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RESEARCH PRESENTATION

JULY 1975

**PLAINTIFF'S  
EXHIBIT**  
3048

3200 COST REDUCTION AND DESIGN IMPROVEMENTS

I. There will be a continuing effort over the next year to lower costs and improve the reliability of the 3200 Shotgun. The following cost items are presently being worked on:

A. The present ejectors are machined out of solid bar stock. We propose to buy formed bar stock to match the head and stem profiles of the ejector. The formed bar stock would be cut to length and electron beam welded together. This change would save 9 milling operations per ejector.

B. An ejection system design which would eliminate parts and lower costs has been developed. The design is being tested in the light weight series.

C. We are working with Production on helping to reduce labor costs at the stock and fore end fitting operation while maintaining the quality objectives.

D. The frame assembly complete is one of the most costly components on the 3200. We have investigated manufacturing it in a number of different ways. We have tried making both tangs integral with the frame, tried making the bottom tang integral with the frame. In each case the added cost due to complexity of the parts outweighed the savings in the reduced number of operations. We are now looking into the feasibility of taking the separate parts and welding them together. There should be a savings, as the parts would be easier to machine, and the mechanical joints would be eliminated.

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Remington Arms Company, Inc.

- I. E. The modification added parts to the gun, which increased the cost. We are looking into ways of reducing the added part costs. Design work is being done to change the strut from a machined part to a stamping. The slot nut will be made from formed bar stock instead of being machined from bar stock.
- II. There were a number of design changes made over the last year:
- A. The frame assembly was modified with the addition of the strut for added tang endurance, and the elimination of the following fire control problems: 1) deflection of the tangs causing fires on closing, 2) trigger adjustment affected by stock bolt torque, and 3) fails to fire malfunction.
- B. The ejector cam plates were redesigned to prevent cam plate breakage if the gun is excessively dry cycled and to reduce wear if the cam plate bearing surfaces are not properly lubricated.
- C. The ejector system was redesigned to allow the gun to rotate open further to give greater clearance between the shell ejecting from the bottom barrel and the top lock.
- D. The 3200 has a very good trigger pull, and to maintain this feature we have been isolating the factors which contribute to the trigger feel. From this study we have determined that the notch form and surface finish are the most critical. To maintain the 3200 trigger performance, the sears and hammer notches will be form ground.
- To monitor our firearms and compare our trigger pulls with the competition we have developed a gage which prints out a graph of the trigger characteristics. This takes trigger pulls out of the subjective case where

II. D. you are relying on individual feel, and puts it in a category where triggers can be rated.

E. We are continuing design work on reducing the number of cracks in the stocks and fore ends. We are working to decrease the deflection of the fore end iron - fore end plate joint to relieve the strain on the fore end wood. We are taking high speed movies of the stock under the various loading conditions to determine the best possible design solution.

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3200 COMPETITION SKEET and TRAP GUNS

- I. The competition grade guns will be announced in January 1976. The competition grade will allow the price restructuring of the whole 3200 line to increase revenues. The competition trap gun will replace the special trap, while the competition skeet gun will be a new item.

Competition Features

- Presentation style recoil pad
- "B" Grade wood
- Low gloss oil type finish
- New distinctive checkering patterns
- Checkered side panels
- Contoured pistol grip
- New gold washed frame markings
- Engraved trigger bow and fore end latch plate
- Improved ejector finish

3200 ALL GAUGE SKEET SETS

With this set the customer can shoot all skeet events with the same gun, rather than having to adapt to a new gun for each event.

The gun has a common weight, balance point, sight line and point of impact for all barrel assemblies. When the shooter shoots any gauge it is practice for any other gauge because it is the same gun with the same feel with any of the barrel assemblies.

The barrels have a unique contour which lets us eliminate the need for spacers or separate fore ends for each barrel assembly.

Work has been done to optimize the chokes for each gauge. Three all gauge skeet sets have been fabricated. A total of 112,000 rounds have been put through the three sets. One gun was fired to 100,000 rounds - 25,000 per barrel assembly, with no significant problems. The barrel integrity has been tested with high pressure loads (3 times normal proof pressure levels). Over 12,000 rounds have been fired at skeet targets with excellent scores being recorded.

The drawings have been released to Production and a marketing plan is being developed.

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MODEL 3200 SINGLE BARREL TRAP GUN

The 3200 single barrel trap gun was designed to give the shooter the ultimate advantage at every trap shooting event. (16 yard singles and 17 to 27 yard handicap).

The gun features an adjustable rib which lets the shooter select his point of impact. No two shooters see the same thing or take aim on the target the same; thus, this gun lets the shooter adjust the gun to his needs; he does not have to adjust to the gun. The rib is such that the shooter will not be bothered with heat mirage.

The barrel assembly has a recoil reducer matched with the recoil pad to give the greatest possible recoil reduction. The recoil reduction should be about equal to the M/1100. This is a valuable asset in trap where all shooting is done with 12 Gauge guns.

The single barrel assembly will have two special Remington trap chokes so the shooter can choose the optimum pattern for his given yardage.

Because the bottom barrel is used, the gun has straight back recoil. The barrel is overbored to obtain the best possible pattern.

The single barrel gun can be offered with an extra set of barrels for trap doubles. This barrel assembly would have the bottom barrel shot high with a modified choke for the first bird, while the top barrel would be set to shoot right on with a full choke for the second bird.

MODEL 3200 SINGLE BARREL TRAP GUN Continued

Three prototype guns with the latest design features will be fabricated for a marketing field test in November. No firm announcement date has been established. The design is being approached from the standpoint of getting into production with a minimum of investment.

3200 LIGHTWEIGHT

The 3200 Light Weight has been developed in four different versions:

12 Gauge Field Light Weight	7 1/4
20 Gauge Field Light Weight	6 3/4
12 Gauge International Skeet Gun	7 1/2
12 Gauge Slug Gun	

The 3200 was designed for the skeet and trap markets. This gun is a variation of the standard gun which has been lightened to provide a better upland game gun. The 20 Gauge was developed to weigh under 7 pounds, while the 12 Gauge field weighs slightly over 7 pounds. The slug gun could be offered as a gun or a slug barrel assembly for the field gun.

These guns are being developed as a possible addition to the line, with no firm announcement date.

MODEL 870 SUPER TRAP

This model would be priced between the M/1100 Trap and the 3200 Trap gun. The gun will have a recoil reduction system, and an adjustable rib similar to the 3200 single barrel. It will be a two shot manually operated gun, so the shooter will have the reliability he wants with the option of saving his shells.

MODEL 700 PROGRAM

We are continuing design work on the bolt action line to maintain our market position.

For the short range we are going to bring out the M/700 BDL Varmint Rifle in the popular 308 Caliber. This rifle will be aimed at the following markets:

1. 30 Caliber Varmint Hunter
2. Silhouette Shooter
3. Hunter Class Bench Rest Shooter
4. Law Enforcement Officers

We are investigating the feasibility of putting the 8mm Remington magnum in the M/700 rifle.

MODEL 700 PROGRAM Continued

For the long range program we are looking at the following items:

1. Improved safety mechanism
2. Detachable box magazine
3. Decreasing the lock time
4. Going to an enclosed bolt plug with cocking indicator
5. Improved trigger mechanism
6. Improved accuracy

MODEL 600 MINI CARBINE

This rifle will satisfy the needs of the back packer, guide, and deer hunter for a light, short, and fast handling gun.

The gun is 34½ inches long and weighs only 5 7/8 pounds. There is no planned announcement date for this gun. The gun could be offered in one or two grades, with any of the popular short action cartridges.

The deluxe grade will feature:

- Laminated stock
- Sling and Swivels
- Recoil Pad
- Metal Trigger Guard
- RK-W Finish
- Press Checkering

The utility grade would be a plain gun with a straight pull birch stock.

# REMINGTONS SHARE OF SPORTING ARMS MARKET

	1970	1972	1973	1974
AUTOLOADING SHOTGUNS	43	50	48	46
PUMP SHOTGUNS	29	32	28	29
RIM FIRE RIFLES	23	17	16	19
AUTOLOADING CF RIFLES	44	45	50	61
PUMP ACTION CF RIFLES	-	-	-	99
BOLT ACTION CF RIFLES	48	46	45	49