

## FIREARMS

### Model 1100 Weighted LT-20, 28 & .410 Ga. Skeet Sets

(See November Operations Committee Minutes)

#### XSG

The initial model of the XSG Shotgun has been completed and function tested with 1340 rounds of 3 dram 1-1/8 oz. skeet loads. The malfunction rate was less than .1%. A small crack started in the action bar in an area that had been modified several times to establish the proper carrier dog position. A new action bar will be ready to resume endurance testing in approximately two weeks. A second prototype gun which will include the floating piston system will be available for initial tests at that time. The present integral action bar - piston assembly could prove to be troublesome in production, requiring costly straightening and alignment operations. The floating piston should eliminate this potential problem. A third model with a stainless steel piston assembly will be available for testing late in February.

Wear characteristics of the new magazine cap detent system proved inadequate. New components with larger detenting surfaces are currently being built for further testing on current and new models of the XSG. This should not delay current tests.

#### Model 3200 Skeet Sets

Status of pilot tests are as follows:

Patterns - Pattern performance has not been consistent, or within specifications from gauge to gauge. Extremely tight patterns were typical of both the .410 ga. and 28 ga. Below minimum patterns were obtained with the 20 ga. barrels while the 12 ga. barrels produced patterns which varied throughout the full spread of the specification. The 3200 does not utilize the Remington Skeet Choke. While further investigation into choke configuration is recommended, bird breaking performance during shooting tests was good and this problem should not delay the project.

Indent - All gauges produced indents that were consistently below specifications with essentially the same distribution of values. A low frequency of misfires was experienced with the 12 ga. barrel set. No changes are recommended at this time and no project delay should result. The results of this test will be reviewed with the Ammunition Research Group.

Loading - "Shell slips by ejector" malfunctions were encountered in all except the 12 ga. It was present to a minor degree in the 20 ga. and to a more pronounced extent in the 28 ga. and the .410 ga. Barrels with minimum chambers are being processed for test to see if this will reduce the problem. Again, the problem is not considered sufficiently serious to cause a delay in the project.

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Endurance - One gun has completed 40,000 rounds (10,000 rounds per ga.) with no serious problems.

Appearance - The overall appearance of the sets was judged acceptable. A few minor problems that can be easily corrected were noted.

Summary - Preliminary discussions have been held with Marketing covering the above items. No cause for delay has been determined at this time. A detailed review with Marketing will be conducted when the final test report is compiled.

#### Models 7400 - 7600

Fifteen (15) 7400 rifles, including carbines, have been tested for functional performance. Of the three calibers involved, the 30-06 Spfld. and 243 Win. have been successfully debugged based on limited testing. Additional rifles in these calibers will be tested to confirm these results. We expect that the 308 Win. will respond to the correction incorporated in the .243 Win. gun - a longer barrel takedown nut to shorten the travel of the action.

The new magazines have not been function tested yet because no satisfactory followers have been received from the vendor. The vendor has been alerted.

#### Nylon 66 Improvements

Preliminary testing of the bolt handle lock open device and the barrel mounted scope mount has been successfully completed. Final design testing of the bolt lock should be started by the end of December.

All cost estimates received for previous design scope mounts have been too high. Quotations have now been requested for a die cast and a thermoset mount of the same design. A one-piece, stamped mount, is also being designed which should be completed by the second week in December.

#### Model 1100 - 870 Improvements

The 150 spring retained feed latches (split latches) are out of heat treat and in the assembly area. These will be assembled the last week of November.

The 150 carriers of thicker material have been installed, tested and shipped with excellent results. There were no malfunctions caused by the carrier. This change in thickness will be reflected on our model drawings as soon as pertinent information is received from our vendor. This modification should reduce the number of "stem carrier" malfunctions found in gallery testing.

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Testing of the M/870 fore end tubes with 3 spot welds per bar were unsatisfactory. However, the welds proved to be inferior and new samples were made up with more heat and better weld area. This test will resume 12-11-78.

#### Model 870 Competition Trap

(See November Operations Committee Minutes)

#### Model 700 - 600 Fire Control

Basic layouts for a new fire control for these rifles are being made. Included in the design will be the blocking of the sear and trigger, with provision to open the bolt and unload the chamber with the safety in the ON SAFE position.

#### Model 6600

(See November Operations Committee Minutes)

#### Model 600 Carbine

The cosmetic improvements are now being consolidated on 5 or 6 rifles for a January Marketing focus panel.

#### Mechanical Trap

The final draft of the manual has been approved. Manuals will be ready by the end of December.

#### Bench Rest Bullets

6mm Bench Rest Bullet - 62,000 bullets were shipped to warehouse this month.

Some minor problems were encountered with the blank and cup and cutoff operation, which resulted in increased downtime.

Reports received from shooters in various areas of the country that the Remington bench rest bullets are not available in their localities are being referred to Marketing.

Handgun Metallic Silhouette - Additional testing has been performed with the 7mm M.X. cartridge (shortened 308 Win. case necked down to 7mm) and the XP-100 chambered for it.

On November 18-19 the gun was fired in competition in Salem, N.H., resulting in a first place in the "Unlimited - Unclassified" category.

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Process Research

ASEA Manipulator

Our unit is now operational and several programming tests have been run. Measurements made of the force exerted by the arm in various positions showed the arm is stronger than specified. Based on data obtained in a visit to Norton's belt plant, the exerted forces appear quite adequate to polish receivers.

ASEA has modified the gripper and has requested we test it. It is rather flimsy and the tenon locator is still at an incorrect angle, however, they claim this will not affect performance. We should receive both it and the remaining fittings to operate it, shortly.

We are preparing a nest of 7 dial gages to test the system repeatability on the outside of the machined receivers. A statistical analysis of the results will be compared to receiver measurements. It may be necessary to design a position correction system to realign the gripped receivers, so that their outside surfaces are at program zero, prior to polishing.

Polishing jacks have not been ordered. The latest quotes are still being reviewed with the vendors.

Since the manipulator appears stronger than anticipated, another loading test will be tried. Fingers will be fabricated for the standard gripper furnished with the machine. An attempt will be made to pick up center fire barrel blanks on end, to simulate loading a machine such as the Ajax Upsetter.

Center Fire Rivetless Extractors

A complete review of the history of this item was made this month.

Currently we are fabricating at Ilion ten (10) of each size out of reworked regular blanks. These will incorporate smaller radius detents for snappier action. They will be tested in M/7400 and M/700 actions under extremely adverse conditions - cold, humid and dirty.

|                         |                 |
|-------------------------|-----------------|
| Regular in 270 Win.     | & 30-06 Spfld.  |
| Magnum in 300 Win. Mag. | & 7mm Rem. Mag. |
| Small in 222 Rem.       | & 223 Rem.      |

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The proposed design incorporates a thicker cross section behind the claw. Since we cannot make this here, we have ordered 1000 pieces to be made on temporary tooling by H & P. The price is \$.1295 each for all sizes, resulting in the following approximate cost savings based on the 1979 forecast for all centerfire rifles.

|            |                             |
|------------|-----------------------------|
| \$ 89,000  | Purchased Part Savings      |
| \$ 80,000  | Reduction in Assembly Costs |
| \$ 169,000 | Total Gross Savings         |

We expect to phase the rivetless extractor into the existing bolt action center fire rifles in 1980 and the M/7400 & M/7600 rifles in 1981.

#### Auto-Drill Line

As the initial vendor floor plans proved inadequate, a new layout was prepared at Ilion. This layout now incorporates official center line distances between the various units. The layout was validated by a thorough check of the detail drawings at Albion on November 1st. They still do not have a final design for the conveying system between the saw and the gantry drill loader.

The machine bases are nearly complete and will be laid on the line keel early in December. It is possible that the June scheduled completion will be beaten.

On November 2nd there was a meeting at Albion with the selected chip system vendors. The Ilion layout incorporated their equipment plus a Hoffman Vacu-matic rough filter system. A final quote is due shortly. It appears the site preparation can be scheduled for April 1979.

Two oil/chip separation systems were also inspected and one incorporating an automatic solids separation just prior to the wringer. This will remove any sawed bar wafers or small tools that inadvertently find their way into the system. Coarse screens under the machines will keep out larger parts such as barrel blanks.

#### M/1100 Formed Ejector

Prototype formed ejectors for 12 Ga. 2-3/4" shells were made up in various positions along the barrel extensions. Testing of other gauges and shell lengths is continuing. A phase-in during the last part of 1979 appears realistic. An initial estimate indicates \$57,000 per year gross savings.

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