

RESEARCH DEPARTMENT
FIREARMS RESEARCH DIVISION
MONTHLY REPORT - JUNE 1980

HIGHLIGHTS

FIREARMS

Page

Model 700 Bolt Lock

The accepted bolt lock design is being fabricated and assembled and will be tested on the bolt action carbine.

Model XSG Shotgun

A model is ready to resume testing with a new lower stressed action spring and a modified Model 1100 \ type gas system. The welding process for the slide block action bar joint is being perfected.

Models 7400 - 7600

Model 7600 machine trial testing results show a malfunction rate of .09% in 1140 rounds of field cycle testing.

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Model 700 Bolt Lock

The objective has been to give the rifleman the ability of opening and unloading his rifle without placing the safety in the off (fire) position. This has been done by divorcing the operation of the safety from the bolt lock. An aesthetically acceptable lever has been designed and fabricated and will be tested in conjunction with the bolt action carbine. Final cost estimates are being prepared by Industrial Engineering.

Testing is planned to start the first week in July.

Model 700 Fire Control

New components for the No. 1 design have been received and assembled, and will be tested.

The third design, which combines both current Model 700 and desirable features of Design Nos. 1 and 2, is being fabricated and assembled for evaluation.

Models 7400 - 7600 Auto and Pump Centerfire Rifles

Five Model 7400 - Cal. 30-06 rifles have been fitted with production heavy wall magazine boxes. The testing shows a reduction of about 1% in the malfunction rate, or from 3.5% to 2.5%. Work is continuing to reduce the stem override (SOR) malfunction which occurs on the last round out of the box. The trapped shell malfunction has been reduced by changing the configuration on the face of the ejector. If this proves successful in additional sample guns, the change will

Models 7400-7600 Auto and Pump Centerfire Rifles Continued

be transmitted to the Plant. The change is minimal and has been reviewed with production personnel.

The wood processes have been resolved. Approval has been given for the Model 7400-7600 stocks and fore ends, and we have also approved the Model Four fore end. We have not had satisfactory samples of the Model Four stocks. The press form process has been approved and we are waiting on the checkering to complete.

Production firing pins with shot peening from Metal Improvements have been dry cycled over 10,000 cycles and are satisfactory.

Model XSG, XPG Shotgun Design

New autoloading and slide action shotguns are being developed for introduction in the 1984 model year. The objective of the program is to replace the Model 1100 autoloading shotgun and the Model 870 slide action shotgun with improved versions which will be lighter in weight. The gun are being designed simultaneously to take advantage of common parts for reduced manufacturing costs.

Four prototype model guns have been used in the development and testing of this improved model autoloader. A total of 45,000 rounds has been fired between these four model guns and has indicated need for improved design modifications in the locking system and action bar, slide block joining assemblies.

Two new locking system are currently being built. Barrel assemblies are completed for these locking systems and breech bolts, locking blocks and slide blocks are in the process of being built.

Preliminary testing of one previous XSG model updated with new action bar assembly and 1.200 longer round wire action spring and Model 1100 type piston and seal has begun. This will enable us to monitor spring set as compared to previous spring design. Also a square wire design spring is presently on order from Connecticut Spring.

Model XSG, XPG Shotgun Design

A gas cutoff system has been made and is being tested in a Model 1100 to determine effectiveness of this system as to controlled bolt velocities between light and heavy loads.

The computer simulated model is still being evaluated for an effective gas cutoff orifice system. The shooting model is in test for evaluation currently.

21mm SEISMIC GUN

The 21mm Seismic Gun is being developed for Mapco for use in their seismic exploration for oil, gas and mineral deposits.

Since the last report two types of firing pin retracting blocks have been designed and tested. The two designs are an inertia retract model and a cam operated automatic retract model.

The testing has been confined to live firing and firing primed empty cases. The inertia retract model has fired 7898 rounds and has experienced 75 misfires. The automatic retract model has fired 5255 rounds experiencing a total of 159 misfires.

Because of the favorable misfire ratio the inertia retract model has been tentatively selected for production. The automatic retract will still be developed for possible production.

Highlights

The inertia retract model has been tentatively selected for production due to a more favorable misfire rate.

New Owner Manual Format

Our present owner manuals are written using words that often tend to be technically slanted, making it difficult for the average person to read and understand. The new manuals are being written using a controlled language with the key principle one being one word - one meaning.

Mechanical illustrations for the Model 700 instruction book are scheduled to be completed the week of July 15. The exploded view is being revised to show the trigger housing as an assembly rather than separate components. Instruction books are expected to be printed and ready for packaging the first week of August.

Marketing and Legal Departments have approved the draft of the Models 7400 - 7600 instruction books. Work is proceeding to complete the camera ready copies for proof printing, with a scheduled completion for July 7, 1980.

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