

LIMITED DISTRIBUTION

ILION RESEARCH DIVISION
MONTHLY PROGRESS REPORT
SEPTEMBER 1978*K. J. Lacey*MODEL 1100 WEIGHTED LT-20, 28 & 410 SKEET GUNS

Components have been received from the Model Shop. Guns are being assembled and readied for testing.

XSG

Bolt velocity tests of an integral piston 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 piston after heat treat), revised locking system dimensions to prevent cam web cracking, bump set action springs, stronger extractor spring, new O-ring (material change), new feed system (revised 1100 type) and urethane buffer. The best estimate for assembly is the last week of October.

A new design magazine spring retainer which also performs the magazine cap detent function has been sent to the Model Shop. This part replaces four parts previously used to perform these functions and is considerably easier and safer to remove than the standard spring retainer. Production parts would be injection molded out of Delrin. Legal advises us that patent protection may be possible.

Remington Arms Company, Inc.
Ilion Research Division

ILION RESEARCH DIVISION
MONTHLY PROGRESS REPORT
September 1978

-2-

MODEL 870 ALL GAUGE WOOD COSMETICS

All drawings are ready for transmittal pending formal approval. Working prints have been provided to P.E. & C.

MODEL 3200 SKEET SET

Specifications have been checked on the first five Trial & Pilot Skeet sets and we have fired 1000 rounds per set on the skeet field. Bird breaking ability has been excellent. Significant problems to date have been "shell slips by ejector" malfunctions and low indent on bottom barrels. The low indents (approximately .010 inch) have not resulted in "fail to fire" malfunctions.

Five additional sets will be tested starting the week of 9-25-78.

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 Skeet 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 Du Pont some sample ST-801 nylon with fiberglass reinforcement. (This is in the experimental stage at Du Pont.) This material should have much better creep properties.

ILION RESEARCH DIVISION
MONTHLY PROGRESS REPORT
September 1978

-3-

NYLON 66 IMPROVEMENTS Continued

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 feet. The control gun "walked" its shots as temperature increased out to a point 3 inches from the original POI.

MODEL 1100 TARGET GRADE STYLING

All drawings for wood cosmetics and receiver markings are complete and transmitted. New model designations are SA, S-T, TA and T-T.

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 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

ILION RESEARCH DIVISION
MONTHLY PROGRESS REPORT
September 1978

-4-

MODEL 1100 and 870 IMPROVEMENTS Continued

the brazing operation. Another spot will be added and welding parameters changed to provide a stronger weld joint. We will retest after these assemblies are available.

MODEL 870 COMPETITION TRAP

The latest stock, fore end and barrel assembly drawings will be furnished to Process Engineering this month.

Target grade triggers are in test in the Test Lab. Live firing tests have started.

<u>Shotgun</u>	<u>Trigger Pull at Start</u>	<u>Rounds</u>	<u>Present Trigger Pull</u>
870	1.08#	1000	1.9#
1100	2.92#	210	2.87#
1100	4.08#	-	-

On the first two guns a fail to connect was encountered and a double click safety. It was found that the trigger was not returning to the rear and was caused by over adjustment of the new pounds pull adjustment screw. Methods of preventing over adjustment are being investigated.

MODEL 700 - 600 FIRE CONTROL

Redesigned fire controls that have adjustment for pounds pull, fixed trigger and sear engagement and fixed trigger overtravel are in the Test Lab.

Two different designs of the bolt lock that allow the rifle to be unloaded with the safety "ON SAFE" will be ready in October for testing and market evaluation.

ILION RESEARCH DIVISION
MONTHLY PROGRESS REPORT
September 1978

-5-

MODELS 788, 580s, 541S and 540XR

A new design of the fire control for these models has been completed. It has a uniform "ON" and "OFF" safety force, improved tolerances, and a stronger attachment to the receiver. Models are in the Test Lab.

MODEL 788 - 22 Hornet

Work is progressing on the design of a magazine for this model and caliber.

MECHANICAL TRAP

Marketing has requested the return of the lever cocked, solenoid release traps that are in field test. Questionnaires requesting information on the operation of these traps will be returned at this time and will be evaluated as they are received.

Production has gone out for quotes on the hand cocked model for January introduction.

PROCESS RESEARCH

Center Fire Rivetless Extractors

Purchasing expected a proposal from our current vendor before the end of September, about a month overdue. Design work is continuing on the small caliber version.

ILION RESEARCH DIVISION
MONTHLY PROGRESS REPORT
September 1978

-6-

PROCESS RESEARCH Continued

ASEA Manipulator

Three quotes on polishing equipment have been received, 30M, 45M and approx. 50M. None are fully satisfactory as yet and will have to be refined. Deliveries of 5 months were quote. ASEA has had prints of suggested gripper designs since September 1, but has not responded.

Barrel Drill Line

The vendor was visited September 5 and 6. Designs are nearly complete and finalized prints should be in Ilion by October 1 for approval.

BENCH REST BULLETS

Approximately 57,000 6mm bench rest bullets have been shipped to the warehouse.

Labor and material standards are currently being re-evaluated by Industrial Engineering to update increased cost of material and direct labor.

CEWorkman:T
9-25-78