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Research Progress ReportModel 1100 Weighted LT-20, 22 & 410 Shot Guns

Components have been received for the model 500p. Guns are being assembled and are ready for testing.

XSE

Bolt velocity tests of an integrated gas system were successful. Initial bolt velocities using two .078 orifices were comparable to a control m/1100 using two .086 orifices.

A new A3 prototype is being prepared which will include the revised gas system dimensions and processing sequence (grind parts after heat treat), revised locking system dimensions to prevent cam web cracking, bump set action springs, stronger

trigger spring, new O-ring (material change), new feed system (revised McC type) and urethane buffer. The bolt estimate for assembly is 1.5 hours.

A new design magazine is being developed which will perform the magazine's present function but be built to the Model 500p. This

part replaces four parts previously used to perform these functions and is considerably easier and safer to use than the standard spring release. Production parts would be injection molded out of Delrin. Legal advisors are that patent protection may be possible.

Model 870 all Gauge Wood Combis.

All drawings are ready for transmittal pending formal approval.

Model 3200 Sheet Set

Specifications have been checked on the first five Trial and Pilot Sheet sets and we have fired 1000 rounds per set on the sheet field. Bird breaking ability has been excellent. Significant problems to date have been "shell slips in ejector" malfunctions and low impact on bottom barrels. The low impact problem has not resulted in "shell slips" in the field.

Five additional sets will be fired starting this week of 1972.

Models 7400-7600

All parts for the 15 gun function test have been completed. Guns will be assembled and tested following completion of the 3200 sheet set test.

Nylon 66 Improvements

A Research N.C. machine is down for repairs and has delayed fabrication of powder metal, barrel mounted scope mounts (anticipated production material) and additional bolt handles with the lock open device. Additional handles will be necessary to run an environmental creep test to determine the cause of bent handles. Handles with a metal pin insert will also be prepared as a contingency design. Also we are attempting to obtain from DuPont some sample ST-301 nylon with the glass reinforcement. (This is a high temperature material and is being used for material study to determine creep properties.)

The barrel mounted scope mount

was tested for repeatability of point of impact in a high temperature test. A standard receiver mount was used for a control. During the 10 minute temperature cycle the gun with the barrel mounted scope shot into the same hole for 13 shots at 25 ft. The control gun "walked" its shots as temperature increased out to a point 3 inches from the original P.O.I.

### M/1100 Target Grade Styling

all drawings <sup>for wood cosmetics and receiver mark</sup> are complete and transmitted. New model designations are SA, S-T, TA and T-T

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Model 1100 and 870 Improvements

Further problems were experienced by Production in assembling spring retained feed latches. We have designed an assembly tool (now in Model Shop) and have modified the latch design for use with the tool. A ~~new~~ stress relief hole has also been added to the root of the slot per vendor recommendations. New latches have been ordered.

150 M/1100 carriers of thicker material (.055 vs. .047) have been gallery tested and shipped. No problems were seen. An additional lot of 150 are being assembled to fire controls.

Testing of M/870 fore-end tubes with no braze (spot weld only) was unsuccessful. The present spot welds were intended for location only during the braze operation. Further spot welds will be added and welding parameters changed to provide a stronger weld joint. The welds will be tested after these assemblies are available.