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April 22, 1977

TO: J. P. LINDE

FROM: MANUAL FIREARMS DESIGN GROUP

### WORK SCHEDULE

#### Priority Code

- AA - Top Priority, Urgent Need (list completion date)
- A - Current Project, 1st Priority (list completion date)
- B - Current Project, 2nd Priority
- C - Future Project
- F - Follow-up of Completed Projects

<u>Completed on</u>	<u>Responsibility</u>	<u>Priority</u>
<u>Date</u>		

#### MODEL 870 TRAP GUN PROGRAM

##### 1. Super Trap Gun Design

- |   |         |             |   |
|---|---------|-------------|---|
| a) Determine gun parameters   | 4-15-77 | P. Nasypany | A |
| b) Two (2) Prototype Models being made; one with standard 32" Vent Rib Barrel, and one with the adjustable rib (item c) | 5-1-77  |             |   |
| 1. Design work completed except for Fore-end Assem.   | 5-1-77  |             |   |
| 2. Drawings made and parts being received from the Model Shop.  |         |             |   |
| 3. Drawings and parts needed for piston velocity measurements being made.   | 5-1-77  |             |   |
| 4. Function and Field Tests to be made.   | 5-10-77 |             |   |
| 5. Piston velocity and shoulder force measurements to be taken.   | 5-15-77 |             |   |
| 6. Endurance testing.   | 6-1-77  |             |   |

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MODEL 870 TRAP GUN PROGRAM - Cont'd.

1. Super Trap Gun Design - Cont'd.

c) Adjustable Rib

D. R. Lewis

A

1. Preliminary design work to adapt 3200 Single Barrel Trap Adjustable Sighting Rib design. The initial design has been completed. Parts are being made in the Model Shop. 5-1-77
2. The first model will be shot for point of impact. A field test will also be conducted to determine the endurance and performance of the Sighting System.
3. Design work will continue to improve the appearance and any weaknesses that may appear during testing.

d) Super Trap Chokes

The new long "Super" Choke has been attached to two Model-870 SBT prototype barrels for testing.

completed

D. E. Bullis

AA

1. Pattern and Point-of-Impact

5-1-77

D. R. Lewis

A

e) Investigating Adjustable Stock Drop

5-3-77

D. E. Bullis

A

A method of adjusting stock drop by moving the bearing plate back and forth is being investigated. Preliminary tests should be completed by 5-30-77.

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MODEL 870 TRAP GUN PROGRAM - Cont'd.

1. Super Trap Gun Design - Cont'd.

f) High Stock

4-15-77 D.R. Lewis A

A High Stock has been designed to accompany the Adjustable Sighting System. A print has been given to the Model Shop for the Stock Blank. The final forming and finishing of the Stock will be done by Leon Johnson.

g) Fire Control

6-1-77 D.R. Lewis A

Investigating the possibility of making a two-shot Fire Control.

22 AUTOLOADER

1. Establish firing loads.

5-30-77 E. J. Young A

2. Establish bolt mass, spring loads, and bolt velocities.

5-30-77 E. J. Young A

MODEL 700

8mm Rem. Magnum

F. E. Martin F

This caliber is presently in the midst of a production run. A Stock breakage problem has been noted and cause determined. A solution for this breakage has been offered and is being evaluated. No solution to the live round ejection has been reached.

MODEL 700 - Cont'd.

Fire Control

<u>Completion Date</u>	<u>Responsibility</u>	<u>Priority</u>
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6-15-77	F.E. Martin	A
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A program has been started to revise and redesign the Model 700 Fire Control. We want to provide the shooter with a means of unloading the rifle while on "Safe". It is still undecided whether to have a three position Safety or to have a two position with a separate Bolt Lock. The design is planned to parallel the present Fire Control cost and quality.

Trigger Guard - BDL

5-15-77	F.E. Martin	A
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An interference between the Trigger Guard and Magazine Follower exists. It has been determined that it is caused by the Trigger Guard. It is planned to redimension the drawing to eliminate this. The vendor has also been requested to quote on an alteration to provide clearance for the Magazine Follower.

Magazine Components

8-1-77	F.E. Martin	AA
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An extensive evaluation of all components in the M/700 feeding system is being undertaken to ease assembly problems and reduce the number of gallery rejects due to feeding. A screw length change has been transmitted.

A new magazine box is being worked on for the 7mm Rem. Magnum ADL and is ready for test.

Work on the Follower to reduce the weight and cost and to improve appearance has been done. Several models of a new Model 700 Magazine Follower have been made and are ready for testing. Also, Powder Metal has been asked to supply us with samples of powder aluminum for evaluation. It is hoped that we can press this new Follower and chrome plate it.

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	<u>Completion Date</u>	<u>Responsibility</u>	<u>Priority</u>
<u>MODEL 700</u> - Cont'd.			
<u>Scope Base Problem</u>  Several instances of customers having difficulty mounting both Redfield and Leupold one-piece bases on Model 700s have been reported. Investigation is under way to determine its cause and to notify the vendor of this problem area.		F. E. Martin	C
<u>Scope Mounts</u>  New mounts have been designed to mount a hunting scope directly to the receiver instead of to bases.  a) Model for viewing b) Test for endurance and use c) Approval of Marketing	Completed 5-15-77 6-30-77	D. E. Bullis	A
<u>MODEL 600</u>			
1. <u>Fire Control</u>  Production samples for this model are expected in June 1977. Testing will be done immediately and acceptance noted.		F. E. Martin	F
<u>MODEL 788</u>			
1. <u>Firing Pin Heads</u>  This was a Powdered Metal part which has been redesigned as a Formed Bar Stock part.		E. J. Young D. E. Bullis	F

Manual Firearms Design Group  
Work Schedule

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	Completion Date	Responsibility	Priority
<u>MODEL 700 Cont'd.</u>			
<u>M/700 Stock</u>		D. E. Bullis	A
Investigate Cheekpiece placement. Assist Plant in altering fixture.	5-31-77		
<u>Model 700 Classic</u>			
Make new Stock drawing.	Completed - Being Altered	D. E. Bullis	A
New Parts List.	" " "		
Make Stock with small brown Recoil Pad.	4-30-77 4-30-77 Completed		
<u>Model 700 "C" Grade</u>			
New Parts List.	completed	D. E. Bullis	AA
Complete needed drawings			
Transmit.			

April 22, 1977

MODEL 788 - Cont'd.

2. Model 788 & 580 Series Safeties

a) 580 & 788 Current Safety

E. J. Young      A

The 580 Safety Lever is being redesigned to eliminate high safety "on" force.

1. Model Shop - Production Quantity
2. Production Test
3. Transmit Drawings

4-15-77

5-16-77

5-16-77

MODEL 580 SERIES

1. Step Sear

- a) Awaiting test results for drawing transmittal.

4-30-77      D. E. Bullis

A

2. Bolt Body Lock Up Clearance

E. J. Young

B

- a) The Bolt of the 580 Series may operate more smoothly if the clearance between the Bolt Body (at the Locking Lugs) and the Receiver is increased.

3. 20-Round Metal Magazine

E. J. Young

C

4. Cocking Piece

E. J. Young

F

- a) This was a powdered metal part which has been redesigned as a formed bar stock part.

MODEL 580 SERIES - Cont'd.

5. 580 Series Safety

Completion Date	Responsibility	Priority
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5-15-77	E. J. Young	A
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See M/788 Safety - Page 7

6. 580 Cost Savings

- a) Investigate possibility of machine sanding  
580 Series Stocks.

6-1-77	D. E. Bullis	AA
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MODEL 540X - 541S

1. Modify 540XR Receiver for Anschutz Sights

	E. J. Young	C
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- a) Investigate dovetailing a 540XR Receiver for  
Anschutz Sights.

2. 540X-541S Safety

5-15-77	E. J. Young	A
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See M/788 Safety - Page 7

MODEL 40X - 40XC CENTERFIRE

1. 40X Bedding

	D. E. Bullis	B
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- a) Investigate new method of bedding receiver to stock  
using a Heat-Press Process.

2. Feeding problem in this model has been reported and  
will be investigated as time permits.

	F. E. Martin	C
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Manual Firearms Design Group  
Work Schedule

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MODEL XP-100

1. Safety Lever

New design has been worked up and is to be tested.  
Economics have been received from I. E. and are to  
be reviewed by Research.

<u>Completion</u> <u>Date</u>	<u>Responsibility</u>	<u>Priority</u>
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	F. E. Martin	F
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MODEL 3200

1. Fore-end Breakage

- a) Investigate location of breakages and probable causes.
- b) Devise new method to assemble Fore-end Iron to  
Fore-end Plate.

	P. Nasypany	B
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2. Cost Improvements

a) Delete Cam Plates

Modification of hammerless ejection system. This  
system uses present frame surfaces instead of cam  
plates to cam the ejectors. Redesign of ejection  
system to eliminate 8 parts. Models ready for test.

6-1-77	D. R. Lewis	A
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b) Cast Bottom Tang Unit

Bottom tang unit consisting of bottom tang, strut, and  
tang connecting block, to be Investment Cast as one  
piece. Also, Frame is redesigned to eliminate bottom  
tang tongue cut. Models are in test.

	D. R. Lewis	F
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MODEL 3200 - Cont'd.

2. Cost Improvements - Cont'd.

c) Main Hammer Plunger Rod

D. E. Bullis F

Various redesigns of this part are being tried in an attempt to increase endurance life.

3. Recoil Pad

D. E. Bullis F

- a) Testing concludes there is no difference in recoil between the foam inserts and no insert or standard pads now in use. Plans are to go with new design from Vulcanized Rubber & Plastics Company.

4. Stock Breakage Elimination

P. Nasypany A

a) Heavy Stock - thicker grip and tang side panels

5-1-77

1. Samples made to be used on test guns. Marketing approval received.
2. First I. E. estimate received shows negative return. Being re-estimated.
3. Drawing change transmitted 3-1-77. PE&C has not implemented change as yet.

NEW CARTRIDGE DEVELOPMENT

1. .224 and 6mm Bench Rest

a) Register both cartridges - Max. Cartridge -  
Min. Chamber with SAAMI.

6-1-77

E.J. Young  
J.A. Stekl

A

b) Release cartridge-chamber drawings to reamer  
manufacturers and selected custom gunsmiths  
after review - possibly open neck diameter!

F

c) Contact model shop in regard to mechanizing  
case forming process.

10-1-77

A

d) Order straight-line sizing die reamers for both  
cartridges.

B

22RIMFIRE ACCURACY PROGRAM

1. Establish Firing Loads on 22 Rifle

5-30-77

E.J. Young

A

To tie in with both 22 Accuracy and new Autoloader.

2. Establish Accuracy Base Point

E.J. Young

B

a) Ammunition: Remington vs Eley

b) Rifle: Remington 540XR  
Remington 40XR  
Anschutz

3. 540XR Tuning

E.J. Young

B

Explore possibility of tuning 540XR using 40XB  
Bedding Escutcheons.

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SPECIAL PROJECTS

1. Metallic Silhouette Program

a) Lightweight Firing Pins

M/700 - Models have been made and more testing is to be done.

M/40XB - Some work on these have been done but a final design has to be made and parts obtained from the Model Shop. Testing regarding endurance must also be done.  
(Note: Parts are assembled and in Test Lab. No results from Test Lab.)

b) Silhouettes

100 sets have been received and are being prepared for shipping to selected individuals.

2. Recoil Force Gage

A new simple recoil force gage is being designed. This gage can be easily adjusted to accommodate different weight recoil pads and still negate inertia effects.

Completion  
Date      Responsibility      Priority

F. E. Martin      B

E. J. Young      B

TRAP PROGRAM

1. Automatic Traps

A) 4100-S Trap

1. Testing

- |   | <u>Completion<br/>Date</u> | <u>Responsibility</u> | <u>Priority</u> |
|---|----------------------------|-----------------------|-----------------|
| a) Check on modified sprags. Need to set up a new test trap for cycling.  |                            | K.C. Rowlands         | C               |
| b) Rewire (4) traps at Ilion Fish and Game Club to new layout. Having some problems which need more checking out. |                            | E.D. Rankins          | C               |
| c) Investigate new release cord with reduced voltage.   |                            | E.D. Rankins          | C               |

2. Manuals

- |  |         |                               |   |
|--|---------|-------------------------------|---|
| a) Check for errors and have flyer made up for necessary corrections. <del>Working on corrections for a flyer for both manuals.</del> Some pictures or illustrations may be necessary. |         | E.D. Rankins<br>K.C. Rowlands | A |
| 4100-S Supplement - Update   | 5-15-77 |                               |   |

3. Drawings

- |                                      |  |              |   |
|--------------------------------------|--|--------------|---|
| a) Draw 4100-S Assembly print B size |  | E.D. Rankins | C |
|--------------------------------------|--|--------------|---|

4. Cost Reduction

- |                                     |  |                               |   |
|-------------------------------------|--|-------------------------------|---|
| a) Possibly eliminate base casting. |  | E.D. Rankins<br>K.C. Rowlands | F |
|-------------------------------------|--|-------------------------------|---|

		Completion Date	Responsibility	Priorit
<u>TRAP PROGRAM</u> - Cont'd.				
1. <u>Automatic Traps</u> - Cont'd.				
B) <u>Model 4100-T</u>				
1. <u>Cost Reduction</u>		E.D. Rankins	E.D. Rankins K.C. Rowlands	F
a) Possibly eliminate some castings.				
b) Test to eliminate sprag clutch from auto-angling. #2 trap at Ilion Fish and Game Club already being tested. Looks good so far.				
c) Set up new 500,000 cycle test to evaluate the following redesigned parts:- Mainspring, Actuating Lever Link, Mainspring Swivel Washer, Slide Block Assembly, Drop Pad Cushion, Throw- ing Arm Wiper and various shortened bearings as well as a substitute damper. Trap performance will also be evaluated with the following parts eliminated:- Angling Sprag Clutch and Clutch Housing, Lower Pivot Shaft Bearing, Elevation Adjusting Knob Spring and Mounting Pins.				C
2. <u>Manuals</u>				
a) Check for errors and have flyer made up for necessary corrections. Some pictures or illus- trations may be necessary.				A
4100-T Supplement - New		6-15-77		
3. <u>Drawings</u>				
a) Finalize prints - update 4100 Trap Assembly including assembly drawings with bearing sizes for production.				

TRAP PROGRAM - Cont'd.

2. Mechanical Traps (2 Types)

Completion Date	Responsibility	Priority
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E.D. Rankins  
K. C. Rowlands

A. Mechanical Trap - Hand Cocked - Manual Release

- |  |           |   |
|--|-----------|---|
| a) Initial prototype design completed. Followup design being worked on for different styles and mechanism, and cost reduction. | 6-1-77    |   |
| b) Build 7 prototypes for field testing and evaluation, including operation & repair sheets.                                   | Completed |   |
| c) Part prints are out for quotes.   | Completed |   |
| d) Manual of Operation and Repair  | 9-1-77    | C |
| e) Build 2 more Prototypes for Marketing evaluation.   | 7-1-77    | B |

B. Mechanical Trap - Lever Cocked - Electric Release

- |  |         |   |
|--|---------|---|
| a) Dry Cycle Test 1 Unit                                 | 5-18-77 | A |
| b) Make 8 units for field test and Marketing evaluation. | 7-29-77 | B |

C. Mechanical Trap Equipment

- |   |        |   |
|---|--------|---|
| a) Perimeter Ring - Initial prototype design completed. Redesign required for cost reduction.   | 7-1-77 | B |
| b) Portable Base - one prototype designed and built. Redesign required to enable base to be supplied in kit form for ease of packaging. |        |   |
| c) Assembly instructions for Perimeter Ring and Portable base.  |        |   |

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	<u>Completion Date</u>	<u>Responsibility</u>	<u>Priority</u>
<u>TRAP PROGRAM</u> contd.			
3. <u>Plastic Hand Traps</u>			
A. Field Test for Throwing Targets	5-1-77		A
B. Lab Test for Reaction to Temperature Changes.			