

# LIMITED DISTRIBUTION

## RESEARCH DEPARTMENT

### HIGHLIGHTS REPORT

JULY 1981

### DISTRIBUTION

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## FIREARMS

### NEW PRODUCT DEVELOPMENT

#### XSG/XPG Shotgun

Two XSG 3" magnums have been endurance tested to 3,000 rounds. No major breakage has occurred.

Eight new XSG's are being assembled. Testing will begin the last week in July. Twenty-five more are being fabricated for the Market Field Test this fall.

#### Model 7400/7600 Center Fire Rifles

Three new calibers are being developed:

- Orifice sizes have been determined for the 25-06 and the 7mm-08
- 223 caliber bolts are in the Model Shop

Preliminary design of a five shot box is complete; design of a ten shot box is planned.

#### Model Four Limited Edition

Sample receivers, etched and plated by Newcut, will be complete the week of July 27th. Stocks and fore-ends will be available by August 1, 1981.

#### Model 7400 Carbines

Sample guns with a variety of styling features are being prepared for Marketing evaluation. Guns will be ready by mid-August 1981.

#### Model 979 Seismic Gun

Five additional guns were shipped June 19th, bringing to 37 the total shipped to MAPCO this year.

A draft of the field service manual is circulating for comments.

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### Bolt Action Carbine

Five hand made stocks with the schnabel fore-end have been tested with no failures. Calibers 308, 6mm, 243, and 7mm-08 have been shot for accuracy and meet Remington specifications. Seventeen (17) barreled actions in 7mm-08 caliber for field test are complete.

### Model 7 Bolt Action Rifle

A second Research model will be complete in September.

### CURRENT PRODUCT DEVELOPMENT

#### Model 700 Fire Control

Five guns with the new fire control safety mechanism that blocks the trigger are being endurance tested.

#### Ducks Unlimited Shotguns

Commemorative and Special Dinner guns (M/1100's) for 1981 passed trial and pilot tests. Production guns for the first dinners were shipped on July 10th.

#### Model 1100/870 Magnum Shotguns with 12/26 FL VT Barrels

Approval for these two models was received at the June 29th Operations Committee Meeting. Transmittal of the drawings is complete. September trial and pilot is scheduled.

#### Model 870 Limited Edition

Vendor sample plates of the etched artwork for the receiver panels are scheduled for delivery July 24th for review with Marketing. Sample stocks are assembled and ready for sanding.

### PROCESS DEVELOPMENT

#### Auto-Drill Line

Closeout of the capital portion of this project has been initiated. Operations work orders will remain open until the end

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#### Auto-Drill Line - Cont'd

of the calendar year. Both capital and operations costs (including actual expenditures, commitments, and projected needs) are within 10% of the Part II authorization.

#### Parmatech

The technical package has been received from Parmatech. A process engineer has been assigned to the program, space has been identified for process development, and preliminary contacts have been made with equipment vendors.

#### Four-Slide Machine

Sample M/7600 magazine followers, run on our machine at the tooling vendor's plant, have been dimensionally and visually accepted. Completed parts from this sample are in the Test Lab for functional evaluation.

#### Laser Welding

Laser welded XSG action bar assemblies are in the Test Lab for evaluation. Modified M/1100 action bar assemblies will be sent to ETL by the end of August for welding by higher powered lasers.

#### Torlon Piston Seal

Sample molded "Torlon" seals and stamped pistons are in the Test Lab for evaluation.

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## AMMUNITION

### Shotshell

#### New Unibody Shotshell Process

Lonoke has completed a 12 gauge AH&P run of both target and low base rotary cam shells with no significant problems.

The 20 gauge body is being modified for increased strength. An experimental run of bodies, to be followed by Plant Simplex assembly, has been completed.

#### Asbestos Basewad Elimination

In preparation for an AH&P run, several attempts by Research and PE&C to conduct an extended run for 8 gauge plastic basewad slugs were unsuccessful due to material surging which could not be controlled by the extruder bubble and puller control systems. Other options, including use of the gear pump extruder at Lonoke are being investigated.

#### Current Shotshell Product Improvement

DuPont reports that Energy Dispersive X-ray analysis of fisheyes indicates that silicon and chlorine are present in them but not in the surrounding material. The source of the elements has not been identified yet but the elements are in the catalyst and color concentrate.

DuPont has also determined, through rough calculation, that we may be extruding in an unstable range of shear stress level leading to dimensional instability. Additional information is being provided for a more accurate analysis.

### CENTER FIRE

#### 7mm BR Rem Case

Lonoke PE&C has received all necessary tools and gauges for production startup.

#### 357 Rem Max 158 Gr. SJHP

Hercules 2585 powder performed well at room temperature and after extended storage at 150°F. Cold temperature testing at -20°F resulted in high pressures.

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7mm 140 Gr. PSP and 357 Magnum 125 Gr. JSP

Components and tools are available for production experimental assembly runs.

Extended Range Center Fire Ammunition

Three machine loaded samples of 30-06 Spfd. 165 Gr. PSPBT cartridges are being tested with Remington control and Federal Premium product. The experimental cartridges contain Sierra bullets, Hornady bullets, and Hercules' new HRP-85 powder.

RIM FIRE

"Scorpion" Rim Fire Cartridge

The 100-pound experimental sample of Hercules high efficiency "Bullseye"-type powder did not meet the goal ballistics set for the Scorpion cartridge and pressures ran approximately 1600 psi higher for the same charge weight and velocity than the previous one-pound sample which had given excellent ballistics results. Hercules has been notified of these results and is attempting to determine the reason for the discrepancy.

PRIMERS

TLX Priming Mixtures

Two trial runs of rim fire TLX mixture were made using NEDOX (Nickel/ Teflon coating) charging plates and knockout punches. The NEDOX coated plates seemed to improve charging characteristics. Also, six out of seven charging machines ran well with TLX using conventional plates and punches. Based on these positive results, a more extensive trial and pilot run is being planned. Additional work has resolved previously encountered problems with making TLX (mixing and charging) at Lonoke.

Integral Anvil Battery Cup

Experimental samples of 12 and 16 gauge product were loaded for testing in Bridgeport.

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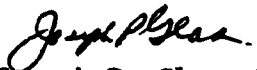
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ENGINEERING RESEARCH & DEVELOPMENT

Industrial 8 Gauge Packer Development

The system is currently being debugged with only minor difficulties being encountered. Site preparation is underway by Bridgeport Plant Engineering for a September installation.

  
Joseph P. Glas, Director  
Research Department

JPG:jl  
Attachment

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RESEARCH PERSONNEL

Remington Roll

	<u>6-30-81</u>	<u>7-31-81</u>	<u>12-31-81</u>
EXEMPT	64	64	62
NONEXEMPT	22	24	24
WAGE	20	22	22
Total	106	110	108

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