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REMINGTON ARMS COMPANY, INC.

FIREARMS RESEARCH

FIRST QUARTER PROGRESS REPORT - 1985

MARCH 19, 1985

Distribution

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File-Quarterly Reports

HIGHLIGHTS

Shotgun DevelopmentPage

- o Design modifications to the proposed new gas system for the Model 1100 have resulted in the narrowest bolt velocity spread yet seen in development testing. 3
- o All Model 1100-12 ga. Restyle drawings are complete to the latest revisions agreed to by Production, Marketing, and Research. 3
- o Remington's choke tube design for the Model 870 Restyle was transmitted to Production following resolution of material creep and choke tube loosening. 4
- o Research rejected the Model 870 Special Purpose Magnum trial and pilot sample. 4
- o The "Parker Reproduction by Winchester" was removed from test at 600 rounds for safety considerations. 4
- o A laboratory model of the New Concept Shotgun fire control should be complete 3Q85. 5

Rifle Development

- o Developmental jar-off testing of the New Bolt Action Rifle fire control is progressing with results expected by the end of March. 5
- o A trial and pilot sample of the Model 700 Classic chambered for 350 Rem. Mag. was rejected. 6

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SHOTGUN DEVELOPMENT

Model 1100 Functional Improvements

This program, along with the Model 1100 Restyle Program, is aimed at maintaining the Model 1100's position in the marketplace until its replacement by the New Concept Shotgun. Research efforts are focused on a new gas system which will allow the customer to shoot all field and magnum loads in one gun, a new carrier for improved feeding, a stainless steel magazine tube for improved corrosion resistance, and a thicker extractor and two-piece firing pin spring for improved endurance. Product introduction is scheduled for 1987.

The circumferential spring that has been in test for the gas system has been redesigned for more positive sealing and ease of assembly. Initial testing produced terminal bolt velocities of 130 in/sec with 1 oz. target loads and 319 in/sec with Federal 3" magnum loads. This is the narrowest bolt velocity spread that has been achieved when Federal ammunition was included in the test.

A twenty gun sample of other improvement items is in test at 9,100 total rounds. Malfunction rates are significantly better than on the control guns, which are at 8,000 rounds in the same test.

Model 1100 Restyle Program

This cosmetic program is a complement to the Model 1100 Functional Improvement Program. Specifications include cut checkering, 30-gloss wood finish, two-piece butt plate, screw machine magazine cap, and choke tubes. Introduction of the 12 gauge is scheduled for 1986, with the small gauges to follow one year later.

All 12 gauge drawings and parts lists are complete to the latest revisions agreed to by Production, Marketing, and Research. The transmittal will be issued pending the Business Team's review of program economics, now expected in April.

The drawings package for the 20, 28, and 410 gauges is 75% complete.

Model 870 Restyle

This cosmetic program will improve the perceived price/value relationship of the Model 870. Specifications include 30-gloss wood finish, cut checkering, new recoil pad, and choke tubes. Introduction of the 12 gauge is scheduled for 1986, with the small gauges to follow in 1987.

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Model 870 Restyle - cont'd.

Remington's choke tube design was transmitted to Production on February 28, following resolution of the material creep and choke tube loosening problems. A change in material specification to a minimum yield strength of 148,000 psi has eliminated unacceptable choke tube creep. Tightening of thread tolerances between the choke tube and barrel has reduced the amount of loosening to the point that this design is equal to or better than competition.

Production's trial and pilot has started. Machining of choke tubes and barrels is expected to start on March 25 at Trulock Tool Co., one of two vendors selected by Production to satisfy first year requirements.

Model 870, 1100 Special Purpose Magnum

These guns have been developed to fill a special niche in the shotgun market. Specifications include Parkerized metal finishes, oil finished birch stock and fore-end, 26" and 30" chrome plated barrels, and a camouflaged sling strap. The 30" barrelled version is specifically aimed at waterfowl hunters, and the 26" version at turkey shooters.

Research rejected the trial and pilot sample of the Model 870 Special Purpose Magnum. Two of the ten guns subjected to field function testing had inoperative safeties. The guns have been turned over to Production for further investigation.

Research approved the Model 1100 Special Purpose Magnum trial and pilot sample in January.

Parker Shotgun

The Parker side-by-side is generally considered to be one of the finest shotguns ever produced. Originally made by Parker Brothers, a firm founded in 1868 in Meriden, Connecticut, it was later manufactured by Remington, when Remington purchased Parker Brothers in 1934. Remington ceased production of the Parker in 1947. Consideration is now being given to making a limited number of Parkers available each year. These guns would externally look like the Parker, but would be internally updated to handle today's more demanding ammunition loads. Winchester has recently introduced a "Parker Reproduction by Winchester," which is made in Japan.

The "Parker Reproduction by Winchester" was removed from test at 600 rounds for safety considerations. Several problems developed with the gun, including doubling, jar-off, and firing with the safety on.

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Parker Shotgun - cont'd.

Research has been studying two fire controls for the Parker - one developed by Jesse Briley, and the Miller trigger system which is widely retrofitted in Parkers today. Neither fire control completely satisfies our requirements. We are now laying out the proven Remington Model 3200 fire control in the Parker frame.

New Concept Shotgun

The Model 1100 was introduced in 1963 and immediately became the industry standard for autoloading shotguns. However, few significant changes have been made since then, while competition has blunted our technological advantage. This program, which is designed to replace the Model 1100, will re-establish Remington as the innovator and technical leader in autoloading shotguns.

PDS's work on a new fire control is continuing. A best concept laboratory model should be available for demonstration in the third quarter. PDS is also investigating non-traditional means of primer detonation.

A concept to store energy from the previous round and use it to reduce gun recoil is being investigated.

A rupture disc design for venting excessively high chamber pressure is under investigation.

RIFLE DEVELOPMENT

New Bolt Action Rifle

A new bolt action rifle is being developed as a potential replacement for the Model 700, which was introduced in 1962. Technical improvements over the Model 700 include enhanced safety, a detachable magazine box, a claw-type extractor, an independent bolt lock, and integral scope mounts. Introduction is scheduled for 1988.

Developmental jar-off testing is progressing to optimize sear engagement angles and fire control component weights. New trigger springs, trigger adjustment screws, and trigger and sear modifications have been made to support this testing. Results are expected by the end of March.

Marketing and Research participated in a series of consumer focus panels in February in Phoenix, Denver, and Houston. A report of panel findings will be published separately.

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Model 700 Classic - .350 Rem. Mag.

For the past several years, Remington has produced a limited quantity of Model 700 Classics chambered for calibers not generally available from Remington. For 1985 the Classic will be produced in 350 Rem. Mag.

A trial and pilot sample of ten rifles selected from the warehouse was rejected at the visual examination. One rifle had a cracked stock, and a second had a loose ejector retaining pin which interfered in the assembly of the bolt.

JWB:sps

RESEARCH PERSONNEL AS OF MARCH 31, 1985FIREARMSExempt 25Non/Exempt 12Wage Roll 16

Bauman, Thomas G.
 Bower, James W.
 Calkins, Kevin L.
 Coleman, Wm., H., II
 Curry, Wm.
 Douglas, Terry C.
 Findlay, David S.
 Franz, Scott R.
 Hand, Charles J.
 Hennings, James H.
 Hugick, Adam H.
 Hutton, James C.
 Lawrence, Jeffrey A.
 Martin, Fred E.
 Murphy, Randall S.
 Nightingale, Richard E.
 Plunkett, Thomas J.
 Powers, Thomas P.
 Rankins, Edwin D.
 Rowlands, Kenneth C.
 Sanzo, Robert J.
 Sassone, Richard L.
 Saunders, Eugene L.
 Smith, Floyd H.
 Snedeker, James R.

Eskoff, Sophie S.
 Frost, Helen B.
 Jones, Raymond A.
 Martin, James S., Jr.
 Pickett, Wm. F.
 Saunders, Susan P.
 Schuster, Joyce M.
 Smithson, Ronald L.
 Stephens, Charles J.
 Supry, Fred L.
 Urtz, Donald J.
 Weaver, Harold E.

Baggetta, Joseph A.
 Beader, Robert W.
 Bedworth, Gary R.
 Butler, Richard G.
 Fiorentino, Dominick
 Harter, James D.
 Howe, Robert W.
 Jennings, Dale E.
 Kozakowski, Robert J.
 Paslak, Wm. A.
 Sohns, Wm. A.
 Storne, Ramon
 Truax, Irving E., Jr.
 Williams, Clifford G.
 Williams, Donald M.
 Williams, Ronald R.

Total Firearms Personnel - 53AMMUNITIONExempt 4Non/Exempt 2Wage Roll 2

Cole, Wm. T.
 desJardins, C.F., Jr.
 McDonald, Alexander D.
 Tomek, Warren L.

Conant, Paul
 Thomas, Dennis

Dunn, Timothy
 Selan, Jerry

Total Ammunition Personnel - 8

REMINGTON PERSONNELRemington RollActual
3/31/85Exempt

Ammunition Research	4
Firearms Research	25
Firearms Modernization	9
Administration	<u>1</u>
Total Exempt	39

Non/Exempt

Ammunition Research	2
Firearms Research	12
Firearms Modernization	1
Administration	<u>1</u>
Total Non/Exempt	16

Wage Roll

Ammunition Research	2
Firearms Research	16
Firearms Modernization	<u>1</u>
Total Wage Roll	19

Total Research	74
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