

## Research Progress Report

### Model 1100 Improvements

Dry cycle testing of the interlocked connector/disconnector systems is complete and results are being analysed.

Feed latches with a spring loaded retention design have worked well in testing. A method for assembling these latches into the receiver is being investigated.

### M/1100 Weighted LT-20, 28 & 410

All design, drawing and model making work is complete except for the .410 magazine spring retainer. Live fire testing on one LT-20 and one 28 ga gun is underway. The LT-20 is at 6000 rounds and the 28 ga is at 3500. No problems have been experienced yet.

M/1100 Waterfowl Guns

All drawings for the 12 ga. version of this gun will be transmitted by 4-28-78. The 20 ga. design will follow in one to two weeks.

XSG

The first prototype XSG-A3 is nearly complete. Two parts are still in heat treat.

Total gun weight turned out to be 7 lb. 4.5 oz. for a vent rib 26" field gun and 7 lb. 0.5 oz. for the plain barrel version.

M/870 All Ga. Wood Cosmetics

Six new checkering patterns have been designed and executed and turned over to marketing for a market research study.

M/ 7400 - 7600

see extra sheet.

Research has produced two new firing pin designs. To solve the primer blanking problem tip diameter was reduced to .049 on one design and .055 on the other, the firing pin spring was redesigned to absorb 50% less energy (and thus increase firing pin inertia) and the exit hole on breech bolts was radiused by a metal removal technique instead of a punch. Tip strength was increased by shortening the tip to approximately half of its former length in order to reduce the cantilever effect.

Testing is now under way on these designs. Both have so far sustained 130 proof rounds each with no blanking or breakage. The proof ammunition being used is the highest pressure of all lots available (77 C.U.P.). Standard 742s proofed in the Plant gallery with this ammunition show a 5% blanking rate (5 of 100 guns monitored) (A) ~~Endurance testing on two additional guns is under way and no problems have been observed so far.~~ Indent on closing was 0.00 (no discernable mark under 40x magnification) and indent level on firing was increased approximately .004 which now puts us within Remington specs.

After conclusion of endurance testing we will reach a decision as to which tip design to use, .049 or .055. The .055 tip has an advantage in that it should be slightly stronger but the .049 tip gives more leeway for out of tolerance parts.

Parts for additional testing including firing pins, springs, and breech bolts are now being fabricated.

R. W. [Signature] Research  
Process Applications

[Signature]  
Research Division

(A) Endurance testing on two additional guns is also complete. One pin went 4489 rounds and the other 3498 rounds. No tips or bodies were broken. The failure was at the "hat" section at the rear of the pin. This is considered to be an excellent failure mode since it does not present a safety problem upon failure. Indent on closing was checked after failure and was 0.0 on both guns.

Nylon 66 Improvements

Problems have been experienced by our stamping vendor in forming the receiver cover to accept the new bolt lock device. Alternative methods are being evaluated.

Two new designs for a barrel mounted scope mount have been completed. One is of stamped construction and the other will be either machined or investment cast. Both designs are being evaluated for cost.