,328 | $5,867,504 | $852,611 | $1,614,179 | $853,017 | $561,331 | $ 4,490,648 | $8,371,786 | $2,504,282 |

| | Twelve Years Including Amortization of Development and Design Cost. | Normal Year Savings |
|---|---|---|
| Gross Savings (Before Development & Design Costs) | $2,504,282 | $196,540 |
| Less Development and Design Cost | 319,718 | 26,643 |
| Gross Savings (After Development and Design Costs) | 2,184,564 | 169,897 |
| Less 4.6% Undistributed Expense | 100,490 | 7,815 |
| Net Savings (Before Federal Taxes | 2,084,074 | 162,082 |
| Less 35% Federal Taxes | 729,426 | 56,729 |
| Net Savings - 12 Years | 1,354,648 | |
| Net Savings - Average Year | 112,887 | 105,353 |
| Total Expenditure | $ 498,027 | $498,027 |
| Net % Return on Expenditure | 22.7% | 21.2% |

R2527351

# TABLE III

## SAVINGS CALCULATION

## MODEL 720 VS. MODEL 721-722

Based on Normal Year of 12-Year Calculation

| | MODEL 720 UNIT | MODEL 720 TOTAL | MODEL 721-722 UNIT | MODEL 721-722 TOTAL | M/721-722 vs. M/720 GAIN OR(LOSS) |
|---|---|---|---|---|---|
| Quantity | | 2,000 | | 13,800 | 11,800 |
| Outside Sales | $53.21 | $106,420 | $27.82 | $383,916 | $ 277,496 |
| Direct Material | 2.33 | 4,660 | 5.27 | 72,726 | (68,066) |
| Direct Labor | 15.63 | 31,260 | 3.07 | 42,366 | (11,106) |
| Industrial Relations | 2.42 | 4,845 | .48 | 6,567 | (1,722) |
| Inv. Adj. (On Above) | .41 | 815 | .17 | 2,433 | (1,618) |
| Deferred Tool Cost | 8.92 | 17,840 | 1.18 | 16,284 | 1,556 |
| Sub-Total | $29.71 | $ 59,420 | $10.17 | $140,376 | $ (80,956) |
| Out-of-Pocket Gain | $23.50 | $ 47,000 | $17.65 | $243,540 | $ 196,540* |

| | |
|---|---|
| Less: Development & Design Cost (1/12 x $319,718) | 26,643 |
| | $ 169,897 |
| Less: All Other Expenses (4.6%) | 7,815 |
| Prospective Savings (before Federal Income Taxes) | $ 162,082 |
| Less: Federal Income Taxes (35%) | 56,729 |
| Prospective Net Savings | $ 105,353 |
| Estimated Total Expenditure | $ 498,027 |
| % Net Return on Expenditure | 21.2% |

* Increase in Gross Profit of Normal Year of computation of Gross Profit or Loss, M/720 vs. M/721-722 (Table II)

| | |
|---|---|
| Overall Line Normal Year Gain including M/721-722 | $ 561,331 |
| Overall Line Normal Year Gain including M/720 | $ 364,791 |
| Gain | $ 196,540 |

9/17/46

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
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KINZER V. REMINGTON

# MASTER SCHEDULE
# DEVELOPMENT OF MODELS 721 & 722

| ACTIVITY | 1943 | 1944 | 1945 | 1946 | 1947 | 1948 |
|---|---|---|---|---|---|---|
| Total Project | | | | | | |
| Investigation | $538 | | | | | |
| Prod.Comm.Approval | $0 | $0 | | $0 | $0 | |
| Cost Estimating | $0 | $0 $0 | | $0 | $0 | |
| Design | | | $13,008 | | | |
| Design Revisions | | | | | | $20,737 |
| Model Making | | 3900 | | | $9,992 | |
| Testing | | | 6,851 | $2,581 | | $2,670 |
| Specifications | | | 903 | | | $3,642 |
| Process Engineering | | | 2,725 | | | $23,212 |
| Trial Run | | | | | | $16,516 |
| Tool Design | | | $3% | | $77,934 | |
| Tool Design Revisions | | | | | | $12,500 |
| Tool Revisions | | | | | | $15,000 |
| Engineering Files | | | | | | $3,700 |
| Project Engineering | | | | | | $10,250 |
| Contingencies | None | | | | | |
| Tooling | | | | | $178,309 | |
| Special Machinery | None | | | | | |
| Standard Machinery | | | | | $70,527 | |
| Production Aids | | | | | $24,819 | |
| Material Procurement | | | | | Plant | |
| Quality Audit | | | | | | $6,366 |
| Methods Engineering | | | | | | $1,650 |
| Mach. Changes & Addit. | | | | | $4,114 | |
| Mach. Rearrangement | | | | | $8,690 | |
| Pilot Lot Manufacture | | | | | | $56,715 |
| Tool Replacement | | | | | | $2,528 |
| Credit for OK Guns | | | | | | ($4,410) |
| Component Manufacture | | | | | | Plant |
| Warehouse Production | | | | | | Plant |

R2527353

DATE: 11-25-46

MODEL 721-722

| | START | COMPLETE |
|---|---|---|
| 1. PRODUCT DESIGN | 6-1-43 | 7-11-46 (Frozen) |
| 2. ENGINEERING | 10-1-45 | 1-1-47 |
| 3. MACHINERY PROCUREMENT | 11-1-45 | 11-1-46 |
| 4. RAW MATERIAL PROCUREMENT | 11-1-45 | 12-1-46 |
| 5. TOOLING PROCUREMENT | 11-1-45 | 1-1-47 |
| 6. COMPONENT PROCUREMENT | 11-1-45 | 1-1-47 |
| 7. PILOT LOT | 5-1-46 | 2-1-47 |
| 8. COMPONENT PRODUCTION | 9-1-46 | Continuing |
| 9. COMPONENT PRODUCTION TIME | 4 Mos. | |
| 10. WAREHOUSE PRODUCTION | 2-1-47 | Continuing |
| 11. ASSEMBLY FOR WAREHOUSE STOCK | 4 Mos. | |
| 12. WAREHOUSE STOCK ( 4150 Guns) | | 6-1-47 |
| 13. ANNOUNCEMENT | | 1-1-47 |

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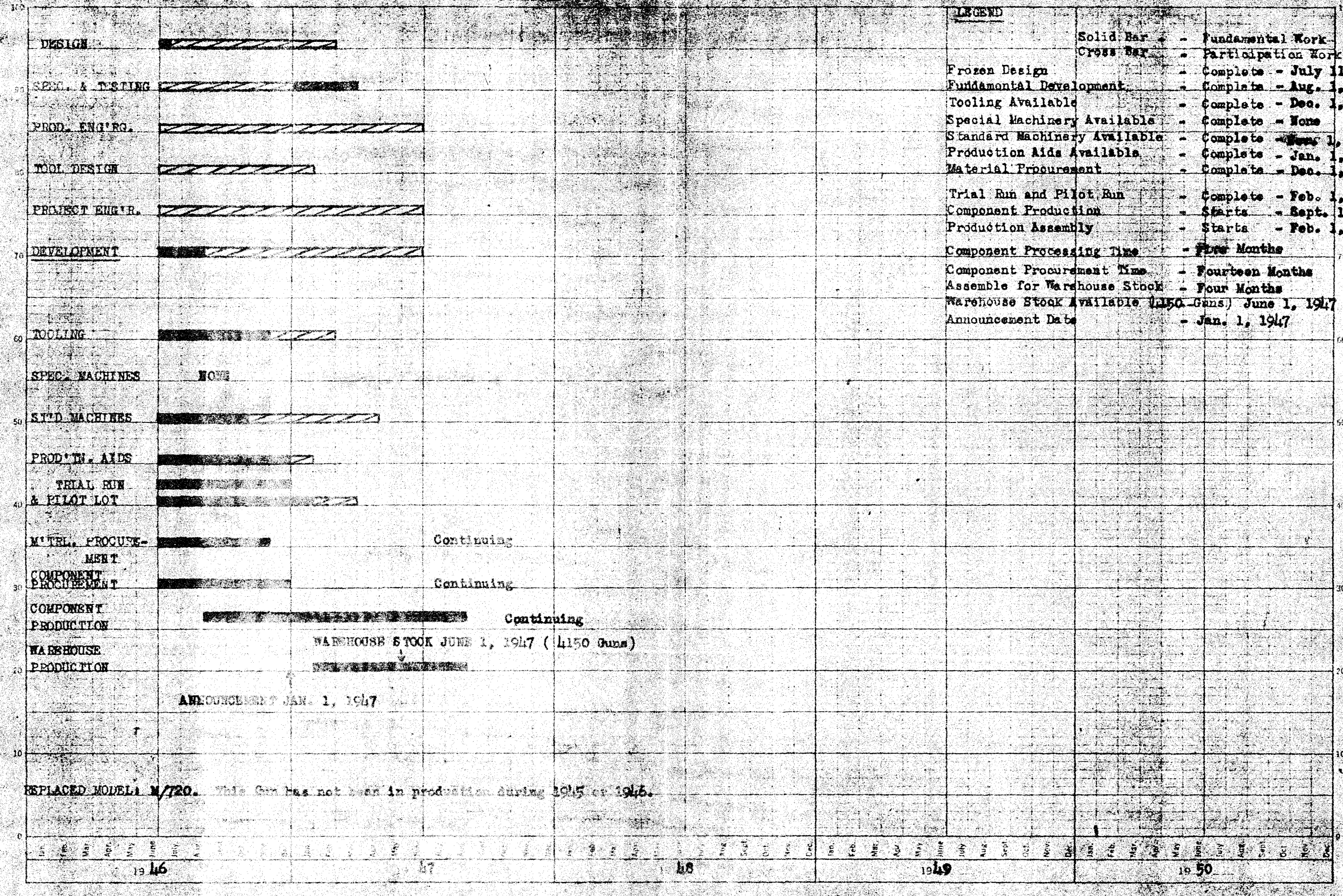
# MODEL 721 BOLT ACTION HIGH POWER RIFLE - SCHEDULE




LEGEND

| | | |
|---|---|---|
| Solid Bar | - | Fundamental Work |
| Cross Bar | - | Participation Work |
| Frozen Design | - | Complete - July 11, 1946 |
| Fundamental Development | - | Complete - Aug. 1, 1946 |
| Tooling Available | - | Complete - Dec. 1, 1946 |
| Special Machinery Available | - | Complete - None |
| Standard Machinery Available | - | Complete - Nov. 1, 1946 |
| Production Aids Available | - | Complete - Jan. 1, 1947 |
| Material Procurement | - | Complete - Dec. 1, 1946 |
| Trial Run and Pilot Run | - | Complete - Feb. 1, 1947 |
| Component Production | - | Starts - Sept. 1, 1946 |
| Production Assembly | - | Starts - Feb. 1, 1947 |
| Component Processing Time | - | Three Months |
| Component Procurement Time | - | Fourteen Months |
| Assemble for Warehouse Stock | - | Four Months |
| Warehouse Stock Available (4150 Guns) | | June 1, 1947 |
| Announcement Date | - | Jan. 1, 1947 |

R2527355

TECHNICAL DEPARTMENT ARMS DEVELOPMENT PROJECT

Plant Ilion — Project No. FD-721 Part No. I
Division Arms — Date of First Issue Sept. 17, 1946
Section Design and Engineering — Revised Issue No. - Date -

**Proposed Expenditures (This Part)** $43,334

| | Dist. | Previous Parts | This Part | Total |
|---|---|---|---|---|
| Development | Oper."C" | $194,974 | $72,091 | $267,065 |
| Tooling | P. I. | 132,300 | 46,009 | 178,309 |
| Special Mach. | Oper."B" | 0 | 0 | 0 |
| Standard Mach. | P. I. | 471,208 | (96,681) | 374,527 |
| Standard Mach. | Depr. | 0 | 0 | 0 |
| Production Aids | P. I. | 24,819 | 0 | 24,819 |
| Pilot Operations | Oper."C" | 30,738 | 21,915 | 52,653 |
| Total | | $854,039 | $43,334 | $897,373 |

| | |
|---|---|
| Plant Inc. | $577,655 |
| Operations: | |
| Cat. B | $ 0 |
| Cat. C | $319,718 |
| Total Oper. | $319,718 |
| Depreciation | $ 0 |
| Total | $897,373 |

| Recapitulation: | This Part | Total Expenditure | Total Adjustment | Total Total |
|---|---|---|---|---|
| Plant Increase | $(50,672) | $577,655 | $ 0 | $577,655 |
| Operations | 94,006 | 319,718 | 0 | 319,718 |
| Depreciation | 0 | 0 | 0 | 0 |
| Total | $ 43,334 | $897,373 | $ 0 | $897,373 |

TITLE: MODEL 721-722 BOLT ACTION HIGH POWER CENTER FIRE RIFLE

To be commenced on approval — H. J. Hackman (Prepared by)
To be completed April, 1947 — W. Holloway (Issued by)

This Project is - included in the approved Technical Dept. Program and Budget.

Those examining Project for information please initial.
Those examining Project for approval please sign.

| Initial | Date | Signature | Date | Signature | Date |
|---|---|---|---|---|---|
| | | H. A. Brown | 9/17 | R. H. Coleman | |
| | | R. W. Hughes | 9/17 | D. F. Carpenter | |
| | | H. K. Faulkner | 9/17 | | |
| | | H. N. Meixner | 9/18 | | |
| | | A. J. Greene | 9/18 | | |
| | | G. O. Clifford | 9/18 | AUTHORIZED by the | |
| | | R. D. Jack | -- | Board of Directors | |
| | | M. R. Warden | -- | SEP 27 1946 | |

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KINZER V. REMINGTON
R2527356

PROJECT

MODEL 721-722 BOLT ACTION HIGH POWER CENTER FIRE RIFLE

PART I

INTRODUCTION:

In order to clarify the control of expenditures and to allocate charges to the several classifications of an Arms Development project, it has been decided to consolidate the various projects for engineering, development, tooling, equipment, etc., into one appropriation request with sub-accounts for the various types of charges. This project is presented to activate this new policy and to request additional funds to complete the development of the M/721-722 rifle.

At the present time, projects totaling $854,039 have been authorized to cover the development of this arm. These are listed as follows:

| | | |
|---|---|---|
| FTD-151 | Design & Engineering of M/721-722 Rifle | $225,712 |
| FI-123 | Tooling | 132,300 |
| FTI-5 | Machinery & Equipment | 424,913 |
| FI-172 | Purchase Tool Sharpening Equipment | 7,800 |
| FI-171 | Purchase Tocco Induction Heating Unit | 12,223 |
| FI-173 | Cuprodine & Deplate Facilities | 6,270 |
| FI-160 | Additional Equipment for M/721 Production | 20,000 |
| FI-180 | Material Handling Equipment | 21,000 |
| FI-178 | Purchase Comparator | 5,819 |
| | Total | $854,039 |

Funds provided by these projects have been reallocated to the proposed project FD-721 and distributed as follows:

| | | |
|---|---|---|
| FD-721-1 | Development | $194,974 |
| FD-721-2 | Tooling | 132,300 |
| FD-721-3 | Special Machinery | 0 |
| FD-721-4 | Standard Machinery | 471,208 |
| FD-721-5 | Production Aids | 24,819 |
| FD-721-6 | Pilot Operations | 30,738 |
| | Total | $854,039 |

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R2527357

Allocation of these funds in accordance with the procedure has been made as indicated by Table I attached. A survey of the estimated requirements to complete the development of this arm in the five calibers now planned, namely, .300 H & H Magnum, .300 Savage, .30-06 Springfield, .257 Rem. Roberts and .270 Winchester, indicates the need for an additional $43,334.

This increase over previous estimates has been caused, in part, by each of the following:

1. The M/721 being the first of the new guns on the Development Program has absorbed considerable excess expense due to lack of experience in the application of new types of machines and methods and has covered much of the expense of setting up procedures and methods of operation which will ultimately benefit succeeding models.
2. The initial shipments of purchased parts from outside vendors have resulted in a rather high rate of rejections, necessitating additional Technical assistance to obtain the required quality.
3. Many items of expense not previously charged to the development of a new model and not contemplated in past estimates have now been properly included in this project.

In addition to the increased development cost, a check of raw material, purchased part and labor costs indicates further increases in these categories, all having an adverse effect on the economics of the arm. The economics were previously calcu-

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R2527358

lated on a forecast of 15,000 guns per normal year, which was based upon supplying seven calibers. It was later found that two of the proposed calibers, the 220 Swift and the 22 Hornet, could not be accommodated in the proposed design. The forecast has accordingly been reduced to 13,800 guns. A re-evaluation using all latest information reduces the Net Return on the Expenditure for the average year from 40.6% to 22.7%.

DESCRIPTION OF PROPOSED WORK:

It is proposed to complete the development work for the five calibers listed above in accordance with the attached schedule.

Consideration is now being given to three other calibers, namely, the .280 Remington, the .224 Remington and the .222 Remington. The cost and economics of including these cartridges in the model will be presented in a Part II to this project.

COST OF PROPOSED WORK:

Funds requested herewith constitute estimated requirements to complete the development of this arm, in addition to funds already authorized. Additional authorization required to complete the five calibers is estimated at $43,334, to be allocated as indicated in Table I attached hereto.

The expenditure forecasted in the 1946 Research Budget to cover Development and Pilot Operations only was $171,004. Under this project, requirements for the same activities to be performed during the year 1946 amount to $206,151. Unless compensating decreases in other items offset this, the budget expenditures may be exceeded by $35,147.

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R2527359

PATENT SITUATION:

A survey of the pertinent classes of patents indicates no infringement or probable patentable novelty.

REMARKS:

It will be noted from Table I that a total additional authorization of $43,334 is required to complete the five calibers in this arm. The engineering and development expenditures are increased by $140,015, while an underrun of $96,681 is anticipated in the Standard Machinery category. Since standard machines are used for other models as well as this one, their cost has not been charged against the individual model, and return on expenditure is calculated against engineering and development items only.

A comparison of the funds provided by the R & M re-estimate of 5/1/46 and those now required for the Development, Tooling, Special Machinery and Pilot Operations shows an increase of approximately $140,000. No direct comparison by individual models can be made in the Standard Machinery category. However, a recent check estimate of the total funds required for new machinery indicates no reduction in the overall funds required. Therefore, it is believed this request will exceed the R & M re-estimate by approximately $140,000.

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R2527360

# TABLE III

## SAVINGS CALCULATION

## MODEL 720 VS. MODEL 721-722

## Based on Normal Year of 12-Year Calculation

| | MODEL 720 UNIT | MODEL 720 TOTAL | MODEL 721-722 UNIT | MODEL 721-722 TOTAL | M/721-722 vs. M/720 GAIN OR(LOSS) |
|---|---|---|---|---|---|
| Quantity | | 2,000 | | 13,800 | 11,800 |
| Outside Sales | $53.21 | $106,420 | $27.82 | $383,916 | $ 277,496 |
| Direct Material | 2.33 | 4,660 | 5.27 | 72,726 | (68,066) |
| Direct Labor | 15.63 | 31,260 | 3.07 | 42,366 | (11,106) |
| Industrial Relations | 2.42 | 4,845 | .48 | 6,567 | (1,722) |
| Inv. Adj. (On Above) | .41 | 815 | .17 | 2,433 | (1,618) |
| Deferred Tool Cost | 8.92 | 17,840 | 1.18 | 16,284 | 1,556 |
| Sub-Total | $29.71 | $ 59,420 | $10.17 | $140,376 | $ (80,956) |
| Out-of-Pocket Gain | $23.50 | $ 47,000 | $17.65 | $243,540 | $ 196,540* |

| | |
|---|---|
| Less: Development & Design Cost (1/12 x $319,718) | 26,643 |
| | $ 169,897 |
| Less: All Other Expenses (4.6%) | 7,815 |
| Prospective Savings (before Federal Income Taxes) | $ 162,082 |
| Less: Federal Income Taxes (35%) | 56,729 |
| Prospective Net Savings | $ 105,353 |
| Estimated Total Expenditure | $ 498,027 |
| % Net Return on Expenditure | 21.2% |

* Increase in Gross Profit of Normal Year of computation of Gross Profit or Loss, M/720 vs. M/721-722 (Table II)

| | |
|---|---|
| Overall Line Normal Year Gain including M/721-722 | $ 561,331 |
| Overall Line Normal Year Gain including M/720 | $ 364,791 |
| Gain | $ 196,540 |

9/17/46

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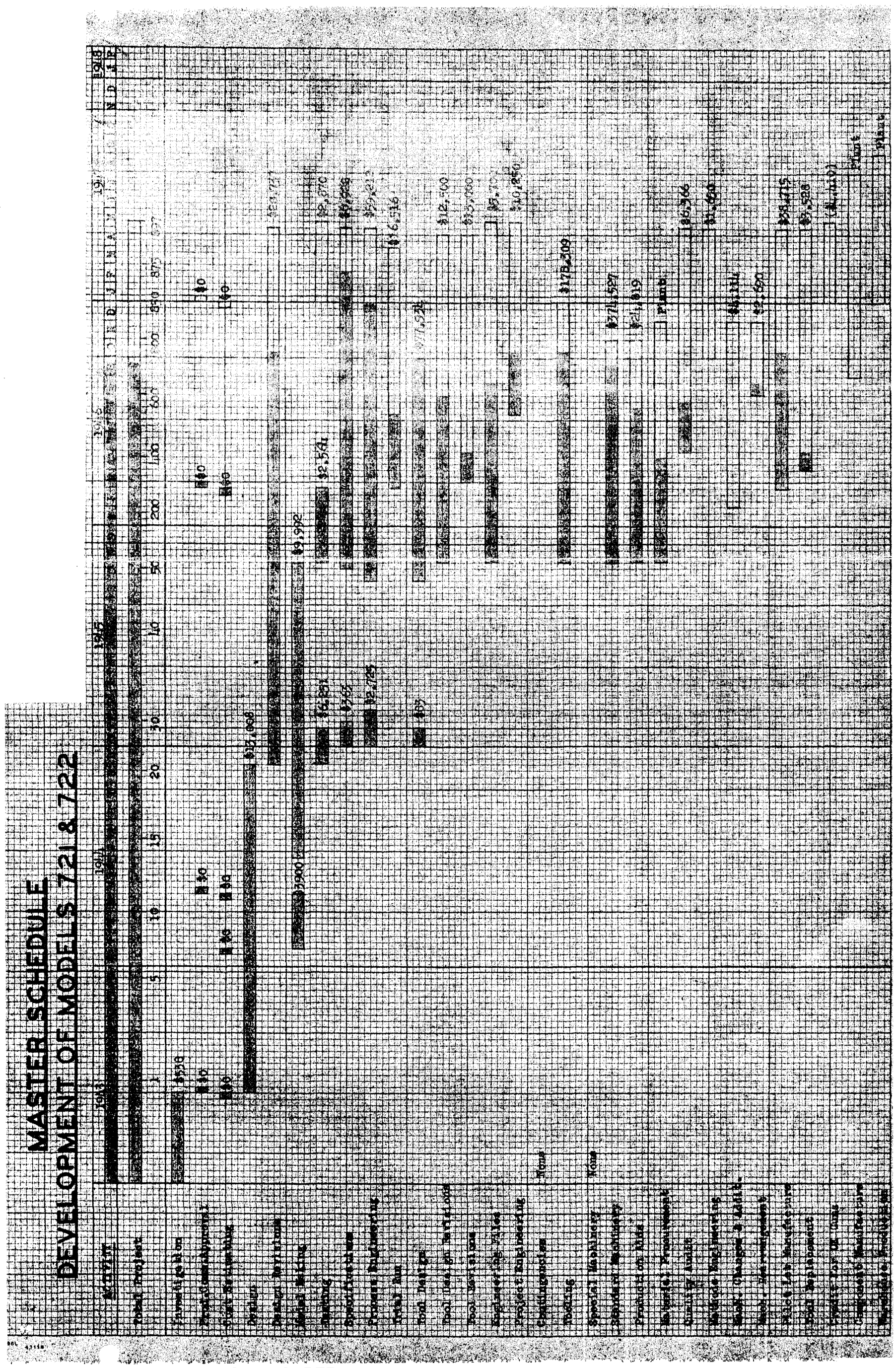
MASTER SCHEDULE
DEVELOPMENT OF MODELS 721 & 722
1918
1919
1920
Plans
Plans
Plans

Form RT-115

ARMS DEVELOPMENT

MASTER WORK ORDER

MODEL 721 NO. FD-721-6

PART I

TITLE MODEL 721-722 BOLT ACTION HIGH POWER CENTER FIRE RIFLE DATE 10-22-46

1. Description of Proposed Work:

To cover work incidental to Pilot Operations, including Quality Audit, Methods Engineering, Machine Changes and Additions, Machine Rearrangement, Pilot Lot Manufacture, Tool Replacement, and Credit for O. K. Gums and Components, as described in Project FD-721 dated 9-17-46.

2. Estimated Cost:

| | Labor | Material |
|---|---|---|
| | $52,653 | |

Total Previously Auth. _____

This Request $52,653

Est. Cost to Complete _____

Total

Requested by H. J. Hackman

Approved

Authorized _____

Date _____

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KINZER V. REMINGTON

CC: J. P. Bilgren
G. W. Radley
J. J. Phillips
Att: G. H. Jordon
R. W. Steel
J. Roberts

Form RT-115

ARMS DEVELOPMENT

MASTER WORK ORDER

MODEL 721 NO. FD-721-6

PART II

TITLE Model 721-722 Bolt Action High Power Center Fire Rifle DATE 10/9/47

1. Description of Proposed Work:

To cover work incidental to Pilot Operations, including Quality Audit, ~~Methods Engineering~~, Machine Changes and Additions, Machine Rearrangement, Pilot Lot Manufacture, and Tool Replacement, as described in FD-721, Part II Authorized September 26, 1947.

2. Estimated Cost: $86, 473.

| | Labor | Material |
|---|---|---|
| Total Previously Auth. | $ 52, 653. | |
| This Request | 33,820. | |
| Est. Cost to Complete | 86,473. | |
| Total | $ 86,473. | |

Requested by [signature] 10/10/47

Approved [signature]

[signature]

Authorized [signature]

Date 10/12/47

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KINZER V. REMINGTON

Form RT-115

CC: R. W. Steele
J. P. Bilgren
G. W. Radley
J. J. Phillips ) In
G. H. Jordan ) Turn
J. A. Roberts

ARMS DEVELOPMENT

MASTER WORK ORDER

MODEL 721 NO. FD-721-6

PART III

TITLE M/721-722 Bolt Action High Power Center Fire Rifle DATE 6/10/48

1. Description of Proposed Work:

To cover work incidental to Pilot Operations, including Quality Audit, Machine Changes & Additions, Machine Rearrangement, Pilot Lot Manufacture, and Tool Replacement, as described in FD-721, Part III authorized 4/30/48.

2. Estimated Cost: $ 83,973.

| | Labor | Material |
|---|---|---|
| Total Previously Auth. | $ 86,473. | |
| This Request | (2,500.) | |
| Est. Cost to Complete | 83,973. | |
| Total | $ 83,973. | |

Requested by H Gilmore

Approved

Authorized

Date

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

Form RT-115

ARMS DEVELOPMENT

MASTER WORK ORDER

MODEL 721 NO. FD-721-5

PART I

TITLE MODEL 721-722 BOLT ACTION HIGH POWER CENTER FIRE RIFLE DATE 10-22-46

1. Description of Proposed Work:

To provide Production Aids, as described in Project FD-721 dated 9-17-46.

2. Estimated Cost:

| | Labor | Material |
|---|---|---|
| | $24,819 | |

Total Previously Auth. _____

This Request $24,819

Est. Cost to Complete _____

Total

Requested by H. J. Hackman

Approved

Authorized _____

Date _____

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

CC: J. P. Bilgren
G. W. Radley
J. J. Phillips
Att: G. H. Jordon
R. W. Steel
J. Roberts

Form RT-115

ARMS DEVELOPMENT

MASTER WORK ORDER

MODEL 721

NO. FD-721-5

PART II

TITLE Model 721-722 Bolt Action High Power Center Fire Rifle

DATE 10/9/47

1. Description of Proposed Work:

To provide Production Aids, a s described in Project FD-721 including Part II authorized September 26, 1947.

2. Estimated Cost: $ 27,000.

| | | Labor | Material |
|---|---|---|---|
| Total Previously Auth. | $ 24,819. | | |
| This Request | 2,181. | | |
| Est. Cost to Complete | 27,000. | | |
| Total | $ 27,000. | | |

Requested by [signature] 10/14/47

Approved [signature]

[signature]

Authorized [signature]

Date 10/14/47.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

Form RT-115

ARMS DEVELOPMENT

MASTER WORK ORDER

MODEL 721 NO. FD-721-4

PART I

TITLE MODEL 721-722 BOLT ACTION HIGH POWER CENTER FIRE RIFLE DATE 10-22-46

1. Description of Proposed Work:

To provide Standard Machinery, as described in Project FD-721 dated 9-17-46.

2. Estimated Cost:

| | Labor | Material |
|---|---|---|
| | $374,527 | |

Total Previously Auth. _____

This Request $374,527

Est. Cost to Complete _____

Total

Requested by E. J. Packman

Approved

Authorized _____

Date _____

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

CC: J. P. Bilgren
G. W. Radley
J. J. Phillips
Att: G. H. Jordon
R. W. Steel
J. Roberts

Form RT-115

ARMS DEVELOPMENT

MASTER WORK ORDER

MODEL 721

NO. FD-721-2

PART II

TITLE Model 721-722 Bolt Action High Power Center Fire Rifle

DATE 10/9/47

1. Description of Proposed Work:

To provide Tooling, including Tool Design as described in Project FD-721 and Part II authorized 9/26/47.

2. Estimated Cost: $ 299,875.

| | Labor | Material |
|---|---|---|
| Total Previously Auth. | $ 178,309. | |
| This Request | 121,566. | |
| Est. Cost to Complete | 299,875. | |
| Total | $ 299,875. | |

Requested by [signature] 10/14/47

Approved [signature]

[signature]

Authorized [signature]

Date 10/17/47

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

Form RT-115

CC: R. W. Steele
J. P. Bilgren
G. W. Radley
J. J. Phillips) In
G. H. Jordan ) Turn
J. A. Roberts

ARMS DEVELOPMENT

MASTER WORK ORDER

MODEL 721 NO. FD-721-2

PART III

TITLE M/721-722 Bolt Action High Power Center Fire Rifle DATE 6/10/48

1. Description of Proposed Work:

To provide Tooling, including Tool Design as described in Project FD-721 including Part III as authorized 4/30/48.

2. Estimated Cost: $ 292,875.

| | Labor | Material |
|---|---|---|
| Total Previously Auth. | $ 299,875. | |
| This Request | (7,000.) | |
| Est. Cost to Complete | 292,875. | |
| Total | $ 292,875. | |

Requested by

Approved

Authorized

Date

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

R2527370

Form RT-115

ARMS DEVELOPMENT

MASTER WORK ORDER

MODEL 721 NO. FD-721-2

PART I

TITLE MODEL 721-722 BOLT ACTION HIGH POWER CENTER FIRE RIFLE DATE 10-22-46

1. Description of Proposed Work:

To provide Tooling, as described in Project FD-721 dated 9-17-46.

2. Estimated Cost:

| | Labor | Material |
|---|---|---|
| | $178,309 | |

Total Previously Auth. _____

This Request $178,309

Est. Cost to Complete _____

Total

Requested by H. J. Hackman

Approved

Authorized _____

Date _____

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

Form RT-115

CC: R. W. Steele
J. P. Bilgren
G. W. Radley
J. J. Phillips) In
G. H. Jordan ) Turn
J. A. Roberts

ARMS DEVELOPMENT

MASTER WORK ORDER

MODEL 721

NO. FD-721-1

PART III

TITLE M/721-722 Bolt Action High Power Center Fire Rifle

DATE 6/10/48

1. Description of Proposed Work:

To cover work incidental to Development, including Design, Specifications, Product Engineering, Tooling Revisions, and Administration including extra calibers but excluding Tool Design as described in Project FD-721 including Part III as authorized April 30, 1948.

2. Estimated Cost $317,625.

| | Labor | Material |
|---|---|---|

| | |
|---|---|
| Total Previously Auth. | $ 325,295. |
| This Request | (7,670.) |
| Est. Cost to Complete | 317,625. |
| Total | $ 317,625. |

Requested by [signature]

Approved [signature]

Authorized

Date

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

Form RT-115

ARMS DEVELOPMENT

MASTER WORK ORDER

MODEL 721 NO. FD-721-1

PART I

TITLE MODEL 721-722 BOLT ACTION HIGH POWER CENTER FIRE RIFLE DATE 10-22-46

1. Description of Proposed Work:

To cover work incidental to Development, including Design, Specifications, Product Engineering, Tool Design, and Administration, as described in Project FD-721 dated 9-17-46.

2. Estimated Cost:

| | Labor | Material |
|---|---|---|
| | $267,065 | |

Total Previously Auth. _____

This Request $267,065

Est. Cost to Complete _____

Total

Requested by H. J. Backman

Approved _____

_____

_____

Authorized _____

Date _____

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

CC: J. P. Bilgren
G. W. Radley
J. J. Phillips
Att: G. H. Jordon
R. W. Steel
J. Roberts
F. /.

Form RT-115

ARMS DEVELOPMENT

MASTER WORK ORDER

MODEL 721 NO. FD-721-1

PART II

TITLE Model 721-722 Bolt Action High Power Center Fire Rifle DATE 10/9/47

1. Description of Proposed Work:

To cover work incidental to Development, including Design, Specifications, Product Engineering, Tooling Revisions, and Administration including extra calibers but excluding Tool Design as described in Project FD-721 including Part II as authorized 9/26/47.

2. Estimated Cost: $ 325,295.

| | Labor | Material |
|---|---|---|
| Total Previously Auth. | $ 267,065. | |
| This Request | 58,230. | |
| Est. Cost to Complete | 325,295. | |
| Total | $ 325,295. | |

Requested by [signature] 10/4/47

Approved [signature]

Authorized [signature]

Date 10/4/47

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

M/M22 - .300 Sav Pilot Line Test

[illegible] In
[illegible]rown) Turn
[illegible] Best
[illegible] Faulaner
[illegible] Grace
[illegible] [illegible]
[illegible]
[illegible] Walker
[illegible] Hunt

[illegible] April 2, 1948

[illegible]

[illegible] interested in this test to [illegible] action and [illegible] while in the [illegible] courtesy and [illegible] functional performance [illegible] Also Lindsay shot this gun [illegible] [illegible] tested as standard ammo.

Results

[illegible] reported, we have the following [illegible] of this gun [illegible] follows:

| Ammo. | Group size - 100 yards |
|---|---|
| 25457 | [illegible] |
| 25418 | 3.3— |
| 25361 | [illegible] |
| 25397 (in our test Gun) | [illegible] rounds) |
| " " | 2.1 (10 rounds) |
| 33468 | 3.2 |
| 24736 | 3.78 |
| 25347 | 2.94 |
| 25412 | 3.1 |

[illegible] conditions at the [illegible] were as follows:

Ammunition: Lot [illegible], [illegible] as tested.
Target 100 yards: [illegible] Power People, [illegible] Rest.
Shooters: H. H. [illegible] J. [illegible]
2 - 10 shot targets per shooter.
Weather - clear, [illegible] wind.

In several of the targets it was [illegible] the bullet [illegible] away" [illegible] cause of this could be [illegible] to the following [illegible]:

[illegible] number.
[illegible] between [illegible]
[illegible]
[illegible]
[

[illegible] grooves [illegible] age, [illegible] ion [illegible] [illegible] [illegible]

[illegible] .357 [illegible] [illegible] [illegible]

Model 722 Pilot Line Test

Date 2/17/48 #24728

| R.T. No. | Rounds Fired | Malfunctions: Firing | Unlocking | Primary Extraction | Secondary Extraction | Ejection | Cocking | Feeding | Loading | Locking | Breakages | Replacements | Gun Failures | Adjustments | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | | | | | | | | | | | | | | Headspace [illegible] |
| | | | | | | | | | | | | | | | [illegible] |
| | | | | | | | | | | | | | | | Jar off test - OK |
| | | | | | | | | | | | | | | | [illegible] 12 8 |
| | | | | | | | | | | | | | | | 13 7 |
| | | | | | | | | | | | | | | | 12 6½ |
| | | | | | | | | | | | | | | | 12 7 |
| | | | | | | | | | | | | | | | 12½ 7 |
| | 0- 30 | | | | | 1 | | | | | | | | | 8th rd blowd |
| | 31- 60 | | | | | 1 | | | | | | | | | 47th " " |
| | 61- 90 | | | | | 1 | | | | | | | | | 85th " " |
| | | | | | | 1 | | | | | | | | | 86th " " |
| | 91- 120 | | | | | 1 | | | | | | | | | 94th " " |
| | | | | | | 1 | | | | | | | | | 95th " " |
| | | | | | | 1 | | | | | | | | | 110th " " |

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

Model 722

Date 2/17/48

Pilot [illegible] test

#25347

| T. No. | Rounds Fired | Malfunctions: Firing | Unlocking | Primary Extraction | Secondary Extraction | Ejection | Cocking | Feeding | Loading | Locking | Breakages | Replacements | Gun Failures | Adjustments | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | | | | | | | | | | | | | | [illegible] Max OK |
| | | | | | | | | | | | | | | | [illegible] OK |
| | | | | | | | | | | | | | | | [illegible] OK |
| | | | | | | | | | | | | | | | Bolt Opening [illegible] 6 |
| | | | | | | | | | | | | | | | [illegible] 6 |
| | | | | | | | | | | | | | | | " 6 |
| | | | | | | | | | | | | | | | " 6 |
| | | | | | | | | | | | | | | | " 6 |
| | 0 - 30 | | | | | 1 | | | | | | | | | 15th [illegible] |
| | | | | | | 1 | | | | | | | | | [illegible] " |
| | 31 - 60 | | | | | 1 | | | | | | | | | 31st " " |
| | | | | | | 1 | | | | | | | | | 34th " " |
| | | | | | | 1 | | | | | | | | | 47th |
| | | | | | | 1 | | | | | | | | | 48th " " |
| | 61 - 90 | | | | | 1 | | | | | | | | | 62nd " " |
| | | | | | | 1 | | | | | | | | | 85th " " |
| | 91 - 120 | | | | | 1 | | | | | | | | | 93rd " " |
| | | | | | | 1 | | | | | | | | | 117th " " |

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

Model 722 Pilot Final Test

Date 2117148 # 25361

| R.T. No. | Rounds Fired | Malfunctions | | | | | | | | | | Breakages | Replacements | Gun Failures | Adjustments | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Firing | Unlocking | Primary Extraction | Secondary Extraction | Ejection | Cocking | Feeding | Loading | Locking | | | | | | |
| | 0 | | | | | | | | | | | | | | | Headspace Max OK |
| | | | | | | | | | | | | | | | | Min OK |
| | | | | | | | | | | | | | | | | Barrel test OK |
| | | | | | | | | | | | | | | | | Bolt timing 13 7 |
| | | | | | | | | | | | | | | | | 12 6 |
| | | | | | | | | | | | | | | | | 13 6 |
| | | | | | | | | | | | | | | | | 13 7 |
| | | | | | | | | | | | | | | | | 12 6 |
| | 0 - 30 | OK | | | | | | | | | | | | | | |
| | 31 - 60 | OK | | | | | | | | | | | | | | |
| | 61 - 90 | OK | | | | | | | | | | | | | | |
| | 91 - 120 | | | | | 1 | | | | | | | | | | 94th rd (slow) |
| | | | | | | 1 | | | | | | | | | | 95th " " |
| | | | | | | 1 | | | | | | | | | | 107th " " |

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON
R2527381

Model 122 Pilot Line Test

Date 2/17/48 #25297

| E.T. No. | Rounds Fired | Malfunctions | | | | | | | | | | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Firing | Unlocking | Primary Extraction | Secondary Extraction | Ejection | Cocking | Feeding | Loading | Locking | Breakages | Replacements | Gun Failures | Adjustments | |
| | 0 | | | | | | | | | | | | | | Headspace Max. OK |
| | | | | | | | | | | | | | | | Min. OK |
| | | | | | | | | | | | | | | | Day of test OK |
| | | | | | | | | | | | | | | | Bolt Opening " " |
| | | | | | | | | | | | | | | | " " |
| | | | | | | | | | | | | | | | " " |
| | | | | | | | | | | | | | | | " " |
| | | | | | | | | | | | | | | | " " |
| | | | | | | | | | | | | | | | |
| | 0- 30 | | | | | 1 | | | | | | | | | [illegible] |
| | | | | | | 1 | | | | | | | | | 5th " |
| | 31- 60 | | | | | 1 | | | | | | | | | 25th " " |
| | 61- 90 | | | | | 1 | | | | | | | | | 65th " " |
| | 91- 120 | | | | | 1 | | | | | | | | | 90th " " |

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

Model 722 Pilot Line Test

Date 2/17/48 #25418

| Rounds Fired | Malfunctions: Firing | Unlocking | Primary Extraction | Secondary Extraction | Ejection | Cocking | Feeding | Loading | Locking | Breakages | Replacements | Gun Failures | Adjustments | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | Headspace Max |
| | | | | | | | | | | | | | | Min |
| | | | | | | | | | | | | | | In all but OK |
| | | | | | | | | | | | | | | Bolt Thrust 2 6 |
| | | | | | | | | | | | | | | " 5 |
| | | | | | | | | | | | | | | " 5 1/2 |
| | | | | | | | | | | | | | | " 5 1/2 |
| | | | | | | | | | | | | | | " 5 |
| 0— 30 | OK | | | | | | | | | | | | | |
| 31— 60 | OK | | | | | | | | | | | | | |
| 61— 90 | OK | | | | | | | | | | | | | |
| 91— 120 | | | | | | | | | | | | | | 109th rd slow |
| | | | | | | | | | | | | | | 119th " " |

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

R2527383

Model 722 Pilot Line test

Date 2/17/48 # 23998

| R.T. No. | Rounds Fired | Malfunctions | | | | | | | | | | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Firing | Unlocking | Primary Extraction | Secondary Extraction | Ejection | Cocking | Feeding | Loading | Locking | Breakages | Replacements | Gun Failures | Adjustments | |
| | 0 | | | | | | | | | | | | | | Headspace Max OK |
| | | | | | | | | | | | | | | | Min OK |
| | | | | | | | | | | | | | | | for oil test OK |
| | | | | | | | | | | | | | | | Bolt Opening 13 9 |
| | | | | | | | | | | | | | | | 11 9 |
| | | | | | | | | | | | | | | | 13 9 |
| | | | | | | | | | | | | | | | 11 9 |
| | | | | | | | | | | | | | | | 13 9 |
| | 0 – 30 | | | | | 1 | | | | | | | | | 9th rd (slow) |
| | | | | | | 1 | | | | | | | | | 20th rd (slow) |
| | | | | | | | 1 | | | | | | | | override 23rd shell slow |
| | 31 – 60 | | | | | | | 1 | | | | | | | 32nd shell jumped rails slow |
| | | | | | | | | 1 | | | | | | | override 35th shell slow |
| | | | | | | | | 1 | | | | | | | 51st shell jumped rails slow |
| | | | | | | 1 | | | | | | | | | 53rd shell |
| | | | | | | | | 1 | | | | | | | override 55th shell slow |
| | 61 – 90 | | | | | | | 1 | | | | | | | override 80th shell slow |
| | 91 – 120 | | | | | 1 | | | | | | | | | 94th rd (slow) |
| | | | | | | 1 | | | | | | | | | 112th rd slow |
| | | | | | | 1 | | | | | | | | | 117th rd slow |

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

R2527384

Model 722 Pilot Line ~~Test~~

Date 2/17/48 # 25412

| F.T. No. | Rounds Fired | Malfunctions: Firing | Unlocking | Primary Extraction | Secondary Extraction | Ejection | Cocking | Feeding | Loading | Locking | Breakages | Replacements | Gun Failures | Adjustments | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | | | | | | | | | | | | | | Headspace Max. OK |
| | | | | | | | | | | | | | | | Min. OK |
| | | | | | | | | | | | | | | | Drop off test OK |
| | | | | | | | | | | | | | | | Bolt locking 11 10 |
| | | | | | | | | | | | | | | | 14 10 |
| | | | | | | | | | | | | | | | after firing 12 9 |
| | | | | | | | | | | | | | | | 13 10 |
| | | | | | | | | | | | | | | | 13 10 |
| | 0- 30 | | | | | | | 1 | | | | | | | overcycle shell 5th rd (slow) |
| | 31- 60 | OK | | | | | | | | | | | | | |
| | 61- 90 | OK | | | | | | | | | | | | | |
| | 91- 120 | | | | | 1 | | | | | | | | | 110th rd (slow) |

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON
R2527385

M/722 Pilot Test 2/25/48

| Gun | Ej | Feed |
|---|---|---|
| 25412 | 1 | 1 |
| 23998 | 6 | 6 |
| 25397 | 7 | — |
| 25418 | 2 | — |
| 25361 | 3 | — |
| 25297 | 5 | — |
| 25347 | 10 | — |
| 24728 | 7 | — |

120 rds each.

120 each.

Acc.

Acc

Acc

| DATE | R.T.# | TEST | ROUNDS FIRED | MALFUNCTION RATE | | | | | | | | | MALFUNCT | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | OVERALL | | ADVERSE | | | NORMAL | | | | | | | | |
| | | | | TOTAL | PERCENT | ROUNDS | TOTAL | PERCENT | ROUNDS | TOTAL | PERCENT | FIRING | UNLOCKING | PRIMARY EXTRACTION | SECONDARY EXTRACTION | EJECTION |
| | | | | | | | | | 60 | 0 | 0% | | | | | |
| | | | 10-1060 | 55 | 5.2% | | | | 1060 | 55 | 5.2% | 1 | | | | 54 |
| April 1948 | 13 | | | | | | | | | | | | | | | |

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

R2527387

| ICES | | | | B | R | GF | A | REMARKS |
|---|---|---|---|---|---|---|---|---|
| COCKING | FEEDING | LOADING | LOCKING | BREAKAGES | REPLACEMENTS | GUN FAILURES | ADJUSTMENTS | |
| | | | | | | | | Muzzle .308" |
| | | | | | | | | 1" .309" |
| | | | | | | | | 2" .309" |
| | | | | | | | | 3" .309" |
| | | | | | | | | 4" .3088" |
| | | | | | | | | 4. Ammunition of questionable accuracy. |
| | | | | | | | | 2 types of ammunition have been used - one of |
| | | | | | | | | which was standardized at 1.4"-100 yds. The |
| | | | | | | | | other type being the same lot as used in |
| | | | | | | | | Plant testing. Standardization of the latter unknown |
| | | | | | | | | Every effort is being made to obtain suitable |
| | | | | | | | | accuracy ammunition before proceeding further with the test |
| | | | | | 2 | 1 | | |
| | | | | | | | | WEF |

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

| DATE | R.T.# | TEST | ROUNDS FIRED | MALFUNCTION RATE | | | | | | | | MALFUNC | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | OVERALL | | ADVERSE | | | NORMAL | | | | | | | | |
| | | | | TOTAL | PERCENT | ROUNDS | TOTAL | PERCENT | ROUNDS | TOTAL | PERCENT | FIRING | UNLOCKING | PRIMARY EXTRACTION | SECONDARY EXTRACTION | | |
| 1/4/48 | 11 | Live Fire 44-1000 | 44/1000 | | | | | | 560 | 42 | 7.5% | | | | | (4 | |
| | | | | | | | | | 1000 | | | 1 | | | | 5 | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 560 | 42 | 7.5% | | | | | 4 | |
| | | | 1000 | 55 | 5.5% | | | | 1000 | 55 | 5.5% | 1 | | | | 4 | |
| | | | | | | | | | | | | | | | | | |
| | 12 | Footlocker | 1010 | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | |

#25397

| ...IONS | | | | B | R | GF | A | REMARKS |
|---|---|---|---|---|---|---|---|---|
| COCKING | FEEDING | LOADING | LOCKING | BREAKAGES | REPLACEMENTS | GUN FAILURES | ADJUSTMENTS | |
| | | | | | | | | 30 - Slow functioning 9 Med. Functioning 3 - Fast Function |
| | | | | | | | | In 3 of the cases primers were protruding from the heads of |
| | | | | | | | | the shell & catching on the edge of the ejector. It is |
| | | | | | | | | believed that the fail to eject and functions are caused by |
| | | | | or indirectly by the following: | | | | |
| | | | | | | | | 1. Incorrect chamfer dimension on inside rim of |
| | | | | | | | | recessed Bolt Head. |
| | | | | | | | | 2. Ejectors - Min length |
| | | | | | | | | 3 ~~Shell~~ Shell length of cartridges are under Min as compared |
| | | | | | | | | with a Master chamber. |
| | | | | | 1 | | | Bolt with Correct Chamfer |
| | | | | | 1 | | | |
| | | | | | 2 | 1 | | |
| | | | | | | | | |
| | | | | | | | | Accuracy firing shows the following |
| | | | | | | | | Average Extreme Spread 4.6" Max 5.7" Min 4.1" |
| | | | | | | | | Conditions of Test. |
| | | | | | | | | Ammunition Lot ~~20~~ R16E103 180 Gr SP Range 100 yds |
| | | | | | | | | 20 Power Scope, Bench Rest, Fore End Supported by Bench Rest |
| | | | | | | | | Shooters M-Walker + W Leck 3-10 shot groups |
| | | | | | | | | Weather Clear + no wind. This accuracy is not considered |
| | | | | | | | | good + (yawing) of several bullets was noted. |
| | | | | | | | | Poor Accuracy may be attributed to the following |
| | | | | | | | | Conditions: |
| | | | | | | | | 1. Shell length under Min as compared with Chamber |
| | | | | | | | | 2. Poor bedding of the barrel + action. |
| | | | | | | | | 3. Dimension of bore at Muzzle section are large |
| | | | | | | | | especially the section under the sight ramp. |

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

M722 P.20 [illegible]

GUN #2

| DATE | R.T.# | ROUNDS FIRED | MALFUNCTION RATE | | | | | | | MALFUNCTI | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | OVERALL | | ADVERSE | | | NORMAL | | | | | | | | |
| | | | TOTAL | PERCENT | ROUNDS | TOTAL | PERCENT | ROUNDS | TOTAL | PERCENT | FIRING | UNLOCKING | PRIMARY EXTRACTION | SECONDARY EXTRACTION | EJECTION | COCKING | FEEDING |
| | 5 | 0-120 | | | | | | | | | | | | | (7) | | |
| | | | | | | | | 120 | 7 | 5.8% | | | | | 7 | | |
| | | | 7 | 5.8% | | | | 120 | 7 | 5.8% | | | | | 7 | | |
| | 6 | 121-180 | | | | | | | | | | | | | | | |
| | | | | | | | | 60 | 0 | 0% | | | | | | | |
| | | | 7 | 3.9% | | | | 180 | 7 | 3.9% | | | | | 7 | | |
| | 9 | 181-381 | | | | | | | | | (1) | | | | | | |
| | | | | | | | | | | | 6 | | | | (4) | | |
| | | | | | | | | 200 | 5 | 2.5% | 1 | | | | 4 | | |
| | | | 12 | 3.2% | | | | 381 | 12 | 3.2% | 1 | | | | 11 | | |
| | ~~10~~ | ~~381-440~~ | | | | | | | | | | | | | | | |
| | 10 | 381-440 | | | | | | ~~60~~ | ~~1~~ | ~~1.67%~~ | | | | | (1) | | |
| | | | | | | | | 60/440 | 1 | 1.67% | (1) | | | | 1 | | |
| | | | 13 | 3% | | | | 440 | 13 | ~~3%~~ 2.72% | 1 | | | | 12 | | |
| | 11 | 441-1000 | | | | | | | | | | | | | 42 | | |
| | | | | | | | | | | | | | | | (1) | | |

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON
R2527391

Line Test (.300 Savage)

5397 (Endurance Gun)

| S | | | | | B | R | GF | A | REMARKS |
|---|---|---|---|---|---|---|---|---|---|
| LOADING | LOCKING | | | | BREAKAGES | REPLACEMENTS | GUN FAILURES | ADJUSTMENTS | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | Accuracy firing shows the following: |
| | | | | | | | | | E.S. 3.4" Ammo. Lot |
| | | | | | | | | | 20 Power Scope, Bench Rest |
| | | | | | | | | | Shooters M. Walker, W. Engesh |
| | | | | | | | | | Fired indoors |
| | | | | | | 1 | 1 | | 1-malfunction charged Firing Pin Assembly (old assembly was |
| | | | | | | 1 | 1 | | binding because of burrs on base of firing pin.) These |
| | | | | | | 1 | 1 | | burrs retarded the forward acceleration of the firing pin |
| | | | | | | | | | resulting in [illegible] of the primer. This condition could |
| | | | | | | | | | be [illegible] an occasional hang fire! |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | 60° down |
| | | | | | | | | | |
| | | | | | | 1 | 1 | | |
| | | | | | | | | | |
| | | | | | | | | | Not counted charged see discussion below. Primers are protruding from fired cases. Shell length below min. Protruded to primer catches on edge of ejector at the same time the side of the base of the shell binds against the chamfer of the recessed bolt head chamfer. The chamfer dimensions are believed to disagree with the drawings of the section of the bolt head and are being checked for [illegible] verification. The shoulder bearing area of the 300 S. shell is very small + it is believed by the writer that |

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

R2527392

| DATE | R.T.# | ROUNDS FIRED | MALFUNCTION RATE | | | | | | | MALFUNCT | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | OVERALL | | ADVERSE | | | NORMAL | | | | | | | | |
| | | | TOTAL | PERCENT | ROUNDS | TOTAL | PERCENT | ROUNDS | TOTAL | PERCENT | FEEDING | UNLOCKING | PRIMARY EXTRACTION | SECONDARY EXTRACTION | EJECTION | COCKING |
| 3/4/48 | | | | | | | | | | | | | | | | |

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

| LOCKING | BREAKAGES | REPLACEMENTS | GUN FAILURES | ADJUSTMENTS | REMARKS |
|---|---|---|---|---|---|
| | | | | | EACH SIX 5 SHOT GROUPS WERE FIRED WITH EACH GUN (2 SHOOTERS FIRED THREE GROUPS EACH) AT 100 YDS. FROM A BENCH REST USING A 10 POWER SCOPE. AMMO: (7030) 180 Gr. SOFT PT. CORE-LOKT EXP. LOT M21C STAND. (100YD) 1.44 AVG EXTREME SPREAD RESULTS AS FOLLOWS: |

| GUN # | AVG EXTREME SPREAD |
|---|---|
| 25297 | 2.85" |
| 24728 | 3.78" |
| 25418 | 5.3" |
| 23998 | 5.2" |
| 25347 | 2.94" |
| 25361 | 3.8" |
| 25412 | 3.1" |
| 25397 | 3.4" |

GUN # 25397 WILL BE USED AS THE "ENDURANCE GUN".

M1722 P[illegible]

| DATE | R.T.# | ROUNDS FIRED | MALFUNCTION DATE | | | | | | | MALFUNCTION | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | OVERALL | | ADVERSE | | | NORMAL | | | | | | | | | |
| | | | TOTAL | PERCENT | ROUNDS | TOTAL | PERCENT | ROUNDS | TOTAL | PERCENT | FIRING | UNLOCKING | PRIMARY EXTRACTION | SECONDARY EXTRACTION | EJECTION | COCKING | FEEDING |
| | 5 | 0-120 | 2 | 1.7 | — | — | — | 120 | 2 | 1.7 | | | | | | | 1 |
| | | | | | | | | | | | | | | | 1 | | |
| | 5 | 0-120 | 12 | 10 | — | — | — | 120 | 12 | 10 | | | | | | | 6 |
| | | | | | | | | | | | | | | | 6 | | |
| | 5 | 0-120 | 7 | 6.8 | — | — | — | 120 | 7 | 5.8 | | | | | 7 | | |
| | 5 | 0-120 | 2 | 1.7 | — | — | — | 120 | 2 | 1.7 | | | | | 2 | | |
| | 5 | 0-120 | 3 | 2.5 | — | — | — | 120 | 3 | 2.5 | | | | | 3 | | |
| | 5 | 0-120 | 5 | 4.2 | — | — | — | 120 | 5 | 4.2 | | | | | 5 | | |
| | 5 | 0-120 | 10 | 8.3 | — | — | — | 120 | 10 | 8.3 | | | | | 10 | | |
| | 5 | 0-120 | 7 | 5.8 | — | — | — | 120 | 7 | 5.8 | | | | | 7 | | |

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
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# LINE TEST (.300 SAVAGE)

| S | LOADING | LOCKING | | | | B BREAKAGES | R REPLACEMENTS | GF GUN FAILURES | A ADJUSTMENTS | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | 8 M/722 RIFLES WERE CHOSEN FROM A LOT OF FIFTY AND FIRED 120 RNDS. EACH WITH RESULTS AS FOLLOWS: |
| | | | | | | | | | | GUN # 25412 |
| | | | | | | | | | | BOLT OVER RODE 5TH RND. |
| | | | | | | | | | | FAILED TO EJECT (SLOW) |
| | | | | | | | | | | GUN # 23998 |
| | | | | | | | | | | 4- BOLT OVER RODE SHELL (SLOW) |
| | | | | | | | | | | 2- SHELL JAMMED RAILS (SLOW) |
| | | | | | | | | | | FAILED TO EJECT (SLOW) |
| | | | | | | | | | | GUN # 25397 |
| | | | | | | | | | | FAILED TO EJECT (SLOW) |
| | | | | | | | | | | GUN # 25418 |
| | | | | | | | | | | FAILED TO EJECT (SLOW) |
| | | | | | | | | | | GUN # 25 |
| | | | | | | | | | | FAILED TO EJECT (SLOW) |
| | | | | | | | | | | GUN # 25 |
| | | | | | | | | | | FAILED TO EJECT (SLOW) |
| | | | | | | | | | | GUN # 24 |
| | | | | | | | | | | FAILED TO EJECT (SLOW) |
| | | | | | | | | | | GUN # 24728 |
| | | | | | | | | | | FAILED TO EJECT (SLOW) |
| | | | | | | | | | | W.J.E. 2/26/45 |

Issued... 2/1/[illegible]

# Production Line Test

~~STANDARD ENDURANCE TEST~~

## CENTER FIRE RIFLES

Conditions of Firing: [illegible] every 5 seconds. Time includes cooling and loading. Cool with compressed air every 40 rounds. Functioning - slow, medium and fast. Alternately load magazine. See Ammunition Schedule attached.

Conditions of Test: Make the following Measurements, Cleaning and Inspection at 180 rnds and every 1,000 rounds and/after 10,000 dry cycles.

Clean barrel with metal fouling solution.

[illegible] Line bore dimensions.

[illegible]

[illegible] Test #8.

[illegible]

[illegible]

[illegible] 120, 2000, 4000, [illegible] and 10,000 dry cycles.

380

[illegible] near and manual [illegible] cycles. Measure [illegible] at 0 and 6000 rds.

Rounds

1. [illegible]
2. [illegible]
3. barrel
4. [illegible]
5. [illegible]
6. accuracy Test (8 guns 119 rnds each) (3 [illegible] 60 rnds each)
9. [illegible]
7. [illegible]

0-1

2-120
121-180
181-380

[illegible] Determine [illegible] Treat Specifi- [illegible] Committee

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KINZER V. REMINGTON

R2527397

| | | Rounds |
|---|---|---|
| 8 | Product Inspection Test. | |
| ~~12~~ | ~~Accuracy Test #4 - 60 rounds.~~ | ~~381-440~~ |
| 10. | Angular Position Test - 60 rounds (20 rds. in each position). | 381-440 |
| ~~11.~~ | ~~Interchangeability Test (No. 4 barrel to be used in this test).~~ | |
| ~~15~~ | ~~Determine position of operating rod at instant of primer ignition. Shoot ten (10) rounds.~~ | ~~441-450~~ |
| 11. | Live Fire Test #12 - 560 rounds. | 441-1000 |
| 12. | Accuracy Test #4 - 60 rounds. | 1001-1060 |
| 13. | Feeding rounds into [illegible] Test - 20 rounds. | 1061-1080 |
| 14. | Fire 1 proof round. | 1081-1082 |
| 15. | Live Fire Test #12 - 839 rounds. | 1083-1920 |
| 16. | Breech Gas Escape Test - 80 rounds. | 1921-2000 |
| 17. | Accuracy Test #4 - 60 rounds. | 2001-2060 |
| 18. | Fire 1 proof round. | 2061-2062 |
| *19. | No Lubrication Test - 200 rounds. | 2063-2262 |
| 20. | Lubricate gun using Type III Lubrication. | |
| *21. | Cold Test (-20°F.) - 100 rounds. | 2263-2362 |
| *22. | Ice Test (-20°F.) - 5 rounds. | 2363-2367 |
| 23. | Live Fire Test #12 - 632 rounds. | 2368-3000 |
| 24. | Accuracy Test #4 - 60 rounds. | 3001-3060 |
| 25. | Fire 1 proof round. | 3061-3062 |
| *26. | Dust Test - 20 rounds. | 3063-3082 |
| 27. | Clean gun. | |
| 28. | Live Fire Test #12 - 898 rounds. | 3083-3980 |
| *29 | Salt Water Test - 20 rounds. | 3981-4000 |
| 30. | Accuracy Test #4 - 60 rounds. | 4001-4060 |
| 31. | Fire 1 proof round. | 4061-4062 |
| 32. | Clean gun. | |
| *33. | Dust Test - 20 rounds. | 4063-4082 |
| *34 | Salt Water Test - 20 rounds per [illegible] | 4083-4142 |

Collins

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

R2527398

| | | Rounds |
|---|---|---|
| ~~36~~ 35. | Live Fire Test #4 - ~~858~~ rounds. | 414~~3~~-5000 |
| ~~41~~ 36. | Accuracy Test - ~~60~~ rounds. | 5001-5060 |
| ~~42~~ 37. | Fire 5 Proof Rounds. | 5061-5065 |
| ~~43~~ 38. | Head Space Test #3. | |
| ~~39~~ | "Cook Off Test" - for autoloading arms only. "Cook Off" can be obtained under [illegible] firing. Use Proof Chamber. For other arms, fire same number [illegible] | 5066-~~5978~~ 5940 |
| 40. | accuracy 60 rnds | 5940-6000 |
| 41. | Determine if firing pin [illegible] | |
| ~~*46.~~ | ~~*Sub Zero Test (-60°F.) - [illegible]~~ | |
| ~~*47.~~ | ~~Chamber Fit Test #2 - [illegible]~~ | |
| 48. | Perform 10,000 Dry Cycle Operations | |
| ~~*49.~~ | ~~Gun Strength Test. Subject gun to [illegible] until strength is determined. [illegible]~~ | |
| ~~*50.~~ | ~~Safety Lug Shear Test - [illegible]~~ | |

*Adverse Conditions Test.

AMMUNITION SCHEDULE

M/721 - Cal. 30-06 [illegible]

| Routing Ticket No. | Manufacture | Ammunition Type | | Rounds |
|---|---|---|---|---|
| 3 | Remington | Proof Ammunition | | 0-1 |
| 8 | Remington | Hi Speed, Bronze Point | 150 (9.7 grams) | 2-120 |
| | " | Hi Speed, Soft Point | 150 | |
| | " | Soft Point [illegible] | 150 | |
| 9 | Western | Open Point [illegible] | 150 | 121-320 |
| | " | Soft Point | 150 | |
| | " | Open Point [illegible] | 150 | |
| | " | Silver Tip | 150 | |
| | Winchester | Super Speed | 150 | |
| 12 | Remington | Bronze Point | 150 | [illegible] |
| *13 | " | Soft Point | 150 | [illegible] |
| 15 | " | Mushroom | 150 | [illegible] |
| | " | [illegible] | | [illegible] |
| | " | " | | [illegible] |
| 16 | " | [illegible] | | [illegible] |
| 17 | Remington | [illegible] | | [illegible] |
| 18 | " | | | [illegible] |
| 19 | " | Proof | | [illegible] |
| 20 | " | Ballistics | 150 | [illegible] |
| 21 | | [illegible] | 150 | [illegible] |
| | | [illegible] | 150 | [illegible] |
| | " | [illegible] | 150 | [illegible] |
| | " | Bronze Point | 150 | [illegible] |

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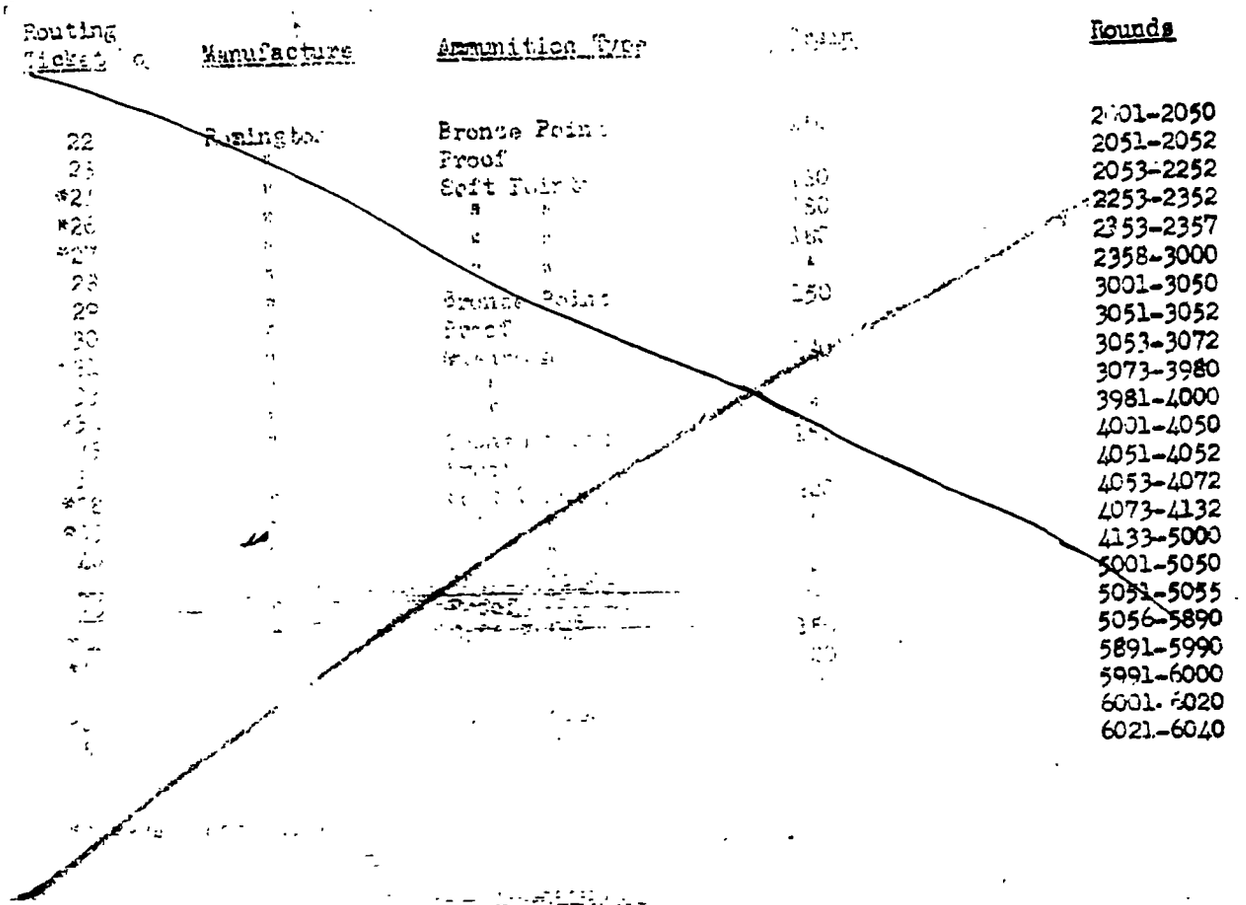
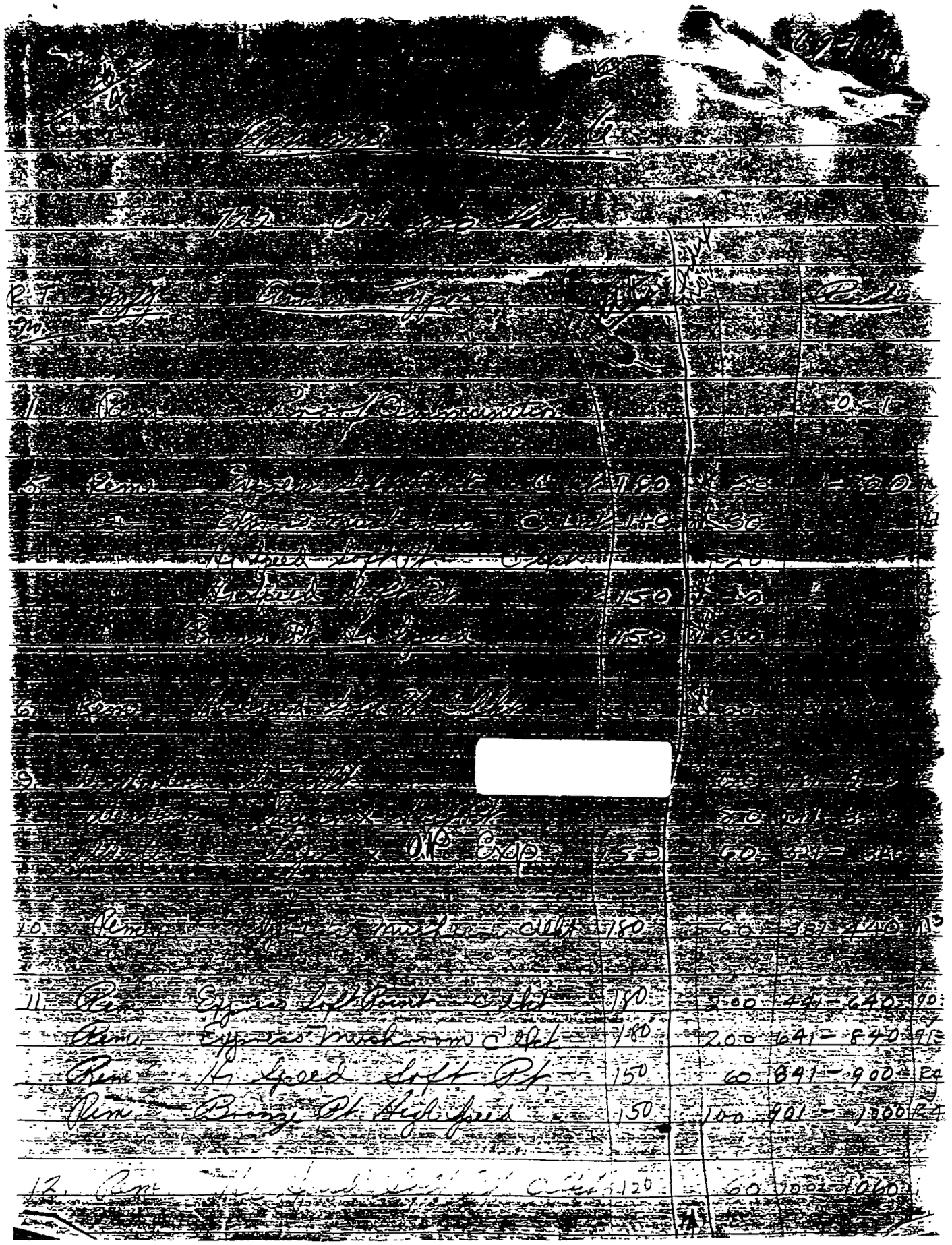
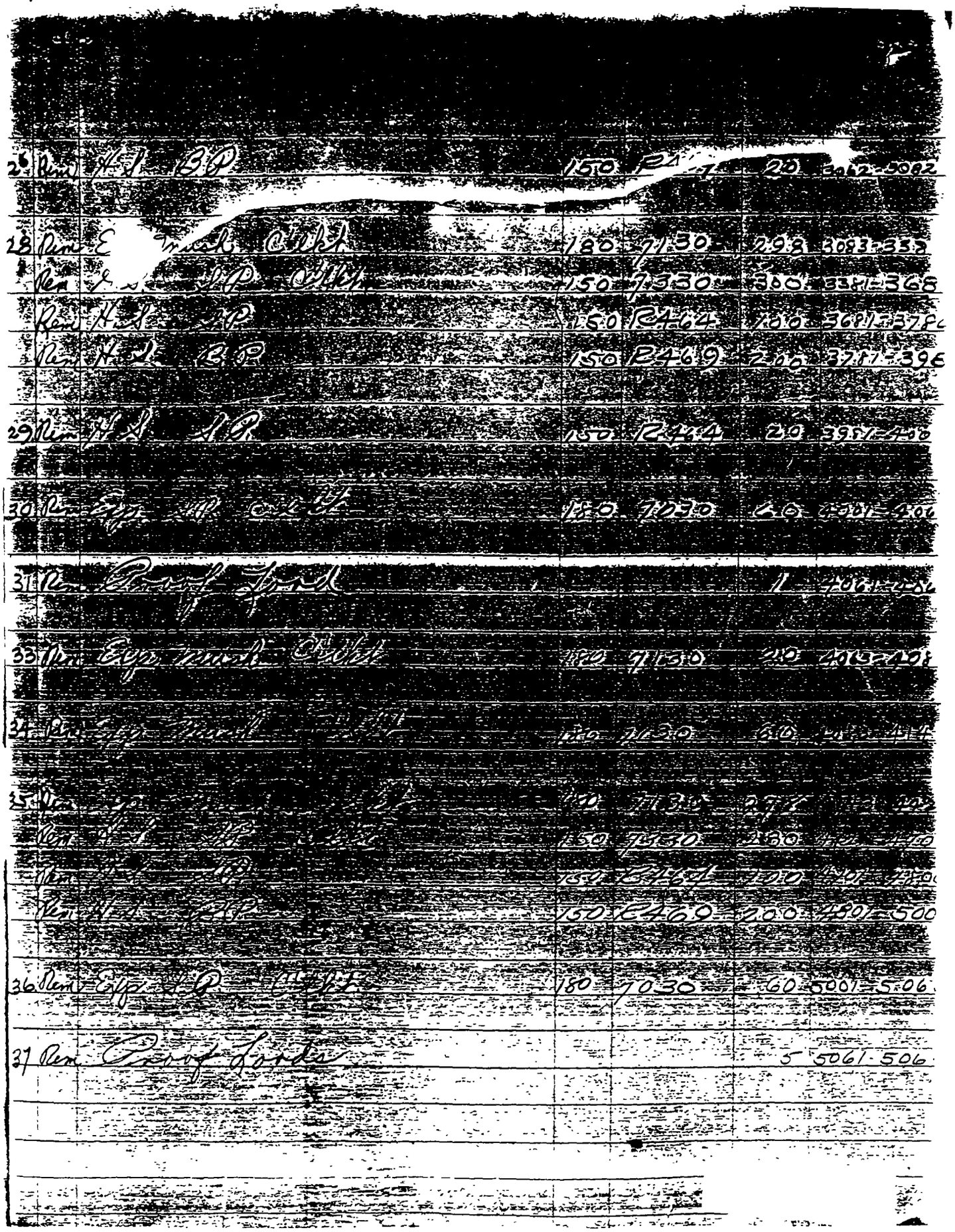
R2527399



| Routing Ticket # | Manufacture | Ammunition Type | Grain | Rounds |
|---|---|---|---|---|
| 22 | Remington | Bronze Point | | 2001-2050 |
| 23 | " | Proof | | 2051-2052 |
| *24 | " | Soft Point | 180 | 2053-2252 |
| *26 | " | " | 180 | 2253-2352 |
| *27 | " | " | 165 | 2353-2357 |
| 28 | " | " | " | 2358-3000 |
| 29 | " | Bronze Point | 150 | 3001-3050 |
| 30 | " | Proof | | 3051-3052 |
| | | | | 3053-3072 |
| | | | | 3073-3980 |
| | | | | 3981-4000 |
| | | | | 4001-4050 |
| | | | | 4051-4052 |
| | | | | 4053-4072 |
| | | | | 4073-4132 |
| | | | | 4133-5000 |
| | | | | 5001-5050 |
| | | | | 5051-5055 |
| | | | | 5056-5890 |
| | | | | 5891-5990 |
| | | | | 5991-6000 |
| | | | | 6001-6020 |
| | | | | 6021-6040 |



| | | | Wt. | [illegible] | | |
|---|---|---|---|---|---|---|
| 13 | Rem | Dummies | | | 20 | 1061-1080 |
| 14 | Rem | Proof Load | | | 1 | 1081-108[illegible] |
| 15 | Rem | H.S. S.P. C'lkt | 150 | 7330 | 350 | 1121-1470 |
| | " | Express Mushroom C'lkt | 180 | 7130 | 350 | 1471-1820 |
| | " | High Speed Soft Point | 150 | R464 | 39 | 1082-1120 |
| | " | High Speed Bronze Point | 150 | R469 | 100 | 1821-1920 |
| 16 | Rem | Express Mushroom C'lkt | 180 | 7130 | 80 | 1921-200[illegible] |
| 17 | Rem | Exp. S.P. C'lkt | 180 | 7030 | 60 | 2001-206[illegible] |
| 18 | Rem | Proof Load | | | 1 | 2061-2062 |
| 19 | Rem | Exp. Mush. C'lkt | 180 | 7130 | 200 | 2063-226[illegible] |
| 21 | Rem | H.S. S.P. C'lkt | 150 | 7330 | 100 | 2263-236[illegible] |
| 22 | Rem | H.S. S.P. C'lkt | 150 | 7330 | 5 | 2363-2367 |
| 23 | Rem | H.S. S.P. C'lkt | 150 | 7330 | 192 | 2368-2560 |
| | " | Exp. Mush. C'lkt | 180 | 7130 | 300 | 2561-286[illegible] |
| | " | H.S. B.P. | 150 | R469 | 100 | 2861-296[illegible] |
| | " | H.S. S.P. | 150 | R464 | 40 | 9261-300[illegible] |
| 24 | Rem | Exp. S.P. C'lkt | 180 | 7130 | 60 | 3001-306[illegible] |
| 25 | Rem | Proof [illegible] | | | 1 | 3060-3[illegible] |



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[illegible] 180 gr [illegible]

Accuracy

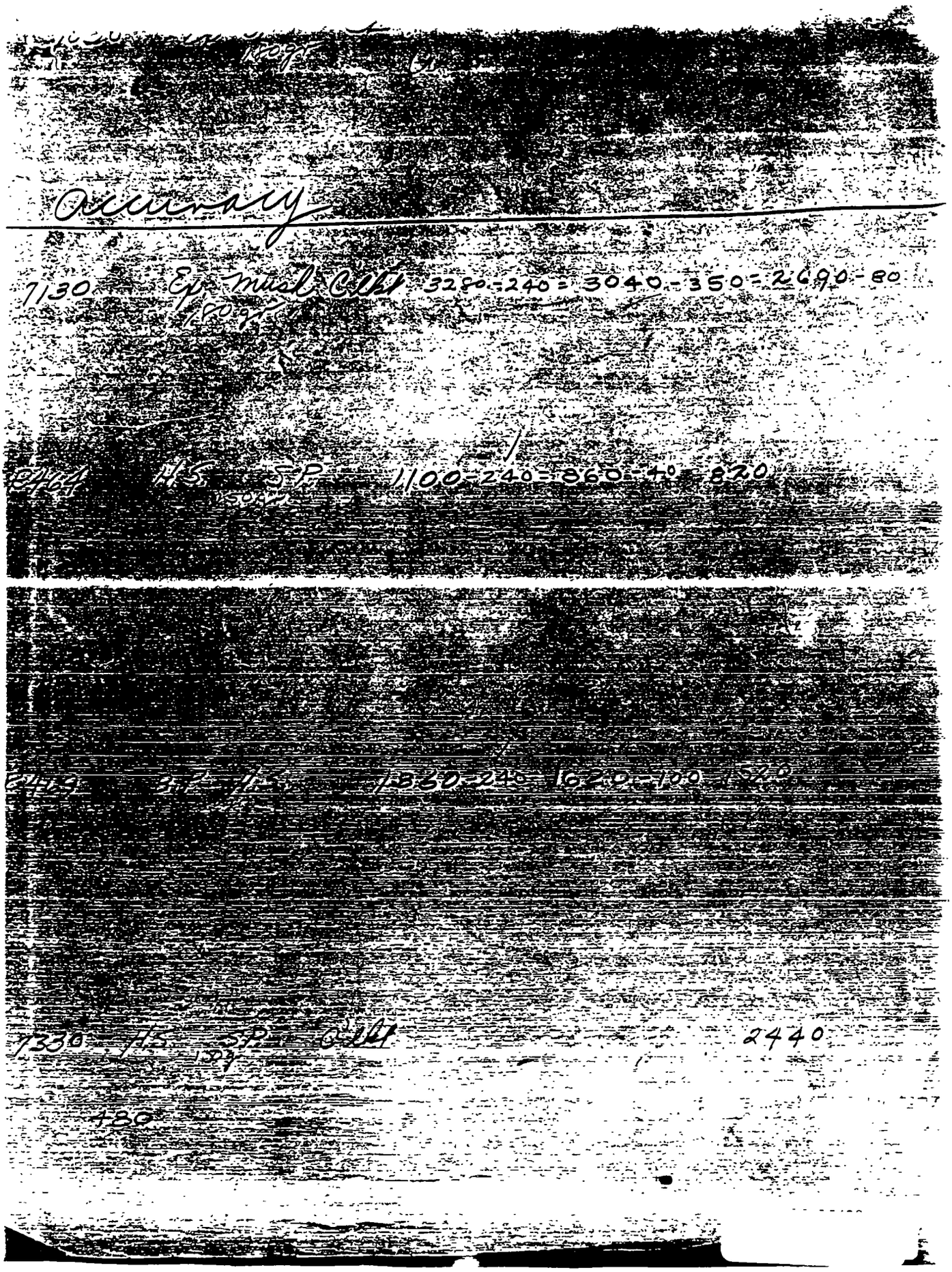
7130 Ex Mush Cldt 3280-240 = 3040-350 = 2690-80
180 gr

8464 H.S. S.P. 1100-240 = 860-40 = 820
150 gr

8419 S.P. H.S. 1830-240 = 1620-100 = 1520

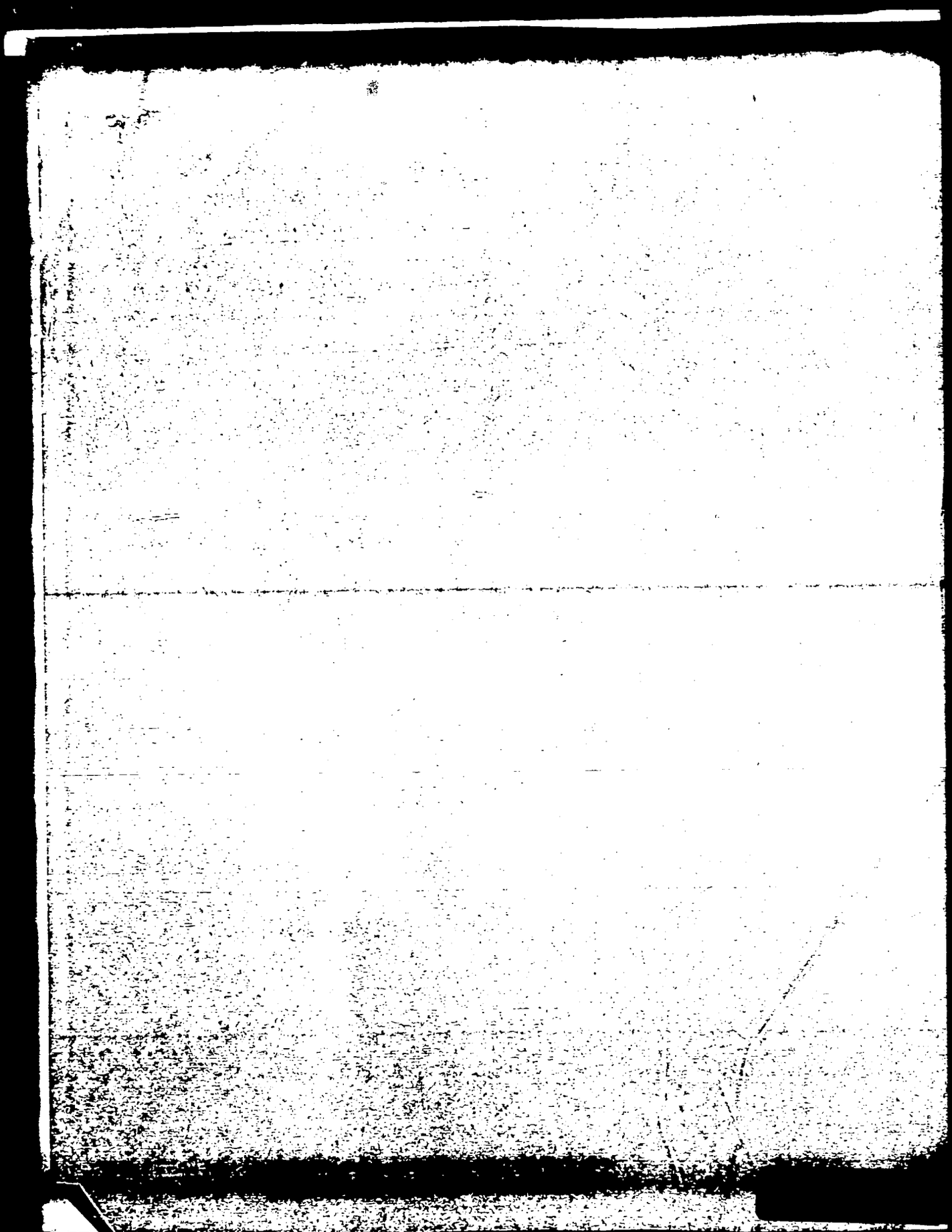
7330 H.S. S.P. Cldt 2440
150 gr

480



| | | | | | | |
|---|---|---|---|---|---|---|
| 39 | Rem | Exp Mush C'lkt | 180 | 7130 | 295 | 5066-5360 |
| | " | H.S. SP C'lkt | 150 | 7330 | 300 | 5361-5660 |
| | " | H.S. B.P. | 150 | R469 | 200 | 5661-5860 |
| | " | H.S. SP | 150 | R464 | 80 | 5861-5940 |
| | | | | | | |
| 40 | Rem | Exp SP C'lkt | 180 | 7030 | 60 | 5941-6000 |

5940
5066
874



1st Sheet

Model 722

Date 2/17/48

Pilot Line Test

# 25397

| R.T. No. | Rounds Fired | Malfunctions: Firing | Unlocking | Primary Extraction | Secondary Extraction | Ejection | Cocking | Feeding | Loading | Locking | Breakages | Replacements | Gun Failures | Adjustments | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | | | | | | | | | | | | | | Headspace Min OK |
| | | | | | | | | | | | | | | | Max OK |
| | | | | | | | | | | | | | | | Jar off test OK |
| | | | | | | | | | | | | | | | Bolt Opening 13 7 |
| | | | | | | | | | | | | | | | 11 6 |
| | | | | | | | | | | | | | | | 11 7 |
| | | | | | | | | | | | | | | | 12 6 |
| | | | | | | | | | | | | | | | 11 6 |
| | 0 – 30 | | | | | 1 | | | | | | | | | 20th rd (slow) |
| | 31 – 60 | | | | | 1 | | | | | | | | | 32nd " " |
| | | | | | | | | | | | | | | | 33rd " " |
| | | | | | | | | | | | | | | | 58th " " |
| | 61 – 90 | | | | | | | | | | | | | | 62nd " " |
| | 91 – 120 | | | | | 1 | | | | | | | | | 94th " " |
| | | | | | | 1 | | | | | | | | | 109th " " |
| | 121 – 180 | Accuracy test | | | | | | | | | | | | | |

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

#2 Shot

Model 722 Pilot Line test

Date 3/17/48 #25397

| Rounds Fired | Malfunctions | | | | | | | | | | | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Firing | Unlocking | Primary Extraction | Secondary Extraction | Ejection | Cocking | Feeding | Loading | Locking | Breakages | Replacements | Gun Failures | Adjustments | | |
| 180 | | | | | | | | | | | | | | | Trigger Pull 6# 8oz |
| | | | | | | | | | | | | | | | 6 13 |
| | | | | | | | | | | | | | | | 6 4 |
| | | | | | | | | | | | | | | | 6 7 |
| | | | | | | | | | | | | | | | 6 5 |
| | | | | | | | | | | | | | | | Firing Pin Indent - .1016" |
| | | | | | | | | | | | | | | | .017 |
| | | | | | | | | | | | | | | | .0165" |
| | | | | | | | | | | | | | | | .017 |
| | | | | | | | | | | | | | | | .0155" |
| | | | | | | | | | | | | | | | Headspace Max OK |
| | | | | | | | | | | | | | | | Min OK |
| | | | | | | | | | | | | | | | Bolt Opening — 14 - 15 |
| | | | | | | | | | | | | | | | 10 - 13 |
| | | | | | | | | | | | | | | | 13 - 11 |
| | | | | | | | | | | | | | | | 11 - 11 |
| | | | | | | | | | | | | | | | 10 - 12 |

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON
R2527408

#3 sheet

Model 722

Date 3/17/48

Pilot Fire testing

# 25397

| R.T. No. | Rounds Fired | Malfunctions: Firing | Unlocking | Primary Extraction | Secondary Extraction | Ejection | Cocking | Feeding | Loading | Locking | Breakages | Replacements | Gun Failures | Adjustments | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 180 | | | | | | | | | | | | | | |
| | 181-220 | OK | | | | | | | | | | | | | |
| | 221-260 | | | | | 1 | | | | | | | | | fail to eject (S) |
| | | (1) | | | | | | | | | | | | | fail to fire (light blow) |
| | 261-300 | 2 | | | | | | | | | | | | | " " " " " |
| | | | | | | 3 | | | | | | | | | fail to eject (S) |
| | 301-340 | 4 | | | | | | | | | | | | | fail to fire (~~bad ammo~~ not charged) |
| | 3[illegible]- | | | | | | | | | | | | | 1 | bolt reamed out |
| | 341-380 | | | | | | | | | | | (1) | | | New firing pin assembly (old assembly was binding because of burrs on T.P. |
| | | (2) → [illegible] | | | | | | | | | | | | | fail to fire (at 340 rds |
| | | | | | | | | | | | | | | | angular test |
| | 381-395 | OK | | | | | | | | | | | | | Left side up |
| | 396-410 | OK | | | | | | | | | | | | | Right " " |
| | 411-425 | | | | | | | | | | | | | | Up |
| | 426-440 | OK | | | | 1 | | | | | | | | | Down fail to eject (S) |
| | 441-470 | | | | | 4 | | | | | | | | | fail to eject (SS MS) |
| Zollep | 471-490 | | | | | /// | | | | | | | | | " " " Very Slow |
| | | | | | | // | | | | (= .030) | | | | | Sticks inside of bolt head under extractor |
| | 491-500 | | | | | | | | | | | | | | |
| | 501-520 | | | | | // | | | | | | | | | Slow Very lazy ejection |
| | 521-540 | | | | | // | | | | | | | | | " |
| | 580 | | | | | /// | | | | | | | | | End sticks inside bolt head under ext. also binds |

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

R2527409

#4 sheet

Model 722

Date

Pilot time listing

ZALLER

# 25397

| Rd. No. | Rounds Fired | Malfunctions: Firing | Unlocking | Primary Extraction | Secondary Extraction | Ejection | Cocking | Feeding | Loading | Locking | Breakages | Replacements | Gun Failures | Adjustments | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Refer to #3 Sheet | | | | | | | | | | | | | | |
| | 581 – 600 | | | | | 2 | | | | | | | | | fails to eject slow binds on ejector |
| | 601 – 640 | | | | | 2 | | | | | | | | | " " " |
| | 641 – 680 | | | | | 1 | | | | | | | | | " " " binding |
| | 681 – 700 | | | | | 2 | | | | | | | | | " " " |
| | 701 – 740 | | | | | 1 | | | | | | | | | " " " |
| | | | | | | | | | | | | | | | fault of Ammo-primers binds on ejector – |
| | 741 – 780 | | | | | 2 | | | | | | | | | Slow |
| | | | | | | 1 | | | | | | | | | fast |
| | | | | | | 1 | | | | | | | | | binding on primer |
| | 781 – 800 | | | | | 2 | | | | | | | | | Slow |
| | 801 – 820 | | | | | 1 | | | | | | | | | " |
| | 821 – 840 | | | | | 3 | | | | | | | | | " |
| | 841 – 880 | | | | | 2 | | | | | | | | | " |
| | 881 – 920 | | | | | 3 | | | | | | | | | " |
| | 921 – 960 | | | | | 2 | | | | | | | | | " |
| | | | | | | | | | | | | | | | Bolt handle begining to raise hard |
| | 961 – 1000 | | | | | 2 | | | | | | | | | fail to eject |
| | | | | | | | 1 | | | | | | | | Stem Chamber |
| | | | | | | | | | | | | 1 | 1 | | [illegible] |

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

Model _____

Date _____

| T. No. | Rounds Fired | Malfunctions | | | | | | | | | | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Firing | Unlocking | Primary Extraction | Secondary Extraction | Ejection | Cocking | Feeding | Loading | Locking | Breakages | Adjustments | Gun Failures | Adjustments | |
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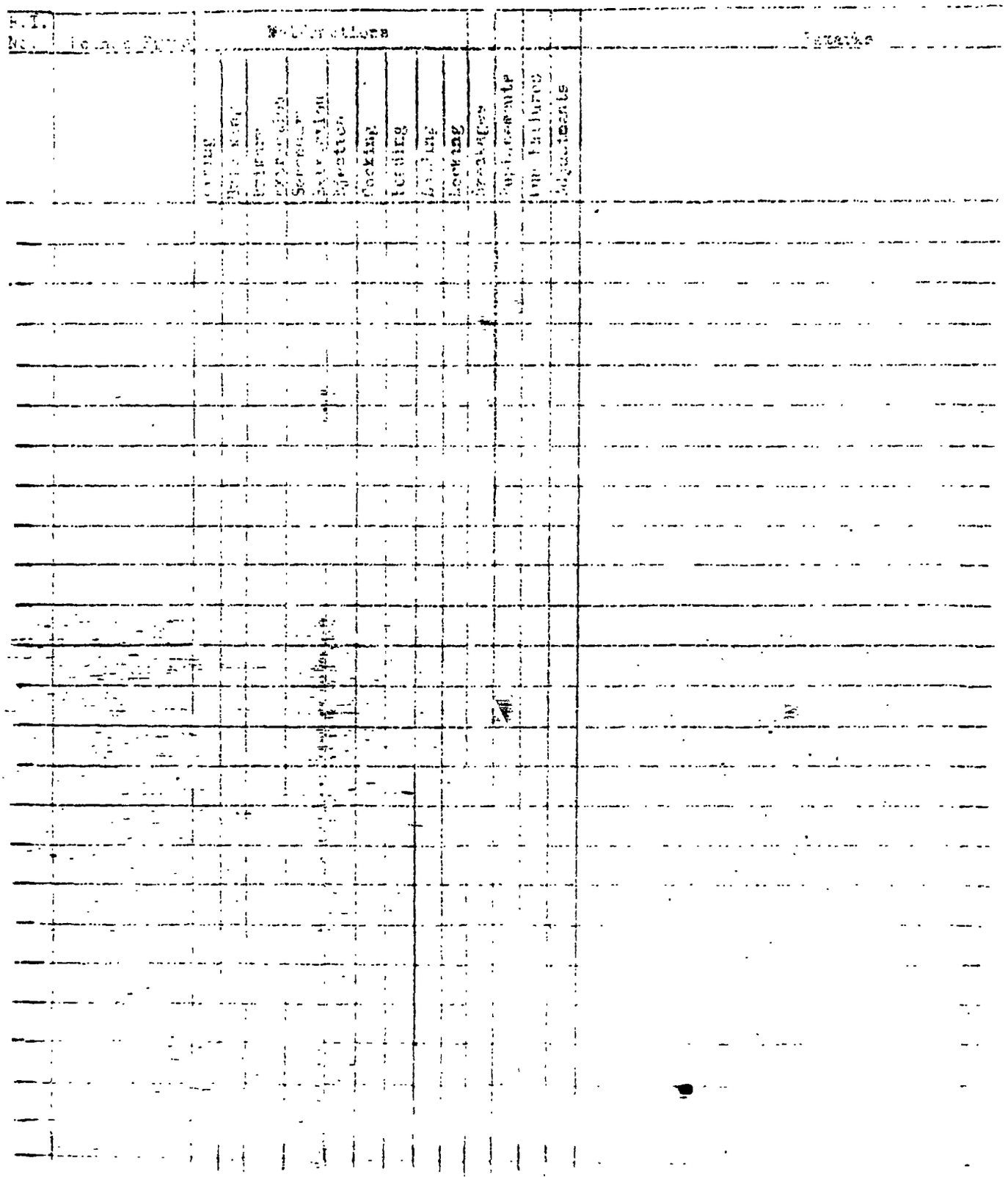
Model _____

Date _____



Model _____

Date _____

| | Malfunctions | | | | | | | | | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Failure to feed | Failure to extract | Failure to eject | Failure to fire | Double feeding | Failure to lock | Premature unlocking | Failure to unlock | Accidental discharge | Other malfunctions | Total rounds fired | | |
| | | | | | | | | | | | | | |

Model _____

Date _____

| | Malfunctions | | | | | | | | | | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | |
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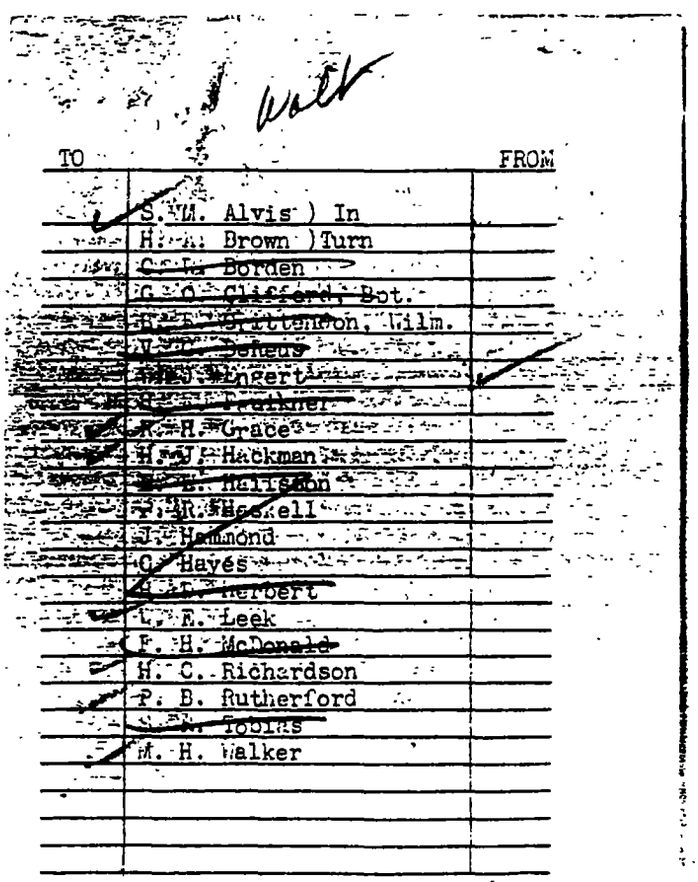
Walk



| TO | | FROM |
|---|---|---|
| | S. M. Alvis ) In | |
| | H. A. Brown ) Turn | |
| | ~~C. W. Borden~~ | |
| | ~~G. O. Clifford, Bot.~~ | |
| | ~~B. E. Grittenson, Wilm.~~ | |
| | ~~V. C. Deheus~~ | |
| | ~~W. J. Engert~~ | |
| | ~~H. [illegible] Faulkner~~ | |
| | R. H. Grace | |
| | H. J. Hackman | |
| | ~~[illegible] E. Hallsson~~ | |
| | P. R. Haskell | |
| | J. Hammond | |
| | C. Hayes | |
| | ~~H. [illegible] Herbert~~ | |
| | L. E. Leek | |
| | ~~F. H. McDonald~~ | |
| | H. C. Richardson | |
| | P. B. Rutherford | |
| | ~~S. [illegible] Tobias~~ | |
| | M. H. Walker | |
| | | |
| | | |
| | | |
| | | |

[redacted]

M/722 - .223 Pilot Line

REMINGTON ARMS COMPANY, INC.

ENGINEERING DEPARTMENT DUPONT COMPUTATION SHEET SHEET NO

TITLE OF PROJ PROJ. NO

SUBJECT M722 - 222 cal. accuracy test WORKS

GUN # COMPUTER DATE 19

Firing Pin Indent

94103 - .020 - .019⁵ - .019⁵ - .019⁵ - .019

94125 - .021⁵ - .022 - .021 - .021 - .023

94064 - .021 - .021⁵ - .022 - .021 - .021

94115 - .020 - .019 - .019 - .019 - .020

94043 - .019 - .019 - .020 - .020 - .019

94082 - .021 - .021 - .021 - .021 - .020

94122 - .019⁵ - .019⁵ - .019⁵ - .019⁵ - .020

94090 - .021⁵ - .022 - .021 - .021 - .021

94038 - .020 - .019 - .019 - .018 - .020

94054 - .018 - .018 - .019 - .019 - .019

RD 3643

# REMINGTON ARMS COMPANY, INC.

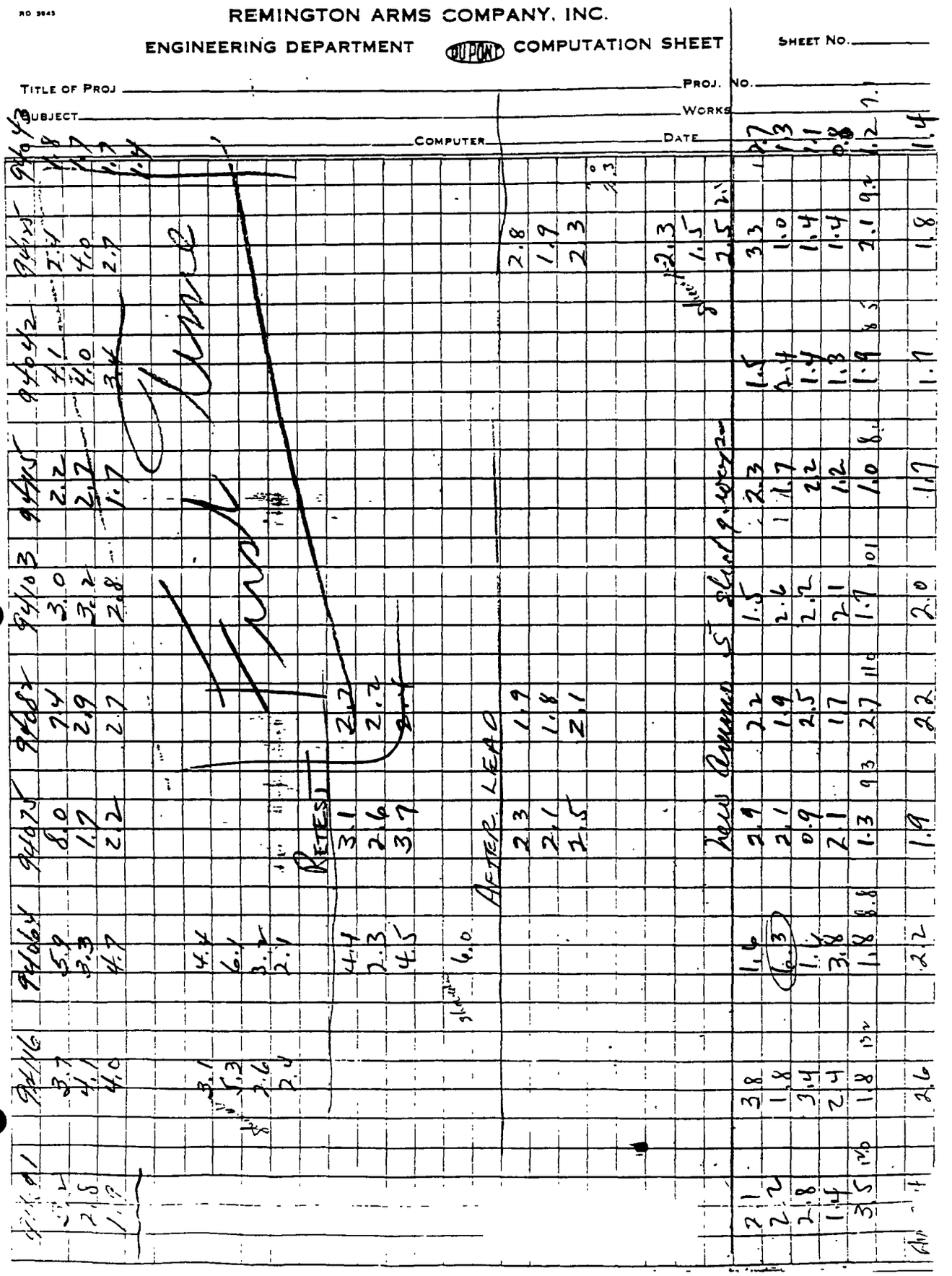
ENGINEERING DEPARTMENT (DUPONT) COMPUTATION SHEET

SHEET NO. _____

TITLE OF PROJ _____ PROJ. NO. _____

SUBJECT _____ WORKS _____

COMPUTER _____ DATE _____




CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON
R2527418

RC 5845

REMINGTON ARMS COMPANY, INC.

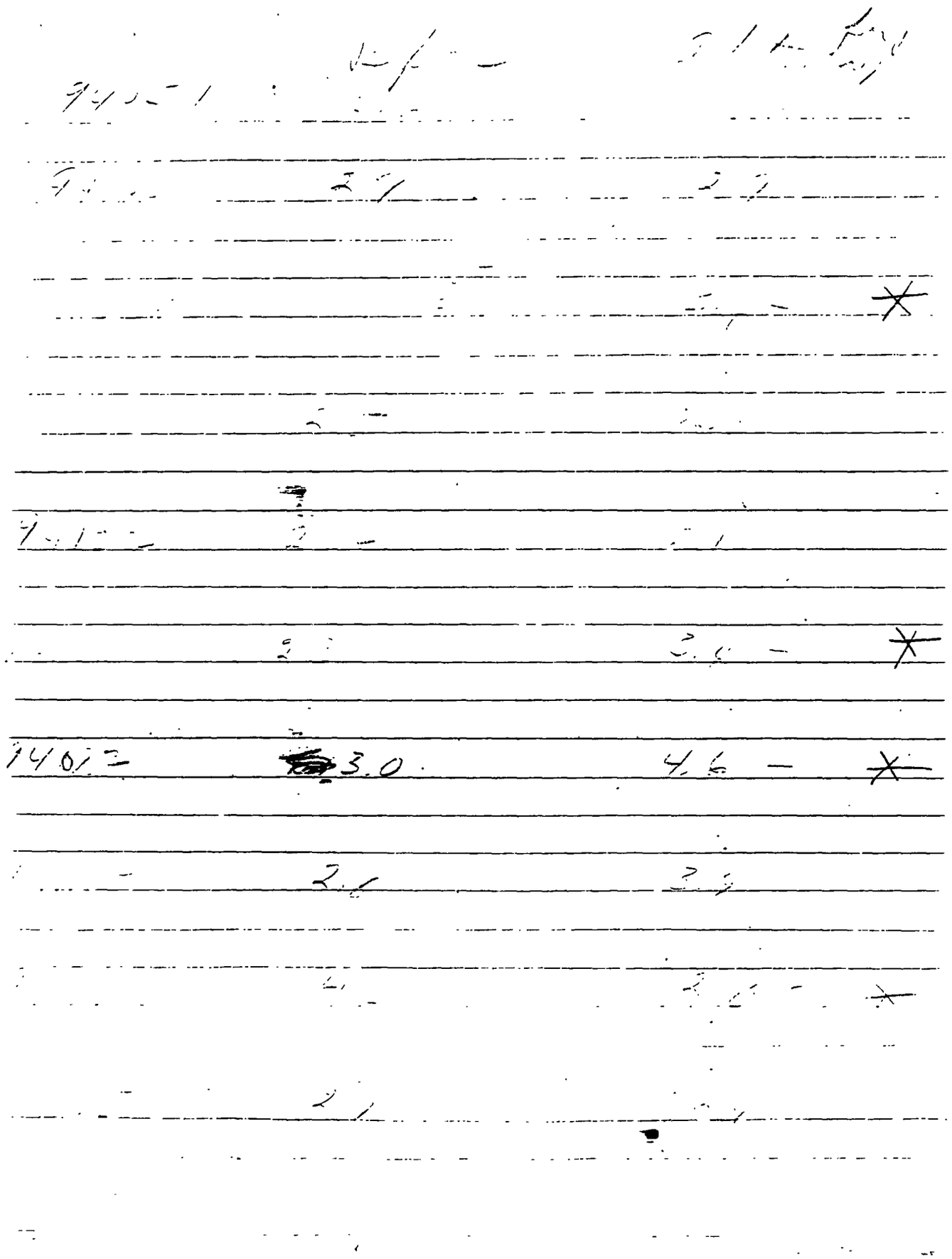
ENGINEERING DEPARTMENT COMPUTATION SHEET SHEET NO 2 [illegible] time

TITLE OF PROJ 222 [illegible] PROJ NO

SUBJECT [illegible] WORKS

COMPUTER M DATE

| | | | | | |
|---|---|---|---|---|---|
| 94103 | [illegible] | | | | |
| | [illegible] | [illegible] | | [illegible] | 2197 |
| | [illegible] | [illegible] | | [illegible] | 2[illegible] |
| | | | | [illegible] | 21[illegible] |
| 94125 | [illegible] | 2216 | | | |
| | [illegible] | [illegible] | | | |
| | | | | [illegible] | [illegible] |
| 94064 | Muzzle | 2246 | | [illegible] | 2197 |
| | Breech | 2240 | | [illegible] | 2190 |
| | | | | [illegible] | 2180 |
| 94115 | [illegible] | 2245 | | [illegible] | 2196 |
| | | 21[illegible] | | [illegible] | [illegible] |
| 94043 | Muzzle | 2246 | UR[illegible] 2248 | Muzzle | 2199 |
| | Breech | 2240 | | [illegible] | 2195 |
| | | | | Breech | 2197 |
| 94072 | Muzzle | 22[illegible] | | [illegible] | 2199 |
| | [illegible] | 224[illegible] | | [illegible] | 2194 |
| | | | | [illegible] | 2[illegible] |
| 94122 | [illegible] | [illegible] | | [illegible] | [illegible] |
| | [illegible] | [illegible] | | [illegible] | 21[illegible] |



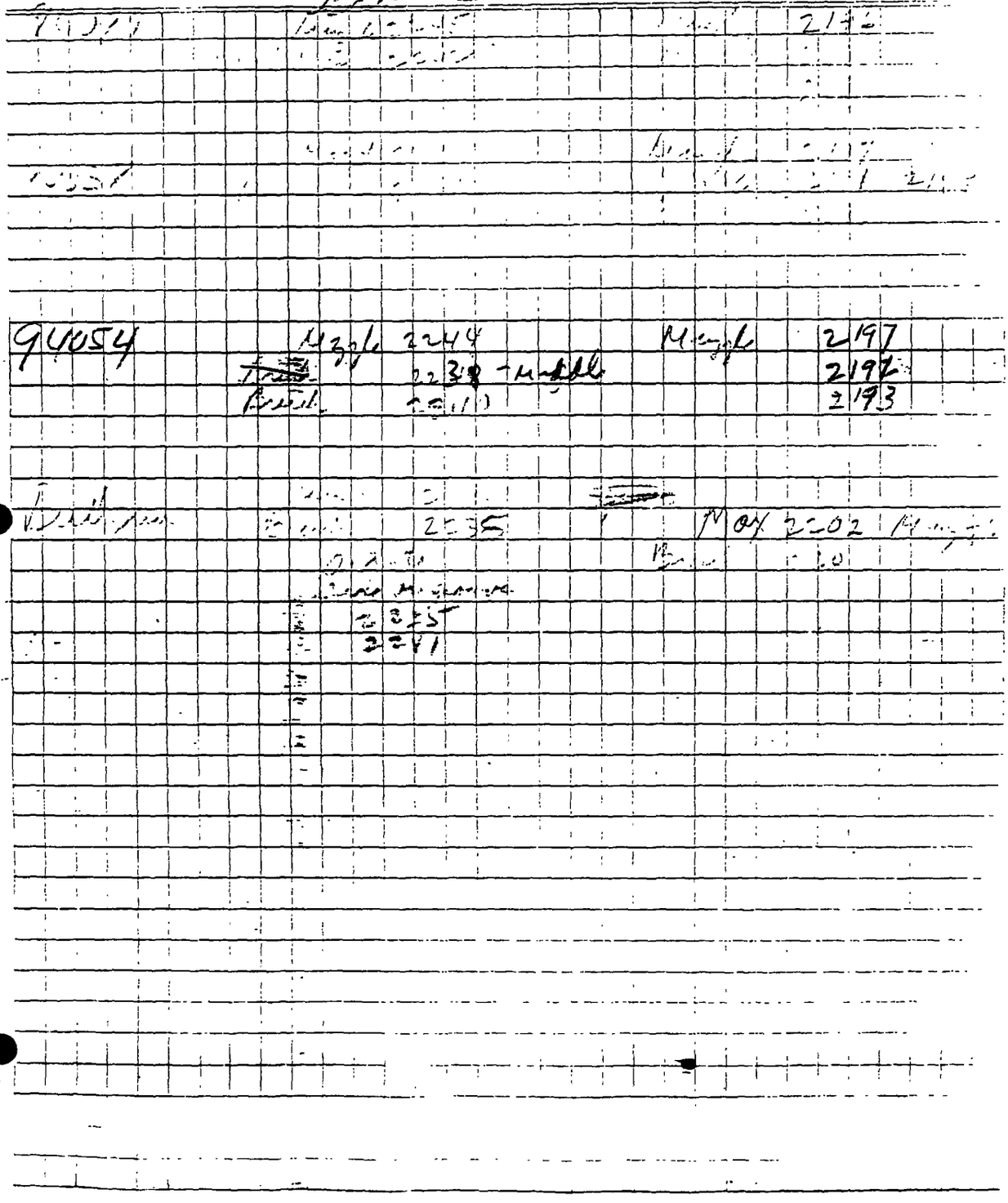
REMINGTON ARMS COMPANY, INC.

ENGINEERING DEPARTMENT (DUPONT) COMPUTATION SHEET SHEET NO ____

TITLE OF PROJ ____ PROJ NO. ____

SUBJECT ____ WORKS ____

COMPUTER ____ DATE ____ 19__



REMINGTON ARMS COMPANY, INC.

ENGINEERING DEPARTMENT (DUPONT) COMPUTATION SHEET

TITLE OF PROJ _____ PROJ. NO _____

SUBJECT _____ WORKS _____

COMPUTER _____ DATE _____ 19 _____

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON
R2527422

# 94090

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| 0-10 | | | |
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| 20-30 | | | |
| 30-40 | | | |
| 40-50 | | | |
| 50-60 | | | |
| 60-70 | | | |
| 70-80 | | | |
| 80-90 | | | |
| 90-100 | | | |
| -120 | | 1 | |
| 121-140 | | | |
| 141-160 | | | |
| 161-180 | | 1 | 2nd R BOLT OVERRIDE SHELL |
| 181-200 | | | |
| 201-220 | | 1 | 2nd R BOLT OVERRIDE SHELL |
| 221-240 | | | |
| 241-260 | | 1 | 1st R BOLT OVERRIDE SHELL |
| 261-280 | | | |
| 281-300 | | | |
| 301-310 | | | |
| 311-330 | | | |
| 331-350 | | | |

722

11/9/49

# 9d122

Slow med Fast

| | |
|---|---|
| | 0 - 10 |
| | 10 - 20 |
| | 20 - 30 |
| | 30 - 40 |
| | 40 - 50 |
| | 50 - 60 |
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| | 70 - 80 |
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| | 141 - 160 |
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| | 181 - 200 |
| | 201 - 220 |
| | 221 - 240 |
| | 241 - 260 |
| | 261 - 280 |
| | 281 - 300 |
| | 301 - 320 |
| | 321 - 340 |
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CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON
R2527424

722
11/19/49

# 94125

[illegible]

6-10
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20-30
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261-280
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331-350

722
11/19/49

#94043

Line and Fact

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722
11/19/[illegible]

94038

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722
11/19/49

# 94064

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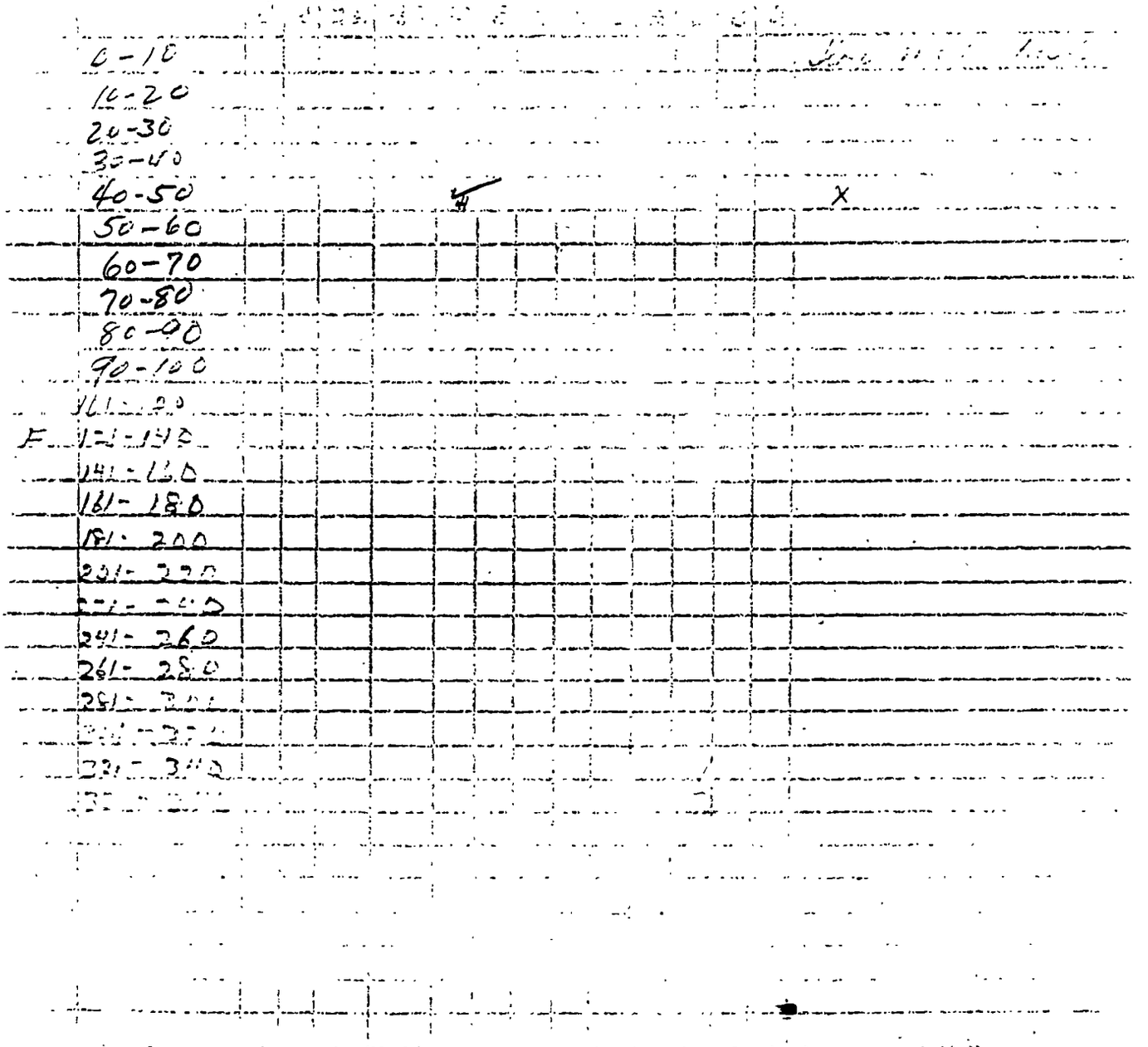
| | 30-40 | | | | | | | | | | | | | |
| | 40-50 | | | | | | | | | | | | | X |
| | 50-60 | | | | | | | | | | | | | |
| | 60-70 | | | | | | | | | | | | | |
| | 70-80 | | | | | | | | | | | | | |
| | 80-90 | | | | | | | | | | | | | |
| | 90-100 | | | | | | | | | | | | | |
| | 101-120 | | | | | | | | | | | | | |
| F | 121-140 | | | | | | | | | | | | | |
| | 141-160 | | | | | | | | | | | | | |
| | 161-180 | | | | | | | | | | | | | |
| | 181-200 | | | | | | | | | | | | | |
| | 201-220 | | | | | | | | | | | | | |
| | 221-240 | | | | | | | | | | | | | |
| | 241-260 | | | | | | | | | | | | | |
| | 261-280 | | | | | | | | | | | | | |
| | 281-300 | | | | | | | | | | | | | |
| | 301-320 | | | | | | | | | | | | | |
| | 321-340 | | | | | | | | | | | | | |
| | 341-360 | | | | | | | | | | | | | |



CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

R2527428

November 21, 1949

MINUTES OF MEETING ON THE .222 CAL. PILOT RIFLES

Gun Room
Monday, November 22, 1949
10:00 A.M.

Attending: H. J. Hackman, W. A. Best, W. E. Leek, S. M. Alvis, E. A. Streed, M. H. Walker, V. G. DeReus, E. K. Wheat

Wayne Leek reported that the function of the .222 caliber rifles is satisfactory. He also reported that the accuracy is not as good as it should be.

The remainder of the discussion was concerned with methods of improving accuracy of the .222 caliber rifle. It was decided to:

1. Assemble a second pilot lot of 50 guns, following the assembly closely to determine at which points the Barrel dimensions become unsatisfactory.

2. Shoot these rifles, using a temporary specification of 1½" for five shots.

3. Those rifles not passing the 1½" specification would be inspected dimensionally in the bore and the usual process of repair applied to bring them within bore variation specifications of .0005".

4. An attempt will be made to select unstraightened Barrel blanks after Heat Treat for the .222 caliber Barrel.

5. Further production of .222 caliber Barrels (other than those in process) will be delayed until corrective measures have been determined to bring the .222 finished Barrel within limits of .0003" variation in the bore.

6. Pilot test for accuracy will be made selecting the guns from the second pilot lot of 50 guns.

M. H. Walker
Arms Technical Division

MHW:eg

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON
R2527429

722
11/19/49

# 94054

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| | 20 - 40 | | | | | | | | | | |
| | 40 - 60 | | | | | | | | | | |
| | 60 - 80 | | | | | | | | | | |
| | 80 - 100 | | | | | | | | | | |
| | 100 - 120 | | | | | | | | | | |
| | 120 - 140 | | | | | | | | | | |
| | 140 - 160 | | | | | | | | | | |
| | 160 - 180 | Bolt overide second shell | | | | | | | | | x |
| | 180 - 200 | | | | | | | | | | |
| | 200 - 220 | | | | | | | | | | |
| | 220 - 240 | | | | | | | | | | |
| | 240 - 250 | | | | | | | | | | |
| F | 260 - 270 | | | | | | | | | | |
| | 280 - 290 | | | | | | | | | | |
| | 300 - 310 | BOLT OVERIDE SECOND SHELL | | | | | | | | | |
| F | 320 - 330 | " | " | x | " | " | | | | | x |
| | 340 - 350 | | | | | | | | | | |

722

11/19/49

#94103

| | | | | |
|---|---|---|---|---|
| | | | | SLD. MED. FAST |
| | 0-20 | | | |
| | 20-40 | | | |
| | 40-60 | | | |
| | 60-80 | | | |
| | 80-100 | | | |
| | 100-120 | | | |
| | 120-140 | | | |
| | 140-160 | | | |
| | 160-180 | | | |
| | 180-200 | | | |
| | 200-220 | | | |
| | 220-240 | | | |
| | 240-250 | | | |
| F | 260-270 | | | |
| | 280-290 | | | |
| | 300-310 | | X | X SHELL BINDS UNDER BOLT |
| | 320-330 | | | |
| | 340-350 | | | |

# 94115

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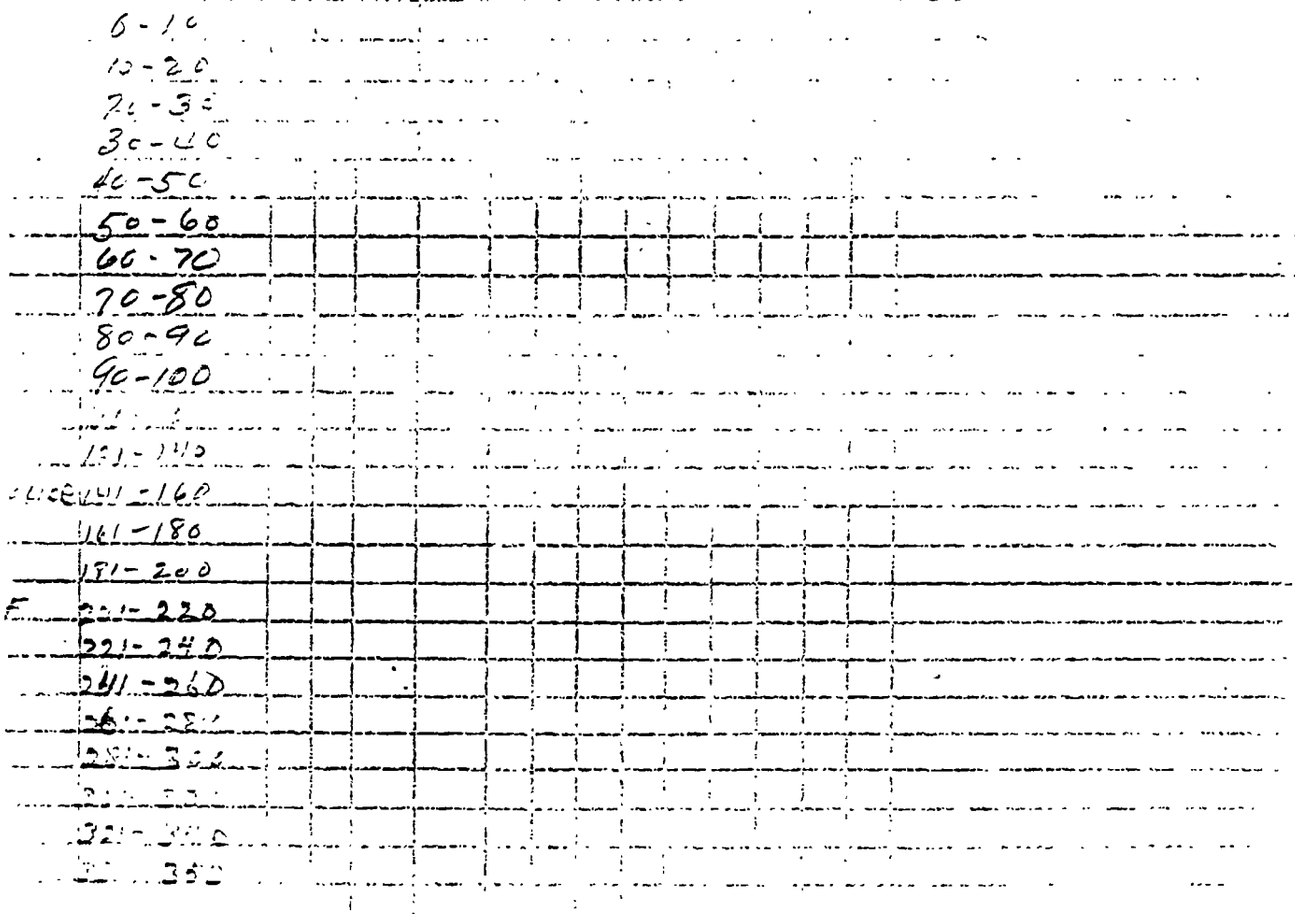
221-240
241-260
261-280
281-300
301-320
321-340
341-350

#94082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60-70
70-80
80-90
90-100
141-160
161-180
181-200
221-240
241-260
321-340
341-360

CC: J. S. W. Alvis
J. D. S. Foote

November 7, 1949

TO: H. J. Hackman

FROM: W. E. Leek

SUBJECT: M/722 - 222 CALIBER PILOT LINE TESTING

Functional testing of these guns has not been made because we have been striving to obtain satisfactory accuracy. However, even after additional lapping of the guns they have shown some improvement but we have not been able to obtain satisfactory groups with the ammunition available. This ammunition, from tests in a bull gun, shows that the gun should be capable of shooting groups of 1.5" extreme spread, 5 shots, or less.

We recommend that the ten test guns which we have selected at random from the pilot run be returned to the plant and the rest of the guns in the 222 caliber be relapped by plant personnel and a random sample again selected and tested.

W. E. Leek
Arms Technical Division

WEL/ml

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON
R2527434

CC: S. M. Alvis
D. S. Foote

November 7, 1949

TO: H. J. Hackman

FROM: W. E. Leek

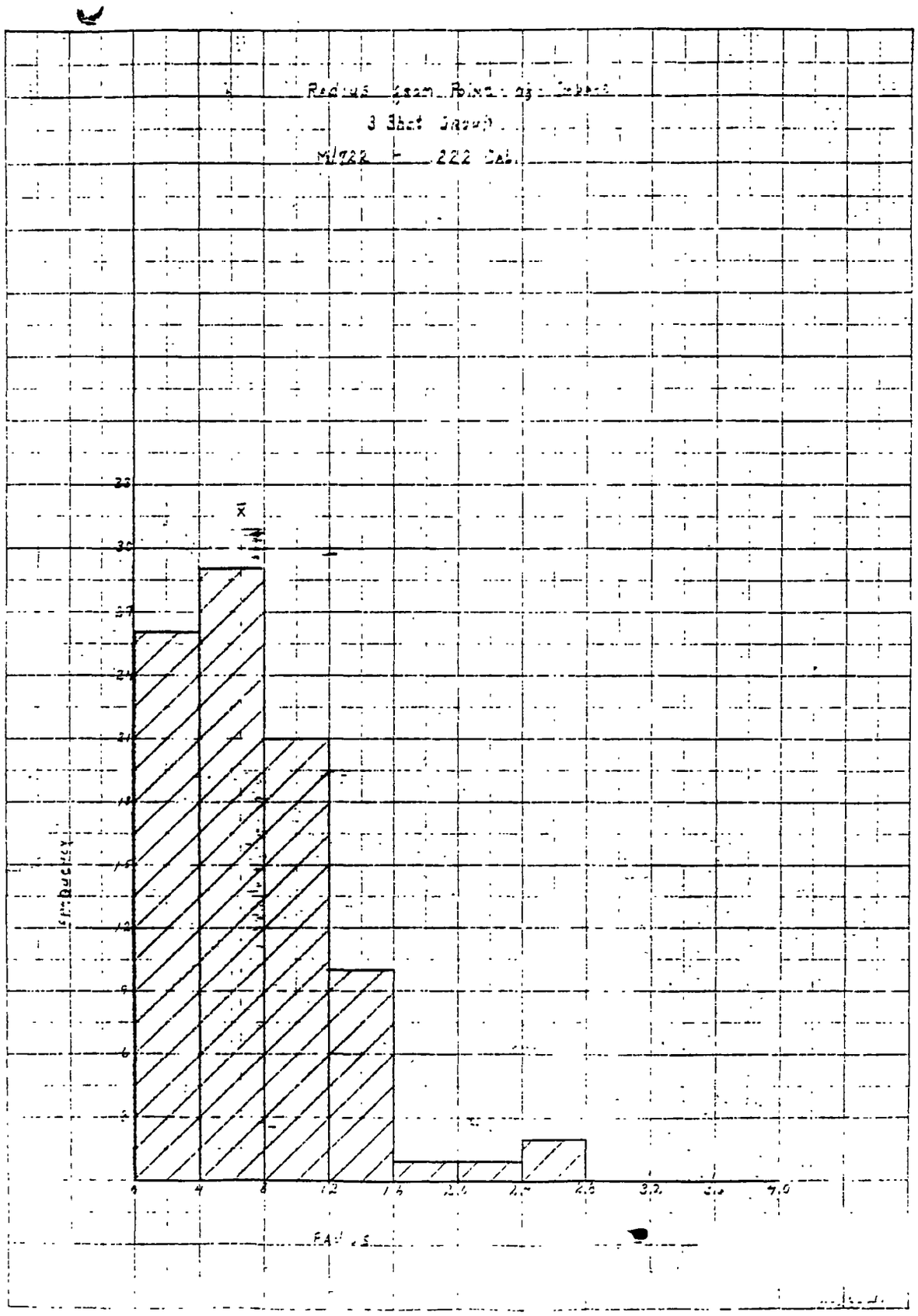
SUBJECT: M/722 - 222 CALIBER PILOT LINE TESTING

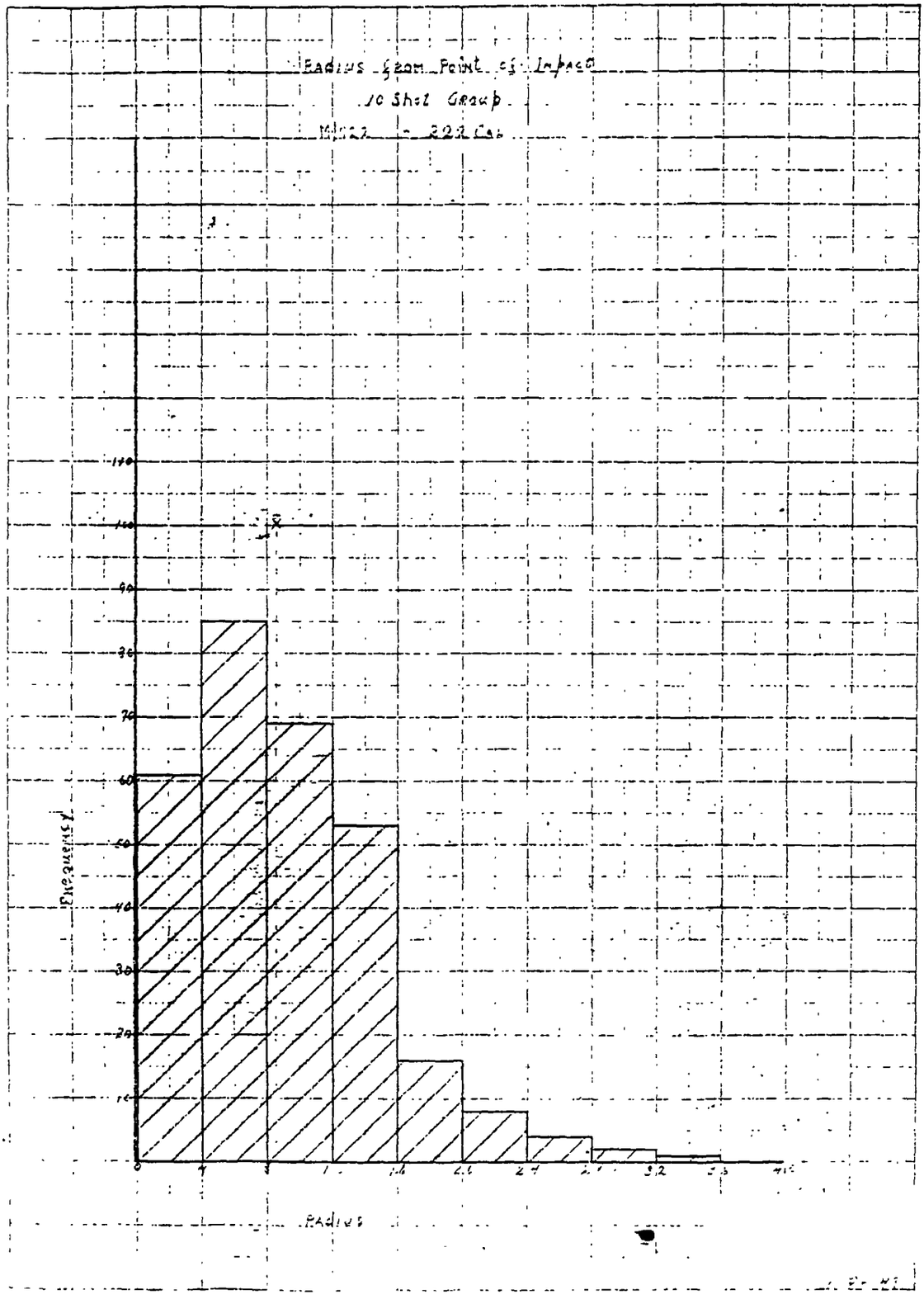
Functional testing of these guns has not been made because we have been striving to obtain satisfactory accuracy. However, even after additional lapping of the guns they have shown some improvement but we have not been able to obtain satisfactory groups with the ammunition available. This ammunition, from tests in a bull gun, shows that the gun should be capable of shooting groups of 1.5" extreme spread, 5 shots, or less.

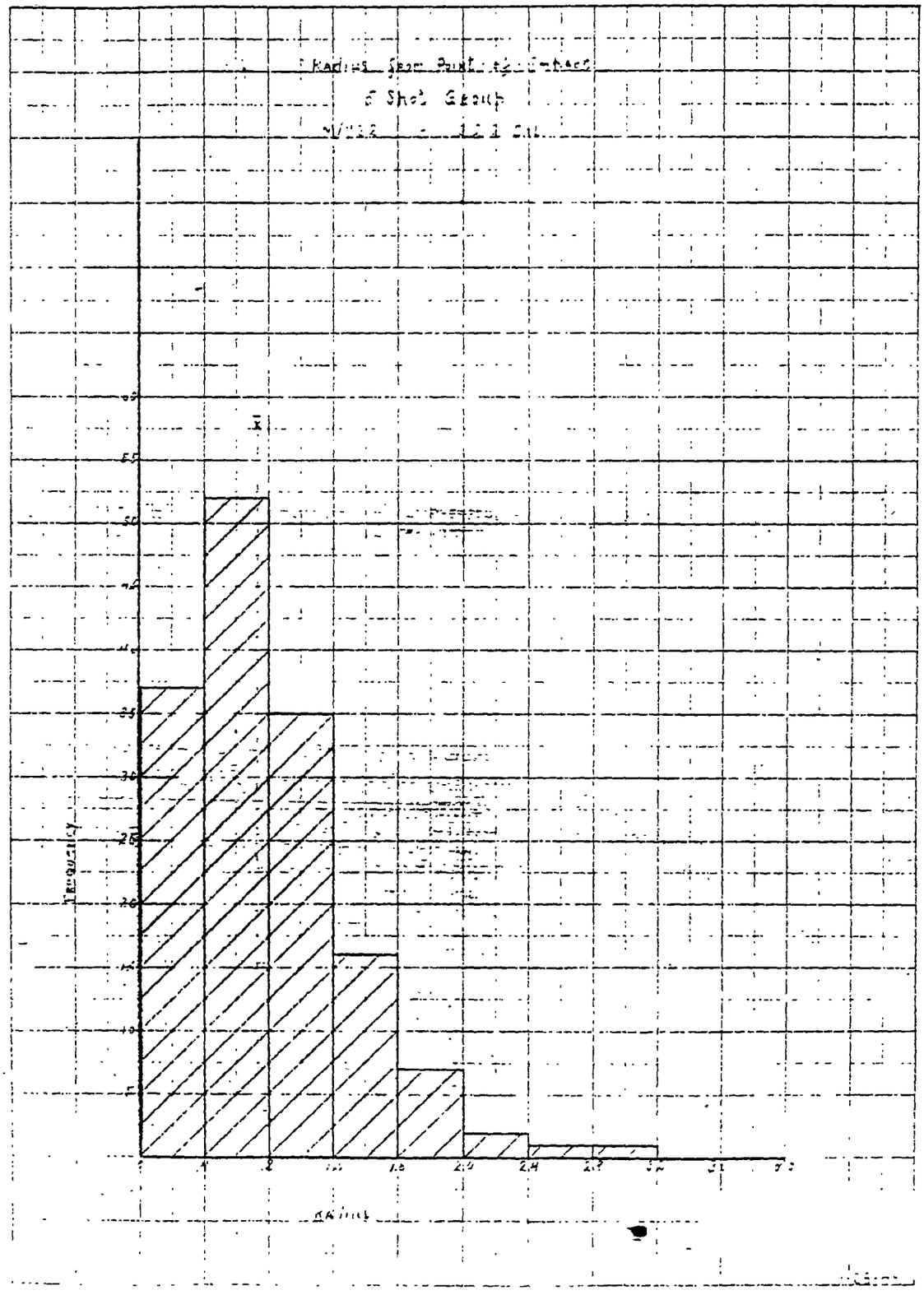
We recommend that the ten test guns which we have selected at random from the pilot run be returned to the Plant and that all of the guns in the 222 caliber be relapped by plant personnel and a random sample again selected and retested.

W. E. Leek
Arms Technical Division

WEL/ml


3 Shot Group
222 Cal.
Frequency
Radius


Radius from Point of Impact
10 Shot Group
Frequency
Radius



CC: S. M. Alvis
D. S. Foote

November 7, 1949

TO: H. J. Hackman (3)

FROM: W. E. Leek

SUBJECT: ACCURACY & FIELD PERFORMANCE - 222 REMINGTON AMMUNITION

The following is a report pertaining to our findings concerning the inherent accuracy of Lot U28M104, 222 Remington Ammunition and the results of actual field tests on vermin. Specifications of the accuracy test were as follows.

1. Bull gun with 20 power scope.
2. Ammunition lot U28M104.
3. Firing rate - 1 shot every 30 seconds.
4. Bench type gun rest with sand bag support at fore-end and stock.
5. 2 shooters - C. J. Theriault & W. E. Leek.
6. Enclosed 100 yard range.
7. Extreme spread measurements (inside to inside) 6 ten shot groups.

Results of the accuracy test were as follows.

| Shooter | Target | E. S. | V. S. | M. S. |
|---|---|---|---|---|
| W. E. Leek | 1 | .7 | .65 | .4 |
| | 2 | .9 | .65 | .85 |
| C. J. Theriault | 1 | 1.3 | .4 | 1.3 |
| | 2 | .9 | .7 | .9 |
| | 3 | .6 | .5 | .6 |
| | 4 | 1.2 | .7 | 1.0 |
| Total | | 5.6 | 3.6 | 5.05 |
| Av. | | .9 | .6 | .84 |

The objective in the field test conducted by W. M. Walker and the writer was to determine performance of the 43 grain bullet on vermin, at various ranges, brush penetration, ricochets on rocks (wet and dry ground), etc.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

SUBJECT: ACCURACY & FIELD PERFORMANCE - 222 REMINGTON AMMUNITION

Results of this test show the following.

1. Complete ricochets were not possible under any circumstance.

2. Effect on vermin such as crows and chucks was very good giving good clean kills up to 300 yards.

3. Brush penetration tests show that complete disintegration of the bullet can be expected when fired thru green trees 1/2" in diameter.

REMARKS:

It is the writer's opinion that the accuracy of the 222 ammunition, if held to the specifications of Lot USRM104, will be satisfactory for vermin shooting and that the bullet disintegrates satisfactorily preventing dangerous ricochets.

W. E. Leek
Arms Technical Division

WEL/ml

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON
R2527440

SPECIAL TEST Sand test 10-H 10L RD [illegible]

INSTRUCTIONS 721 A 280

Model 721A Jack No. 2 Shooter Long. Date 11/2

| Gun No. | Cal. Ga. | Rds. | Ammunition Code | Rds. | Ammunition Code |
|---|---|---|---|---|---|
| 425976 | 5<br>5 | 165<br>125 | OK | 5 165<br>5 125 | OK. |
| 425369 | " | " | OK | " | OK |
| 714976 | " | " | OK | " | OK |
| 425959 | " | " | OK | " | OK |
| 425800 | " | " | OK | " | OK. |
| 425903 | " | " | OK | " | OK |
| 714984 | " | " | OK | " | OK |
| 714945 | " | " | OK | " | OK |
| 425821 | " | " | OK | " | OK |
| 430009 | " | " | OK | " | OK. |
| 425986 | " | " | OK | " | OK. |
| 425830 | " | " | OK | " | OK |
| 714972 | " | " | OK | " | OK |

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

SPECIAL TEST RD-6491

INSTRUCTIONS 721 A.

Model 721 A. Jack No. 2 Shooter Tanyo Date 11/2

| Gun No. | Cal. Ga. | Rds. | Ammunition Code | Rds. | Ammunition Code |
|---|---|---|---|---|---|
| 425809 | 5 | 125 | OK | 5 125 | OK. |
| 425836 | " | " | OK | " | OK. |
| 714946 | " | " | OK | " | OK |
| 425935 | " | " | OK | " | OK |
| 425905 | " | " | OK | " | OK |
| 714996 | " | " | OK | " | OK |
| 425843 | " | " | OK | " | OK. |

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KINZER V. REMINGTON

REMINGTON ARMS COMPANY, INC.
Ilion Research Division

cc: S.M. Alvis
D.E. Miller
R.A. Williamson
H.J. Hackman
R.B. Hurley
A.D. Gordon
W.E. Leek
R.P. Kelly
In Turn

Ilion, New York
September 10, 1959

W. A. BEST

MODEL 722 - 222 CALIBER - AUDIT FOR 1959

For your information, the above test was started 8-4-59 and completed 9-1-59. Following is the procedure and results.

Procedure

All ten rifles were fired for accuracy, three 5-shot groups, using 20 power scope, the gallery range, and Rem. 50 grain ammunition. Measurements of group size were inside to inside.

All ten rifles were field tested 40 rds. each using Remington ammunition. Each rifle was checked for unloading live ammunition.

Results

Function-wise, nine rifles were perfect. The tenth had hard failures to lock up, which was corrected by chamfering the sharp edge on the inside of the shroud.

Accuracy test showed all rifles to average within the 2" gallery specs. for this caliber.

Accuracy results are as follows:

| Gun No. | Group Size | Avg. | Gun No. | Group Size | Avg. |
|---|---|---|---|---|---|
| 427038 | 1) .9 "<br>2) 1.15"<br>3) 1.3 " | 1.1 " | 427386 | 1) 1.6 "<br>2) 1.75"<br>3) 2.1 " | 1.81" |
| 427754 | 1) .85"<br>2) 1.5 "<br>3) 1.2 " | 1.18" | 427419 | 1) 1.7 "<br>2) .9 "<br>3) 2.35" | 1.65" |

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KINZER V. REMINGTON

| Gun No. | Group Size | Avg. | Gun No. | Group Size | Avg. |
|---|---|---|---|---|---|
| 427795 | 1) .6 "<br>2) 1.2 "<br>3) 1.5 " | 1.1 " | 427013 | 1) 1.6 "<br>2) 1.95"<br>3) 2.25" | 1.93" |
| 427034 | 1) 1.5 "<br>2) 2.35"<br>3) 1.9 " | 1.91" | 427041 | 1) 1.0 "<br>2) 1.6 "<br>3) 1.6 " | 1.4 " |
| 427783 | 1) 1.45"<br>2) 2.8 "<br>3) 1.6 " | 1.81" | 426789 | 1) 2.2 "<br>2) 1.25"<br>3) 2.2 " | 1.88" |

Overall Average 1.57"

C. J. Theriault
Supervisor - Testing Unit

CJT:T

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

REMINGTON ARMS COMPANY, INC.
Ilion Research Division

cc: S.M. Alvis
D.E. Miller
R.A. Williamson
H.J. Hackman
R.B. Hurley
A.D. Gordon
W.E. Leek ) In
R.P. Kelly) Turn

Ilion, New York
September 10, 1959

W. A. BEST

MODEL 722 - 244 CALIBER - AUDIT FOR 1959

For your information the following is the procedure and results of an audit test on the above model, which was started on 8-5-59 and completed 9-2-59.

Procedure

Ten rifles were selected from warehouse and subjected to an accuracy test. Three 5-shot groups were fired using the Rem.90 grain bullet, 20 power scope, and the 100 yd. plant range. All groups were measured inside to inside.

These ten rifles were then field tested, firing a total of 80 rds. each. The Rem. 75 grain SP, and the Rem. 90 grain SP were fired in this test (40 rds. each). Live round unloading was also checked.

Results

Functioning

There were no malfunctions, which is very satisfactory.

Accuracy Test

Two of the ten rifles averaged over the 2" gallery specs. for this caliber. ~~The remainder if measured outside to outside would have passed.~~ The results of this test are as follows:

| Gun No. | Group Size | | Avg. | Gun No. | Group Size | | Avg. |
|---|---|---|---|---|---|---|---|
| 428342 | 1. | 2.0" | | 428176 | 1. | 1.7" | |
| | 2. | 1.75" | 2.11" | | 2. | 2.25" | 1.78" |
| | 3. | 2.6 " | | | 3. | 1.4 " | |

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| Gun No. | Group Size | | Avg. | Gun No. | Group Size | | Avg. |
|---|---|---|---|---|---|---|---|
| 428365 | 1. | 2.3 " | | 428178 | 1. | 2.6 " | |
| | 2. | 1.9 " | 2.05" | | 2. | 1.3 " | 2.05" |
| | 3. | 1.95" | | | 3. | 2.25" | |
| 428279 | 1. | 2.1 " | | 428135 | 1. | 1.8 " | |
| | 2. | 2.75" | 2.28" | | 2. | 4.2 " | 2.8 " |
| | 3. | 2.0 " | | | 3. | 2.6 " | |
| 428124 | 1. | 2.1 " | | 428253 | 1. | 2.25" | |
| | 2. | 1.8 " | 2.3 " | | 2. | 1.5 " | 2.45" |
| | 3. | 3.1 " | | | 3. | 3.6 " | |
| 428197 | 1. | 1.45" | | 428246 | 1. | 2.0 " | |
| | 2. | 2.0 " | 1.48" | | 2. | 4.0 " | 2.8 " |
| | 3. | 1.0 " | | | 3. | 2.5 " | |

**Overall Average 2.21"**

C. J. Theriault

**C.J. Theriault**
**Supervisor - Testing Unit**

**CJT:T**

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

1) ~~[illegible]~~
2) ~~Hurley~~
3) Hurley

cc: S.M. Alvis
D.E. Miller
R.A. Williamson
H.J. Hackman
~~V.O. DeReus~~
W.E. Leek ) In
R.L. St.John) Turn

Ilion, New York
April 15, 1958

W. A. BEST

MODEL 722 - 222 MAGNUM - PILOT LINE TEST

At your request ten of the above guns were selected on 4/11/58 and subjected to test.

Procedure

All ten guns were fired three 5-shot groups for accuracy on the 100 yd. range, using a 15-power scope mounted on the barrel and receiver.

Then all ten guns were fired 50 rounds each in field test.

Conclusions

Accuracy-wise, all guns passed the 2" gallery specs. measuring inside to inside. However, there are three conditions which could be corrected to help better the accuracy:

1. The bedding of the fore end on some guns is very poor.
2. Engagement of the sears in five guns appears to be too great.
3. Takedown screws were loose.

There was no significant change in point of impact.

Function

Function-wise, there were no malfunctions that occurred in field test. All rifles unloaded live ammunition satisfactorily. Three of the ten rifles had safeties that were hard to put in On position.

Accuracy

| Gun No. | | Group Size | Point of Impact | | | |
|---|---|---|---|---|---|---|
| 1 | 1) | 2.4" | .1" | right | 6.2" | high |
| 414737 | 2) | 1.3" | 1.1" | left | 6.2" | " |
| | 3) | 1.8 | .75" | " | 6.9" | " |
| | Avg. | 1.96" | | | | |

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| Gun No. | | Group Size | Point of Impact | | | |
|---|---|---|---|---|---|---|
| 2 | 1) | 1.3" | 1.7" | right | 3.2" | high |
| 415283 | 2) | 3.0" | 1.0" | " | 2.6" | " |
| | 3) | 1.65" | 1.9" | " | 3.0" | " |
| | Avg. | 1.98" | | | | |
| 3 | 1) | 2.8" | 2.3" | left | .5" | high |
| 414917 | 2) | 1.5" | 2.8" | " | 1.2" | " |
| | 3) | 1.6" | 2.0" | " | 1.2" | " |
| | Avg. | 1.96" | | | | |
| 4 | 1) | 1.6" | 1.1" | right | 1.1" | low |
| 414901 | 2) | 1.55" | .9" | " | 1.2" | " |
| | 3) | 1.75" | .9" | " | 1.1" | " |
| | Avg. | 1.63" | | | | |
| 5 | 1) | 2.3" | .9" | left | 1.5" | high |
| 414904 | 2) | 2.8" | .4" | " | 1.65" | " |
| | 3) | 2.9" | .5" | " | 1.5" | " |
| | Avg. | 2.36" | | | | |
| 6 | 1) | 2.1" | .5" | Right | 1.0" | low |
| 414872 | 2) | 3.0" | 1.4" | " | 1.8" | " |
| | 3) | 2.9" | 1.25" | " | 1.6" | " |
| | Avg. | 2.3" | | | | |
| 7 | 1) | 1.85" | .3" | right | .65" | high |
| 415339 | 2) | 2.30" | .1" | " | .5" | " |
| | 3) | 1.15" | 0 | | .2" | " |
| | Avg. | 1.76" | | | | |
| 8 | 1) | 2.1" | 1.75" | right | 2.85" | high |
| 414865 | 2) | 1.65" | 1.95" | " | 2.75" | " |
| | 3) | 1.5" | 1.75" | " | 2.40" | " |
| | Avg. | 1.75" | | | | |
| 9 | 1) | 1.5" | .65" | right | 2.3" | high |
| 398922 | 2) | 2.15" | .60" | " | 1.95" | " |
| | 3) | 1.8" | .35" | " | 2.0" | " |
| | Avg. | 1.81" | | | | |

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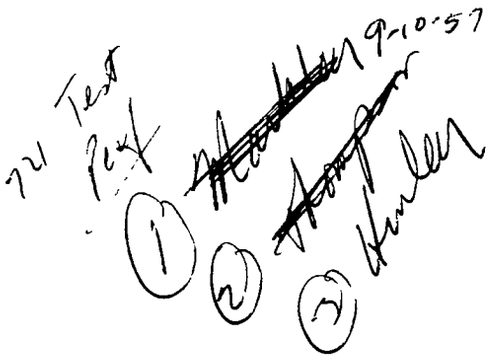
| Gun No. | Group Size | | Point of Impact | | | |
|---|---|---|---|---|---|---|
| 10 | 1) | 1.65" | .35" | right | 3.15" | high |
| 415277 | 2) | 1.35" | .3" | " | 2.6" | " |
| | 3) | 1.30" | .45" | " | 2.9" | " |
| | Avg. | 1.43" | | | | |

C. J. Therimult
Supervisor - Testing Unit

CJT:T

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON



721 Test Pert
(1) ~~Hackler~~ 9-10-57
(2) ~~Hampson~~
(3) Hurley

CC: D. E. Miller
H. J. Hackman
R. A. Williamson
E. B. Wallin
~~R. B. Hurley~~

A. D. Gordon
S. W. Fisher
W. J. Scott
C. D. Hunt - Bdpt.

Ilion, New York
August 30, 1957

R. E. WRIGHT

M/721-722 COMBINED TEST & TARGET

Effective Tuesday, 9-3-57, the separate gallery testing operation on all calibers M/721-722 except the 222 and 244 will be discontinued. Functional testing will be combined and done with the targeting operation in accordance with the attached procedure.

Approximately twenty nine hundred (2900) guns have been processed through the comparison test program initiated on 6-10-57. All reject guns from both the regular gallery test and the special "target test" have been submitted to an additional test by Dept. 83 personnel for verification. Results indicate that functional specifications on all but the 222 and 244 calibers can be controlled at target.

In addition to maintaining our present quality level, the new procedure will realize a substantial reduction in cost. Hi-spot estimates show a combined ammunition and labor savings of $23.20/100 guns on the 30-06, 270, 300 H & H, 257, 300 Sav. and 308 calibers.

Comparison tests on the 222 and 244 calibers will continue for an indefinite period for additional information and study. It is hoped that these guns can be included in the combined test at a later date.

Attached is a new procedure covering the gallery testing of these two calibers.

W. A. Best, Supervisor
Product Testing Specs.

by [signature]
R. F. Kerr

RFK:I
Attach.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

Form #85-3

Test Pay

Tester's Name : _____

Date : _____

M/721-722 SPECIAL "TARGET TEST"

| Truck No. | Gun No. | Cal. | Gun Serial No. | Results of Test Bullet #1 - Gr. | No. Rds. | Bullet #2 - Gr. | No. Rds. | Disposition |
|---|---|---|---|---|---|---|---|---|
| | 1 | | | | | | | |
| | 2 | | | | | | | |
| | 3 | | | | | | | |
| | 4 | | | | | | | |
| | 5 | | | | | | | |
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CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

Form #85-4 721 Test Ptg.

Tester's Name: _____

Date: _____

M/721-722 REGULAR GALLERY TEST

| Truck No. | No. Guns in Truck | Cal. | Gun Serial No. | Results of Test | | Disposition |
|---|---|---|---|---|---|---|
| | | | | Bullet #1 - Gr. | Bullet #2 - Gr. | |
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CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

CC: D. E. Miller
H. J. Hackman
R. A. Williamson
E. B. Wallin
R. B. Marley
A. D. Gordon
S. W. Fisher
W. J. Scott
C. D. Hunt - Bdpt.

Ilion, New York
June 5, 1957

R. E. WRIGHT

SPECIAL "TARGET - TEST" - M/721-722

Effective Monday, 6-10-57, we will start a series of comparison tests on the subject models. The tests will run for a period sufficiently long to accumulate adequate data for properly evaluating the feasibility and economics of a combined accuracy and functional test.

During the trial testing period, the regular gallery tester will be governed by the current plant center fire testing procedure with the following exceptions:

1. Test results will be recorded on special test report form #85-4. One sheet will be used for each truckload of guns and will show truck number, number of guns on truck, caliber and the serial number of guns with malfunctions. Malfunctions will be listed under bullet type and by sequence. Tester will sign and date each sheet and see that they are delivered to the writer daily.

2. Reject guns will remain on truck and proceed with balance of truck to targeting area for special "Target - Test".

3. The tester will make out test reject ticket in the usual manner showing date, gun serial number, truck number, assembler's number, tester's initials, malfunction (type and sequence), and if a repair, the number of times back. The only addition to present information is the truck number. This will be inserted on the lower portion of the ticket between the assembler's number and tester's initials.

4. Test reject tickets will be placed in truck number envelope attached to truck. They are not to be removed from envelope by anyone until final inspection. At this point, the inspector will put them with the gun involved.

All caliber M/721 and M/722 guns, both new and repairs, will be moved to the production targeting area immediately following the regular gallery test. Here they will be given a special "Target - Test" by production targeting personnel.

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KINZER V. REMINGTON

Guns will be functionally tested during regular targeting operation and the results recorded by gun and truck number on special test report form #85-3. One sheet will be used for each truckload of guns. The targeter will sign and date each sheet and show truck number, number of guns on truck, caliber, number of rounds fired through each gun and the serial number of those guns found with malfunctions. Malfunctions are to be listed by bullet type and sequence. Test results will be delivered to the writer daily.

The following procedure is to be used by targeter:

Completely load Magazine (222 Cal. - 5 rounds, 300 H & H - 3 rounds, all others - 4 rounds). Feed and fire all rounds required for regular seating and targeting. If the last shell in magazine is not needed, it should be fed into chamber and ejected unfired.

The targeter will single load and fire any additional rounds needed to satisfy accuracy standards. However, these rounds are not to be included as part of the test record.

While these comparison tests are being conducted, the targeter will follow current testing procedure for calling and recording malfunctions, that is, he will check for loading, feeding, firing, extracting and ejecting.

Guns with no malfunctions will pass the functional test. Guns with one (1) or more malfunctions will be rejected.

Two (2) bullet weights are to be used on each truckload of guns except the 300 H & H and 222 Rem. Calibers where only one bullet weight is prescribed. One side or one half of truck is to be tested with the heavy bullet; the other side or second half with the light bullet.

If more than one (1) gun on a truck malfunctions with one bullet type, test all guns on truck with that particular bullet. This will be in addition on those guns being fired with the second type bullet.

Guns will be accepted or rejected for accuracy in accordance with present targeting standards. However, the targeter may make an allowance for elevation on point of impact for different bullet types.

Reject guns are to be left on truck and moved to final inspection with passed guns. The targeter will fill out a <u>test reject</u> ticket furnishing the same items. of information as the regular gallery tester. Each ticket will be placed in the trigger bow of the gun involved.

<u>Target reject</u> tickets will also be made out by the targeter. These will be handled in the usual manner.

If there are any questions in connection with the above or any assistance required during the trial testing period, please contact the writer.

W. A. Best, Supervisor
Product Testing Specs.

by _____
R. F. Kerr

RFK:I

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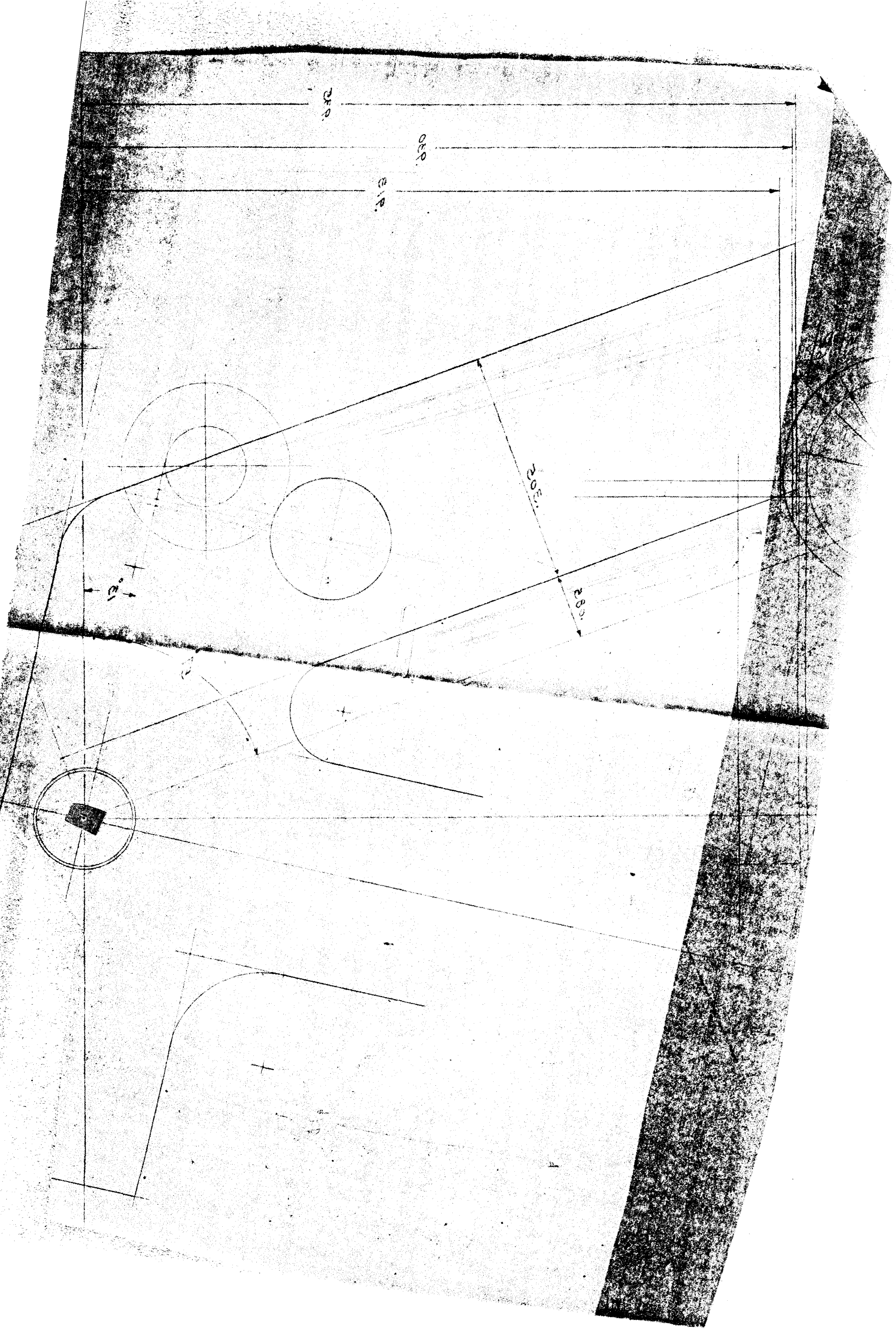
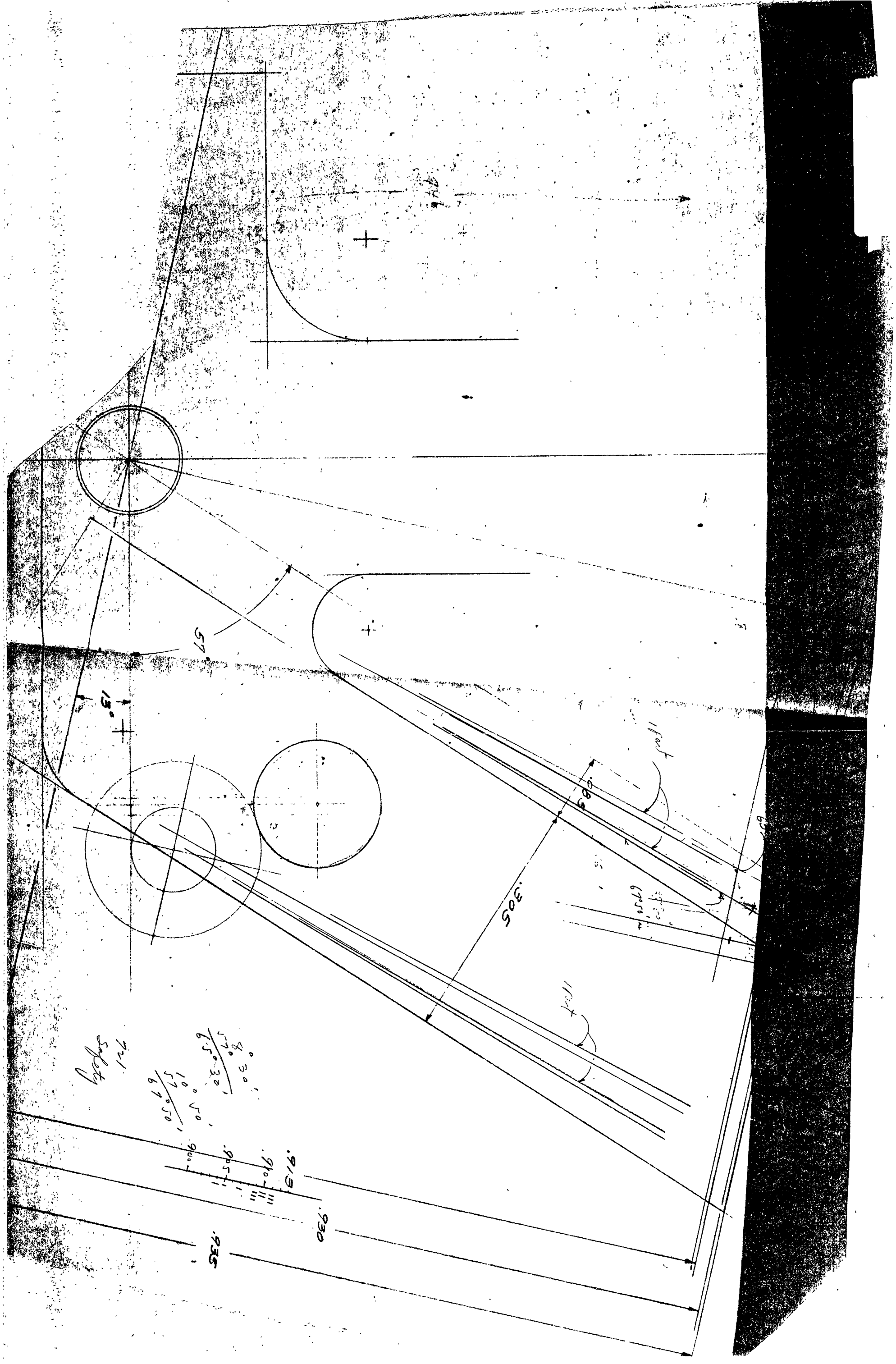
KINZER V. REMINGTON

R2527455



CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON


57°
15°
305
Part
Safety
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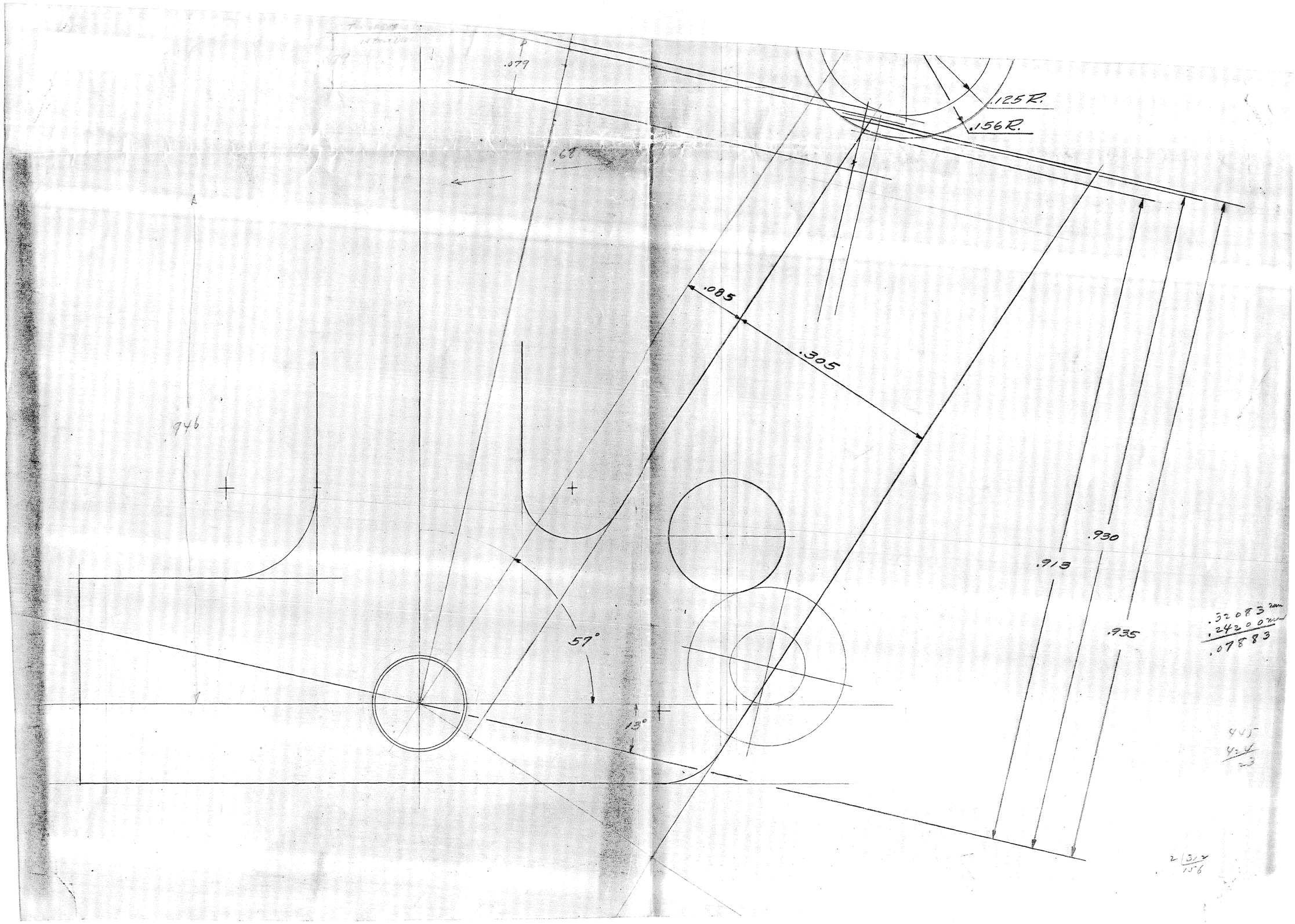
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.68
.125R.
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57°
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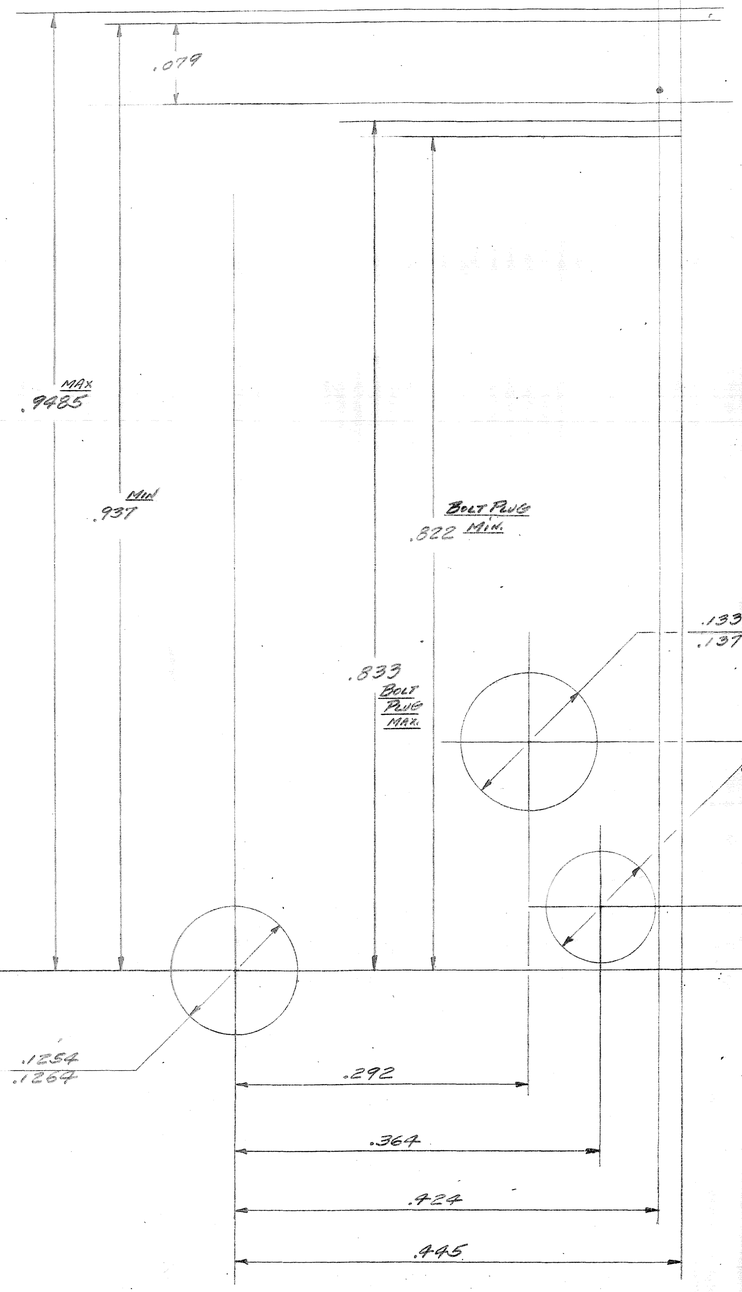
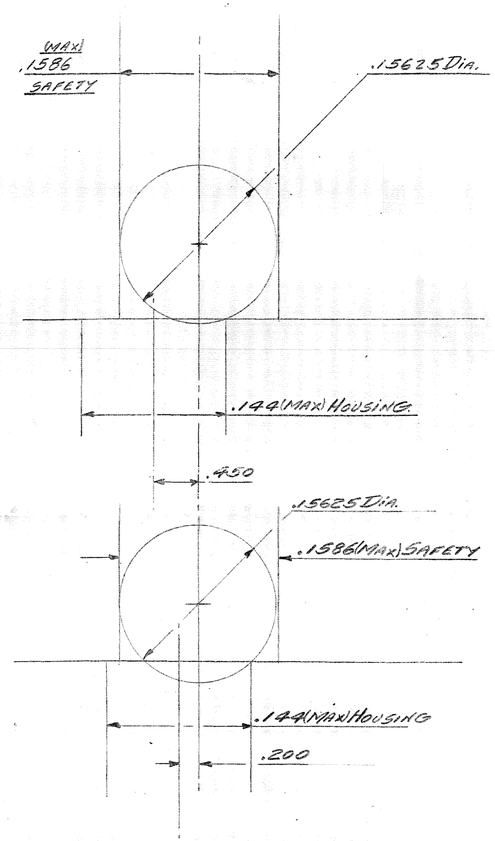
.12200 mm
.07883




700 Housing




CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

.6965 BOLT BODY (DIA.)
+.0015
2|.6980 (MAX) DIA.
-.3490 (MAX) RAD.
.2100 (MIN) BOLT BODY
.1390 (MAX) BOLT BODY

.3085 REC.
+.0035
.3120 (MAX)
-.1507 (MIN)
.1613 (MAX) REC.

.1542
-.0035
.1507 (MIN) REC. PER GA. D-51617.

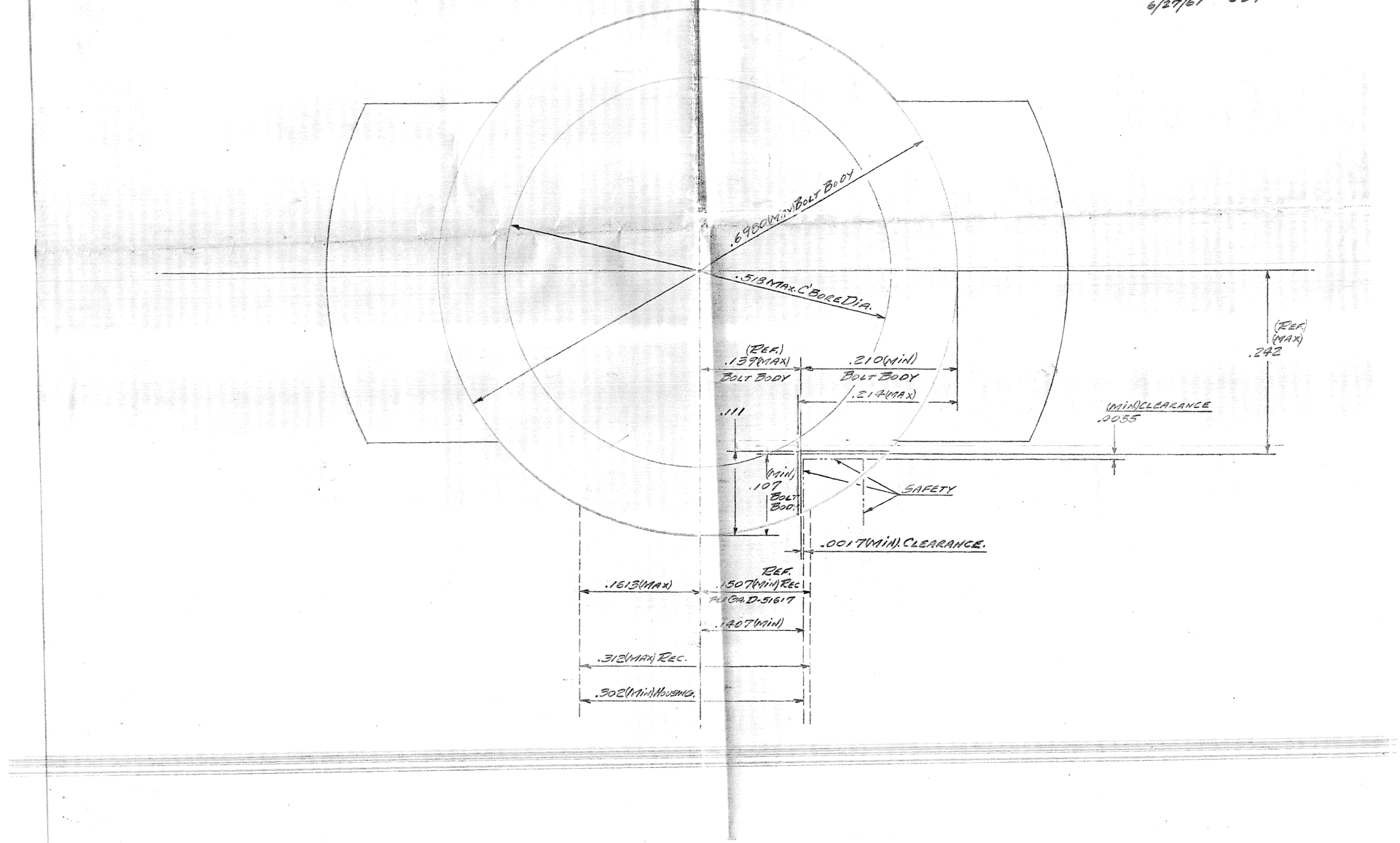
.305
-.003
.302 (MIN) HOUSING.
-.1613 (MAX) REC.
.1407 (MIN) HOUSING TO ℄ REC.

.2655 SEE SHT J
-.0180
.2475 (MIN)
-.2420 (MAX)
.0055 (MIN) CLEARANCE

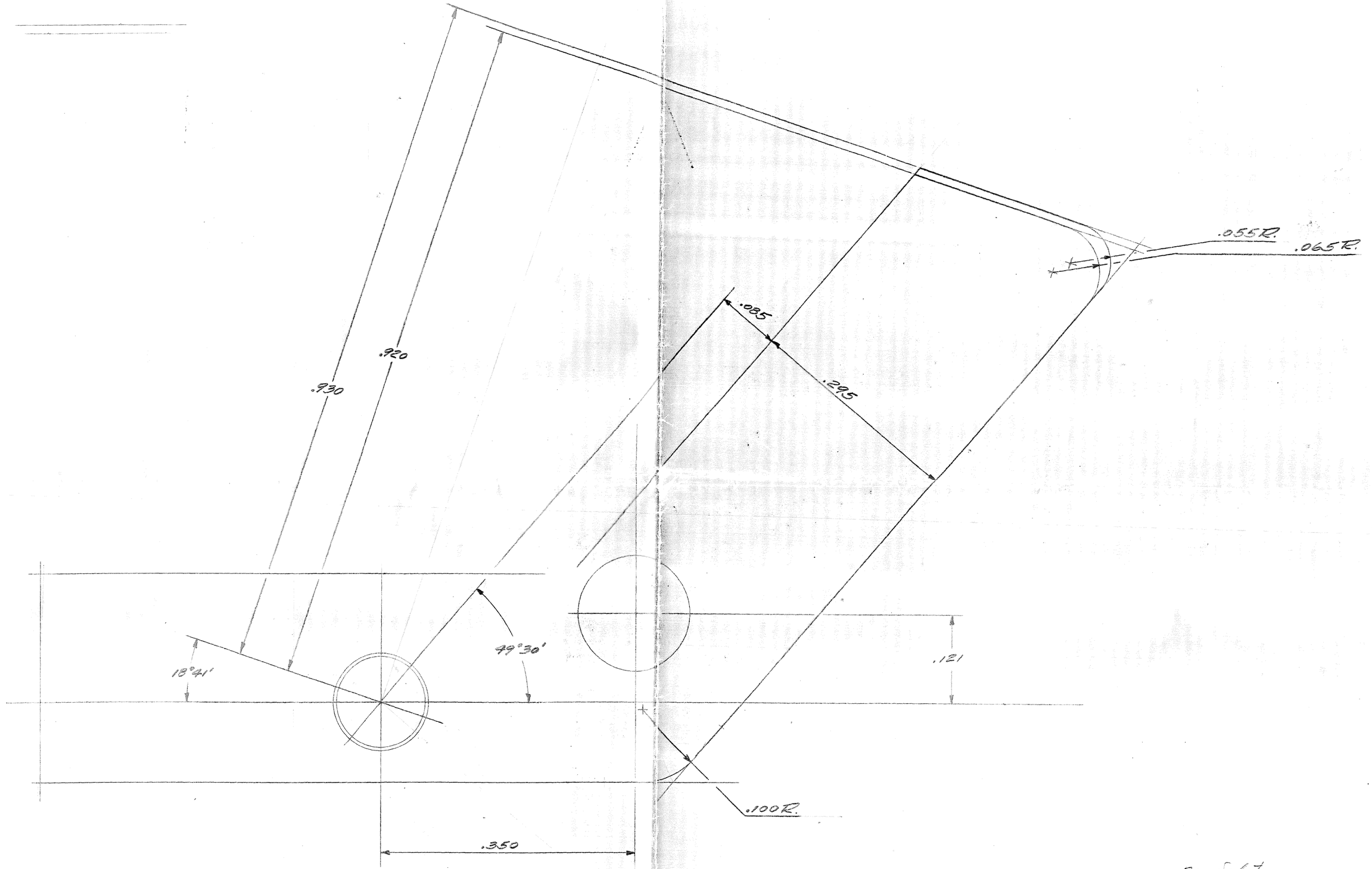
.1407 (MIN)
.1390 (MAX) BOLT BODY
.0017 (MIN) CLEARANCE

.3490 (MAX) RAD BOLT BODY
.1070 (MIN) BOLT BODY.
.2420 (MAX) BOLT BODY.

SHEET M (PROPOSED)
M/721 REC, SAFETY + BOLT
6/27/61 CSY.

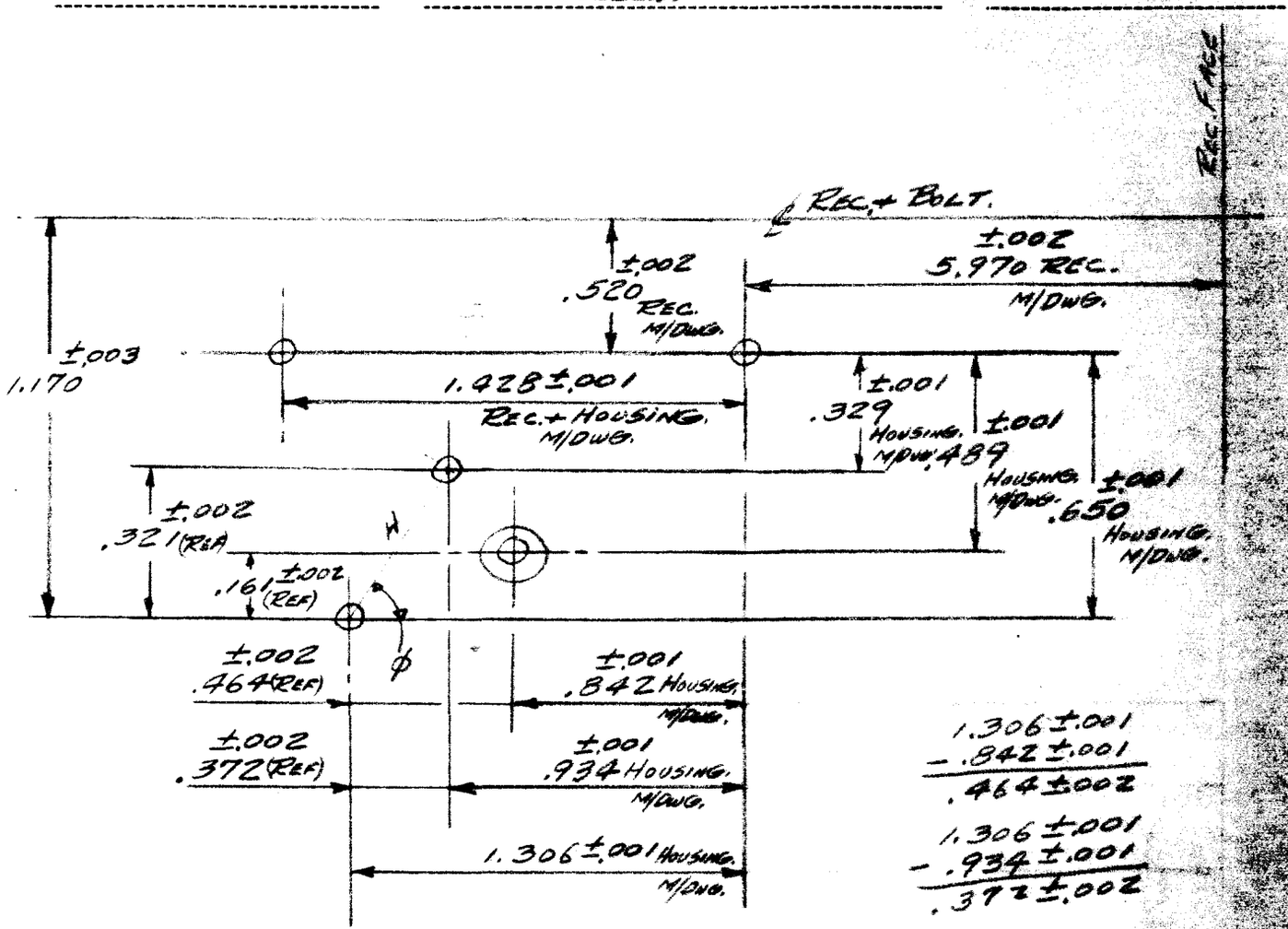


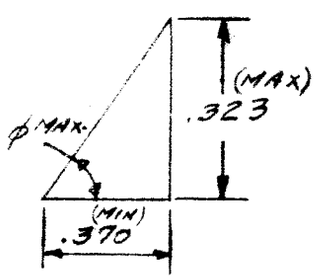

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

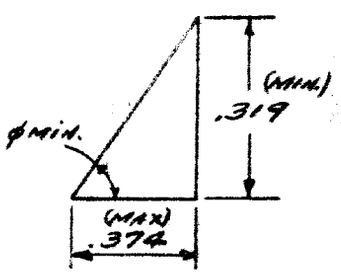



CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

BY CSY DATE 6/27/61 SUBJECT M/T21 Rec, SAFETY, + SHEET NO. A OF
CHKD. BY DATE BOLT. JOB NO.
CURRENT




$1.306 \pm .001 - .842 \pm .001 = .464 \pm .002$

$1.306 \pm .001 - .934 \pm .001 = .372 \pm .002$

$.650 \pm .001 - .489 \pm .001 = .161 \pm .002$

$.650 \pm .001 - .329 \pm .001 = .321 \pm .002$

$.650 \pm .001 - .520 \pm .002 = 1.170 \pm .003$

$\text{Tan}\,\phi_{MAX} = \frac{.323}{.370} = .87297 = 41°7'12''$

$\text{Tan}\,\phi_{MIN} = \frac{.319}{.374} = .85294 = 40°27'44''$

$H(MAX) = \sqrt{.323^2 + .374^2} = .49417 (MAX)$

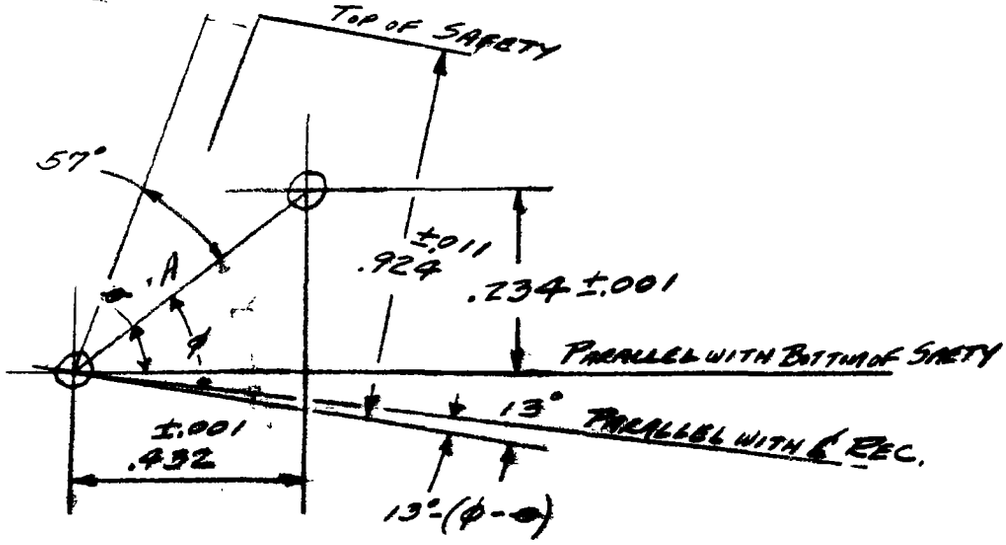
$H(MIN) = \sqrt{.319^2 + .370^2} = .48853 (MIN)$

$H(MEAN) = .4913 5$

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

BY CSY. DATE 6/27/61 SUBJECT M/TN1 REC, SAFETY + BELT CURRENT SHEET NO. B OF
CHKD. BY DATE JOB NO.

SAFETY




$A(MAX) = \sqrt{.433^2 + .235^2} = .49266$

$A(MIN) = \sqrt{.431^2 + .233^2} = .48995$

$A(MEAN) = .49131$

$\tan\theta(MAX) = \frac{.235}{.431} = .54524 = 28°36'3''$

$\tan\theta(MIN) = \frac{.233}{.433} = .53811 = 28°17'6''$

$\phi(MAX) = 41°7'12''$
$-\theta(MIN) = 28°17'6''$
$\phi-\theta(MAX) = 12°50'6''$

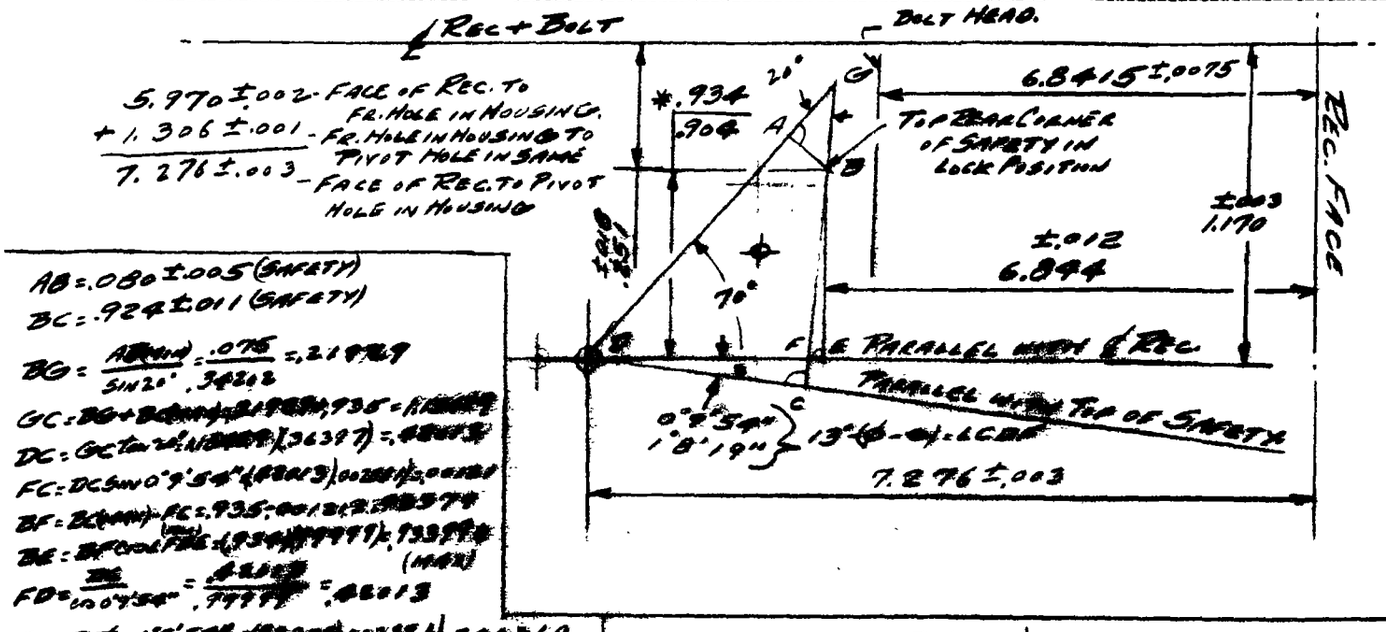
$\phi(MIN) = 40°27'44''$
$-\theta(MAX) = 28°36'3''$
$\phi-\theta(MIN) = 11°51'41''$

$13°$
$12°50'6''$
$0°\ 9'\ 54'' = 13°-(\phi-\theta)(MIN)$

$13°$
$11°\ 51'\ 41''$
$1°\ 8'\ 19'' = 13°-(\phi-\theta)(MAX)$

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

BY C.S.Y. DATE 6/27/61 SUBJECT M/T21 REC., SAFETY + BOLT CURRENT SHEET NO C OF
CHKD. BY DATE JOB NO.




AB = .080 ± .005 (SAFETY)
BC = .924 ± .011 (SAFETY)
BG = AB(MIN) / SIN 20° = .075 / .34202 = .21929
GC = BG + BC(MIN) = .21929 + .935 = [illegible]
DC = GC tan 20° = [illegible] (.36397) = [illegible]
FC = DC sin 0°9'54" = [illegible]
BF = BC(MIN) - FC = .935 - [illegible] = [illegible]
BE = BF cos ∠FBE = [illegible] (MAX)
FD = BE / cos 0°9'54" = [illegible] / .99999 = .42013
FE = BE tan 0°9'54" = [illegible] = .00269
DE = FD + FE = [illegible] + .00269 = .42282

BG = AB(MIN) / SIN 20° = .075 / .34202 = .21929
GC = BG + BC(MIN) = [illegible] + .935 = [illegible]
DC = GC tan 20° = [illegible] = [illegible]
FC = DC sin 1°8'19" = [illegible]
BF = BC(MIN) - FC = [illegible]
BE = BF cos ∠FBE = [illegible] (MAX)
FD = DC / cos 1°8'19" = [illegible] / .99979 = .42284
FE = BE tan 1°8'19" = [illegible]
DE = FD + FE = [illegible]

.423 (MIN)
.441 (MAX)
.864 / 2
.432 ± .009 - (DIM E) PIVOT HOLE TO PERIPHERAL INTERFERING CORNER OF SAFETY.

7.276 ± .003
- .432 ± .009
6.844 ± .012 - REC. FACE TO PT. OF INTERFERENCE OF SAFETY

6.8415 ± .0075 - REC. FACE TO BOLT HEAD

1.170 ± .003
- .919 ± .016
.251 ± .019 - ℄ BOLT TO TOP REAR CORNER OF SAFETY IN LOCK POSITION

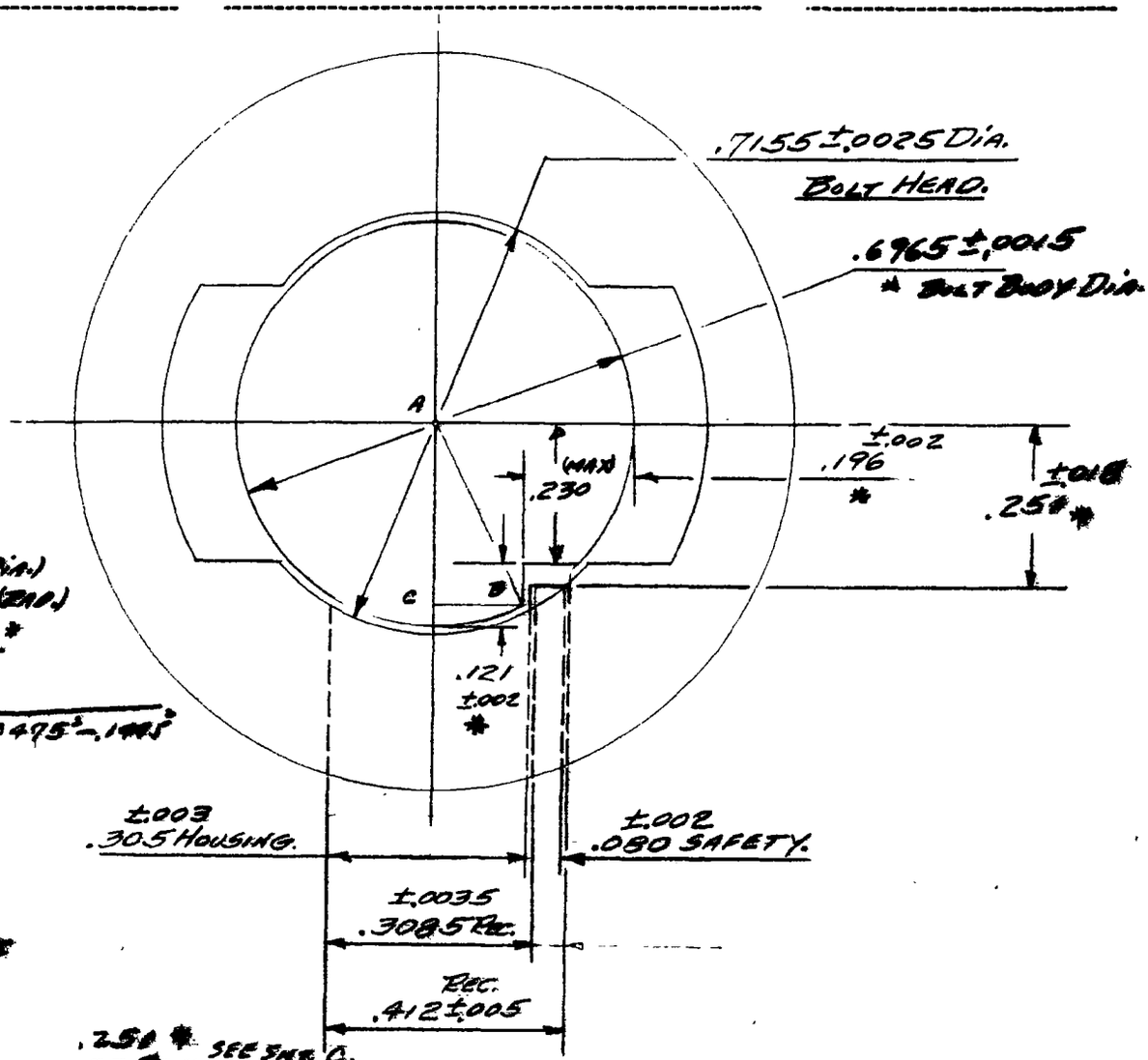
6.844 ± .012 = 6.856 (MAX) / 6.832 (MIN) REC. FACE TO PT. OF INTERFERENCE (DIM A)

6.8415 ± .0075 = 6.849 (MAX) / 6.834 (MIN) REC. FACE TO BOLT HEAD (DIM. B)

6.856 (MAX) DIM A
6.834 (MIN) DIM B
.022 (MAX) INTERFERENCE BETWEEN BOLT HD. + SAFETY

6.849 (MAX) DIM B
6.832 (MIN) DIM A
.017 (MAX) CLEARANCE BETWEEN BOLT HD. + SAFETY

BY C.S.Y. DATE 6/23/61 SUBJECT M/721 Rec, Safety + Bolt Current SHEET NO. D OF
CHKD. BY DATE JOB NO.




.6965 *
− .0015
2 | .6950 (MIN) (Dia.)
.3475 (MIN) (Rad.)
− .1980 (MAX) *
.1495 (MIN)

$AC = \sqrt{AB^2 - BC^2} = \sqrt{.3475^2 - .1495^2}$

AC = .31369 (MIN)

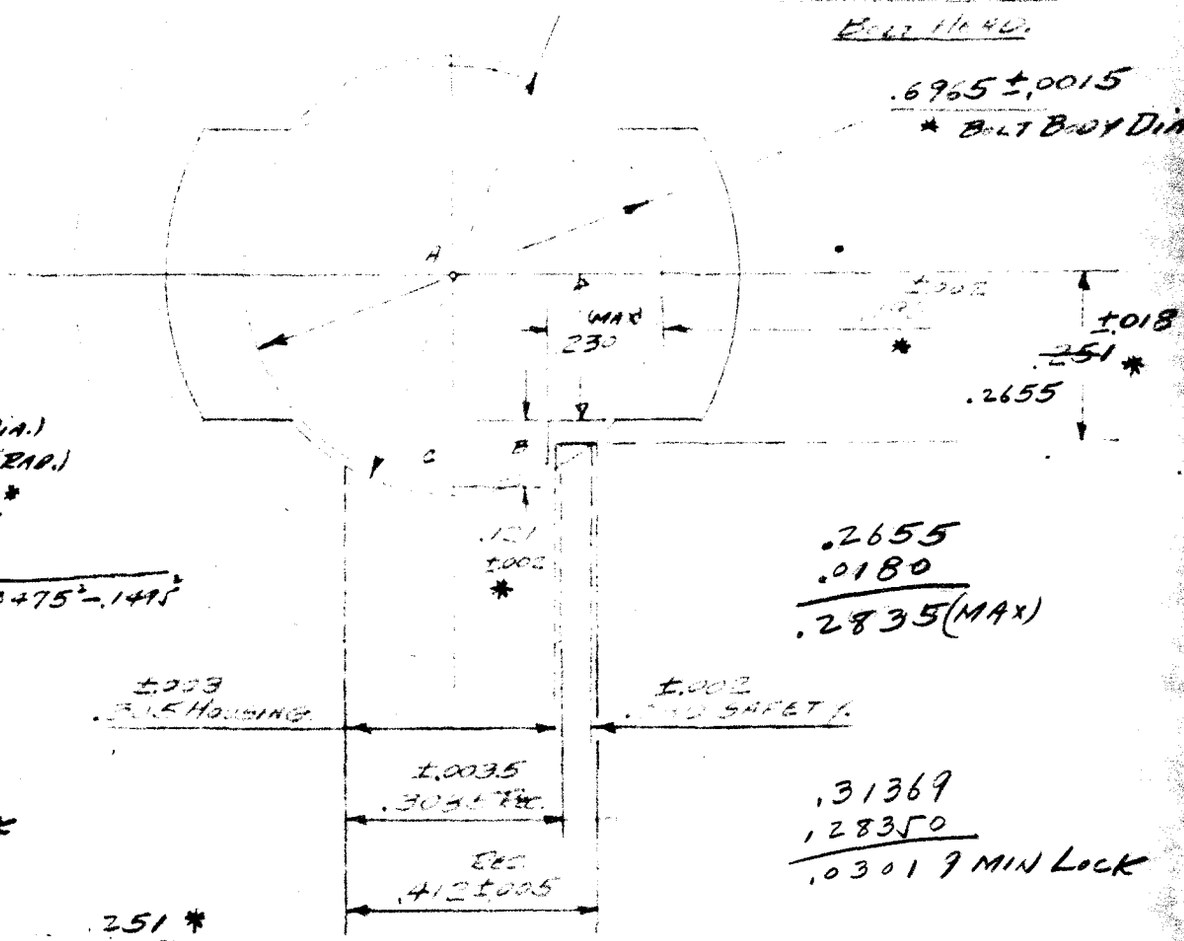
.31369 (MIN)
− .26700 (MAX)
.04669 (MIN) Lock

.6965
+ .0015
2 | .6980 (MAX) (Dia.)
.3490 (MAX) (Rad.)
− .1190 (MIN) *
.2300 (MAX)

.251 * See Sht. 6.
− .018
.233 (MIN)
.230 (MAX)
.003 [illegible]

BY CSY. DATE 6/27/61 SUBJECT M/[illegible] REC. SAFETY + BOLT SHEET NO. D OF

CHKD. BY DATE JOB NO.




.6965 *
− .0015
2 | .6950 (MIN) (DIA.)
.3475 (MIN) (RAD.)
− .1980 (MAX) *
.1495 (MIN)

$AC = \sqrt{\overline{AB}^2 - \overline{BC}^2} = \sqrt{.3475^2 - .1495^2}$

AC = .31369 (MIN)

.31369 (MIN)
− .26900 (MAX)
.04469 (MIN) LOCK

.2655
.0180
.2835 (MAX)

.31369
.28350
.03019 MIN LOCK

.6965
+ .0015
2 | .6980 (MAX) (DIA.)
.3490 (MAX) (RAD.)
− .1190 (MIN) *
.2300 (MAX)

.251 *
− .018
.233 (MIN)
.230 (MAX)
.003 (MIN) CLEARANCE

.2655
− .0180
.2475 (MIN)
.230 (MAX)
.0175 (MIN) CLEARANCE


CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

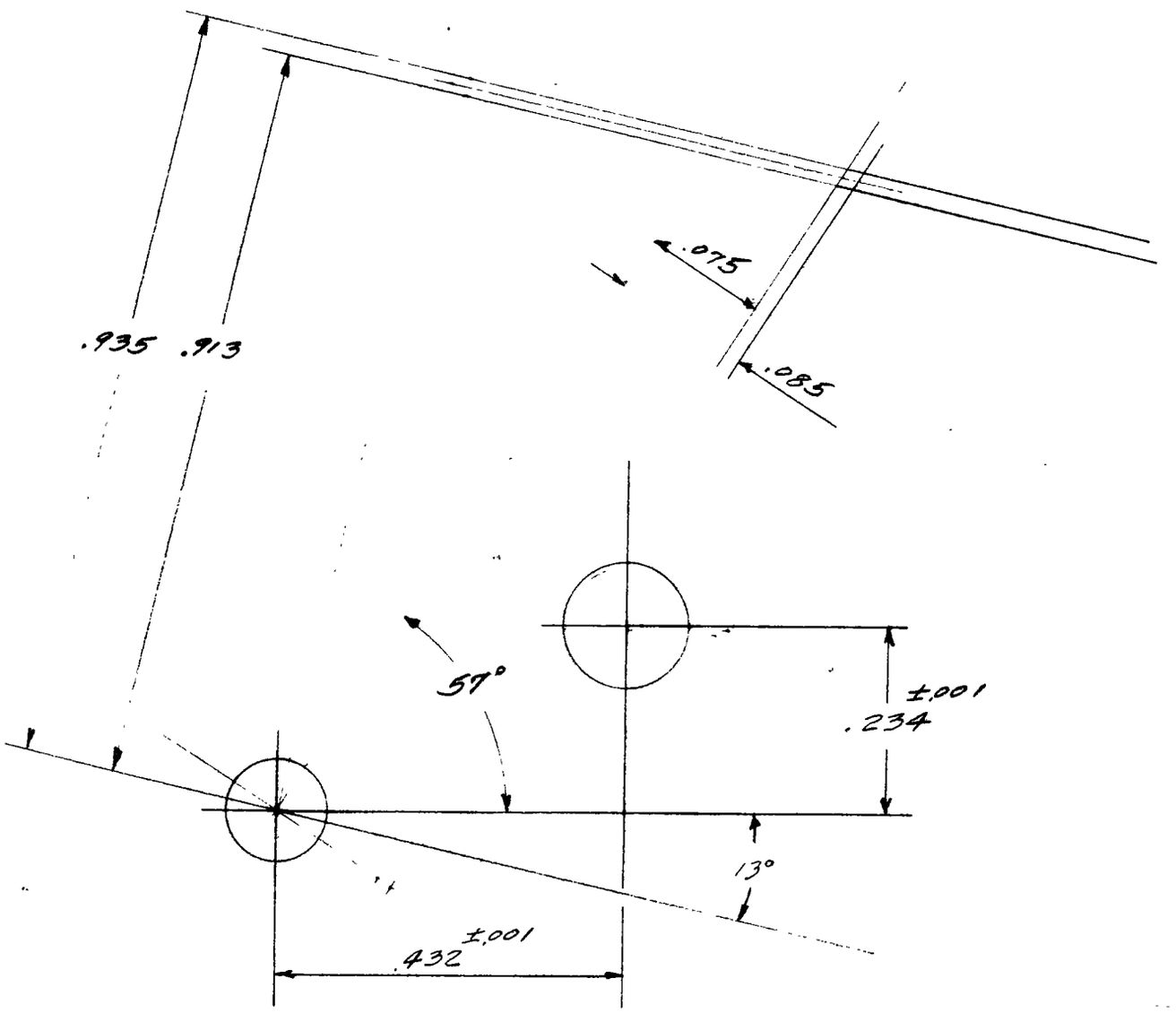
R2527467

BY C.S.Y. DATE 6/27/61 SUBJECT M/T2/REC, SAFETY + BOLT CURRENT SHEET NO. F OF
CHKD. BY DATE JOB NO.

SAFETY

MEAN LAYOUT

10 TO 1



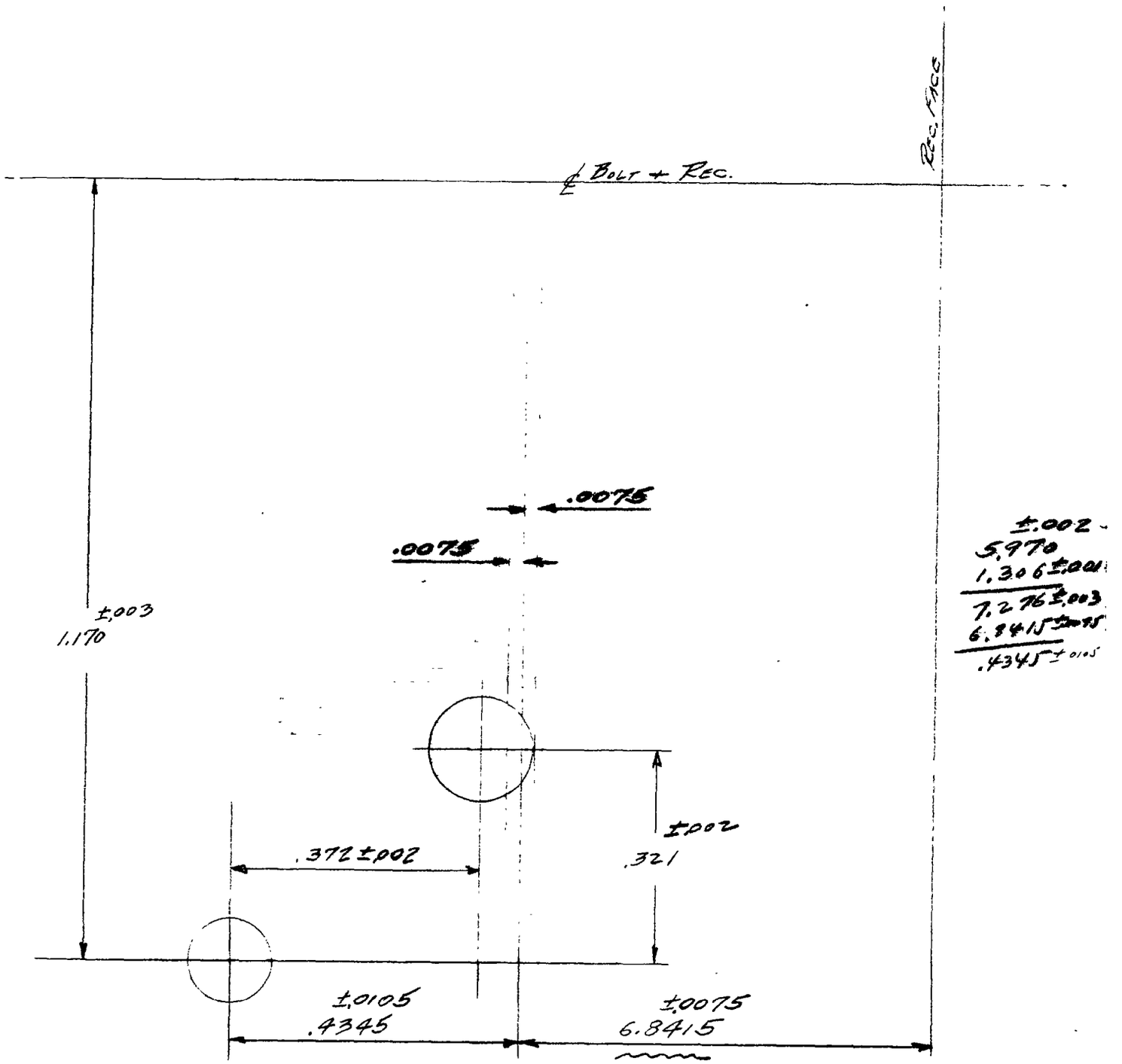

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

BY CSY DATE 9/27/61 SUBJECT M/72 REC, SAFETY + BOLT CURRENT SHEET NO. 6 OF
CHKD. BY DATE JOB NO.

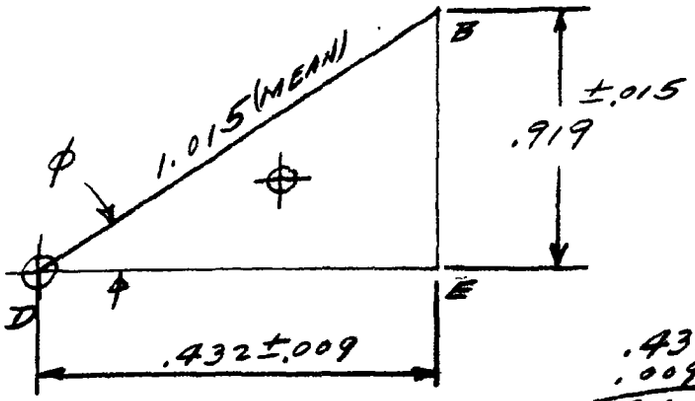
# REC, BOLT, SAFETY, + HOUSING

## MEAN LAYOUT

## 10 TO 1

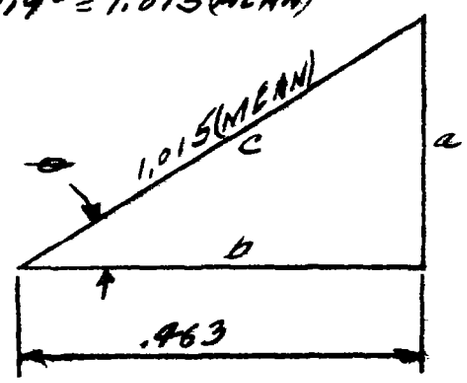


BY C.S.Y. DATE 6/27/61 SUBJECT M/721 REC. SAFETY + BOLT. SHEET NO. 4 OF
CHKD. BY DATE PROPOSED JOB NO.




$BD = \sqrt{.432^2 + .919^2} = 1.015 \text{ (MEAN)}$

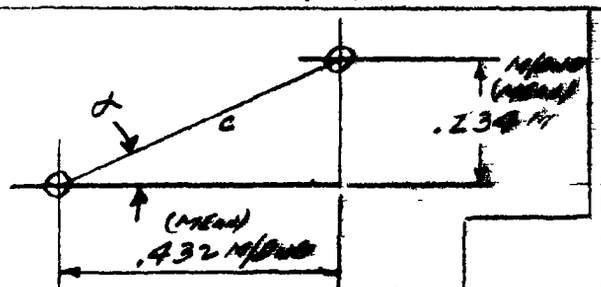
$$\begin{array}{r} .432 \\ .009 \\ \hline .441 \text{ (MAX)} \\ .022 \text{ (INTERFERENCE) (MAX)} \\ \hline .463 \text{ (MAX)} \end{array}$$




$\text{Tan } \phi \text{ (MEAN)} = \frac{.919}{.432} = 64°49'23''$

$\text{Cos } \Theta \text{ (MEAN)} = \frac{.463}{1.015} = 62°51'37''$

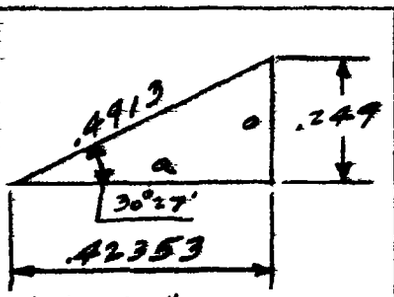
$$\begin{array}{r} 64°49'23'' \\ 62°51'37'' \\ \hline 1°57'46'' \text{ or } 2°\text{R} \end{array}$$



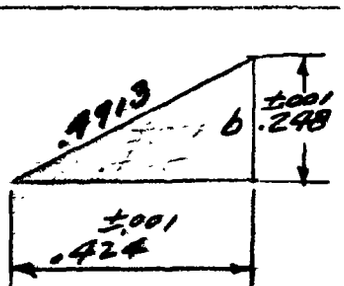

$\text{Tan } \alpha = \frac{.234}{.432} = .54167 = 28°26'35''$

$c = \sqrt{.432^2 + .234^2} = .4913$

$$\begin{array}{r} 28°27' \\ +\ 2° \\ \hline 30°27' \end{array}$$




$o = (.4913)(\sin 30°27') =$
$o = (.4913)(.50679) = .24899$
$a = (.4913)(\cos 30°27')$
$a = (.4913)(.86207) = .42353$




$b = \sqrt{.4913^2 - .424^2}$
$b = .24819$

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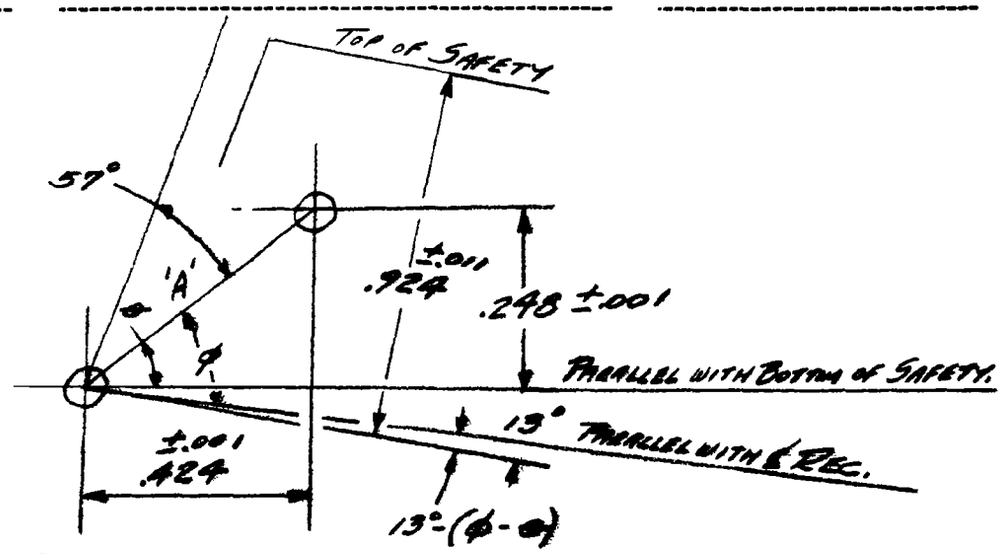
KINZER V. REMINGTON
R2527470

BY CSY. DATE 6/27/61 SUBJECT M/721 REC, SAFETY + BOLT SHEET NO. 1 OF

CHKD. BY DATE PROPOSED JOB NO.




$A(MAX) = \sqrt{.425^2 + .249^2} = .49257$

$A(MIN) = \sqrt{.423^2 + .247^2} = .48983$

$A(MEAN) = .49120$

$\text{Tan}\,\theta(MAX) = \frac{.249}{.423} = .58865 = 30°29'$

$\text{Tan}\,\theta(MIN) = \frac{.247}{.425} = .58118 = 30°9'35''$

$\phi(MAX) = 41°7'12''$

$-\ \theta(MIN) = 30°9'35''$

$\phi - \theta(MAX) = 10°57'37''$

$\phi(MIN) = 40°27'44''$

$-\ \theta(MAX) = 30°29'$

$\phi - \theta(MIN) = 9°58'44''$

$13°$

$-\ 10°57'37''$

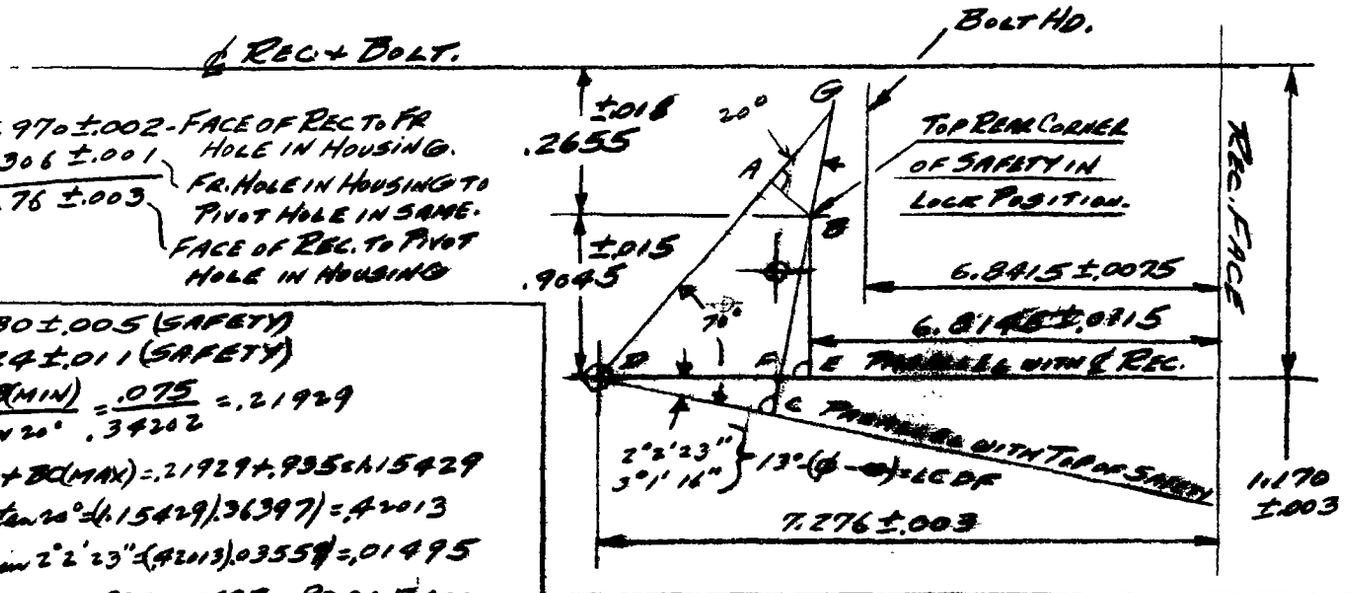
$2°2'23'' = 13°-(\phi-\theta)(MIN)$

$13°$

$-\ 9°58'44''$

$3°1'16'' = 13°-(\phi-\theta)(MAX)$

BY C.S.Y. DATE 6/27/61 SUBJECT M/721 REC SAFETY + BOLT PROPOSED SHEET NO. J OF
CHKD. BY DATE JOB NO.




5.970 ±.002 - FACE OF REC TO FR HOLE IN HOUSING.
1.306 ±.001 FR. HOLE IN HOUSING TO PIVOT HOLE IN SAME.
7.276 ±.003 FACE OF REC. TO PIVOT HOLE IN HOUSING

AB = .080 ±.005 (SAFETY)
BC = .924 ±.011 (SAFETY)

$BG = \frac{AB(MIN)}{\sin 20°} = \frac{.075}{.34202} = .21929$

GC = BG + BC(MAX) = .21929 + .935 = 1.15429
DC = GC tan 20° = (1.15429)(.36397) = .42013
FC = DC sin 2°2'23" = (.42013)(.03559) = .01495
BF = BC(MAX) − FC = .935 − .01495 = .92005
BE = BF cos ∠FBE (MIN) = (.92005)(.999366) = .91947

$FD = \frac{DC}{\cos 2°2'23"} = \frac{.42013}{.999366} = .4204$

FE = BE tan 2°2'23" = (.91947)(.03559) = .03272
DE = FD + FE = .4204 + .03272 = .45312

$BG = \frac{AB(MAX)}{\sin 20°} = \frac{.085}{.34202} = .24852$

GC = BG + BC(MIN) = .24852 + .913 = 1.16152
DC = GC tan 20° = (1.16152)(.36397) = .42276
FC = DC sin 3°1'16" = (.42276)(.052707) = .02228
BF = BC(MAX) − FC = .913 − .02228 = .89072
BE = BF cos ∠FBE (MAX) = (.89072)(.998673) = .88954

$FD = \frac{DC}{\cos 3°1'16"} = \frac{.42276}{.998673} = .42332$

FE = BE tan 3°1'16" = (.88954)(.052777) = .04695
DE = FD + FE = .42332 + .04695 = .47027

.9195
.8895
2 | 1.8090
.9045 ±.015

1.170 ±.003
− .9045 ±.015
.2655 ±.018
℄ REC + BOLT TO TOP REAR CORNER OF SAFETY IN LOCK POSITION.

.453
.470
2 | .923
.4615 ±.0085 - (DE) PIVOT HOLE TO POSSIBLE INTERFERING CORNER OF SAFETY

7.276 ±.003
− .4615 ±.0085
6.8145 ±.0115

6.8145 ±.0115 = 6.826 (MAX) / 6.803 (MIN) REC FACE TO POSSIBLE PT. OF INTERFERENCE (DIM. A)

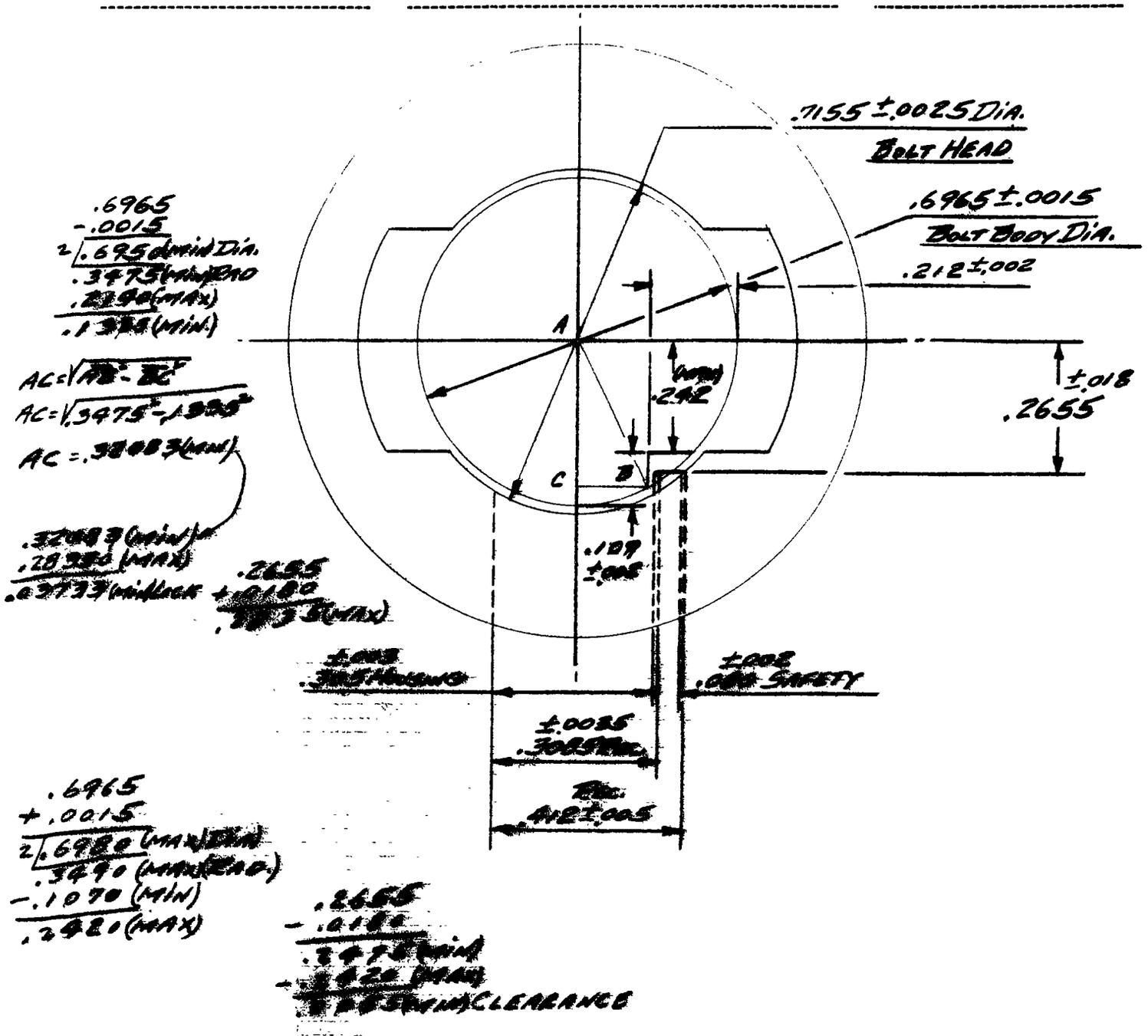
6.8415 ±.0075 = 6.849 (MAX) / 6.834 (MIN) REC FACE TO BOLT HEAD (DIM. B)

6.849 (MAX) - DIM. B
6.803 (MIN) - DIM. A
.046 (MAX) CLEARANCE

6.834 (MIN) - DIM. B
6.826 (MAX) - DIM. A
.008 (MIN) CLEARANCE

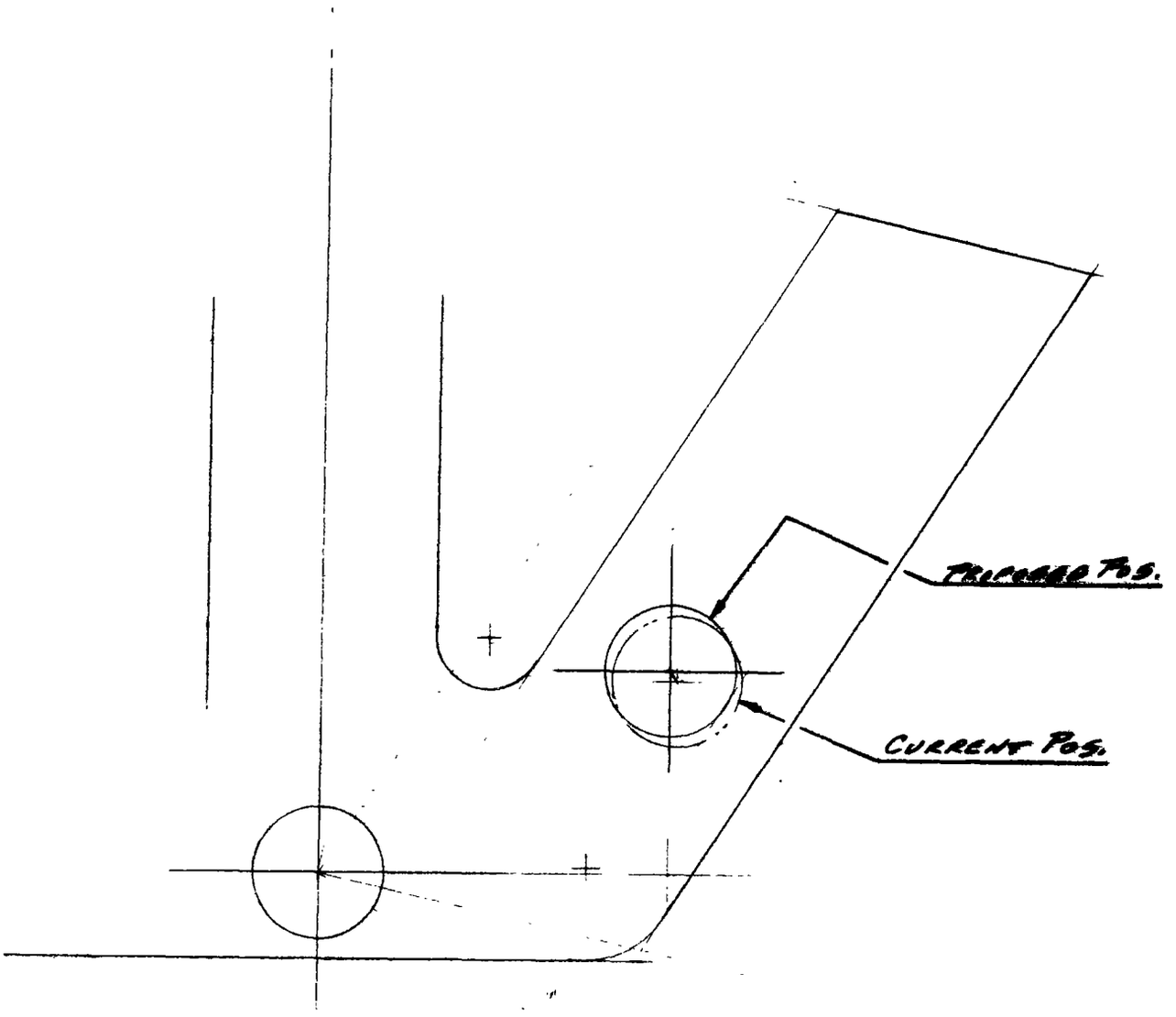
CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

BY CSY DATE 6/27/61 SUBJECT M/72 REC., SAFETY + BOLT. SHEET NO K OF
CHKD. BY DATE PROPOSED JOB NO.

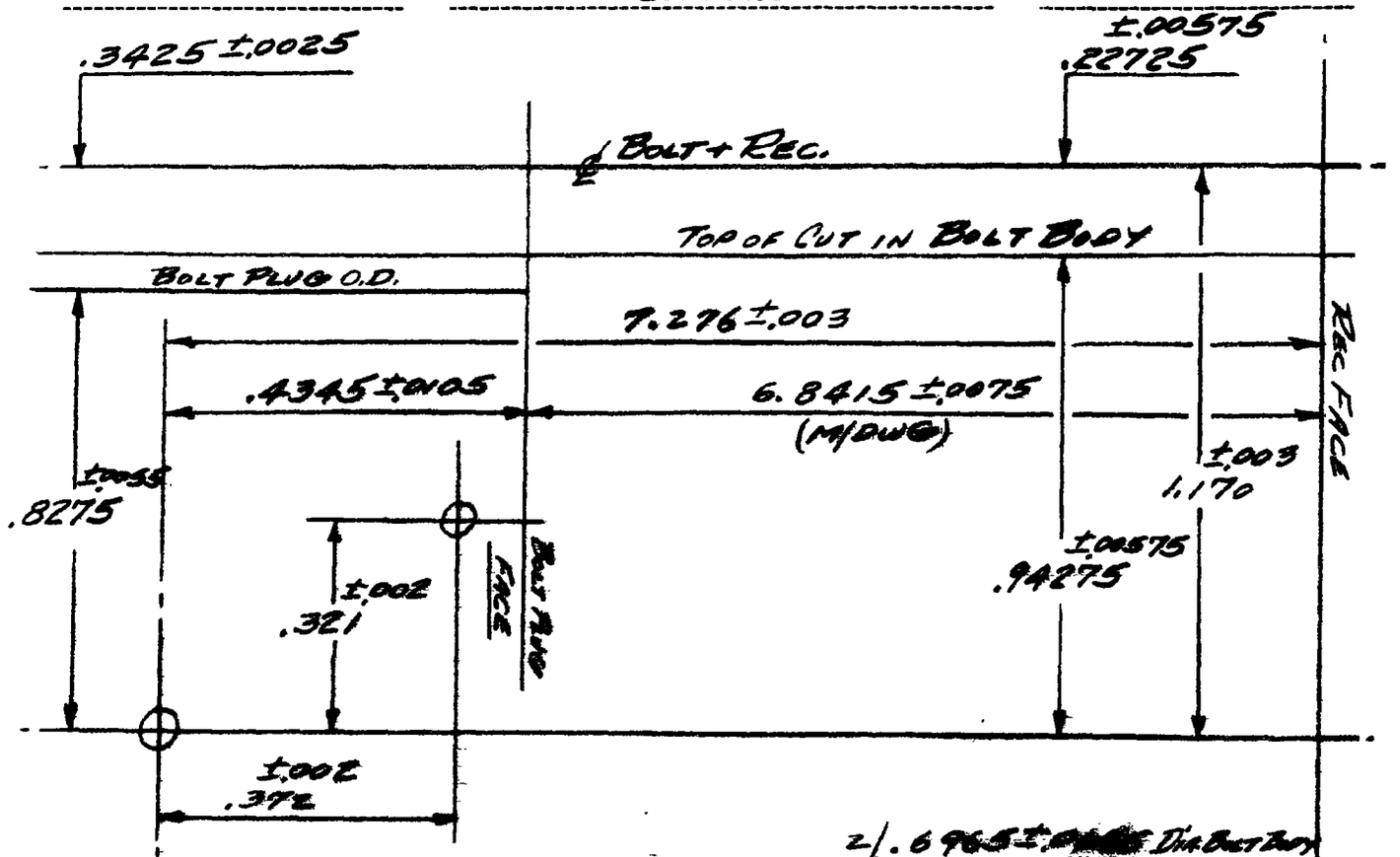


BY CSY. DATE 9/27/61 SUBJECT M/M1 REC, SAFETY + BOLT SHEET NO. 2 OF

CHKD. BY DATE PROPOSED JOB NO.



BY CSY. DATE 6/27/61 SUBJECT M/721 REC, SAFETY + BOLT SHEET NO. N OF
CHKD. BY DATE CURRENT JOB NO.




1.170 ±.003
.3425 ±.0025
.8275 ±.0055 BOLT PLUG O.D. TO ℄ PIVOT HOLE

2/.685 ±.0055
.3425 ±.0025

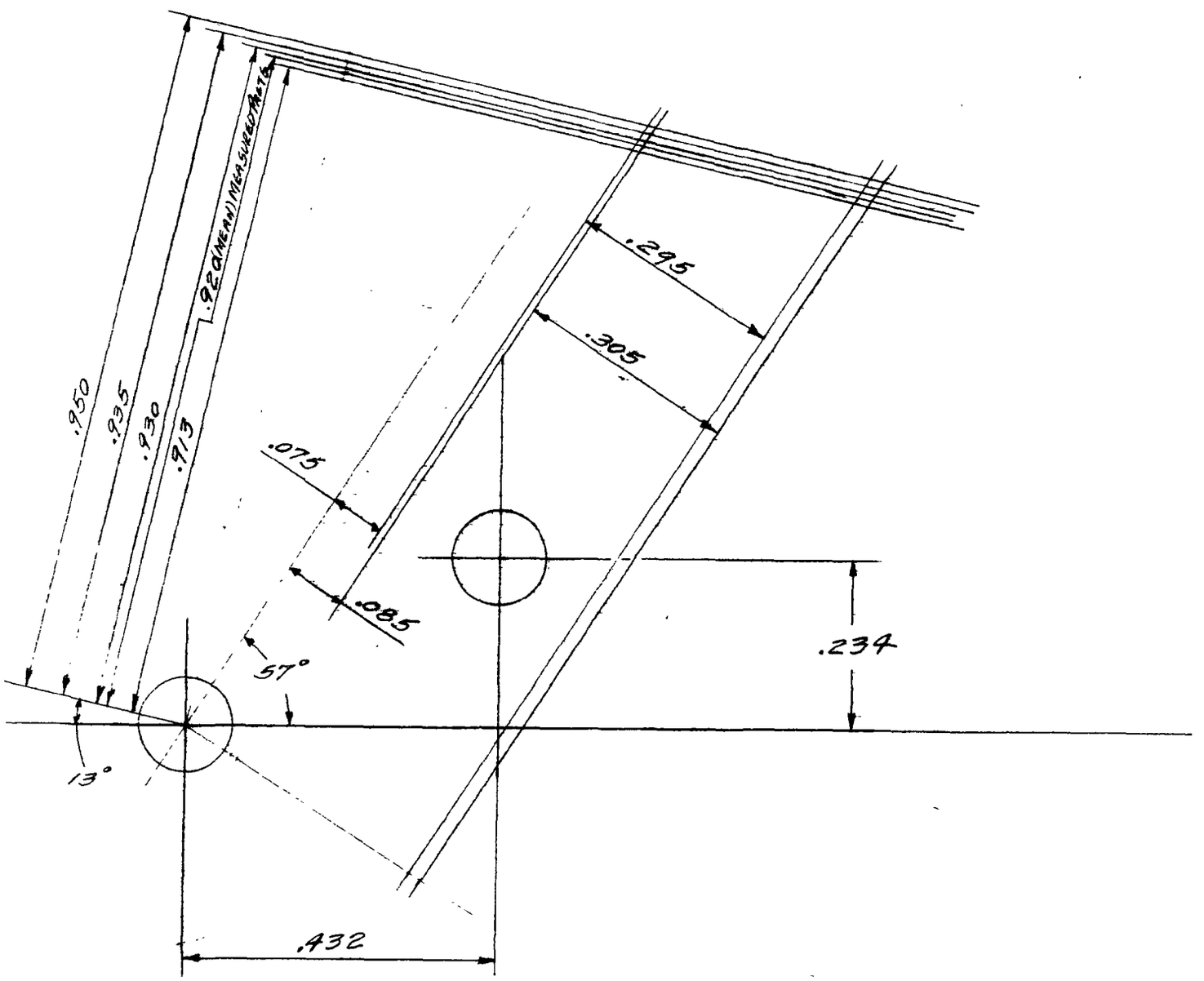
2/.6965 ±.[illegible] DIA BOLT BODY
.34825 ±.00075
− .121 ±.002 SAFETY CUT IN BODY
.22725 ±.00275

7.276 ±.003 REC. FACE TO PIVOT HOLE
− 6.8415 ±.0075 [illegible]
.4345 ±.0105 [illegible] OF BOLT HANDLE SLOT IN REC.

1.170 ±.003 - ℄ BOLT TO PIVOT HOLE IN HOUSING
− .22725 ±.00275
.94275 ±.00575

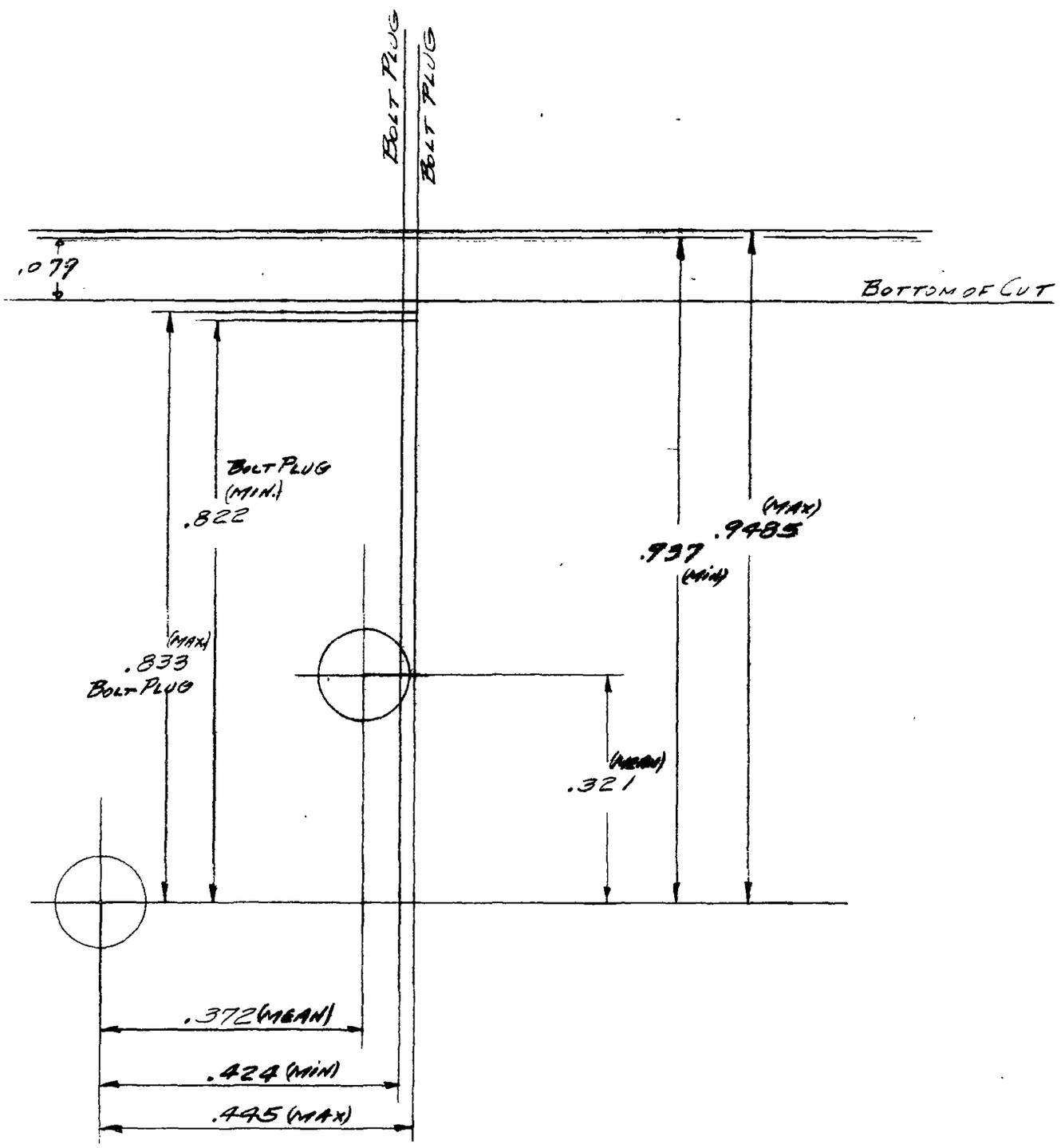
BY CSY. DATE 6/27/61 SUBJECT M/721 REC, SAFETY + BOLT. CURRENT SHEET NO. 0 OF

CHKD. BY DATE JOB NO.



BY C.S.Y. DATE 6/27/61 SUBJECT M/72 Rec, Safety + Bolt Current SHEET NO 7 OF

CHKD. BY DATE JOB NO.




CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

TO: E. SAPP

FROM: GUNS DESIGN SECTION

SUBJECT: TRANSMITTAL OF DRAWINGS

MODEL [redacted]

Enclosed herewith [redacted] copies of the following:

| Name | Dwg. No. |
|---|---|
| [redacted] | [redacted] |
| [redacted] | [redacted] |
| [redacted] | [redacted] |
| [redacted] | [redacted] |

PARTS LISTS

| | |
|---|---|
| [redacted] | [redacted] |
| [redacted] | [redacted] |
| [redacted] | [redacted] |
| [redacted] | [redacted] |

REMARKS:

[redacted]

Arms Research & Development
Guns Design Section
[redacted]

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

00627

RT-215

Date: 5/11/53

TO:

FROM:

GUN MODEL & NAME- 721, 722
DESIGN CHANGE REQUEST

PART NAME HOUSING
PART NUMBER C-17039

The following change in design is recommended:

REMOVE .106/.110 DIA. HOLE, 60° INC. C'SINK .125/.135 DIA. AT SURFACE; AND REPLACE WITH .140/.144 DIA. HOLE.

Reason for Design Change:

TO IMPROVE OPERATION OF SAFETY

22,3231

Remarks:

Design Change Made By: V.C.

Date: 5-11-53

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

CC: R. A. Williamson, A. J. Brown, H. J. Hackman, E. B. Wallin, W. A. Best, A. D. Gordon, A. D. Kerr, J. W. Miller, C. Putney, C. I. Mann, W. Lesk (2), R. E. Wright, M. B. Rogers, E. Sapp, M. Bennett, L. Pettingill, V. DeReus, L. Murphy, C. Prosser, R. Hurley, Tool Design, Central File, P. B. Croop

Completed

PRODUCT ENGINEERING & CONTROL
Remington Arms Company, Inc.
Ilion, New York

To: L. T. Murphy
Engineer
in Charge: C. Prosser

Date: 4-30-53
Model: 721-722
Part Name: Housing & Safety
Part No.: 17039 & 17040
Exp. No.: 223231

## REQUEST FOR CHANGE

**Title:** Assembling Interference.

**Object:** To eliminate interference.

**Summary:** Recurring interference between the Safety, Safety Pivot Pin and Housing makes it necessary to take some action. The Safety Pivot Pin is dimensioned .124"-.125" diameter while the pin hole in the Housing is dimensioned .125"-.126" diameter which allows an interference.

A Before and After Heat Treat Audit shows a significant shrinkage of approximately .0005" through heat treat in the diameter of the holes.

**Conclusion:** Research and Development is requested to:
1. Change dim. .125"-.126" on Dwg. C-17039 to .1254"-.1264".
2. Add tabulation for .1262"-.1254" dia. hole - manufacturing dimensions .1267-.1259". Dimensions after heat treat .1262"-.1254".

Tool Design is requested to provide a new plug gage for diameter of Safety Pivot Pin hole in the Housing and the same hole in the Safety.

Engineer 5/6

Chief Process Engineer 5/11

Production 5/7

Chg. to Dept. 40

Research & Development 5/7

Methods & Standards FGC 5-19-53

CP/I

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

.6965 BOLT BODY (DIA)
+.0015
.6980 (MAX) DIA.
.3490 (MAX) RAD.
.1940 (MIN) BOLT BODY
.1550 (MAX) BOLT BODY

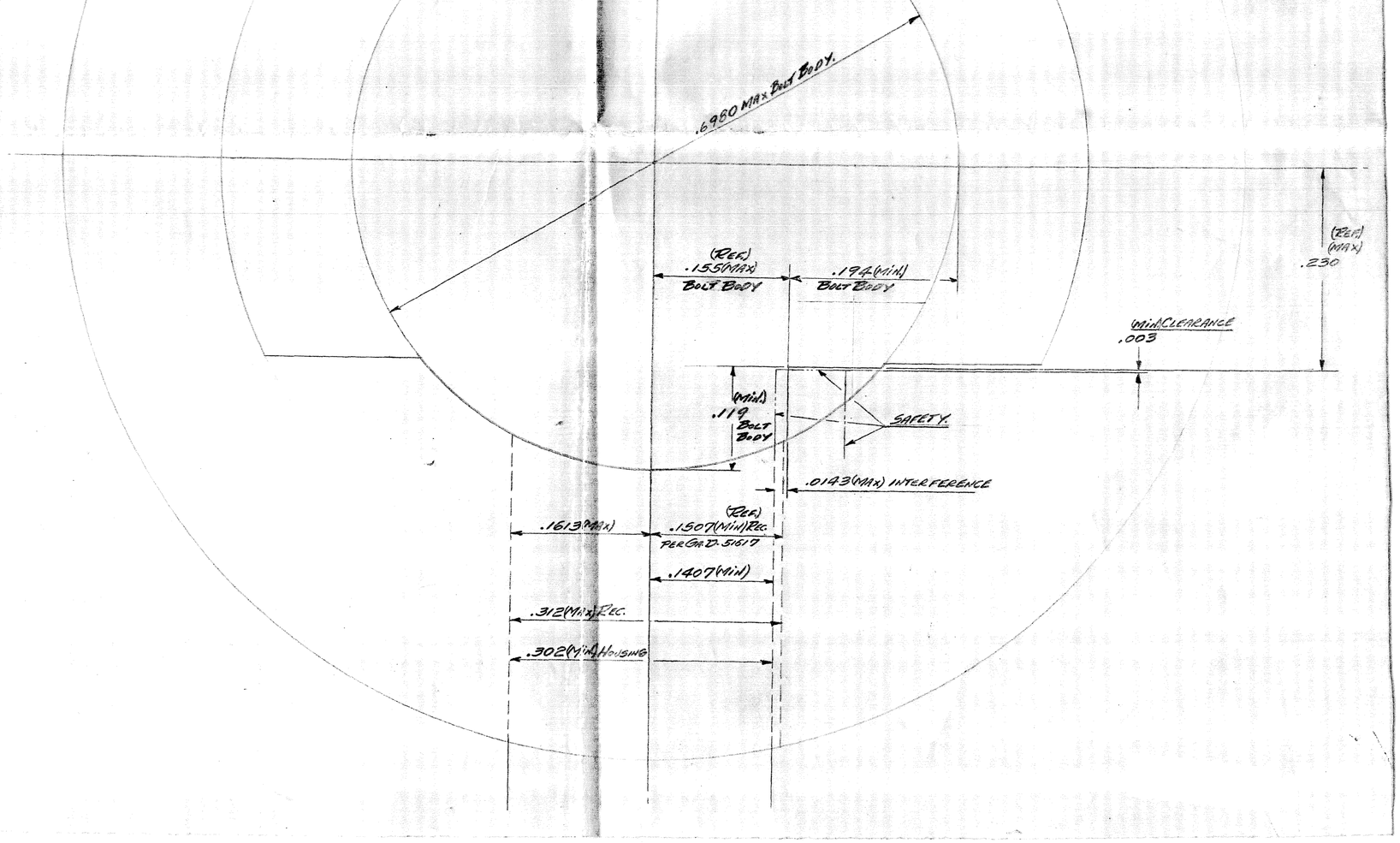
.3085 REC
+.0035
.3120 (MAX)
.1507 (MIN)
.1613 (MAX) REC.

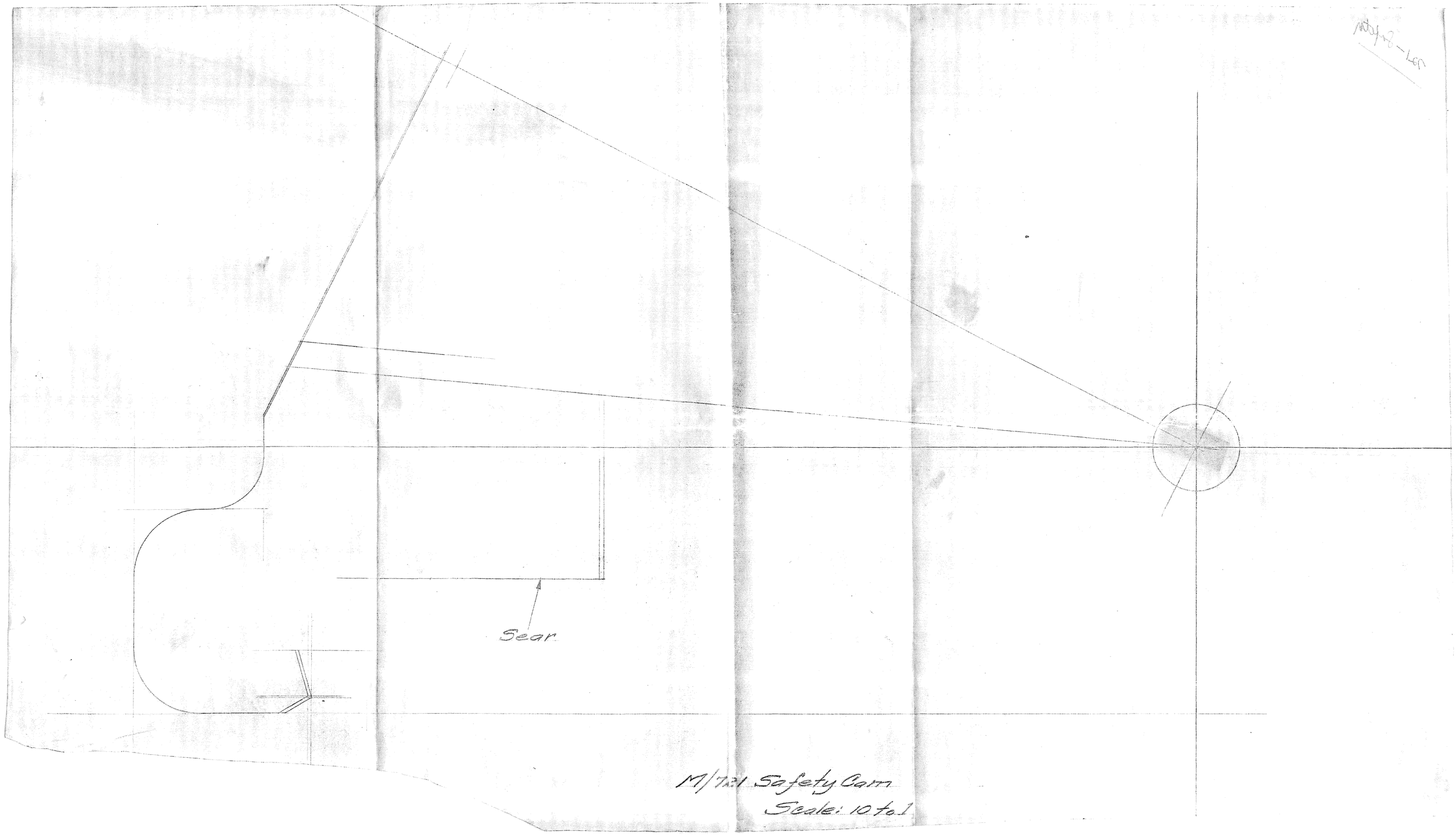
.1592
-.0035
.1507 MIN.
REC. PER
GM D-51617

.305
-.003
.302 (MIN) HOUSING
-.1613 (MAX) REC.
.1407 (MIN) HOUSING TO ℄ REC.

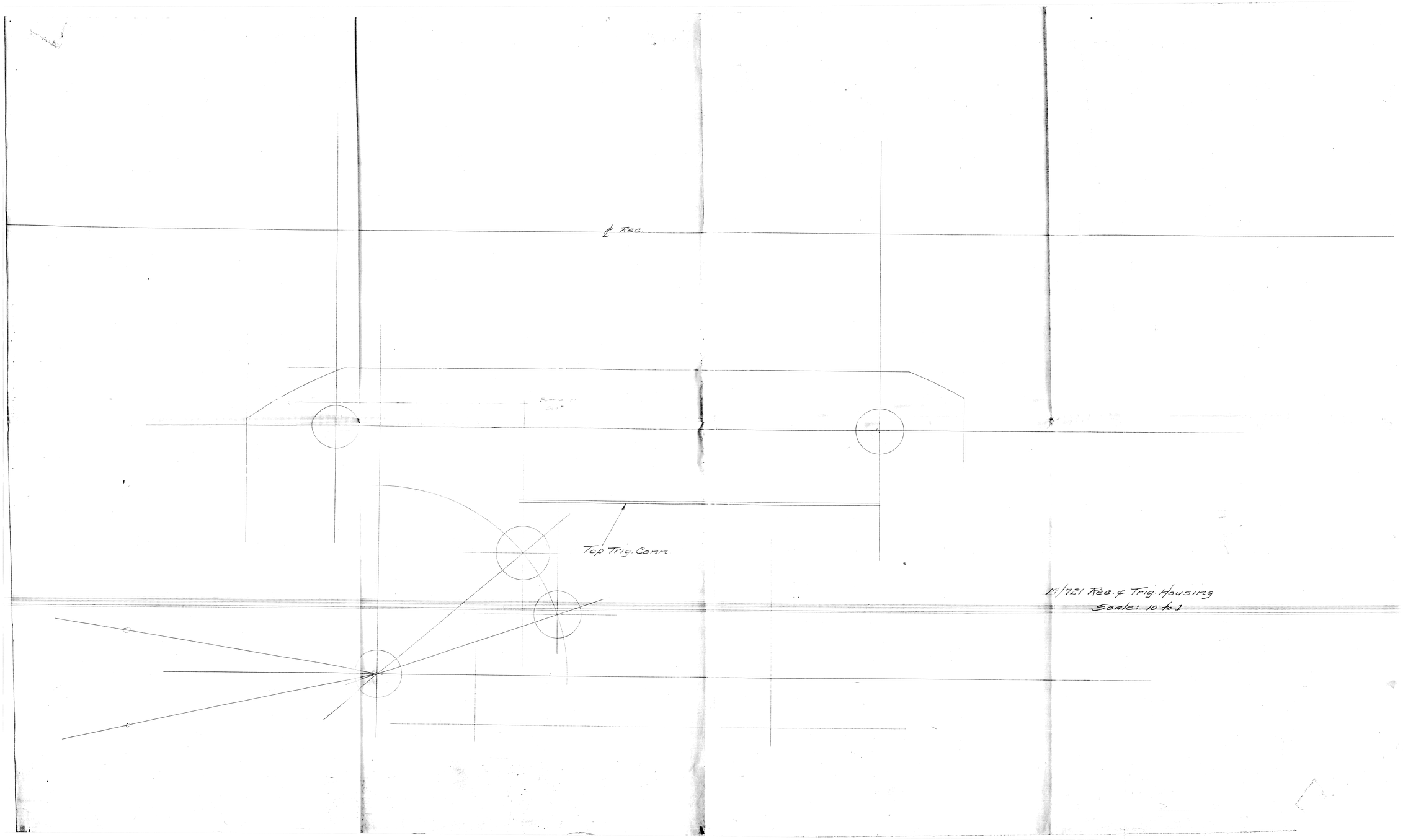
.1550 (MAX) BOLT BODY
.1407 (MIN) HOUSING
.0143 INTERFERENCE (MAX)

.3490 (MAX) RAD BOLT BODY
.119 (MIN) BOLT BODY
.2300 (MAX) BOLT BODY
SHEET E (CURRENT)
M/721 REC, SAFETY
+ BOLT
6/27/61 CSY.



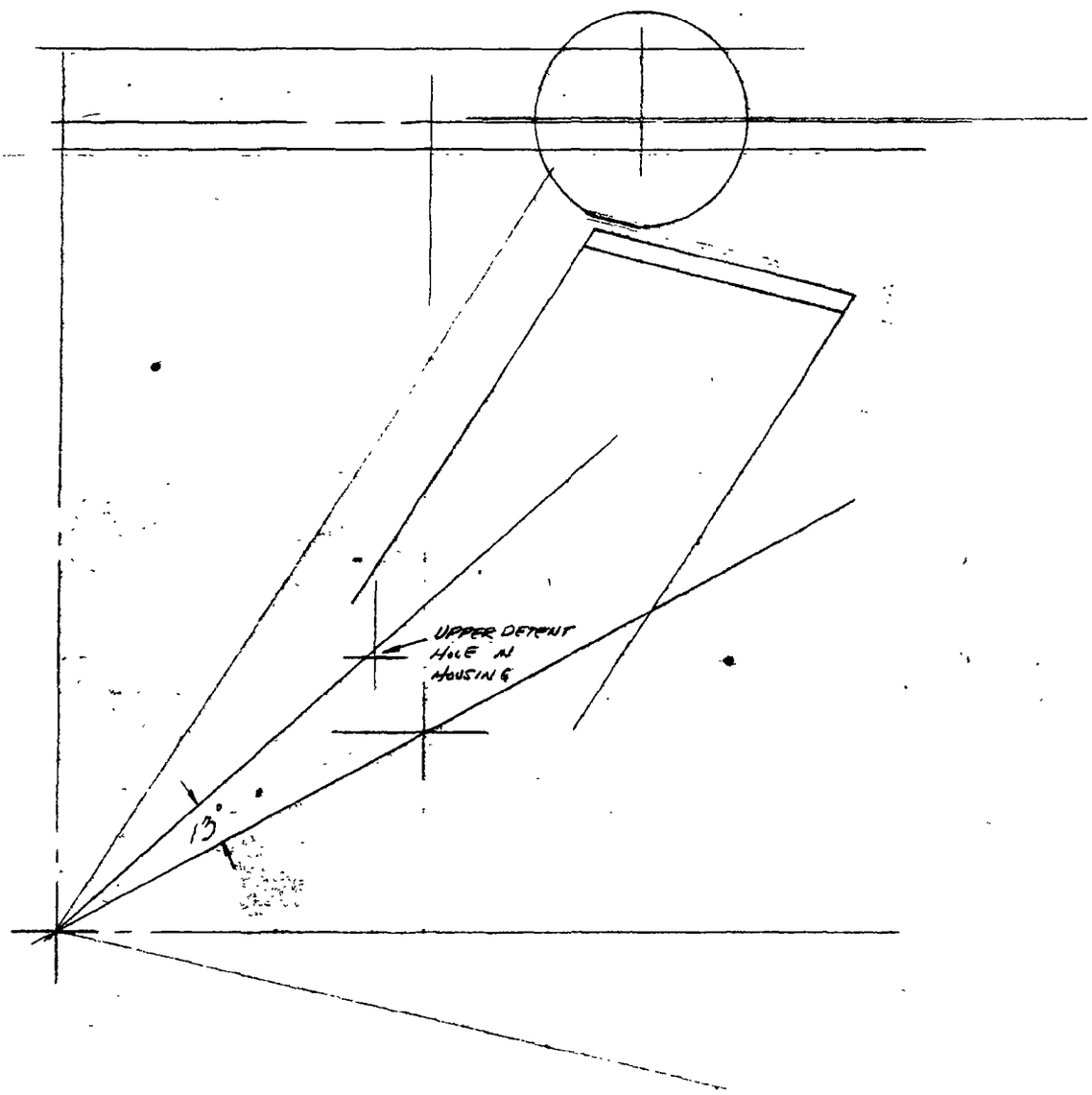


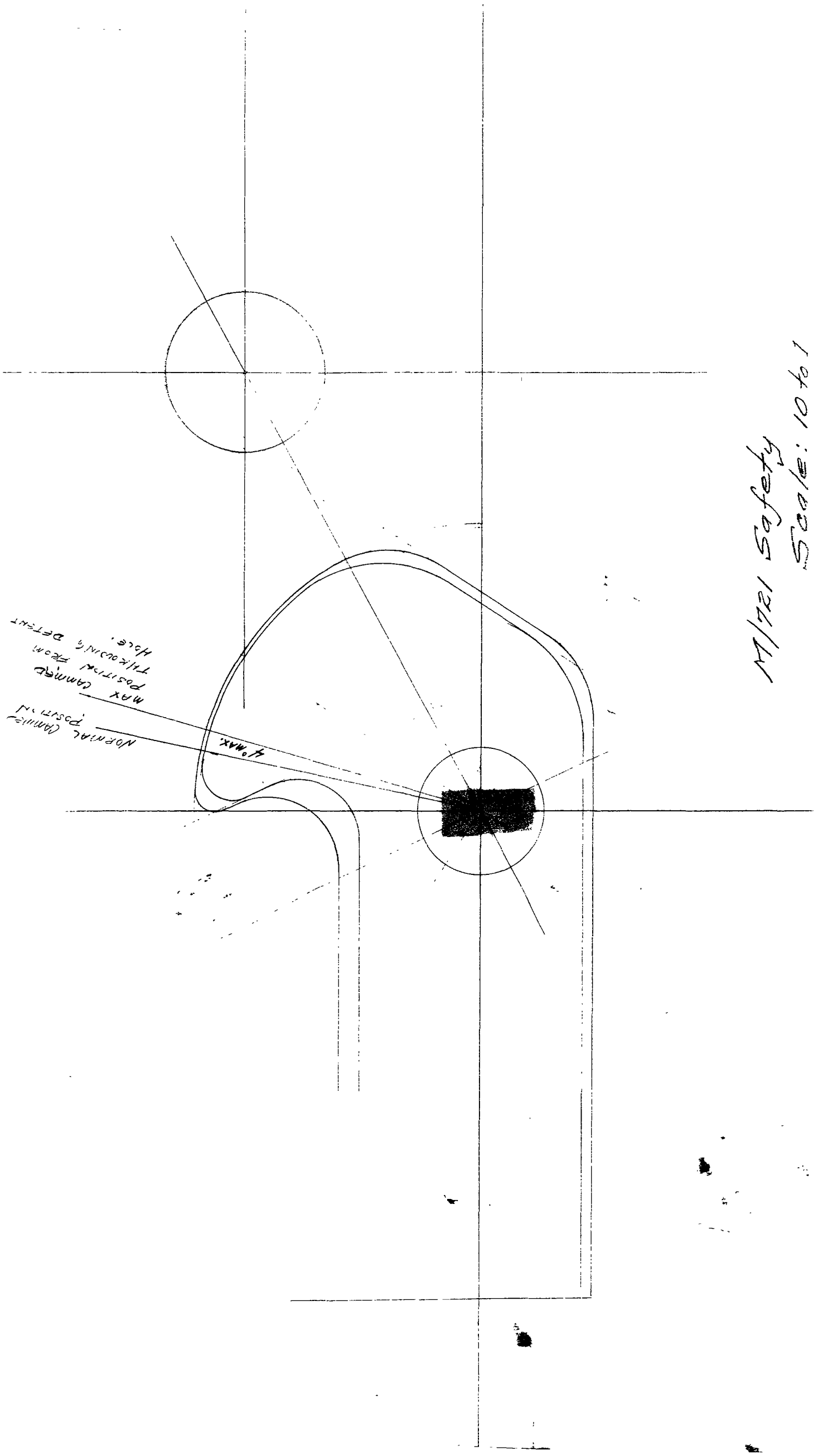

M/721 Safety Arm
Scale: 10 to 1




CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

CHKD. BY _____ DATE _____ JOB NO. _____




M/721 Safety
Scale: 10 to 1
NORMAL CAMMED POSITION
MAX CAMMED POSITION FROM THROWING DETENT HOLE.
4° MAX.

CC: R. B. Hurley
A. D. Kerr ) In
B. H. Gilbert) Turn
G. H. Markley

Ilion, New York
September 9, 1959

W. C. SCHRADER

MODEL 721 SAFETY - C-17040

Please contact the vendor fabricating this part and instruct him to fabricate 5,000 piece order less "A" diameter (.1593"-.1573") hole and the final shave operation for .278"-.282"R.

Remington will drill "A" diameter hole on a temporary drill jig. P. E. & C. will request a model drawing change on this part as soon as possible.

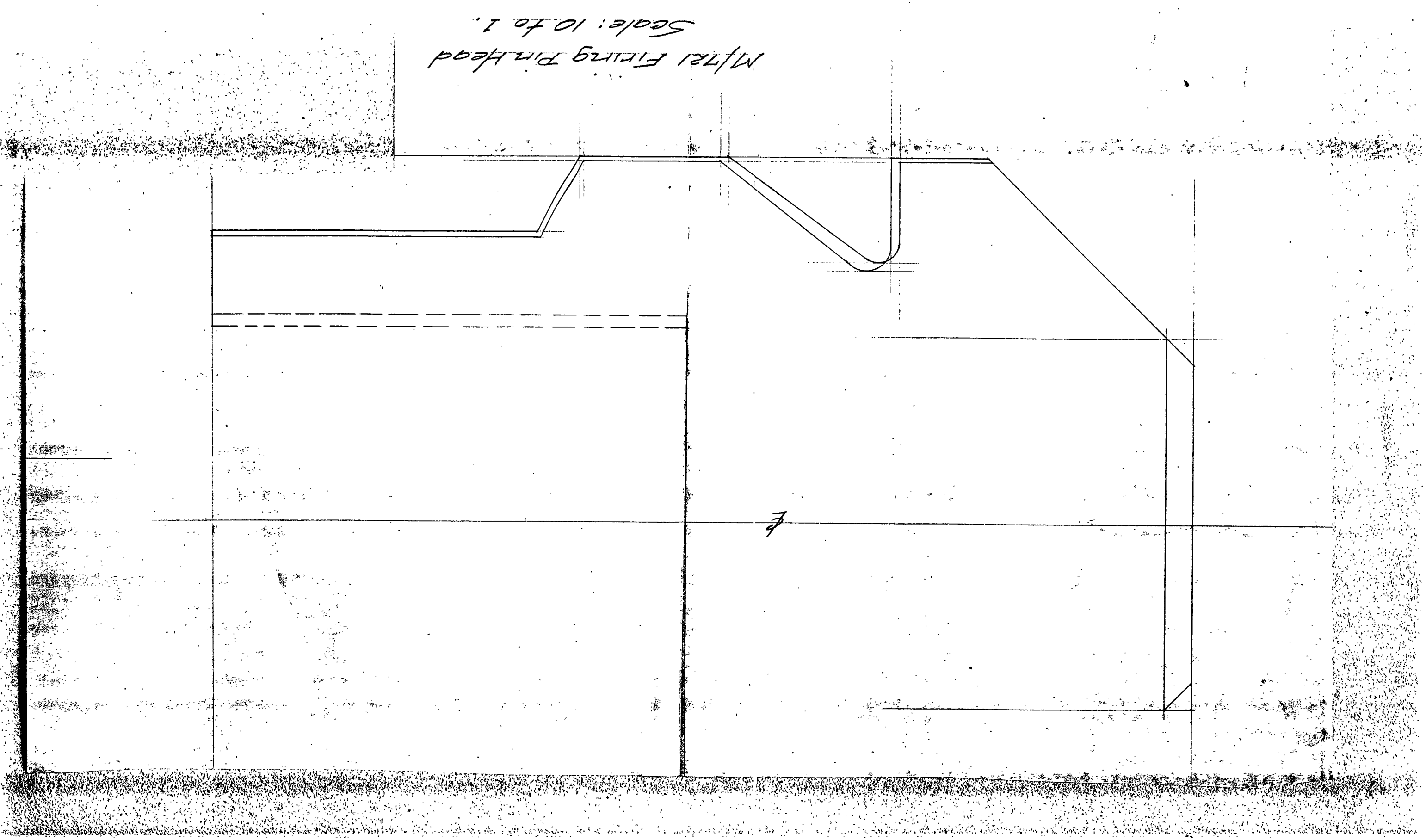
P. B. Croop, Supervisor
Process Engineering Dept.
New Products & Tool Design

J. C. 9/9/59
Jack Carter
Process Engineer

JC/fc
Attach.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON
R2527486

M/721 Firing Pin Head
Scale: 10 to 1.



R2527487

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# P. E. & C. ESTIMATE

TO: H. J. Hartman

ESTIMATED BY: [illegible]

MODEL 721-722 PROJECT NO. _____ DATE 1/21/60

PROJECT TITLE Estimate to add the model 725 Safety mechanism to models 721-722

| | HOURS | RATE | TOTAL |
|---|---|---|---|
| PROCESS ENGINEERING & TRIAL RUN | | | 100 |
| TOOL DESIGN FIXTURES - GAGES | | | 400 |
| TOOLING FIXTURES - GAGES | | | 2000 |
| TOOL DESIGN — PERISHABLE TOOLS | | | 10 |
| TOOL DESIGN REVISIONS | | | 40 |
| PERISHABLE TOOLING | | | 50 |
| TOOL REVISIONS | | | 200 |
| TOOL REVISIONS - PERISHABLE | | | 0 |
| TESTING | | | 0 |
| ADMINISTRATION | | | 0 |
| VENDOR TOOLING COSTS (DIES ETC.) | | | 0 |
| VENDOR TOOLING NOT REMINGTON PROPERTY | | | 0 |
| SUB TOTAL | | | 2800 |
| CONTINGENCIES | | | 300 |
| | | | 3100 |

COMMENTS M+S to pick up other costs for safety mechanism, Received and Assembly from m/721-722 and 725 processes

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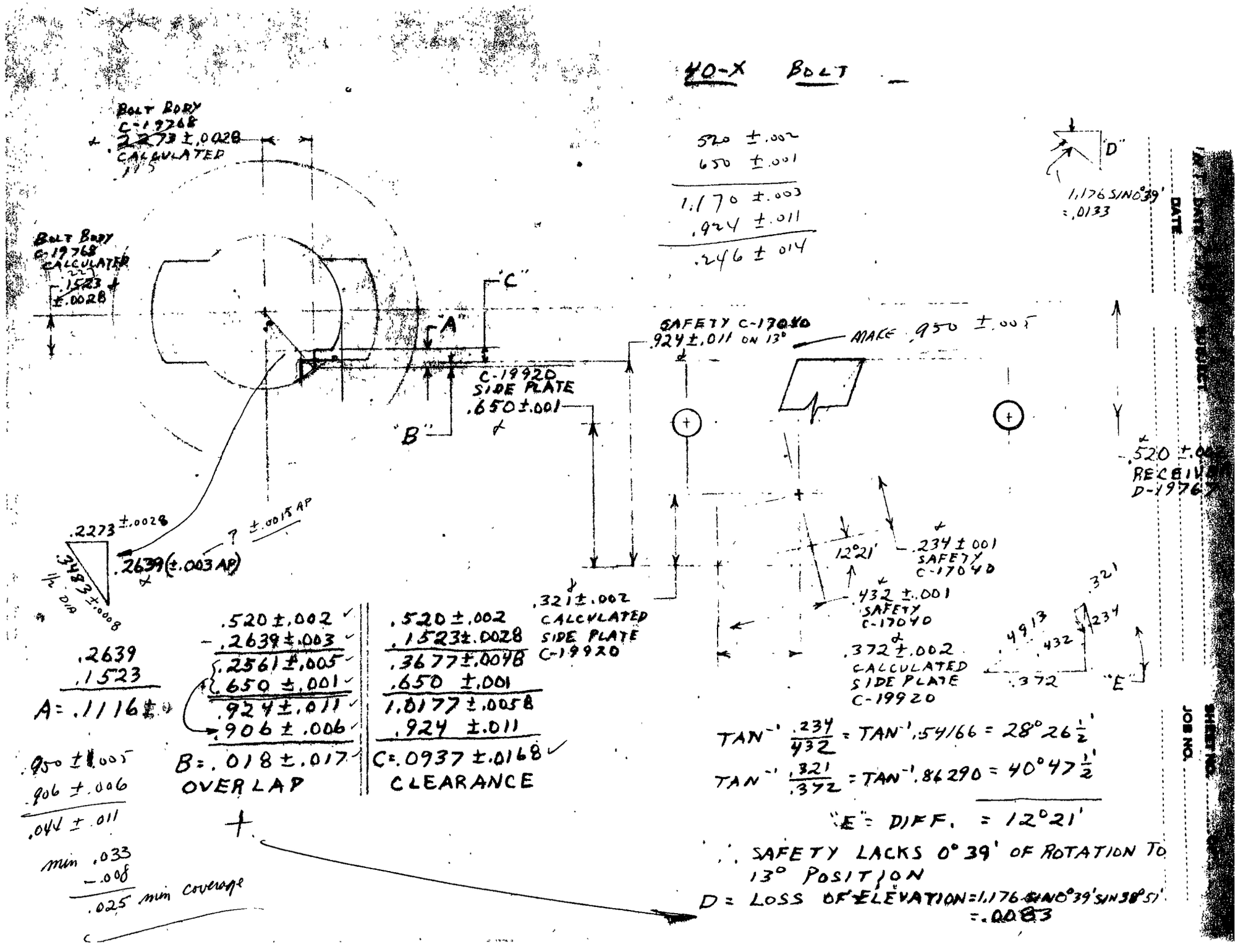


R2527489

RD-5038

# EQUIPMENT INSPECTION REPORT

SUBJECT M|721-722-40X Safety | TO DEPT. | NO.

INV'TY NO. | ORDER NO. 29— | DWG. NO. C-17090 | DATE 6-30-59

Chk

.235 - .233 Set to .234

.935 - .918 @ 13° .908 @ high point

13° angle 14° - 30'

.433 - .431 .431

| INSPECTOR | CORRECT | PASSED BY | DEL. TO |
|---|---|---|---|
| Comstock | | | |

Copies to:

H. J. Hackman
R. B. Hurley
D. E. Miller

May 20th, 1960

TO: MR. S. M. ALVIS

SUBJECT: MODELS 721, 722 AND 40X SAFETY

During the assembly of the pilot models of the 40X Centerfire it was discovered that all rifles had safeties very difficult to operate. Investigation of this difficulty brought out several conditions which would effect the operation of the safety.

1) Large bolt holes in the receiver which allows an increased gap between the sear and the top of the trigger connector in an uncocked position and a consequent increase in the lift required to place the safety in the off position.

2) Misplaced fire control holes in the receiver in the downward direction which gives the same effect as above.

3) Warpage of the receiver tang which also effectively increases the required lift on the safety.

M. H. Walker, Supervisor
Industrial Design Section

MHW:ejs

OLD RECEIVER PROCESS
M/ 721- 722- 725

## SEQUENCE C OPERATIONS

| OP. No. | OPERATION | DEPT. |
|---|---|---|
| 3. | Step drill, deep hole drill, c'bore and face, tap, feed to stop, and cut off. | 73 |
| 7. | Broach bore to final [illegible] | 54 |
| 8. | Burr face and hemisch[illegible] locating slot (M/40X only) | 54 |
| | NOTE: 40X becomes distinct at this point | |
| 12. | Drill Bolt Lug recess cut. (M/40X only) | 54 |
| | Product check | 54 |
| 15. | Broach to deburr (M/40X only) | 54 |
| 16. | Broach Bolt Guide slots, and wash | 54 |
| 20. | Turn O.D. (M/721 - 722 - 725 - 700 - 700 [illegible]) | 54 |

| OP. No. | OPERATION | DEPT. |
|---|---|---|
| 22. | Stamp identification, turn O.D. (M/40X only) | 54 |
| 24. | Centerless grind. | 54 |
| 28. | Burr and break edge around both ends. | 54 |
| 29. | Drill scope screw, Guard Screw and gas escape holes (M/721 - 722, 700 - 700 [illegible]) | 54 |
| 30. | Drill scope screw Guard Screw and Gas Escape holes (M/725 - 725 -222 only) | 54 |
| 31. | Drill scope, Guard, and Ejector Screw holes (M/40X only) | 54 |
| 32. | Plunge mill Ejection Port and Magazine slot. (M/721 - 722 - 725 - 700 - 700 [illegible].) ABL | 54 |
| 36. | Profile Ejection Port and Magazine slot. (M/721 - 722 - 725 - 700 - 700 [illegible]) ABL | 54 |

DATES AND REASONS FOR REVISIONS 9/15/62 - Entered from 8/18/6[illegible]

[illegible] reading on 180. - 26680- Range -

[illegible]/62 - Eng. grade ident. - Taybe - 25695

DATES AND REASONS FOR REVISIONS

MODEL 721 - 722 - 40X - 725 - 700 - 700 ABL RBL

PART NAME Receiver

PAGE 1 OF 5

| GA. OR CAL. | PART NO. | | | | | | |
|---|---|---|---|---|---|---|---|
| | 721 | 722 | 722-222 | 40X | 725 (Long) | 725 (Short) | |
| | 20181 | 20182 | 19680 | 19767 | 23755 | 23756 | |
| | | | M/722 - 222 [illegible] | | | | |
| M/700ABL | 26575 | 26576 | 26577 | | | | |
| M/700 [illegible] | 26578 | 26579 | 26580 | | | | |

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Payne

## SEQUENCE C OPERATIONS

| OP. NO. | OPERATION | DEPT. |
|---|---|---|
| 40. | Broach Ejection Port and Magazine slot (M/721-722 - 725 - 700 - 700 ADL)<br>ADL<br>M/700-222 Cal. - 26577<br>M/700 ADL-222 [illegible]<br>M/725 222 Cal. - [illegible]<br>NOTE: - M/722 - 222 Cal. - 18680 becomes distinct at this operation. | 54 |
| 44. | Finish mill Ejection Port, Inspector One of Bolt Handle slot, and ends of tang. Burr right side, front and intersection of Ejection Port and Bolt slide. | 54 |
| 46. | Bolt mill Safety clearance slots (M/725 - 722 - 222 only) | 54 |
| 47. | Mill Fire Control slots. | 54 |
| 48. | Shave primary seating area. | 54 |

| OP. No. | OPERATION | DEPT. |
|---|---|---|
| 60. | Buttmill, drill, and ream Fire Control holes. | 54 |
| 64. | Finish mill tang, and burr tang. | 54 |
| 84. | Mill Bolt Handle clearance, left side, and burr. | 54 |
| 88. | Finish mill Bolt Handle slot. | 54 |
| 90. | Mill Firing Pin Head clearance. | 54 |
| 92. | Hand ream to burr bolt hole. | 54 |
| 94. | Drill Bolt Stop Spring hole, [illegible] (40X, 721, 722, 725 only) | 54 |
| 95. | Buttmill Bolt Stop Spring recess [illegible] (M/700 - 700 ADL only) | 54 |

DATES AND REASONS FOR REVISIONS 9/15/61 - Retyped from 6/18/61
Reading changed on 180 - Payne - 256[illegible]
10/6/61 - Chg. reading - Payne - 26[illegible]
1/22/62 - Chg. grade chart. - Payne - 2[illegible]

DATES AND REASONS FOR REVISIONS

MODEL 721 - 722 - 40X - 725 — Receiver — PAGE 2 OF 5

| PART NAME | GA. OR CAL. | 721 | 722 | 722 - 222 | 40X | 725 (Long) | 725 (Short) |
|---|---|---|---|---|---|---|---|
| 700 - 700 ADL ADL | PART No. | 20181 | 20182 | 18680 | 19767 | 23755 | 23756 |
| | | | | M/725-222 16849 | | | |
| M/700 ADL | | 26575 | 26576 | 26577 | | | |
| M/700 [illegible] | | 26578 | 26579 | 26580 | | | |

R2527494

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON



## SEQUENCE C OPERATIONS

| OP. No. | OPERATION | DEPT. |
|---|---|---|
| 104. | Punch end of Bolt Stop slot. | 54 |
| 106. | Drill filler spring hole to depth (M/40X only) | 54 |
| 107 | Profile Fire Control Safety slot. (OMIT THIS OPERATION ON RECEIVERS TO BE TAKEN FOR M/411) | 54 |
| 108 | Buttmill feed ramp. (M/721 - 722 - .222 - M/725-M/700-700 ABL. 722 725-222 ABL) | 54 |
| 110. | Profile Magazine recess and bevel. (M/721, 722, 722 - .222, 725 - .222 ABL - 700 ABL) | 54 |
| 112. | Mill 30° bevel on bottom of rails. (M/721 - 722 - 725 - 700 - 700 ABL. ABL) | 54 |
| 113. | Profile 30° bevel on bottom of rails. (M/722 - .222, 725 - .222)(700 - .222, 700 ABL - .222) | 54 |

| OP. No. | OPERATION | DEPT. |
|---|---|---|
| 114. | Mill Safety clearance slot (M/725 - only) 725-222 | 54 |
| 116. | Centerless grind. | 54 |
| 118. | Mill Safety clearance (M/700 - 700 ABL only) ABL | 54 |
| 120. | Mill top radius for scope mount. | 54 |
| 124. | Tap 3 Guard Screw holes (M/721, 722, 40X - 700 - 700 ABL) ABL | 54 |
| 126. | Tap 2 Guard Screw holes (M/725 only) | 54 |
| 128. | Buttmill Shell clearance<br>M/721 - #20181 & M/722 - #20182<br>M/725 - #23755 & #23756<br>ABL M/700 - #26575 & #26576<br>M/700 ABL - #26578 & #26579<br>(Omit on all .222 Cal.) | 54 |
| 132. | Tap 6 scope holes. | 54 |

DATES AND REASONS FOR REVISIONS 9/15/61 - Retyped from 9/14/61
Added reading to 128 - Payne - #26580
10/17/61 - Chg. oper 135 to 118 - Payne - 256686
1/22/62 - Chg. grade ident. Payne - #26985

DATES AND REASONS FOR REVISIONS
1/22/62 - Chg. grade ident. - Payne - #26985

MODEL 721 - 722 - 722-222 - 725

PART NAME Receiver

PAGE 3 OF 5

| GA. OR CAL. | 721 | 722 | 722-.222 | 40X | 725(Long) | 725 (Short) |
|---|---|---|---|---|---|---|
| PART No. | 20181 | 20182 | 18680 | 19767 | 23755 | 23756 |
| | | | 725-222 | | | |
| | | | 16849 | | | |
| M/700 ABL | 26575 | 26576 | 26577 | | | |
| M/700 ABL | 26578 | 26579 | 26580 | | | |

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CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

## SEQUENCE C. OPERATIONS

| OP. No. | OPERATION | DEPT. |
|---|---|---|
| 139. | Stamp S&P (M/725 only) | 54 |
| 139-1 | Finish c'bore Barrel hole to depth (M/40X only) | 54 |
| 140. | Breach Bolt hole and Guide slots to burr. | 54 |
| 148. | File burrs at bolt stop[illegible] rear of Trigger slot, and Fire Control slot. Inspect for visual defects and fit bolt. (File 1/8 radius on rear of tang. (M/700[illegible]-700 BDL only) Hand ream Fire Control holes (To remove burrs) and draw file and polish 30° bevel on bottom of rails.) (Except on 40X) | 54 |
| | Product check for missed operations after Operation 148. | |
| 156. | Roll mark "Remington" and model number. | 54 |

| OP. No. | OPERATION | DEPT. |
|---|---|---|
| 160. | Roll mark "22 Long Rifle" (M/40X only) | 54 |
| 164. | Stamp serial no., left side front. | 54 |
| 168. | Austemper - M/721, 722, 725, 700ADL,700 BDL | 51 |
| 172. | Lindberg Draw - M/721, 722, 725, 700, 700 ADL, 700 BDL | 51 |
| 174 | Neutral Salt Harden (M/40X only) | 51 |
| 176. | Lindberg Draw (M/40X only) | 51 |
| 178. | Inspect Rockwell Hardness (M/40X only) | 51 |
| 179. | String draw Front end (M/40X only) | 51 |
| 179-2 | Cyanide Deplate to remove stains. (M/40X only) | 51 |

DATES AND REASONS FOR REVISIONS 1/10/62 - chg. reading on op. 148 - Payne - 256945 - Retyped from 10/17/61
1/22/62 - Chg. grade ident. - Payne - 256985

DATES AND REASONS FOR REVISIONS

MODEL 721 - 722 - 40X - 725 - 700 - 700 ADL

PART NAME Receiver

PAGE 4 OF 5

| GA. OR CAL. | 721 | 722 | 722 - 222 | 40X | 725(Long) | 725(Short) |
|---|---|---|---|---|---|---|
| PART No. | 20181 | 20182 | 18680 | 19767 | 23755 | 23756 |
| | | | 725 -222 16849 | | | |
| M/700 ADL M/700 BDL | 26575 26578 | 26576 26579 | [illegible] 26580 | | | |

R2527496

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KINZER V. REMINGTON



## SEQUENCE OF OPERATIONS

| OP. No | OPERATION | DEPT. |
|---|---|---|
| 182. | Grind front face square, and sort with master bolt and plug gage to segregate receivers requiring fitting, polishing, or draw filing. | 54 |
| 183R. | File to fit Bolt and plug gage. | 54 |
| 184R | Polish bolt hole to remove visual defects. | 54 |
| 185R | Draw file rails to remove visual defects. | 54 |
| 188. | Finish polish and chamfer. | 54 |
| 188-1 | Vibrator finish | 70 |
| 188-2 | Remove lodged chips. | 70 |
| ~~189.~~ | ~~Coarse Blast Exterior (M/725, 725-222 only)~~ | ~~54~~ |
| ~~193.~~ | ~~Fine blast exterior (M/725, 725-.222 only)~~ | ~~54~~ |

| OP. No. | OPERATION | DEPT. |
|---|---|---|
| 194. | Grit blast (M/700 ADL only) | 54 |
| | NOTE: Oil spray - Steel Guard - #1301 | |
| 195. | Hand tap Barrel hole. | 58 |
| | To Barrel and Receiver Assembly - Dept. | 58 |

DATES AND REASONS FOR REVISIONS 1/10/62 - Retyped from 10/25/5

1/22/62 - Chg. grade ident. - Payne - 256985

DATES AND REASONS FOR REVISIONS

MODEL ~~721 - 722~~ - 40X - ~~725~~ PART NAME Receiver PAGE 5 OF 5

700 - 700 ADL BDL

| GA. OR CAL. | ~~721~~ | ~~722~~ | ~~722 - 222~~ | 40X | ~~725 (Long)~~ | ~~725 (Short)~~ |
|---|---|---|---|---|---|---|
| PART No. | ~~20181~~ | ~~20182~~ | ~~18680~~ M/725-222 ~~16849~~ | 19767 | ~~23755~~ | ~~23756~~ |
| M/700 ADL | 26575 | ~~26~~576 | 26577 | | | |
| M/700 BDL | 26578 | 26579 | 26580 | | | |

RD-6480

R2527497

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

# PROCESS RECORDS

DATES AND REASONS FOR REVISIONS 4/18/55 - Revised - EJC - 249847
1/23/58 - Add 725 - Hunt - 252773 -
3/31/58 - Was operation 4A - Hunt - 252925
4/29/58 - Added 725 - .222 - ZK - 253021
8/31/59 - Added TS-3375,83138,83191-Hunt - 254234
12/10/59 - .020 was .008 T.I.R. - Hunt - 254423
8/18/61 - Add 700 - 700 ADL - Payne - 256441
1/22/62 - Chg. grade ident. - Payne - 256985

| TOOLS, GAGES AND EQUIPMENT | GA. OR CAL. | 721 | 722 | 722 - .222 | 725(Long) | 725 (Short) | 40X |
|---|---|---|---|---|---|---|---|
| SPEED / FEED | | | | 725-.222 | | | |
| STEP DRILL BARREL & BOLT HOLE | | | | | | | |
| 178 / .011 | Drill | A-69549 | A-69549 | A-69549 | A-69549 | A-69549 | A-69549 |
| | 1 7/16 spindle collet | B-90047W | B-90047W | B-90047W | B-90047W | B-90047W | B-90047W |
| | 1 7/16 spindle collet bushing | B-90048W | B-90048W | B-90048W | B-90048W | B-90048W | B-90048W |
| | Flanged tool holder | B-90045V | B-90045V | B-90045V | B-90045V | B-90045V | B-90045V |
| | Adapter | B-90112N | B-90112N | B-90112N | B-90112N | B-90112N | B-90112N |
| | | | | | | | |
| DRILL BOLT HOLE TO FULL DEPTH | Doubling Reamin Drill | A-TS-3375 | | | | | |
| 178 / .033 | .683 oil hole drill | A-54222 | A-54222 | A-54222 | A-54222 | A-54222 | A-54222 |
| | collet | B-54363 | B-54363 | B-54363 | B-54363 | B-54363 | B-54363 |
| | Plug gage (.687-.680 | B-80007V | B-80007V | B-80007V | B-80007V | B-80007V | B-80007V |
| (Set-up only) | Runout Gage [illegible] T.I.R. | C-83138 | C-83138 | C-83138 | C-83138 | C-83138 | C-83138 |
| | NOTE: M/721 9" deep | M/725 (Long) | | | | | |
| | M/722 - 6 1/8" deep | M/725 (Short) | | | | | |
| (Set-up only) | Long Plug [illegible] | B-83191 | B-83191 | B-83191 | B-83191 | B-83191 | B-83191 |
| | NOTE: Engage feed before drill enters small hole. | | | | | | |

| OPERATION DESCRIPTION | PART No. | 20181 | 20182 | 18680 16849 | 23755 | 23756 | 19767 |
|---|---|---|---|---|---|---|---|
| Step drill; deep hole drill; c'bore and face; tap; and cut off. | | | | | | | |
| | M/700 [illegible] | 26575 | 700-26576 | 700-26577 | | | |
| | M/700 [illegible] | 26578 | 700[illegible]-26579 | 700[illegible]-26580 | | | |
| [illegible] | | | | | | | |
| | OCC. No. | 39 | 39 | 39 | | | |
| | STD. HRS/C | 10.225 | 9.791 | 9.791 | | | |
| | STD. No. | [illegible]66 | R-67 | R-67 | | | |
| | EFF. DATE | 10/20/47 | 10/20/47 | 10/20/47 | | | |

ADL 700-700 ADL -

PART NAME Receiver COOLANT Macco SET UP TIME MODEL No. 721-722 -725-40X OPER. No. 3
TYPE J&L Turret MACH. HRS. DEPT. No. 73 PAGE 1 OF 3

RD-6461

R2527498

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

# PROCESS RECORDS

DATES AND REASONS FOR REVISIONS 4/18/55 - Revised process - EJC - 249847 4/14/61 - Chg. c'bore - ECR - 256031
1/23/58 - Add 725 - Hunt - 252773 - 8/18/61 - Add 700 - 700 ADL - Payne - 256441
3/31/58 - Was operation 4A - Hunt - Chg. equipment reading - 252925 1/22/62 - Chg. grade ident. - MP-256985
4/29/58 - Added 725 - .222 - ZK - 253021
8/31/59 - Add 52104-1 and TS-3394 - Hunt - 254234

| TOOLS, GAGES AND EQUIPMENT | GA. OR CAL. | 721 | 722 | 722-.222<br>725-.222 | 725 (Long) | 725 (Short) | 40X |
|---|---|---|---|---|---|---|---|
| SPEED FEED | | APPROVAL AND DATES | | | | | |
| C'BORE AND FACE BARREL HOLE | | | | | | | |
| 1041 .007 Carbide c'bore | * | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | B-84245 |
| Depth Ga. (1.151-1.149) | | B-50240 | B-50240 | B-50240 | B-50240 | B-50240 | B-50240 |
| Setting Gage | | B-50295 | B-50295 | B-50295 | B-50295 | B-50295 | B-50295 |
| Fed. Dial (1.003-.998 dia.) | | B-80057W | B-80057W | B-80057W | B-80057W | B-80057W | B-80057W |
| Setting Gage | | B-80064W | B-80064W | B-80064W | B-80064W | B-80064W | B-80064W |
| C'sink gage | | B-74639 | B-74639 | B-74639 | B-74639 | [illegible] | B-74639 |
| [illegible] (Ziegler) or Floating Holder (Glencoe) | | [illegible] Std. | [illegible] Std. | [illegible] Std. | [illegible] Std. | [illegible] Std. | Std. |
| NOTE: Maintain tension on star wheel and relieve c'bore as soon as feed stops. | | | | | | | |
| * Temporarily use B-74697 with reamer section reduced for use as a .680 dia. pilot. | | | | | | | |
| Weddell Combination Tool | | C-TS-3394 | | | | | |

| OPERATION DESCRIPTION | PART No. | | | | | | |
|---|---|---|---|---|---|---|---|
| | M/700ADL | 26575 | 26576 | 26577 | | | |
| | M/700 [illegible]DL | 26578 | 26579 | 26580 | | | |
| | OCC. No. | | | | | | |
| | STD. HRS/C | | | | | | |
| | STD. No. | | | | | | |
| | EFF. DATE | | | | | | |

ADL
700 - 700 [illegible]DL

PART NAME Receiver COOLANT SET UP TIME MODEL No. 721-722-725-40X OPER. No. [illegible] 3
TYPE MACH. HRS. DEPT. No. 73 PAGE 2 OF 3

RD-6461

R2527499

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON



# PROCE RECORD

DATES A: REASONS FOR REVISIONS 9/18/61 - Retyped from 8/18/61
1/22/62 - Chg. grade ident. - Payne - 256985

| SPEED | FEED | TOOLS, GAGES AND EQUIPMENT | GA. OR CAL. | APPROVAL AND DATES 721 | 722 | 722-222 | 725(Long | 725 (Short) | 40X |
|---|---|---|---|---|---|---|---|---|---|
| TAP BARREL HOLE | | | | | | | | | |
| 40 | Hand | | | | | | | | |
| | | Return Tap (1 1/16 NC-3) | | B-74685 | B-74685 | B-74685 | B-74685 | B-74685 | B-74685 |
| 90 | Hand | Flanged tool holder | | B-90045W | B-90045W | B-90045W | B-90045W | B-90045W | B-90045W |
| | | Releasing tap holder | | B-90041V | B-90041V | B-90041V | B-90041V | B-90041V | B-90041V |
| | | Thread Gage | | B-80071U | B-70071U | B-80071U | B-80071U | B-80071U | B-80071U |
| | | Thread segments | | B-80072W | B-80072W | B-80072W | B-80072W | B-80072W | B-80072W |
| | | Min. Setting Ring (.003 T.I.R.) | | B-80078W | B-80078W | B-80078W | B-80078W | B-80078W | B-80078W |
| | | Thread depth gage | | A-52823 | A-52823 | A-52823 | A-52823 | A-52823 | A-52823 |
| | | Thread Plug (Salvage Max.) | | A-54568 | A-54568 | A-54568 | A-54568 | A-54568 | A-54568 |
| FEED TO STOP AND CUT OFF | | | | | | | | | |
| | | PDQ Insert | | | | | | | |
| 734 | .005 | Carbide cut-off Insert | | A-83279 | A-83279 | A-83279 | A-83279 | A-83279 | A-83279 |
| | | Stock Stop | | B-90010V | B-90010V | B-90010V | B-90010V | B-90010V | B-90010V |
| | | Snap Gage (Lgth) (M/721 - 8.715 - 8.695) M/725- (Long) (M/722 - 7.865 - 7.845) M/725 (Short) | | B-80020W | B-80020P | B-80020P | B-80020W | B-80020P | B-80020P |
| | | Base Gage | | D-51341 | D-51341 | D-51341 | D-51341 | D-51341 | D-51341 |
| | | Deburr end of Bolt hole 100% | | | | | | | |
| | | Model - 700 ADL | | 26575 | 26576 | 26577 | | | |
| | | 700 BDL | | 26578 | 26579 | 26580 | | | |
| C'SINK BARREL HOLE (TO BE DONE AFTER DRILL STATION UNTIL REAMER WORK IS COMPLETED ON C'BORE. | | | | | | | | | |
| | | Severence c'sink (1¼" dia.) | | Std. | Std. | Std. | Std. | Std. | Std. |
| | | C'sink gage (Set-up only) | | B-74639 | B-74639 | B-74639 | B-74639 | B-74639 | B-74639 |
| | | Base Ga. | | D-71554 | D-71554 | D-71554 | D-71554 | D-71554 | D-71554 |
| | | Max. hole runout | | .010 T.I.R. | .010 T.I.R. | .010 T.I.R | .010 T.I.R | .010 T.I.R. | .010 T.I.R |
| | | Vise Jaws - Used on Bypass Mill to length operation on substitute Stock | | C-82762 | | | | | |

ADL
700-700BDL-721-722-725 -40X

PART NAME Receiver COOLANT Macco SET UP TIME MODEL No. OPER. No. 3
TYPE MACH. HRS. DEPT. No. 73 PAGE 3 OF 3
MACHINE

RD-6463

R2527500

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

# PROCES: RECORDS

DATES AND REASONS FOR REVISIONS 9/18/61 - Retyped from 8/18/61
9/20/61 - Chg. concentricity # - correction
1/22/62 - Chg. grade identification - Payne - 256985

| TOOLS GAGES AND EQUIPMENT | | GA OR CAL | APPROVAL AND DATES | | | | | |
|---|---|---|---|---|---|---|---|---|
| SPEED | FEED | | 721 | 722 | 722-.222 725-222 | 725 (Long) | 725 (Short) | 40X |
| #3 Cut #4 Return | | H.S.S. TWO STEP BROACH | D-53963 | D-53963 | D-63963 | D-53963 | D-53963 | D-53963 |
| | * | Fixture | D-83935 | D-83935 | D-83935 | D-83935 | D-83935 | D-83935 |
| | | Retriever | D-67025 | D-67025 | D-67025 | D-67025 | D-67025 | D-67025 |
| | | Broach Holders | B-52322 | B-52322 | B-52322 | B-52322 | B-52322 | B-52322 |
| | | Reducting Bushing | C-50196 | C-50196 | C-50196 | C-50196 | C-50196 | C-50196 |
| | | Pull Pin | A-54548 | A-54548 | A-54548 | A-54548 | A-54548 | A-54548 |
| | | Plug Gage | B-84441 | B-84441 | B-84441 | B-84441 | B-84441 | B-84441 |
| | | Plug Gage (.703-.700) | B-80199V | B-80199V | B-80199V | B-80199V | B-80199V | B-80199V |
| | | Concentricity Gage (.003 ind. reading) | D-82739 | D-82739 | D-82739 | D-82739 | D-82739 | D-82739 |
| | | NOTE: Permissable to accept at .7035 dia. when broaches are new. | | | | | | |
| | | * Place front end of Receiver against face plate | | | | | | |
| | | Base Ga. ** | D-71554 | D-71554 | D-71554 | D-71554 | D-71554 | D-71554 |
| | | ** | Max.allowable hole runout .015 T.I.R. | | | | | |

| OPERATION DESCRIPTION | PART NO. | | | | | | |
|---|---|---|---|---|---|---|---|
| | | 20181 | 20182 | 18680 | 23755 | 23756 | 19767 |
| | AHL | | | | | | |
| | Model 700 | 26575 | 26576 | 26577 | | | |
| Broach bore to final I.D. | 700 ADL | 26578 | 26579 | 26580 | | | |

PART NAME Receiver COOLANT Sun. #623 SET UP TIME MODEL No AHL 700-700 ADL-721-722-725-40X OPER No 7
TYPE MACHINE LaPointe Hydraulic Broach H.P.-30 DEPT No 54 PAGE 1 OF 1

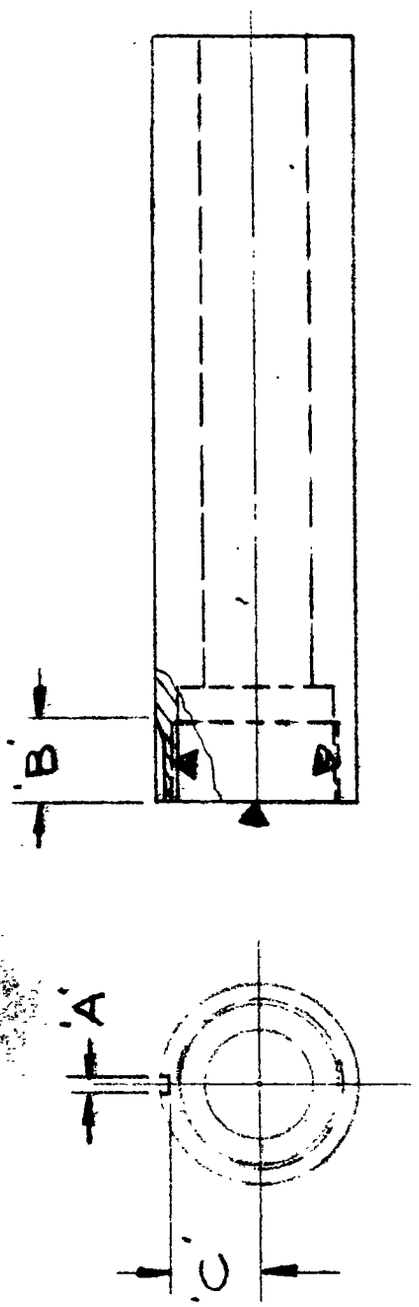
RD 6461

R2527501

TPR-7

| PART: RECEIVER M140-X | PART No. 19767 |
|---|---|
| OPERATION: H/ MILL LOCATING SLOT | OPER. No.: 8 DEPT - [redacted] 54 |

PROCESS RECORD — ILLUSTRATION SKETCH




7/5/61 - Chg. dept. 58 to 54 - M&S - 256316
1/[redacted]/61 - Chg. dept. # - ECR - 255776
3/14/55 - Revised process - K - 249742

| COMPILED BY: | APPROVAL & DATE: |
|---|---|
| K-12-22-54 | K |

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

H. H. SULLIVAN, INC.

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# PROCESS RECORDS

**DATES AND REASONS FOR REVISIONS** 3/14/55 - Revised process - K - 249742 -
5/9/55 - Chg. "B" -"C" Dim. and dept. no. ZK - 249971
1/[illegible]/61 - Chg. dept. & mach. - ECR - 255776
7/5/61 - Chg. dept. 58 to 54 - M&S - 256316
12/21/61 - Replace temp. ga. - Payne - 256902

**APPROVAL AND DATES**

| SPEED | FEED | TOOLS, GAGES AND EQUIPMENT | GA. OR CAL. | M/40X |
|---|---|---|---|---|
| | | Cutter - 3 x 1/8 x 1" hole | | Std. |
| | | Arbor 1" hole | | |
| | | Fixture | | D-73756 |
| | | Plug Gage "A" .127 - .124 | | B-80224P |
| | | Template [illegible] | | [illegible] |
| | | Spec. Snap Ga. "C" [illegible] | | C-73925 |
| | | Plug Gage (Centrality) | | B-74712 |
| | | Qualify Ga. | | B-73728 |

**OPERATION DESCRIPTION**

Burr face and hand mill locating slot. (M/40X only)

(NOTE: M/40X becomes distinct at this point.)

**PART No.** 19767

**OCC. No.**
**STD. HRS/C**
**STD. No.**
**EFF. DATE**

**PART NAME** Receiver **COOLANT** **SET UP TIME** **MODEL No.** 40X **OPER. No.** 8

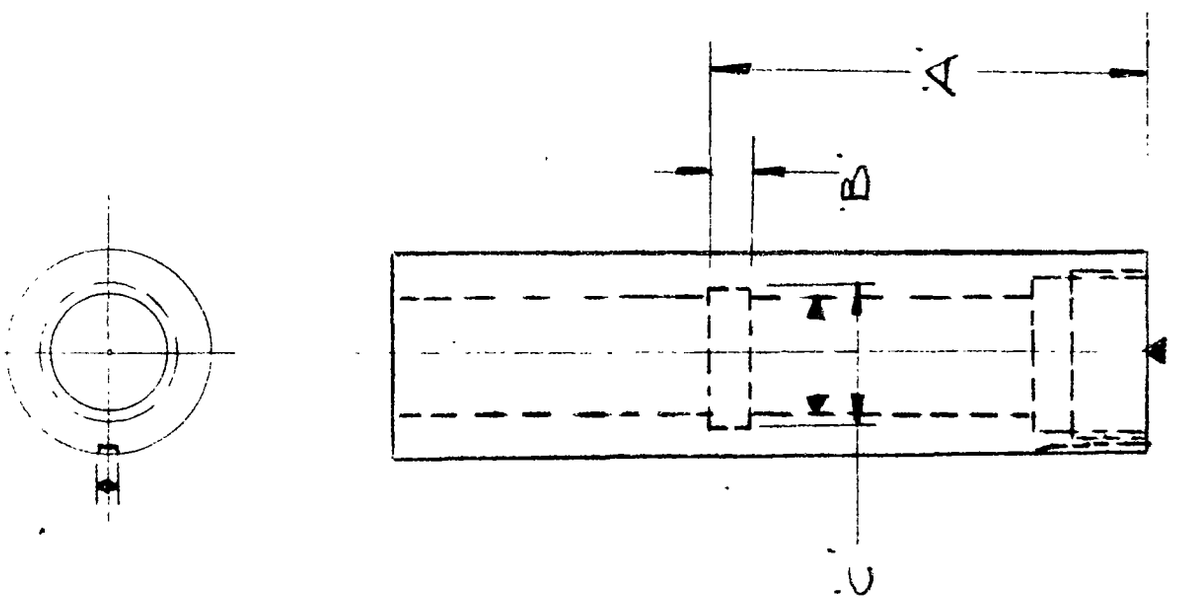
**TYPE** [illegible] B&S 3-0 Mill **MACH. HRS.** **DEPT. No.** 54 [illegible] **PAGE** 1 **OF** 1

RD-6461

R2527503

| PART: RECEIVER M14S-A | PART No. 19161 |
|---|---|
| OPERATION: DRILL BOLT LUG RECESS CUT | OPER. No.: 12 DEPT 54 |

PROCESS RECORD — ILLUSTRATION SKETCH




7/5/61 - Chg. dept. # - M&S - 256316
1/31/61 - Chg. dept. # - ECR - 255776
5/9/55 - Chg. dept. # - ZK - 249971
3/14/55 - Revised process - 249742 -

| COMPILED BY: | APPROVAL & DATE: |
|---|---|
| K-12-22 | K |

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# PROCESS RECORDS

DATES AND REASONS FOR REVISIONS

3/14/55 - Revised process - K - 249742 -
5/9/55 - Chg. dept. # - ZK - 249971
9/29/55 - Chg. dims. - ZK - 250501
11/12/58 - Specify shoulder squareness and finish - Hunt - 253441
12/12/58 - Add mirror - Hunt - 253484
1/[illegible]/61 - Chg. dept. # - ECR - 255776
7/5/61 - Chg. dept. # - M&S - 256316

| TOOLS, GAGES AND EQUIPMENT | SPEED | FEED | GA. OR CAL. | M/40X | APPROVAL AND DATES |
|---|---|---|---|---|---|
| Carbide Recess cutter * | | | B-74769 | | * Change cutter as often as necessary to maintain smooth cut. |
| Auto Recessing Tool | | | C-73941 | | |
| Drill Jig | | | C-73759 | | |
| Inspection mirror *** 1/2" | | | Std. | | *** Inspect 1 in 5 |
| Dial Base Ga. "A" [illegible] | | | B-73760 | | |
| Flush Pin Ga. "B" [illegible] | | | C-73761 | | |
| Dial Base Ga. ** "C" [illegible] | | | B-74950 | | ** Taper in the Locking shoulder must not exceed .001. |

OPERATION DESCRIPTION

Drill Bolt Lug Recess cut

(M/40X only)

PART No. 19767

OCC. No.
STD. HRS/C
STD. No.
EFF. DATE

PART NAME Receiver COOLANT SET UP TIME MODEL No. 40X OPER. No. 12

TYPE Drill Press MACH. HRS. DEPT. No. [illegible] PAGE 1 OF 1

RD-6461

R2527505

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# PROCESS RECORD – INSPECTION

| GAUGES | | USE | LIMITS | |
|---|---|---|---|---|
| TYPE | NUMBER | | MAX. | MIN. |
| Dial Ga. | B-50240 | Check depth of c'bore | 1.151 | 1.149 |
| Fed. Dia. | B-80057W | Check diameter of c'bore | 1.003 | .998 |
| Setting Ga. | B-80064W | | -- | -- |
| Flush Pin | B-74639 | Check c'sink | .035 | .025 |
| Plug | B-80199V | Check diameter of Bbl. hole | .703 | .700 |
| Thread | B-80071U | Runout of threads | .003 | .000 |
| Thr. Segments | B-80072W | | -- | -- |
| Ring | B-80078W | Min. Setting Ring 1 1/16 - 16 thd. | -- | -- |
| Thread | A-52823 | Check depth of threads | .775 | .650 |
| Thread Plug | A-54568 | Check tapped hole (Salvage Max.) | 1 1/16 | 16 thd. |
| Snap | B-80020W | Length - M/721 - M/725 Long) | 8.715 | 8.695 |
| | B-80020P | Length (M/722 - & M/40X - M/725 Short | 7.865 | 7.845 |
| Base | D-51341 | Check concentricity | .006 | .000 |
| | | | .004 | .000 |
| | | | .003 | .000 |
| Base | D-71554 | Check runout | | |
| Plug | B-80224P | Check width of cut | .127 | .124 |
| Template | B-73758 | Check runout of cut | .845 | .815 |
| Snap | C-73925 | Check depth of cut | .686 | .680 |
| Plug | B-74712 | Check centrality of cut | -- | -- |
| Plug | B-73728 | Check qualification of cut | -- | -- |
| Dial Base | D-73760 | Check length | 4.028 | 4.024 |
| Flush | C-73761 | Check width of recess | [illegible] | .383 |
| Dial Base | D-74950 | Check depth of recess | .970 | .960 |

DATES AND REASONS FOR REVISIONS
5/9/55 - New sheet - ZK - 249971
9/29/55 - Chg. dims. - ZK - 250501
10/30/57 - Added M/725 - ZK - 252593
4/29/58 - Added part #'s - ZK - 253021
7/5/61 - Chg. dept. # - MAS - 256316
8/18/61 - Add 700 - 700 ADL - Payne - 256441
1/22/62 - Chg. grade ident. - Payne - 256985

DESCRIPTION OF OPERATION: Product check for operation 12

MODEL NO. 721-722-40X - 725 - 700 - 700 ADL
PART NO. 20181-20182-19767-23755-23756 OPER. NO. Prod. check
16660-16649
BLANK DRAWING NO.
PART NAME Receiver
DEPT. NO. 54 PAGE 1 OF 1

RD-6491 REMINGTON ARMS CO., INC., ILION, N.Y.

R2527506

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON



# PROCESS RECORDS

DATES AND REASONS FOR REVISIONS 6/17/58 - New operation - Hunt - 253086 -
7/5/61 - Chg. dept. # - M&S - 256316

| TOOLS, GAGES AND EQUIPMENT | GA. OR CAL. | 40X | APPROVAL AND DATES |
|---|---|---|---|
| SPEED / FEED | | | |
| Broach | | D-53963 | |
| Fixture | | D-54493 | |
| Retriever | | D-67025 | |
| Broach Holders | | B-52322 | |
| Reducing Bushing | | C-50196 | |
| Pull Pin | | A-54548 | |
| Plug Gage (.700-.703) | | B-80199V | |

Place Front end of Receiver against face plate

| OPERATION DESCRIPTION | PART No | 19767 |
|---|---|---|
| Broach to deburr<br>(40X only) | OCC No. | |
| | STD. HRS/C | |
| | STD. No | |
| | EFF. DATE | |

PART NAME Receiver COOLANT SET UP TIME MODEL No. 40X OPER No. 15
TYPE MACH. HRS DEPT No. [redacted]54 PAGE 1 OF 1

RD-6461

R2527507

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON



# PROCESS RECORDS

DATES AND REASONS FOR REVISIONS 3/6/61 - Retyped from 9/2/60
7/5/61 - Chg. dept. # - M48 - 256316
7/8/61 -Chg. fixture No. - Payne - 256348
8/18/61 - Add 700 - 700 ADL - Payne - 256441 -
1/22/62 - Chg. grade ident. HP 256095

| SPEED | FEED | TOOLS GAGES AND EQUIPMENT | GA OR CAL | M/721 | M/722 | M/40X | M/722-.222 725 - .222 | M/725 (Long) | 725 (Short) |
|---|---|---|---|---|---|---|---|---|---|
| | | | | APPROVAL AND DATES | | | | | |
| #3 Cut | | Set of 3 broaches: | | | | | | | |
| #4 return | | #1 - .848" O/D | | D-53986 | D-53986 | D-53986 | D-53986 | D-53986 | D-53986 |
| | | #2 - .995"- O.D. | | D-53987 | D-53987 | D-53987 | D-53987 | D-53987 | D-53987 |
| | | #3 - 1.003" O.D. | | D-54125 | D-54125 | D-54125 | D-54125 | D-54125 | D-54125 |
| | *** | Fixture | | D-83395 | B-83395 | D-83395 | B-83395 | D-83395 | D-83395 |
| | | Triple Broach puller | | C-50189 | C-50189 | C-54846 | C-50189 | C-50189 | C-50189 |
| | | Face Plate | | D-50191 | D-50191 | D-50191 | D-50191 | D-50191 | D-50191 |
| | | Pull Pin | | A-54548 | A-54548 | A-54548 | A-54548 | A-54548 | A-54548 |
| | / | Fed. Dial (1.004 - .998 ) | | B-80066W | B-80066W | B-80066W | B-80066W | B-80066W | B-80066W |
| | | Setting Ring | | B-80064W | B-80064W | B-80064W | B-80064W | B-80064W | B-80064W |
| | * | Plug Gage (.452" - .449") | | A-50249 | A-50249 | A-50249 | A-50249 | A-50249 | A-50249 |
| | ** | Functional Gage | | C-54609 | C-53609 | A-89658 | C-53609 | C-53609 | C-53609 |
| | | OPERATION DESCRIPTION | PART NO. | 20181 | 20182 | 19767 | 18680 16849 | 23755 | 23756 |
| | | Broach Bolt Guide slots. | | | | | | | |
| | | | | * Parts acceptable if No-Go enters when broaches are new. | | | | | |
| | | | | ** Functional gage must enter Receiver from rear end and rotate with lugs, in c'bore and recess. | | | | | |
| | | | | *** Place front end of Receiver against face plate. | | | | | |
| | | | | / 1.005 acceptable for new broach. | | | | | |
| | | Model 700 ADL | | 26575 | 26576 | | 26577 | | |
| | | Model 700 ADL | | 26578 | 26579 | | 26580 | | |

PART NAME Receiver COOLANT Gun. #623 SET UP TIME MODEL No ADL 700 - 700 ADL 721 - 722 - 40X-725 OPER No 16
TYPE MACHINE LaPointe Hydraulic Broach H.P. - 30 DEPT No 54 PAGE 1 OF 1

RD 6461

R2527508

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KINZER V. REMINGTON



# PROCESS RECORDS

DATES AND REASONS FOR REVISIONS

11/7/58 - Retyped from 4/29/58
4/24/59 - Add air wrench and adapter - Hunt - 253859
6/10/59 - Add air vise - chip breaker - Hunt - 254018
5/20/60-Chg. Equip. reading-Ranney-254950
7/5/61 - Chg. dept. # - M&S - 256316
8/18/61 - Add 700 - 700 ADL - Payne - 256441
1/22/62 - Chg. grade ident. - Payne - 256985

| SPEED | FEED | TOOLS, GAGES AND EQUIPMENT | GA. OR CAL | APPROVAL AND DATES 721 | 722 | 722-.222 725-.222 | 725-(Long) | 725(Short) |
|---|---|---|---|---|---|---|---|---|
| 1200 | .0075 | Head Stock Center | | C-53953V | C-53953V | C-53953V | C-53953V | C-53953V |
| | | Arbor and Sleeve | | C-53953W | C-53953W | C-53953W | C-53953W | C-53953W |
| | | Tail Stock | | A-81744 | A-81744 | A-81744 | A-81744 | A-81744 |
| | | Snap (1.379"-1.372" dia.) | | B-80103M | B-80103M | B-80103M | B-80103M | B-80103M |
| | | Concentricity Ga. | | B-80050W | B-80050W | B-80040W | B-80050W | B-80050W |
| | | Bbl. End - .004" T.I.R. | | | | | | |
| | | Butt End - .006" T.I.R. | | | | | | |
| | | Tool Block - Lipe 3684-6 | | Std. | Std. | Std. | Std. | Std. |
| | | Kendex Tool Holder KSER12 | | Std. | Std. | Std. | Std. | Std. |
| | | Kendex Inserts SNL-422 | | K5H | K5H | K5H | K5H | K5H |
| | | Air Wrench 1/2" | | Std. | Std. | Std. | Std. | Std. |
| | | Adapter | | B-83067 | B-83067 | B-83067 | B-83067 | B-83067 |
| | | Air Vise - Max. stroke not to exceed 5/32" | | | | | | |
| | | Chip breaker - KENDEX CNS16R | | STD | STD | STD | STD | STD |

| OPERATION DESCRIPTION | PART No | 20181 | 20182 | 18680 16849 | 23755 | 23756 |
|---|---|---|---|---|---|---|
| | Model 700 ADL | 26575 | 26576 | 26577 | | |
| | Model 700 ADL | 26578 | 26579 | 26580 | | |
| Turn O.D. | | | | | | |
| (M/721-722-725 | | | | | | |
| 700 - 700 ADL - | | | | | | |
| See Oper. 22 for M/40X | | | | | | |
| | OCC. No. | | | | | |
| | STD. HRS/C | | | | | |
| | STD. No. | | | | | |
| | EFF. DATE | | | | | |

PART NAME Receiver COOLANT Sol.011 SET UP TIME MODEL No 721-722-725-700-700 ADL OPER No 20

TYPE 12 x 18 Lipe Carbo Lathe MACH. HRS DEPT No 54 PAGE 1 OF 1

RD-6461

R2527509

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

20

# PROCESS RECORDS

DATES AND REASONS FOR REVISIONS 6/20/55 - New operation - ZK - 250129
4/24/59 - Add air wrench and adapter - Hunt - 253859
6/10/59 - Add air vise - Hunt - Add kendex bits - 253018
6/5/61 - Chg. T. Holder, Insert and add chip breaker - ECR - 256254
7/5/61 - Chg. dept. # - M&S - 256316

| TOOLS, GAGES AND EQUIPMENT | | | GA. OR CAL. | 40X | APPROVAL AND DATES |
|---|---|---|---|---|---|
| SPEED | FEED | | | | |
| | | Kendex tool holder KSBR12 | | Std. | |
| 1200 | 0075 | [illegible] | | [illegible] | |
| | | Headstock Center | | C-53953V | |
| | | Arbor and Sleeve | | C-53953W | |
| | | Tool Block | | B-51710 | |
| | | Form Bar | | B-52106V | |
| | | Tail Stock | | A-51716W | |
| | | Snap Ga. (1.379-1.372 dia.) | | B-[illegible]M | |
| | | Concentricity Ga. | | B-80050W | |
| | | Bal. End - .004 T.I.R. | | | |
| | | Butt end .006 T.I.R. | | | Air Vise - Max. stroke not to exceed 5/32. |
| | | Air Wrench 1/2" | | Std. | |
| | | Stamp "X" | | Std. | |
| | | Adapter | | B-83067 | |
| | | [illegible] CPS16F | | Std. | |
| | | [illegible] | | | |
| | | [illegible] | | | |

| OPERATION DESCRIPTION | PART No. | 19767 |
|---|---|---|
| Stamp identification and turn O.D. (M/40X only) | | |
| NOTE: Stamp "X" on top of tang and of Receiver on opposite side of locating slot for identification. | OCC. No. | |
| | STD. HRS/C | |
| | STD. No. | |
| | EFF. DATE | |

PART NAME Receiver COOLANT SET UP TIME MODEL No. 40X OPER. No. 22

TYPE 12 X 18 Lipe Production Lathe MACH. HRS. DEPT. No. 54 [illegible] PAGE 1 OF 1

R2527510

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON



# PROCESS RECORDS

DATES AND REASONS FOR REVISIONS 9/18/61 - Retyped from 8/18/61
12/15/61 - Show gage tol. - Payne - 256881
1/22/62 - Chg. grade ident. - Payne - 256985

| TOOLS GAGES AND EQUIPMENT | | GA OR CAL | APPROVAL AND DATES M/721 | M/722 | M/40X | M722-.222 M/725-.222 | M725-(Long) | 725(Short) |
|---|---|---|---|---|---|---|---|---|
| SPEED | FEED | | | | | | | |
| 1200 | Thru | Norton Grinding Wheel 20" x 6" x 12" type 1 57A46L5VBE | Std. | Std. | Std. | Std. | Std. | Std. |
| 34 | -- | Norton Regulating Wheel 12" x6" x 5" type 7 Recessed A-801-RGR-30 | Std. | Std. | Std. | Std. | Std. | Std. |
| | | Dial Indicator Snap Ga. | B-72493 | B-72493 | B-72493 | B-72493 | B-72493 | B-72493 |
| | | Setting Master Tol ±.001 | B-72493A | B-72493A | B-72493A | B-72493A | B-72493A | B-72493A |
| OPERATION DESCRIPTION | | PART NO | 20181 | 20182 | 19767 | 18680 16849 | 23755 | 23756 |
| | | Model 700ADL | 26575 | 26576 | | 26577 | | |
| | | Model 700BDL | 26578 | 26579 | | 26580 | | |
| Centerless grind | | | | | | | | |

PART NAME Receiver COOLANT Microgrind SET UP TIME MODEL NO ADL 700-700BDL-721-722-40X-725 OPER NO 24

TYPE MACHINE Landis #12 C'less grinder DEPT NO 54 PAGE 1 OF 1

RD 6461

R2527511

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

# PROCESS RECORDS

DATES AND REASONS FOR REVISIONS 3/14/55 - Revised process - EJC - 249742 -
4/18/55 - Add M/722 - .222 EJC - 249847
10/30/57 - Added M/725 - ZK - 252593 -
4/29/58 - Added 725-.222 -ZK -253021
7/5/61 - Chg. dept. # - M&S - 256316
8/18/61 - Add 700 - 700 ADL - Payne - 256441
1/22/62 - Chg. grade ident. - Payne - 256985

| TOOLS. GAGES AND EQUIPMENT | | GA. OR CAL. | APPROVAL AND DATES | | | | | |
|---|---|---|---|---|---|---|---|---|
| SPEED | FEED | | 721 | 722 | 40X | 722 - .222<br>725-.222 | 725 (Long) | 725 (Short) |
| | | 10" Mill File | Std. | Std. | Std. | Std. | | |
| OPERATION DESCRIPTION | | PART No. | 20181 | 20182 | 19767 | 18680<br>16849 | 23755 | 23756 |
| | | Model 700 ADL | 26575 | 26576 | | 26577 | | |
| Burr and break edge around both ends | | Model 700 BDL | 26578 | 26579 | | 26580 | | |
| | | OCC. No. | 1 | 1 | 1 | 1 | | |
| | | STD. HRS/C | .605 | .605 | .605 | .605 | | |
| | | STD. No. | E-121 | E-121 | E-121 | E-121 | | |
| | | EFF. DATE | 1/19/48 | 1/19/48 | 3/7/55 | 3/7/55 - | | |

PART NAME Remington COOLANT SET UP TIME MODEL No. ADL 700 - 700 BDL 721 - 722 - 40X - 725 OPER. No. 28
TYPE MACH. HRS. DEPT. No. 54 PAGE 1 OF 1

R2527512

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON



# PROCESS RECORDS

DATES AND REASONS FOR REVISIONS 6/17/58 - Was oper 45 - Punt -253086 -
7/5/61 - Chg. dept. # - M&S - 256316
8/18/61 - Add 700 - 700 ADL - Payne - 256441
9/14/61 - Added 8 to part # - Omitted when retyped
1/22/62 - Chg. grade ident. - Payne - 256985

| SPEED | FEED | TOOLS, GAGES AND EQUIPMENT | GA. OR CAL. | APPROVAL AND DATES 721 | 722 | 722-.222 | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Drill Jig for all holes | | D-52064 | D-52064 | D-52064 | | | |
| Drill 4 scope holes (Two at top rear & two at side rear.): | | | | | | | | | |
| | | Guide rail for jig | | D-52005 | D-52005 | D-52005 | | | |
| 3600 | Hand | #32 drills (96° point) | | A-54033 | A-54033 | A-54033 | | | |
| | | 2-spindle mult. Head (29 A-202/A-2873) | | Std. | Std. | Std. | | | |
| Drill 2 scope holes (Top front) | | | | | | | | | |
| | | Guide rail for jig | | D-52005 | D-52005 | D-52005 | | | |
| 3600 | Hand | #32 drills (96° point) | | A-54033 | A-54003 | A-54003 | | | |
| | | 2 spindle Mult. head (29A-202/A-2873) | | Std. | Std. | Std. | | | |
| | | Plug Gage (.119-.115 dia.) | | B-80095W | B-80095W | B-80095W | | | |
| | | Position Gage (.201-.199) | | A-52722 | A-52722 | A-52722 | | | |

| OPERATION DESCRIPTION | | PART No. | 20181 | 20182 | 18680 | | | |
|---|---|---|---|---|---|---|---|---|
| | | Model 700 ADL | 26575 | 26576 | 26577 | | | |
| Drill scope screw, Guard Screw and gas escape holes. | | 700 BDL | 26578 | 26579 | 26580 | | | |
| (M/721, 722, 722-.222 only) 700 ADL - 700 BDL only) | | | | | | | | |
| | | OCC. No. | | | | | | |
| | | STD. HRS/C | | | | | | |
| | | STD. No. | | | | | | |
| | | EFF. DATE | | | | | | |

PART NAME Receiver COOLANT Sol.011 SET UP TIME MODEL No. 721 - 722 - 700 ADL - 700 BDL OPER. No. 29
TYPE 1. LMS-12 Leland-Gifford 3 spindle drill press 2. LMS-14 Leland-Gifford 2 spindle Drill Press MACH. HRS DEPT. No. 54 PAGE 1 OF 2

RD-6461

R2527513

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

# PROCES_ RECORD

DATES AND REASONS FOR REVISIONS 6/17/58 - Was operation 45 - Hunt - 253086
7/5/61 - Chg. dept. # - M&S - 256316
8/18/61 - Add 700 - 700 ADL - Payne - 256441
1/22/62 - Chg. grade ident. - Payne - 256985

| SPEED | FEED | TOOLS, GAGES AND EQUIPMENT | GA. OR CAL. | APPROVAL AND DATES M/721 | M/722 | M/722-.222 |
|---|---|---|---|---|---|---|
| Drill | Gas Escape Hole | | | | | |
| | | Guide rail for jig | | D-52005 | D-52005 | D-52005 |
| 1800 | Hand | 1/8" drill | | Std. | Std. | Std. |
| | | Jacob's Chuck (#32) | | B-90085V | B-90085V | B-90085V |
| | | Plug (.124" Go) | | B-80002J | B-80002J | B-80002J |
| Drill | Front and rear Guard Screw holes | | | | | |
| 1800 | Hand | #3 Drill (96° point) | | A-54031 | A-54031 | A-54031 |
| | | 3-spindle Mult. head (11B-1759/A-2876) | | Std. | Std. | Std. |
| | | Plug Gage (.216-.212) | | B-80004W | B-80004W | B-80004W |
| | | Guide Rail for Jig | | D-52079 | D-52079 | D-52079 |
| Drill | Middle Guard Screw Hole | | | | | |
| 1200 | Hand | Step Drill | | B-90114W | B-90114W | B-90114W |
| | | Jacob's chuck (#32) | | B-90085V | B-90085V | B-90085V |
| | | Plug Gage (.139-.135) | | B-80002H | B-8002H | B-8002H |
| | | Plug (.133-.113 depth) | | A-52013 | A-52013 | A-52013 |

NOTE: See sketch for use of Guide rail D-52079 and 3 spindle Mult. Head when changing over from 721-to 722

NOTE: The scope and Gas escape holes are set up on the 3 spindle machine, and the Guard Screw holes on the two spindle.

PART NAME Receiver COOLANT Sol.011 SET UP TIME MODEL No. 721 - 722 - ADL -700-700 ADL OPER. No 29
TYPE 1. LMS-12 Leland-Gifford 3 spindle Drill Press 2. LMS-14 Leland-Gifford 2 spindle Drill Press MACH. HRS. MACHINE DEPT. No. 54 PAGE 2 OF 2

R2527514

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

# PROCESS RECORDS

DATES AND REASONS FOR REVISIONS 6/17/58 - Was operation 51 - Hunt - 253086 -
7/5/61 - Chg. dept. # - M&S - 256316 -

| TOOLS, GAGES AND EQUIPMENT | SPEED | FEED | GA. OR CAL. | 725 (Long | 725(Short) | 725-222 | APPROVAL AND DATES | | |
|---|---|---|---|---|---|---|---|---|---|
| Drill Jig for all holes | | | | D-52064 | D-52064 | D-52064 | | | |
| Drill 4 scope holes (Two at top rear & two at side rear.): | | | | | | | | | |
| Guide rail for jig | | | | D-52005 | D-52005 | D-52005 | | | |
| #32 drills (96° point) | 3600 | Hand | | A-54033 | A-54033 | A-54033 | | | |
| 2-spindle mult. head (29 A-202/A-2873) | | | | Std. | Std. | Std. | | | |
| Drill 2 scope holes (Top front) | | | | | | | | | |
| Guide rail for jig | | | | D-52005 | D-52005 | D-52005 | | | |
| #32 drills (96° point) | 3600 | Hand | | A-54033 | A-54033 | A-54033 | | | |
| 2 spindle Mult. head (29A-202/A-2873) | | | | Std. | Std. | Std. | | | |
| Plug Gage (.119-.115 dia.) | | | | B-80095W | B-80095W | B-80095W | | | |
| Position Gage (.201-.199) | | | | A-52722 | A-52722 | A-52722 | | | |
| PART No. | | | | 23755 | 23756 | 16849 | | | |

OPERATION DESCRIPTION

Drill scope screw, Guard Screw and gas escape holes.

(M/725 only)

OCC. No.
STD. HRS/C
STD. No.
EFF. DATE

PART NAME Receiver COOLANT Sol.Oil SET UP TIME MODEL No. 725 OPER. No. 30

TYPE 1. LMS-12 Leland-Gifford 3 spindle drill press
2. LMS 14 Leland Gifford 2 spindle Drill Press MACH. HRS DEPT. No. 54 PAGE 1 OF 2

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

# PROCESS RECORDS

DATES AND REASONS FOR REVISIONS 6/17/58 - Was operation 51 - Hunt - 253086 -
7/5/61 - Chg. dept. # - M&S - 256316 -

| SPEED | FEED | TOOLS GAGES AND EQUIPMENT | GA. OR CAL. | APPROVAL AND DATES 725 (Long | 725(Short) | 725-222 | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Drill Jig for all holes | | D-52064 | D-52064 | D-52064 | | | |
| | | Drill 4 scope holes (Two at top rear & two at side rear.): | | | | | | | |
| | | Guide rail for Jig | | D-52005 | D-52005 | D-52005 | | | |
| 3600 | Hand | #32 drills (96° point) | | A-54033 | A-54033 | A-54033 | | | |
| | | 2-spindle mult. head (29 A-202/A-2873) | | Std. | Std. | Std. | | | |
| | | Drill 2 scope holes (Top front) | | | | | | | |
| | | Guide rail for Jig | | D-52005 | D-52005 | D-52005 | | | |
| 3600 | Hand | #32 drills (96° point) | | A-54033 | A-54033 | A-54033 | | | |
| | | 2 spindle Mult. head (29A-202/A-2873) | | Std. | Std. | Std. | | | |
| | | Plug Gage (.119-.115 dia.) | | B-80095W | B-80095W | B-80095W | | | |
| | | Position Gage (.201-.199) | | A-52722 | A-52722 | A-52722 | | | |
| | | OPERATION DESCRIPTION | PART No. | 23755 | 23756 | 16849 | | | |
| | | Drill scope screw, Guard Screw and gas escape holes. (M/725 only) | | | | | | | |
| | | | OCC. No. | | | | | | |
| | | | STD. HRS/C | | | | | | |
| | | | STD. No. | | | | | | |
| | | | EFF. DATE | | | | | | |

PART NAME Receiver COOLANT Sol. Oil SET UP TIME MODEL No. 725 OPER. No. 30
TYPE 1. LMS-12 Leland-Gifford 3 spindle drill press 2. LMS 14 Leland Gifford 2 spindle Drill Press MACH. HRS. DEPT. No. 54 PAGE 1 OF 2

RD-6461

R2527516

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

# PROC SS RECORDS

DATES AND REASONS FOR REVISIONS 6/17/58 - Was operation 51 - Hunt - 253086 -
7/5/61 - Chg. dept. # - M&S - 256316 -
2/9/62 - Obsolete - Payne -257092

| TOOLS, GAGES AND EQUIPMENT | GA. OR CAL. | APPROVAL AND DATES 725 (Long | 725(Short) | 725-222 |
|---|---|---|---|---|
| SPEED / FEED | | | | |
| | Drill Jig for all holes | D-52064 | D-52064 | D-52064 |
| Drill 4 scope holes (Two at top rear & two at side rear.): | | | | |
| | Guide rail for jig | D-52005 | D-52005 | D-52005 |
| 3600 Hand | #32 drills (96° point) | A-54033 | A-54033 | A-54033 |
| | 2-spindle mult. head (29 A-202/A-2873) | Std. | Std. | Std. |
| Drill 2 scope holes (Top front) | | | | |
| | Guide rail for jig | D-52005 | D-52005 | D-52005 |
| 3600 Hand | #32 drills (96° point) | A-54033 | A-54033 | A-54033 |
| | 2 spindle Mult. head (29A-202/A-2873) | Std. | Std. | Std. |
| | Plug Gage (.119-.115 dia.) | B-80095W | B-80095W | B-80095W |
| | Position Gage (.201-.199) | A-52722 | A-52722 | A-52722 |
| OPERATION DESCRIPTION | PART No. | 23755 | 23756 | 16848 |
| Drill scope screw, Guard Screw and gas escape holes. (M/725 only) | OCC No. | | | |
| | STD. HRS/C | | | |
| | STD. No. | | | |
| | EFF. DATE | | | |

PART NAME Receiver COOLANT Sol.011 SET UP TIME MODEL No. 725 OPER. No 30
TYPE 1. LMS-12 Leland-Gifford 3 spindle drill press 2. LMS 14 Leland Gifford 2 spindle Drill Press MACH HRS DEPT. No 54 PAGE 1 OF 2

RD-6461

R2527517

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

# PROCE RECORD



DATES AND REASONS FOR REVISIONS 6/17/58 - Was operation 51 - Hunt - 253086
7/5/61 - Chg. dept. # - M&S - 256316
2/9/62 - Remove - Payne - 257092

| TOOLS, GAGES AND EQUIPMENT | | | GA. OR CAL. | APPROVAL AND DATES 725 Long | 725 Short | 725-222 |
|---|---|---|---|---|---|---|
| SPEED | FEED | | | | | |
| Drill Gas | | Escape Hole | | | | |
| | | Guide rail for Jig | | D-52005 | D-52005 | D-52005 |
| 1800 | Hand | 1/8" drill | | Std. | Std. | Std. |
| | | Jacob's Chuck (#32) | | B-90085V | B-90085V | B-90085V |
| | | Plug (.124" Go) | | B-80002J | B-80002J | B-80002J |
| Drill Front & rear Guard Screw holes. | | | | | | |
| 1800 | Hand | #3 Drill (96° point) | | A-54031 | A-54031 | A-54031 |
| | | 3-spindle Mult. head (11B-1759/A-2876) | | Std. | Std. | Std. |
| | | Plug Gage (.216-.212) | | B-80004W | B-80004W | B-80004W |
| | | Guide Rail for Jig | | D-52079 | D-52079 | D-52079 |

NOTE: - See sketch for use of Guide rail D-52079 and 3 spindle Mult. Head when changing over from M/725 Long Action to Short Action.

NOTE: - The scope and Gas escape holes are set up on the 3 spindle machine, and the Guard Screw holes. on the two spindle.

PART NAME Receiver COOLANT Sol.Oil SET UP TIME MODEL NO 725 OPER NO 30
TYPE 1. LMS-12 Leland-Gifford 3 spindle Drill Press MACH. HRS. DEPT. NO 54 PAGE 2 OF 2
2. LMS-14 Leland-Gifford 2 spindle Drill Press MACHINE

RD-6463

R2527518

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

# PROCESS RECORD

DATES AND REASONS FOR REVISIONS 6/17/58 - Was operation 51 - Hunt - 53086
7/5/61 - Chg. dept. # - M&S - 256316

| SPEED | FEED | TOOLS GAGES AND EQUIPMENT | GA OR CAL | APPROVAL AND DATES 725 Long | 725 Short | 725-222 |
|---|---|---|---|---|---|---|
| | | **Drill Gas Escape Hole** | | | | |
| | | Guide rail for jig | | D-52005 | D-52005 | D-52005 |
| 1800 | Hand | 1/8" drill | | Std. | Std. | Std. |
| | | Jacob's Chuck (#32) | | B-90085V | B-90085V | B-90085V |
| | | Plug (.124" Go) | | B-80002J | B-80002J | B-80002J |
| | | **Drill Front & rear Guard Screw holes.** | | | | |
| 1800 | Hand | #3 Drill (96° point) | | A-54031 | A-54031 | A-54031 |
| | | 3-spindle Mult. head (11B-1759/A-2876) | | Std. | Std. | Std. |
| | | Plug Gage (.216-.212) | | B-80004W | B-80004W | B-80004W |
| | | Guide Rail for Jig | | D-52079 | D-52079 | D-52079 |

NOTE: - See sketch for use of Guide rail D-52079 and 3 spindle Mult. Head when changing over from M/725 Long Action to Short Action.

NOTE: - The scope and Gas escape holes are set up on the 3 spindle machine, and the Guard Screw holes. on the two spindle.

PART NAME Receiver COOLANT Sol.Oil SET UP TIME MODEL No. 725 OPER No 30
TYPE 1. LMS-12 Leland-Gifford 3 spindle Drill Press MACH. HRS DEPT. No 54 PAGE 2 OF 2
2. LMS-14 Leland-Gifford 2 spindle Drill Press MACHINE

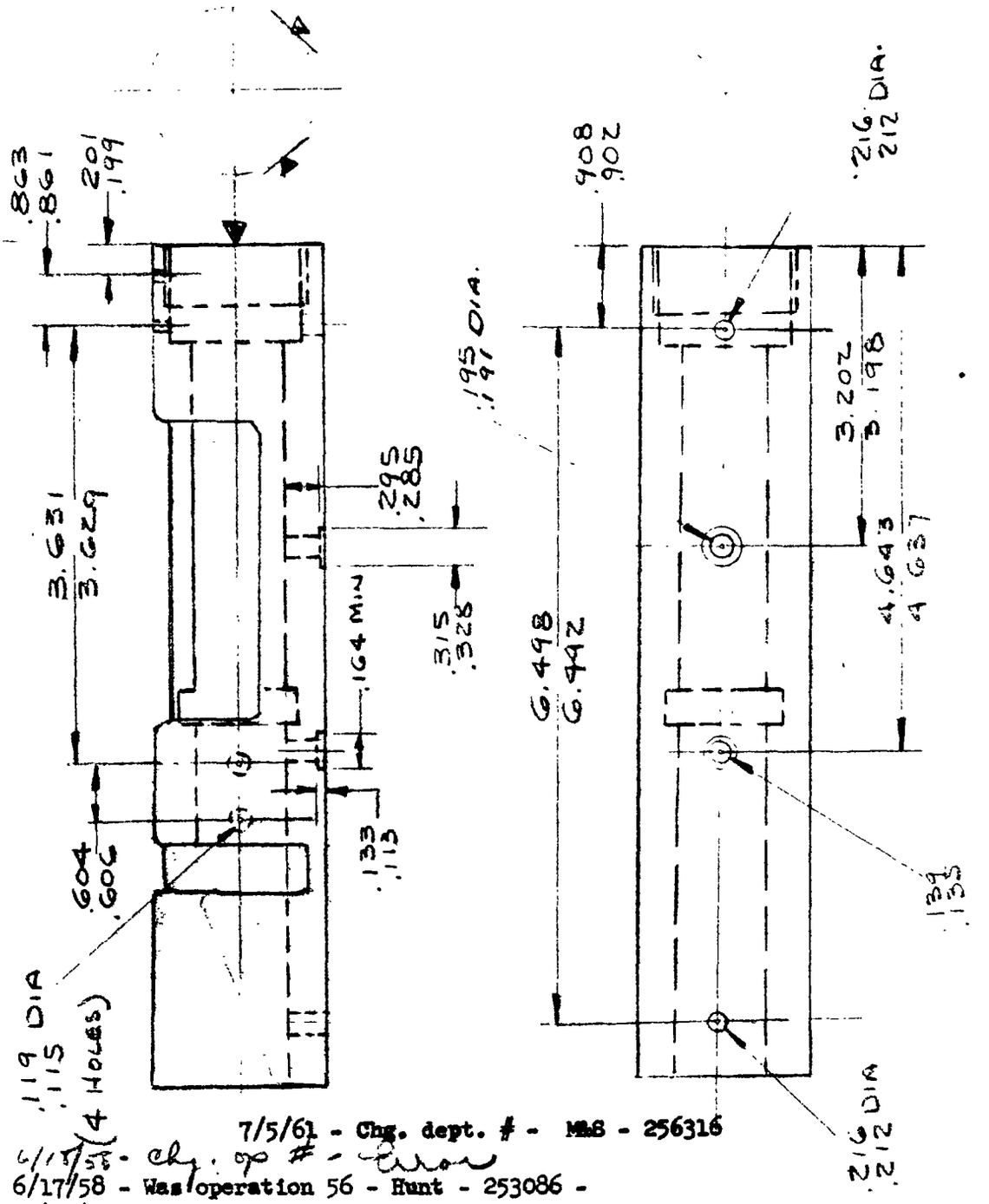
RD 6463

R2527519

TPR-7

| PART: RECEIVER M145-A | PART No. 17767 |
|---|---|
| OPERATION: DRILL SCOPE HOLES & GUARD SCREW HOLES AND EJECTOR SCREW HOLE | OPER. No.: 31 ~~51~~ ~~41~~ DEPT [redacted] 54 |

PROCESS RECORD — ILLUSTRATION SKETCH




7/5/61 - Chg. dept. # - M&S - 256316

6/17/58 - ch. op # - Iron

6/17/58 - Was operation 56 - Hunt - 253086 -

3/14/55 - Revised process - EJC - 249742 -

| COMPILED BY: 12 22-54 | APPROVAL & DATE: |
|---|---|

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

H. H. SULLIVAN, INC

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R2527520

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KINZER V. REMINGTON

# PROCESS RECORDS

DATES AND REASONS FOR REVISIONS 6/17/58 - Was operation 56 - Hunt - 253086
7/5/61 - Chg.dept. # - M&S - 256316

| SPEED | FEED | TOOLS, GAGES AND EQUIPMENT | GA. OR CAL. | 40X | APPROVAL AND DATES |
|---|---|---|---|---|---|
| | | Drill Jig for all holes | | D-52064 | |
| Drill 4 scope holes (Two at top, rear and two at side, rear) | | | | | |
| 3600 | Hand | #32 drills (96° point) | | A-54033 | |
| | | Guide rail for jig | | D-52005 | |
| | | 2 spindle Mult. head (29A-202/A-2873) | | Std. | |
| Drill 2 scope screw holes (Top, front) | | | | | |
| 3600 | Hand | #32 drills (96° point) | | A-54033 | |
| | | Guide rail for jig | | D-52005 | |
| | | 2 spindle Mult. head (29A-202/A-2873) | | Std. | |
| | | Plug Gage (.119-.115 dia.) | | B-80095W | |
| | | Position Gage (.201-.199) | | A-52722 | |

OPERATION DESCRIPTION | PART No. 19767

Drill scope, Guard, and Ejector Screw holes.

(M/40X only)

OCC No
STD. HRS/C
STD. No.
EFF DATE

PART NAME Receiver COOLANT Sol.Oil SET UP TIME MODEL No 40X OPER No 1 31 2

TYPE 1. LMS-12 Leland-Gifford 3 spindle Drill Press
~~2. LMS-14 Leland Gifford 2 spindle Drill Press~~ MACH. HRS DEPT. No 54 PAGE OF

RD-6461

R2527521

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# PROCES. RECORD

DATES AND REASONS FOR REVISIONS 6/17/58 - Was operation 56 - Hunt - 253086 -
3/27/58 - Chg. plug ga. - Hunt - 253274
7/5/61 - Chg. dept. # - M&S - 256316

| SPEED | FEED | TOOLS GAGES AND EQUIPMENT | GA OR CAL. | APPROVAL AND DATES |
|---|---|---|---|---|
| | | **Step Drill Ejector Screw Hole** | 40X | |
| 1800 | Hand | Step Drill | A-73750 | |
| | | Jacob's Chuck | B-90085V | |
| | | Plug Gage (.195-.191) | B-80004T | |
| | | Plug Gage (.295-.285 depth) | A-82765 | |
| | | **Drill Front and Rear Guard Screw holes** | | |
| 1800 | Hand | #3 Drill (96° point) | A-54031 | |
| | | Guide rail for Jig | D-52079 | |
| | | 3 spindle Mult. Head (11B-1759/A-2876) | Std. | |
| | | Plug Gage (.216-.212) | B-80004W | |
| | | **Drill Middle Guard Screw Hole** | | |
| 1200 | Hand | Step Drill | B-90114W | |
| | | Jacob's chuck #32 | B-90085V | |
| | | Plug Gage (.139-.135) | B-80002H | |
| | | Plug (.133-.113 depth) | A-52013 | |

NOTE: The scope and Ejector Screw holes are set up on the 3 spindle machine and the Guard Screw holes on the 2 spindle machine.

NOTE: Setting of Guide rail D-52079 is identical to setting used for M/722 - See sketch on Op. #52.

NOTE: Scope holes must be on top of Receiver - Check that "X" on tang end is on top.

PART NAME Receiver COOLANT Spl. Oil SET UP TIME MODEL No 40X OPER. No 31
TYPE MACH. HRS. MACHINE DEPT. No. 54 PAGE 2 OF 2

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R2527522

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
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# PROCES. RECORDS

DATES AND REASONS FOR REVISIONS 9/15/61 - Retyped from 8/18/61 - Payne - 256580 - chgg. reading.
1/19/62 - Chg. grade ident. - Payne - 256985

| SPEED* | FEED | TOOLS GAGES AND EQUIPMENT | GA OR CAL | APPROVAL AND DATES 721 | 722 | 722-222 725-.222 | 725 (Long) | 725 (Short) |
|---|---|---|---|---|---|---|---|---|
| 44 | 1 3/8" | Right hand cutters | | B-50595W | B-51535V | B-51535V | B-50595W | B-51535V |
| 44 | 1 3/8" | Left Hand cutters | | B-50595V | B-51535W | B-51535W | B-50595V | B-51535W |
| | | Fixture (Right Hand) | | E-50577W | E-50577W | E-50577W | E-50577W | E-50577W |
| | | Fixture (Left Hand) | | E-50577V | E-50577V | E-50577V | E-50577V | E-50577V |
| | | Special spacing collar | | A-52248 | A-52248 | A-52248 | A-52248 | A-52248 |
| | | Set-up Block | | C-50579 | C-50579 | C-50579 | C-50579 | C-50579 |
| | | Arbor (A50-1½"-B18-4) | | B-90057W | B-90057W | B-90057W | B-90057W | B-90057W |
| | * | Position and length gage | | B-50257W | B-50257V | B-50257V | B-50257W | B-50257V |
| | | Base Gage (Centrality) | | D-50716 | D-50716 | D-50716 | D-50716 | D-50716 |
| | | Locator tongue | | B-50719W | B-50719W | B-50719W | B-50719W | B-50719W |
| | | Plug (.505" - .490" Width) | | B-80112W | B-80112W | B-80112W | B-80112W | B-80112W -Use for set-up & prod. only |

NOTE: Use .700" and .6375" feelers for set-up.
NOTE: Where gages are common, see sketch sheet for any difference in dimensions.
NOTE: Orient part so scope holes are on top of Receiver.

| OPERATION DESCRIPTION | PART NO. | | | | | |
|---|---|---|---|---|---|---|
| | M/700ADL | 26575 | 26576 | 26577 | | |
| | M/700BDL | 26578 | 26579 | 26580 | | |
| | | 20181 | 20182 | 18680 | 23755 | 23756 |
| Plunge mill Ejection Port and Magazine slot (M/721-722-700-700 ADL-725) | | | | | | |

* NOTE: Position must be held to Ga. length of slot can be 1/16 shorter than min. on Ga. but no longer.

PART NAME Receiver COOLANT Sol.Oil SET UP TIME MODEL No 721-722-725-700-700ADL OPER No 32
TYPE MACHINE Cincinnati 2/24 Plain Miller DEPT No 54 PAGE 1 OF 1

RD 6461

R2527523

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON



# PROCESS RECORDS

DATES AND REASONS FOR REVISIONS 3/14/55 - Revised process - EJC - 249742
4/18/55 - Add M/722 - .222 EJC - 249847
10/30/57 - Add M/725 MK - 252593 -
4/29/58 - Added 725 - 222 - ZK - 253021
7/5/61 - Chg. dept. # - M&S - 256316
8/18/61 - Add 700 - 700 ADL - Payne -256441
9/15/61 - Add note - Payne -256580
12/21/61 - Add note - Payne - 256902
APPROVAL AND DATES 1/22/62 - Chg. grade ident. MP-256985

| SPEED | FEED | TOOLS. GAGES AND EQUIPMENT | GA. OR CAL. | 721 | 722 | 722 - .222<br>725-.222 | 725 (Long) | 725 (Short) |
|---|---|---|---|---|---|---|---|---|
| 1295 | 6 | End Mills (Four) 7/16" x 1/2" shank x 4 flutes x double end. | | Std. | Std. | Std. | Std. | Std. |
| | | (4) fixtures plug sub-base and template support | | E-51498 | E-51498 | E-51498 | E-51498 | E-51498 |
| | | Tracer finger set | | B-52594 | B-52594 | B-52594 | B-52594 | B-52594 |
| | | Template | | B-51521 | B-51521 | B-51521 | B-51521 | B-51521 |
| | | Weldon Holders | | B-90053S | B-90053S | B-90053S | B-90053S | B-90053S. |
| | | Locator tongue | | B-50719W | B-50719W | B-50719W | B-50719W | B-50719W |
| | | Plug (.525"-.510 width) | | B-80007U | B-80007U | B-80007U | B-80007U | B-80007U } Use for set-up prod. only |
| | | Plug (Length) | | A-50296W | A-50296V | A-50296V | A-50296V | A-50296V |
| | | Base (Position) | | D-50221 | D-50221 | D-50221 | D-50221 | D-50221 |
| | | Base (Centrality) | | D-50716 | D-50716 | D-50716 | D-50716 | D-50716 |

| OPERATION DESCRIPTION | PART No. | 721 | 722 | 722 - .222<br>725-.222 | 725 (Long) | 725 (Short) |
|---|---|---|---|---|---|---|
| | | 20181 | 20182 | 18680<br>16849 | 23755 | 23756 |
| | | NOTE: Feed once around | | Remove Ree. & flush to remove chips before 2nd cut. | | |
| | | NOTE: Where gages are common, see sketch sheet for any difference in dimensions. | | | | |
| Profile Ejection Port and Magazine slot (M/721-722 ~~M/700~~ 700 - 700 ADL M/725 | M/700 ADL | 26575 | 26576 | 26577 | | |
| | M/700 ADL | 26578 | 26579 | 26580 | | |
| | OCC. No. | 58 | 58 | 58 | | |
| | STD. HRS/C | 2.467 | 2.284 | 2.284 | | |
| | STD. No. | E-673 | E-674 | E-674 | | |
| | EFF. DATE | 9/1/51 | 9/1/51 | 9/1/51 | | |

PART NAME Receiver COOLANT Shell Oil #327 SET UP TIME MODEL No. 721 - 722 - 725 OPER. No. 36
TYPE Cincinnati 4 spindle /360° profiler MACH. HRS. DEPT. No. 54 PAGE 1 OF 1

AML
700 - 700 ADL

RD-6461

R2527524

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON



# PROCESS ..ECORDS

**DATES AND REASONS FOR REVISIONS** 3/14/55 - Revised process - EJC - 249742 -

10/30/57 - Added M/725 - ZK - 252593
4/29/58 - Added 725 - 222 - ZK - 253021
7/5/61 - Chg. dept. # - MES - 256316
8/18/61 - Add 700 - 700 ADL - Payne - 256441
1/22/62 - chg. grade ident. - Payne - 256985

| TOOLS. GAGES AND EQUIPMENT | GA. OR CAL. | M/721 | M/722 | M/722 - .222 M/725 - .222 | 725 (Long) | 725 (Short) |
|---|---|---|---|---|---|---|
| SPEED / FEED | | | | | | |
| #6 cut | Retangular Broach | D-50079 | D-50078 | D-54108 | D-50079 | D-50078 |
| #3 Return | Fixture | D-54489 | D-54489 | D-54489 | D-54489 | D-54489 |
| | Special Broach Puller | C-50192 | C-50192 | C-50192 | C-50192 | C-50192 |
| | [illegible] | [illegible] | [illegible] | [illegible] | | |
| | Locator Tongue | B-50719W | B-50719W | C-50719W | B-50719W | B-50719W |
| | Plug (Length) | A-51294W | A-51294V | A-51294V | A-51294W | A-51294V |
| | Plug (.545-.535 width) | B-80007T | B-80007T | B-80007T | B-80007T | B-80007T |
| | Plug (.576-.565 width) | B-80007R | B-80007R | B-80007R | B-80007R | B-80007R |
| | Base Gage (Position) | D-50221 | D-50221 | D-50221 | D-50221 | D-50221 |
| | Base Gage (Centrality) | D-50716 | D-50716 | D-50716 | D-50716 | D-50716 |

| OPERATION DESCRIPTION | PART No. | 20181 | 20182 | 18680 16849 | 23755 | 23756 |
|---|---|---|---|---|---|---|
| | | NOTE: Where gages are common, see sketch sheet for any difference in dimensions. | | | | |
| Broach Ejection Port and Magazine slot. (M/721-722 M/700 - 700 ADL. | M/700 ADL | 26575 | 26576 | 26577 | | |
| | M/700 ADL | 26578 | 26579 | 26580 | | |
| NOTE: M/722-.222 Cal. (#18680) becomes distinct at this operation.) Also M/700 ADL #26577 & M/700 ADL - #26580 | OCC. No. | 92 | 92 | 92 | | |
| | STD. HRS/C | 1.915 | 1.915 | 1.915 | | |
| | STD. No. | E-143 | E-143 | E-143 | | |
| | EFF. DATE | 6/30/50 | 11/19/48 | 11/19/48 | | |

PART NAME Receiver COOLANT Thread Cut #10 SET UP TIME MODEL No. 721 - 722 - 725 ADL 700 - 700 ADL OPER. No. 40

TYPE LaPointe Hydraulic Broach HP-30 MACH. HRS. DEPT. No. 54 PAGE 1 OF 1

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R2527525

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON



# PROCESS RECORDS

DATES AND REASONS FOR REVISIONS 6/1/61 - Retyped from 7/31/59
7/5/61 - Chg. dept. # - M&S - 256316
8/18/61 - Add M/700 - 700 ADL - Payne - 256441
12/21/61 -Add note and new cutter for M/700 - Payne - 256902
1/22/62 - Chg. cutter and grade ident. - Payne - 256985

| TOOLS GAGES AND EQUIPMENT | GA OR CAL | APPROVAL AND DATES M/721 | M/722 | M/722-.222 M/725 - .222 | M/40X | M/725 (Long) | 725 (Short) |
|---|---|---|---|---|---|---|---|
| Set form cutters | | B-50623W | B-50623V | B-50623V | B-50623V | B-50623W | B-50623V |
| 1 Form cutter Not used on M/700 For M/700 Use-B-50623T R | | B-50623T | B-50623T | B-50623T | B-50623T | B-50623T | B-50623T |
| 2 Fixtures (R&L.H) | | E-50605 | E-50605 | E-50605 | E-50605 | E-50605 | E-50605 |
| Cam Roller (1 thru 12) | | E-50605 | E-50605 | E-50605 | E-50605 | E-50605 | E-50605 |
| Arbor (#50-1½-B18-4) | | B-90057W | B-90057W | B-90057W | B-90057W | B-90057W | B-90057W |
| Cycle Selector | | D-53526 | D-53526 | D-53526 | D-53526 | D-53526 | D-53526 |
| Dial Base Gage | | D-51312 | D-51312 | D-51312 | D-51312 | D-51312 | D-51312 |
| Length Gage | | B-52595W | B-52595V | B-52595V | B-52595V | B-52595W | B-52595V |
| Adj. Snap Gage 1.620-1.615 | | B-80238W | B-80238W | B-80238W | B-80238W | B-80238W | B-80238W |
| Plug Gage | | A-52843W | A-52843V | A-52843V | A-52843V | A-52843W | A-52843V |
| Dial Base Gage (Radii) | | D-51478 | D-51478 | D-51478 | D-51478 | D-51478 | D-51478 |

| OPERATION DESCRIPTION | PART NO. | 20181 | 20182 | 18680 16849 | 19767 | 23755 | 23756 |
|---|---|---|---|---|---|---|---|
| Finish mill Ejection Port, Extraction cam of Bolt Handle slot, and radius on tang. Burr right side, front end intersection of Ejection Port and Bolt spline. NOTE: - Identification mark to be on top side when located in fixture.(M/40X only) | M/700 ADL | 26575 | 26576 | 26577 | | | |
| | M/700 ADL | 26578 | 26579 | 26580 | | | |

PART NAME Receiver COOLANT Sol. Oil SET UP TIME MODEL No 721 - 722 - 40X - 700 - 700 ADL - 725 OPER No 44
TYPE MACHINE Cinn. 2/24 R&F Miller DEPT No 54 PAGE 1 OF 1

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R2527526

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

# PROCES RECORDS

DATES AND REASONS FOR REVISIONS 11/26/57 - New operation - ZK - 252628
3/25/58 - Add note - Hunt - 252925
4/29/58 - Added M/725 - 222 -ZK - 253021
7/5/61 - Chg. dept. # - M&S - 256316
2/9/62 - Remove - Payne - 257092

| TOOLS, GAGES AND EQUIPMENT | SPEED | FEED | GA. OR CAL. | APPROVAL AND DATES 725 (Long) | 725 (Short) | M/725 - 222 | |
|---|---|---|---|---|---|---|---|
| Eclipse Rad. drive c'bore Cutter Rc-265 - 1 1/8 dia. | | | | Std. | Std. | Std. | |
| Eclipse Rad. Drive holder RCH-M2 | | | | Std. | Std. | Std. | |
| Drill Jig | | * | | D-82108 | D-82108 | D-82108 * | It is permissible to shim the jig feet uniformly (about .004") to get dim's. "B" and "C" to be zero on the base gage. The shims are needed for milling the right side only. |
| Dial Base Ga. | | | | D-82129 | D-82129 | D-82129 | |
| "A" Dim. | | | | 280-285 | 280-285 | 280-.285 | |
| "B" - Dim. - Right side | | | | 340-.332 | .340-.332 | .340-.332 | |
| "C" - Dim. Left side | | | | .503-.495 | .503-.495 | .503-.495 | |
| "D" - Dim. | | | | 7.401-7.395 | 6.551-6.545 | 6.551-6.545 | |

OPERATION DESCRIPTION

Buttmill Safety clearance slots

(M/725 only)
M/725 - 222)

PART No. 23755 23756 16[illegible]9

OCC No.
STD HRS/C
STD. No
EFF. DATE

PART NAME Receiver COOLANT SET UP TIME MODEL No 725 OPER No 46

TYPE #3 Allen Drill Press - Auto Feed MACH HRS DEPT No 54 PAGE 1 OF 1

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R2527527

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON



# PROCESS RECORDS

DATES AND REASONS FOR REVISIONS 11/26/57 - New operation - ZK - 252628
3/25/58 - Add note - Hunt - 252925
4/29/58 - Added M/725 - 222 -ZK - 253021
7/5/61 - Chg. dept. # - M&S - 256316

| TOOLS, GAGES AND EQUIPMENT | | GA. OR CAL. | APPROVAL AND DATES 725 (Long) | 725 (Short) | M/725 - 222 | |
|---|---|---|---|---|---|---|
| SPEED | FEED | | | | | |
| | | Eclipse Rad. drive c'bore Cutter Rc-265 - 1 1/8 dia. obsolete | Std. | Std. | Std. | Call Berndt |
| | | Eclipse Rad. Drive holder, RCH-M2 Remove add use for 725 Rec | Std. | Std. | Std. | |
| | * | Drill Jig | D-82108 | D-82108 | D-82108 * | It is permissible to shim the jig feet uniformly (about .004") to get dim's. "B" and "C" to be zero on the base gage. The shims are needed for milling the right side only. |
| | | Dial Base Ga. | D-82129 | D-82129 | D-82129 | |
| | | "A" Dim. | 280-285 | 280-285 | 280-.285 | |
| | | "B" - Dim. - Right side | 340-.332 | .340-.332 | .340-.332 | |
| | | "C" - Dim. Left side | .503-.495 | .503-.495 | .503-.495 | |
| | | "D" - Dim. | 7.401-7.395 | 6.551-6.545 | 6.551-6.545 | |
| OPERATION DESCRIPTION | | PART No. | 23755 | 23756 | 16849 | |
| Buttmill Safety clearance slots (M/725 only) M/725 - 222) | | OCC. No. | | | | |
| | | STD. HRS/C | | | | |
| | | STD. No. | | | | |
| | | EFF. DATE | | | | |

PART NAME Receiver COOLANT SET UP TIME MODEL No 725 OPER No 46
TYPE #3 Allen Drill Press - Auto Feed MACH HRS DEPT. No 54 PAGE 1 OF 1

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R2527528

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON



# PROCES_ RECORDS

**DATES AND REASONS FOR REVISIONS**

11/26/57 - Was oper 58 - 252628 - ZK -
4/29/58 - Added M/725 - 222 - ZK - 253021
7/5/61 - Chg. dept. # - M&S - 256316
8/18/61 - Add 700 - 700 ADL - Payne - 256441
1/22/62 - Chg. grade ident. - Payne - 256985 -

| TOOLS, GAGES AND EQUIPMENT | | | GA. OR CAL. | APPROVAL AND DATES | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SPEED | FEED | | | 721 | 722 | 722-.222 M/725 - .222 | 40X | 725 (Long) | 725 (Short) |
| 78 | 1/2" | Cutter | | C-53133 | C-53133 | C-53133 | C-53133 * | C-53133 | C-53133 |
| | | Slotting Saw | | C-53133V | C-53133V | C-53133V | C-53133V | C-53133V | C-53133V |
| | | Fixture (R.H.) | | E-50625W | E-50625W | E-50625W | E-50625W | E-50625W | E-50625W |
| | | Fixture (L.H.) | | E-50625V | E-50625V | E-50625V | E-50625V | E-50625V | E-50625V |
| | | Spacing collar | | C-53133U | C-53133U | C-53133U | C-53133U | C-53133U | C-53133U |
| | | Arbor (#50-1½B-18-4) | | B-90057W | B-90057W | B-90057W | B-90057W | B-90057W | B-90057W |
| | | Plug Gage (.097"-.092) | | B-80001S | B-80001S | B-80001S | B-80001S | B-80001S | B-80001S |
| | | Sight Gage | | B-51700W | B-51700W | B-51700V | B-51700V | B-51700W | B-51700W |
| | | Dial (Pos. sidewise) | | D-51617 | D-51617 | D-51617 | D-51617 | D-51617 | D-51617 |
| | | Dial (Pos. and depth of radii) | | D-50776 | D-50776 | D-50776 | D-50776 | D-50776 | D-50776 |
| | | Plug (.312-.305) | | A-53764 | A-53764 | A-53764 | A-53764 | A-53764 | A-53764 |
| | | Template (Max. runout) | | B-54007 | B-54007 | B-54007 | B-54007 | B-54007 | B-54007 |
| | | NOTE: - Run-out on .310" | | cutter may exceed max. limit on B-54007 | | | but must not | break into Magazine slot. | |
| | | M/700 ADL | | 26575 | 26576 | 26577 | | | |
| | | 700 ADL | | 26578 | 26579 | 26580 | | | |
| OPERATION DESCRIPTION | | | PART No. | 20181 | 20182 | 18680<br>16849 | 19767 | 23755 | 23756 |
| Mill Fire control slots | | | | NOTE: Differential between cutter dias. must not exceed .132" ± .001" | | | | | |
| | | | | NOTE; Use fixture with right-angle subbase so that Receiver is in vertical position. | | | | | |
| | | | OCC. No. | | | | | | |
| | | | STD. HRS/C | * Min. Dia. of cutter must not be less than 3.281 for 40X only. | | | | | |
| | | | STD. No. | | | | | | |
| | | | EFF DATE | | | | | | |

ADL
700 - 700 ADL

PART NAME Receiver — COOLANT — SET UP TIME — MODEL No 721-722-40X-725 — OPER No 47

TYPE 2/24 Cincinnati Plain Miller — MACH. HRS — DEPT. No 54 — PAGE 1 — OF 1

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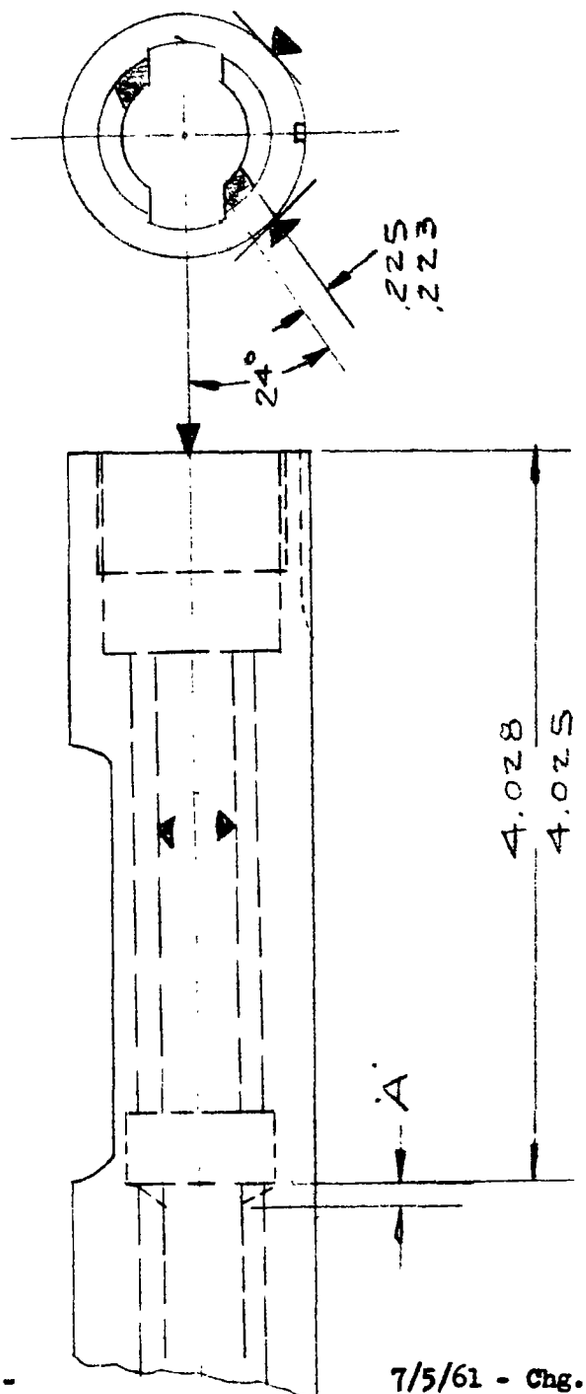
R2527529

TPR-7

| PART: RECEIVER M/40-X | PART No. 19767 |
|---|---|
| OPERATION: SHAVE PRIMARY SEATING CAMS | OPER. No.: 48 54 DEPT — |

**PROCESS RECORD — ILLUSTRATION SKETCH**




7/20/59 - Was op. 109-Hunt
6/17/58-Was 48-Hunt - 253086 -

7/5/61 - Chg. dept. # - M&S - 256316

| COMPILED BY: K-12-22 | APPROVAL & DATE: 3/14/55 - Revised EJC - 249742 - |
|---|---|

REMINGTON ARMS COMPANY, INC., ILION, N. Y.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

# PROCES RECORDS

GA[illegible] REASONS FOR REVISIONS

5/11/59 - Was oper. 109 - Hunt - 253922
[illegible]/20/59 - B-83197 replaced A-51991 - Hunt - 254139
1/22/62 - Chg. grade ident. - Payne - 256985
7/5/61 - Chg. dept. # - M&S - 256316
8/18/61 - Add M/700 - 700 ADL - Payne - 256441
12/15/61 - Show corr. tol. for M/40X - Payne - 256881

APPROVAL AND DATES

| SPEED | FEED | TOOL GAGES AND EQUIPMENT | GA OR CAL | M/721 | M/722 | M/722-.222<br>M/725-.222 | M/40X | M/725(Long) | 725(Short) |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | Notch Shaving Tool * | | A-53891W | A-53891W | A-53891W | A-53891V | A-53891W | A-53891W |
| | | Setting Ga. for cutter | | A-51880W | A-51880W | A-51880W | A-51880V | A-51880W | A-51880W |
| | | Fixture | | D-51863 | D-51863 | D-51863 | D-73763 | D-51863 | D-51863 |
| | | Cam Guide | | | | | D-73763W | | |
| | | Arbor | | C-54545 | C-54545 | C-54545 | C-73764 | C-54545 | C-54545 |
| | | Dial Gage (Depth) ± .005 (Except 40X) | | D-51843 | D-51843 | D-51843 | D-73766 | D-51843 | D-51843 |
| | | Master Receiver which is ± .0035) | | | | | A-73765 | | |
| | | (See Sketch) | | | | | | | |
| | | Setting Master | | B-83197 | B-83197 | B-83197 | | B-83197 | B-83197 |
| | | * NOTE: For min. cutter dias. | | | | | | | |
| | | M/725L M/721-722-700 .996" | | | | | | | |
| | | M/40X .948 | | | | | | | |
| | | ~~NOTE: 721 - 722 - 725 [illegible] for the master being .006 on the [illegible] M/[illegible] [illegible]ce.~~ | | | | | | | |
| | | Cam | | | | | D-73763V | | |
| | | NOTE: - Cam and cam Guide | | D-73763W&V | May be used on M/721 - 722 - 725 and vice versa - | | | | |

| OPERATION DESCRIPTION | PART NO. | 20181 | 20182 | 18680<br>18649 | 19767 | 23755 | 23756 |
|---|---|---|---|---|---|---|---|
| | M/700 ADL | 26575 | 26576 | 26577 | | | |
| | M/700 MDL | 26578 | 26579 | 26580 | | | |
| Shave primary seating cams | | | | | | | |

PART NAME Receiver COOLANT Lard Oil SET UP TIME MODEL No 721 - 722 - 40X-725 ADL 700 - 700 MDL OPER No 48

TYPE Modern Bond Shaving Machine MACHINE DEPT No 54 PAGE 1 OF 1

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CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

# PROCESS RECORDS

DATES AND REASONS FOR REVISIONS 3/14/55 - Revised process - 249742 - EJC -
4/1/55 - Added collet - ZK - 249804 - 8/18/61 - Add M/700 - 700 ADL - Payne - 256441
10/30/57 - Added M/725 - ZK - 252593 1/22/62 - Chg. grade ident. -corr. suffix - Payne - 256985
4/29/58 - Added 725 - 222 - ZK - 253021
7/5/61 - Chg. dept. # - M&S - 256316

| SPEED | FEED | TOOLS, GAGES AND EQUIPMENT | GA. OR CAL. | APPROVAL AND DATES M/721 | M/722 | M/722-.222 M/725-.222 | M/40X | 725 (Long) | 725(Short) |
|---|---|---|---|---|---|---|---|---|---|
| | | Drill Jig (All elements) | | D-51208 | D-51208 | D-51208 | D-51208 | D-51208 | D-51208 |
| | | Guide rail (All elements) | | D-51973 | D-51973 | D-51973 | D-51973 | D-51973 | D-51973 |
| Butt Mill holes, both sides: | | | | | | | | | |
| 1000 | Hand | Butt mill (.1495") (2) | | A-52927 | A-52928 | A-52928 | A-52928 | A-52927 | A-52927 |
| | | Slip Bushings (4) | | [illegible]-52945W | [illegible]-52945W | [illegible]-52945W | [illegible]-52945W | [illegible]-52945W | [illegible]-52945W |
| | | 2-spindle Multiple Head (29B-200/A-3103) | | Std. | Std. | Std. | Std. | Std. | Std. |
| | | Depth gage (.158-.138) | | B-80116T | B-80116T | B-80116T | B-80116T | B-80116T | B-80116T |
| Drill Holes, one side: | | | | | | | | | |
| | | L&G collet (120 dia.) | | B-90166U | B-90166U | B-90166U | B-90166U | B-90166U | B-90166U |
| 3600 | 1¼" | #31 Drill, 96° point (2) | | A-54034 | A-54034 | A-54034 | A-54034 | A-54034 | A-54034 |
| | | Slip Bushings (2) | | [illegible]-52945V | [illegible]-52945V | [illegible]-52945V | [illegible]-52945V | [illegible]-52945V | [illegible]-52945V |
| | | 2-spdl.Mult.Head(29B-200/A-3337) | | Std. | Std. | Std. | Std. | Std. | Std. |
| OPERATION DESCRIPTION | | | PART No. | 20181 | 20182 | 18680 16849 | 19767 | 23755 | 23756 |
| Butt Mill, drill, and ream fire control holes. | | | M/700 [illegible]DL | 26575 | 26576 | 26577 | | | |
| | | | M/700 [illegible]DL | 26578 | 26579 | 26580 | | | |
| | | | OCC. No. | 19 | 19 | 19 | 19 | | |
| | | | STD. HRS/C | 4.960 | 4.960 | 4.960 | 4.960 | | |
| | | | STD. No. | 14063 | 14063 | 14063 | 14063 | | |
| | | | EFF. DATE | 10/10/49 | 10/10/49 | 10/10/49 | 10/10/49 | | |
| | | | | | | | ADL 700 - 700 [illegible]DL | | |

PART NAME Receiver COOLANT Sol.Oil SET UP TIME MODEL No. 721-722-40X -725 OPER. No. 60
TYPE #1 LMS-12" Leland Gifford 3 spindle Press MACH. HRS. DEPT. No. 54[illegible] PAGE 1 OF 2

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R2527532

# PROCESS RECORD

DATES AND REASONS FOR REVISIONS 3/14/55 - Revised process - EJC - 249742 -
5/6/57 - Chg. Equip. Reading - FH - 252219
10/30/57 - Added M/725 - ZK - 252593 -
4/22/58 - Added 725 - .222 - ZK - 253021
7/5/61 - Chg. dept. # - MS - 256316
8/18/61 - Add M/700 - 700 ADL - Payne - 256441
9/27/61 - Replace drill with reamer - Payne - 256626
12/11/61 - Chg. plug gage -Payne - 256862
APPROVAL AND DATES 1/19/62 - Chg. gr. ident. HP - 256985

| SPEED | FEED | TOOLS, GAGES AND EQUIPMENT | GA. OR CAL. | M/721 | M/722 | M/722-.222 M/725 - .222 | M/40X | 725 (Long) | 725 (Short) |
|---|---|---|---|---|---|---|---|---|---|
| Ream Holes, opposite side | | | | | | | | | |
| 1800 | 5" | [redacted] | | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] | [redacted] |
| | | Slip Bushings (2) | | 52945U | 52945U | 52945U | 52945U | 52945U | 52945U |
| | | 2-Spdle Multiple Head (29B-200/A-2875) | | Std. | Std. | Std. | Std. | Std. | Std. |
| | | Plug Gage [redacted] | | B-800020 | B-800020 | B-800020 | B-800020 | B-800020 | B-800020 |
| | | Position Gage | | D-51256 | D-51256 | D-51256 | D-51256 | D-51256 | D-51256 |
| | | Plug Gage (Use with D-51256 ) | | A-51262 | A-51262 | A-51262 | A-51262 | A-51262 | A-51262 |
| | | Plug Gage | | B-52944 | B-52944 | B-52944 | B-52944 | B-52944 | B-52944 |
| | | Reamer | | A-54148 | A-54148 | A-54148 | A-54148 | A-54148 | A-54148 |
| | | Model 700 ADL | | 26575 | 26576 | 26577 | | | |
| | | 700 ADL | | 26578 | 26579 | 26580 | | | |
| | | NOTE: #1 & #2 spindles Hydraulic and #3 spindle hand feed | | | | | | | |

PART NAME Receiver COOLANT Sol.011 SET UP TIME MODEL No. 721-722-40X - 725 ADL 700 - 700 ADL OPER. No. 60
TYPE #1 LMS 12" Leland-Gifford 3 spindle Press MACH. HRS. DEPT. No. 54 [redacted] PAGE 2 OF 2
MACHINE

RD 6463

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON
R2527533

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

# PROCESS RECORDS

DATES AND REASONS FOR REVISIONS 3/14/55 - Revised - EJC -249742 - 8/18/61 - Add 700 - 700 ADL - Payne - 256441
10/30/57 - Adddd M/725 - ZK -252593 1/22/62 - Chg. grade ident. - Payne - 256985
4/29/58 - Added 725 - 222 - ZK - 253021
2/26/59 - Add reading - Hunt - 253624
7/5/71 - Chg. dept. # - M&S - 256316

| TOOLS. GAGES AND EQUIPMENT | GA. OR CAL. | APPROVAL AND DATES M/721 | M/722 | M/722-.222 M/725 - 222 | M/40X | 725 (Long) | 725 (Short |
|---|---|---|---|---|---|---|---|
| SPEED 65 FEED 2 1/8 Form cutter | | B-50498 | B-50498 | B-50498 | B-50498 | B-50498 | B-50498 |
| 2 fixtures (R & L Hand) | | E-50479 | E-50479 | E-50479 | E-50479 | E-50479 | E-50479 |
| Cam Roller | | A-50856 | A-50856 | A-50856 | A-50856 | A-50856 | A-50856 |
| Arbor (CMM-2TA-45M 551127-1) | | C-52930 | C-52930 | C-52930 | C-52930 | C-52930 | C-52930 |
| Cycle Selector | | D-51798 | D-51798 | D-51798 | D-51798 | D-51798 | D-51798 |
| Dial Base (Contour & Pos.) | | D-50301 | D-50301 | D-50301 | D-50301 | D-50301 | D-50301 |
| Length Gage | | B-80020R | B-80020Q | B-80020Q | B-80020Q | B-80020R | B-80020Q |
| NOTE:USE THE FOLLOWING EQUIPMENT FOR M/700 & 700 ADL - Pt. No's | | | | | | | |
| 12" Mill File Model -700 ADL | | 26575 | 26576 | 26577 | ADL | | |
| 700 ADL | | 26578 | 26579 | 26580 | | | |
| Form Cutter | | B-84230 | B-84230 | B-84230 | | | |
| Length Gage | | B-80020R | B-80020Q | B-80020Q | | | |
| Gage | | | | | | | |

| OPERATION DESCRIPTION | PART No. | 20181 | 20182 | 18680 16849 | 19767 | 23755 | 23756 |
|---|---|---|---|---|---|---|---|
| Finish mill Tang, and burr tang. | | | | | | | |
| | OCC. No. | 21 | 21 | 21 | 21 | | |
| | STD. HRS/C | 1.800 | 1.800 | 1.800 | 1.800 | | |
| | STD. No. | 14095 | 14095 | 14095 | 14095 | | |
| | EFF. DATE | 10/31/49 | 10/31/49 | 10/31/49 | 8/7/55 | | |

ADL
700 - 700 ADL

PART NAME Receiver COOLANT Sol.Oil SET UP TIME MODEL No. 721-722-40X - 725 OPER. No. 64
TYPE 2/24 Cincinnati R&S Miller MACH. HRS. DEPT. No. 54 PAGE 1 OF 1

RD-6481

R2527534

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

# PROCES[S] RECORDS

DATES AND REASONS FOR REVISIONS 3/14/55 - Revised - EJC - 249742 -
10/30/57 - Added M/725 - ZK - 252593 -
4/29/58 - Added 725 - 222 - ZK - 253021
7/5/61 - Chg. dept. # - M&S - 256316
8/18/61 - Add M/700 - 700 ADL - 256441
1/22/62 - Chg. grade ident. - Payne - 256985

| TOOLS. GAGES AND EQUIPMENT | GA. OR CAL. | APPROVAL AND DATES | | | | | |
|---|---|---|---|---|---|---|---|
| SPEED / FEED | | M/721 | M/722 | M/722-.zzz M/725 - .222 | M/40X | 725 (Long) | 725 (Short) |
| 330 / 2 3/16 End Mill | | A-53186 | A-53186 | A-53186 | A-53186 | A-53186 | A-53186 |
| Fixture | | E-50565 | E-50565 | E-50565 | E-50565 | E-50565 | E-50565 |
| Weldon Holder (BN-5) | | B-90053C | B-90053C | B-90053C | B-90053C | B-90053C | B-90053C |
| Cycle Selector | | B-51797 | B-51797 | B-51797 | B-51797 | B-51797 | B-51797 |
| Plug Gage (.509-.499) | | B-50446 | B-50446 | B-50446 | B-50446 | B-50446 | B-50446 |
| Snap Ga. (Position) | | B-50406W | B-50406V | B-50406V | B-50406V | B-50406W | B-50406V |
| OPERATION DESCRIPTION | PART No. | 20181 | 20182 | 18680 16849 | 19767 | 23755 | 23756 |
| Mill Bolt Handle clearance, left side, and burr. | M/700 ADL | 26575 | 26576 | 26577 | | | |
| | M/700 ADL | 26578 | 26579 | 26580 | | | |
| | OCC. No. | 21 | 21 | 21 | 21 | | |
| | STD. HRS/C | .810 | .810 | .810 | .810 | | |
| | STD. No. | E-78 | E-78 | E-78 | E-78 | | |
| | EFF. DATE | 10/20/47 | 10/20/47 | 10/20/47 | 3/7/55 | | |

ADL
700 - 700 ADL

PART NAME Receiver COOLANT Sol.Oil SET UP TIME MODEL No. 721-722 -40X -725 OPER. No. 84
TYPE O-8 Cincinnati R&F Miller MACH. HRS. DEPT. No. 54 PAGE 1 OF 1

RD-6481

R2527535

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

# PROCESS RECORDS

DATES AND REASONS FOR REVISIONS

3/14/55 - Revised process - EJC - 249742 -
6/20/55 - Added template - ZK - 250129
10/30/57 - Added M/725 - ZK - 252593 -
4/29/60 - Added 725 - 222 - ZK - 253021
1/13/61 - Chg. cutter - ECR - 255723
7/5/61 - Chg. dept. # - M&S - 256316
8/18/61 - Add M/700 - 700 ADL - Payne - 256441
1/22/62 - Chg. grade ident. - Payne - 256985

APPROVAL AND DATES

| SPEED | FEED | TOOLS, GAGES AND EQUIPMENT | GA. OR CAL. | M/721 | M/722 | M/722-.222 | M/40X | 725 (Long) | 725 (Short) |
|---|---|---|---|---|---|---|---|---|---|
| 190 | 2 3/16 | Cutter | | B-80895 | B-80895 | B-80895 | B-80895 | B-80895 | B-80895 |
| | | Fixture (L.H. Conv. Mill) | | E-50525V | E-50525V | E-50525V | E-50525V | E-50525V | E-50525V |
| | | Arbor (#40-1B-10-3) | | B-90057V | B-90057V | B-90057V | B-90057V | B-90057V | B-90057V |
| | | Cycle Selector | | D-51790 | D-51790 | D-51790 | D-51790 | D-51790 | D-51790 |
| | | Plug (.480-.470" Width) | | B-80006T | B-80006T | B-80006T | B-80006T | B-80006T | B-80006T |
| | | Dial (.358-.348") | | D-50455 | D-50455 | D-50455 | D-50455 | D-50455 | D-50455 |
| | | Snap (Position) | | B-50410W | B-50410V | B-50410V | B-50410V | B-50410V | B-50410V |
| | | Template | | B-54981 | B-54981 | B-54981 | B-54981 | B-54981 | B-54981 |

NOTE: Use following feeler gages for Set-up with indicated cutter ranges:

| | |
|---|---|
| .062 | 2.624-2.618 |
| .067" | 2.616-2.608 |
| .072" | 2.606-2.598 |
| .077" | 2.596-2.588 |
| .082 | 2.586-2.580 |

| OPERATION DESCRIPTION | PART No. | M/721 | M/722 | M/722-.222 | M/40X | 725 (Long) | 725 (Short) |
|---|---|---|---|---|---|---|---|
| | | 20181 | 20182 | 18680<br>16849 | 19767 | 23755 | 23756 |
| Finish mill Bolt Handle slot | M/700 ADL | 26575 | 26576 | 26577 | | | |
| | M/700 [redacted] DL | 26578 | 26579 | 26580 | | | |
| | OCC. No. | 21 | 21 | 21 | 21 | | |
| | STD. HRS/C | .808 | .808 | .808 | .808 | | |
| | STD. No. | E-75 | E-75 | E-75 | E-75 | | |
| | EFF. DATE | 10/29/47 | 10/20/47 | 10/20/47 | 3/7/55 | | |
| | | | | | ADL<br>700 - 700 [redacted] DL - 725 | | |

PART NAME Receiver COOLANT Sol.Oil SET UP TIME MODEL No. 721-722-40X [redacted] OPER. No. 88

TYPE O-8 Cincinnati R&F Miller MACH. HRS. DEPT. No. 54 [redacted] PAGE 1 OF 1

RD-6461

R2527536

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON



# PROCESS RECORDS

DATES AND REASONS FOR REVISIONS 3/14/55 - Revised process - EJC - 249742
10/30/57 - Added M/725 - ZK - 252593 - 1/29/62 - Chg. grade ident. - Payne - 256985
4/29/58 - Added 725 - 222 - ZK - 253021
7/5/61 - Chg. dept. # - M&S - 256316
8/18/61 - Add M/700 - 700 ADL - Payne - 256441

| TOOLS. GAGES AND EQUIPMENT | | | GA. OR CAL. | APPROVAL AND DATES | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SPEED | FEED | | | M/721 | M/722 | M/722-.222 M/725-.222 | M/40X | 725 (Long) | 725 (Short) |
| 1120 | 1 3/8" | "T" Cutter | | A-54083 | A-54083 | A-54083 | A-54083 | A-54083 | A-54083 |
| | | Fixture | | E-50554 | E-50554 | E-50554 | E-50554 | E-50554 | E-50554 |
| | | Weldon Holder (BN-2 | | B-90053W | B-90053W | B-90053W | B-90053W | B-90053W | B-90053W |
| | | Cycle Selector | | D-51799 | D-51799 | D-51799 | D-51799 | D-51799 | D-51799 |
| | | Plug Gage | | B-80004V | B-80004V | B-80004V | B-80004V | B-80004V | B-80004V |
| | | Dial Base Gage | | D-65609W | D-65609W | D-65609W | D-65609W | D-65609W | D-65609W |
| | | Depth .455-.450 | | | | | | | |
| | | Central ℄ .0025" | | | | | | | |

| OPERATION DESCRIPTION | PART No. | 20181 | 20182 | 18680 16849 | 19767 | 23755 | 23756 |
|---|---|---|---|---|---|---|---|
| Mill Firing Pin Head clearance slot | M/700 ADL | 26575 | 26576 | 26577 | | | |
| | M/700 ADL | 26578 | 26579 | 26580 | | | |
| | OCC. No. | 21 | 21 | 21 | 21 | | |
| | STD. HRS/C | .788 | .788 | .788 | .788 | | |
| | STD. No. | E-94 | E-94 | E-94 | E-94 | | |
| | EFF. DATE | 10/27/47 | 10/27/47 | 10/27/47 | 3/7/55 | | |
| | | | | | AHL 700 - 700 ADL | | |

PART NAME Receiver COOLANT Sol.Oil SET UP TIME MODEL No. 721-722-40X - 725 OPER. No. 90
TYPE 0-8 Cincinnati R&F Miller MACH. HRS. DEPT. No. 54 PAGE 1 OF 1

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R2527537

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

# PROCESS ..ECORDS

DATES AND REASONS FOR REVISIONS 3/4/55 - Revised process - EJC - 249742 -
4/1/55 - Remove gage - M/40X - ZK - 249804 - 8/18/61 - Add M/700 - 700 ADL - Payne - 256441
10/30/57 - Added M/725 ZK - 252593 - 1/22/62 - Chg. grade ident. - Payne - 256985
4/29/58 - Added 725 - 222 -ZK - 253021
7/5/61 - Chg. dept. # - M&S - 256316

| SPEED | FEED | TOOLS, GAGES AND EQUIPMENT | GA. OR CAL. | APPROVAL AND DATES M/721 | M/722 | M/722-.222 M/725 - .222 | M/40X | 725 (Long) | M/725 (Short) |
|---|---|---|---|---|---|---|---|---|---|
| | | Reamer & c'sink (.700-.699) | | C-53144 | C-53144 | C-53144 | C-53144 | C-53144 | C-53144 |
| | | 8" file | | Std. | Std. | Std. | Std. | Std. | Std. |
| | | Flush Pin (.025-.020") (Depth of c'sink) | | B-54030 | B-54030 | B-54030 | [illegible] | B-54030 | B-54030 |
| | | OPERATION DESCRIPTION | PART No. | 20181 | 20182 | 18680 16849 | 19767 | 23755 | 23756 |
| | | Hand ream to burr Bolt hole & Fire Control slots, and c'sink Barrel end of Bolt hole. Burr file Bolt stop slot for location on #98. Burr rear end of Bolt slot. | M/700 ADL | 26575 | 26576 | 26577 | | | |
| | | | M/700 ADL | 26578 | 26579 | 26580 | | | |
| | | | OPC. No. | 55 | 55 | 55 | 55 | | |
| | | | STD. HRS/C | 1.343 | 1.343 | 1.343 | 1.343 | | |
| | | | STD. No. | E-159 | E-159 | E-159 | E-159 | | |
| | | | EFF. DATE | 9/27/50 | 9/27/50 | 9/27/50 | 3/7/55 | | |

PART NAME Receiver COOLANT SET UP TIME MODEL No. ADL 700 - 700 ADL 721-722 -40X -725 OPER. No. 92
TYPE Bench MACH. HRS. DEPT. No. 54 PAGE 1 OF 1

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R2527538

# PROCESS RECORDS

DATES AND REASONS FOR REVISIONS

6/1/61 - Retyped from 2/8/61
7/5/61 - Chg. dept. # - M&S - 256316
8/18/61 - Add note - Payne - 256441
10/6/61 - Transfer equipment to oper. 148 - Chg. read. - Payne - 256659
1/22/62 - Chg. grade - Payne - 256985

| TOOLS GAGES AND EQUIPMENT | GA OR CAL | M/721 | M/722 | M/722-.222 | M/40X | M/725 (Long) | M/725 (Short) |
|---|---|---|---|---|---|---|---|
| SPEED 2724 FEED Hand | #38 Drill | Std. | Std. | Std. | Std. | Std. | Std. |
| | Jig | D-51765 | D-51765 | D-51765 | D-51765 | D-51765 | D-51765 |
| | Jacob's Chuck (#32) | B-90085V | B-90085V | B-90085V | B-90085V | B-90085V | B-90085V |
| | Collar | | D-51783W | D-51783W | D-51783W | | D-51783W |
| | Plug Ga. (.104-.100) | B-80001R | B-80001R | B-80001R | B-80001R | B-80001R | B-80001R |
| | Depth Ga. (.030-.020) | D-51783 | D-51783 | D-51783 | D-51783 | D-51783 | D-51783 |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| OPERATION DESCRIPTION | PART NO. | 20181 | 20182 | 18680<br>16849 | 19767 | 23755 | 23756 |
| Drill Bolt Stop Spring hole [illegible] holes. | | | | | | | |
| Omit on M/700 ~~BDL~~ & 700 ADL. (See Oper. 95 for these models.) | | | | | | | |

PART NAME Receiver COOLANT Sol.011 SET UP TIME MODEL No 721-722-40X-725 OPER. No 95

TYPE _____ MACHINE Allen Drill Press DEPT No 54 PAGE 1 OF 1

RD-6461

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON
R2527539

# PROCESS RECORDS

DATES AND REASONS FOR REVISIONS 8/18/61 - New operation - Payne - 256441
10/6/61 - Transfer equipment to 148 - Payne - 256659
12/6/61 - Chg. gage - Payne - 256862
1/22/62 - Chg. grade ident. - Payne - 256985

| TOOLS GAGES AND EQUIPMENT | | | GA OR CAL | APPROVAL AND DATES | | |
|---|---|---|---|---|---|---|
| SPEED | FEED | | | | | |
| | | Jig | | D-84262 | D-84262 | D-84262 |
| | | Buttmill | | A-84255 | A-84255 | A-84255 |
| | | ~~Snap Gage~~ | | ~~B-84508~~ | ~~B-84508~~ | ~~B-84508~~ |
| | | Dial Gage | | D-84837 | D-84837 | D-84837 |
| | | ~~Reamer~~ | | ~~A-84226~~ | ~~A-84226~~ | ~~A-84226~~ |
| | | ~~Plug Gage (1.257-1-1.250)~~ | | ~~B-800020~~ | ~~B-800020~~ | ~~B-800020~~ |

| OPERATION DESCRIPTION | PART NO. | | | |
|---|---|---|---|---|
| | M/700 ADL | 26575 | 26576 | 26577 |
| | M/700 EDL | 26578 | 26579 | 26580 |

Buttmill Bolt Stop Spring recess ~~and line room fire control holes.~~

(M/700 EDL - 700 ADL only)

PART NAME Receiver COOLANT SET UP TIME MODEL No ADL 700-700 EDL OPER No 95

TYPE MACHINE DEPT No 54 PAGE 1 OF 1

RD 6461

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

# PROCESS ..ECORDS

DATES AND REASONS FOR REVISIONS 3/14/55 - Revised process - EJC - 249742 -
10/30/57 - Added M/725 - ZK - 252593 - 1/22/62 - Chg. grade ident. - Payne - 256985
4/29/58 - Added 725 - 222 - ZK - 253021
7/5/61 - Chg. dept. # - M&S - 256316
8/18/61 - Add M/700 - 700 ADL - Payne - 256441

| TOOLS. GAGES AND EQUIPMENT SPEED \| FEED | GA. OR CAL. | APPROVAL AND DATES M/721 | M/722 | M/722-.222 M/725 - .222 | M/40X | 725 (Long) | 725 (Short) |
|---|---|---|---|---|---|---|---|
| Punch | | C-53745 | C-53745 | C-53745 | C-53745 | C-53745 | C-53745 |
| Punch & Die set | | D-50426 | D-50426 | D-50426 | D-50426 | D-50426 | D-50426 |
| Position Gage | | D-51667 | D-51667 | D-51667 | D-51667 | D-51667 | D-51667 |

| OPERATION DESCRIPTION | PART No. | | | | | | |
|---|---|---|---|---|---|---|---|
| | | 20181 | 20182 | 18680 16849 | 19767 | 23755 | 23756 |
| Punch end of Bolt Stop slot | M/700 ADL | 26575 | 26576 | 26577 | | | |
| | M/700 BDL | 26578 | 26579 | 26580 | | | |
| | OCC. No. | 6 | 6 | 6 | 6 | | |
| | STD. HRS/C | .422 | .422 | .422 | .422 | | |
| | STD. No. | E-157 | E-157 | E-157 | E-157 | | |
| | EFF. DATE | 2/23/48 | 2/23/48 | 2/23/48 | 3/7/55 | | |

ADL
700 - 700 BDL

PART NAME Receiver COOLANT SET UP TIME MODEL No. 721 - 722-40X -725 OPER. No. 104
TYPE Dennison Hydraulic Press MACH. HRS. DEPT. No. 54 PAGE 1 OF 1

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CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON
R2527541

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON



# PROCESS ..ECORDS

DATES AND REASONS FOR REVISIONS 3/14/55 - Revised process - EKC - 249742 -
8/17/55 - Chg. operation number - ZK - 250346
7/5/61 - Chg. dept. # - M&S - 256316

| TOOLS, GAGES AND EQUIPMENT | GA. OR CAL. | APPROVAL AND DATES |
|---|---|---|
| SPEED FEED | | |
| #15 (.180") Drill | Std. | |
| Jig | D-74624 | |
| Spec. Plug Ga.<br>"A" .179"-.183"<br>"B" - .084-.074" | A-74616 | |

OPERATION DESCRIPTION

Drill to depth filler spring hole (40X only)

PART No. 19767

OCC. No. 19
STD. HRS/C .815
STD. No. Est.
EFF. DATE 3/7/55

PART NAME Receiver COOLANT Sol.Oil SET UP TIME MODEL No. 40X OPER. No. 106

TYPE 1 spdle. drill press MACH. HRS. DEPT. No. 54 PAGE 1 OF 1

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R2527542

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON



# PROCES RECORDS

DATES AND REASONS FOR REVISIONS 9/19/61 - Retyped from 8/18/61
1/22/62 - Chg. grade ident. - Payne - 256985

| SPEED | FEED | TOOLS GAGES AND EQUIPMENT | GA OR CAL | APPROVAL AND DATES M/721 | M/722 | M/722-.222 | M/40X | 725 (Long) | 725 (Short) |
|---|---|---|---|---|---|---|---|---|---|
| 1295 | 4 | (4) 9/32" R.H. double end end mills | | Std. | Std. | Std. | Std. | Std. | Std. |
| | | (4) Fixtures plus sub-base and template support | | E-51498 | E-51498 | E-51498 | E-51498 | E-51498 | E-51498 |
| | | Tracer finger set | | B-51513 | B-51513 | B-51513 | B-51513 | B-51513 | B-51513 |
| | | Template | | B-51521 | B-51521 | B-51521 | B-51521 | B-51521 | B-51521 |
| | | (4) Weldon Holders (BN-2) | | B-90053W | B-90053W | B-90053W | B-90053W | B-90053W | B-90053W |
| | | Plug Gage (.417-.410) | | B-80006AA | B-80006AA | B-80006AA | B-80006AA | B-80006AA | B-80006AA |
| | | Position Gage | | B-50313W | B-50313V | B-50313V | B-50313V | B-50313W | B-50313V |

| OPERATION DESCRIPTION | PART NO. | | | | | | |
|---|---|---|---|---|---|---|---|
| | | 20181 | 20182 | 18680<br>16849 | 19767 | 23755 | 23756 |
| | M700 AEL | 26575 | 26576 | 26577 | | | |
| | M700 EDL | 26578 | 26579 | 26580 | | | |
| Profile Fire Control Safety slot | | | | | | | |
| OMIT THIS OPERATION ON RECEICERS TO BE TAKEN FOR M/411 | | | | | | | |

AEL

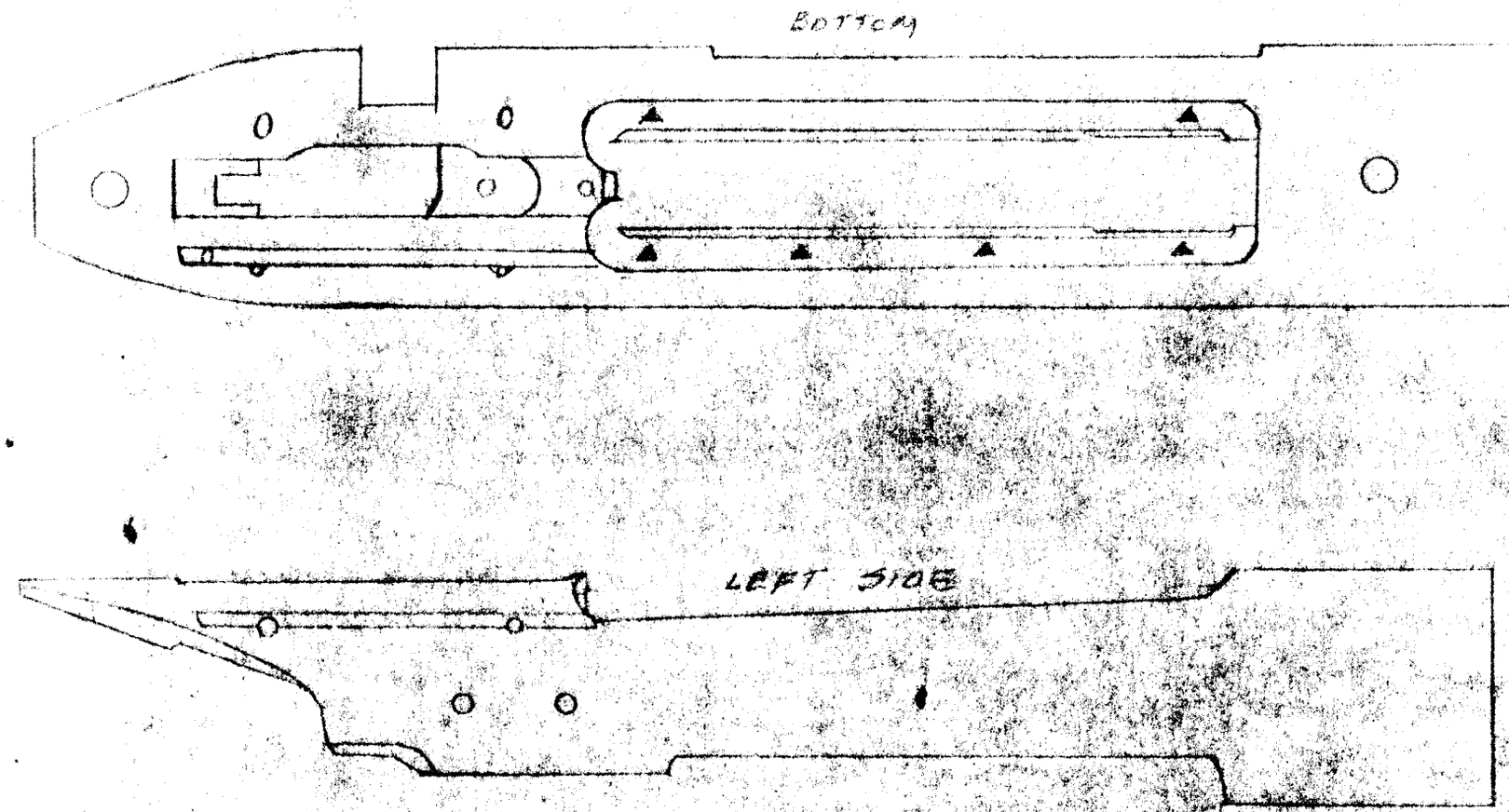
PART NAME Receiver COOLANT Shell Oil #327 SET UP TIME MODEL No 700-700 EDL-721-722-40X-725 OPER No 107

TYPE MACHINE Cincinnati 4 spindle/360° Profiler DEPT No 54 PAGE 1 OF 1

BD 6461

R2527543

# PROCESS RECORD SKETCH SHEET




Recess depth must be in gage at points indicated.

| | |
|---|---|
| DATES AND REASONS FOR REVISIONS Sketch Added 5-27-60 | MODEL 721-722-725 MBL-700 - 700 ADL OPER. No. 110 |
| 7/5/61 - Chg. dept. # - [illegible] - 256316 | PART NAME Receiver |
| 8/18/61 - Added 700 - 700 ADL - [illegible] - 256441 | Details for use of Base Gage |
| 1/22/62 - Chg. grade - [illegible] - [illegible] | D-50759 [illegible] 54 |

RD-6473

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# PROCESS RECORDS

DATES AND REASONS FOR REVISIONS 3/14/55 - Revised sheets - EJC - 249742 -
10/30/57 - Added M/725 - ZK - 252593 -
1/22/62 - Chg. grade - Payne - 256985
[illegible] - Added 725 - .222 - ZK - 253021
7/5/61 - Chg. dept. # - M&S - 256316
8/18/61 - Add M/700 - 700 ADL - 256441 - Payne -

| TOOLS, GAGES AND EQUIPMENT | GA. OR CAL. | APPROVAL AND DATES M/721 | M/722 | M/722-.222 M/725 - .222 | 725 (Long) | 725 (Short) |
|---|---|---|---|---|---|---|
| SPEED FEED | | | | | | |
| 945 Gravity Double End Mill | | A-53188 | A-53188 | A-53188 | A-53188 | A-53188 |
| Weldon Holder | | B-90053U | B-90053U | B-90053U | B-90053U | B-90053U |
| Fixture | | E-50544 | E-50544 | E-50544 | E-50544 | E-50544 |
| Master Receiver | | A-51665 | A-51665 | A-51665 | A-51665 | A-51665 |
| Dial Base Gage | | D-51651 | D-51651 | D-51651 | D-51651 | D-51651 |
| (Pos. & centrality ) | | | | | | |

a.) For Position: Set dial to zero in master.
Control to: .000" - .007"

b.) For Centrality: Swing Locator 90° in both directions from middel position. Max. difference in dial readings: .008"

NOTE: Cut must be smooth & free of chatter marks.

| OPERATION DESCRIPTION | PART No. | 20181 | 20182 | 18680 16849 | 23755 | 23756 |
|---|---|---|---|---|---|---|
| Buttmill Feed ramp | M/700 ADL | 26575 | 26576 | 26577 | | |
| | M/700 [illegible]DL | 26578 | 26579 | 26580 | | |
| (M/721,722,721-.222 only) 725 -725 - .222 (M/700 ADL - 700 [illegible]DL) | OCC. No. | 21 | 21 | 21 | | |
| | STD. HRS/C | .837 | .837 | .837 | | |
| | STD. No. | E-92 | E-92 | E-92 | | |
| | EFF. DATE | 10/27/47 | 10/27/47 | 10/27/47 | | |

ADL
700 - 700 [illegible]DL
721 - 722 -725

PART NAME Receiver COOLANT Sol.Oil SET UP TIME MODEL No. OPER. No. 108
TYPE 0/8 Vertical Cincinnati Miller MACH. HRS. DEPT. No. 54 [illegible] PAGE 1 OF 1

RD-6461

R2527545

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON
R2527546

# PROCESS RECORDS

DATES AND REASONS FOR REVISIONS 6/1/61 - Retyped from 8/31/60
7/5/61 - Chg. dept. # - M&S - 256316
8/18/61 - Add 700 - 700 ADL - Payne - 256441
10/11/61 - Chg. gage. Nos. - Payne - 256670
1/22/62 - Chg. grade - Payne - 256985

| TOOLS GAGES AND EQUIPMENT | | GA OR CAL | APPROVAL AND DATES M/721 | M/722 | M/722-.222 M/725-222 | M/725(Long) | M/725(Short) |
|---|---|---|---|---|---|---|---|
| SPEED 1295 | FEED 4" | (4) 13/32" Double End right Hand end mills. | Std. | Std. | Std. | Std. | Std. |
| | | (4) Fixtures plus sub-base and template support | E-51498 | E-51498 | E-51498 | E-51498 | E-51498 |
| | | Tracer finger set | B-51514 | B-51514 | B-51514 | B-51514 | B-51514 |
| | | Template | E-51498W | E-51498V | E-51498V | E-51498W | E-51498V |
| | | (4) Weldon Holder | B-900538 | B-900538 | B-900538 | | |
| | * | Plug Gage (Width) | C-50792W | C-50792V | C-50792V | C-50772W | C-50792V |
| | | Plug Gage (Length) | C-54525W | C-54525V | C-54525V | C-54525W | C-54525V |
| | | Base Gage (Concentricity) (.008" Max. Diff.) | D-50716 | D-50716 | D-50716 | D-50716 | D-50716 |
| | | Base Ga. (Depth) (See sketch | D-84543 | D-84543 | D-84543 | D-84543 | D-84543 |
| | ** | Base Ga. (Position) | D-50221 | D-50221 | D-50221 | D-50221 | D-50221 |

* Go Must Go; No Go must not go at front or rear.
** Gage from highest point in pad.

| OPERATION DESCRIPTION | PART NO. | 20181 | 20182 | 18680 16849 | 23755 | 23756 |
|---|---|---|---|---|---|---|
| Profile Magazine recess and burr. | 700 ADL | 26575 | 26576 | 26577 | | |
| | 700 ADL | 26578 | 26579 | 26580 | | |
| Gage 1 pc. every cycle | | | | | | |
| | | | | | ABL 700 - 700 ADL | |

PART NAME Receiver COOLANT Shell Oil #327 SET UP TIME MODEL NO M/721-722-725 OPER NO 110
TYPE MACHINE Cincinnati 4 spindle 360° Profiler DEPT NO 54 PAGE 1 OF 1

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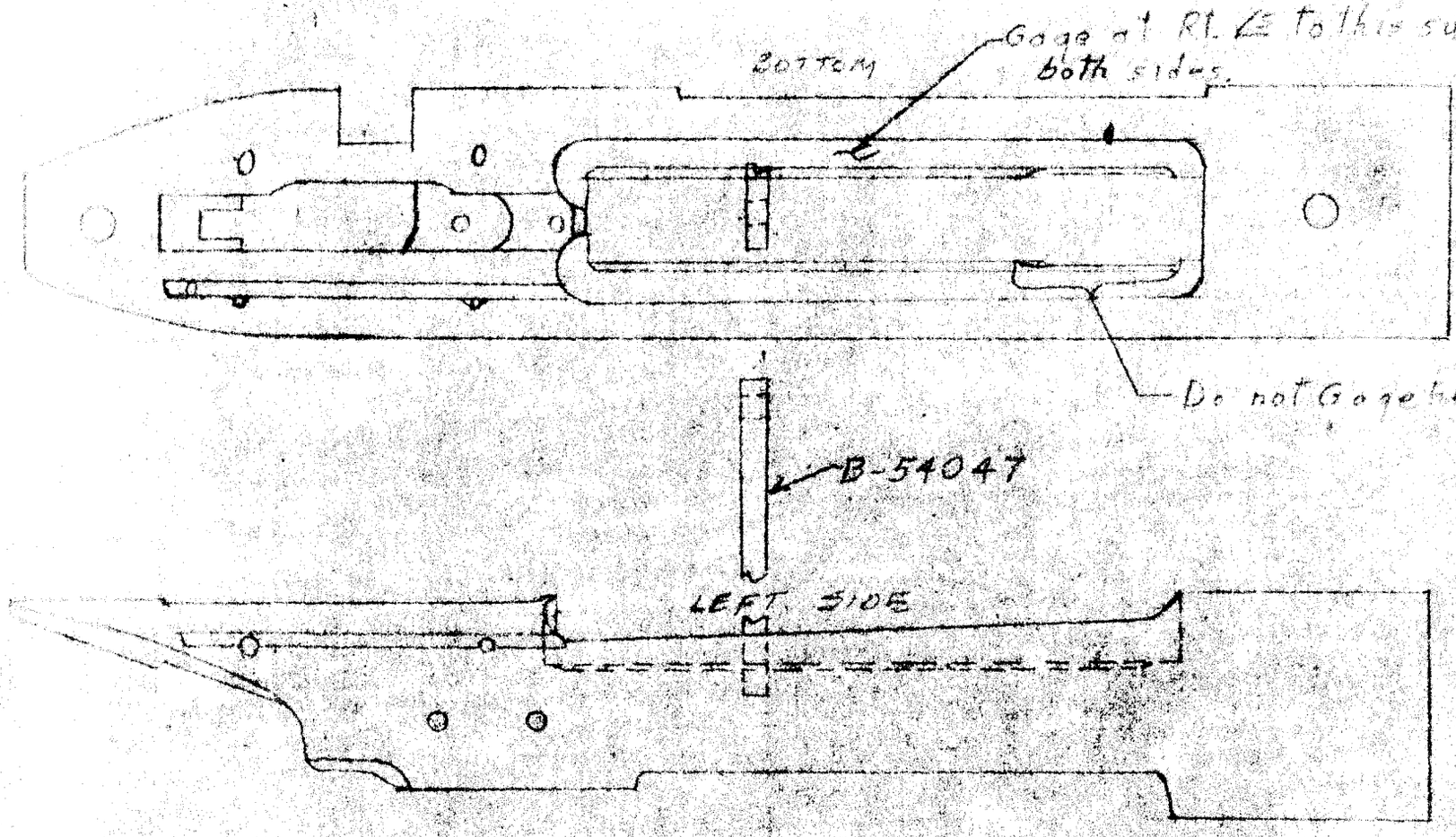
# PROCESS RECORD SKETCH SHEET




| | |
|---|---|
| DATES AND REASONS FOR REVISIONS 1-4-61 Added sketch. | ADL MODEL 721 722-700-700 ORDER No. 112 |
| 7/5/61 - Chg. dept. # - MLS - 256316 | PART NAME Receiver. |
| 8/18/61 - Add M/700 - 700 ADL - Payne - 256441 | 30° Bevel on bottom of rails |
| 1/22/62 - Chg. grade - Payne - [illegible] | Dept. 34 |

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54

# PROCESS RECORDS

**DATES AND REASONS FOR REVISIONS**

3/14/55 - Revised - EJC - 249742 -
6/24/57 - Remove 222 Hunt - 252307
10/30/57 - Added 725 - ZK - 252593
11/20/58 - Add note on finish - Hunt - 253472
3/13/59 - Change cutter - Hunt - 253724 -
1/12/61 - Added note - ECR-255716
7/5/61 - Chg. dept. # - MAS - 256316
8/18/61 - Add M/700 - 700 ADL - Payne - 256441
1/22/62 - Chg. grade - Payne - 256985

| TOOLS, GAGES AND EQUIPMENT | | | GA. OR CAL. | APPROVAL AND DATES M/721 | M/722 | M/722-.222 | 725 - (Long) | 725 (Short) |
|---|---|---|---|---|---|---|---|---|
| SPEED | FEED | | | | | | | |
| 1300 | 5½" | [redacted] End Mill | | [redacted] | [redacted] | A-54048 | [redacted] | [redacted] |
| | | Fixture | | D-54039 | D-54039 | D-54039 | D-54039 | D-54039 |
| | | 3/8" Weldon Holder | | Std. | Std. | Std. | Std. | Std. |
| | * | Template Gage | | B-54047 | B-54047 | B-54047 | B-54047 | B-54047 |
| | * | See sketch | | | | | | |
| | | NOTE: Cut must be smooth and free of chatter marks. | | | | | | |

**OPERATION DESCRIPTION**

Mill 30° bevel on bottom of rails.

(M/721,722,[redacted])
725 - 700 ADL - 700 BDL

(OMIT ON 222 Cal. - See Oper. 113

| | | | | | | |
|---|---|---|---|---|---|---|
| PART No. | 20181 | 20182 | [redacted] | 23755 | 23756 | |
| M/700 ADL | 26575 | 26576 | | | | |
| 700 BDL | 26578 | 26579 | | | | |
| OCC. No. | 21 | 21 | 21 | | | |
| STD. HRS/C | 1.401 | 1.401 | 1.401 | | | |
| STD. No. | E-130 | E-130 | E-130 | | | |
| EFF. DATE | 1/19/48 | 1/19/48 | 1/19/48 | | | |

PART NAME Receiver COOLANT Sol.011 SET UP TIME MODEL No. 721-722 -725-700-700 ADL BDL OPER. No. 112

TYPE O/8 Vertical Cincinnati Miller MACH. HRS. DEPT. No. 54[redacted] PAGE 1 OF 1

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R2527548

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

# PROCESS RECORDS

DATES AND REASONS FOR REVISIONS 6/24/57 - New operation - Hunt - 252307
4/29/58 - Added 725 - 222 - ZK - 253021
7/5/61 - Chg. dept. # - M&S - 256316
8/18/61 - Add M/700 - 700 ADL - Payne - 256441 -
1/22/62 - Chg. grade - Payne - 256985

| TOOLS GAGES AND EQUIPMENT | GA OR CAL 222 | APPROVAL AND DATES M/725 - 222 |
|---|---|---|
| Double end mill | A-54048 | A-54048 |
| Tool Holder | Std. | Std. |
| Fixture | E-51498 | E-51498 |
| Former | E-51498V with cams for 13° runout | E-51498V with cams for 13° runout. |
| Templet Ga. - Depth | B-54047 | B-54047 |
| Templet Ga. - Length | B-81836 | B-81836 |
| Templet Ga. - Length | B-54210 | B-54210 |

SPEED | FEED

| OPERATION DESCRIPTION | PART No 18680 | 16849 |
|---|---|---|
| Profile 30° bevel | M/700ADL 26577 | |
| | M/700ADL 26580 | |
| (222 Cal. only) | | |
| | OCC No | |
| | STD. HRS/C | |
| | STD No | |
| | EFF DATE | |

PART NAME Receiver COOLANT SET UP TIME MODEL No 700- 722-725 -700ADL OPER No 113
TYPE Cinn. 360° Auto Profiler Mach. #12470 MACH HRS DEPT No 54 PAGE 1 OF 1

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R2527549

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

# PROCES_ RECORDS

DATES AND REASONS FOR REVISIONS 11/26/57 - New operation - 252628 - ZK -
[illegible]/57 - Add reading to equipment - 252793
1/23/58 - Add cutter note - Hunt - 252773 -
4/29/58 - Added 725 - 222 - ZK - 253021
7/5/61 - Chg. dept. # - M&S - 256316
8/18/61 - Chg. reading - Payne - 256441 -
10/11/61 - Correct gage No. - Payne - 256670

APPROVAL AND DATES

| SPEED | FEED | TOOLS GAGES AND EQUIPMENT | GA OR CAL | 725 (Long) | 725 (Short) | M/725 - 222 | |
|---|---|---|---|---|---|---|---|
| | D.3. | End Mill - 5/16 dia. * | | MC-9-Std. | MC-9 Std. | MC-9-Std. * | Undersize 13/32 end mills from operation 110 may be used. Max. dia. allowable is .370 A-83591 |
| | | Stub arbor | | Std. | Std. | Std. | |
| | | Fixture | | D-82299 | D-82299 | D-82299 | |
| | | Base Ga. | | D-82314 | D-82314 | D-82314 | |
| | | "A" Dim. | | 455-445 | 455-445 | .455-.445 | |
| | | "B" Dim. | | 7.608-7.598 | 6.768-6.758 | 6.768-6.758 | |
| | | Template (Max. runout) | | B-82353 | B-72353 | B-72353 | |
| | | "C" [illegible] - Dim. | | .8.014 | 7.164 | 7.164 | |
| | | Plug Ga. | | B-80245 | B-80245 | B-80245 | |
| | | "D" .407 - .400 | | | | | |

| OPERATION DESCRIPTION | PART No | 23755 | 23756 | 16849 |
|---|---|---|---|---|
| Safety | | | | |
| Mill B[illegible] clearance slot. | | | | |
| M/725 only) | | | | |
| | OCC No. | | | |
| | STD. HRS/C | | | |
| | STD No. | | | |
| | EFF. DATE | | | |

PART NAME Receiver COOLANT SET UP TIME MODEL No 725 OPER No 114
TYPE #0-8 Cinn. Vert. Miller MACH HRS DEPT. No 54 [redacted] PAGE 1 OF 1

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R2527550

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON



# PROCESS RECORDS

DATES AND REASONS FOR REVISIONS

11/26/57 - New operation - 252628 - ZK -
12/27/57 - Add reading to equipment - 252703
1/23/58 - Add cutter note - Hunt - 252773 -
4/29/58 - Added 725 - 222 - ZK - 253021
7/5/61 - Chg. dept. # - M8 - 256316
8/18/61 - A Chg. reading - Payne - 256441 -
10/11/61 - Correct gage No. - Payne - 256670
2/9/62 - Remove - Payne - 257092 -

APPROVAL AND DATES

| SPEED | FEED | TOOLS GAGES AND EQUIPMENT | GA OR CAL | 725 (Long) | 725 (Short) | M/725 - 222 | |
|---|---|---|---|---|---|---|---|
| | D.E | End Mill - 5/16 dia. * | | MC-9-Std. | MC-9 Std. | MC-9-Std. * | Undersize 13/32 end mills from operation 110 may be used. Max. dia. allowable is .370 A-83591 |
| | | Std arbor | | Std. | Std. | Std. | |
| | | Fixture | | D-82299 | D-82299 | D-82299 | |
| | | Base Ga. | | D-82314 | D-82314 | D-82314 | |
| | | "A" Dim. | | 455-445 | 455-445 | .455-.445 | |
| | | "B" Dim. | | 7.608-7.598 | 6.768-6.758 | 6.768-6.758 | |
| | | Template (Max. runout) | | B-82353 | B-72353 | B-72353 | |
| | | "C" [redacted] - Dim. | | .8.014 | 7.164 | 7.164 | |
| | | Plug Ga. "D" .407 - .400 | | B-80245 | B-80245 | B-80245 | |

| OPERATION DESCRIPTION | PART No. | | | |
|---|---|---|---|---|
| | | 23755 | 23756 | 1684 |
| Safety Mill [redacted] clearance slot. | OCC No | | | |
| | STD HRS/C | | | |
| M/725 only) | STD No. | | | |
| | EFF DATE | | | |

PART NAME Receiver COOLANT SET UP TIME MODEL No 725 OPER No 114

TYPE #0-8 Cinn. Vert. Miller MACH HRS DEPT No 54 [redacted] PAGE 1 OF 1

SD 6461

R2527551

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

# PROCESS RECORDS

DATES AND REASONS FOR REVISIONS 3/14/55 - Revised - EJC - 249742 -
10/30/57 - Added M/725 - ZK - 252503 -
4/[illegible]/58 - Added 725 - .222 - ZK - 253021
7/5/61 - Chg. dept. # - MS - 256316
8/18/61 - Add M/700 - 700 ADL - Payne - 256441
1/22/62 - Chg. grade - Payne - 256985

| SPEED | FEED | TOOLS, GAGES AND EQUIPMENT | GA. OR CAL. | APPROVAL AND DATES: M/721 | M/722 | M/722-.222 M/725 - .222 | M/40X | 725 (Long) | 725 (Short) |
|---|---|---|---|---|---|---|---|---|---|
| 1200 | Hand | Norton Grinding Wheel<br>Wheel: 20" x 9" x 12"<br>Recess: 1 side 14" x 1"<br>1 side 14" x 2"<br>(57A4665VBE) | | Spec. Type 7 | Spec. Type 7 | Spec. Type 7 | Spec. Type 7 | Spec. Type 7 | Spec. Type 7 |
| Reg. | -- | Norton Reg. Wheel<br>Wheel: 12" x 8" x5"<br>Recess: 1 side 7½ x 2½<br>1 side 7½ x 1½<br>(A 801-ROR 30) | | Std. Type 7 | Std. Type 7 | Std. Type 7 | Std. Type 7 | Std. Type 7 | Std. Type7 |
| | | 1-9" Work Rest | | Std. | Std. | Std. | Std. | Std. | Std. |
| | | 1-Carbide Blade | | Std. | Std. | Std. | Std. | Std. | Std. |
| | | 1 Snap (1.359-1.357) | | B-80012M | B-80012M | B-80012M | B-80012M | B-80012M | B-80012M |

| OPERATION DESCRIPTION | | M/721 | M/722 | M/722-.222 M/725 - .222 | M/40X | 725 (Long) | 725 (Short) |
|---|---|---|---|---|---|---|---|
| | PART No. | 20181 | 20182 | 18680<br>16849 | 19767 | 23755 | 23756 |
| | M/700 ADL | 26575 | 26576 | 26577 | | | |
| Centerless grind (infeed) | M/700 [illegible]DL | 26578 | 26579 | 26580 | | | |
| | OCC. No. | 56 | 56 | 56 | 56 | | |
| | STD. HRS/C | 1.328 | 1.328 | 1.328 | 1.328 | | |
| | STD. No. | 13745 | 13745 | 13745 | 13745 | | |
| | EFF. DATE | 4/18/49 | 4/18/49 | 4/18/49 | 3/7/55 | | |
| | | | | | ADL<br>700 - 700 [illegible]DL | | |

PART NAME Receiver COOLANT Sol.011 SET UP TIME MODEL No. 721-722-40X -725 OPER. No. 116
TYPE #12 Landis C'less Grinder MACH. HRS. DEPT. No. 54 PAGE 1 OF 1

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R2527552

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

# PROCES. RECORDS

DATES AND REASONS FOR REVISIONS 10/17/61 - Chg. operation 135 to 118 - Payne - 256686
12/21/61 - Chg. cutter - Payne - 256902
1/22/62 - Chg. grade - Payne - 256985

| TOOLS GAGES AND EQUIPMENT | SPEED | FEED | GA OR CAL |
|---|---|---|---|
| Fixture | | | D-84583 |
| Cutter | | | A-84838 |
| Gage | | | D-84584 |

APPROVAL AND DATES

| OPERATION DESCRIPTION | PART NO. | | | |
|---|---|---|---|---|
| | M/700 ADL | 26575 | 26576 | 26577 |
| | M/700 ADL | 26578 | 26579 | 26580 |
| Mill Safety clearance (M/700 ADL - 700 ADL only) | | | | |

PART NAME Receiver COOLANT SET UP TIME MODEL No 700 ADL OPER No 118
TYPE MACHINE DEPT No 54 PAGE 1 OF 1

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R2527553

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

# PROCESS RECORDS

DATES AND REASONS FOR REVISIONS 3/14/55 - Revised process - EJC - 249742 -
10/30/57 - Added M/725 - ZK - 252593 - 1/22/62 - Chg. grade - Payne - 256985
4/29/58 - Added 725 - 222 - ZK - 253021
6/5/61 - Chg. dept. # - M&S - 256316
8/18/61 - Added 700 - 700 ADL - Payne - 256441

| SPEED | FEED | TOOLS, GAGES AND EQUIPMENT | GA. OR CAL. | APPROVAL AND DATES M/721 | M/722 | M/722-.222 M/725 - 222 | M/40X | 725 (Long) | 725 (Short) |
|---|---|---|---|---|---|---|---|---|---|
| 116 | 1 3/4 | Form cutter | | B-54566 | B-54566 | B-54566 | B-54566 | B-54566 | B-54566 |
| | | 2 Fixtures (R&L Hand) | | E-50505 | E-50505 | E-50505 | E-50505 | E-50505 | E-50505 |
| | | Cam Roller | | A-50856 | A-50856 | A-50856 | A-50856 | A-50856 | A-50856 |
| | | Arbor (#50-1½-B-18-4) | | B-90057W | B-90057W | B-90057W | B-90057W | B-90057W | B-90057W |
| | | Cycle Selector | | D-51798 | D-51798 | D-51798 | D-51798 | D-51798 | D-51798 |
| | | Dial Gage | | D-51326 | D-51326 | D-51326 | D-51326 | D-51326 | D-51326 |
| | | Master Roll | | A-51340 | A-51340 | A-51340 | A-51340 | A-51340 | A-51340 |

| OPERATION DESCRIPTION | PART No. | M/721 | M/722 | M/722-.222 M/725 - 222 | M/40X | 725 (Long) | 725 (Short) |
|---|---|---|---|---|---|---|---|
| | | 20181 | 20182 | 18680 16849 | 19767 | 23755 | 23756 |
| Mill top radius for scope mount | 700 ADL | 26575 | 26576 | 26577 | | | |
| | 700 ADL | 26578 | 26579 | 26580 | | | |
| | OCC. No. | 21 | 21 | 21 | 21 | | |
| | STD. HRS/C | 1.343 | 1.343 | 1.343 | 1.343 | | |
| | STD. No. | 13274 | 13274 | 13274 | 13274 | | |
| | EFF. DATE | 8/30/48 | 8/30/48 | 8/30/48 | 3/7/55 | | |
| | | | | | ADL 700 - 700 ADL | | |

PART NAME Receiver COOLANT Sol.Oil SET UP TIME MODEL No. 721-722-40X -725 OPER. No. 120
TYPE 2/24 Cincinnati R&F Miller MACH. HRS. DEPT. No. 54 PAGE 1 OF 1

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R2527554

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KINZER V. REMINGTON



# PROCESS RECORDS

DATES AND REASONS FOR REVISIONS

2/26/59 - Was operation 136 - Hunt - 253624
7/31/59 - C-83025 was C-51725
7/5/61 - Chg. dept. # - M&S - 256316
8/18/61 - Add 700 - 700 ADL - Payne - 256441
1/22/62 - Chg. grade - Payne - 256985

| SPEED | FEED | TOOLS GAGES AND EQUIPMENT | GA OR CAL | APPROVAL AND DATES M/721 | M/722 | M/722-.222 | M/40X |
|---|---|---|---|---|---|---|---|
| | | #2 Friction Tapping Attach | | Std. | Std. | Std. | Std. |
| | | Tapping Fixture | | ~~C-83035~~ 53035 | ~~C-83035~~ | ~~C-83035~~ | 0-54723 |
| | | Tap Front and Rear Guard Screw Holes: | | | | | |
| 560 | Hand | 1/4-28 N.F. Tap PG #1 | | B-90059T | B-90059T | B-90059T | B-90059T |
| | | Thread Plug Gage | | B-80032P | B-80032P | B-80032P | B-80032P |
| | | Tap Middle Guard Screw Hole: | | | | | |
| 560 | Hand | #8-36 NF2 Tap P.G. #1 | | B-90059S | B-90059S | B-90059S | B-90059S |
| | | Thread Plug Gage | | B-80032W | B-80032W | B-80032W | B-80032W |

| OPERATION DESCRIPTION | PART NO. | 20181 | 20182 | 18680 | 19767 |
|---|---|---|---|---|---|
| | M/700 ADL | 26575 | 26576 | 26577 | |
| | M/700 ADL | 26578 | 26579 | 26580 | |
| Tap 3 Guard Screw holes. | | | | | |
| N/721 - 722-40X [redacted] -700 & 700 ADL ) | | | | | |

ADL
700 - 700 ADL

PART NAME Receiver COOLANT Lard Oil SET UP TIME MODEL No 721-722-40X OPER No 124

TYPE Allen Drill Press MACHINE DEPT No 54 [redacted] PAGE 1 OF 1

RD 6461

R2527555

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
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# PROCES[illegible] RECORDS

DATES AND REASONS FOR REVISIONS 6/29/61 - Retyped - vellum missing - Chg. dept. # - M&S

| SPEED | FEED | TOOLS GAGES AND EQUIPMENT | GA. OR CAL. | 725 (Long) | 725 (Short) | M/725-222 | APPROVAL AND DATES | | |
|---|---|---|---|---|---|---|---|---|---|
| | | #2 Friction Tapping Attach. | | Std. | Std. | C-83085 | | | |
| 560 | Hand | 1/4-28 N.F. Tap PG #1 | | B-90059T | B-90059T | B-90059T | | | |
| | | Thread Plug Ga. | | B-80032P | B-80032P | B-80032P | | | |

| OPERATION DESCRIPTION | PART NO. | 23755 | 23756 | 16849 | | | |
|---|---|---|---|---|---|---|---|
| Tap (2) Guard Screw holes (M/725 only) | | | | | | | |

PART NAME Receiver COOLANT SET UP TIME MODEL No 725 OPER No 126

TYPE Allen Drill Press MACHINE DEPT No 54 PAGE 1 OF 1

RD-6461

R2527556

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

# PROC S RECORDS

DATES AND REASONS FOR REVISIONS 6/29/61 - Retyped - vellum missing - Chg. dept. # - M&S
2/9/62 - Obsolete- Payne - 2 57092

| SPEED | FEED | TOOLS GAGES AND EQUIPMENT | GA OR CAL. | APPROVAL AND DATES 725 (Long) | 725 (Short) | M/725-222 |
|---|---|---|---|---|---|---|
| | | #2 Friction Tapping Attach. | | Std. | Std. | C-83085 |
| 560 | Hand | 1/4-28 N.F. Tap PG #1 | | B-90059T | B-90059T | B-90059T |
| | | Thread Plug Ga. | | B-80032P | B-80032P | B-80032P |
| OPERATION DESCRIPTION | | | PART NO. | 23755 | 23756 | 16849 |
| Tap (2) Guard Screw holes (M/725 only) | | | | | | |

Obsolete

PART NAME Receiver COOLANT SET UP TIME MODEL No. 725 OPER. No. 126
TYPE Allen Drill Press MACHINE DEPT. No. 54 PAGE 1 OF 1

RD-6461

R2527557

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON



# PROCESS ..ECORDS

DATES AND REASONS FOR REVISIONS 3/14/55 - Revised - EJC - 249742 -
10/30/57 - Added M/725 - ZK - 252593 - 8/18/61 - Added 700 - 700 ADL - Payne - 256441
12/4/57 - Chg. B/M number - Hunt - 252655 1/22/62 - Chg. grade - Payne - 256985
2/26/59 - Add instructions on position of cut - Hunt - 253660
7/5/61 - Chg. dept. # - MAS - 256316

| TOOLS. GAGES AND EQUIPMENT | | | GA. OR CAL. | APPROVAL AND DATES M/721 | M/722 | 725 (Long) | 725 (Short) |
|---|---|---|---|---|---|---|---|
| SPEED | FEED | | | | | | |
| | Hand | Buttmill (1/2") Fixture | | A-[illegible]03 D-54226 | A-[illegible]03 D-54226 | [illegible]03 D-54226 | [illegible]03 D-54226 |

Blend with right side of spline broach cut. Flush to .010" undercut.
Runout to rear is 5/32" from rear of Ejection Port.

| OPERATION DESCRIPTION | PART No. | 20181 | 20182 | 23755 | 23756 |
|---|---|---|---|---|---|
| | M/700 [illegible]L. | 26575 | 26576 | | |
| Buttmill Shell clearance | M/700 [illegible]DL. | 26578 | 26579 | | |
| | OCC. No. | 19 | 19 | | |
| | STD. HRS/C | .5[illegible] | .5[illegible] | | |
| (M/721 - #20181 & M/722-#20182 | STD. No. | 15[illegible]00 | 15[illegible]00 | | |
| [illegible] | EFF. DATE | 7/21/52 | 7/21/52 | | |
| 725 -700 & 700 ADL | | | | | |
| (OMIT ON 222 and 222 Mag. Cals.) | | | | | |

PART NAME Receiver COOLANT Sol.011 SET UP TIME MODEL No. [illegible] 700 - 700 [illegible] ADL - 721-722 -725 OPER. No. 128
TYPE Drill Press MACH. HRS. DEPT. No. 54 [illegible] PAGE 1 OF 1

RD-6461

R2527558

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

6 -

# PROCESS ..ECORDS

DATES AND REASONS FOR REVISIONS 3/14/55 - Revised - EJC - 249742 -
10/31/57 - Added M/725 - ZK - 252593 - 1/22/62 - Chg. grade - Payne - 256985
4/29/58 - Added 725 - 222 - ZK - 253021
7/5/61 - Chg. dept. # - M&S - 256316
8/18/61 - Add M/700 - 700 ADL - Payne - 256441 -

| TOOLS. GAGES AND EQUIPMENT | | GA. OR CAL. | APPROVAL AND DATES | | | | | |
|---|---|---|---|---|---|---|---|---|
| SPEED | FEED | | M/721 | M/722 | M/722-.222<br>M/725 - .222 | M/40X | 725 (Long) | 725 (Short) |
| 420 | L.S. | #6-48 Tap PG #1 | B-90059U | B-90059U | B-90059U | B-90059U | B-90059U | B-90059U |
| | | Tapping Fixture | C-52194 | C-52194 | C-52194 | C-52194 | B-52194 | B-52194 |
| | | Thread Plug Ga. | B-80031N | B-80031N | B-80031N | B-80031N | B-80031N | B-80031N |

| OPERATION DESCRIPTION | PART No. | | | | | | |
|---|---|---|---|---|---|---|---|
| | | 20181 | 20182 | 18680<br>16849 | 19767 | 23755 | 23756 |
| Tap 6 scope screw holes. | 700ADL | 26575 | 26576 | 26577 | | | |
| | 700 ADL | 26578 | 26579 | 26580 | | | |
| | OCC. No. | 19 | 19 | 19 | [illegible] | | |
| | STD. HRS/C | 1.789 | 1.789 | 1.789 | [illegible] | | |
| | STD. No. | 13560 | 13560 | 13560 | [illegible] | | |
| | EFF. DATE | 1/17/49 | 1/17/49 | 1/17/49 | [illegible] | | |

ADL
700-700 ADL

PART NAME Receiver COOLANT Lard Oil SET UP TIME MODEL No. 721 - 722 - 40X - 725 PER. No. 132
TYPE #10 Warner & Swasey Tapper MACH. HRS. DEPT. No. 54 PAGE 1 OF 1

RD-6461

R2527559

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

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# PROCE RECORDS

DATES AND REASONS FOR REVISIONS 1/6/58 - New - Hunt - 252714
4/29/58 - Added 725 - 222 - ZK - 253021
7/5/61 - Chg. dept. # - M&S - 256316

| TOOLS, GAGES AND EQUIPMENT | GA. OR CAL. | APPROVAL AND DATES 725 (Long) | 725 (Short) | M/725 - 222 | | | |
|---|---|---|---|---|---|---|---|
| SPEED / FEED | | | | | | | |
| Stamp | | B-82174W | B-82174W | B-82174W | | | |
| Adaptor | | B-82174V | B-82174V | B-82174V | | | |
| Fixture | | D-82170 | D-82170 | D-82170 | | | |
| Sight Gage (Position) | | B-82177 | B-82177 | B-82177 | | | |

| OPERATION DESCRIPTION | PART No. | 725 (Long) | 725 (Short) | M/725 - 222 |
|---|---|---|---|---|
| Stamp - "S" & "F" | | 23755 | 23756 | 16849 |
| (M/725 only) | OCC. No. | | | |
| | STD. HRS/C | | | |
| | STD. No. | | | |
| | EFF. DATE | | | |

PART NAME Receiver COOLANT SET UP TIME MODEL No. 725 OPER. No. 139
TYPE Air-Hydraulics Press - 6 Ton MACH. HRS. DEPT. No. 54 PAGE 1 OF 1

RD-6461

R2527560

6#

# PROCE. RECORDS

DATES AND REASONS FOR REVISIONS 1/6/58 - New - Hunt - 252714
4/29/58 - Added 725 - 222 - ZK - 253021
7/5/61 - Chg. dept. # - M&S - 256316
2/9/62 - Obsolete - Payne - 257092

APPROVAL AND DATES

| TOOLS, GAGES AND EQUIPMENT | | GA. OR CAL. | 725 (Long) | 725 (Short) | M/725 - 222 | | | |
|---|---|---|---|---|---|---|---|---|
| SPEED | FEED | | | | | | | |
| | | Stamp | B-82174W | B-82174W | B-82174W | | | |
| | | Adaptor | B-82174V | B-82174V | B-82174V | | | |
| | | Fixture | D-82170 | D-82170 | D-82170 | | | |
| | | Sight Gage (Position) | B-82177 | B-82177 | B-82177 | | | |

| OPERATION DESCRIPTION | PART No. | 23755 | 23756 | 1684[illegible] | | | |
|---|---|---|---|---|---|---|---|
| Stamp - "S" & "F" | | | | | | | |
| (M/725 only) | OCC. No. | | | | | | |
| | STD. HRS/C | | | | | | |
| | STD No. | | | | | | |
| | EFF. DATE | | | | | | |

Obsolete

PART NAME Receiver COOLANT SET UP TIME MODEL No. 725 OPER No. 139
TYPE Air-Hydraulics Press - 6 Ton MACH. HRS. DEPT. No. 54 [illegible] PAGE 1 OF 1

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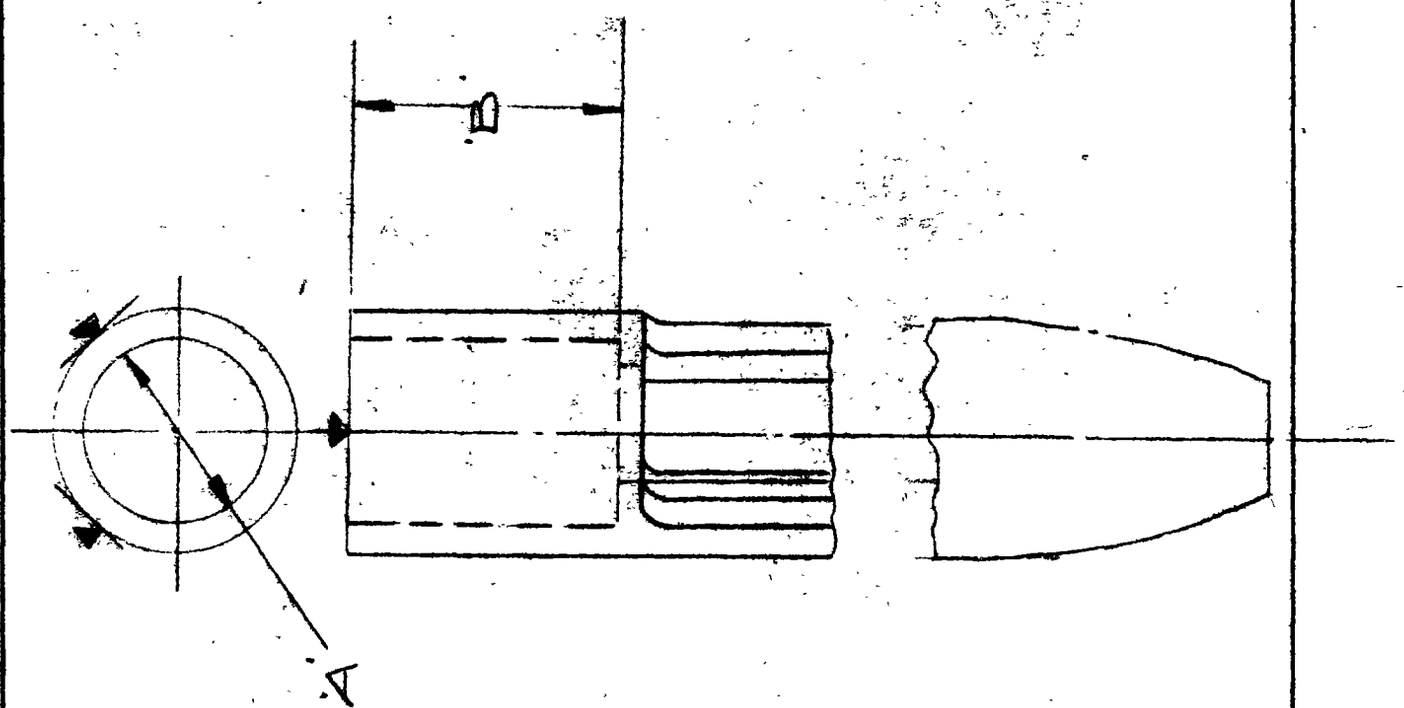
CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

TPR-7

M/721

| | |
|---|---|
| PART: RECEIVER M/40-X | PART No. 19769 |
| OPERATION: FINISH C'BORE BBL. HOLE TO DEPTH | OPER. No.: ~~124~~ 139-1 DEPT. [redacted] 54 |

PROCESS RECORD — ILLUSTRATION SKETCH




7/5/61 - Chg. dept. # - M&S - 256316
11/3/59 - Chg. oper. 150 to 139-1 - 254347-Hunt -
12/12/55 - Chg. Op # - 250745 NST.
3/14/55 - Revised process - EJC - 249742 -

| | |
|---|---|
| COMPILED BY: K-12-22-54 | APPROVAL & DATE: K |

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# PROCESS RECORDS

DATES AND REASONS FOR REVISIONS 11/3/59 - Retyped - was operation 150 - Hunt - 254347
7/5/61 - Chg. dept. # - M&S - 256316

| SPEED | FEED | TOOLS, GAGES AND EQUIPMENT | GA OR CAL | 40X |
|---|---|---|---|---|
| | | C'bore (S.J. Style B | ** | B-82728 |
| | * | Rotary Stop | | C-82727 |
| | | Holding Fixture | | D-73767 |
| | | Plug Gage "A" 1.003 - .998 | | B-802158 |
| | | Flush Pin Gage "B" 1.505 - 1.500 | | C-73768 |
| | * | Hand feed to stop | | |

APPROVAL AND DATES

| | | | |
|---|---|---|---|
| ** | Rotary Stop | D-73769) | |
| | C'bore | A-54716) | To be used until supply |
| | Pilot | A-73932) | of A-54716 is exhausted. |

| OPERATION DESCRIPTION | PART NO. | 19767 |
|---|---|---|
| Finish c'bore Barrel hole to depth.<br><br>(40X only) | | |

PART NAME Receiver COOLANT SET UP TIME MODEL No 40X OPER No 139-1
TYPE MACHINE #3 Allen Drill Press 1-Spindle Drill Press DEPT No 54 PAGE 1 OF 1

RD-6461

R2527563

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# PROCESS RECORDS

DATES AND REASONS FOR REVISIONS 3/14/55 - Revised - EJC - 249742 -
10/30/57 - Added M/725 - ZK - 252593 -
4/29/58 - Added 725 - 222 - ZK - 253021
7/5/61 - Chg. dept. # -MAS - 256316
8/18/61 - Add M/700 - 700 ADL - Payne - 256441
10/11/61 - Chg. TS to Regular No. - Payne - 256670
1/22/62 - Chg. Grade - Payne - 256985 -

| TOOLS. GAGES AND EQUIPMENT SPEED / FEED | | GA. OR CAL. | APPROVAL AND DATES M/721 | M/722 | M/722-.222 M/725 - 222 | M/40X | 725 (Long) | 725 (Short) |
|---|---|---|---|---|---|---|---|---|
| #6 Cutting | Set of 3 broaches | | D-53962 | D-53962 | D-53962 | D-53962 | D-53962 | D-53962 |
| (20FPM) | Triple Fixture | | D-54493 | D-54493 | D-54493 | D-73762 | D-54493 | D-54493 |
| #5 Return | Broach Puller | | C-50189 | C-50189 | C-50189 | C-50189 | C-50189 | C-50189 |
| (90FPM) | Pull Pin | | A-54548 | A-54548 | A-54548 | A-54548 | A-54548 | A-54548 |
| | Fed. Dial (1.004-.998) | | B-80066W | B-80066W | B-80066W | B-80066W | B-80066W | B-80066W |
| | Setting Ring | | B-80064W | B-80064W | B-80064W | B-80064W | B-80064W | B-80064W |
| | Plug Gage (.452-.459) | | A-50249 | A-50249 | A-50249 | A-50249 | A-50249 | A-50249 |
| | Functional Gage | | C-53609 | C-53609 | C-53609 | A-80658 | C-53609 | C-53609 |

| OPERATION DESCRIPTION | PART No. | | | | | | |
|---|---|---|---|---|---|---|---|
| | | 20181 | 20182 | 18680 16849 | 19767 | 23755 | 23756 |
| Broach Bolt Hole and Guide slots to burr. | 700 [redacted] DL | 26575 | 26576 | 26577 | | | |
| | 700 [redacted] DL | 26578 | 26579 | 26580 | | | |
| | OCC. No. | 92 | 92 | 92 | 92 | | |
| | STD. HRS/C | .474 | .474 | .474 | .474 | | |
| | STD. No. | 15035 | 15035 | 15035 | 15035 | | |
| | EFF. DATE | 1/21/52 | 1/21/52 | 1/21/52 | 2/7/55 | | |
| | | | | | ADL 700 - 700 ADL | | |

PART NAME Receiver COOLANT Sun. #623 SET UP TIME MODEL No. 721-722-40X -725 OPER. No. 140
TYPE LaPointe Hydraulic Broach (HP-30) MACH. HRS. DEPT. No. 54[redacted] PAGE 1 OF 1

RD-6461

R2527564

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON



# PROCESS RECORDS

DATES AND REASONS FOR REVISIONS
4/7/61 - Retyped from 4/4/61
6/2/61 - Chg. note and add visual inspect - Ranney - 256256
7/5/61 - Chg. dept. # - M&S - 256316
8/18/61 - Add 700 - 700 ADL - Payne - 256441
9/15/61 - Chg. TS to Reg. No. - Payne - 256580
9/27/61 - Add equipment for M/700-Payne - 256626
10/6/61 - Chg. reading and add equipment - Payne - 256659
1/10/62 - Chg. wording - Payne - 256945
1/22/62 - Chg. grade - Payne - 256985

| TOOLS GAGES AND EQUIPMENT | GA OR CAL | APPROVAL AND DATES M/721 | M/722 | M/722-.222 M/725-222 | M/40X | 725(Long) | 725(Short) |
|---|---|---|---|---|---|---|---|
| SPEED FEED | | | | | | | |
| Files, scrapers | | | | | | | |
| Burring tool | | | | | C-54973 | | |
| Hand Reamer | A-84226 | NOTE: Check with diam. Ga. B-800029 when new reamers are put on job. | | | | | |
| Bolt Locking Shoulder - Worst acceptable | | | | | 10-30-58 | | |
| | | | | Rev.7/20/59 | | | |
| Sample Number | | 10-24-58 Rev.7/20/59 | 10-24-58 Rev. 7/20/59 | 58-48 Burr .025x30° chamfer See Sample Dated Std. | 8/58 | 58-47 Rev. 7/20/59 | 58-47 Rev.7/20/59 |
| Dental Grinder and Bit | | | | | | | |
| Polish Ramp on 222 Cal. | | | | | | | |
| Scrape locking shoulder [redacted] to smooth finish when necessary on 40X only | | | | | C-84731 | | |
| Special Scraper | | | | | | | |
| Fixture for 1/8 radius on rear of tang 700 BDL 700 ADL | | | | | | | |
| Sample | | | | | | | |
| Filing Jig | D-84652 | | | | | | |

| OPERATION DESCRIPTION | PART NO. | 20181 | 20182 | 18680 | 19767 | 23755 | 23756 |
|---|---|---|---|---|---|---|---|
| | M/700ADL | 26575 | 26576 | 26577 | | | |
| | 700 BDL | 26578 | 26579 | 26580 | | | |
| File burrs, at Bolt clearance, rear of Trigger slot, and fire control slot. Hand ream Fire Control holes. (To remove burrs) Inspect for visual defects and fit bolt. (File 1/8 radius on rear of tang (M/700 700 ADL only) (Draw file & polish 30° bevel on bottom of rails except M/40X) | | | | * Must be sharpened in cutter grind to maintain squareness. | | | |

PART NAME Receiver COOLANT SET UP TIME MODEL No BDL 700 - 700 ADL 721 - 722-725-40X OPER No 148

TYPE MACHINE DEPT No 54 [redacted] PAGE 1 OF 1

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KINZER V. REMINGTON



# PROCESS RECORDS

**DATES AND REASONS FOR REVISIONS**

3/14/55 - Revised process - EJC - 249742 -
12/12/55 - Chg. 148 to 150
10/30/57 - Added M/725 - ZK -252593 -
4/29/58 - Added 725 - 222 - ZK - 253021
11/3/59 - Was 150 - Hunt - 254347
7/5/61 - Chg. dept. # - MAS - 256316
8/18/61 - Added 700 - 700 ADL - Payne - 256441
1/22/62 - Chg. grade - Payne - 36985

| TOOLS, GAGES AND EQUIPMENT | SPEED | FEED | GA. OR CAL. | APPROVAL AND DATES M/721 | M/722 | M/722-.222 M/725 - 222 | M/40X | 725 (Long) | 725 (Short) |
|---|---|---|---|---|---|---|---|---|---|
| Plug Ga. (Must Go.) | | | | C-53609 | C-53609 | C-53609 | C-53609 | C-53609 | C-53609 |
| Try sample Bolt | | | | | | | | | |

| OPERATION DESCRIPTION | PART No. | | | | | | |
|---|---|---|---|---|---|---|---|
| | | 20181 | 20182 | 18680<br>16849 | 19767 | 23755 | 23756 |
| Product check for missed operations after #148 | M/700 ADL | 26575 | 26576 | 26577 | | | |
| | M/700 ADL | 26578 | 26579 | 26580 | | | |
| | OCC. No. | | | | | | |
| | STD. HRS/C | | | | | | |
| | STD. No. | | | | | | |
| | EFF. DATE | | | | | | |
| | | | | | MIL. 700 - 700 ADL | | |

PART NAME Receiver COOLANT SET UP TIME MODEL No. 721-722-40X -725 OPER. No. Prod. Check
TYPE Bench MACH. HRS. DEPT. No. 54 PAGE 1 OF 1

RD-6461

R2527566

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KINZER V. REMINGTON

# PROCESS RECORDS

DATES AND REASONS FOR REVISIONS 3/14/55 - Revised process - EJC - 249742-
10/30/57 - Added M/725 - ZK -252593
1/22/62 - Chg. grade - Payne - 256985
4/29/58 - Added 725 - zzz - ZK - 253021
7/5/61 - Chg. dept. # - M&S - 256316
8/18/61 - Added 700 - 700 ADL and equipment - Payne - 256441

| TOOLS, GAGES AND EQUIPMENT | GA. OR CAL. | APPROVAL AND DATES M/721 | M/722 | M/722-.222 | M/40X | 725 (Long) | 725 (Short) 725 - 222 |
|---|---|---|---|---|---|---|---|
| Roll ~~and Insert~~ | | C-53228W | C-53228V | C-53228V | B-73907 | C-53228U | C-53228U |
| Fixture | | D-54349 | D-54349 | D-54349 | D-54349 | D-54349 | D-54349 |
| Sight Gage (Position) | | C-52914W | C-52914V | C-52914V | C-52914V | C-52914W | C-52914V |

NOTE; USE ROLL NUMBER C-53228T ON ALL MODEL 700 & 700 ADL RECEIVERS.

| OPERATION DESCRIPTION | PART No. | 20181 | 20182 | 18680 | 19767 | 23755 | 23756 16849 |
|---|---|---|---|---|---|---|---|
| Roll mark "Remington" and Model Number. | M/700 ADL | 26575 | 26576 | 26577 | | | |
| | M/700 ADL | 26578 | 26579 | 26580 | | | |
| | OCC. No. | 40 | 40 | 40 | 40 | | |
| | STD. HRS/C | .300 | .300 | .300 | .300 | | |
| | STD. No. | 12855 | 12855 | 12855 | 12855 | | |
| | EFF. DATE | 3/1/48 | 3/1/48 | 3/1/48 | 3/7/55 | | |

PART NAME Receiver COOLANT SET UP TIME MODEL No. ADL 700 - 700 ADL 721-722-40X -725 OPER. No. 156

TYPE G.Schmidt Roll Marking Machine MACH. HRS. DEPT. No. 54 PAGE 1 OF 1

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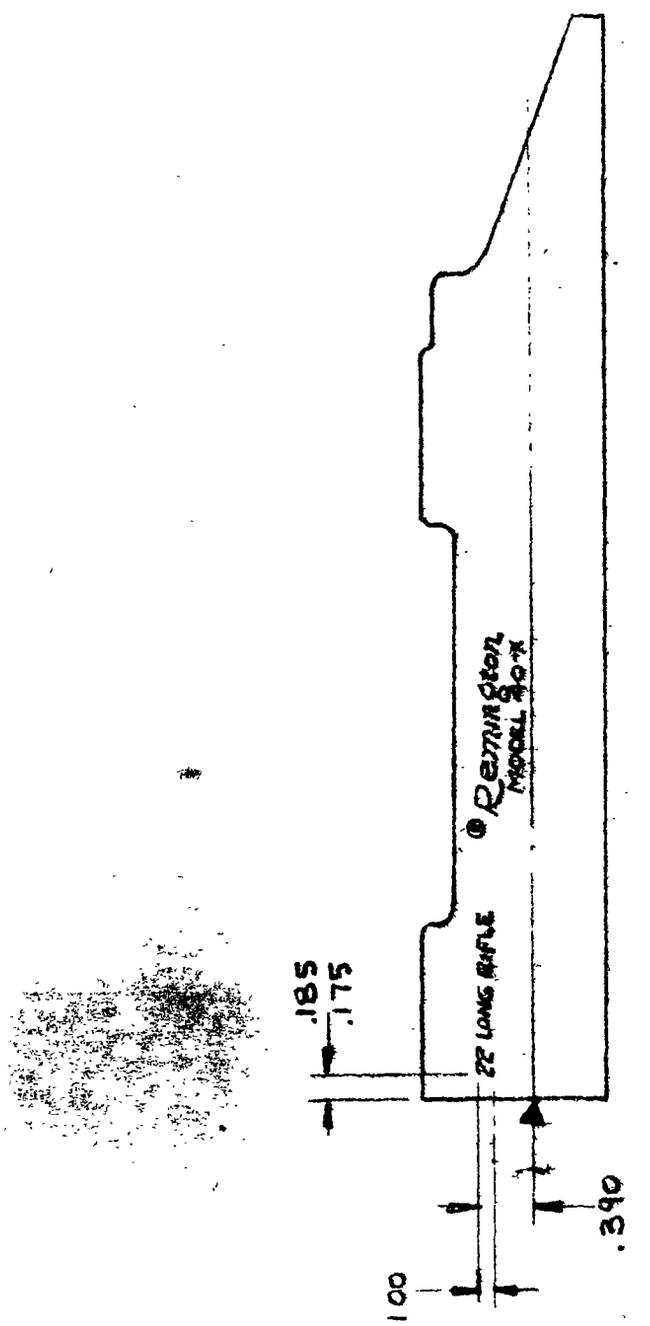
R2527567

TPR-7

| PART: RECEIVER M140-X | PART No. 19767 |
|---|---|
| OPERATION: ROLL MARK "22 LONG RIFLE" | OPER. No.: 160 DEPT. [redacted] 54 |

**PROCESS RECORD — ILLUSTRATION SKETCH**




7/5/61 - Chg. dept. # - MMS - 256316
3/14/55 - Revised process - EJC - 249742 -

| COMPILED BY: | APPROVAL & DATE: |
|---|---|
| K - 12-22-54 | K |

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# PROCESS RECORDS

DATES AND REASONS FOR REVISIONS 3/1[illegible]55 - Revised process - ZK - EJC - 249742 -
4/24/58 - Add USMC - Special - Hunt - 253009
7/5/61 - Chg. dept. # - MAS - 256316

| TOOLS, GAGES AND EQUIPMENT | GA. OR CAL. | 40X | USMC-40X | 40X US | | | |
|---|---|---|---|---|---|---|---|
| SPEED / FEED | | | | | | | |
| Marking Roll | | A-73906 | A-82431 | A-84105 | | | |
| Fixture | | D-54733 | D-54733 | D-54733 | | | |
| Template | | A-73902 | A-73902 | A-73902 | | | |
| OPERATION DESCRIPTION | PART No. | 19767 | Special | Special | | | |
| Roll mark | OCC. No. | 40 | | | | | |
| 22 Long Rifle | STD. HRS/C | .300 | | | | | |
| | STD. No. | Est. | | | | | |
| | EFF. DATE | 3/7/55 - | | | | | |

APPROVAL AND DATES

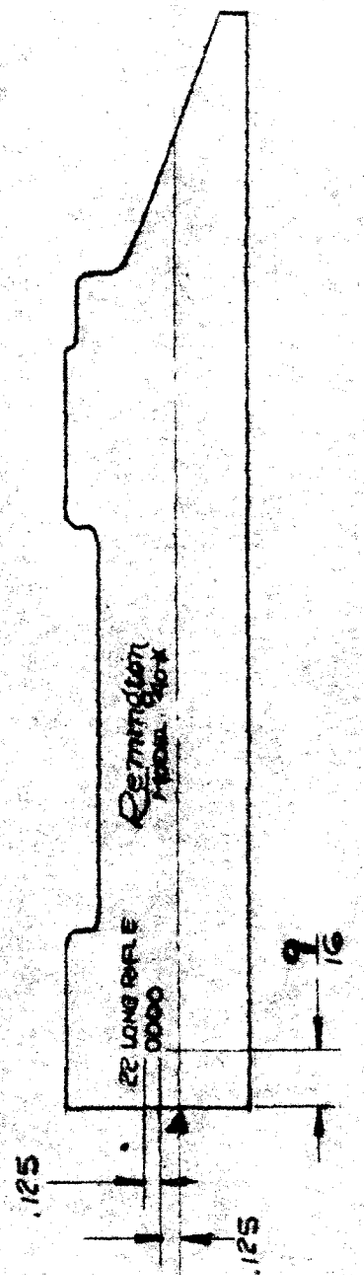
PART NAME Receiver COOLANT SET UP MODEL No. 40X OPER. No. 160
TYPE G.Schmidt Marking Machine MACH. HRS DEPT. No. 54 PAGE 1 OF 1

RD-6461

R2527569

| PART: RECEIVER M/40-X | PART No. 19767 |
|---|---|
| OPERATION: STAMP SERIAL NO, LEFT SIDE & FRONT | OPER. No.: 164 DEPT. - 54 |

PROCESS RECORD — ILLUSTRATION SKETCH




7/5/61 - Chg. dept. # - MAS - 256316
5/9/55 - Chg. 7/16 to 9/16 - 249971 - ZK -
3/14/55 - Revised process - EJC - 249742 -

| COMPILED BY: K-12-22-54 | APPROVAL & DATE: K |
|---|---|

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# PROCES_ RECORDS

74

DATES AND REASONS FOR REVISIONS 3/14/55 - Revised process - EJC - 249742 -
5/9/55 - Added suffix's to template and chg. machine - ZK - 249971
10/30/57 - Added M/725 - ZK - 252593 - 8/18/61 - Add 700 - 700 ADL - Payne - 256441 -
4/29/58 - Added 725 - 222 - ZK - 253021 1/22/62 - Chg. grade - Payne - 256985
7/5/61 - Chg. dept. # - MAS - 256316

| TOOLS. GAGES AND EQUIPMENT | GA. OR CAL. | APPROVAL AND DATES | | | | | |
|---|---|---|---|---|---|---|---|
| SPEED / FEED | | M/72 | M/722 | M/722 - .222 725 - 222 | M/40X | M/725(Long) | 725 (Short) |
| | Stamping Fixture | C-1-53705 | C-1-53705 | C-1-53705 | C-1-53705 | C-53705 | C-53705 |
| | Template (Position) | A-53706 W | A-53706 W | A-53706 W | A-53706 V | A-53706W | A-53706W |
| | Stamp (Schmidt M/62-Numberhead) | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| | NOTE: Start M/700 & 700 ADL - with serial No. 1002 | | | | | | |
| OPERATION DESCRIPTION | PART No. | 20181 | 20182 | 18680 16849 | 19767 | 23755 | 23756 |
| Stamp serial number, left side, front | M/700 ADL | 26575 | 26576 | 26577 | | | |
| | M/700 ADL | 26578 | 26579 | 26580 | | | |
| | OCC. No. | 40 | 40 | 40 | 40 | | |
| | STD. HRS/C | .275 | .275 | .275 | .275 | | |
| | STD. No. | 12950 | 12950 | 12950 | 12950 | | |
| | EFF. DATE | 4/12/48 | 4/12/48 | 4/12/48 | 4/12/48 | | |

PART NAME Receiver COOLANT SET UP TIME MODEL No. 700 - 700 ADL 721-722 -40X -725 OPER. No. 164
TYPE [illegible] Schmidt marking machine MACH. HRS. DEPT. No. 54 PAGE 1 OF 1

RD-6461

R2527571

# PROCESS RECORD—HI T TREAT SPECIFICATION

75

**MATERIAL AND SPECIFICATION** 8640 **STD. PRACTICE No.**

**TEMPERATURE** Ajax high temp: 1525° - 1550°F; ajax low temp: 450°F
Gas Fired Nitre Bath: 750° - 900°F.

~~MAXIMUM LOAD~~ TIME: 15 minutes total time in each bath.

REMARS: Place rack in high temp. bath. After 15 min., quickly transfer to quenching bath. After 15 min. in quench bath, transfer to gas-fired nitre bath for an additional 15 min. Remove rack after time has elaspsed, and quench in cold water. Remove to cyanide boil for a few min., rinse in alkaline cleaner and hot water, and then spread parts on drier. Blow parts dry with compressed air before placing in trays or rack for lindberg tempering operation. Adjust temperature within this range to obtain desired hardness.

[redacted]

Equipment: Required for Operation #2:

[redacted]

1. Ajax high-temp. salt bath.
2. Ajax low temp. quench bath.
3. Gas-Fired Nitre Bath.
4. Cold water rinse tank.
5. Hot water rinse tank.
6. Cyanide rinse tank.
7. Alkaline cleaner tank.
8. Steam drier.
9. Racks with hooks.

[redacted]

**HEAT TREAT INSPECTION**

**HARDNESS LIMITS** Rc 37 to 44.

APPEARANCE OF PARTS: After treatment, parts should have a uniform temper color and be free of salt or alkaline residue.

**OPERATION DESCRIPTION**

Austemper

**DATES AND REASONS FOR REVISIONS** 10/21/58 - Retyped from 4/29/58
8/18/61 - Add M/700 - 700 ADL - Payne - 256441 [illegible]/62 - Chg. grade - Payne - 256985
8/21/61 - Chg # on 700 + add 725 - M.D.

**APPROVAL AND DATES**

| GA. OR CAL. | M/721 | M/722 | M/722-.222 | M/725-(Long) | 725 (Short) | 725-.222 |
|---|---|---|---|---|---|---|
| PART No. | 20181 | 20182 | 18680 | 23755 | 23756 | 16849 |
| OCC. No. | | | | | | |
| STD. HRS/C | | | | | | |
| STD. No. | | | | | | |
| EFF. DATE | | | | | | |
| OF STD. OF STD. | | | | | | |
| M/700 ADL | 26575 | 26576 | 26577 | | | |
| M/700 ADL | 26578 | 26579 | 26580 | | | |
| | | | | | | |

[redacted]
700 - 700 ADL

**PART NAME** Receiver **EQUIPMENT** See above **MODEL No.** 721-722-725 **OPER.** 168
**DEPT. No.** 51 **PAGE** 1 **OF** 1

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CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

R2527572

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

# PROCESS RECORD – HEAT TREAT SPECIFICATION

MATERIAL AND SPECIFICATION: 137K 8640

STD. PRACTICE No.: #203

TEMPERATURE: 800° - 825°F

MAXIMUM LOAD: Basket capacity

TIME: 30 minutes

QUENCH: Water

REMARKS:

INSPECT FOR: Rockwell Hardness

HEAT TREAT INSPECTION

STANDARD PRACTICE No.: 164

HARDNESS LIMITS: Rc - 37/44

APPEARANCE OF PARTS: Steel gray color, clean

OPERATION DESCRIPTION: Lindberg Draw

DATES AND REASONS FOR REVISIONS: 5/5/59 - Retyped from 4/29/59
8/18/61 - Add 700 - 700 ADL - Payne - 25641 1/22/62 - Chg. grade -EP - 256985
8/21/61 - Chg. #16949

APPROVAL AND DATES

| GA. OR CAL. | M/721 | M/722 | M/722 - .222 | [illegible] | 725 (Long) | 725 (Short) |
|---|---|---|---|---|---|---|
| PART No. | 20181 | 20182 | 18680 | 16849 | 23755 | 23756 |
| OCC. No. | | | | | | |
| STD. HRS/C | | | | | | |
| STD. No. | | | | | | |
| EFF. DATE | | | | | | |
| OF STD. OF STD. | | | | | | |
| M/700 ADL | 26575 | 26576 | 26577 | | | |
| M/700 ADL | 26578 | 26579 | 26580 | [redacted] 700-700 ADL-[redacted] | | |

PART NAME: Receiver EQUIPMENT: Lindberg El. Furnace #14 MODEL No: 721 -722-725 OPER.: 172

DEPT. No: 51 PAGE: 1 OF: 1

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R2527573

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

# PROCESS RECORD—HEA TREAT SPECIFICATION

79

MATERIAL AND SPECIFICATION: 4137

STD. PRACTICE No.:

TEMPERATURE: 1550°F

MAXIMUM LOAD:

TIME: 15 minutes @ temperature

QUENCH: Oil

REMARKS: Wash and Dry

INSPECT FOR:

HEAT TREAT INSPECTION:

STANDARD PRACTICE No.:

HARDNESS LIMITS:

APPEARANCE OF PARTS: Clean and dry - free from salt or alkaline residue.

| OPERATION DESCRIPTION | DATES AND REASONS FOR REVISIONS: 7/23/57 - Add operation 174 - WH - KRC - 252416 |
|---|---|
| Neutral Salt Harden | APPROVAL AND DATES |

| GA. OR CAL. | | | | | | |
|---|---|---|---|---|---|---|
| PART No. | 19767 | | | | | |
| OCC. No. | | | | | | |
| STD. HRS/C | | | | | | |
| STD. No. | | | | | | |
| EFF. DATE | | | | | | |
| OF STD. OF STD. | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

PART NAME: Receiver EQUIPMENT: Ajax hi-temp. furnace MODEL No.: 40X OPER.: 174

DEPT. No.: 51 PAGE: 1 OF: 1

RD-4464

R2527574

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

# PROCESS RECORD—HEAT TREAT SPECIFICATION

MATERIAL AND SPECIFICATION 4137

STD. PRACTICE No.

TEMPERATURE 400°F

MAXIMUM LOAD

TIME

QUENCH Air Cool

REMARKS

INSPECT FOR Rockwell Hardness

HEAT TREAT INSPECTION

STANDARD PRACTICE No. 164

HARDNESS LIMITS Re 50-54

APPEARANCE OF PARTS Clean, free from salt

| OPERATION DESCRIPTION | DATES AND REASONS FOR REVISIONS 7/23/57 - Added operation WH- KRC - 252416 | | | | | |
|---|---|---|---|---|---|---|
| | APPROVAL AND DATES | | | | | |
| Lindberg Draw | GA. OR CAL. | | | | | |
| | PART No. | 19767 | | | | |
| | OCC. No. | | | | | |
| | STD. HRS/C | | | | | |
| | STD. No. | | | | | |
| | EFF. DATE | | | | | |
| | OF STD. OF STD. | | | | | |
| | | | | | | |
| | | | | | | |

PART NAME Receiver EQUIPMENT Lindberg Temper Furnace MODEL No. 40X OPER. 176-178

DEPT. No. 51 PAGE 1 OF 1

RD 4464

R2527575

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

# PROCESS RECORD—HE TREAT SPECIFICATION

77

MATERIAL AND SPECIFICATION

STD. PRACTICE No.

TEMPERATURE 1050 - 1100

MAXIMUM LOAD

TIME

QUENCH

REMARKS Front end to Rc 45 Max.

INSPECT FOR

HEAT TREAT INSPECTION

STANDARD PRACTICE No.

HARDNESS LIMITS

APPEARANCE OF PARTS

| OPERATION DESCRIPTION | DATES AND REASONS FOR REVISIONS 10/1/58 - Chadwick - 253355 |
|---|---|
| String Draw front end. | APPROVAL AND DATES |

| | | | | | | |
|---|---|---|---|---|---|---|
| GA. OR CAL. | | | | | | |
| PART No. | 19767 | | | | | |
| OCC. No. | | | | | | |
| STD. HRS/C | | | | | | |
| STD. No. | | | | | | |
| EFF. DATE | | | | | | |
| OF STD. OF STD. | | | | | | |

PART NAME Receiver EQUIPMENT Surface C. Salt Bath MODEL No. 40X OPER. 179

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R2527576

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

# PROCESS RECORD—HEA TREAT SPECIFICATION

MATERIAL AND SPECIFICATION

STD. PRACTICE No.

TEMPERATURE

MAXIMUM LOAD

TIME

QUENCH

REMARKS 16 hours Minimum in Boiling Cyanide Solution

INSPECT FOR

HEAT TREAT INSPECTION

STANDARD PRACTICE No.

HARDNESS LIMITS

APPEARANCE OF PARTS

| OPERATION DESCRIPTION | DATES AND REASONS FOR REVISIONS 10/1/58 - New - Chadwick - 253355 | | | | | |
|---|---|---|---|---|---|---|
| Cyanide Deplate to remove stains | APPROVAL AND DATES | | | | | |
| GA. OR CAL. | | | | | | |
| PART No. | 19767 | | | | | |
| OCC. No. | | | | | | |
| STD. HRS/C | | | | | | |
| STD. No. | | | | | | |
| EFF. DATE | | | | | | |
| OF STD. OF STD. | | | | | | |

PART NAME Receiver EQUIPMENT MODEL No. 40X OPER 179-2

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R2527577

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

# PROCESS RECORDS

DATES AND REASONS FOR REVISIONS 6/28/60 - Added operation - ECR - 255085
7/5/61 - Chg. dept. # - M&S - 256316
8/18/61 - Add 700 - 700 ADL - Payne - 256441
9/15/61 - Add gage - Payne - 256580
1/22/62 - Chg. grade - Payne - 256685

| SPEED | FEED | TOOLS GAGES AND EQUIPMENT | GR OR CAL | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | USE Master Bolt - B-54523W for the following Part Nos. #20181,23755,26575 & 26578 | [illegible] | [illegible] | [illegible] | | | |
| | | USE Master Bolt - B-54523T for Part No.s - #20182,23756, #16849,18680,26576,26577, #26579 & 26580. | | | | | | |
| | | Plug Gage B-82781 FOR M/40X - Use M/40X 130LT | | | | | | |

APPROVAL AND DATES

| OPERATION DESCRIPTION | PART NO. | | | | | |
|---|---|---|---|---|---|---|
| | M/721 | 20181 | | | | |
| | 722 | 20182 | 18680 (.222) | | | |
| | 725 | 23755 (Long) | 23756(Short) | 16849 (.222) | | |
| File to fit Bolt and plug gage. | 40X | 19767 | | | | |
| | M/700ADL | 26575 | 26576 | 26577 | | |
| | M/700 ADL | 26578 | 26579 | 26580 | | |

PART NAME Receiver COOLANT SET UP TIME MODEL No 721,722,725,40X ADL 700 - 700 ADL OPER. No 183R
TYPE MACHINE DEPT No 54 PAGE 1 OF 1

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R2527578

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

# PROCESS RECORDS

DATES AND REASONS FOR REVISIONS
6/2/61 - Added operation - ECR - 256256
7/5/61 - Chg. dept. # - M&S - 256316
8/18/61 - Add M/700 - 700 ADL - Payne - 256441
1/22/62 - Chg. grade - Payne - 256985

| TOOLS GAGES AND EQUIPMENT | GA OR CAL | APPROVAL AND DATES M/721 | M/722 | M/722-.222 M/725-222 | M/40X | 725 (Long) | 725 (Short) |
|---|---|---|---|---|---|---|---|
| SPEED / FEED | | | | | | | |
| Polishing Head | | Std. | Std. | Std. | Std. | Std. | Std. |

| OPERATION DESCRIPTION | PART NO. | 20181 | 20182 | 18680 | 19767 | 23755 | 23756 |
|---|---|---|---|---|---|---|---|
| | M/700 ADL | 26575 | 26576 | 26577 | | | |
| | M/700 DL | 26578 | 26579 | 26580 | | | |
| Polish bolt hole to remove visual defects. | | | | | | | |

PART NAME Receiver COOLANT SET UP TIME MODEL No 721-722-725-40X -700-700ADL OPER. No 184R
TYPE MACHINE DEPT No 54 PAGE 1 OF 1

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R2527579

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

8 M

# PROCES RECORDS

DATES AND REASONS FOR REVISIONS
6/2/61 - Added operation - ECR - 256256
7/5/61 - Chg. dept. # - M&S - 256316
8/17/61 - Add 700 & 700 ADL - Payne - 256441
1/22/62 - Chg. grade - Payne - 256985

| TOOLS GAGES AND EQUIPMENT | GA OR CAL | APPROVAL AND DATES M/721 | M/722 | M/722-.222 M/725-222 | M/40X | 725(Long) | 725 (Short) |
|---|---|---|---|---|---|---|---|
| SPEED / FEED | | | | | | | |
| Safer edge mill file | | Std. | Std. | Std. | Std. | Std. | Std. |
| OPERATION DESCRIPTION | PART NO. | 20181 | 20182 | 18680 | 19767 | 23755 | 23756 |
| | M/700 ADL | 26575 | 26576 | 26577 | | | |
| | M/700 ADL | 26578 | 26579 | 26580 | | | |
| Draw file rails to remove visual defects. | | | | | | | |
| | | | | | ADL 700 & 700 ADL | | |

PART NAME Receiver COOLANT SET UP TIME MODEL No. 721 - 722 - 40X - 725 OPER. No. 185R

TYPE MACHINE DEPT No. 54 PAGE 1 OF 1

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R2527580

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

# PROCESS RECORDS

DATES AND REASONS FOR REVISIONS

5/16/56 - New operation - Moyer - 251296
10/30/57 - Added note - ZK - 252593
12/19/57 - Remove reading on op. - Add 725 to model - ERCarr -252676
4/29/58 - Added 725 - 222 - ZK - 253021
4/4/61 - New method - Moyer - 255951
7/5/61 - Chg. dept. # - M & S - 256316
8/17/61 - Add M/700 - 700 ADL - Payne - 256441
9/6/61 - Reinstate step #3 for M/40X - Payne - 256550
1/16/62 - Chg. grade & remove step #3 - HP - 256985

| TOOLS, GAGES AND EQUIPMENT SPEED | FEED | GA. OR CAL. | 40X | 721 | 722 | 722-.222<br>725-222 | 725 (Long) | 725 (Short) |
|---|---|---|---|---|---|---|---|---|
| APPROVAL AND DATES | | | | | | | | |
| Step #1 - Finish polish front face of Ejection Port | | | | | Wheel compressed leather medium Soft Density 1" x 14" formed side. hill set-up #180 grit oil Lubricant: Lard oil 4 parts and kerosene oil 1 part mixed. | | | |
| Step #2 Rough polish top of right Ejection Port rails and ins side of left Ejection Port rail. | | | | | Medium soft density set-up felt wheel 2" x 4" -1/4" arbor hole #180 grit dry. | | | |
| Step #3 [redacted] | | | | | [redacted] | | | |
| Step #4 (a) Finish polish top of left Ejection Port rail. | | | | | Wheel compressed leather medium soft density 2" x 14" set up #180 grit oil. | | | |
| (b) Chamfer rear end of bridge. | | | | | Lubricant - same as Step #1 | | | |
| (c) Chamfer top of step rear end of bridge. | | | | | | | | |
| (d) Polish top of rear tang - Note: First 5 Receivers off new wheel repolish. | | | | | | | | |
| OPERATION DESCRIPTION | | PART No. | 19767 | 20181 | 20182 | 18680<br>16849 | 23755 | 23756 |
| and chamfer Rough, finish polish [redacted] | | M/700 ADL | 26575 | 26576 | 26577 | | | |
| | | M/700 ADL | 26578 | 26579 | 26580 | | | |
| [redacted] | | | | | | | | |
| | | OCC. No. | | | | | | |
| | | STD. HRS/C | | | | | | |
| | | STD. No. | | | | | | |
| | | EFF. DATE | | | | | | |
| | | | | | | MDL. 700 - 700 ADL - 40X | | |

PART NAME Receiver COOLANT SET UP TIME MODEL No. 40X-721-722 - 725 OPER. No. 255

TYPE Rifle MACH. HRS. DEPT. No. 54 PAGE 1 OF 2

Polishing Dept.

RD-6461

R2527581

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

# PROCES RECORD

DATES AN REASONS FOR REVISIONS

5/16/56 - Change method - Moyer - 251296
12/19/57 - Add 725 - E Carr - 252676
10/25/61 - Remove step 6 - M/40X - Payne - 256697
4/4/61 - Remove Step #6 - Moyer - 255951
1/22/62 - Chg. grade - Payne - 256985 -
7/5/61 - Chg. dept. # - M&S - 256316
8/17/61 - Add 700 - 700 ADL - Payne - 256441

| TOOLS, GAGES AND EQUIPMENT | GA. OR CAL. | SPEED | FEED | APPROVAL AND DATES |
|---|---|---|---|---|
| Step #5. Finish polish radius 2 sides to blend over top front end and bridge on top rear end. NOTE: First 5 Receivers off new belt - repolish. | | | | Contact wheel compressed leather Medium soft density 4" x 14" Lightning metalite cloth abrasive belt Durabonded N.T.S 4" x 168" #180 grit oil Lubricant : same as step #1 |
| [redacted] | | | | [redacted] |

MDL
700-700ADL - 40X

PART NAME Receiver COOLANT SET UP TIME MODEL NO. 40X, 721, 722 -725 OPER. NO. 186
TYPE Rifle MACH. HRS. DEPT. NO. [redacted]54 PAGE 2 OF 2
MACHINE Polishing Jack

RD-6483

R2527582

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON



# PROCESS RECORDS

DATES AND REASONS FOR REVISIONS 4/4/61 - New method - WH- ERC - Moyer - 255951
8/18/61 - Add M/700 - 700 ADL - Payne - 256441
9/6/61 - Remove M/40X - Payne - 256559
10/25/61 - Reinstate M/40X - Payne - 256697
1/22/62 - Chg. grade - Payne - 256985

| TOOLS, GAGES AND EQUIPMENT | GA. OR CAL. | APPROVAL AND DATES 721 | 722 | 722-222 | 40X | 725(Long) | 725 (Short) |
|---|---|---|---|---|---|---|---|
| SPEED / FEED | | | | | | | |
| OPERATION DESCRIPTION | PART NO. | 20181 | 20182 | 18680 | [redacted] | 23755 | 23756 |
| | M/700ADL | 26575 | 26576 | 26577 | 19767 | | |
| | M /700[redacted]DL | 26578 | 26579 | 26580 | | | |
| | | | | M/725-222 | | | |
| | | | | 16849 | | | |
| Vibrator Finish | | | | | | | |
| ([redacted]r) | | | | | | | |
| | | | | | [redacted]DL | | |
| | | | | | 700 - 700 ADL | | |

PART NAME Receiver COOLANT SET UP TIME MODEL No. 721-722-[redacted]-725-40X OPER No. 188-1
TYPE MACHINE Lorco Vibrator DEPT No. 70 PAGE 1 OF 1

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R2527583

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

# PROCESS RECORDS

DATES AND REASONS FOR REVISIONS

4/4/61 - New method - W.Moyer - 255951
8/18/61 - Add M/700 - 700 ADL - Payne - 256441
9/6/61 - Remove 40X - Payne - 256550
10/25/61 - Reinstate M/40X - Payne - 256697
1/22/62 - Chg. grade - Payne - 256985

| TOOLS, GAGES AND EQUIPMENT | GA. OR CAL | APPROVAL AND DATES 721 | 722 | 722-222 | [redacted] | 725 (long) | 725 (Short) |
|---|---|---|---|---|---|---|---|
| SPEED / FEED | | | | | | | |
| OPERATION DESCRIPTION | PART NO. | 20181 | 20182 | 18680 | [redacted] 19767 | 23755 | 23756 |
| | | | | 725 - 222 16849 | | | |
| | M/700 ADL | 26575 | 26576 | 26577 | | | |
| Remove chips that have lodged in Receiver. | M/700 [redacted] DL | 26578 | 26579 | 26580 | | | |
| ([redacted]) | | | | | | | |

PART NAME Receiver COOLANT SET UP TIME MODEL No [redacted] DL 700 - 700 ADL - 40X 721-722-[redacted]-725 OPER No 188-2

TYPE MACHINE DEPT No 70 PAGE 1 OF 1

R2527584

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON



# PROCES_ RECORDS

DATES AND REASONS FOR REVISIONS 10/30/57 - Added operation - ERCarr - 252593 -
4/29/58 - Added 725 - 222 - ZK -253021
7/5/61 - Chg. dept. # - M&S - 256316
8/18/61 - Add note - Payne - 256441

| TOOLS GAGES AND EQUIPMENT | GA OR CAL | APPROVAL AND DATES: 725 Long | 725 Short | 725 - 222 | | | |
|---|---|---|---|---|---|---|---|
| SPEED / FEED | | | | | | | |
| OPERATION DESCRIPTION | PART No. | 23755 | 23756 | 16849 | | | |
| Coarse Blast Exterior (M/725 only) | OCC No | | | | | | |
| | STD. HRS/C | | | | | | |
| | STD. No. | | | | | | |
| | EFF. DATE | | | | | | |

PART NAME Receiver COOLANT SET UP TIME MODEL No 725 OPER No 189
TYPE Semi-Automatic Pressure Blast MACH HRS DEPT No [redacted]54 PAGE 1 OF 1

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R2527585

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

87

# PROCESS RECORDS

DATES AND REASONS FOR REVISIONS 10/30/57 - Added operation - ERCarr - 252593 -
4/29/58 - Added 725 - 222 - ZK -253021
7/5/61 - Chg. dept. # - M&S - 256316
8/18/61 - Add note - Payne - 256441
2/9/62 - Obsolete - Payne - 257092 -

| TOOLS GAGES AND EQUIPMENT | GA OR CAL. | 725 Long | 725 Short | 725 - 222 |
|---|---|---|---|---|
| SPEED / FEED | | | | |
| OPERATION DESCRIPTION | PART No | 23755 | 23756 | 18049 |
| Coarse Blast Exterior (M/725 only) | OCC No. | | | |
| | STD HRS/C | | | |
| | STD. No | | | |
| | EFF DATE | | | |

APPROVAL AND DATES

PART NAME Receiver COOLANT SET UP TIME MODEL No 725 OPER No 189
TYPE Semi-Automatic Pressure Blast MACH. HRS. DEPT No 354 PAGE 1 OF 1

RD 6401

R2527586

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON



# PROCESS RECORDS

DATES AND REASONS FOR REVISIONS 10/30/57 - Added operation - ERCarr - 252593 -
4/29/58 - Added 725 - 222 - ZK - 253021
7/5/61 - Chg. dept. # - M&S - 256316
8/18/61 - Add note - Payne - 256441
2/9/62 - Remove 721,722,725 - Payne- 257092 -

| TOOLS, GAGES AND EQUIPMENT | GA. OR CAL. | APPROVAL AND DATES | | |
|---|---|---|---|---|
| SPEED / FEED | | 725 (Long) | 725 (Short) | 725 - 222 |
| OPERATION DESCRIPTION | PART No. | 23755 | 23756 | 16[illegible] |
| Fire Blast Exterior<br>(M/725 only) | OCC No. | | | |
| | STD. HRS/C | | | |
| | STD No. | | | |
| | EFF. DATE | | | |

PART NAME Receiver COOLANT SET UP TIME MODEL No 725 OPER No 193
TYPE Semi-Automatic Pressure Blast MACH HRS. DEPT. No 54[redacted] PAGE 1 OF 1

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R2527587

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

# PROCESS RECORDS

DATES AND REASONS FOR REVISIONS 9/6/61 - Reinstated for M/40X only) - Payne - 256550
10/25/61 - Remove op. from process - Payne - 256697

| TOOLS GAGES AND EQUIPMENT | GA OR CAL | APPROVAL AND DATES |
|---|---|---|
| SPEED / FEED | 40X | |
| Step #1 File to break inside edges of right Ejection Port rail, inside edges of rear tang. Sample Dated 7/20/59 | 6" Mill bastard file<br>6" #2-1/2 round file. | |

| OPERATION DESCRIPTION | PART NO |
|---|---|
| File to break edges (M/40X only) | 19767 |

PART NAME Receiver
TYPE Rifle
COOLANT
SET UP TIME
MACHINE
MODEL No 40X
DEPT No 54
OPER No 192
PAGE 1 OF 1

R2527588

# PROCESS RECORDS

DATES AND REASONS FOR REVISIONS 10/30/57 - Added operation - EKCarr - 252593 -
4/29/58 - Added 725 - 222 - ZK - 253021
7/5/61 - Chg. dept. # - M&S - 256316
8/18/61 - Add note - Payne - 256441

| TOOLS GAGES AND EQUIPMENT | GA OR CAL | APPROVAL AND DATES | | | | | |
|---|---|---|---|---|---|---|---|
| SPEED / FEED | | 725 (Long) | 725 (Short) | 725 - 222 | | | |
| OPERATION DESCRIPTION | PART No | 23755 | 23756 | 16849 | | | |
| Fire Blast Exterior<br>(M/725 only) | | | | | | | |
| | OCC No. | | | | | | |
| | STD. HRS/C | | | | | | |
| | STD. No. | | | | | | |
| | EFF. DATE | | | | | | |

PART NAME Receiver COOLANT SET UP TIME MODEL No 725 OPER No 193
TYPE Semi-Automatic Pressure Blast MACH. HRS. DEPT. No 54 [redacted] PAGE 1 OF 1

RD 6461

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

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KINZER V. REMINGTON

# PROCESS RECORDS

DATES AND REASONS FOR REVISIONS 8/18/61 - Added 700ADL - Payne - 256441 -
1/22/62 - Chg. grade - Payne - 256985

APPROVAL AND DATES

| TOOLS GAGES AND EQUIPMENT | GA OR CAL | SPEED | FEED | OPERATION DESCRIPTION | PART NO | 26578 | 26579 | 26580 |
|---|---|---|---|---|---|---|---|---|
| | | | | ADL Grit Blas - 700 ~~ADL~~ only | | | | |

PART NAME Receiver COOLANT SET UP TIME MODEL No 700 ~~ADL~~ ADL OPER No 194

TYPE MACHINE DEPT No 54 PAGE 1 OF 1

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R2527590

# PROCESS RECORDS

DATE AND REASONS FOR REVISIONS

9/6/61 - Reinstated for M/40X only_ Payne - 256550

10/25/61 - Obsolete - Payne- 256697

APPROVAL AND DATES

| TOOLS GAGES AND EQUIPMENT | GA OR CAL | 40X |
|---|---|---|
| SPEED / FEED | | |
| Step #1 | (a) Wire brush Ejection Port inside crosswise. | |
| | (b) Wire brush Bolt Handle slot. | |
| | (c) Wire brush rear tang crosswise. | |
| | (d) Turn Receiver wire brush Ejection Port inside crosswise. | |
| | (e) Wire brush rear tang crosswise. | |
| | (f) Proceed to wire brush all polished area including chamfered edges of rear tang lengthwise. | |

NOTE: Oil spray - Steel guard #1301

NOTE: Receivers to Assembly area - Dept. 56.

Sample Date and Number - 5/14/56 - #5616

| OPERATION DESCRIPTION | PART NO | 19767 |
|---|---|---|
| Wire brush | | |
| (M/40X only) | | |

PART NAME Receiver COOLANT SET UP TIME MODEL No 40X OPER No 196

TYPE Rifle MACHINE Polishing Jack DEPT No 54 PAGE 1 OF 1

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KINZER V. REMINGTON

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KINZER V. REMINGTON

# PROCESS RECORDS

DATES AND REASONS FOR REVISIONS 8/18/61 - Added 700 - 700 ADL - Payne - 256441

1/22/62 - Chg. grade - Payne - 256985

| TOOLS GAGES AND EQUIPMENT | GA OR CAL | SPEED | FEED | APPROVAL AND DATES |
|---|---|---|---|---|
| Vise - Std. | | | | |
| Tap - 1 1/16 NC - 16-3 | | | | |
| Tap Wrench - Std. | | | | |

| OPERATION DESCRIPTION | PART NO. | 721 | 722 | 722-222 | 725(Long) | 725 (Short) | 725-222 |
|---|---|---|---|---|---|---|---|
| | | 20181 | 20182 | 18680 | 23755 | 23756 | 16849 |
| | M/700 ADL | 26575 | 26576 | 26577 | | | |
| | M/700 BDL | 26578 | 26579 | 26580 | | | |
| Hand tap Barrel hole. | | | | | | | |

PART NAME Receiver COOLANT SET UP TIME MODEL No 700-700ADL-721-722-725 OPER No 195

TYPE MACHINE DEPT No 58 PAGE 1 OF 1

RD 6461

R2527592

# PROCESS RECORDS

DATES AND REASONS FOR REVISIONS 9/19/61 - Retyped from 9/15/61 [illegible] - REMOVE M/721-722 725-4 P.
10/11/61 - Add note and gages - Payne - 256670
1/22/62 - Chg. grade - Payne - 256985

APPROVAL AND DATES

| TOOLS GAGES AND EQUIPMENT | GA OR CAL | M/~~721~~ 700 LONG | M/~~722~~ 700 SHORT | M/~~722~~ 700 -.222 ~~M/725-222~~ | M/40X | ~~M/725 (Long)~~ | ~~725 (short)~~ |
|---|---|---|---|---|---|---|---|
| SPEED / FEED | | | | | | | |
| Cupped Wheel | | Std. | Std. | Std. | Std. | Std. | Std. |
| * Grinding Fixture | | B84137 | B-84137 | B-84137 | B-84137 | B-84137 | B-84137 |
| Plug Gage | | B-82781 | B-82781 | B-82781 | B-82781 | B-82781 | B-82781 |
| Remove approximately 80% of the machined surface by grinding. | | | | | | | |
| Use Magnetic Dial with gage | | D-71154 | D-71154 | D-71154 | D-71154 | D-71154 | D-71154 |

NOTE: Using above gages - T.I.R. must not exceed .010 at rear of Receiver (Check 3 consecutive Receivers To check squareness: every 30 pieces.)

1. ~~Assemble Receiver to master Barrel. Tighten with wrench. Use new Barrel Bracket with each Receiver assembled.~~
2. ~~Place on bench centers locating in muzzle and Bolt hole.~~
3. ~~Runout from left to right side at front of Receiver not to exceed .003 T.I.R. Check 3 consecutive pieces.~~
4. ~~Master Barrel selected for zero runout at muzzle on Gg. D-82264.~~

Changed to OP 200

| OPERATION DESCRIPTION | PART NO | ~~20181~~ | ~~20182~~ | ~~18680~~ ~~16849~~ | 19767 | ~~23755~~ | ~~23756~~ |
|---|---|---|---|---|---|---|---|
| Grind front face square, and sort with master bolt and plug gage to segregate receivers requiring fitting, polishing or draw filing. | M/700ADL | 26575 | 26576 | 26577 | | | |
| | M/700BDL | 26578 | 26579 | 26580 | | | |

* Locate bottom of Receiver in Vee Block

PART NAME Receiver COOLANT SET UP TIME MODEL No. 700-700ADL - ~~721 - 722~~ BDL 40X-~~725~~ OPER No 182

TYPE MACHINE Surface Grinder DEPT No 54 PAGE 1 OF 1

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KINZER V. REMINGTON

# PROCESS RECORDS

Payne

DATES AND REASONS FOR REVISIONS: 2/5/62 - Was operation 182 - Payne - 257039

| SPEED | FEED | TOOLS GAGES AND EQUIPMENT | GA OR CAL | M/721 | M/722 | M/722-.222 M/725-.222 | M/40X | M/725 (Long) | 725 (Short) |
|---|---|---|---|---|---|---|---|---|---|
| | | Cupped Wheel | | Std. | Std. | Std. | Std. | Std. | Std. |
| | * | Grinding Fixture | | B-84137 | B-84137 | B-84137 | B-84137 | B-84137 | B-84137 |
| | | Plug Gage | | B-82781 | B-82781 | B-82781 | B-82781 | B-82781 | B-82781 |
| | | Remove approximately 80% of the machined surface by grinding. | | | | | | | |
| | | NOTE: Using above gages - T.I.R. must not exceed .010 at rear of Receiver (Check 3 consecutive Receivers every 30 pieces.) | | | | | | | |

| OPERATION DESCRIPTION | PART NO. | 20181 | 20182 | 18680 16849 | 19767 | 23755 | 23756 |
|---|---|---|---|---|---|---|---|
| | M/700ADL | 26575 | 26576 | 26577 | | | |
| Grind front face square, and sort with master bolt and plug gage to segregate receivers requiring fitting, polishing or draw filing. All rejects to be returned to Dept. 54. | M/700BDL | 26578 | 26579 | 26580 | | | |
| | | | | * Locate bottom of Receiver in Vee Block | | | |

PART NAME: Receiver — COOLANT — SET UP TIME — MODEL No.: 700BDL-700ADL-721-722-40X-725 — OPER. No: 200

TYPE — MACHINE: Surface Grinder — DEPT No: 58 — PAGE: 1 — OF: 1

RD 6461

R2527594

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

PROCES: RECORDS

DATES AND REASONS FOR REVISIONS 9/19/61 - Retyped from 9/15/61
10/11/61 - Add note and gages - Payne - 256670
1/22/62 - Chg. grade - Payne - 256985
2/5/62 - Obsolete - Payne - 257039

| TOOLS GAGES AND EQUIPMENT | GA OR CAL | APPROVAL AND DATES M/721 | M/722 | M/722-.222 M/725-222 | M/40X | M/725(Long) | 725 (short) |
|---|---|---|---|---|---|---|---|
| Cupped Wheel | | Std. | Std. | Std. | Std. | Std. | Std. |
| * Grinding Fixture | | B-84137 | B-84137 | B-84137 | B-84137 | B-84137 | B-84137 |
| Plug Gage | | B-82781 | B-82781 | B-82781 | B-82781 | B-82781 | B-82781 |
| Remove approximately 80% of the machined surface by grinding. | | | | | | | |
| Use Magnetic Dial with gage | | D-71154 | D-71154 | D-71154 | D-71154 | D-71154 | D-71154 |

NOTE: Using above gages - T.I.R. must not exceed .010 at rear of Receiver (Check 3 consecutive Receivers every 30 pieces.)

To check squareness:

1. Assemble Receiver to master Barrel. Tighten with wrench. Use new Barrel Bracket with each Receiver assembled.
2. Place on bench centers locating in muzzle and Bolt hole.
3. Runout from left to right side at front of Receiver not to exceed .003 T.I.R. Check 3 consecutive pieces.
4. Master Barrel selected for zero runout at muzzle end.

Changed to OP200

| OPERATION DESCRIPTION | PART NO | 20181 | 20182 | 18680 16849 | 19767 | 23755 | 23756 |
|---|---|---|---|---|---|---|---|
| Grind front face square, and sort with master bolt and plug gage to segregate receivers requiring fitting, polishing or draw filing. | M/700ADL | 26575 | 26576 | 26577 | | | |
| | M/700BDL | 26578 | 26579 | 26580 | | | |

* Locate bottom of Receiver in Vee Block

BDL
700-700ADL - 721 - 722-

PART NAME Receiver COOLANT SET UP TIME MODEL No 40X-725 OPER No 182

TYPE MACHINE Surface Grinder DEPT No 54 PAGE 1 OF 1

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R2527595

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

12/20/60 - Retyped from 11/23/60 -
4/12/61 - Add equipment and pt. nos. - Payne - 256025

| | 30-06 | 35 Rem. | 270 Win. | 308 Win. | 280 Rem. |
|---|---|---|---|---|---|
| FIXTURE | E-85356 | E-85356 | E-85356 | E-85356 | E-85356 |
| ~~Drill Jig FIXTURE~~ COLLET | ~~D-82239~~ 1-E-939 | ~~D-82239~~ 1-E-939 | ~~D-82239~~ 1-E-939 | ~~D-82239~~ 1-E-939 | ~~D-82239~~ 1-E-939 |
| Special Drill | A-82158 | A-82158 | A-82158 | A-82158 | A-82158 |
| Tap - 6-48 NS-2 | B-90187J | B-90187J | B-90187J | B-90187J | B-90187J |
| VEE BLOCK ~~Plug Ga. for drill~~ FOR M/742 REG | B-85356-D | | | B-85356-D | B-85356-D |
| PLUG GA Hole dia. and depth | B-80240R | B-80240R | B-80240R | B-80240R | B-80240R |
| Thread Plug Ga. dia. & depth | B-80246 | B-80246 | B-80246 | B-80246 | B-80246 |
| Pinning Ga. | B-82254 | B-82254 | B-82254 | B-82254 | B-82254 |
| Base Ga. - Radial location | E-83826 | E-83826 | E-83826 | E-83826 | E-83826 |
| Ga. for span of holes (Carbine) | B-84109 | B-84109 | B-84109 | B-84109 | B-84109 |
| Pos. Ga. Carbine | B-84110 | B-84110 | B-84110 | B-84110 | B-84110 |
| Pos. Ga. Reg. Length | B-84111 | B-84111 | B-84111 | B-84111 | B-84111 |
| Base Ga. | D-82451 | D-82451 | D-82451 | D-82451 | D-82451 |
| Dial | D-82705W | D-82705W | D-82705W | D-82705W | D-82705W |
| Pin Block | D-82451P | D-82451P | D-82451P | D-82451P | D-82451P |
| Loc. Block BOTH ~~Reg.~~ Length | ~~E-85356~~ A-82451A | ~~E-85356~~ A-82451A | ~~E-85356~~ A-82451A | ~~E-85356~~ A-82451A | A-82451A E-85356 A |
| VEE ~~Loc.~~ Block Carbine AND M/760 REG | ~~D-82451F~~ | ~~D-82451F~~ | ~~D-82451F~~ | ~~D-82451F~~ | ~~D-82451F~~ E85356-C |
| END MILL | A-54453 | A-54453 | A-54453 | A-54453 | A-54453 |
| DOVETAIL CUTTER | 27-E-354 | 27-E-354 | 27-E-354 | 27-E-354 | 27-E-354 |
| PLUG WIDTH & ANGLE OF DOVETAIL | B-72553 | B-72553 | B-72553 | B-72553 | B-72553 |
| TEMPLATE-POS. OF F. DOVETAIL SLOT | C-69325 | C-69325 | C-69325 | C-69325 | C-69325 |
| " " OF S. SLOT | C-83709 | C-83709 | C-83709 | C-83709 | C-83709 |
| FLUSH PIN GA. FOR DEPTH | A-82130 | A-82130 | A-82130 | A-82130 | A-82130 |
| GAGE FOR CUTTER WEAR | A-83901 | A-83901 | A-83901 | A-83901 | A-83901 |
| M/740-42 | 24625 | | | 24626 | 24628 |
| MILL FRONT DOVETAIL SLOT, M/760 | 24615 | 24617 | 24618 | 24619 | 24621 |
| M/760C | 25915 | | 25917 | 25918 | 25916 |
| Drill and tap 2 Rear Sight Screw holes, AND BURR FRONT DOVETAIL SLOT M/742C | 26195 | | | 26196 | 26197 |



R2527596

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

# PROCESS RECORDS

DATES AND REASONS FOR REVISIONS 11/23/60 - Retyped - Added M/742C - ECR - 255575 11/6 COMBINED WITH OP 121 NP
3/17/61 - Add temp. ga. for carbines - ECR - 255940
4/12/61 - Add ga. and pt. nos. - and remove burr tool - Payne - 256025
8/31/61 - Remove gage - Payne - 256499

| TOOLING GAGES AND EQUIPMENT SPEC | GA OR CAL | APPROVAL AND DATES 30-06 | 35 Rem. | 270 Win. | 308 Win. | 280 Rem. |
|---|---|---|---|---|---|---|
| ~~Fixture~~ | | ~~D-64542~~ | ~~D-64542~~ | ~~D-64542~~ | ~~D-64542~~ | ~~D-64542~~ |
| ~~Double End~~ - End Mill | | A-54453 | A-54453 | A-54453 | A-54453 | A-54453 |
| Dovetail Cutter | | 27E-354 | 27E-354 | 27E-354 | 27E-354 | 27E-354 |
| Plug Width and angle of Dovetail | | B-72553 | B-72553 | B-72553 | B-72553 | B-72553 |
| Template - Position of front dovetail slot. (Long Bbls.) | | C-69325 | C-69325 | C-69325 | C-69325 | C-69325 |
| ~~Dial Base Ga. for squareness~~ | | ~~D-64378~~ | ~~D-64378~~ | ~~D-64378~~ | ~~D-64378~~ | ~~D-64378~~ |
| ~~Locating Block~~ | | B-68209 | B-68209 | B-68209 | B-68209 | B-68209 |
| ~~End mill and dovetail cutter~~ 3/8" collet | | ~~Std.~~ | ~~Std.~~ | ~~Std.~~ | ~~Std.~~ | Std. |
| ~~Chamber plugs for Location~~ | | ~~D-64542W~~ | ~~D-64542T~~ | ~~D-64542W~~ | ~~D-64542B~~ | ~~D-64542N~~ |
| ~~Barring Tool~~ | | ~~C-73502~~ | ~~C-73502~~ | ~~C-73502~~ | ~~C-73502~~ | ~~C-73502~~ |
| Last Gage for cutter wear. | | A-83901 | A-83901 | A-83901 | A-83901 | A-83901 |
| Flush Pin Ga. for depth | | A-82130 | A-82130 | A-82130 | A-82130 | A-82130 |
| ~~Steady Rest Pad~~ | | ~~B-84020~~ | ~~B-84020~~ | ~~B-84020~~ | ~~B-84020~~ | ~~B-84020~~ |
| ~~Template - Position of front dovetail slot (Carbine Bbl.s)~~ | | ~~C-83709~~ | | ~~C-83709~~ | ~~C-83709~~ | ~~C-83709~~ |
| Template - Pos. S. slot-Carbine | | C-83709 | C-83709 | C-83709 | C-83709 | C-83709 |

Obsolete

| OPERATION DESCRIPTION | PART NO. | | | | | |
|---|---|---|---|---|---|---|
| | 740-42 | 24625 | | | 24626 | 24628 |
| | M/760 | 24615 | 24617 | 24618 | 24619 | 24621 |
| | M/760C | 25915 | | 25917 | 25918 | 25916 |
| | M/742C | 26195 | | | 26196 | 26197 |
| Mill Front dovetail slot and burr. | | | | | | |

PART NAME Barrel Assembly COOLANT SET UP TIME MODEL No 740 - 760-742 OPER No 112
TYPE MACHINE Special Kingsbury Machine DEPT No 58 PAGE 1 OF 1

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R2527597

MODEL 721 - 722

8/23/60

244 Cal. - obsolescence -

| Model | Est. 1960 sales | Bal. to ship 7/31 | Whse Stock 7/31 | Excess Guns | Excess Components: Barrels | Complete | |
|---|---|---|---|---|---|---|---|
| 722 | 500 | 168 | 85 | 0 | | 0 | Bbl Blank |
| 725 | [illegible] | 94 | 196 | 150 | | 3 | 400 |
| 740 | 140 | 57 | 940 | 883 | OS<br>NS | 250<br>200 | |
| 760 | 47 | 0 | 0 | 0 | ~~OS~~<br>~~NS~~ | ~~12~~<br>~~0~~ | |

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8/23/60

244 Oil - [illegible] -

| Model | Est. 1960 sales | Bal. to [illegible] 7/31 | Wire Stock 7/31 | Excess Quad | Excess Components: Barrels | Excess Components: Complete | |
|---|---|---|---|---|---|---|---|
| 722 | 500 | 168 | 88 | 0 | | 0 | Bal [illegible] |
| 725 | 222 | 94 | 196 | 156 | | 3 | |
| 740 | 140 | 57 | 940 | 880 | [illegible] | 250 | |
| | | | | | [illegible] | 200 | SIGHT LINE |
| 760 | 47 | 0 | 0 | 0 | [illegible] | [illegible] | |

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
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7/11/60

Determine quantity of 721-722 stocks to remain due to Sporter introduction

| | Total 1959 | Est. for 1960 | Shipped 6/30/60 | Whse stock 6/30/60 | Bal. to Produce |
|---|---|---|---|---|---|
| 30/06 | 3789 | 3800 | 1340 | 1063 | 1397 |
| 270 | 1387 | 1400 | 555 | 446 | 399 |
| 300 Mag | 528 | 530 | 216 | 226 | 88 |
| 308 | 474 | 475 | 294 | 280 | 101 |
| 257 | 398 | 408 | 68 | 4 | — |
| 244 | 705 | 500 | 289 | 117 | 94 |
| 222 | 1028 | 1450 | 1177 | 355 | 318 |
| 222 Mag | 259 | 830 | 359 | 45 | 116 |
| 280 | — | 600 | 258 | 360 | 38 |
| 243 | — | 1300 | 481 | 102 | 517 |
| Total | 10258 | 11243 | 5239 | 3018 | 3030 |

7/14/60 - Have over assembled 222 Mag.

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# #3 F'cast. 6/13

## 1959 - Production vs Schedule

| 1959 | Sched. Mfr Apr May | Returns | Diff. | | Total 1959 | Left for 1960 ? | Shipped 5/31 | Wkly Stock 5/31 | Back to Product | Shipped 6/30 | | | | | Back to Ship |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 30/06 | 500 | 811 | 311 | | 3789 | 3800 | 1090 | 1173 | 1537 | 1340 | 1000 | | | | 2710 |
| 270 | 200 | 238 | 38 | | 1387 | 1400 | 451 | 544 | 405 | | 8 | | | | 949 |
| 300 Mag | 221 | 284 | 83 | | 528 | 530 | 174 | 234 | 122 | | 38 | | | | 356 |
| 308 | 0 | 4 | 4 | | 674 | 675 | 252 | 310 | 113 | | 0 | | | | 423 |
| 300 Sav | | | | | | | | | | | | | | | |
| 257 | | 3 | 3 | | 395 | 67 | 67 | | | | | | | | |
| 244 | 120 | 179 | 241 | | 705 | 500 | 256 | 114 | 130 | | 200 | | | | 244 |
| 22 | 873 | 873 | (21) | | 1988 | 1850 | 1040 | 356 | 454 | | 100 1000 +1 | | | | 810 |
| 22 Mag | 280 | 285 | 5 | | 459 | 520 | 307 | 101 | 112 | | 300 | | | | 213 |
| 280 | 325 | 255 | 70 | | — | 600 | 240 | 397 | 37 | | | | | | — |
| 243 | 600 | 0 | 600 | | — | 1300 | — | — | 1300 | | 700 | | | | 1300 |
| Total | 2925 | | | | 10258 | 11000 | | | | | | | | | |
| | | | | | | 11242 | 3879 | 3229 | 4173 | | | | | | |
| | 2765 Mfr White | 2416 | 349 | | | - Sales Agreement - | | | | | | | | | |
| | | June | July | Aug | Sept | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | June | |
| 30/06 | 300 | 320 320 | 415 735 | 388 1123 | 735 1858 | 361 2219 | 157 2376 | 77 2453 | 146 2599 | 101 2700 | 100 2800 | 145 2945 | 400 3345 | 520 3865 | |
| 270 | 100 | 126 226 | 156 382 | 287 669 | 196 865 | 143 1008 | 70 1078 | 22 1100 | 74 1174 | 60 1234 | 40 1274 | 45 1319 | 250 1569 | 134 1703 | |
| 300 Mag | 50 | 43 93 | 98 191 | 73 264 | 67 331 | 47 378 | 11 389 | 22 411 | 27 438 | 16 454 | 20 474 | 25 499 | 90 589 | 43 632 | |
| 308 | 60 | 37 97 | 63 160 | 119 279 | 103 382 | 41 423 | 40 463 | 24 487 | 30 517 | 30 547 | 20 567 | 40 607 | 130 737 | 37 774 | |
| 244 | 80 | 29 | 47 156 | 85 241 | 68 309 | 46 355 | 29 384 | 17 401 | 50 451 | 50 501 | 40 541 | 40 581 | 100 681 | 29 710 | |
| 22 | 100 | 151 251 | 208 459 | 138 597 | 127 724 | 114 838 | 42 880 | 66 946 | 166 1112 | 130 1242 | 160 1402 | 160 1562 | 400 1962 | 151 2113 | |
| 22 Mag | 40 | 51 91 | 85 176 | 59 235 | 43 278 | 44 322 | 15 337 | 11 348 | 50 398 | 70 468 | 60 528 | 60 588 | 140 728 | 51 779 | |
| 280 | 100 | 37 137 | 63 200 | 119 319 | 103 422 | 41 463 | 40 503 | 24 527 | 40 567 | 60 617 | 40 657 | 40 697 | 200 897 | 37 934 | |
| 243 | 150 | 600 750 | 156 906 | 287 1193 | 1394 | 143 1488 | 70 1558 | 22 1580 | 50 1630 | 60 1690 | 140 1830 | 100 1930 | 300 2230 | 120 2350 | |
| Total | 980 | 1000 | 1200 | 1200 | 1400 | 900 | 500 | 300 | 700 | 500 | 800 | 800 | 1700 | 1200 | |
| | White Stock | | | | | Production | | | 633 | 567 | | | | | |
| 30/06 | 1173 | 100 273 | 300 573 | 485 1058 | 200 1258 | 365 1623 | 945 2568 | 3568 | 3568 | 3568 | 90 3658 | 908 4566 | 4566 | 4566 | |
| 270 | 544 | 544 | 544 | 544 | 500 1044 | | | 1044 | 1044 | 1044 | 1044 | 1044 | 1044 | 1044 | |
| 300 Mag | 234 | 234 | 234 | 234 | 200 434 | 434 | 434 | 600 834 | 120 954 | 80 1034 | 634 | 634 | 634 | 634 | |
| 308 | 310 | 310 | 310 | 310 | 300 610 | 610 | 610 | 610 | 610 | 610 | 450 1060 | 1060 | 1060 | 1060 | |
| 244 | 114 | | 300 414 | 414 | 414 | 414 | 414 | 414 | | 350 764 | 764 | 764 | 764 | 764 | |
| 22 | 356 | 410 766 | 200 966 | 966 | 966 | 966 | 966 | 966 | 600 1566 | 1566 | 1566 | 5 1566 | 698 2264 | 1000 2264 | K |
| 22 Mag | 101 | | 250 351 | 351 | 351 | 351 | 351 | 351 | 300 651 | 651 | 651 | 651 | 300 951 | 951 | K |
| 280 | 397 | 397 | 397 | 397 | 397 | 508 905 | 847 1752 | 847 | 847 | 847 | 847 | 847 | 847 | 847 | |
| 243 | — | 700 | 850 1550 | 500 2050 | 1550 | 1550 | 1550 | 1550 | 1550 | 550 2100 | 450 2550 | 2550 | 2550 | 2550 | |
| Total | | 1210 | 1000 | 650 | 1050 | 965 | 1865 | 500 | 1050 | 1000 | 1400 | 1000 | 1100 | 1100 | |
| | | | 1300 | 965 | 1245 | | | 720 | 945 900 | 900 | 990 | 900 | 990 | 990 | |

R2527604

4/29/60

Determine max quantity of 721-722 stocks to run in view of check p.c.

| | | Whse Stock 4/30 | Process stocks | | | | Est Req'd 5-1 12/31 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 721 Reg | 30/06 | 1476 | 660 | | | | 2981 | | | | | | | | | |
| | 270 | 795 | | | | | 1172 | | 4723 | | | | 1300 | | | |
| | 280 | 498 | | | | | 570 | | | | | | | | | |
| | 300 Mag | 107 | 415 | | | | 436 | | | | | | 0 | | | |
| 722 | 308 | 472 | 1096 | 1610 | | | 546 | | 2129 | | | | | | | |
| | 244 | 42 | | | | | 333 | | | | | | | | | |
| | 243 | — | | | | | 1250 | | | | | | | | | |
| | 222 | 681 | 501 | 1418 | | | 1236 | | 1686 | | | | | | | |
| | 222 Mag | 236 | | | | | 450 | | | | | | | | | |

not more than 300 more 5/10

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

5-88

# DON'T SAY IT—WRITE IT

TO Ant

DATE 4/21/61

FROM KRJ

7/1

Assembly - 721 - 660

722 - 308/244 - 96

722 222/mag - 57

721 mag - 44 . 400

process - 721 mag - 415

722 - 308/244 - 1096

THERE IS A SAFE WAY; DO IT THAT WAY

4/21/60

Status of stock damage 721-7xx-725 - 3/31/60

| | | Future stock 3/31 | Stocks on hand | Exhaust date #2 F'cast | Exh date based on shipment |
|---|---|---|---|---|---|
| 721 | 30/06 | 124x · x16 | 660 (1478) | July | Oct - Nov. |
| | 270 | 800 · 37 | (837) | Aug | Jan. 61 |
| | 280 | 497 · 11 | (508) | Sept | Nov. |
| | 300 Mag. | 70 · 17 | 44 · 415 (546) | Nov. 61 | ? |
| 7xx | 308 | 508 | (508) | Oct. | Jan. 61 |
| | x44 | 74 | 96 - 1096 (1266) | June | Jan 61 |
| | 243 | | 0 | June | Jan 61 |
| | 7xx | 585 - 137 | (7xx) | June | Jan 61 |
| | 7xx Mag. | 28x · 3 | 57 (34x) | July | Jan 61 |

| | | | | | |
|---|---|---|---|---|---|
| 725 | 306 | 1232 | xx30 (3873) | May '61 | |
| | 270 | 210 | | May '61 | |
| | 280 | 201 | | May '61 | |
| | 244 | 79 | 830 | Dec '60 | |
| | 243 | — | | Dec '60 | |
| | 22x | 218 | 1839 | 3-4 yrs. (1959, 1st yr, 60x) | |

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

721-722 F'cast #2 1960 3/25/60

| 1959 | | Min whse | Mar | Apr | May | June | July | Aug | Sept | Oct | Nov | Dec | Jan | Feb | Mar |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Sales | | | | | | | | |
| 37 | 721 30/06 | 300 | 246 546 | 145 91 | 538 1229 | 320 1549 | 412 1961 | 399 2360 | 729 3089 | 361 3450 | 151 3601 | 71 3672 | 146 3818 | 100 3918 | 200 4118 |
| 13.5 | 270 | 125 | 44 169 | 47 216 | 254 470 | 126 596 | 156 752 | 207 959 | 194 1153 | 143 1296 | 70 1366 | 22 1388 | 62 1450 | 59 1509 | 44 1553 |
| 5.2 | 300 Mag | 50 | 26 76 | 23 99 | 83 182 | 43 225 | 90 315 | 73 388 | 67 455 | 47 502 | 11 513 | 22 535 | 27 562 | 16 578 | 26 604 |
| | 280 | 125 | 125 | 50 175 | 150 325 | 100 425 | 100 525 | 50 575 | 50 625 | 50 675 | 50 725 | 20 745 | 50 795 | 50 845 | 50 895 |
| 6.6 | 722 308 | 100 | 21 121 | 38 159 | 119 278 | 37 315 | 63 378 | 119 497 | 103 600 | 41 641 | 40 681 | 24 705 | 29 734 | 23 757 | 21 778 |
| 6.9 | 244 | 100 | 51 151 | 40 191 | 90 281 | 20 301 | 35 336 | 70 406 | 55 461 | 30 491 | 20 511 | 13 524 | 50 574 | 50 624 | 50 674 |
| | 243 | 100 | 300 400 | 100 500 | 200 700 | 100 800 | 100 900 | 100 1000 | 100 1100 | 100 1200 | 100 1300 | 50 1350 | 30 1380 | 30 1410 | 30 1440 |
| 19.4 | 222 | 200 | 208 408 | 224 632 | 390 1022 | 151 1173 | 208 1381 | 138 1519 | 127 1646 | 114 1760 | 42 1802 | 66 1868 | 166 2034 | 143 2177 | 208 2385 |
| 7.4 | 222 Mag | 50 | 72 122 | 81 203 | 142 345 | 51 396 | 85 481 | 59 540 | 43 583 | 44 627 | 15 642 | 11 653 | 38 691 | 35 726 | 72 798 |
| | Total | 2000 | 968 | 800 | 1700 | 1000 | 1200 | 1200 | 1400 | 900 | 500 | 300 | 700 | 500 | 800 |
| | | | | 748 | 2066 | 948 | 1249 | 1215 | 1468 | 930 | 499 | | | | |
| | | | | | | | Production | | | | | | | | |
| | | whse stock | | | | | | | | | | | | | |
| 3260 1555 30.0 | 30/06 | 1215 | 50 | 450 1715 | 1715 | 1715 | 390 2105 | 410 2515 | 420 2935 | 900 3835 | 3835 | 3835 | 3835 | 3835 | 534 |
| 1367 617 11.9 | 270 | 646 | 200 | 846 | 846 | 846 | 846 | 175 1021 | 525 1546 | 1546 | 1546 | 1546 | 1546 | 1546 | 1546 |
| 528 185 3.6 | 300 Mag | 83 | 1 | 84 | 200 284 | 200 484 | 484 | 484 | 484 | 484 | 200 684 | 684 | 684 | 684 | 684 |
| 255 4.9 | 280 | 277 | 325 | 602 | 602 | 602 | 602 | 602 | 602 | 602 | 740 1342 | | | | |
| 674 316 6.1 | 308 | 515 | | 515 | 515 | 515 | 515 | 515 | 300 815 | 815 | 815 | 815 | 815 | 815 | 815 |
| 705 266 5.1 | 244 | 91 | 20 | 200 | 200 511 | 511 | 511 | 511 | 511 | 511 | 511 | | | 400 | |
| 656 12.7 | 243 | — | | | 600 600 | | 400 1000 | 400 1400 | 1400 | 1400 | 1400 | 1400 | 140 | 540 1400 | 500 1400 |
| 1988 1026 19.7 | 222 | 714 | 44 | 350 | 1108 | 490 1598 | 510 2108 | 2108 | 2108 | 2108 | 2108 | 452 2108 | 987 2108 | | |
| 759 397 5.9 | 222 Mag | 50 | 280 | 330 | 330 | 300 630 | 630 | 630 | 630 | 630 | 630 | 300 | | | |
| 5183 | Total | 3591 | 920 | 900 | 945 | 990 | 900 | 585 | 945 | 900 | 940 | 752 | 987 | 940 | 1034 |
| | | | | | | | 1300 | 985 | 1245 | | | | | | |

after 222
any 244?

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

Letter from Mitchell to Evans 11/4/59

Drop from line - 722 - 257 cal.

In Oper. Comm. minutes 11/4/59

Drop from line - 722 - 244 cal. (not yet approved) 12/8/59

cc- A.J. Brown
N.J. Hackman
E Dupp

cc: J.B. Mitchell
Paul Hickman
D.E. Miller
J.F. Finnegan

Bridgeport, Conn.
February 9, 1959

TO: S. M. ALVIS

FROM: W. H. FOSTER

SUBJECT: [redacted]

Confirming telephone conversation with John Finnegan, it would be Sales' opinion that barrel specifications on M/722 and 725 rifles in 222 and 244 Remington calibers be as follows:

| | [redacted] | [redacted] |
|---|---|---|
| Barrel Length | 24" | 22" |
| Weight | Heavy | Light |

WHF:lk

cc- HK Faulkner
DE Miller -

cc: [redacted]

July 22, 1959

TO: [redacted]

FROM: J. K. FENTON

SUBJECT: [redacted]

Shipments to date 1959
(114)

Effective July 24, orders for barreled actions for the above models will no longer be accepted. Would you please advise those persons in your department handling the above of this notice. There will be a [redacted] sent through in the usual manner regarding the above.

JKF:lk

P.S.

Any orders we may have on hand are to be taken care of as promptly as possible.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

3/30/59

check aper. domm. minutes - 722 244 cal. approved
for small dia. cbbl. same as 308.

M/7V1-7VV Barrel Assemblies

| | | | Sales 56 - 57 - 58 | Inv. |
|---|---|---|---|---|
| 7V1 | 30/06 | V3V05 | 0 - 1 - VV | 8V |
| | V70 | V06 | 6 - 3 - 10 | 71 |
| | 300 Mag. | V3V07 | 1V - 0 - 0 | 80 |
| 7VV | 300 Rem. | V3V08 (1985 Rel 13) | 0 - 0 - 0 | V7 |
| | V87 | V3V09 | 6 - 0 6 | 4V |
| | 308 | V3V11 | - - 6 | 38 |
| | VVV | V3V10 | 9 - V - 1V | 4V |
| | V4L | V3V1V | 0 - V - V | 2 |

20 available for

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

10/11/60

AJB.

Start up the 721-722-745
on paper.

ART

9/721 GUNS-ASSEM AREA 9/20

30/06-46

270-1

G-88

1359
183
1176

# DON'T SAY IT—WRITE IT

To _____ Date 9/18/60

From _____

721 — Stocks

Assembly house 288

wood shop 241

529

9/60.
Start 320 stocks

Jew. guns.

THERE IS A SAFE WAY; DO IT THAT WAY

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

8/20

721-722 - out off due to change to Sporter stock

Process stocks and assemble no more than these quantities - starting 8/15

| | | | Avg Prod | Dept |
|---|---|---|---|---|
| 721 | 30/06 - | 1011 | 183 | 462 |
| | 270 - | 348 | | 21 |
| | 300 mag | 54 | | |
| 722 | 308 | 96 | (1) | |
| | 244 | 83 | 7 | 8 |
| | 222 | 0 | 1 | 4 |
| | 222 mag | 0 | 4 | 2 |
| | ~~[illegible]~~ | ~~[illegible]~~ | ~~[illegible]~~ | 49 |
| 721 | 280 | 0 | | |

[illegible] no more [illegible] cal.

1357
589
770
47
723
529
194

7/22 - 222 cal.

Assemble - 30

M/760

#3 Feast - Sept - 2500

Shippable order thru 9/16/60 - 4348

Est. to rec. bal. of month 1310

5658

3780

1878

Avail. to ship - To produce.

| | | |
|---|---|---|
| 30/06 | 20 | 1230 |
| 30/06 e | 66 | 1600 |
| 300 | 10 | |
| 35 | 58 | |
| 270 | 240 | |
| 270 e | 8 | 800 |
| 257 | 257 | |
| 244 | — | |
| 308 | 251 | |
| 308 e | 65 | 150 |
| 222 | 480 | |
| 280 | 156 | |
| 280 e | 103 | |
| Total | | |

17337

16947

390

180

19

1620

180

3420

M/722-P

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

3-88

# DON'T SAY IT—WRITE IT

To C. H. MORSE
H. L. CHAMBERS

Date Feb. 1, 1961

From W. E. LEEK

**RECOMMENDED LOADING OF THE 223 CARTRIDGE - S. C. TOULSON**

Bullet: 55 grain metal case, 24½ grains of 4475 powder.

Measurements in a 22" barrel produced a velocity of 3275 fps, with a max. average pressure of 52,000 psi.

Accuracy specifications at 200 yards: Mean radius 1.5".

WEL:T

THERE IS A SAFE WAY; DO IT THAT WAY

R2527621

RD-69-B

# REMINGTON ARMS COMPANY, INC.

INTER-DEPARTMENTAL CORRESPONDENCE

Remington DUPONT PETERS DUPONT

"CONFINE YOUR LETTER TO ONE SUBJECT ONLY"_____

Ilion, New York
January 11, 1961

~~W. E. LEEK~~ WL

## COST ESTIMATE - XP-722

The following estimate was made to determine the approximate cost of the XP-722. Where parts similar to current model components are used, identical costs are assumed.

| Part Name | Standard Labor | Standard Material |
|---|---|---|
| Receiver | 1.1544 | .7588 |
| Barrel Bracket | .0249 | .0250 |
| Barrel | .5000 | .3900 |
| Trigger Housing | .0400 | .0400 |
| Trigger | .0416 | .0073 |
| Trigger Adjust. Screw | .0005 | .0108 |
| " Pin | - | .0057 |
| " Link Rollers (2) | - | .0200 |
| " Link Pins (2) | - | .0150 |
| Sear Housing | .0009 | .0040 |
| " Block | - | .0500 |
| " " Spring | - | .0077 |
| " " Screw | .0005 | .0108 |
| " " Pin | - | .0057 |
| Trigger Stop Screw | .0005 | .0108 |
| " Balance | .0300 | .0300 |
| " " Spring | .0050 | .0050 |
| " Link | .0400 | .0400 |
| Sear | .0238 | .0280 |
| " Pin | - | .0132 |
| Safety Cam | .0325 | .0290 |
| Bolt Stop | .0046 | .0439 |
| " " Pin | - | .0137 |
| " " Spring | - | .0096 |
| Safety | .0090 | .0633 |
| " Snap Washer | - | .0077 |
| " Pivot Pin | .0005 | .0087 |
| " Detent Ball | - | .0009 |
| " " " Spring | - | .0171 |
| Stock Bolt (Fwd.) | .0009 | .0192 |
| Stock Bolt (Rear) | .0009 | .0192 |

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

R2527622

| Part Name | Standard Labor | Standard Material |
|---|---|---|
| Main Spring | - | .0472 |
| Firing Pin | .0078 | .3101 |
| Bolt | .5901 | 1.4262 |
| Firing Pin Head | .0472 | .0627 |
| " " Cross Pin | .0005 | .0120 |
| Bolt Plug | .1090 | .0514 |
| Extractor | - | .1500 |
| Ejector | .0010 | .0740 |
| " Pin | .0004 | .0030 |
| " Spring | - | .0100 |
| Stock Assembly | .5000 | 1.0000 |
| Front Sight | .0500 | .0400 |
| Rear Sight Assembly | - | .2700 |
| Ventilated Rib | .0500 | .1000 |
| Rib & Sight Screws (4) | .0005 | .0050 |
| Receiver Plug Screws (6) | .0005 | .0050 |
| Final Assembly | .9290 | - |
| Test & Target | .1310 | - |
| Packing | - | .250 |
| Total | $ 4.33 | $ 5.52 |

Total Cost of Gun: $ 9.85

H. L. Chambers

HLC:T

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

RD-69-B

**REMINGTON ARMS COMPANY, INC.**

INTER-DEPARTMENTAL CORRESPONDENCE

Remington (DUPONT) PETERS (DUPONT)

"CONFINE YOUR LETTER TO ONE SUBJECT ONLY"

January 12, 1961

W. E. LEEK

XP-722 DESIGN SPECIFICATIONS

The following design specifications were set up in a meeting with H. L. Chambers and W. E. Leek on this date. These design features and specifications were established as criterions for a preliminary design.

1. Overall length - 15 inches
2. Barrel length - 10 inches
3. Lockup - double lug - Gewehr type
4. One-piece barrel and receiver
5. Semi-automatic - Gas Operated (Orifice 1/2 inch from muzzle- push rod over barrel - covered by rib)
6. Screw in receiver plug - rear
7. Craig or box magazine
8. Semi or full automatic - selector on receiver

s/ H L Chambers

H. L. Chambers
Arms Design Section

HLC:NL

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

RD-69-B

# REMINGTON ARMS COMPANY, INC.

INTER-DEPARTMENTAL CORRESPONDENCE

Remington DUPONT PETERS DUPONT

"CONFINE YOUR LETTER TO ONE SUBJECT ONLY"

December 28, 1960

W. E. LEEK

WEEKLY REPORT
Week Ending Dec. 25, 1960

XP-722 Progress

The stock for the original model has been completed, and we are now awaiting completion of the rear sight assembly. This should be done sometime during the first week of January, 1961.

XC-10 Design

Basic design layouts have been started for the XC-10. It is proposed that the gun will be in two models, a rotary magazine system for rimless shells and a tubular magazine for rimmed shells. Both designs will utilize the same basic elements, except for the feeding systems.

The designs will encompass a formed stock and fore end, these being welded to a two piece stamped receiver. The fire control will be contained in the receiver, thus making the floor plate a non-functional.

It is my intention to layout the proposed system, allowing room for a 30-06 rotary magazine. This layout, in it's initial form should be completed during the first week of January, 1961.

H. L. Chambers
Arms Design Section

HLC:MN

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

RD-69-B

# REMINGTON ARMS COMPANY, INC.

INTER-DEPARTMENTAL CORRESPONDENCE

Remington DU PONT PETERS DU PONT

"CONFINE YOUR LETTER TO ONE SUBJECT ONLY"_____

November 22, 1960

W. E. LEEK

WEEKLY REPORT

M/XP 722 PROGRESS

A meeting with Production and Research metallurgists was held this morning, and material and heat treat specifications were established for components of this gun.

As of now all major parts of the gun have been detailed and only two or three minor parts have not been drawn. The completed drawings will be turned over to J. A. Roberts some time today.

Nylon 66G TEST

Testing of the Nylon 66G has been completed. A final report has not been written as yet but it is estimated that this report will be in your hands on or before December 7, 1960.

H. L. Chambers
Arms Design Section

HLC:NL

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

RD-49-B

# REMINGTON ARMS COMPANY, INC.

INTER-DEPARTMENTAL CORRESPONDENCE

Remington (DUPONT) PETERS (DUPONT)

"CONFINE YOUR LETTER TO ONE SUBJECT ONLY"

October 31, 1960

W. E. LEEK

WEEKLY REPORT
Week Ending 10/30/60

M/722P Progress

Model parts for the M/722P preliminary design are coming along on schedule. The remainder of the parts for the action should be completed during the first part of this week, and a time estimate for building the stock indicates that it should be completed during the latter part of next week.

N/66-G Test

Testing of the Nylon 66G is progressing on schedule. The first part of the test was completed on October 28th and results showed a malfunction rate of 1.4% over the entire range of nine guns and 12 types of ammunition. Part 2 of the test started on schedule this morning.

H. L. Chambers
Arms Design Section

HLC:NL

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

cc: ~~R. P. Kelly~~
W. E. Leek

October 31, 1960

R. P. KELLY

WEEKLY REPORT

Redesign and make new nylon floor plate to test for strength.

Investigate process of making aluminum receivers for M/721, and short receivers for Howard Chambers small gun.

Charge of Model Shop week of 10/24 - 10/28 during J.A.Roberts absence.

N. E. Williams/nl.
N. E. Williams
Arms Design Section

NEW:NL

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

M/721-722
ADVERTISING

bcc: ~~S. R. Hutchinson~~, Mgr. Advt.
Bpt.
→ J.F. Finnegan - Ilion

Technical

August 5, 1963

Mr. S.C. Tegan
2310 Hillvale Avenue
West Lawn, Penna.

Dear Mr. Tegan:

Some time ago you wrote to Mr. S.R. Hutchinson of our Advertising Department regarding the inadequacies of information about the strength tests on high power bolt action rifles. Although you did not specifically ask for a reply Mr. Hutchinson thought that we might wish to further advise you regarding the background and also of our restraint in supplying more specific data.

In firearms research we have always been rather reluctant to publish technical information that may suggest inherent deficiencies in other U.S. made firearms, and especially where there may be numbers or values (figures) involved. First it can become controversial since difficult to exactly duplicate the same methods of measurements, together with variations in instruments. However we have had occasions to give and receive information to and from other manufacturers when it seems to be in the best interest of safety. This explains our identifying the test guns by letters such as "A" or "B".

When the Model 721 rifle was introduced in 1948, one of the features claimed was that of unusual strength for the action and made possible by virtue of the unique design of the patented extractor. With this spring ring type of extractor located within the counterbore of the bolt head, it is possible to eliminate need for any extractor clearance cuts in the bolt and thus provide a complete shroud around the base of the cartridge when subjected to excessive cartridge pressures beyond the yield point of the brass. It will usually swell or expand into the shroud of the bolt head but supported by steel so that no rupture occurs. Under extreme pressures the primers will usually be blown and possibly it may also drive the firing pin rearward but without damage to the rifle beyond an extractor replacement. The most important of all there is protection for the shooter. However, in our destructive tests we have overloaded rounds to the extent that the recoil was sufficient to split the stocks but still the action was not damaged.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON
R2527630

When Weatherby started advertising their rifle as the "world's strongest action" we were certain that this was not true, so repeated our tests with their rifle which caused the bolt to fail. We then agreed to permit our Advertising Department to use counter advertising with the claims that you have questioned.

You are entirely correct that the "weakest link is still the brass". This was the object for our bolt and extractor design, i.e., to provide complete support for the brass which would prevent sufficient expansion to a point of rupture. We have never been able to wreck a Model 721 type of action with any cartridge overloads and the pressures attained were beyond the range for our instrument measurements. However they were estimated to be well in excess of 100,000 lb. p.s.i. This same extractor and bolt design has been carried forward for use in the current Remington center fire models.

When the Model 721 rifle was first introduced, the late General Hatcher, was a staff writer and consultant for the NRA. He learned of our strength tests and visited the laboratory to obtain data to use for the basis of an article which was published in the American Rifleman magazine. At the moment I do not recall the exact date of the issue but believe it was about March or April, 1948.

We appreciate your interest in rifle designs and the opportunity of describing the background, development and tests in this field.

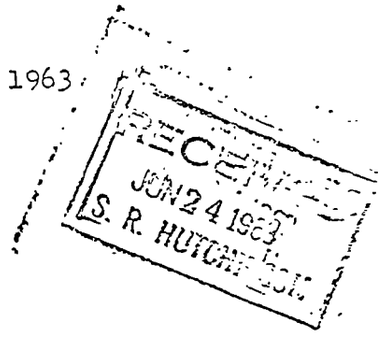
Sincerely yours,

S. M. Alvis, Manager
Ilion Research Division

SMA:B

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

June 21, 1963




Remington Arms Company, Inc.
Bridgeport 2
Connecticut

Attention: Mr. S. R. Hutchinson, Manager
Advertising - Firearms

Dear Sir:

I have received a copy, on my request, of your "proof-tests on rifle bolts" and it is quite apparent that you are far from being a technically oriented person.

The so called tests as reported are meaningless for at least three basic reasons. The actions used are not specifically named, the pressures are not given nor is the name of the brass case used in the tests indicated. Furthermore the condition of each action is not given as determined by both Rockwell testing and sonic testing prior to any increment pressure application.

To make your claim rather ridiculous, I would ask for your own enlightenment, that you test a Schultz and Larsen and a Weatherby action for ultimate tensile strength.

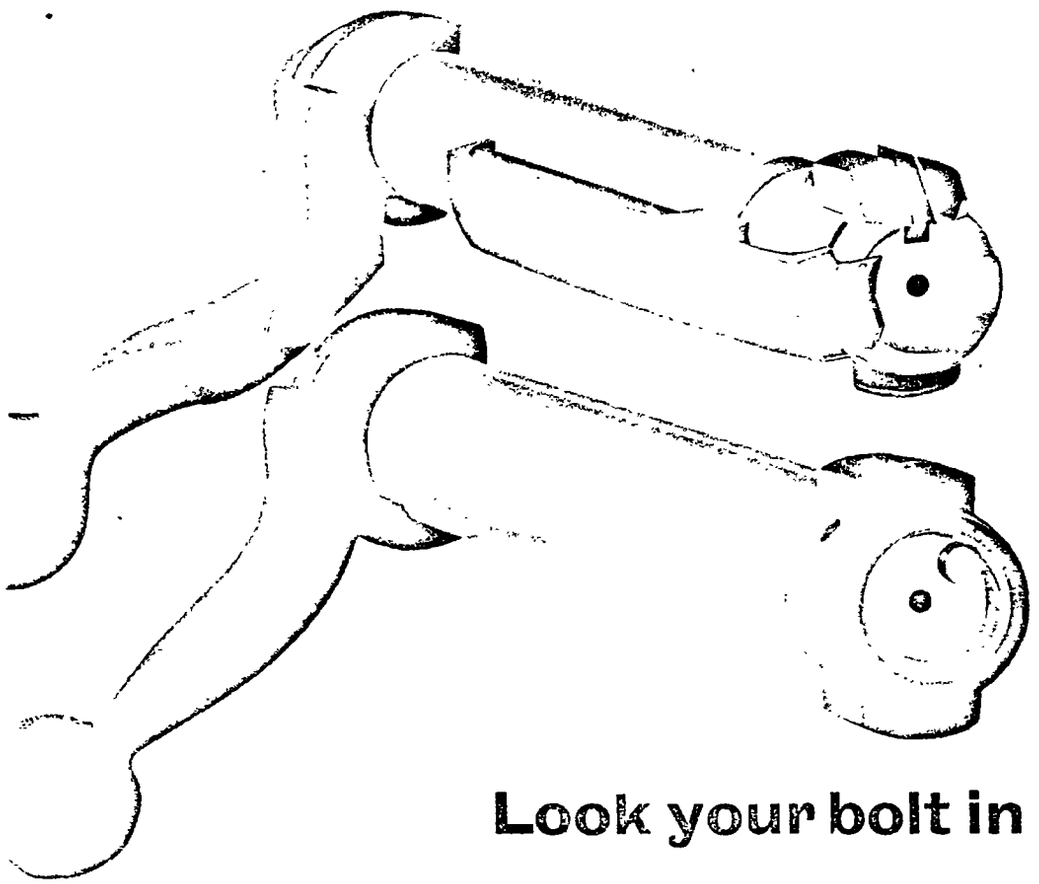
Finally, any comparative strength test must be made with the understanding that loading at normal 50/55 thousand PSI pressures is far below the ultimate rupture strength as produced in a lab and that generally all Mauser type double lug actions have the same area of support, case head enclosure being entirely another matter and more allied with gas escape than bolt thrust rupture. The weakest link in the chain is still the brass.

To see how fast a Remington 700 comes apart try a non-increment pressure of about 17,000# explosion.

Yours very truly,

S. C. Tegan

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON



# Look your bolt in the face

Look carefully at the two center-fire rifle bolts pictured above. The bolt on top is from a discontinued Remington rifle. The patented bolt below is from a modern Remington Model 700.

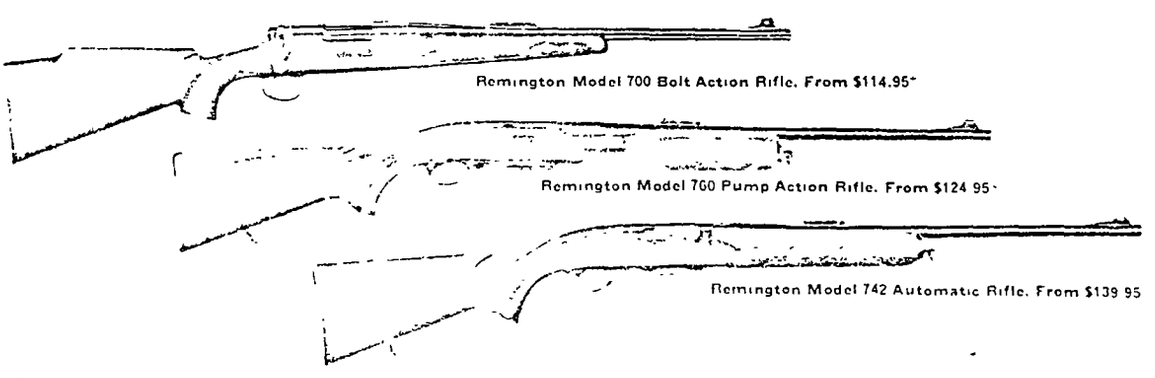
Notice that the rim of the top bolt is actually cut away to permit external extraction and ejection. This bolt leaves the cartridge *unsupported* over a considerable section. Yet, it works satisfactorily.

But now look at the modern Remington bolt beneath. It isn't cut away because the extractor and ejector are located *inside the rim*. This means the cartridge head is supported *all the way round* by a ring of solid steel. Most important, when the action is closed, this steel ring fits into a second ring countersunk into the heavy, chamber end of the barrel...and then both rings are surrounded by the receiver itself. Three overlapping thicknesses of solid steel support the cartridge head...something you'll find on no other make of rifle!

Obviously, this modern Remington construction is stronger. In fact, it is the *world's strongest bolt action.*†

Every Remington center-fire rifle—bolt action, pump and automatic—now has this modern design. It's typical of the solid reasons why your next high-power rifle should be an accurate, reliable Remington. *Remington guns are better because they're made better.* See the full line of fine 1962 Remington sporting firearms, made in the U.S., at your dealer's now. †*Comparative proof tests available on request.*

Remington DUPONT



Remington Model 700 Bolt Action Rifle. From $114.95*

Remington Model 760 Pump Action Rifle. From $124.95*

Remington Model 742 Automatic Rifle. From $139.95

Remington Arms Company, Inc., Bridgeport 2, Conn. In Canada: Remington Arms of Canada Limited, 32 Queen Elizabeth Blvd., Toronto, Ont. *Prices subject to change without notice.

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON
R2527633

March 24, 1965

Mr. Carl E. Swanson
4 Vista Road
Englewood, Colorado 80110

Dear Carl:

I was certainly happy to receive your letter the other day and am most happy to answer the questions concerning guns and gun design.

First of all, on your Model 1100 Trap Gun, we do a special operation on the fire controls to tune up, so to speak, the trigger for all of the trap guns. I will send you a fire control along with a new forearm, and would appreciate if you would advise me as to how the fire control performs. In the meantime, please send me your fire control as I would like to investigate it more closely and then perhaps I can advise you as to what should be done to correct the problem.

As far as the forearm is concerned, I haven't the slightest idea what grade of wood your shotgun contains. However, if the forearm I send you does not match, then send me your old one and I will try to get a better match for it.

As to the modified choke, it would best be ordered through your local dealer.

Approximately 90% to 95% of all of our barrels are interchangeable in our M/1100 shotguns. But when you get your shotgun barrel, check with the headspace gauges that I know you must have in the school to see that they will accept a min. and not accept a max. gauge. If you have trouble in this area, please advise.

Now as to the strength of bolt action rifles. This is a subject that I enjoy talking about, as there have been so many myths and opinions in the past and at present with claims made, some based on fact and others on opinions again, that you should get the true known facts so that the boys in your school will not be mislead.

As I probably related to you, my basic experience in gun development started at the Aberdeen Proving Ground where I set up the tests for all of our small arms military weapons during the war. And my first job here at Remington after that

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KINZER V. REMINGTON

experience was to do the same thing for the Remington. And I will say here that our tests are much more stringent at Remington than they are with the military, both endurance-wise and function-wise.

As far as the functional aspects are concerned, our shotguns are subjected to tests upwards of 35,000 to 50,000 rounds each with a careful check being made on every round that is fired. We shoot them from the various types of shoulder resistances which cover the spread of all humans, light and heavy. We involve them in all kinds of shooting conditions; rain, ice, snow, extreme cold conditions down to 40° below, with extreme high pressures. Then drying the guns out to a point of very low humidity and subjecting them to considerable amount of oil, all of which add up to a very thorough test on our shotguns. Basically, our rifles go through the same thing, but in addition even though the shotguns are subjected to handloads of various descriptions, the rifles are the ones that really get the works.

The first really high pressure strength test, I believe, that was ever conducted on a center fire rifle was that conducted on the Model 721. Now I know in the past that higher pressure tests have been conducted on rifles, but they mainly involved those tests with steel cases such as General Hatcher conducted in the Springfield Armory. The basic item to consider here is the fact that with all rimless cases the cartridge is unsupported in the rear section; and therefore the strength of the gun is dependent upon the strength of the cartridge case. Oh, I admit that lugs, barrel dimensions, etc. are important, but there is no rifle in the world that will contain a ruptured cartridge case that is unsupported because of its lug size. For one must remember that the pressure generated in a cartridge and in the chamber section is pounds per square inch, and once a cartridge ruptures in the rear section or the primer pocket opens up, the pressure there escapes rearwardly, and works on every area that is exposed to it. And pounds per square inch can really build up to astronomical proportions that will take any of these guns apart.

So the secret, therefore, is not in the strength of a rifle, and not to depend entirely on the strength of the cartridge case, but to support it so that it cannot escape those high pressures rearwardly into the action. This is just exactly what was done in the Model 721. The tolerances were held close enough that the expansion of the cartridge case into the shroud of the bolt was small enough that only the primer pocket could expand to a small degree, allowing enough gas rearwardly to cock the firing pin and that was all. The shroud in turn was supported by a recess in the barrel, which in turn was supported by the receiver.

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KINZER V. REMINGTON

Now to give you an example of how far we conduct our tests. We worked up from a proof load which generally is about 2.7 grams of 4198 powder in a 30-06, and by the way the 30-06 combination is the most potent of all. The first super proof loads which were 3.2 grams of 4198 powder were tested in all existing rifles including the M/721. A few of the rifles blew up at this pressure level; such as the Springfield, Japanese Arisaka, and others of weaker design. In this particular instance, 3.2 grams of 4198 powder were developing pressaures upwards to 100,000 ppsi, and actually the brass case is not strong enough to accommodate anything much over 80,000 ppsi unsupported. The M/721 went through at this point with flying colors.

We then started to ramming bullets in the 220 grain category ahead of the chamber, not allowing of course any space between the protruding bullet of the existing pressure round and the jammed bullet ahead of it, as this would split barrels, if the space was between these two elements. The M/721 continued on up to five 220 grain slugs ahead of a 3.2 gram load. The pressures were so high after 2 slugs in front of the cartridge that at that time we had no proper measuring equipment, and only estimates and calculations could be made. However, it has been later determined that we have reached somewhere in the neighborhood of 300,000 to 400,000 ppsi in these rifles. The end result, of course, is that the cartridge swells to the limit of the shroud and a little beyond as all of the clearances are taken up between the shroud and the barrel, and the barrel and receiver. And in a sense the cartridge, the bolt shroud, the barrel, and the receiver are welded together in an integral piece. It would be, and was, impossible for us to extract any portion of these parts from the other, and the only way examination could be made was to cut the section in two, right through the front face of the bolt, and there one could see a good example of high pressure forming, or explosive forming, as it was impossible to distinguish where the shroud in the barrel and the receiver joint were.

Now what happened to those slugs that were in the barrel. Well, in most cases they all fired out of the barrel and of course in all cases the stock was shattered to shreds. But I'll give you one example that caused my dear friend, General Hatcher, who was here at the time during the tests, to consider some of the basic laws of physics. One case we had a 5 slug 3.4 gram of 4198 powder loaded in a M/721 and this all contained in our test device, which came, as it does immediately after the shot is fired. This particular day the explosion took place upon pulling the trigger, but the device did not recoil rearwardly. We allowed the combination to simmer down for two days before opening the lid on the test device, and we found the stock was intact, the gun was of course locked up and welded together, and no damage to any of the parts. Upon close examination by putting a drift rod down the barrel we found that none of the 5 slugs had moved. They were wedged in so tightly at this particular combination that this high pressure of 400,000 or 500,000 ppsi was not sufficient to propel the projectiles forward. Now according

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to Newton's Law for every action there is an equal and opposite reaction. Because there was no movement forward of those projectiles the recoil did not take place and therefore, the stock did not disintegrate. General Hatcher at this point emitted a couple oaths and said: "Well, I guess old Newton was right."

Now as to comparison of other rifles. During this test, however, all types of rifles including well known competitive brand were tested and they all fell by the wayside with about one slug in the barrel. This of course was normal and natural as the gun was depending upon the brass cartridge case and not upon its inherent lug ability to hold the mechanism intact. To prove our point we cut off the shroud of a M/721, subjected it to one slug in the barrel with a 3.4 gram load, and immediately blew up the gun, putting it then in the category with the old-fashioned old-designed types. Since that time other concerns have started to copy the M/721-700 action. However, upon close examination you will find that they haven't quite copied all of the right elements.

Here is another point to consider. Which is the safest? To allow a cartridge case to blow up at 70,000-80,000 psi, or to retain it up to a point where it will reach 150,000 psi and then blow? Well, for me, I would take the one that blows earlier because less damage could be done. However, if I were to design a gun and wanted to go beyond the strength of the cartridge case, I would go all the way, such as we have done in the M/721, and not halfway, as the halfway point is much more dangerous.

I do not want to comment on our competition at this point. All I can say is that they are halfway. Perhaps you can put two and two together and get the correct answer from this statement. However, please don't quote me. The only thing I'm giving you here, Carl, is fact and not fiction.

We here at Remington as I have said before, test our guns more severely than the military and certainly know more, I believe, about testing, and test our guns more stringently than any commercially made rifle or shotgun. Naturally, when new developments are made competitively we test all of these to determine where they stand with respect to strength and function and how they compare with our own. And I can truthfully tell you based upon fact, that our rifles and shotguns are stronger than our competition. For example, I was testing some bolt action shotguns about 6 months ago to establish a strength characteristic in these designs which had been connected with an ammunition problem, as we by the way do not make bolt action shotguns, and I found out some very gratifying things which I can't reveal here as they would involve competitive guns. But believe me, I certainly would not shoot any of these from the shoulder. Just because there is a large bolt handle and an apparently large piece of steel supporting it, does not mean that the gun is strong. And these misconceptions can cause difficulties.

Going back to my tests with General Hatcher. After he examined the results of our tests he immediately sent to me an M1 rifle, an Enfield, a Japanese Arisaka converted over to a 30-06 and some others that I do not recall. We sent them all back in a box, all in a multitude of broken, scrap, twisted metal. I had no comment from General Hatcher after returning those guns to him as they demonstrated some weaknesses which he probably did not wish to reveal at that time to the general public.

The Model 600 was a good subject for test as it contained the same bolt mechanism as the M/721-700 systems. However, the receiver is much shorter and therefore stiffer. This has nothing to do with the strength of the gun but does have something to do with the supporting of the back of the bolt, keeping it in line with the chamber. In order to test the M/600 we rechambered it to a 30-06 so that we could keep our costs for tests on the same pattern, and subjected it to these high pressure tests such as mentioned in the letter. It, too, withstood all of these extreme high pressures and was, as we say, normal in every respect.

My comment on which cartridge has caused the most problems. The 30-06 will blow up a gun faster than any caliber I know of, as it can be loaded to a much higher degree than any of the others based upon its cartridge case strength and bore diameter. A 270 will not come anywhere near the 30-06 in developing high pressures when the barrel is plugged. The Magnums are much safer. Here we have a cartridge case that has been reinforced and therefore does not require the same support around the base of the case that the 30-06 actually would require. Therefore higher pressures can be obtained with the belted case with an unsupported, unshrouded gun.

For my money when I am experimenting with handloads, accuracy shooting and a little above normal pressure work, I'll take the M/700 and 600 actions, and the rest of the experimenters can have their so-called strong actions for this work. I have a lot of faith in the combinations of ammunition-primer-powder, etc. but not enough to put my chuck on top of it. I'll take the shrouded support that in turn is also supported by the barrel, and the barrel supported by the receiver. And I think I'll come out way ahead of the game with both eyes, ears and head on my shoulders. At least I would have greater peace of mind.

I hope that I have answered your questions, Carl, and I'll get these items off to you as soon as possible. Please let me hear from you soon. By the way, as far as M/700 actions are concerned, the policy is now that you can obtain these from authorized Remington gun shops. If you have any difficulty in obtaining these items from your gunsmith, please let me know.

Best regards,

Wayne E. Leek
Manager - Firearms Research & Design
Ilion Research Division

WEL:T

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KINZER V. REMINGTON
R2527638

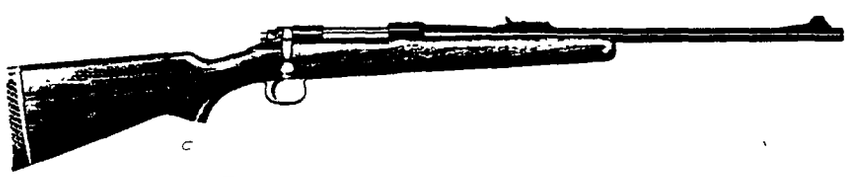
Remington Peters
DUPONT
# Wholesale Salesmen's
INFORMATION

Volume 7, No. 7 August 1961

## ANNOUNCING A NEW CALIBER

## *264 WIN. MAGNUM*

## IN THE POPULAR MODEL 721



Model 721 Bolt Action Big Game Rifle
Calibers: 280 Remington, 30-06, 270 Win., 300 H&H Magnum, and New 264 Win. Magnum

Ever since Remington announced availability of the 264 Win. Magnum cartridge, there has been an increasing number of requests that we chamber a bolt action rifle for this cartridge.

The 264 Win. Magnum cartridge is available in 100 and 140 grain bullet weights. Both bullets are of the pointed soft point type with game-stopping Remington "Core-Lokt" or Peters "Inner-Belted" construction.

PRICES

| | Dealer | Retail |
|---|---|---|
| Model 721A | $ 92.75 | $ 123.65 |

Now, with addition of this new caliber to the Model 721 high power rifle - with "world's strongest bolt action" - you have an even wider range of calibers to sell in an already versatile Remington center fire line. Look for that extra sale - the Model 721 in 264 Win. Magnum - on every dealer call.

"Core-Lokt" is Reg. U.S. Pat. Off. by Remington Arms Company, Inc. and "Inner-Belted" is a trademark of Peters Cartridge Division.

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R2527639

cc: J.H. Lewis, Jr.
S.M. Alvis

Ilion, New York
January 8, 1960

J. D. MITCHELL
BRIDGEPORT

M/721-722 - ADVERTISING

Please refer to a letter from S.M. Alvis to you on above subject and dated February 5, 1957. During that time we were experimenting with a new type of extractor which involved a cut in the shroud of the bolt head, and which has a tendency to weaken the complete shroud of the bolt head, as we do in the M/740.

Since that time our efforts in the design of the new Model XC-6 Center Fire Rifle include the M/721 type extractor and the completely shrouded bolt head. We are not far enough advanced with the testing of this model to determine whether or not this type extraction system is adequate, but I have a feeling that the final design will result in this system. Therefore, believe that we can proceed in continuing our advertising of extreme strength, etc. in the M/721 containing no extractor cuts.

As you probably are aware, the new Weatherby bolt action rifle claims to be the strongest in the world. The bolt contains a series of lugs similar to the M/740 but the shrouded head contains an extractor cut which weakens this section. I had planned some months ago to subject a new Weatherby rifle to our strength test, so an order was placed for a 30-06 Caliber. Instead we received a 300 Magnum. Since all of our basic tests involve the 30-06, we are re-ordering in this caliber so that a comparable test can be made. You will be advised of results of this testing, as well as any changes that might take place in the design of the new rifle.

W. E. Leek, Supervisor
Arms Design Section

WEL:T

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KINZER V. REMINGTON

RD-49-B

**REMINGTON ARMS COMPANY, INC.**

INTER-DEPARTMENTAL CORRESPONDENCE

Remington (DU PONT) PETERS (DU PONT)

Thelma Please send Copy of this letter to E.G. Larson Bpt

"CONFINE YOUR LETTER TO ONE SUBJECT ONLY"

cc: E.G. Larson - Bpt.

Ilion, New York
May 17, 1965

TO: W. E. LEEK

FROM: W. L. DAHL

MEMORANDUM REPORT

DAMAGED MODEL 721 - #54124

Subject rifle, Caliber 270 Win., was forwarded by the NRA for examination following blow-up by owner, Leland C. Richards. Both locking lugs and the bolt handle were sheared from the bolt body by an excess pressure round.

The rifle was manufactured in 1948 before installation of the microcarb furnaces and similar damage to other such guns has been reported. It is unlikely that current production guns would be as extensively damaged even by the extreme pressures that obviously existed in this case.

The fired cartridge case, of Winchester manufacture, shows signs of being fired with chamber pressures on the order of those developed in Caliber 30-06 rifles by a full case of Bullseye behind a 220 grain bullet. Our guns are not ordinarily blown up by such a load but in this instance the cartridge case failed, thus allowing the full diameter of the bolt face to be pressurized. This, in the presence of the obsolete bolt, led to the damage. The mouth of the cartridge case retains the factory trimming burrs and these have not been ironed out as they usually are in a reloaded case. There is, however, an abrupt termination of the smoked portion of the case neck about 1/16 inch ahead of the neck shoulder juncture as often seen when a cartridge case has been neck sized only by a handloader. Perhaps the strongest indication that this was a handload is the fact that the shooter was not killed. The bolt must have come out of the receiver like a bullet and it is hard to believe that this shot was fired from the shoulder without injury. Thus one suspects that the gun was tied down and fired remotely, which leads to conjectures whether it was deliberately blown up.

After removing the fired case a new breech bolt was inserted for a rough check of headspace, which was found to be .001 inch over maximum. The barrel was air gaged and found .2785 inch groove diameter full length excepting a five inch length at the muzzle that was .280 inch diameter, more or less typical of the old cut rifled barrels. With these dimensions, however, one supposes that the

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barrel was not a very accurate one. A borescope examination showed no signs of a barrel obstruction but did reveal severe erosion ahead of the chamber. A magnaflux examination revealed no cracks in either the barrel or the receiver of the damaged gun.

The firing pin nose was severely eroded indicating repetitive primer piercing. The interior of the bolt was loaded with foreign material. Some of this was carbon from the effects of escaping gas and some was polymerized lubricating oil. The major portion of the material remains unidentified but it is noted that the shoulder of the fired cartridge case is heavily imbedded with a similar appearing material.

Following examination the scope mounts were returned to Custom Repair in accordance with their request. The rest of the gun has been scrapped per E.G. Larson's letter.

WLD:T

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cc: Wayne Leek

Bridgeport, Connecticut
February 26, 1965

TO: F. W. WOODRICK - ILION

FROM: E. G. LARSON

SUBJECT: LELAND G. RICHARDS - #18302-P.I.
SEE WAYNE LEEK'S LETTER TO E. G. LARSON
OF 3/30/64

Dear Fred:

We have closed this out by giving Mr. Richards a new Model 700 in exchange for his 721.

Wayne Leek had previously asked that they be allowed to do some destructive testing on the damaged gun to find the cause, and we ask that you forward it to Wayne and that he give us a report on completion of tests.

Once completed, the remains can be scrapped.

E. G. L.

Manager, Products Service

EGL:k
Attachments

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

R2527643

bcc: F. W. Woodrick - Ilion
Wayne Leek - Ilion

February 26, 1965

Mr. Leland C. Richards
Box 1005
Sterling, Colorado

Dear Mr. Richards:

We have your letter of February 17 and, from its contents, we now see where the mixup occurred.

Your previous letter answered by our Mr. Bruce Reynolds, was not directed to my attention and was handled in a normal manner by our Consumer Correspondence Group. As he stated, we only sell through wholesaler - dealer channels and, of course, he had no information as to our correspondence concerning a damaged gun on which we were making a special offer.

As requested, we have entered an order to have shipped to you prepaid, at no charge, a Model 700 BDL caliber 243 Winchester rifle in exchange for your damaged Model 721 #54124.

The difference in price between the ADL and BDL is $5.00, and we ask that you forward us your check made out to the Remington Arms Company, Inc., in the above amount, marked to my attention.

Many thanks for having afforded us this opportunity to be of service.

Cordially yours,

REMINGTON ARMS COMPANY, INC.

E. G. Larson
Manager, Products Service

EGL:k

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KINZER V. REMINGTON

Form No. RD 6000 Rev. 10-63

# RECEIVING and ESTIMATE REPORT

ORDER R 5621

PROM. DATE

REC. 2/ /65 ESTIMATE VIA PP CHARGES

FROM Walter J Howe (Director + Editor
Wash D.C. (National Rifle Assoc.

MODEL and GRADE 721 · 270 SERIAL NO. 54124 CODE XTT-12/48

Fine stock, with scope mounts

REPAIR CHG.

INS.

PARCEL POST

GUN CONDITION (New) (Slightly worn) (Very worn) (Misused) (Quote) TOTAL

CUSTOMER'S COMPLAINT

MAIN FAULT

GALLERY REPORT

Gun Delivered to
Wayne Leek 3/3/65
for examination +
destructive testing —

(after testing arm
is to be scrapped

Per E. G. Larson's
letter - 2/26/65

(Clean) (Test) (Target)

Repairman

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KINZER V. REMINGTON

R2527645

bcc: Wayne Leek - Ilion

September 11, 1964

Mr. Leland C. Richards
Box 1005
Sterling, Colorado

Dear Mr. Richards:

A short time ago, we received from you through Mr. John M. Schooley, a Remington Model 721 caliber 270 rifle No. 54124 in damaged condition and advised that you were injured at the time of this unfortunate mishap. At a later date, Mr. Schooley forwarded to us one caliber 270 reload that allegedly was from a batch in use at the time the gun was damaged.

We were indeed sorry to learn of your injury and trust that by this time you have fully recovered.

Upon receipt of your rifle, our firearms experts examined it thoroughly and reported that it contained our high-pressure proof, gallery test and final inspection stampings, indicating it had successfully passed all necessary tests prior to shipment.

All individual parts within the arm were entirely within specification, and the damage encountered resulted from a reload that produced excessively high pressures, far beyond those experienced in the normal firing of an industry proof load.

This model rifle, Mr. Richards, has been tested many times by our firearms designers, and we have found in these tests that the Model 721 will withstand five (5) 220 grain bullets lodged directly ahead of a 3.2 gram proof load of powder.

The one cartridge returned was subjected first to a visual and gauging inspection, and we found that it would not chamber by 1/8" due to lack of proper base well resizing. The cartridge was pulled down and found to contain a 110 grain bullet with 41.9 grains of what appeared to be 4895 powder.



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R2527646

In measuring the shell dimensions, we found the head-to-shoulder length normal, but the overall shell length was .010" over our specification for the caliber 270 cartridge. Overly-long shells are conducive to higher than normal pressures.

In review, Mr. Richards, it is definitely borne out that the damage to the gun and your unfortunate experience resulted from the use of an improper reload and we cannot, therefore, accept any responsibility or liability for the accident.

We are most anxious to make a further study of the stresses to which the damaged gun has been subjected, and this can only be accomplished by disecting the chamber area, etc. With this in mind, and as indicated by Mr. Schooley during my visit with him at the N.R.A. show, we would be willing, solely as a gesture of customer good will, to exchange your presently damaged arm for a Model 700 ADL in the caliber of your choice, at no cost to you.

If this offer--which we believe to be eminently fair--is acceptable to you, please advise at your convenience so that the necessary shipping instructions can be issued.

We appreciate having had this opportunity to be of service, and await your reply.

Cordially yours,

REMINGTON ARMS COMPANY, INC.

E. G. Larson

E. G. Larson
Manager, Products Service

Per E G Larson 11/13/64 have received [illegible] yet to [illegible]

EGL:k

cc: John M. Schooley

Gun turned over to [illegible] 11/13/64
[illegible]

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R2527647

Ilion, New York
March 30, 1964

E. G. LARSON
Bridgeport

MODEL 721 RIFLE RETURNED BY N.R.A. (Leland C. Richards)

The subject rifle arrived last Thursday, 3/26, and there is no doubt about it the pressures involved are exceedingly high. I contacted the services of Kelly Chadwick, who was in charge of the heat treatment of the bolt assembly during the initial stages of the M/721. He states that because of some brazing difficulties in attaching the bolt head to the bolt body it was necessary to carburize the bolt head itself. And there is about two years production of bolt heads heat treated in this manner.

These bolts were extremely strong but would shear off when pressure loads were in the neighborhood of 140,000 ppsi. This of course is higher than one would expect in normal military rifles such as the Springfield, the Model 70 in commercial rifles, and others, and I believe is about in the area that is claimed by the Winchester people on their new Model 70. However, it has been our experience that this strength is not good enough and there were several complaints from customers who sheared off lugs in their M/721's at that time.

A microcarb furnace was introduced to eliminate the difficulty and we have, as far as I know, experienced no further trouble. But on occasion one of the old carburized bolt heads allows a gun to blow up.

The original testing which was conducted in the model test and also based on the pilot lot run of 500 rifles did not contain carburized bolt heads, resulting of course in a very substantial high strength in this model. Metallurgical changes took place without the knowledge of Research & Development, until customer complaint aroused suspicions in this area. Since that time at various intervals we have reconducted strength tests on the M/721, 725 and the latest models 700 and 600, and have found the bolt and receiver combination along with the barrel to be of the same magnitude and strength as the original models; i.e. they will withstand five 220 grain slugs directly ahead of a 3.2 gram proof load of 4198 powder.

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Eventually we are going to set up special equipment to measure the pressures that are developed under conditions such as this, but at the present time are guessing that this pressure must reach a maximum of around 350,000 ppsi.

To further investigate Mr. Richards' gun it will be necessary for us to dissect the chamber area and explore the conditions of the cartridge case, the chamber walls, and any other pertinent information that might be available. If you wish us to continue further with this investigation, please advise.

W. E. Leek
Firearms Design Section
Ilion Research Division

WEL:T

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KINZER V. REMINGTON

RD-69 REV. 6-58

# REMINGTON ARMS COMPANY, INC.

INTER-DEPARTMENTAL CORRESPONDENCE

Remington
DUPONT

Bridgeport, Connecticut
March 18, 1964

TO: ~~WAYNE~~ LEEK - ILION

FROM: E. G. LARSON

SUBJECT: MODEL 721 RIFLE RETURNED BY N.R.A. (LELAND C. RICHARDS)

Dear Wayne:

I am shipping to you a Model 721 caliber 270 rifle #54124 which was returned to me by

Walter J. Howe
Director & Editor
National Rifle Association
1600 Rhode Island Avenue N.W.
Washington 6, D. C.

Attached is a copy of his letter indicating that the gun was returned for Leland C. Richards by Mr. John Schooley, a former President of the N.R.A., and it appears from this that in Walter's inimatable way he is putting the bite on us.

I called Walter and told him that you just can't strip the locking lugs from a 721 and would like some information pertaining to the load used and whether or not a personal injury was involved.

He stated that there was no liability involved and that he, too, had mentioned to Mr. Schooley that a real hot load caused the damage.

Would you check this rifle over thoroughly and advise me prior to APRIL 2 what you feel caused the stripping of the lugs and whether or not it can be repaired.



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KINZER V. REMINGTON
R2527650

Re: Model 721 rifle returned by N.R.A.

If it can't be repaired, it will probably be to our advantage to replace the rifle with a 700 , and I have asked Ted McCawley or Pete Morgan to accept the charges on their accounts and write it off as a gesture of customer good will with the N.R.A.

Walter Howe wants me to go over the matter with Mr. Schooley at the N.R.A. Convention--therefore the request for a report prior to the 2nd of April, as I am leaving on the 2nd for Los Angeles.

Please call me when you have had a chance to examine the gun.

Many thanks.

Earl P.

E. G. Larson
Manager, Products Service

EGL:k

Attachment

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

NATIONAL RIFLE ASSOCIATION OF AMERICA

1600 Rhode Island Avenue, N.W. Washington, D. C. 20036 783-6505

March [illegible] 1964

RECEIVED
MAR 1 [illegible]
E. G. LARSON

Mr. Earl Larson
Remington Arms Company, Inc.
Bridgeport, Connecticut

Dear Earl Larson:

By way of Railway Express Prepaid I am sending you a Remington, caliber .270 rifle, Model 721, that was brought in to me by Mr. John Schooley, the former President of NRA. John got the rifle from a Mr. Leland C. Richards of Sterling, Colorado.

Evidently something very "strong" was put in this gun and fired. There is no indication that product liability is involved, but [illegible] Mr. Schooley asked me if it is possible to repair this rifle. The stock was a total loss.

Will you please let me know what the situation is on this.

Sincerely,

Walter J. Howe, Director
Editorial & Technical Division

WJH/bjs

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

R2527652

M/721-722 - Trigger

G-88 Copy to G. S. Hill W. A. Warren File

**DON'T SAY IT — WRITE IT**

cc: J.P. Linde

To E. Hooton, Jr.

Date July 5, 1979

From R.L. Hall RLH

Please file

The Plant has reviewed R & D's recommendation to repair M/721-722 Trigger Assemblies by replacing them with altered M/700 Trigger Assemblies. It is feasible to make this repair and the Plant is prepared to start upon approval of the Product Safety Committee.

RLH:cp
Attach.

**SAFETY IS A WISE INVESTMENT**

RD-69-B

# REMINGTON ARMS COMPANY, INC.

INTER-DEPARTMENTAL CORRESPONDENCE

Remington (DUPONT) PETERS (DUPONT)

"CONFINE YOUR LETTER TO ONE SUBJECT ONLY"_____

Ilion, New York
July 2, 1979

TO: R. L. HALL

FROM: J. P. LINDE JPL

SUBJECT: REPAIR OF MODEL 721-722 TRIGGER ASSEMBLIES

I can see no technical reason for not proceeding with the R & D recommended repair procedure. To insure that the required information is available and the procedures are followed, a process engineer has been assigned the responsibility of developing the program. This will include a writeup of the repair procedure, samples and functional gages. The first samples completed will be checked by P E & C and R & D.

JPL:eb

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

# REMINGTON ARMS COMPANY, INC.

INTER-DEPARTMENTAL CORRESPONDENCE

Remington DUPONT PETERS DUPONT

"CONFINE YOUR LETTER TO ONE SUBJECT ONLY"

Ilion, New York
May 21, 1979

TO: R. L. HALL

FROM: J. P. LINDE

SUBJECT: REPAIR OF MODEL 721-722 TRIGGER ASSEMBLIES

Research has made the following recommendations to modify a Model 700 Trigger Assembly to fit the obsolete Model 721-722:

(1) Bend finger piece on Trigger to a tighter radius so it will clear Trigger Guard. Bending fixture available in Customer Repair.

(2) Alteration to Safety Lever Assembly which requires reshaping lever to fit contour of Receiver and grinding clearance on side of safety button. Customer Repair has a bending fixture fabricated in the Model Shop and can readily alter Safety button.

(3) The Stock has to be altered in two places to provide clearance for lever operation. Minor wood removal operation.

To insure control of this modification to the Trigger Assemblies and Stock, Product Engineering will prepare a writeup, samples, and the necessary gages to perform the required operation. The writeup will also include bench testing the completed rifle for such items as Bolt Release operation, Trigger clearance, and Safety Lever clearance.

JPL:eb

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

Tek 12
5-18-79

RU-59 REV. 6-58

cc: R. B. Sperling

# REMINGTON ARMS COMPANY, INC.

INTER-DEPARTMENTAL CORRESPONDENCE

Remington
DU PONT

cc: J. P. Linde
Pls review design & let me know your comments.
RZH 5/11

May 8, 1979

To: E. F. Barrett

From: E. G. Larson

Ilion R. & D. has sent me a Model 721 on which they have made modification to the safety lever and button on the trigger assembly, along with wood removal in stock for clearance.

The modification looks okay to me, and John Brooks would like approval, so that suggested repair can be given to Arms Service. There are no parts available for 721-722, so we either make this repair or offer a 700 in exchange. I doubt there will be many of these models returned, and suggest the repair.

Who, other than yourself, should approve? — Production

The gun is in my office for examination.

1. WN
2. RLH.

E. G. L.

E. G. Larson

EGL:lb

~~E. Fenton~~
Info - I have asked Clark to discuss with Bob & John Linde. If they accept & approve we will proceed on this basis - notifying Product Safety Committee of Action Taken
EFB

RECEIVED
MAY 8 1979
E.F. BARRETT

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

RD-69 REV. 6-58

**REMINGTON ARMS COMPANY, INC.**

INTER-DEPARTMENTAL CORRESPONDENCE

Remington DUPONT

CC: J.H. Carter
J.P. Linde

Copy to W A Warren
+ G J Hill

xc: E. F. Barrett
R. A. Partnoy
J. G. Williams
E. Hooton, Jr.
Product Safety
Subcommittee File

Bridgeport, Connecticut
July 19, 1979

HKB
~~R. L. HALL~~ 7/20

REPAIR OF MODEL 721-722 TRIGGER ASSEMBLIES

Members of the Product Safety Subcommittee have approved the procedures recommended by Research and Development for repairing Models 721 and 722 rifles by replacing the trigger assembly with a modified Model 700 trigger assembly.

Details of the repair procedure are given in John Linde's May 21, 1979, letter to you. Copies of this letter and other relevant correspondence, including the note with Subcommittee approvals, are attached. Copies are also retained in the Subcommittee's file.

B K Daubenspeck

B. K. Daubenspeck
Product Safety Subcommittee
Secretary

BKD/cas

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

FROM: E.F. BARRETT 7/11/79

FOR APPROVAL:

~~R.A. PARTNOY~~
J.G. WILLIAMS
~~E. HOOTON~~
~~E.F. BARRETT~~

If you approve, I will ask Ben Daubenspeck to document this for the record and release the Plant to proceed.

1. ~~BK Daubenspeck EFB~~
2. R.L. Hall

RECEIVED
JUL 13 1979
E.F. BARRETT

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

DON'T SAY IT — WRITE IT

To E. Hooton, Jr.

From R.L. Hall

Date July 5, 1979

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RLH:cp
Attach.

RECEIVED
JUL 13 1979
E. HOOTON, JR.

RECEIVED
JUL 11 1979
E.F. BARRETT

RECEIVED
JUL 16 1979
R. A. PARTNOY

**SAFETY IS A WISE INVESTMENT**

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

RD-69-B

# REMINGTON ARMS COMPANY, INC.

INTER-DEPARTMENTAL CORRESPONDENCE

Remington (DUPONT) PETERS (DUPONT)

"CONFINE YOUR LETTER TO ONE SUBJECT ONLY"_____

Ilion, New York
July 2, 1979

TO: R. L. HALL

FROM: J. P. LINDE JPL

SUBJECT: REPAIR OF MODEL 721-722 TRIGGER ASSEMBLIES

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JPL:eb

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

REMINGTON ARMS COMPANY, INC.

INTER-DEPARTMENTAL CORRESPONDENCE

Remington DUPONT PETERS DUPONT

"CONFINE YOUR LETTER TO ONE SUBJECT ONLY"

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FROM: J. P. LINDE

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JPL:eb

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

RD-59 REV. 6-58

REMINGTON ARMS COMPANY, INC.

INTER-DEPARTMENTAL CORRESPONDENCE

Remington

DUPONT

CC: J. P. Linde
Pls review design & let me know your comm rnts.
RLH 5/11

May 8, 1979

To: E. F. Barrett

From: E. G. Larson

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E. G. L.

E. G. Larson

EGL:lb

~~E. Hooton~~ Info - I have asked Clark to discuss with Bob & John Linde. If they accept & approve we will proceed on this basis - notifying Product Safety Committee of action taken
EFB

RECEIVED
MAY 8 1979
E.F. BARRETT

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

721 Trigger

CC: R. A. Williamson
H. J. Hackman
E. J. Mock
J. Rogers
C. Prosser
N. Thompson ) In
R. B. Hurley) Turn
L. F. Mitchell

Ilion, New York
May 20, 1955

A. D. KERR (2)

M/721-722 POWDERED METAL TRIGGERS
(TEMPORARY PART NO. 18861)

The pivot pin hole on approximately five hundred (500) of these components is out of position and the parts should be scrapped. They are being held by J. Rogers in Dept. 62 pending final disposition.

These parts are from the first shipment of Powdered Metal Triggers received from the vendor in May of 1954. At that time, it was felt that the vendor would eventually be able to produce Triggers with cored holes; therefore, a temporary drill jig was made up to process "several thousand" parts but proved incapable of holding the position of the hole.

Coincidentally, the vendor notified the plant of his inability to produce the cored hole and permanent tooling was ordered. Meanwhile it was decided to finish up the pan of 500 parts to give Chem. & Met. Section a chance to experiment with the coloring process and secondly, to determine whether the Triggers might possibly be used. No coloring problem was encountered but they proved unsatisfactory on function in Assembly. (The tryout time lag was caused by M/721-722 shut-down). The material and labor costs involved are $7.14 and $2.678 per 100.

For information, a machine study was taken on the new jig and the operation classified as controllable on both diameter and position of the hole.

Process Engineering Dept.
E. Sapp

by E. J. Corcoran
E. J. Corcoran
Process Engineer

EJC/I

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON
R2527664

CC: R. A. Williamson
H. J. Hackman
E. J. Mock
J. Rogers
C. Prosser
[redacted]
L. F. Mitchell

5/23

Ilion, New York
May 20, 1955

A. D. KERR (2)

M/721-722 POWDERED METAL TRIGGERS
(TEMPORARY PART NO. 18861)

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Process Engineering Dept.
E. Sapp

by E. J. Corcoran
E. J. Corcoran
Process Engineer

EJC/I

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON
R2527665

CC: J. W. Miller
R. B. Burley
L. P. Murphy
P. B. Croop
G. Gilmartin
R. Harter
F. Byrnes
T. H. Pratt
V. G. De Reus
R. C. Gilbert

Ilion, New York
May 20, 1953

TO: M. H. WALKER

FROM: PROCESS ENGINEERING DEPARTMENT

SUBJECT: M/721-722 TRIGGER - DWG. C-19450 & C-19820

In accordance with an agreement reached at a meeting of the Process Committee on this date, we will plan to hold up the transmittal of subject drawings. These drawings cover a die-cast Trigger Blank to be finished milled and drilled at Remington.

It was the opinion of the Committee that it would be impractical for Remington to mill to a .002" limit on the sides. This decision was reached after a lengthy discussion of all types of milling and fixtures were reviewed.

At your own suggestion, we will plan to hold present drawings until such a time as you review your suggestion with the Sales Department to add a Trigger Shoe to a stamped Trigger in favor of the proposed die-cast and milled Trigger.

Process Engineering Department
E. Sapp

L. F. Mitchell
L. F. Mitchell
Process Engineer

LFM/fc

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

CC: R. A. Williamson
H. J. Hackman
E. J. Mock
J. Rogers
C. Prosser
N. Thompson ) In
R. B. Hurley ) Turn
L. F. Mitchell

Ilion, New York
May 20, 1955

A. D. KERR (2)

M/721-722 POWDERED METAL TRIGGERS
(TEMPORARY PART NO. 1886)

The pivot pin hole on approximately five hundred (500) of these components is out of position and the parts should be scrapped. They are being held by J. Rogers in Dept. 62 pending final disposition.

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Process Engineering Dept.
E. Sapp

ES 4/23

by E. J. Corcoran
E. J. Corcoran
Process Engineer

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

R2527667