FIRE CONTROL - MODEL 700

Globe-Weis®

General Purpose File Folders

14

Reorder No. 221½ 1

ET56278

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to Protective Order
Williams v. Remmington

Remington

REMINGTON ARMS COMPANY, INC.
RESEARCH & DEVELOPMENT TECHNOLOGY CENTER
P.O. BOX 5016 / 315 W. RING ROAD
ELIZABETHTOWN, KENTUCKY 42702-5016
(502) 737-9456 FAX (502) 737-9576

March 16, 1995

Mr. Mark McDonald
4890 West Moberly Road
Depauw, IN 47115

Re: Loan of Model 700 Action, Serial Number C6895725, for Lock Time Study

Dear Mark:

Attached is the Remington Arms *Firearms Pass* for the Model 700 long action receiver with trigger assembly and bolt assembly for your lock time study. Your signature on the *Firearms Pass* signifies your acceptance of the terms and conditions listed below:

- o you are responsible for the firearm at all times during the period of the loan
- o you agree to return the firearm on the date specified on the *Firearms Pass* or when requested to do so by Remington Arms Co. Inc.
- o you may not alter the firearm without prior approval from Remington Arms Co. Inc.
- o you are solely responsible for the safe use of the firearm

Please note, the receiver has been altered so that it will no longer accept a barrel.

If you have any questions or if I can be of further assistance to you, please call me at (502) 769-4615.

Sincerely,

James W. Ronkainen
Project Manager

cc: Don Lewis
John Curry
Danny Diaz
Dr. Tony Hancock

Attachment

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SPORTING ARMS – AMMUNITION – TARGETS – APPAREL – ACCESSORIES – STREN FISHING LINES

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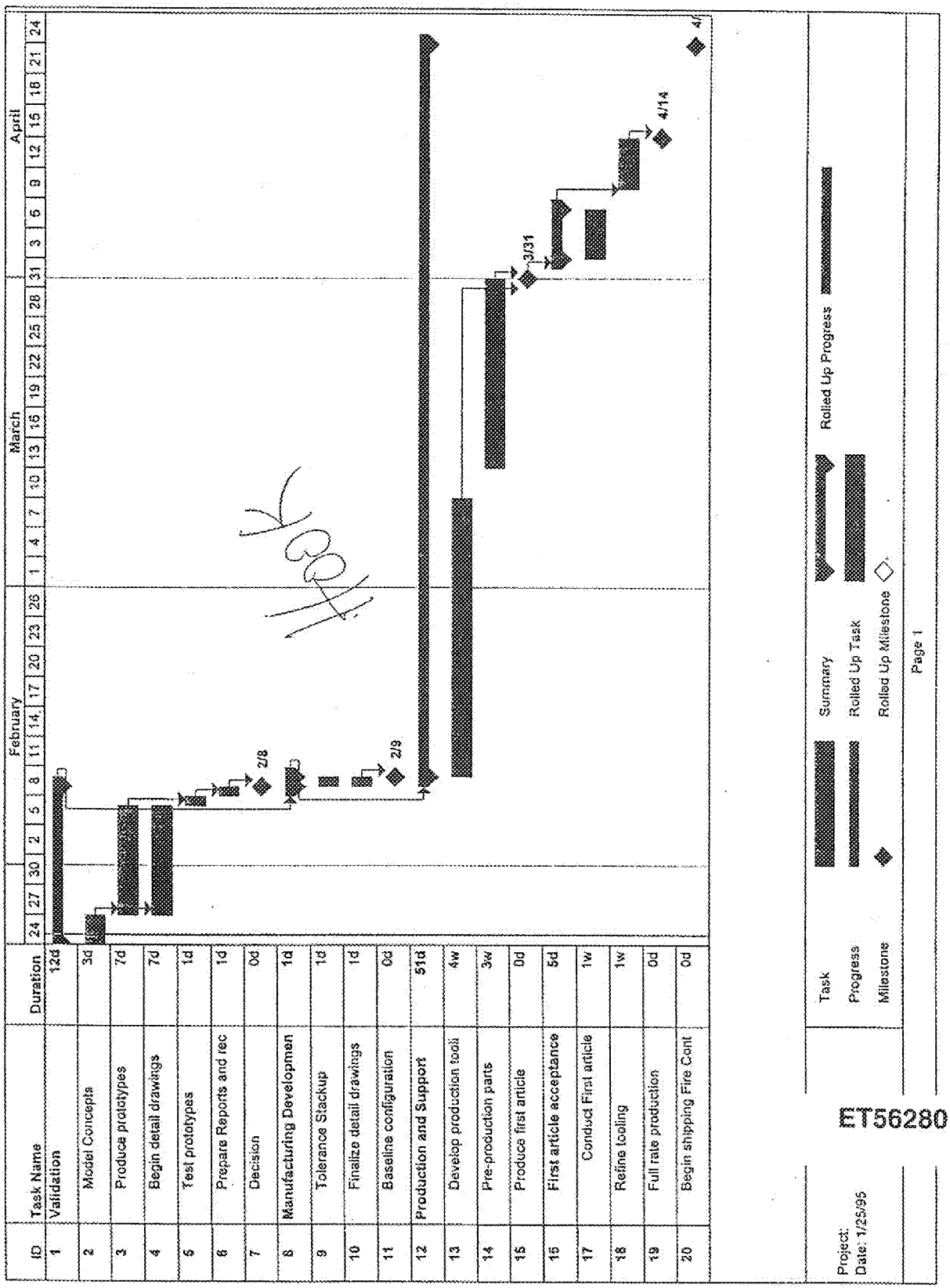

ID	Task Name	Duration
1	Validation	12d
2	Model Concepts	3d
3	Produce prototypes	7d
4	Begin detail drawings	7d
5	Test prototypes	1d
6	Prepare Reports and rec	1d
7	Decision	0d
8	Manufacturing Developman	1d
9	Tolerance Stackup	1d
10	Finalize detail drawings	1d
11	Baseline configuration	0d
12	Production and Support	51d
13	Develop production tooli	4w
14	Pre-production parts	3w
15	Produce first article	0d
16	First article acceptance	5d
17	Conduct First article	1w
18	Refine tooling	1w
19	Full rate production	0d
20	Begin shipping Fire Cont	0d

Project:
Date: 1/25/95

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Design Criteria:

1. Remove Adjustments
2. Preset Engagement
3. Preset Overtravel
4. Preset Trigger Pull
5. Retrofitability
6. Eliminate "Fire on Safety Release" malfunction
7. Balanced Trigger
8. Tamper Proof / Evidence of tampering
9. Force Engagement in "safe" position
10. 3lb. Trigger Pull
11. Manufacturable

Problems:

1. Trigger block plunger binds in trigger
2. Trigger shoe out of position
3. Hard safe "on" forces
4. Safe does not force trigger engagement
5. Safety can be removed in the field with no evidence.

Solutions:

1. Alter assembly procedure to locate off trigger block plunger hole with a max diameter + .0005" pin.
2. Insertion of trigger model into the fire control layout found trigger engagement surface out of position by .020" in the horizontal direction and .005" out of position in the vertical position.
3. New assembly procedure eliminates sear being forced too far down during assembly thereby eliminating interlocking radii on sear and safety, thus eliminating hard safe "on" forces.
4. Added a safety strap to prevent the safety arm from flexing out thus riding over the trigger block plunger instead of forcing the plunger in the trigger hole.
5. Designing a new safety retaining clip which is unable to remove without being destroyed.

Current Status:

1. Parametric Model of the following components:
   a. Front Spacer
   b. Rear Spacer

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c. Left & Right Side Plates
d. Safety
e. Trigger Housing Bushings
f. Sear
g. Trigger

2. Inserted new trigger in fire control layout
   a. Trigger had no engagement
   b. Trigger engagement surface is .005" too high
3. Min/Max analysis on fire control assembly to determine feasibility of eliminating drilling operation at assembly.
4. Redesigned Safety Lever Retaining Pin to eliminate disassembly of fire control in the field.
5. Designed an assembly fixture to aid in mass production.
6. Measured four fire control assemblies.

Recommendations:

1. Make both side plates from the same die thus eliminating tolerance variances between side plates.
2. Tighten surface finish specification on trigger block plunger
3. Demagnitize trigger block plunger and trigger
4.

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To: Danny Diaz

From: Leo Schneider

Subj: "Rensi 1"

1. Below is the requirements for "Rensi 1", as I understand them. I have provided these to Mike and Dave. If we need to make changes or my understanding is not based in fact....please let me know.

Function	Testable
FSR fix	Yes
Forced Engagement(.020 + or - .005)?	Yes
One piece trigger (no connector)	Yes
Suitability	
Non-adjustable	Yes
Safety	
Drop test	Yes
Logistics	
Retrofitable	
Common parts (use as many as possible)	
Human factors	
Trigger feel - same	
Operation - same but safety will not engage without trigger/sear engagement	
Assembly - Procedures same as current trigger	
Manufacturable	
Time frame - changes can be made in production within 8 weeks of baselining design	

Very Respectfully,

Copy to:
Mike Keeney
Dave Schlukebier

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Remington Arms Company, Inc.

Memorandum

DATE: December 16, 1994

TO: Danny Diaz

FROM: Kevin Kimzey

RE: Trigger Manufacturers?

Danny,

Below is a list of companies that are listed in Gun Digest as "triggers, related equipment". There may be a few companies buried in here that can help you.

COMPANY	PHONE NUMBER
B&O Trading Co.	916-967-9386
Canjar Co.	303-295-2638
Central Specialties	708-537-3300
Cycle Dynamics	413-786-0141
Dayton Traister	206-579-4657
E.A.A. Corp.	407-639-7008
Electric Trigger Systems	612-848-2760
Eversull Co.	318-793-8728
Forster Products	815-493-8360
Grace Tool	602-747-0213
Hart & Son	717-752-3655
Jaeger, Inc.	901-764-6909
Krieger Barrels	414-255-9583
Master Lock Co.	414-444-2800
Mid-American Recreation	309-764-2722
Miller Single Trigger Mfg.	717-692-3704
PEM's Manufacturing	216-947-3721
Penrod Precision	219-982-8385
Perazzi USA	818-303-0068
Shilen Rifles	214-875-5318
The Stock Shop	408-257-9003
Timney Mfg.	602-274-2999
Tyler Mfg.-Dist.	405-842-8044
Voere-KGH m.b.H, Austria	0043-5372-62547

I hope this helps. Call if you have questions. The two closest to the border are Grace, which is in Tucson and Timney, which is in Phoenix. Krieger was also on the barrel list I sent you and Master lock may be interesting. They at least shoot their locks well in their commercials!

Kevin

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12/22

Present Trig Assy. (The One We Use Now)
- 30 T.A.'s Have Been Cycled To 10000 cycles Used M-700 Long Action
- Cocktime Has Been Measured And Recorded 2.7
2.5
2.5
2.5

- All Dwgs For Sear And Trigger To Pawpered Metal / Metpc Injection Molding - Frank Ogdonik / Dave Foss For Tooling Design Complete, Jan 3 Toplet 6
- Marked Up Trig. Dwg Here 12/23 w/Percentage Increases Per Surface
- All NBA Parts Being Taped And Sent To Rem-E-Town
- Parts Moving Thru Tool Room Some Have Been Completed

- High Speed Film Available Next Wk. 12/26 - 12/30

Martin

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Tool Room Status 12/30/94

- No PM Slugs for Semi
- Side Plates This PM Drill Next Operation
- Working Bolt Stop Release
- Working Semi Bushings
- Final Trigger Being Programmed

LADD Quote Don't Pack Til I Call

JM

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Ilion Research Division — PARTS LIST #119

Supersedes Previous Model 700 M24 Parts List #104

Date: 09/15/89 11/03/89 — Model 700 M24

Sheet 1 of 5

Dotted line (----) indicates same part number. (*) indicates part in GUN & Deployment Kit.

DWG. NO.	PART NAME	SYSTEM PART NO.	SERVICE PART NO.
B-96001	BARREL ASSEMBLY COMPLETE	96001	
D-96002	BARREL ASSEMBLY (Marking C-94152)	96002	
D-96003	Barrel (Blank D-96210)	96003	
B-15279	Barrel Bracket ((Blank A-15128)	15279	
B-96230	RECEIVER SUB-ASSEMBLY	96230	
B-96004	Receiver	96004	
B-96005	BOLT ASSEMBLY	96005	
B-96006	BOLT BODY ASSEMBLY	96006	
C-20200	Bolt Body	20200	
A-18493	Bolt Body Brazing Shim	18493	
D-28665	Bolt Head (Blank C-32820)	28665	
A-18758	Bolt Pin	18758	
B-17011	Ejector Washer	17011	
D-26330	Bolt Handle (Blank D-91562)	26330	
C-20185	Bolt Handle Brazing Shim	20186	
A-17017	Ejector (Blank A-13974)	17017	
A-17676	Ejector Pin (Blank A-91802)	17676	
A-17019	Ejector Spring	17019	
C-91816	Extractor (Blank A-90523)	91816	
B-96007	FIRING PIN ASSEMBLY	96007*	
A-96008	Bolt Plug (Blank C-19894)	96008	
C-22020	Firing Pin (Blank C-28805)	22020	
B-17022	Firing Pin Cross Pin	96252	
A-96009	Firing Pin Head (Blank B-27975)	96009	
A-17029	Main Spring	17029	
B-17013	Bolt Stop (Blank B-90492)	17013	
C-24475	Bolt Stop Pin	24475	
B-15224	Bolt Stop Spring	15224	
B-96010	Front Guard Screw (Blank 96217)	96010*	
B-18844	Front Sight Mounting Base (Blk 91756)	96011	
A-96012	Front Sight Base Screw(2) (Blk 96220)	96012*	

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B-96013	Magazine (Blank C-96231)	96013
A-96014	Magazine Follower (Blank 92769)	96014*
A-15677	Magazine Spring	15677*
A-96244	Magazine Tab Screw (Blank A-15940)	96244

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A-96021	Trigger Pull Adj. Spring	96031
C-19461	Trigger Connector (Blank C-91921 & 91937)	19461
B-96243	Trigger Engagement Screw (Blank 96242)	96243

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Date: 09/15/89
11/03/89

Model 700 M24

Sheet 3 of 5

Dotted line (----) indicates same part number. (*) indicates part in GUN & Deployment Kit.

DWG. NO.	PART NAME	SYSTEM PART NO.	SERVICE PART NO.
B-96032	TRIGGER HOUSING ASSEMBLY	96032	
B-14632	Trigger Housing Rivet (4)	14632	
B-14630	Trigger Housing Spacer, Front (Blank 91923)	14630	
B-96033	Trigger Housing Spacer, Rear (Blank 96216)	96033	
A-96034	Trigger Side Plate, Right (Blank C-32785)	96034	
C-30780	Trigger Side Plate, Left (Blank C-32785)	30781	
C-24475	Trigger Pin	24477	
B-17053	Trigger Screw, Front (Blank B-91920)	17053	
A-15400	Trigger Spring	15400	
A-15481	Trigger Stop Screw (Blank A-91926)	15481	
B-96035	TRIGGER GUARD ASSEMBLY	96035	
A-96099	Trigger Guard (Blank 96223)	96099	
A-96100	Floor Plate (Blank 96224)	96100	
A-96103	Floor Plate Pivot Pin (Blank 96227)	96103	
A-96102	Floor Plate Latch (Blank 96226)	96102	
A-96103	Floor Plate Latch Pivot Pin (Blk 96227)	96103	
A-96104	Floor Plate Latch Spring	96104	
A-96050	SCOPE CASE ASSEMBLY COMPLETE	96050	
A-96118	FRONT SIGHT ASSEMBLY	96118	
A-96119	REAR SIGHT ASSEMBLY	96119	
A-96222	ULTRA SCOPE ASSEMBLY COMPLETE	96222	
A-96039	ULTRA SCOPE ASSEMBLY		96039
A-96040	Ultra Scope		96040
A-96043	Scope Dust Cover, Front		96043*
A-96044	Scope Dust Cover, Rear		96044*
A-96082	SCOPE RING ASSEMBLY (2) (Blank 96247)		96082
A-96081	Scope Case		96081

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Date: 09/15/89
11/03/89

Model 700 M24

Sheet 4 of 5

Dotted line (----) indicates same part number. (*) indicates part in GUN & Deployment Kit.

DWG. NO.	PART NAME	SYSTEM PART NO.	SERVICE PART NO.
B-96069	COMPONENT CARRYING CASE ASSEMBLY	96069	
	Top section		96070
	Bottom Section		96071
	Hinge (5)		96072
	Full Foam Set (Top & Bottom)		96073
	Latch (Catch & Strike) (7)		96074
	Handle (4)		96075
	Seal		96077
	Top Foam Piece		96078
	Bottom Foam Piece		96079
	Pressure Relief Valve (1)		96080
A-96076	SOFT RIFLE CARRYING CASE	96076	
B-96096	DEPLOYMENT KIT ASSEMBLY	96096	
A-96097	Case (Pelican #500F)	96097	
B-96007	FIRING PIN ASSEMBLY	96007*	
B-96010	Front Guard Screw (Blank 96217)	96010*	
B-96010	Rear Guard Screw (Blank 96218)	96015*	
A-96012	Front Sight Base Screw (Blank 96220)	96012*	
A-96022	Swivel Stud (Blank 96246)	96022*	
A-96023	Swivel (Michaels) (2)	96023*	
A-96105	Front Sight Inserts Kit	96105	
A-96017	Rear Sight Base Screw (Blank 96219)	96017*	
A-96030	Trigger Pull Adj. Screw	96030*	
A-96106	M-16 Cleaning Brush	96106	
A-96107	5/32" Hex Bit (3/8" drive)	96107	
A-96108	Allenwrench, .050"	96108	
A-96051	Allenwrench, 1/16"	96051	
A-96109	Allenwrench, 5/64"	96109	
A-96052	Allenwrench, 3/32"	96052	
A-96110	Allenwrench, 7/64"	96110	
A-96111	Allenwrench, 1/8"	96111	
A-96112	Allenwrench, 5/32"	96112	
A-96113	Combo Wrench (T-Handle)	96113	
A-16935	Chamber Brush	16935	
A-96114	Bore Brush	96114	

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Date: 09/15/89
11/03/89

Model 700 M24

Sheet 5 of 5

Dotted line (----) indicates same part number. (*) indicates part in GUN & Deployment Kit.

DWG. NO.	PART NAME	SYSTEM PART NO.	SERVICE PART NO.
A-96046	Scope Windage Dial With Screws	96046	
A-96045	Scope Elevation Dial With Screws	96045	
A-96047	Scope Focus Dial With Screws	96047	
A-96042	Scope Adj. Dial Dust Cover	96042	
A-96083	Scope Ring Screws (2)	96083	
A-96037	Scope Base Screw, Front, (Blank 96249)	96037*	
A-96038	Scope Base Screw, Rear (Blank 96250)	96038*	
A-96043	Scope Dust Cover, Front	96043*	
A-96044	Scope Dust Cover, Rear	96044*	
A-96115	Oil Bottle	96115	
A-96116	Patches	96116	
C-15677	Magazine Spring	15677*	
A-96014	Magazine Follower (Blank 92769)	96014*	
A-96058	Socket, 1/2" Hex 3/8" Drive	96058	
A-96059	Torque Wrench	96059	
A-96060	Wrench, 1/2" Combo	96060	
A-96213	Rear Sight Base Plug Screw (Blank 96212)	96213*	
A-96053	LENS CLEANING KIT	96053	
A-96054	Cleaning Q-Tips, Optics		96054
A-96055	Cleaning Tissue (Patches)		96055
A-96056	Cleaning Fluid, Optics (1/2 oz.)		96056
A-96057	Cleaning Brush, Optics		96057
A-96041	Cleaning Kit Case		96041
A-96048	Cleaning Instruction Card		96048
A-96049	Scope Sun Shade	96049	
A-96091	CLEANING ROD ASSEMBLY	96091	
A-96092	Cleaning Rod Handle		96092
A-96093	Cleaning Rod Straight Section (4)		96093
A-96095	Cleaning Rod Adapter (#8-32 Thread)		96095
A-96094	Cleaning Rod Patch Holder		96094
A-96228	Bag (18 req'd.)	96228	
	ACCESSORY (OPTIONAL)		
A-96117	BI-POD ASSEMBLY (PART NO. 96117)		

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Ilion Research Division — PARTS LIST #492

Date: 07/25/94 — MODEL 700 BOLT ACTION CENTERFIRE RIFLE R.H. & L.H. 09/20/94

SUPERSEDES PREVIOUS MODEL 700 BDL, ADL, MOUNTAIN RIFLE PARTS LIST #476

Sheet 1 of 17

Dotted line (- - -) indicates same part number

DWG. NO.	PART NAME	BDL SHORT	BDL VARMINT	BDL LONG	ADL SHORT	ADL LONG	MTN. RIFLE LONG	MTN. RIFLE SHORT
		PART NUMBERS						
	CALIBERS RAHAC#							
	17	925801						
	222	925781	925821					
	223	925798	925825					
	22-250	925783	925823					
	22-250 LH	925749						
	220 Swift		925844					
	243	925787	925829		925767			925614
	243 LS				925937			
	243 LH	925819						
	6mm	925785	925827					
	257 Roberts							925600
	7x64 (Brenneke)						925607	
	300 Savage	925755						
	308	925795	925833		925775			925618
	308 LH	925818						
	7mm-08	925799	925835					925616
	25-06			925789			925606	
	270			925791		925771	925630	
	270 LS					925939		
	270 LH			925811				
	280						925632	
	7mm Mauser (7 x 57)						925629	
	30-06			925793		925773	925634	
	30-06 LS					925955		
	30-06 LH			925813				
	7mm Rem. Mag			925813		925777		
	7mm Rem. Mag. LS					925941		
	7mm Rem. Mag. LH			925815				
	300 Win. Mag.			925807				
	338 Win. Mag.			925805				
	338 Win. Mag. LH			925751				
	35 Whelen			925796				

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Date: MODEL 700
07/25/94 BOLT ACTION
09/20/94 CENTERFIRE RIFLE R.H. & L.H.

Sheet 2 of 17 — Dotted line (- - -) indicates same part number

DWG. NO.	PART NAME	BDL SHORT	BDL VARMINT	BDL LONG	ADL SHORT	ADL LONG	MIN. RIFLE LONG	MIN. RIFLE SHORT
		PART NUMBERS						
D-98003	DOCUMENT ENVELOPE ASSEMBLY	1721	- - -	- - -	- - -	- - -	- - -	- - -
	Document Envelope	1461	- - -	- - -	- - -	- - -	- - -	- - -
	Firearm Safety Booklet	1410	- - -	- - -	- - -	- - -	- - -	- - -
	Instruction Book (RD 5461)	3391	- - -	- - -	- - -	- - -	- - -	- - -
	Product Owners Card	1426	- - -	- - -	- - -	- - -	- - -	- - -
	Remington Authorized Gunsmith (Form RD 6860)	3413	- - -	- - -	- - -	- - -	- - -	- - -
	Remington Museum Flyer (RD 7014)	3475	- - -	- - -	- - -	- - -	- - -	- - -
	CARTON ASSEMBLY	1443	- - -	- - -	- - -	- - -	- - -	- - -
	Box & Envelope Label	993002	- - -	- - -	- - -	- - -	- - -	- - -
	NOTE: THE ABOVE PARTS ARE FOR PACKAGING ONLY							
B-31495	BARREL ASSEMBLY COMPLETE							
"	222	31495			- - -			
"	223	31512						
"	243	31496			- - -			
"	308	31497			- - -			
"	300 Savage	31519						
"	6mm	31498			- - -			
"	270			31499		- - -		
"	30-06			31500		- - -		
"	7mm Rem. Mag.			31501		- - -		
"	25-06			31502		- - -		
"	280			31503				
"	17 Rem.	31504						
"	300 Win. Mag.			31505				
"	22-250	31506			- - -			
"	30-06 LH			31507				
"	270 LH			31508				
"	7mm Rem. Mag. LH			31509				
"	6mm Rem. Mag.			31510				
"	338 Win. Mag.			31515				

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BARBER - 2.4.13000021

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Date: MODEL 700
07/25/94 BOLT ACTION
09/20/94 CENTERFIRE RIFLE R.H. & L.H.

Sheet 3 of 17 — Dotted line (- - -) indicates same part number

DWG. NO.	PART NAME	BDL SHORT	BDL VARMINT	BDL LONG	ADL SHORT	ADL LONG	MIN. RIFLE LONG	MIN. RIFLE SHORT
		PART NUMBERS						
B-31495	BARREL ASSEMBLY COMPLETE CONT'D.							
"	7mm-08	31511						
"	243 LH	31513						
"	22-250 LH	31514						
"	308 LH	31516						
"	338 Win. Mag. LH			31517				
"	257 Roberts			31518				
B-31535	35 Whelen			94213				
B-31520	222 Varmint		31520					
"	22-250 Varmint		31521					
"	223 Varmint		31522					
"	220 Swift Varmint		97768					
"	6mm Varmint		31523					
"	243 Varmint		31524					
"	25-06 Long Action Varmint		31525					
"	308 Varmint		31527					
"	7mm-08 Varmint		31526					
"	17 Varmint		94608					
B-100320	257 Roberts							97265
"	270						100320	
"	30-06						100322	
"	280						100321	
"	7X64 Brenneke						100329	
"	308							100323
"	243							100324
"	6MM Rem.							100327
"	7mm-08							100325
"	7mm X 57 (Mauser)						100326	
"	25-06						97398	

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BARBER - 2.4.13000022

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Date: MODEL 700
07/25/94 BOLT ACTION
09/20/94 CENTERFIRE RIFLE R.H. & L.H.

Sheet 4 of 17 — Dotted line (- - -) indicates same part number

DWG. NO.	PART NAME	BDL SHORT	BDL VARMINT	BDL LONG	ADL SHORT	ADL LONG	MIN. RIFLE LONG	MIN. RIFLE SHORT
		PART NUMBERS						
E-33450	BARREL ASSEMBLY (Mkg. D-15360)							
"	222	33461			- - -			
"	223	28373						
"	243	33451			- - -			
"	300 Savage	94764						
"	308	33453			- - -			
"	6mm	33452			- - -			
"	270			33454		- - -		
"	30-06			33455		- - -		
"	7mm Rem. Mag.			33459		- - -		
"	25-06			33456				
"	17 Rem.	33460						
"	280			33462				
"	7mm-08	28370						
"	300 Win. Mag.			33458				
"	22-250	33450			- - -			
"	35 Whelen			94212				
"	338 Win. Mag.			93609				
D-33470	222		33470					
"	22-250		33471					
"	223		33472					
"	220 Swift		97767					
"	6mm		33473					
"	243		33474					
"	25-06 Long Action Varmint		33475					
"	7mm-08		33477					
"	308		33476					
"	17		94607					
D-34235	8mm Rem. Mag.			34235				
A-33490	30-06 LH			33494				
"	270 LH			33495				
"	7mm Rem. Mag. LH			33497				
"	243 LH	33492						

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DWG. NO.	PART NAME	BDL SHORT	BDL VARMINT	BDL LONG	ADL SHORT	ADL LONG	MIN. RIFLE LONG	MIN. RIFLE SHORT
		PART NUMBERS						
	BARREL ASSEMBLY CONT'D.							
A-33490	22-250 LH	33490						
"	308 LH	33493						
"	338 Win. Mag. LH			33498				
D-100300	30-06 (Mfg. C-92934)						100300	
"	270						100301	
"	280						100302	
"	7X64 Brenneke						100309	
"	308							100303
"	243							100304
"	7mm-08							100305
"	7mm x 57 (Mauser)						100306	
"	6mm Rem.							100307
"	257 Roberts							97264
"	25-06						97397	
D-26285	Barrel							
"	222 24" (Blk. 27982)	26285			- - -			
"	223 24" (" 92491)	26293						
"	243 22" (" 27829)	26287			- - -			
"	300 Savage (" 27832)	94568						
"	308 22" (" 27832)	26288			- - -			
"	270 22" (" 27830)			26289		- - -		
"	30-06 22" (Blk. 27832)			26291		- - -		
"	6mm 22" (" 27829)	26292			- - -			
"	25-06 24" (Blk. 27774)			26295				
D-26285								
"	17 Rem. 24" (Blk. 16481)	26296						
"	22-250 24" (" 27982)	26294			- - -			
"	280 22" (Blk. 27170)			26297				
"	7mm-08 22" (Blk. 27170)	28365						
"	35 Whelen 22"			94211				

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DWG. NO.	PART NAME	BDL SHORT	BDL VARMINT	BDL LONG	ADL SHORT	ADL LONG	MIN. RIFLE LONG	MIN. RIFLE SHORT
		PART NUMBERS						
	BARREL CONT'D.							
D-24550	8mm Rem. Mag. 24" (Blk. 27100)			34230				
"	7mm Rem. Mag. 24" (Blk. 27833)			24550		- - -		
"	300 Win. Mag. 24" (" 27844)			24551				
"	338 Win. Mag. 24" (" 93630)			93610				
D-29555	222 24" (Blk. 16471)		29555					
"	22-250 24" (" ")		29556					
"	223 24" (" 16472)		29557					
"	220 Swift 24" (" 16471)		29564					
"	6mm 24" (" 16473)		29558					
"	243 24" (" ")		29559					
"	308 24" (" 16866)		29561					
"	7mm-08 (Blk. 16485)		29562					
"	17 (Blk. 94609)		29563					
D-100290	30-06 (Blk. 16482)						100292	
"	270 (" ")						100290	
"	280 (" ")						100291	
"	7x64 Brenneke (Blk. 16482)						100299	
"	308 (" ")							100293
"	243 (" ")							100294
"	7mm-08 (" ")							100295
"	7x57 (7mm Mauser)						100296	
"	6MM (Blk. 16482)							100297
"	257 Roberts (Blk. 16482)							100298
"	25-06 (Blank 16482)						97396	
B-14810	Barrel Bracket (Blk. A-15128)	14810	- - -	- - -	- - -	- - -	- - -	- - -
	Receiver RH (Mkg. D-15360)							
D-33580	222, 223, 17	33580	- - -		- - -			
E-33226	6mm, 22-250, 243, 308, 7mm-08,	33226	- - -		- - -			- - -
"	300 Savage, 257 Roberts,	33226						- - -
"	220 Swift		33226					

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DWG. NO.	PART NAME	BDL SHORT	BDL VARMINT	BDL LONG	ADL SHORT	ADL LONG	MTN. RIFLE LONG	MTN. RIFLE SHORT
		PART NUMBERS						
	Receiver RH (Mkg. D-15360) Cont'd.							
E-33225	270, 30-06, 7mm Rem. Mag., 280			33225		- - -	- - -	
"	25-06, 35 Whelen, 7mmx57(Mauser)		33225	- - -			- - -	
"	7X64 Brenneke						33225	
"	300 Win. Mag., 8mm Rem. Mag.			33225				
"	338 Win. Mag.			33225				
"	25-06		33225	- - -			- - -	
	Receiver LH (Mkg. C-90552)							
E-33266	243 LH	33266						
"	308, 22-250 LH	33266						
E-33265	270, 30-06, 7mm Rem. Mag. LH,			33265				
"	338 Win. Mag. LH			33265				
	BOLT ASSEMBLY							
D-28710	222, 223, 17 Rem.	28710	- - -		- - -			
"	243, 6mm, 22-250, 308,	28711	- - -		- - -			- - -
"	7mm-08, 300 Savage,	28711	- - -					- - -
"	220 Swift		28711					
"	257 Roberts							28711
"	270, 30-06, 25-06, 280,			28712		- - -	- - -	
"	7X64 Brenneke						28712	
"	35 Whelen, 7mm x 57 (Mauser)			28712			- - -	
"	25-06 Long Action Varmint		28712					
D-33270	7mm Rem. Mag., 300 Win. Mag.			33273		- - -		
"	8mm Rem. Mag., 338 Win. Mag.			33273				
D-28755	270 LH, 30-06 LH			28755				
D-33305	7mm Rem.Mag.LH,338 Win.Mag.LH			33307				
D-28755	243 LH, 308 LH, 22-250 LH	28757						

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DWG. NO.	PART NAME	REG. SHORT	BDL. VARMINT	BDL. LONG	ADL. SHORT	ADL. LONG	MIN. RIFLE LONG	MIN. RIFLE SHORT
		PART NUMBERS						
	BOLT BODY ASSEMBLY							
D-28695	222, 223, 17 Rem.	28695	- - -		- - -			
"	243, 6mm, 22-250	28696	- - -		- - -			- - -
"	308, 7mm-08, 300 Savage,	28696	- - -		- - -			- - -
"	220 Swift		28696					
"	257 Roberts							28696
"	270, 30-06, 25-06, 280,			28697		- - -	- - -	
"	7X64 Brenneke						28697	
"	35 Whelen, 7mm x 57 (Mauser)			28697			- - -	
"	25-06 Long Action Varmint		28697					
D-33255	7mm Rem. Mag., 300 Win. Mag.			33257		- - -		
"	8mm Rem. Mag., 338 Win. Mag.			33257				
D-28705	270 LH, 30-06 LH			28705				
"	243 LH, 22-250 LH, 308 LH	28707						
D-33245	7mm Rem. Mag. LH,			33247				
	338 Win. Mag. LH			33247				
C-20200	Bolt Body	20201	- - -	20200	20201	20200	- - -	20201
"	Bolt Body 25-06 Long Action Varmint		20200					
A-18493	Bolt Body Brazing Slug	18493	- - -	- - -	- - -	- - -	- - -	- - -
D-28665	Bolt Head (Blk. 32820)							
"	222, 223, & 17 Rem.	28667	- - -		- - -			
"	25-06 Long Action Varmint		28665					
"	243, 6mm, 22-250, 308, 7mm-08	28665	- - -		- - -			- - -
"	257 Roberts, 300 Savage	28665						- - -
"	220 Swift		28665					
"	270, 30-06, 280,			28665		- - -	- - -	
"	7X64 Brenneke						28665	
"	35 Whelen, 7mm x 57 (Mauser)			28665			- - -	
"	25-06,			28665			- - -	
C-15706	7mm Rem. Mag.			15706		- - -		
"	300 Win. Mag. 8mm Rem. Mag.			15706				
"	338 Win. Mag.			15706				

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DWG. NO.	PART NAME	BDL SHORT	BDL VARMINT	BDL LONG	ADL SHORT	ADL LONG	MTN. RIFLE LONG	MTN. RIFLE SHORT
		PART NUMBERS						
	BOLT BODY ASSEMBLY CONT'D.							
D-28670	30-06 LH, 270 LH			28670				
"	243 LH, 22-250 LH, 308 LH	28670						
D-32870	7mm Rem. Mag. LH,			32872				
	338 Win. Mag. LH			32872				
A-18758	Bolt Pin	18758	- - -	- - -	- - -	- - -	- - -	- - -
B-17011	Ejector Washer	17011	- - -	- - -	- - -	- - -	- - -	- - -
D-26330	Bolt Handle (Blk. 91562)	26330	- - -	- - -	- - -	- - -	- - -	- - -
D-90553	Bolt Handle LH (Blk. D-90519)	90553		- - -				
C-20185	Bolt Handle Brazing Shim	20186	- - -	- - -	- - -	- - -	- - -	- - -
A-17017	Ejector (Blk. A-13974)	17017	- - -	- - -	- - -	- - -	- - -	- - -
A-94555	Ejector Pin	94555	- - -	- - -	- - -	- - -	- - -	- - -
A-17019	Ejector Spring	17019	- - -	- - -	- - -	- - -	- - -	- - -
C-91816	Extractor 25-06 Varmint (Blk. 90523)		91816					
C-97138	222, 223, 17 Rem. (" 97137)	97138	- - -		- - -			- - -
C-91816	308, 7mm-08, 243 (" 90523)	91816	- - -		- - -			- - -
"	6mm, 22-250, 257 Roberts(")	91816	- - -	- - -	- - -			- - -
"	300 Savage	91816						
"	220 Swift (Blk.90523)		91816					
"	30-06, 270, 25-06 (" ")			91816		- - -	- - -	
"	280, 35 Whelen (" ")			91816		- - -	- - -	
"	7mm x 57 (Mauser) (" ")						91816	
"	7X64 Brenneke (" ")						91816	
C-97322	7mm Rem. Mag. (Blk. 97321)			97322		- - -		
"	300 Win. Mag., 8mm Rem. Mag.			97322				
"	338 Win. Mag.			97322				
C-27340	Extractor Rivet (use with Extractor 97322 only)			27341		- - -		

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DWG. NO.	PART NAME	BDL SHORT	BDL VARMINT	BDL LONG	ADL SHORT	ADL LONG	MTN. RIFLE LONG	MTN. RIFLE SHORT
		PART NUMBERS						
	Front Sight (Alt. C-15719) (Blk. C-90425)							
C-15373	All calibers except (Blk. C-90393)	15373		- - -	- - -	- - -	- - -	
B-14659	MAGNUM CALIBERS			14659		- - -		
A-15992	Front Sight Ramp 25-06 (Blk. B-16724)			15992				
B-15635	Front Sight Ramp (Blk. B-16724)	15635		- - -				
B-92081	Front Sight Ramp (Blk. B-92080) M/700 MR 7X64 Brenneke ONLY						92081	
B-28510	Front Sight Ramp (Blank B-16724)				28510	- - -		
"	Front Sight Ramp 25-06 (Blk. B-16724)			28511				
B-28505	Front Sight Ramp Screw (2) (Blk. 90347)	28505		- - -	- - -	- - -	- - -	
B-103145	REAR SIGHT ASSEMBLY MAGNUM			103148		- - -		
B-103145	REAR SIGHT ASSEMBLY	103145		- - -	- - -	- - -		
"	REAR SIGHT ASSEMBLY 7X64 Brenneke						103145	
A-90906	Elevation Screw (Blk. 91910)	90906		- - -	- - -	- - -	- - -	
C-93905	Rear Sight Aperture (Blk. C-93906)	94333		- - -	- - -	- - -	- - -	
C-103530	Rear Sight Base (Blk. 94023)	103530		- - -	- - -	- - -	- - -	
C-91595	Rear Sight Base Mag. (Blk. 32530)			94058		- - -		
C-93904	Rear Sight Slide (Blk. C-93907)	94335		- - -	- - -	- - -	- - -	
B-90904	Windage Screw (Blk. 91911)	90904		- - -	- - -	- - -	- - -	
B-28505	Rear Sight Base Screw (2) (Blk. 90347)	28505		- - -	- - -	- - -	- - -	

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DWG. NO.	PART NAME	BDL SHORT	BDL VARMINT	BDL LONG	ADL SHORT	ADL LONG	MIN. RIFLE LONG	MIN. RIFLE SHORT
		PART NUMBERS						
C-15363	Front Sight Hood (BLK.C-90292)	15363		- - -				
B-22040	FIRING PIN ASSEMBLY	22041	- - -	22040	22041	22040	- - -	22041
"	FIRING PIN ASSEMBLY (25-06 Long Action)		22040					
C-17012	Bolt Plug (Blk. C-19894)	17012	- - -	- - -	- - -	- - -	- - -	- - -
C-22020	Firing Pin (Blk. C-28805)	22021	- - -	22020	22021	22020	- - -	22021
"	Firing Pin (25-06 Long Action Varmint)		22020					
B-17022	Firing Pin Cross Pin	17022	- - -	- - -	- - -	- - -	- - -	- - -
C-23320	Firing Pin Head (Blk. B-27975)	23320	- - -	- - -	- - -	- - -	- - -	- - -
A-17058	Main Spring	17058	- - -		- - -			- - -
A-17029	Main Spring			17029		- - -	- - -	
A-17029	Main Spring (25-06 Long Action Varmint)		17029					
B-17013	Bolt Stop (Blk. B-90492)	17013	- - -	- - -	- - -	- - -	- - -	- - -
C-24475	Bolt Stop Pin	24475	- - -	- - -	- - -	- - -	- - -	- - -
B-15224	Bolt Stop Spring	15224	- - -	- - -	- - -	- - -	- - -	- - -
B-90554	Bolt Stop Spring LH	90554		- - -				
B-104250	Center Guard Screw (Blk. 104245)				104250	- - -		
B-98880	Floor Plate Insert (17,222,223) (Blank 90935)	98880	- - -					
C-104125	Front Guard Screw (Blk. 104137)	104127	- - -					- - -
"	Front Guard Screw & 25-06			104129	- - -		- - -	
"	Long Action Varmint (Blk. 104139)		104129					
"	Front Guard Screw (Blank 104140)					104130		
C-106605	MAGAZINE ASSEMBLY 222, 17 Rem., 223	106605	- - -					
C-17971	Magazine 222, 17 Rem., 223	17971	- - -					
B-91936	Magazine Spacer 222, 223, 17 Rem.	91936	- - -					
C-16430	Magazine 270, 30-06, 7mm, 300 Win. Mag.			16430			- - -	
"	25-06, 8mm Rem.Mag., 280			16430			- - -	
"	35 Whelen, 338, 7x57 (Mauser)			16430			- - -	
"	25-06 Long Action Varmint		16430					
"	7X64 Brenneke						16430	

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DWG. NO.	PART NAME	BDL SHORT	BDL VARMINT	BDL LONG	ADL SHORT	ADL LONG	MIN. RIFLE LONG	MIN. RIFLE SHORT
		PART NUMBERS						
C-16715	Magazine 243, 6mm, 22-250 (Blk. 91934)	16715	- - -					- - -
"	308, 7mm-08, 220 Swift	16715	- - -					- - -
"	300 Savage, 257 Roberts	16715						- - -
C-15282	222 (Blk. 90368)				15282			
C-15283	243, 308, 6mm, 22-250 (Blk. 90338)				15283			
C-15284	270, 25-06, 30-06, 7mm Rem. Mag.					15284		
"	280 (Blk. 90372)							
C-90951	Magazine Follower 222, 223, 17 Rem. (Blk. C-90339)	90951	- - -					
C-90952	7mm, 300 Win. Mag. 8mm Rem. Mag.			90952				
"	338 Win. Mag.(Blk. C-90340)			90952				
C-92218	270, 30-06, 25-06, 280			92218			- - -	
"	35 Whelen, 7mm x 57 (Mauser)			92218			- - -	
"	7X64 Brenneke (Blk. C-91935)						92218	
C-90982	243, 6mm, 22-250, 308,	90982	- - -					- - -
"	7mm-08, 300 Savage	90982	- - -					- - -
"	257 Roberts, 220 Swift (Blk. C-90346)		90982					- - -
C-92218	25-06 Long Action Varmint (Blk. C-91935)		92218					
C-92508	222 (Blk. C-92507)				92508			
A-92455	243, 308, 6mm, 22-250 (Blk. C-92454)				92455			
A-92492	270, 25-06, 30-06, 280, 7mm Rem. Mag. (Blk. C-92493)					92492		
						92492		
B-15742	Magazine Spacer 222, 223 (Blk. B-91909)				15742			

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DWG. NO.	PART NAME	BDL SHORT	BDL VARMINT	BDL LONG	ADL SHORT	ADL LONG	MIN. RIFLE LONG	MIN. RIFLE SHORT
		PART NUMBERS						
C-91133	Magazine Spring 222, 223, 17 Rem.	91133	- - -		- - -			
A-15699	22-250, 243, 6mm, 308,7mm-08		15699					- - -
"	22-250, 220 Swift	15699	- - -					
C-17891	243, 6mm, 7mm-08, 308,	17891			- - -			
"	300 Savage, 257 Roberts	17891						- - -
A-15677	270, 30-06, 7mm, 300 Win. Mag.			15677			- - -	
	25-06, 8mm Rem. Mag. 280,			15677			- - -	
	35 Whelen, 7mm x 57 (Mauser)			15677			- - -	
	7X64 Brenneke 338 Win. Mag			15677			- - -	
A-15677	Magazine Spring 25-06 (Long Action)		15677					
C-15698	22-250				15698			
C-17028	270, 25-06, 30-06, 7mm Rem. Mag.					17028		
A-15940	Magazine Tab Screw (Blk. 90301)				15940	- - -		
C-104125	Rear Guard Screw (Blk. 104136)	104126	- - -	- - -	- - -	- - -	- - -	- - -
B-17034	Receiver Plug Screw (4)	17034	- - -	- - -	- - -	- - -	- - -	- - -
C-24475	Sear Pin	24476	- - -	- - -	- - -	- - -	- - -	- - -
	STOCK ASSEMBLY							
D-103600	BDL (Short Action) (V-93616)	103600						
"	BDL (Long Action) (V-93617)			103601				
"	BDL 35 Whelen (V-94537)			103608				
"	BDL Magnum (V-93618)			103602				
"	BDL Varmint (V-93619)		103606					
"	BDL Varmint (Long Action) (V-93620)		103607					
"	BDL LH Short Action (V-93857)	103603						
"	BDL LH Long Action (V-93624)			103604				
"	BDL LH Magnum (V-93625)			103605				

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DWG. NO.	PART NAME	BDL SHORT	BDL VARMINT	BDL LONG	ADL SHORT	ADL LONG	MTN. RIFLE LONG	MTN. RIFLE SHORT
		PART NUMBERS						
	STOCK ASSEMBLY CONT'D.							
B-102065	ADL Short Action (V-93613)				102065			
"	ADL Long Action (V-93614)					102066		
B-102065	ADL Magnum (V-93615)					102067		
"	ADL Long Action (Laminated) (V-94364)					102068		
"	ADL Short Action (Laminated) (V-94543)					102069		
"	ADL Magnum (Laminated) (V-94544)					94541		
B-100565	Mountain Rifle Long Action (V-93621)						100565	
"	Mountain Rifle Short Action (V-94246)							100566
D-92796	Butt Plate Frame	92796	- - -	- - -	- - -	- - -		
B-25410	Butt Plate Frame Screw (2)	25410	- - -	- - -	- - -	- - -		
D-92797	Butt Plate Frame Insert	92797	- - -	- - -	- - -	- - -		
B-25410	Butt Plate Frame Insert Screw	25410	- - -	- - -	- - -	- - -		
B-90571	Butt Plate Spacer	90571	- - -	- - -				
B-33440	Fore End Tip	33440	33441	33440				
C-92754	Fore End Tip						92754	- - -
B-33445	Fore End Tip Spacer	33445	33446	33445				
B-15161	Front Guard Screw Bushing (Blk. 91915)				15161	- - -		
C-15331	Grip Cap	15331	- - -	- - -				
C-92753	Grip Cap						92753	- - -
B-90572	Grip Cap Spacer	90572	- - -	- - -				
D-90949	Recoil Pad Magnum & 35 Whelen			90949		- - -		
D-92762	Recoil Pad						92762	- - -
C-90971	Recoil Pad Reinforcement Magnum & 35 Whelen			90971		- - -		
B-25410	Recoil Pad Screw & 35 Whelen			25410		- - -	- - -	- - -

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Date: MODEL 700
07/25/94 BOLT ACTION
09/20/94 CENTERFIRE RIFLE R.H. & L.H.

Sheet 15 of 17 — Dotted line (- - -) indicates same part number

DWG. NO.	PART NAME	BDL SHORT	BDL VARMINT	BDL LONG	ADL SHORT	ADL LONG	MIN. RIFLE LONG	MIN. RIFLE SHORT
		PART NUMBERS						
	STOCK ASSEMBLY - CONT'D.							
B-90571	Recoil Pad Spacer Magnum & 35 Whelen			90571				
E-103580	Stock BDL (CP D-91001) (Blk. 2095)	103580		103581				
"	BDL (35 Whelen) (" ")			103583				
"	BDL Magnum (" ")			103582				
D-103595	BDL Varmint (" ")		103595					
D-103590	BDL LH (" ")	103590		103591				
"	BDL LH Magnum (" ")			103592				
D-103595	BDL Varmint 25-06(" ")		103596					
E-100015	ADL (CP D-90976) (Blk. 2095)				100015	100016		
"	ADL Magnum (" ")					100017		
"	ADL Long Action (" 2100) (Laminated)					100018		
"	ADL Short Action (" ") (Laminated)				100019			
"	ADL Magnum (" ") (Laminated)					94540		
E-100570	Mountain Rifle (CP D-92929)						100570	100571
B-92854	Stock Reinforcement Plug (2) Magnum Calibers Require (4)	92854	- - -	- - -	- - -	- - -	- - -	- - -
B-92843	Stock Reinforcement Rivet Magnum Calibers Require (2)	92843	- - -	- - -	- - -	- - -	- - -	- - -
B-92844	Stock Reinforcement Rivet Washer Magnum Calibers Require (2)	92844	- - -	- - -	- - -	- - -	- - -	- - -
B-15358	Swivel Screw Front	15358	- - -	- - -	- - -	- - -	- - -	- - -
B-15358	Swivel Screw Rear	15358	- - -	- - -	- - -	- - -	- - -	- - -
B-94241	Swivel Screw Washer (2)	94241	- - -	- - -	- - -	- - -	- - -	- - -

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Date: MODEL 700
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Sheet 16 of 17 — Dotted Line (- - -) indicates same part number

DWG. NO.	PART NAME	BDL. SHORT	BDL. VARMINT	BDL. LONG	ADL. SHORT	ADL. LONG	MIN. RIFLE LONG	MIN. RIFLE SHORT
		PART NUMBERS						
D-26345	TRIGGER ASSEMBLY	26345	- - -	- - -	- - -	- - -	- - -	- - -
D-32895	TRIGGER ASSEMBLY LH	32895		- - -				
C-15478	Bolt Stop Release (Blk. C-91917)	15478	- - -	- - -	- - -	- - -	- - -	- - -
C-90555	Bolt Stop Release LH (Bk. C-91939)	90555		- - -				
B-92297	SAFETY ASSEMBLY	92297	- - -	- - -	- - -	- - -	- - -	- - -
B-92296	SAFETY ASSEMBLY LH	92296		- - -				
C-92212	Safety	92212	- - -	- - -	- - -	- - -	- - -	- - -
C-92213	Safety LH	92213		- - -				
C-91852 ✓	Safety Button	91852	- - -	- - -	- - -	- - -	- - -	- - -
B-23220 ✓	Safety Detent Ball	23222	- - -	- - -	- - -	- - -	- - -	- - -
B-15368 ✓	Safety Detent Spring	15368	- - -	- - -	- - -	- - -	- - -	- - -
~~B-92546~~	~~Safety Detent Spring LH~~	92546		- - -				
B-17043 ✓	Safety Pivot Pin (Blk. B-91918)	17043	- - -	- - -	- - -	- - -	- - -	- - -
A-17044 ✓	Safety Snap Washer	17044	- - -	- - -	- - -	- - -	- - -	- - -
C-15666	Sear Safety Cam (Blk. C-91919)	15666	- - -	- - -	- - -	- - -	- - -	- - -
A-17047	Sear Spring	17047	- - -	- - -	- - -	- - -	- - -	- - -
C-15280	Trigger (Blk. C-91912)	15280	- - -	- - -	- - -	- - -	- - -	- - -
B-17053	Trigger Screw Front (Blk. B-91920)	17053	- - -	- - -	- - -	- - -	- - -	- - -
C-19461	Trigger Connector (Blk. C-91921) (Blk. C-91937)	19461	- - -	- - -	- - -	- - -	- - -	- - -
B-91128	Trigger Engagement Screw (Blk. B-91922)	91128	- - -	- - -	- - -	- - -	- - -	- - -
C-26655	TRIGGER HOUSING ASSEMBLY	26655	- - -	- - -	- - -	- - -	- - -	- - -
C-32905	TRIGGER HOUSING ASSEMBLY LH	32905		- - -				
B-14632	Trigger Housing Rivet (4)	14632	- - -	- - -	- - -	- - -	- - -	- - -
B-14630	Trigger Housing Spacer, Front (Blk. 91923)	14630	- - -	- - -	- - -	- - -	- - -	- - -
B-14631	Trigger Housing Spacer, Rear (Blk. 91924)	14631	- - -	- - -	- - -	- - -	- - -	- - -

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Sheet 17 of 17 — Dotted line (- - -) indicates same part number

DWG. NO.	PART NAME	BDL SHORT	BDL VARMINT	BDL LONG	ADL SHORT	ADL LONG	MIN. RIFLE LONG	MIN. RIFLE SHORT
		PART NUMBERS						
C-30780	Trigger Side Plate, Right (Blk. C-32785)	30780	- - -	- - -	- - -	- - -	- - -	- - -
"	Trigger Side Plate , Right LH	30781		- - -				
"	Trigger Side Plate, Left	30781	- - -	- - -	- - -	- - -	- - -	- - -
C-90558	Trigger Side Plate, Left LH (Blk. C-32785)	90558		- - -				
C-24475	Trigger Pin	24477	- - -	- - -	- - -	- - -	- - -	- - -
A-15400	Trigger Spring	15400	- - -	- - -	- - -	- - -	- - -	- - -
A-15481	Trigger Stop Screw (Blk. A-91926)	15481	- - -	- - -	- - -	- - -	- - -	- - -
D-94089	TRIGGER GUARD ASSEMBLY	26370	- - -	26371			- - -	26370
"	TRIGGER GUARD ASSEMBLY 25-06 Long Action		26371					
	THE ABOVE PART NUMBERS ARE FOR ARMS SERVICE ONLY							
D-94534	Trigger Guard Sub-Assembly	31490	- - -	31491			- - -	31490
"	Trigger Guard Sub-Assembly 25-06 Long Action		31491					
D-16434	Floor Plate (Blk. D-91941)	16434	- - -					- - -
D-19800	Floor Plate (" D-91942)			19800			- - -	
"	Floor Plate 25-06 Long Action		19800					
A-16453	Floor Plate Pivot Pin	16453	- - -	- - -			- - -	- - -
E-26375	Trigger Guard (Blk. E-34315)	26375	- - -					- - -
"	Trigger Guard Long Action (E-34315, Blk. 34316)		26376	- - -			- - -	
C-15291	Floor Plate Latch (Blk. B-91759)	15291	- - -	- - -			- - -	- - -
A-16451	Floor Plate Latch Pin (Blk. 91943)	16451	- - -	- - -			- - -	- - -
A-16452	Floor Plate Latch Spring	16452	- - -	- - -			- - -	- - -
C-94489	Trigger Guard (Blk. 94518)				94489	- - -		
	Accessory (Added cost)							
A-14694	SLING STRAP ASSEMBLY & MOUNTINGS COMP	14694	- - -	- - -	- - -	- - -	- - -	- - -

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Don
Danny fyi
Tom

OUTDOORS

Deer season opens with surprising bang

The Topeka Capital-Journal, Sunday, December 4, 1994 7-D

John Ramsberg
Capital-Journal outdoor writer

No I haven't shot a deer yet. But I did shoot something even bigger opening I shot my truck.

It was homo-chilling cold on the private Wednesday morning. I'd parked in a pasture before dawn and my deer hunting buddies and I split up to beat separate draws.

Shortly after 8 a.m. I began to think how wonderful a hot cup of coffee would taste and went back to the truck. I leaned my rifle, a Remington 700 in .270 caliber, on the passenger seat with the barrel pointing down toward the floorboard.

The coffee tasted so great as I thought it would. I smoked a cigarette. Finished some crossword. Looked through the binoculars.

About 100 yards away I saw one of my partners come out of the draw. He had as cold as I was. I thought, I bet he'll appreciate a ride.

Here, we have an iron-rich road. We don't ride around hunting pastures with lots dad gums around. If they are to outlay.

Accidents happen that way.

I REMEMBER CLYDE, flashed the safety to the "fire" position. To those who have a limited knowledge of rifles, it is necessary to do this in order to release the bolt action and extract the shell from the chamber of the rifle.

Nothing happened when I moved the safety to "fire." Remember, when I flicked the bolt up to park the shell out, the rifle went off with a terrible roar in the confined space.

I got out, my ears ringing (they're still ringing as a matter of fact), my hands shaking, prayers of a local hunting crowd coming from the truck.

The round went through the floorboard and came out, shredding a jagged hole through the right fire wall. It's inside is apparently hit part of the air conditioning system. The blasting sound was Freon gas escaping.

As well as shooting my truck, I had added to the owner buyer problem.

At first I was embarrassed. Then I got shook. The round could easily have ricocheted around the cab.

Then I got serious.

I WENT TERRIFIED the sequence of events and even 100 personal pastors I hadn't touched the trigger.

Gene Larmer, a gunsmith and owner of the High Plains Gunshop sent me I.W., had no explanation.

"There's a couple ways it could have happened," he said. "Probably the oil in the sear had congealed from the cold. The firing pin is in the rear was partially engaged. As soon as you lifted the bolt, it fired.

"Or there could have been some dirt or a wood seed in the trigger itself that set up the discharge."

Larmer had a few stories himself. "I know those guys that went out to Oakley," he said. "One was shooting a .300 Weatherby and it discharged in the car roof. Blew seven holes in the roof, the windows, went through the floorboard, ricocheted off the road back into the steering column. Those boys were dead for days but they weren't hurt. You have to respect guns."

SCOTT ALLWAYS RYMER (Ind., Wayne app. IV serve a Redington 1100 shotgun on credit. The shooting and four rounds in the magazine. When he stopped a round in the chamber the gun fired (it does normally not. The firing pin had remained stuck in the fire position. Luckily, he had the gun pointed away from us.

FBI Oakley, who runs Oakley Farms, a shooting preserve and sporting clays operation northwest of Topeka, is covered guns on a daily basis.

"I've seen plenty of guns malfunction," he said. "Somebody's a bird season, somewhere a week before pik. I've seen guns where you pull the trigger and the gun fires a second time all by itself.

"The key is muzzle control. You always want to point the gun in a safe direction."

I've always considered myself a safe, careful hunter.

I've got a hole in my truck, the air conditioner is down, my ears ring. The only good to come of the whole affair is that I've now an even more safe, more careful hunter.

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FIRE CONTROL

ALTERNATIVE

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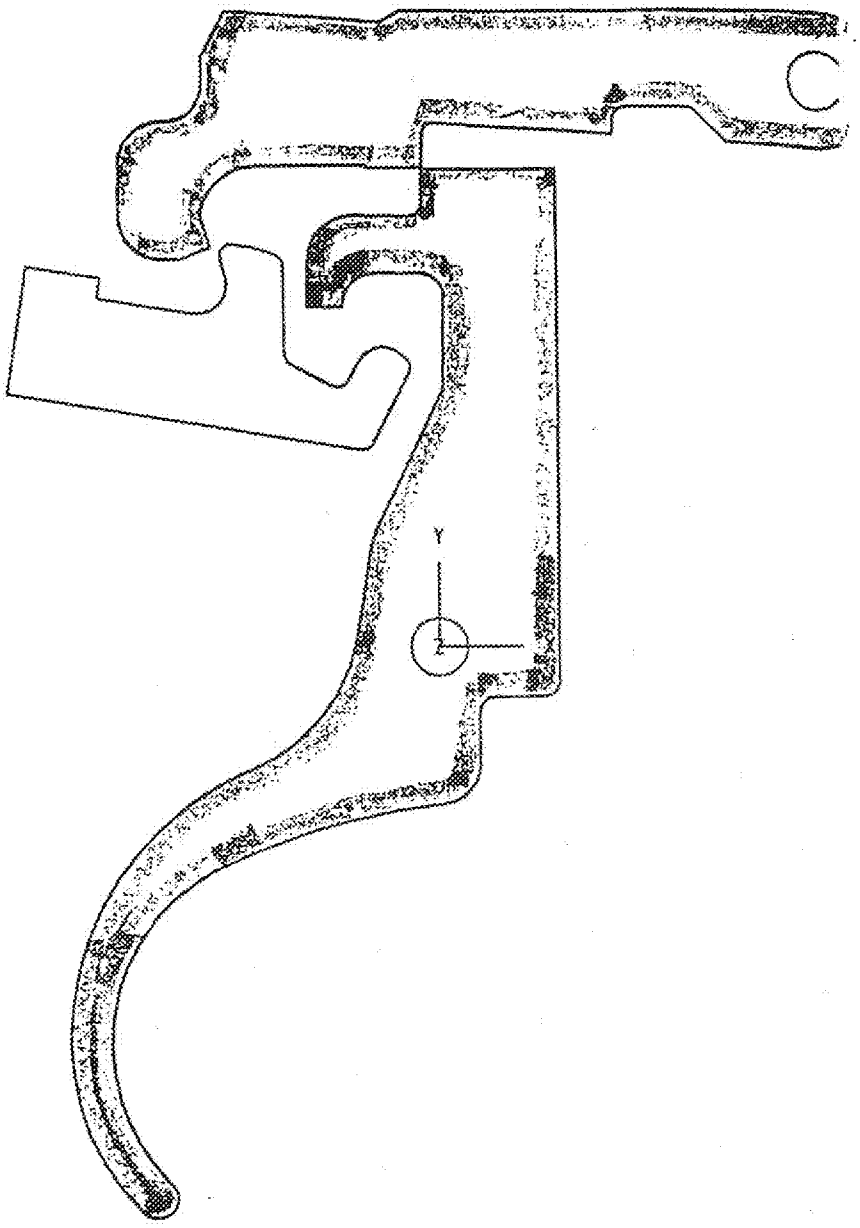

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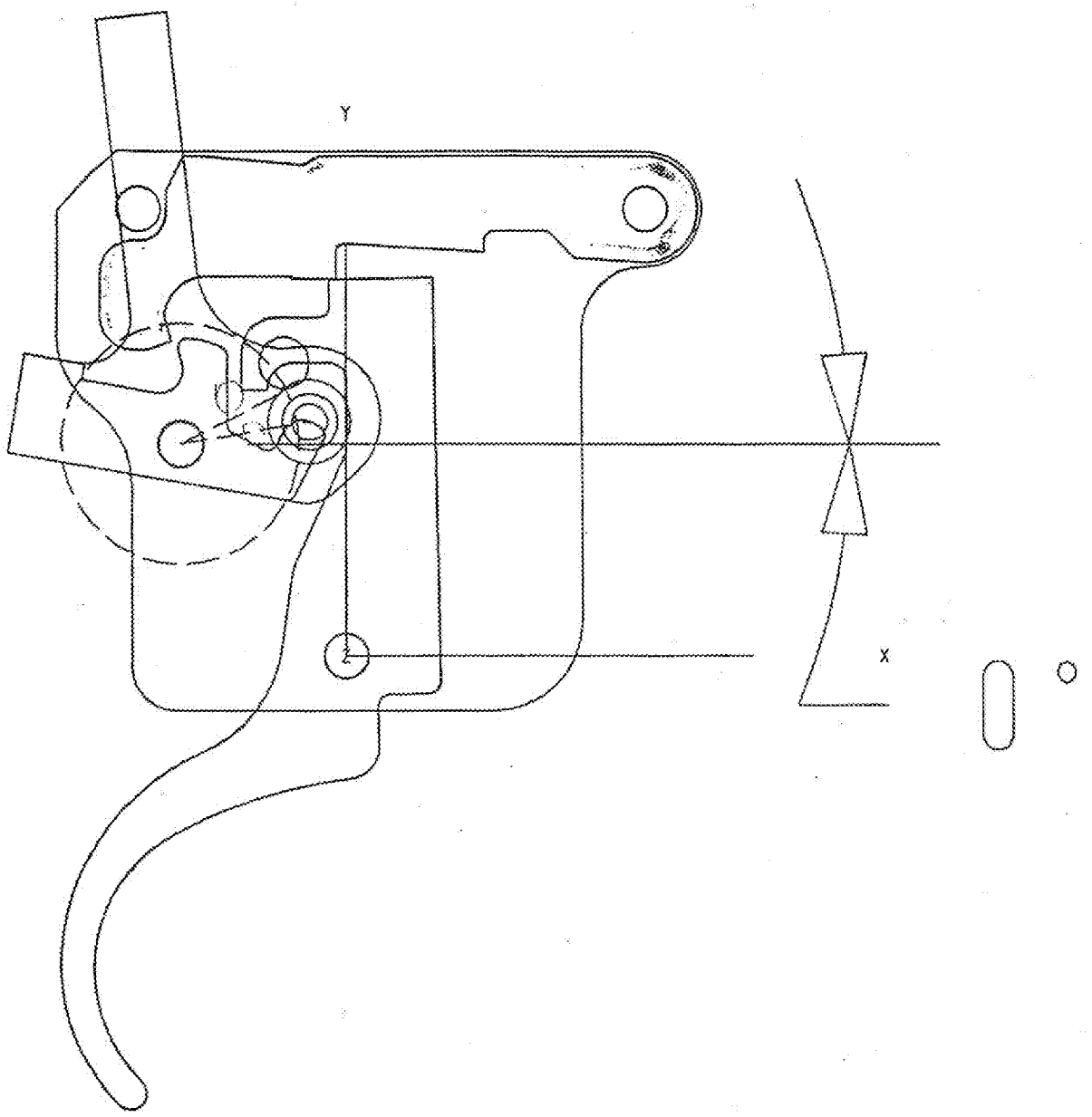
SEAR - PINK
SAFETY - YELLOW
TRIGGER - BLUE



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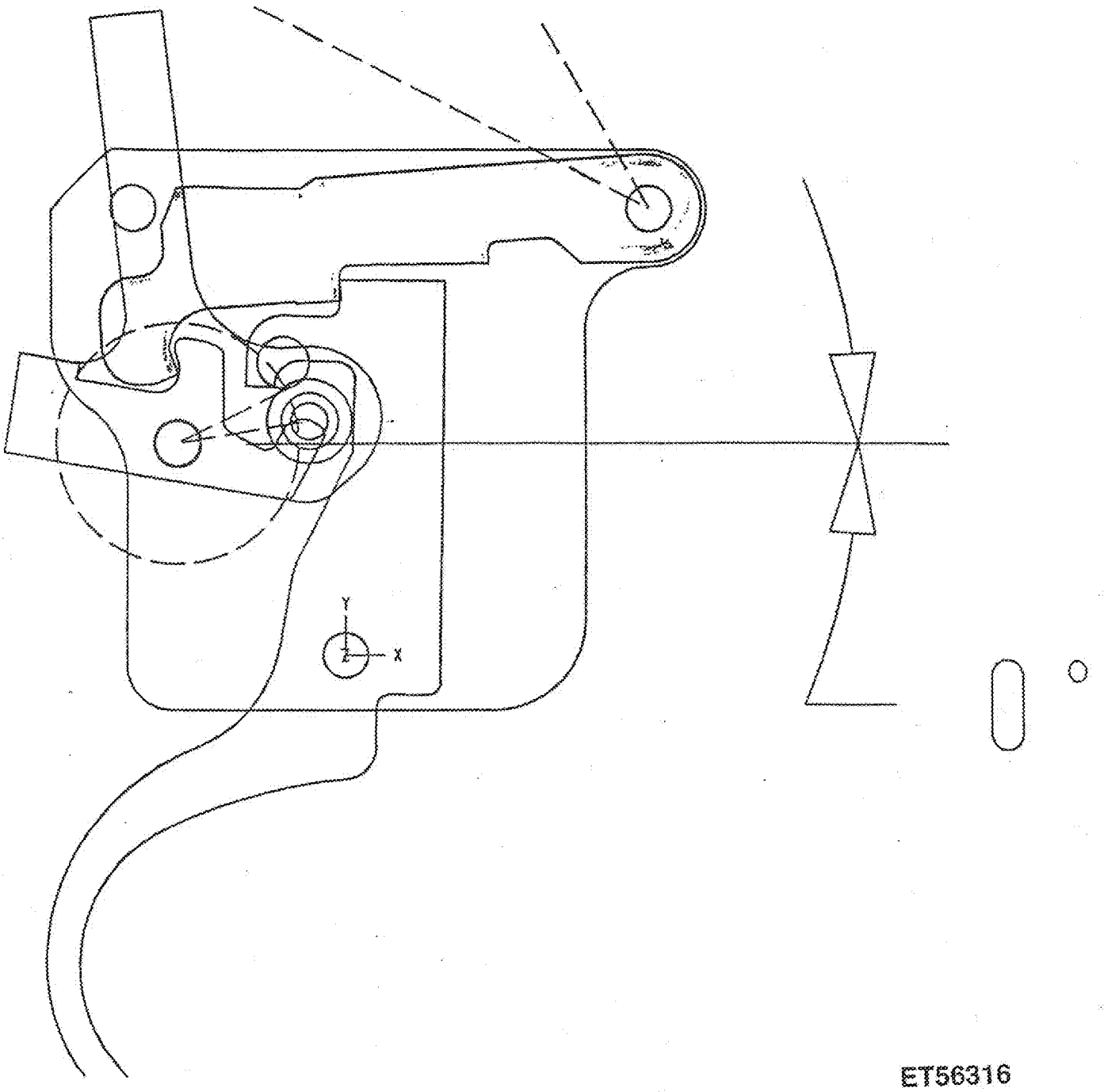
- Trigger/Sear Engaged .020"
- Safety in Fire Position @ 0°



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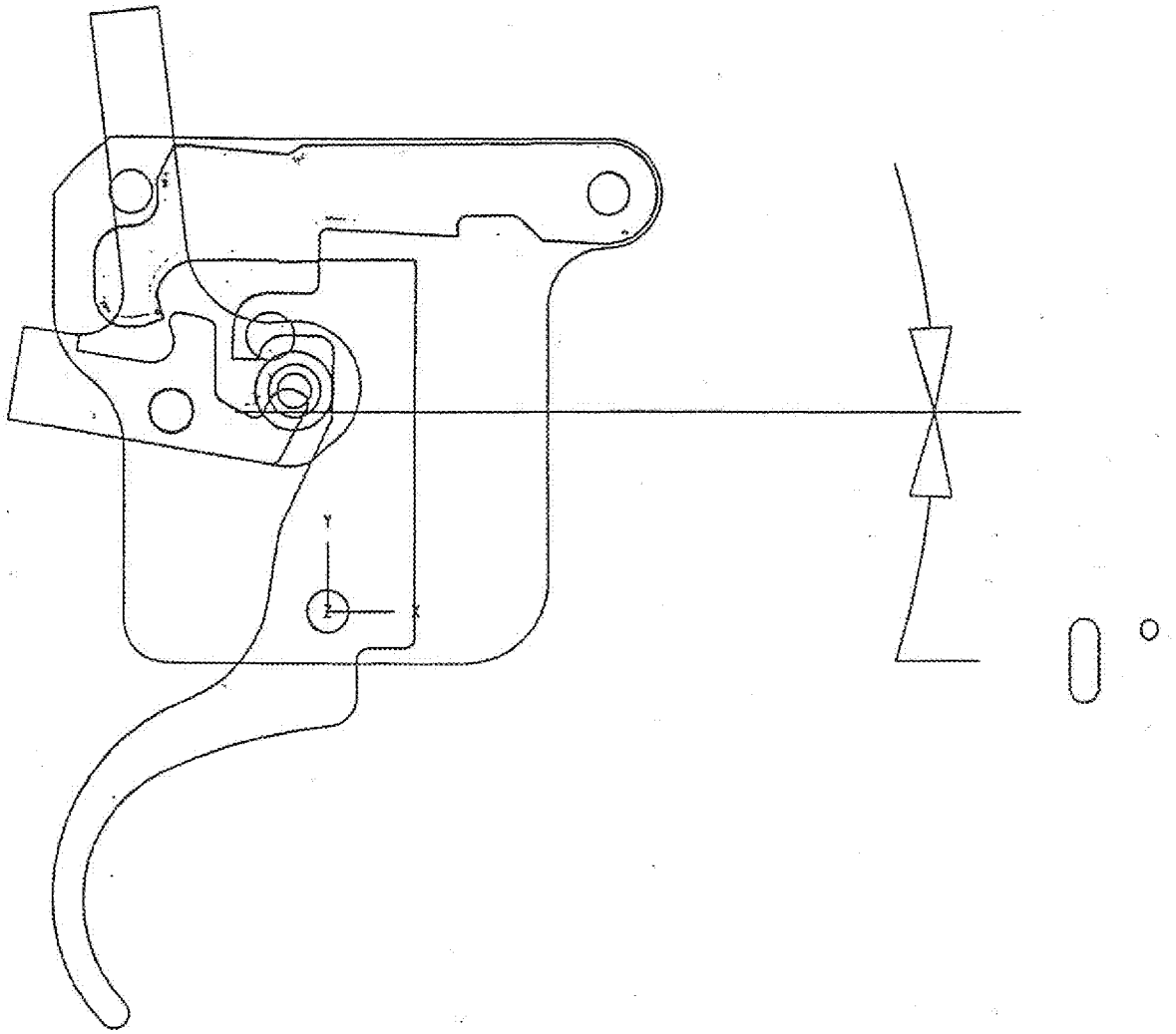
Condition the instant after firing:
- Sear is forced down by the forward advance of the firing pin when trigger (support) is pulled
- Safety in Fire Position @ 0°
- Trigger in farthest overtravel position



Worst case condition after spent shell is extracted and another cartridge is chambered:
- Spring (unshown) returns trigger to worst case condition - Only slight sear engagement assuming something prohibits full return of trigger by spring.
- Safety in Fire Position @ 0°

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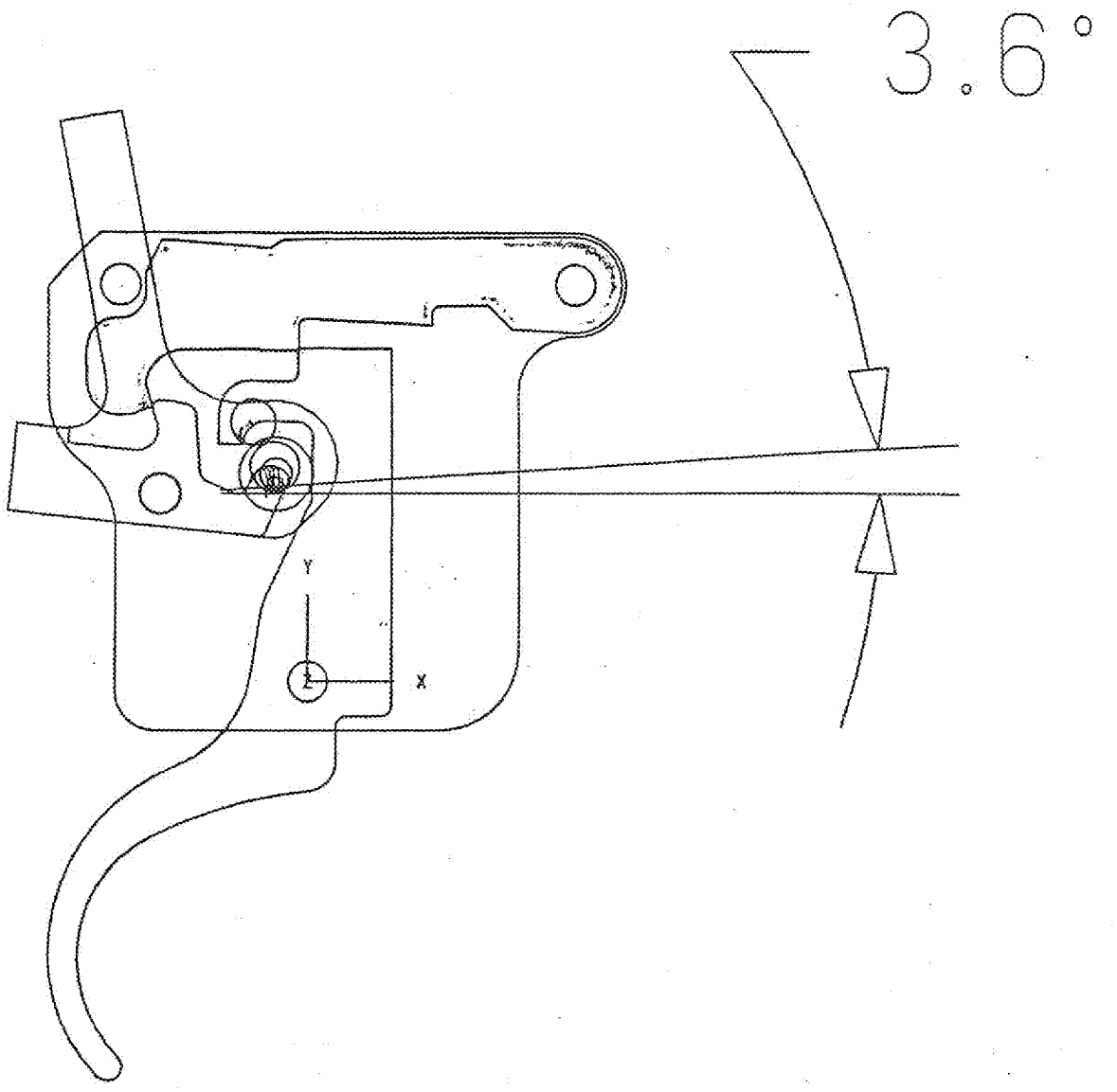

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With the Sear/Trigger in the worst case condition:
- Safety rotates only 3.6° before safety cam engages the sear

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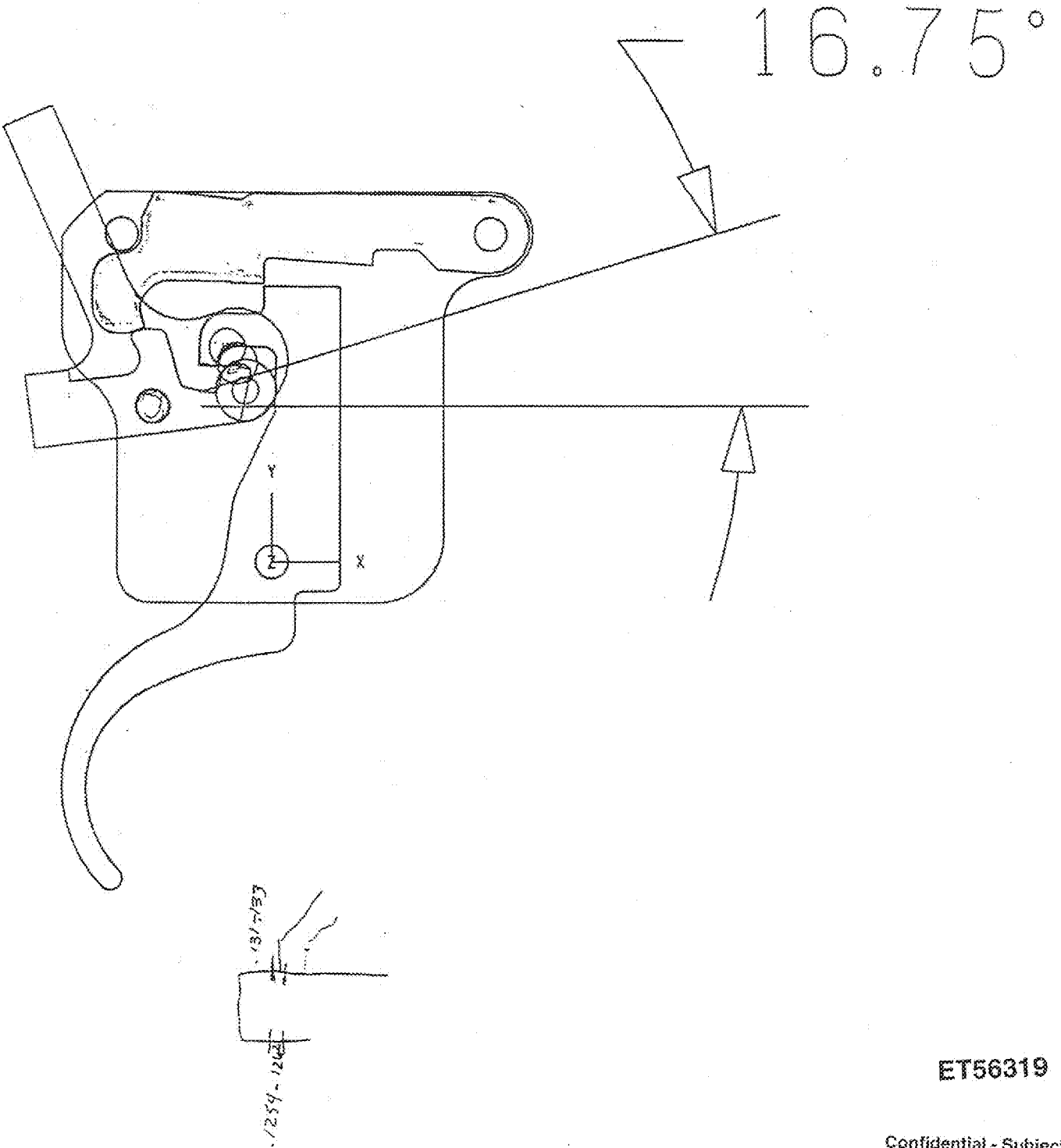

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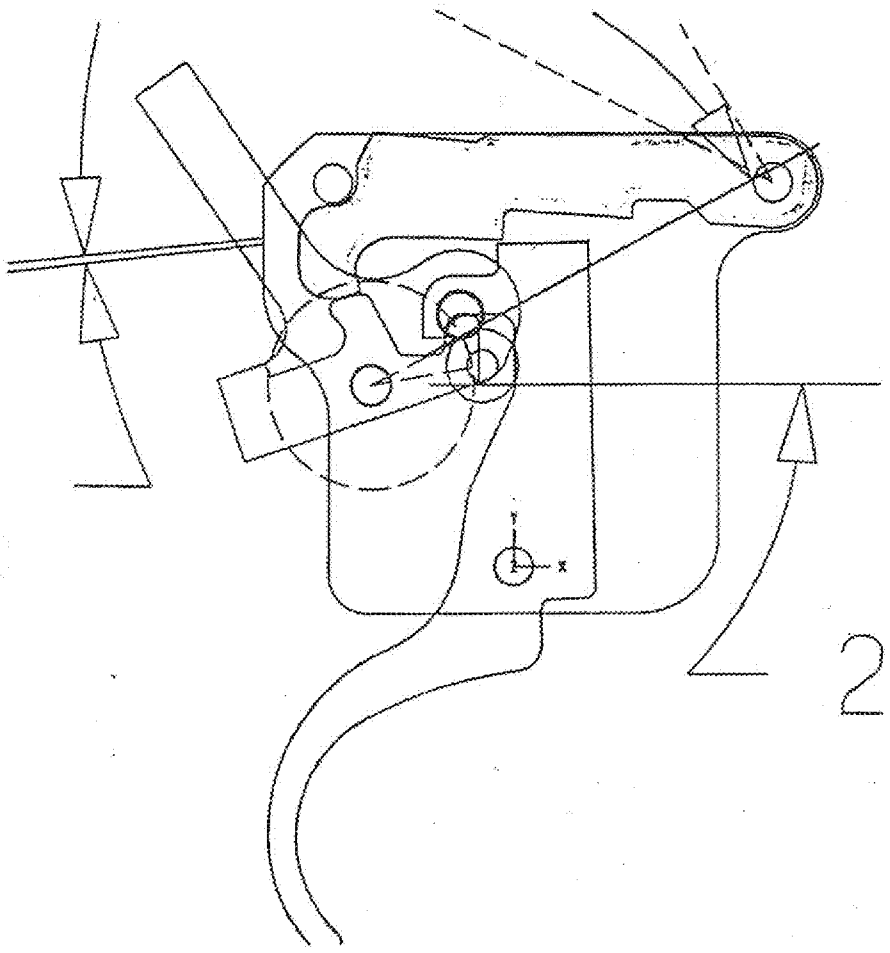
- Safety is rotated further to "click" point position @ 16.75°
- Note trigger is not engaged yet by safety hook



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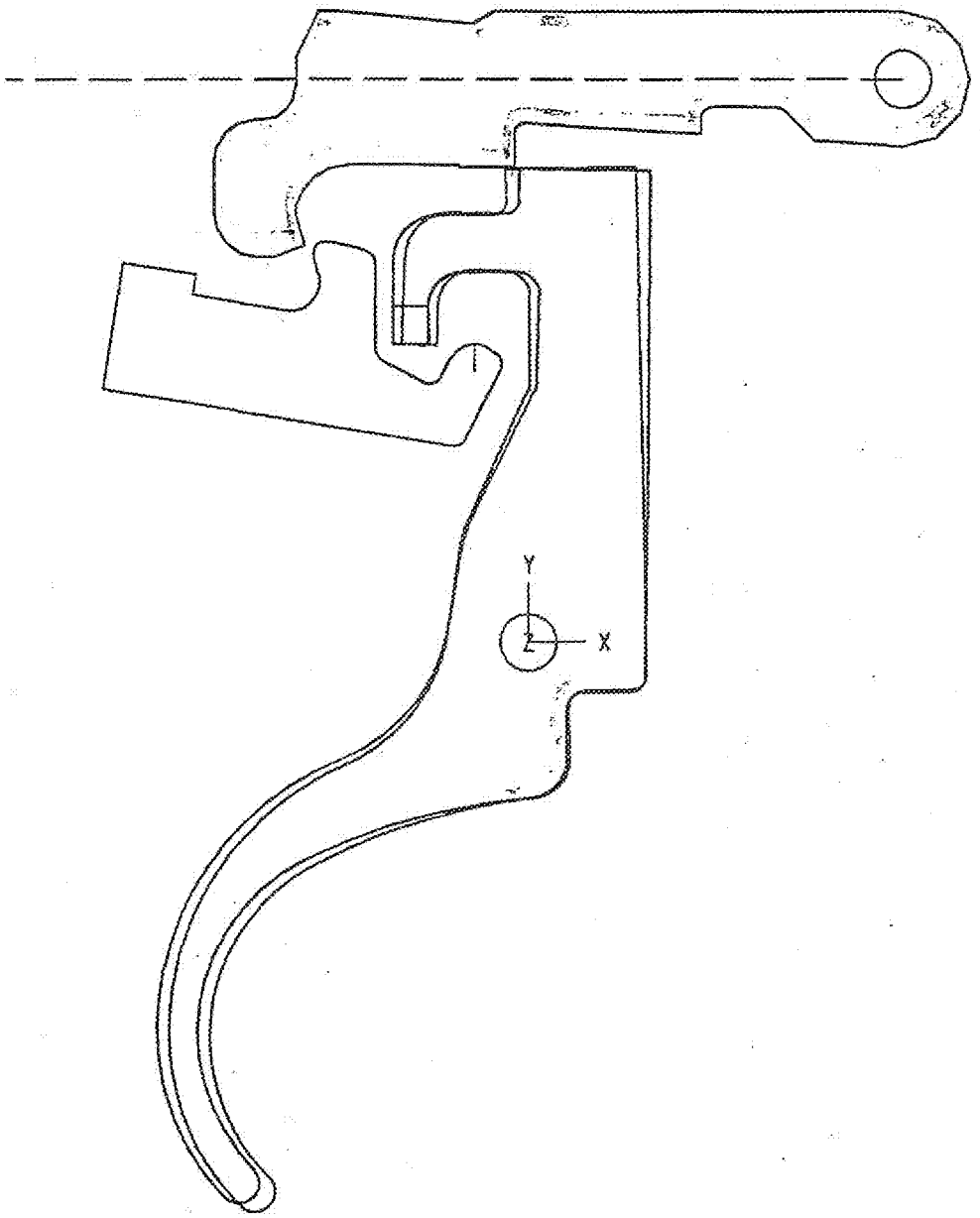
- Safety in full rearward position @ 27.92°
- Note built-in interference between trigger and safety hooks in an attempt to allow for tolerance stack-up



Hook is extended to allow Safety/Trigger engagement before "click" point

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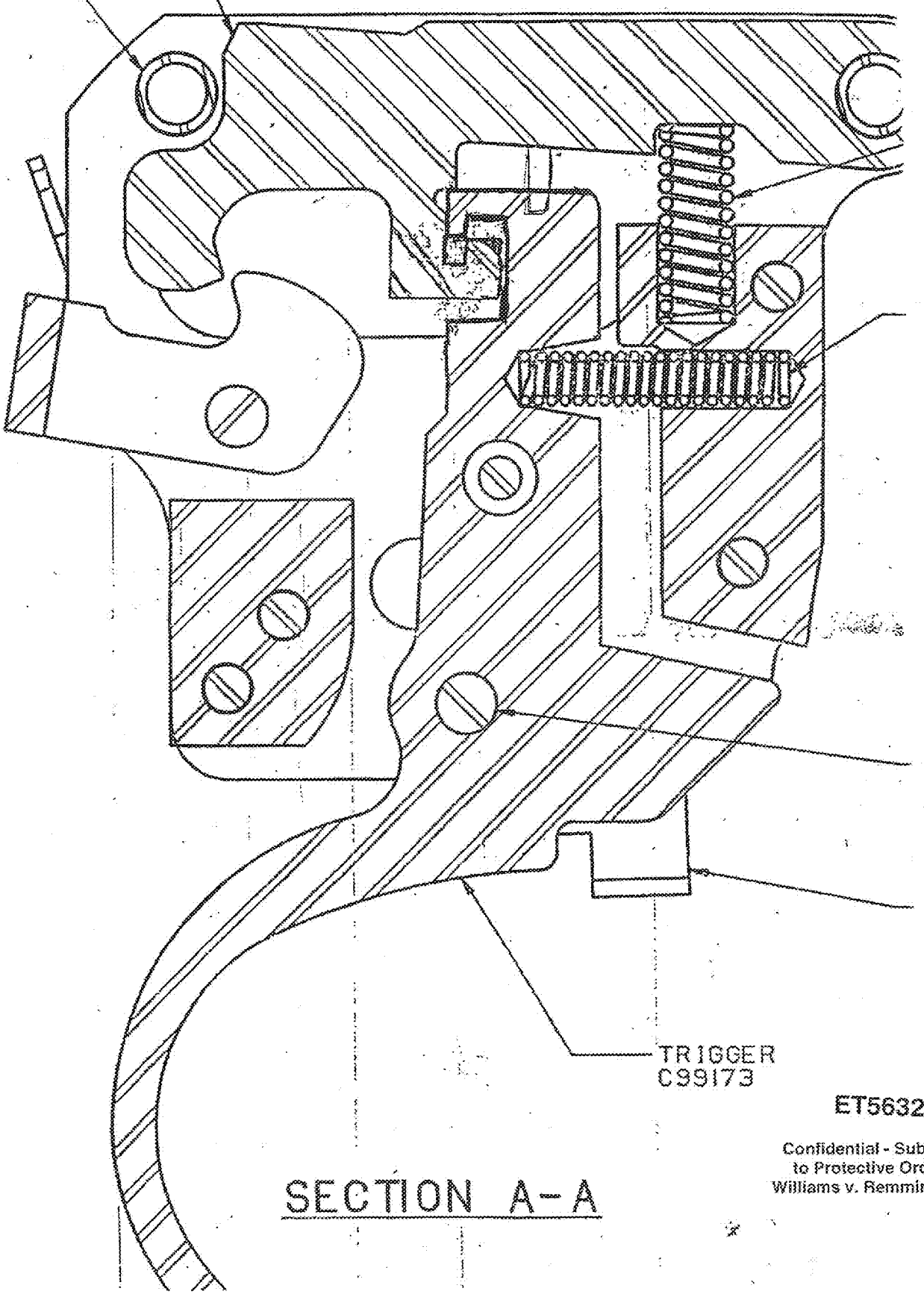

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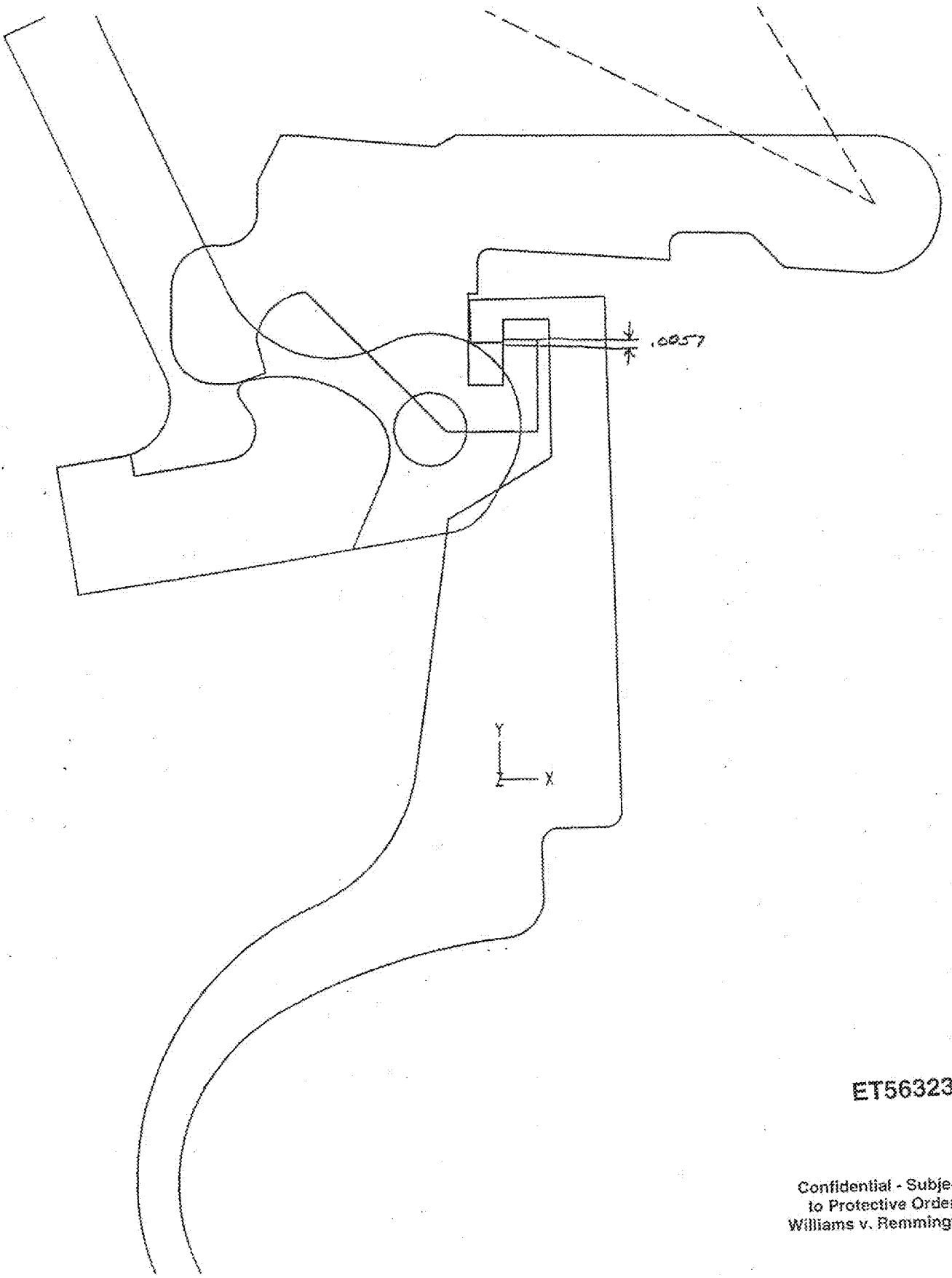
SECTION A-A



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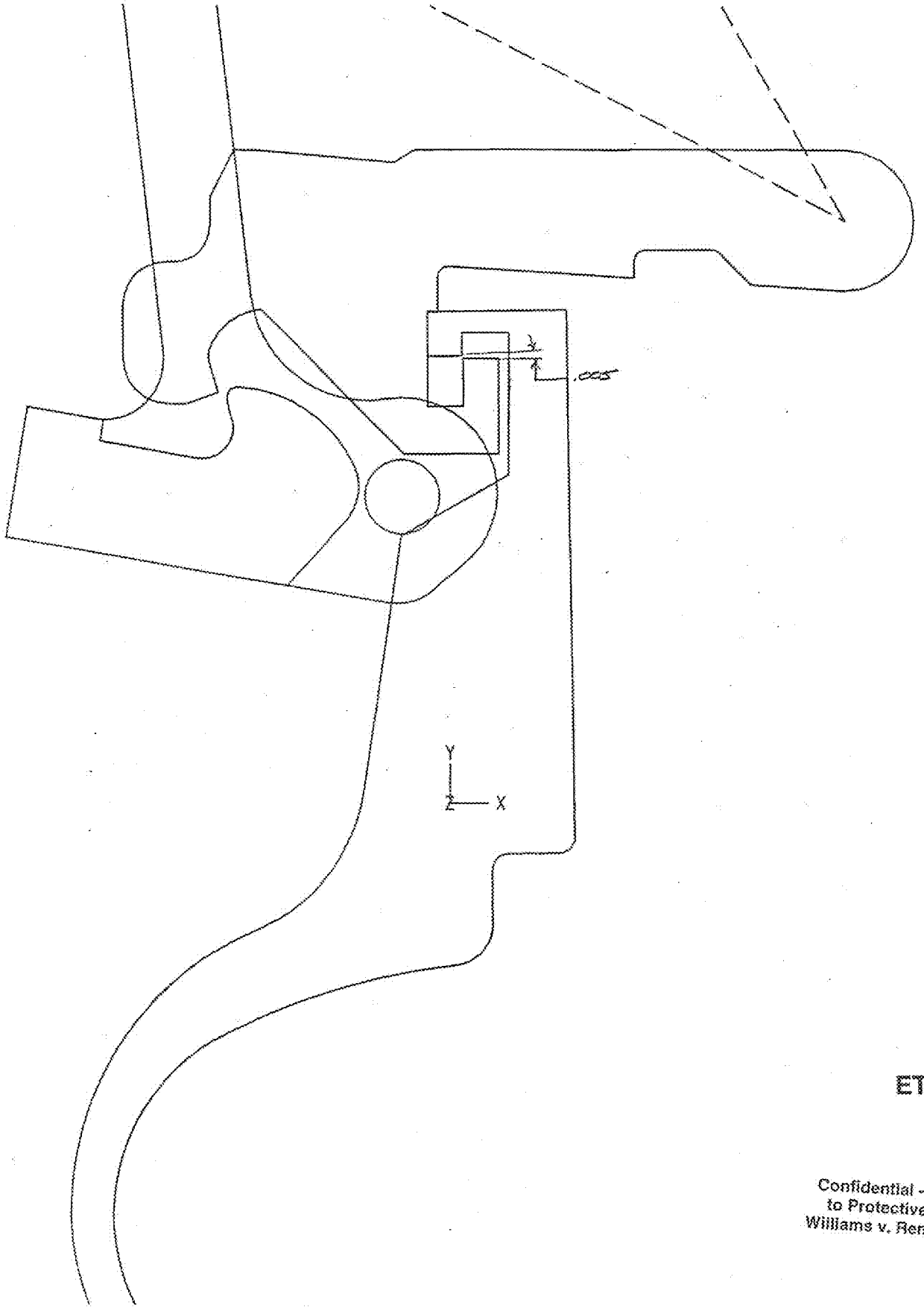

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Corrections To Existing Design

1. Add Plunger Per New Design
2. Use New Side Plates, Cross Pin Thru Trigger. Engages Safety Lever In Safe Position (Two New Parts, One Modified Part)
3. New Safety Lever-Locks Against Back of Trigger in Safe Position
4. Lock Plunger (Side Pin) or Weld Piece To Safety

Lock Trigger When Safety is On Simplest Way?

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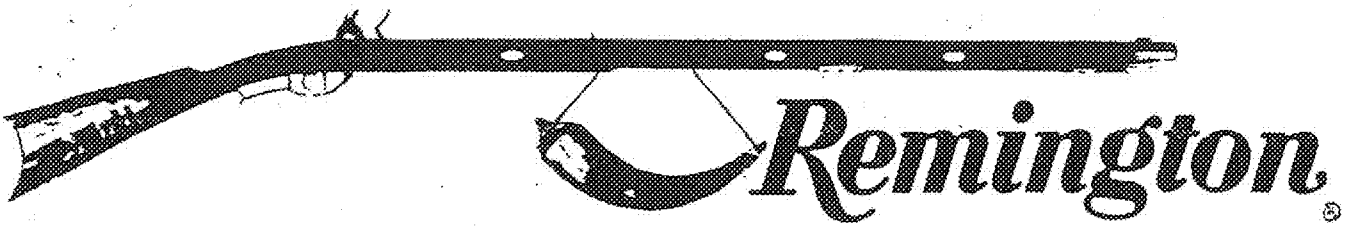

Date 1-31-95

Number of pages including cover sheet 5

Remington Arms Co. Inc.
315 West Ring Road
Elizabethtown, KY 42701
P.O. Box 5016
Elizabethtown, KY 42702-5016

To: Roberta

Phone

Fax Phone

CC:

From:

Research &
Development

Dave Schluckebier

Phone (502) 737-9456

Fax Phone (502) 737-9576

REMARKS:

☐ Urgent ☐ For your review ☐ Reply ASAP ☐ Please comment

For Phone Conference at 4:15

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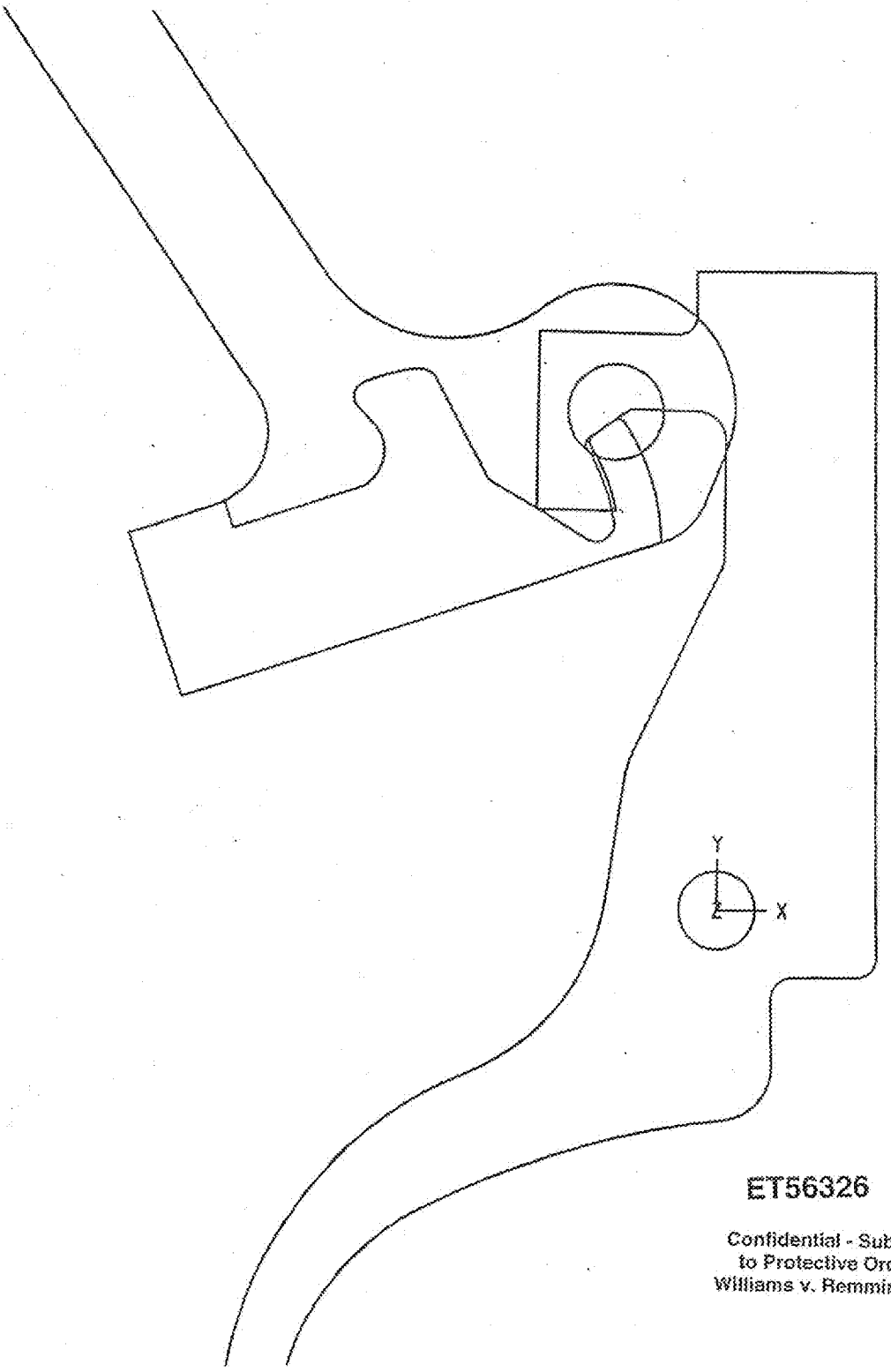

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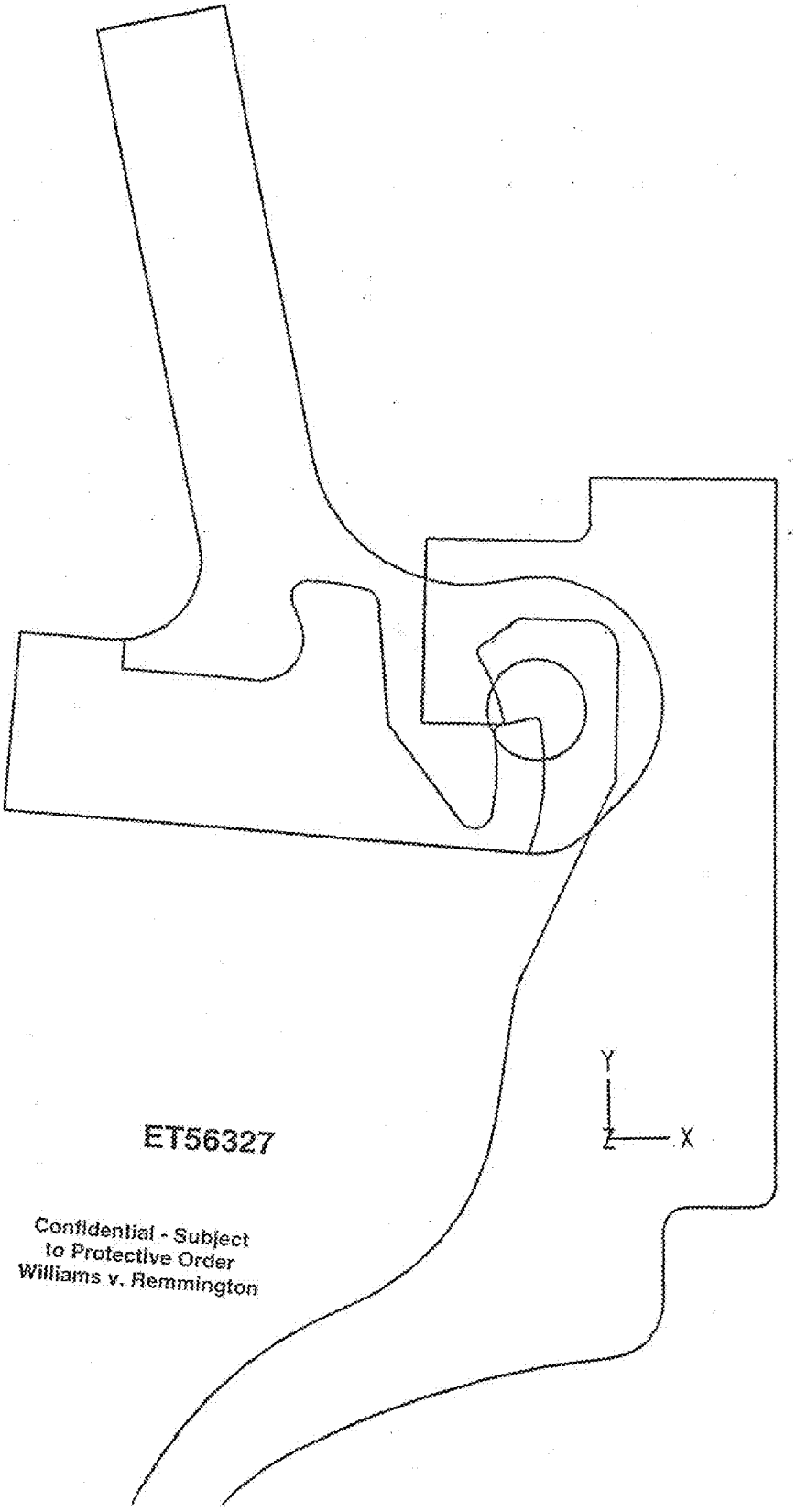
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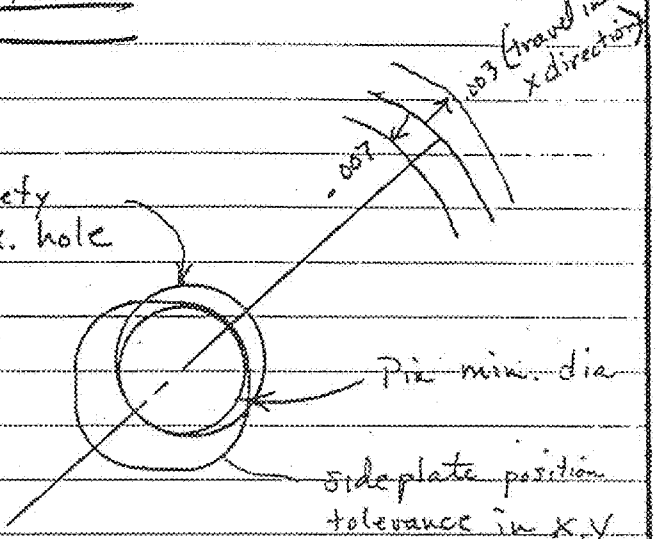
Safety Pivot



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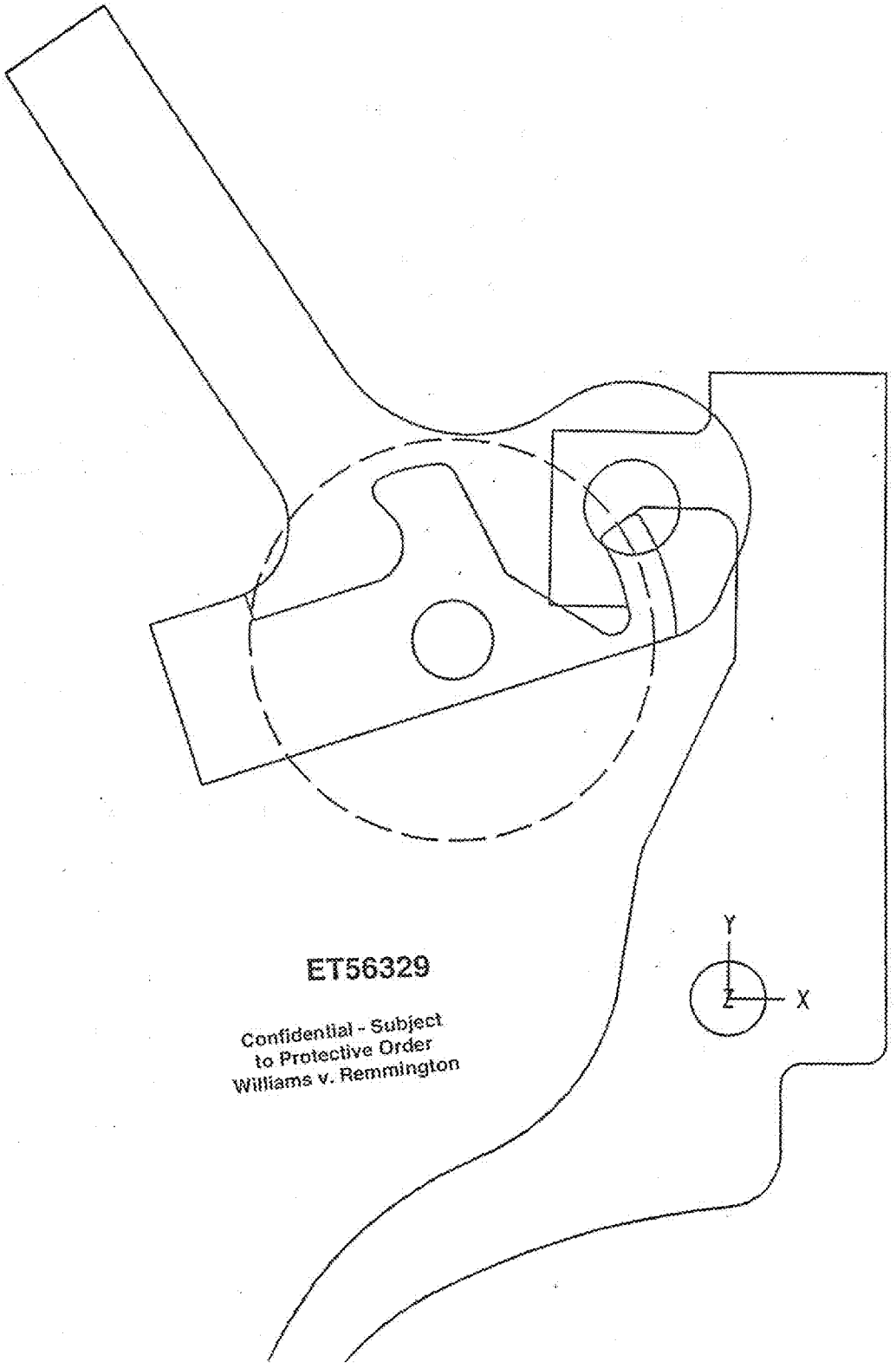

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1) .016" interference (linear) x direction
Full fire trigger
Attempt to rotate the safety

2) Fully retracted trigger by safety in nominal conditions

3) Tolerance adjustment for ~~safety pivot~~ in
safety pivot hole dia (max)
Pivot pin diameter (min)
Sideplate safety pivot Location

showing .007 + interference

ET56330

Notes when you
1) Remove .007 off trigger hook to allow for the tolerance interference ~~and then rotate the trigger to worst case 0" engagement you have only .004" interference~~
you can apply the safety @ only .004" of engagement

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JAN-26-1995 15:01 FROM BAY BUSINESS CTR TO 1650#9158273795?6 P.01

Jan. 26, 1995

Dear Danny,

One has plenty of time to think on an airplane, and I can never stop thinking about a problem until it is solved. So here are a few additional thoughts which have leaked out of the old gray cell cavity.

I think the basic approach of providing a mutually exclusive interlock system is the proper one. This, of course, is one in which you cannot pull the trigger if the safety is out of the fire position, and you cannot put the safety in the safe position if the trigger is not in position to properly engage the sear. Both the plug and the hook designs will accomplish this. However, the plug design adds a new feature: If the trigger is being pulled while the safety is being moved to the fire position, nothing happens because the plug is still in the way and is held there by pressure of the trigger. You must release the trigger, allowing the plug to release, before you can fire the gun. That is not true with the hook design. The key to this is the new intermediate member - the plug. You could provide the same action by adding another part to the hook design, with expected increase in cost and complexity. I think this feature is very important, and perhaps should be explored from a patent standpoint.

I think it would be a mistake to go beyond this basic interlock concept. I think it satisfies all of the operational and legal requirements, even though, (in the case of the hook design), someone might be dumb enough to pull the trigger while he releases the safety. To go further by providing something that will force the trigger back to its home position is bound to affect trigger operation and will add unwanted mechanical complexities.

Obviously, I favor the plug design as a permanent long range solution, and quite possibly the design which you should go with for the immediate future. As we discussed, it is process sensitive, which is always the case when you eliminate adjustments. In my opinion, if you concentrate on solving the problems of putting this thing together, you should have a winner.

It may be worthwhile to explore variations of the hook design involving an intermediate member which will do the same thing as the plug. This allows you to eliminate the side forces inherent in the plug design, which you had to overcome with the capture plate.

Thank you for your hospitality and willingness to listen to an old out-of-date designer, and for allowing me to get out of the retirement rut and once more tackle a good design problem.

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I have written a note to Tony Hancock, telling him that I would write this letter to you. I am leaving copy distribution up to you.

Thanks again. You have a bunch of good engineers with a great attitude. Please extend my thanks and best regards to all of them.

With best personal regards,

Don Rolph

Don Rolph

Danny - Take a look at my suggestions in the circled paragraph. The added part might allow a "no-play" trigger drilling method which would eliminate the tolerance problem. I am working on a couple of sketches which could help, but don't wait for me.

Don.

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Williams v. Remmington

PAGE BREAK

Tentative Agenda for Mr. Howe

Thursday, January 26, 1995

- Pickup at Cincinnati, OH Airport
- Test fire experimental shotguns
- Test fire 22LR pistols
- Informal Supper

Friday, January 27, 1995

- Breakfast Meeting in Elizabethtown
- Tour of Site / Facility
- Introduction to R&D Team
- Project Reviews
  - 700 Fire Control
  - Rimfire
  - Clay Targets
  - Black Powder
  - 4140 Barrel Steel
- Return to Louisville, KY for 4:25pm Flight

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To: Danny Diaz

From: Leo Schneider

Subj: "Rensi 1"

1. Below is the requirements for "Rensi 1", as I understand them. I have provided these to Mike and Dave. If we need to make changes or my understanding is not based in fact....please let me know.

Function	Testable
FSR fix	Yes
Forced Engagement(.020 + or - .005)?	Yes
One piece trigger (no connector)	Yes
Suitability	
Non-adjustable	Yes
Safety	
Drop test	Yes
Logistics	
Retrofitable	
Common parts (use as many as possible)	
Human factors	
Trigger feel - same	
Operation - same but safety will not engage without trigger/sear engagement	
Assembly - Procedures same as current trigger	
Manufacturable	
Time frame - changes can be made in production within 8 weeks of baselining design	

Very Respectfully,

Copy to:
Mike Keeney
Dave Schlukebier

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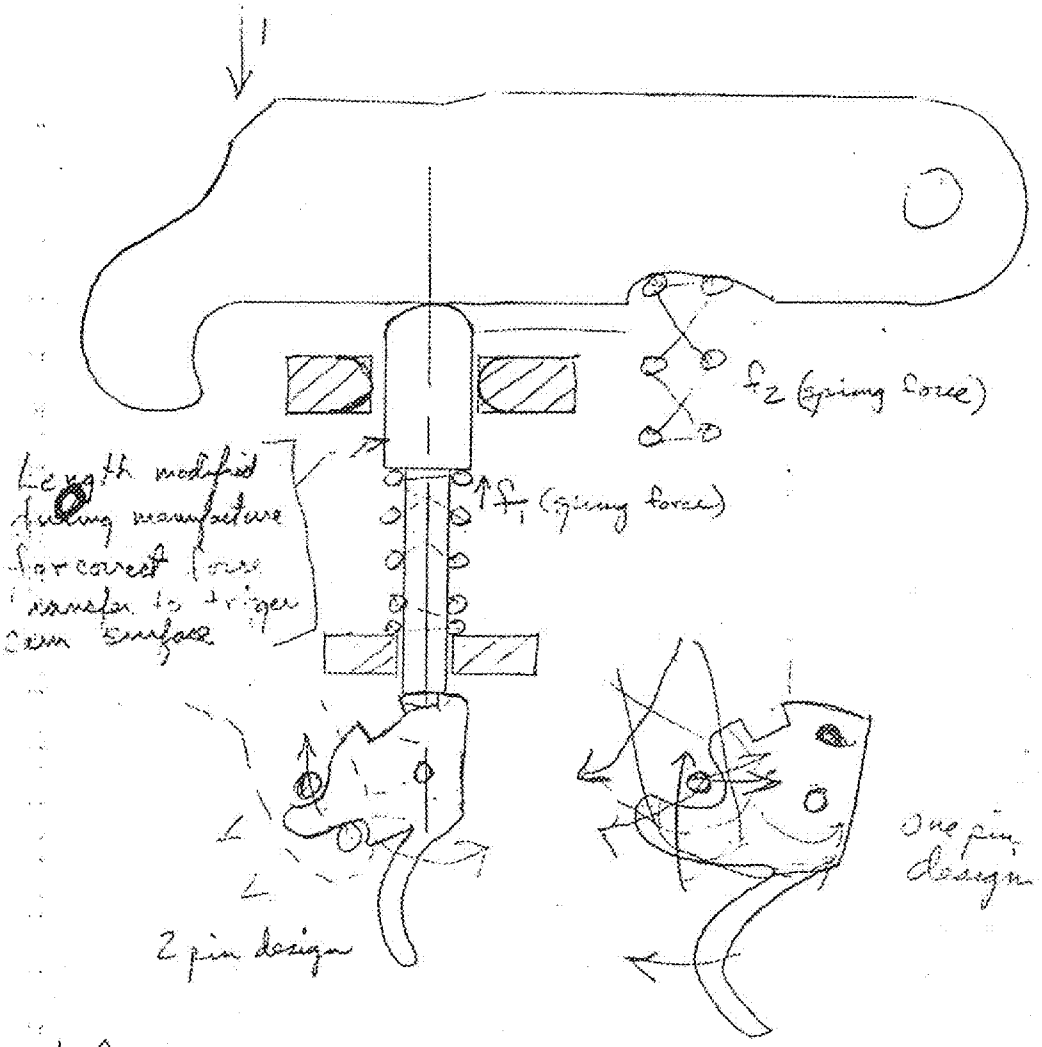

28.1 Total

D 18.5° 18° 40
9.6° 9° 15' fired pos below

Force "F" on sear exceeds spring force "f_1" when fired. "f_2" returns sear & "f_1" returns

Safety 1-10
Hammer 11-14, 20
Trigger 21-27, 30
Sear 31-35 40
Lever 41-46, 49-50
Springs 51-52, 60

61-65, 70 Right sideplate
71-79, 80 Trigger
81-83, 89, 90 Plunger
222
223

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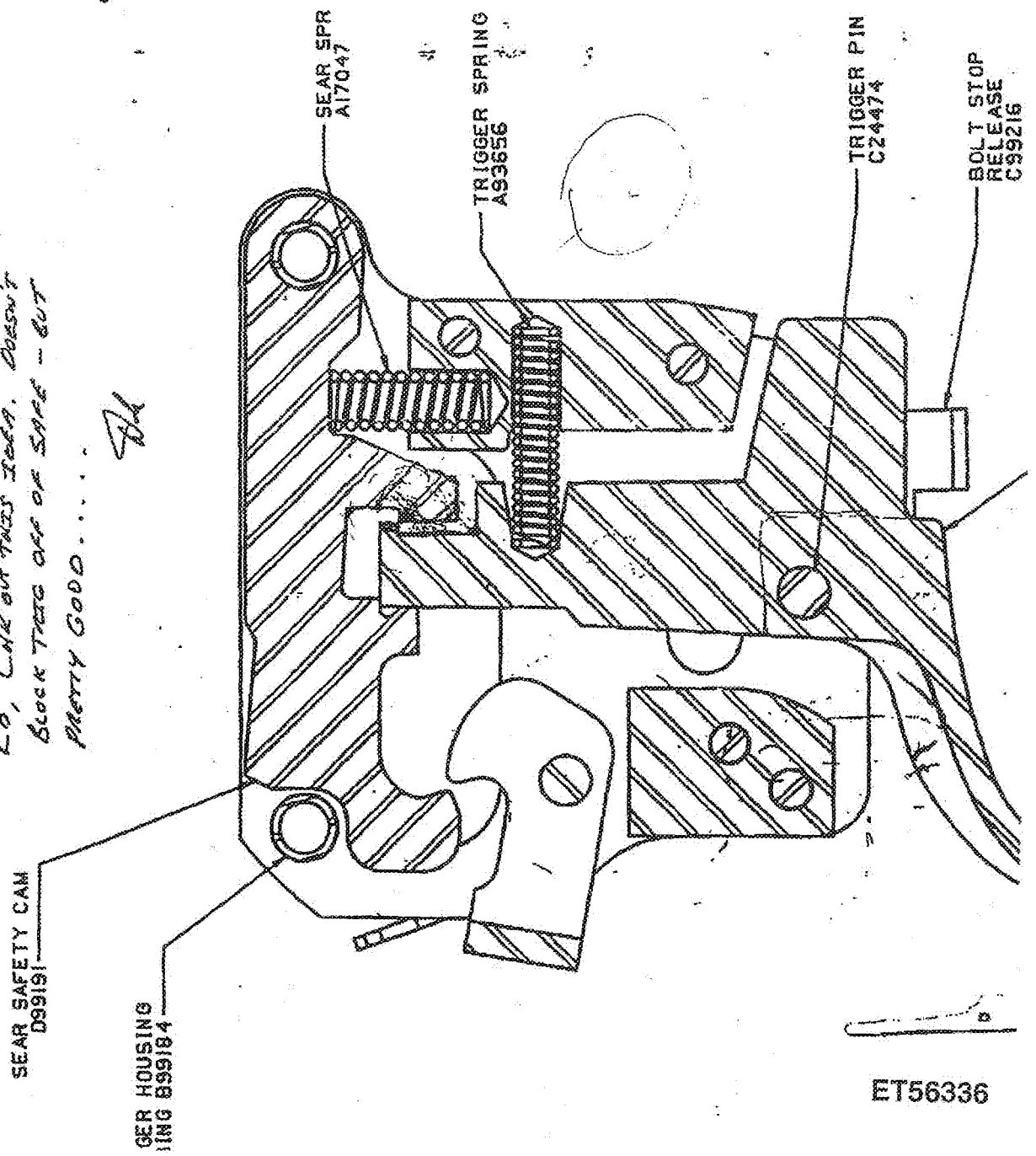
Gary Barnes
x3334

Ed, Chk out this Assy. Doesn't Block Trgr one or Sear - but Pretty Good.....



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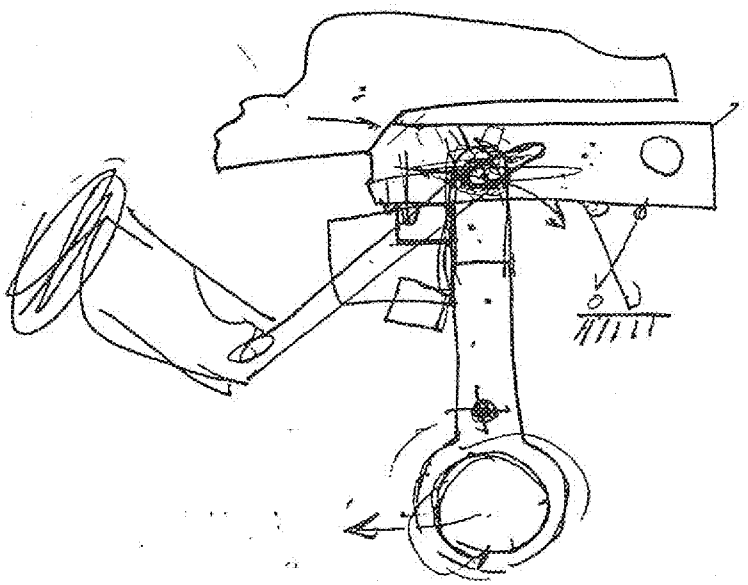
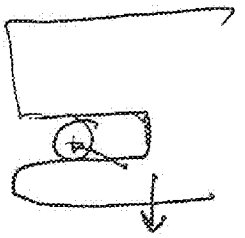
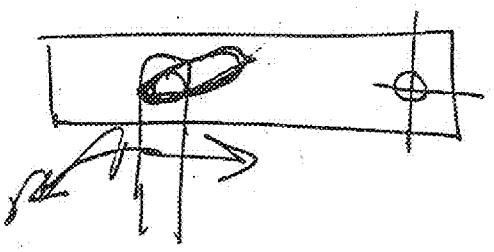
SAFE ON - MUST LOCK TRIGGER
NO ADJUSTMENTS
FEW PARTS
WITHSTAND DROP TEST - "BALANCED" PARTS
EASE OF ASSEMBLY (CG @ ROTATION CENTER)





1-20-95



1311.73

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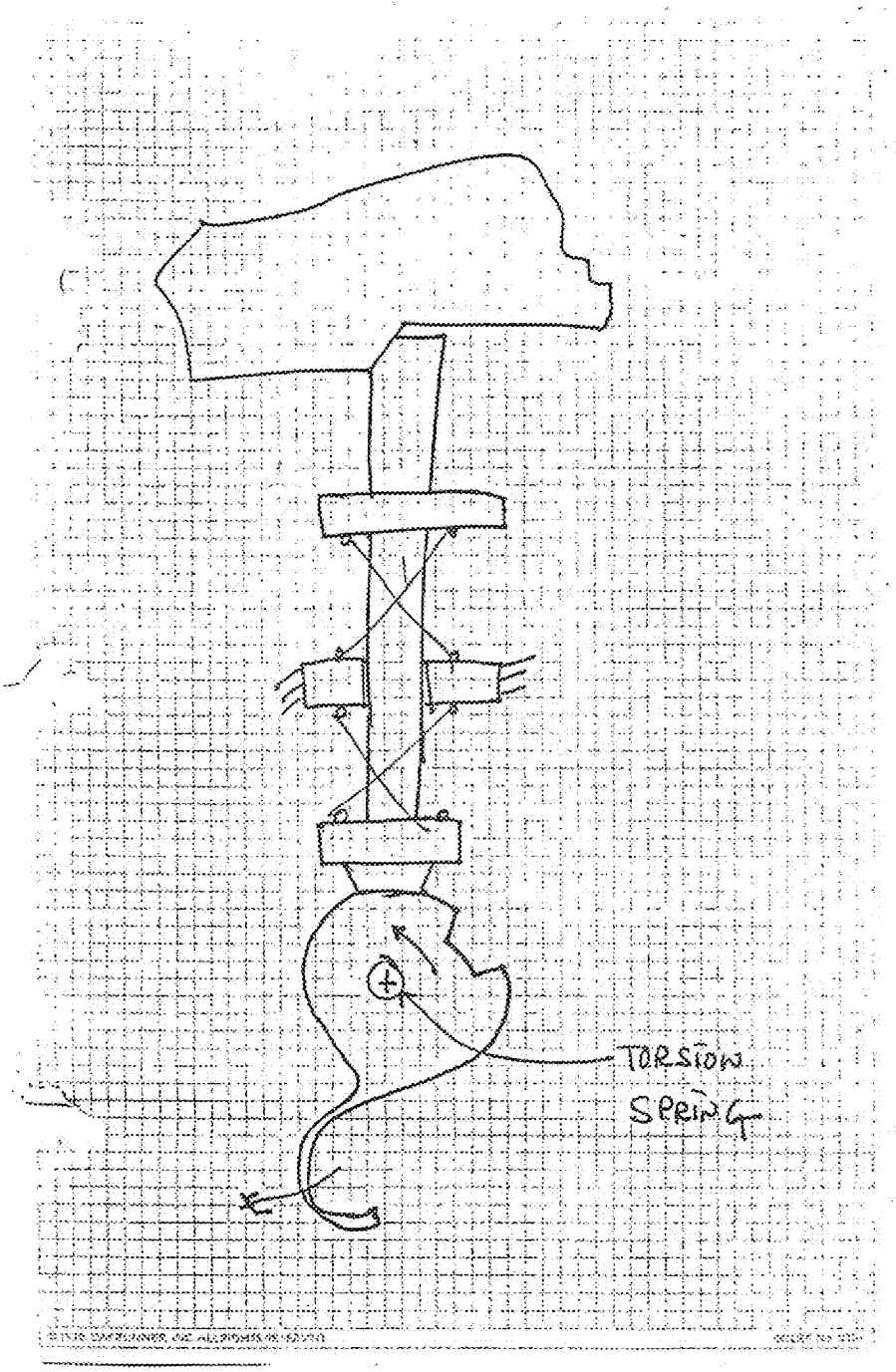

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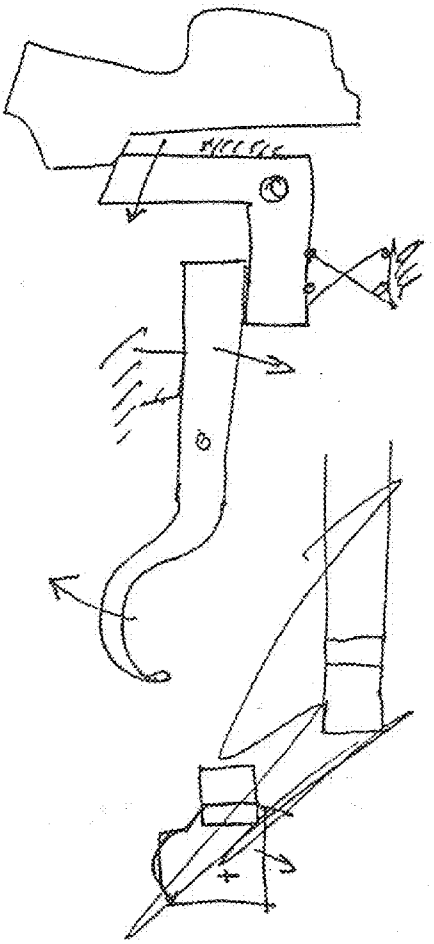

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SENT BY: 1-27-95 ;11:28AM ; KINKO'S PLEASANTON→ 5027379576;# 1/ 2

FAX COVER SHEET

FAX Number (502) 737 9576

To: Danny Diaz Phone (502) 769-3418

From: Don Rolph Phone (510) 846-0102

Pages (including this half sheet): 2

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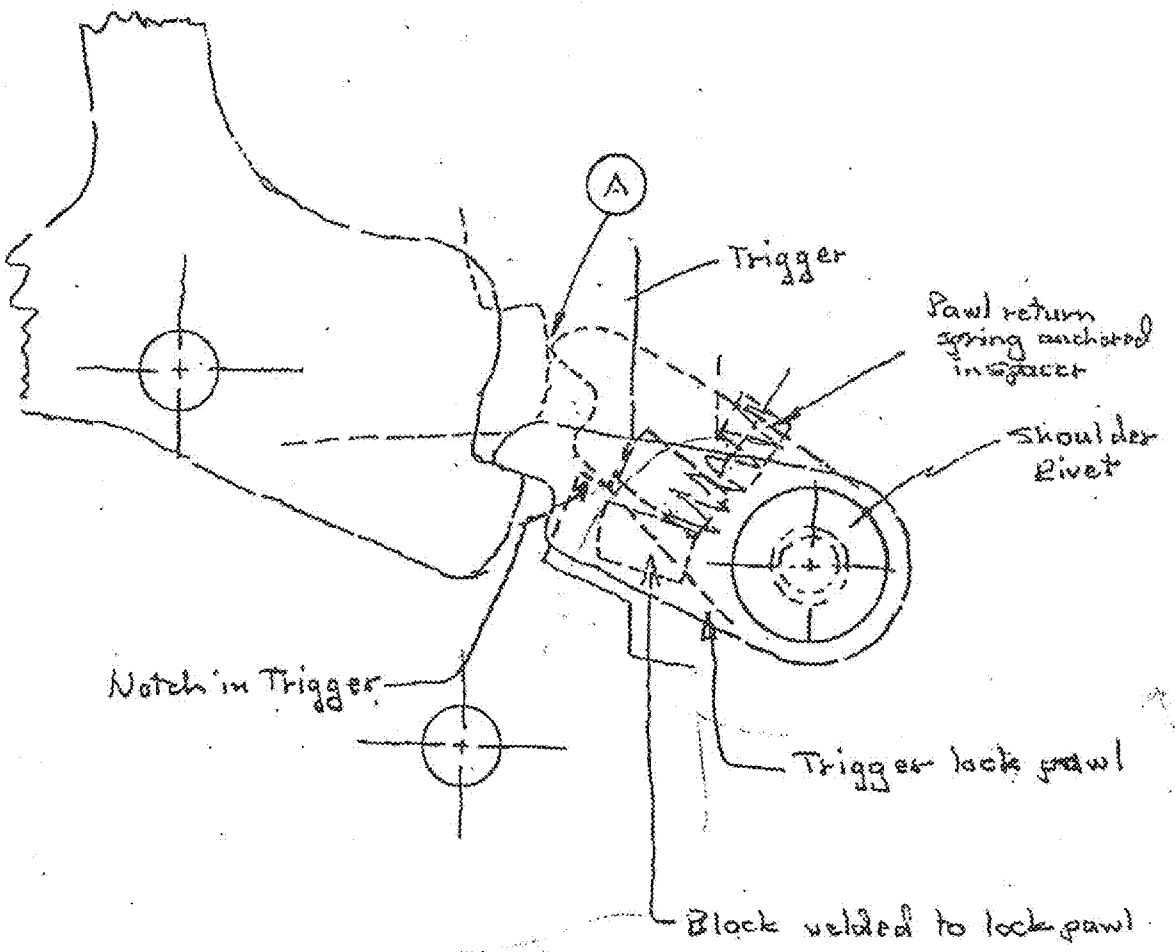
SENT BY: 1-27-95 ;11:28AM ; KINKO'S PLEASANTON- 5027379576;# 2/ 2

Danny - Here is one idea to possibly implement the design suggestion. I don't think this configuration will work, because of a lock situation at point A when you try to return the safety to the fire position. However, there is obviously lots of motion to play with, and I'm sure you can find a good workable arrangement.

Don Don



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TRIGGER/SAFETY INTERLOCK

D.E. Ryan Jan 27, 1995

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William A. Barrington

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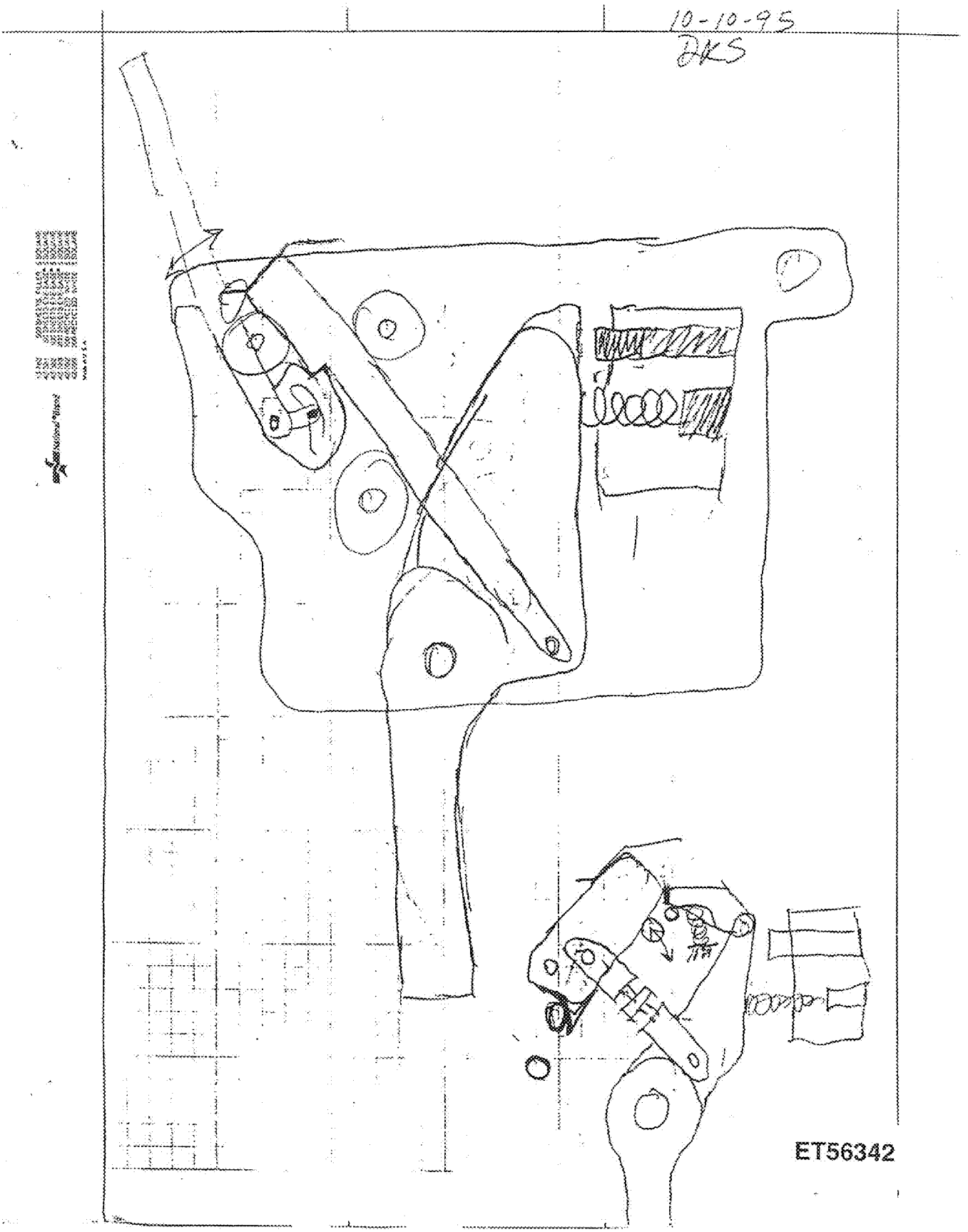

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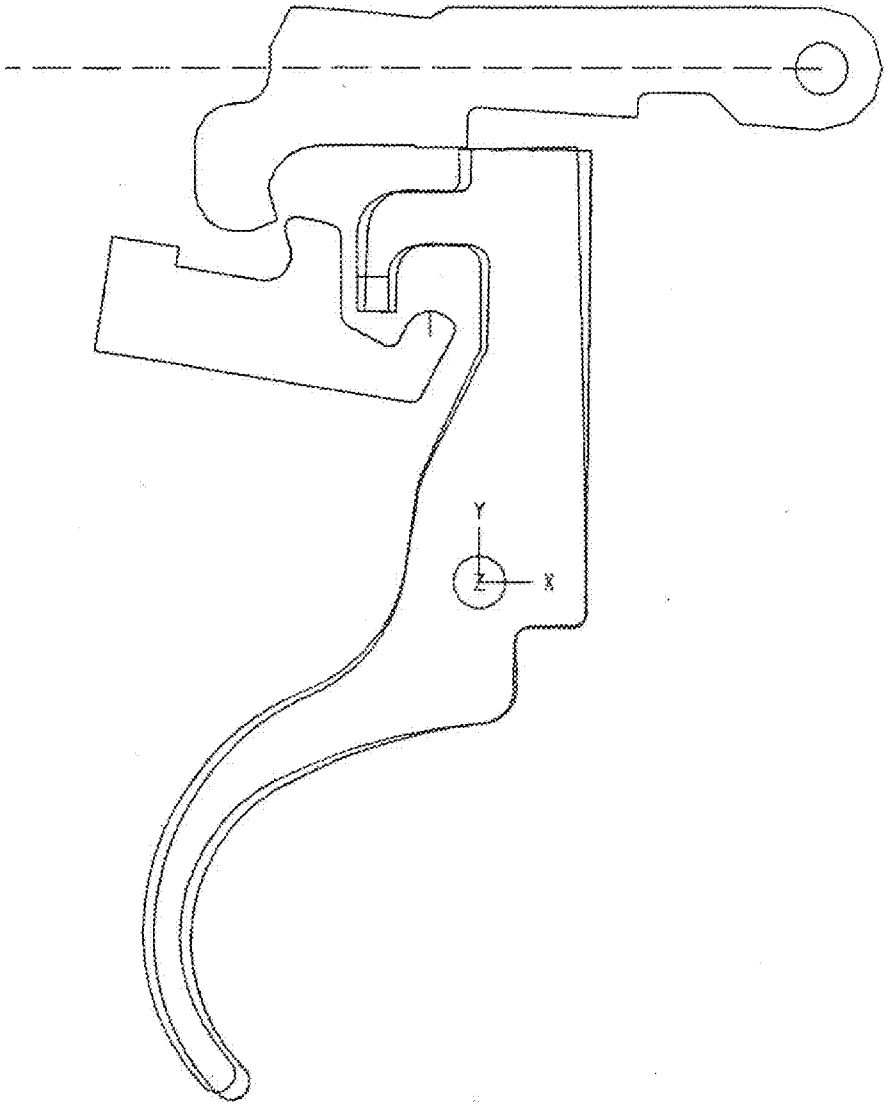

Hook is extended to allow Safety/Trigger engagement before "click" point

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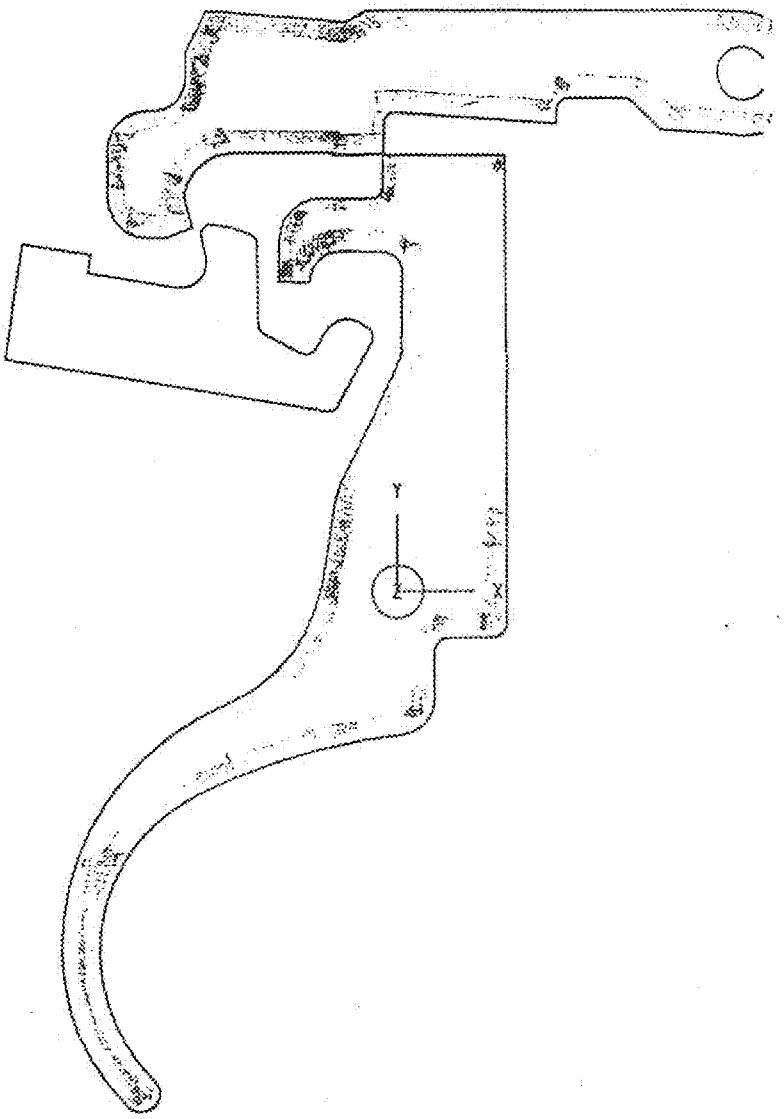

SEAR - PINK
SAFETY - YELLOW
TRIGGER - BLUE

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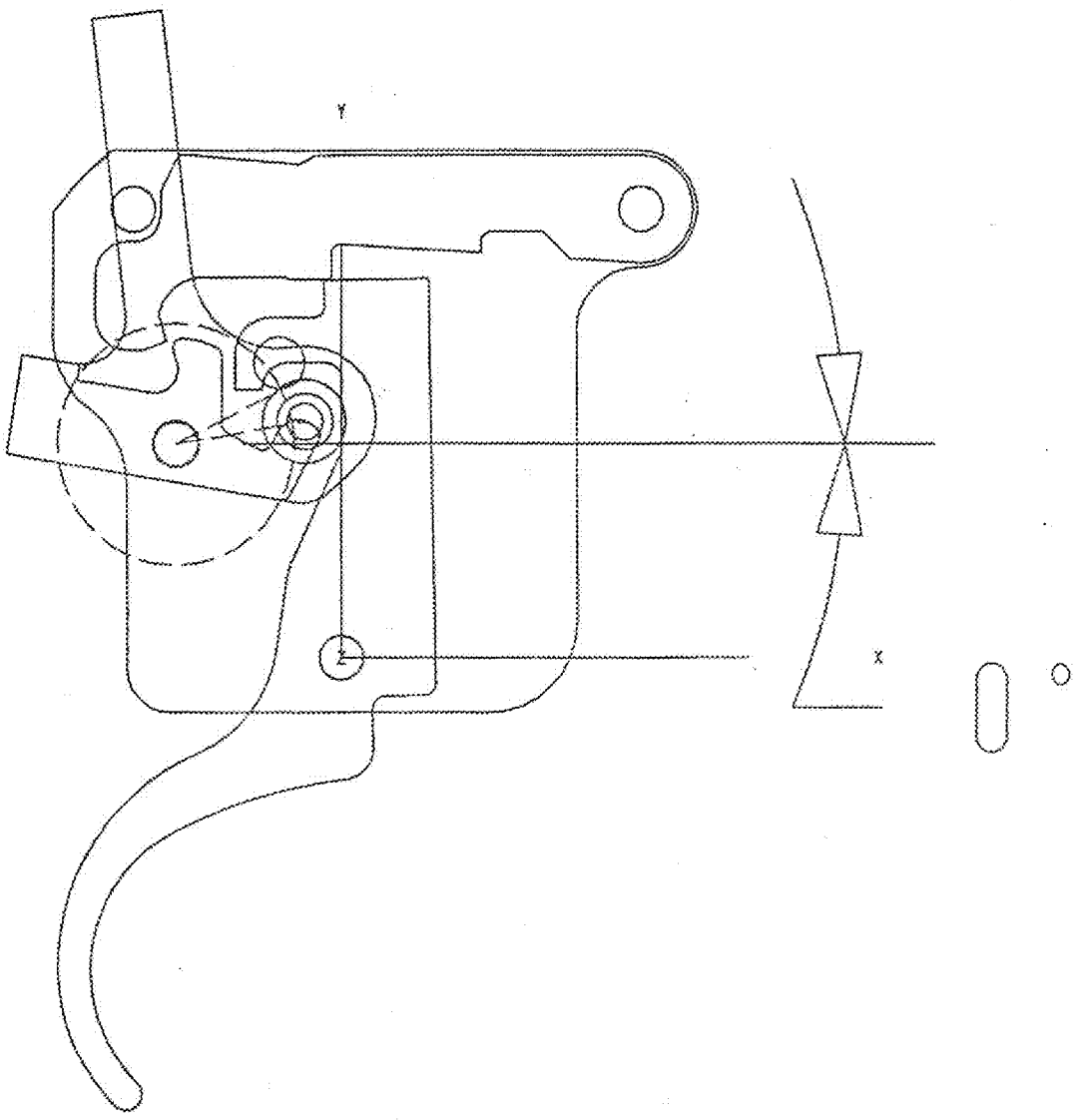

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- Trigger/Sear Engaged .020"
- Safety in Fire Position @ 0°

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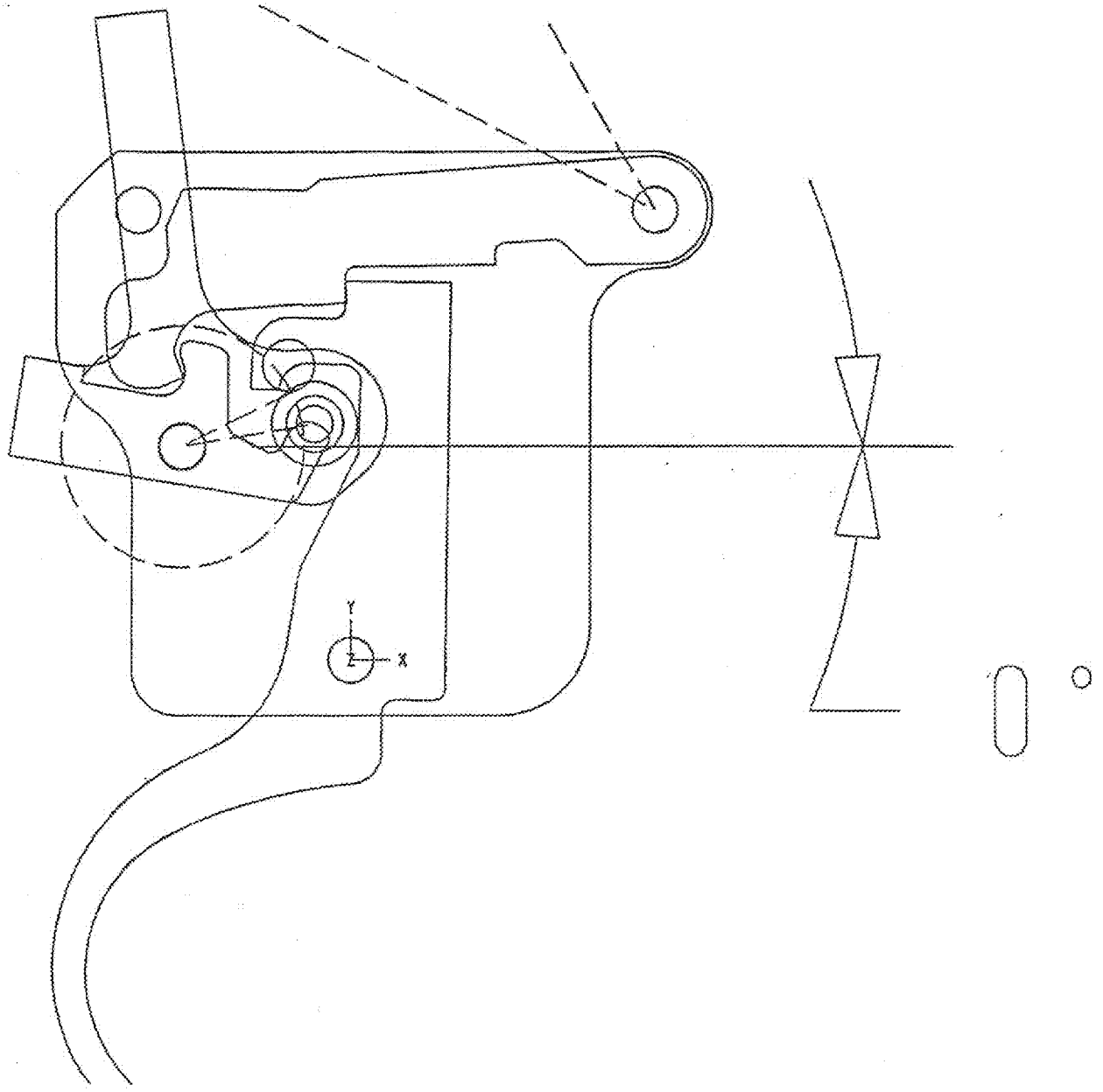

Condition the instant after firing:
- Sear is forced down by the forward advance of the firing pin when trigger (support) is pulled
- Safety in Fire Position @ 0°
- Trigger in farthest overtravel position

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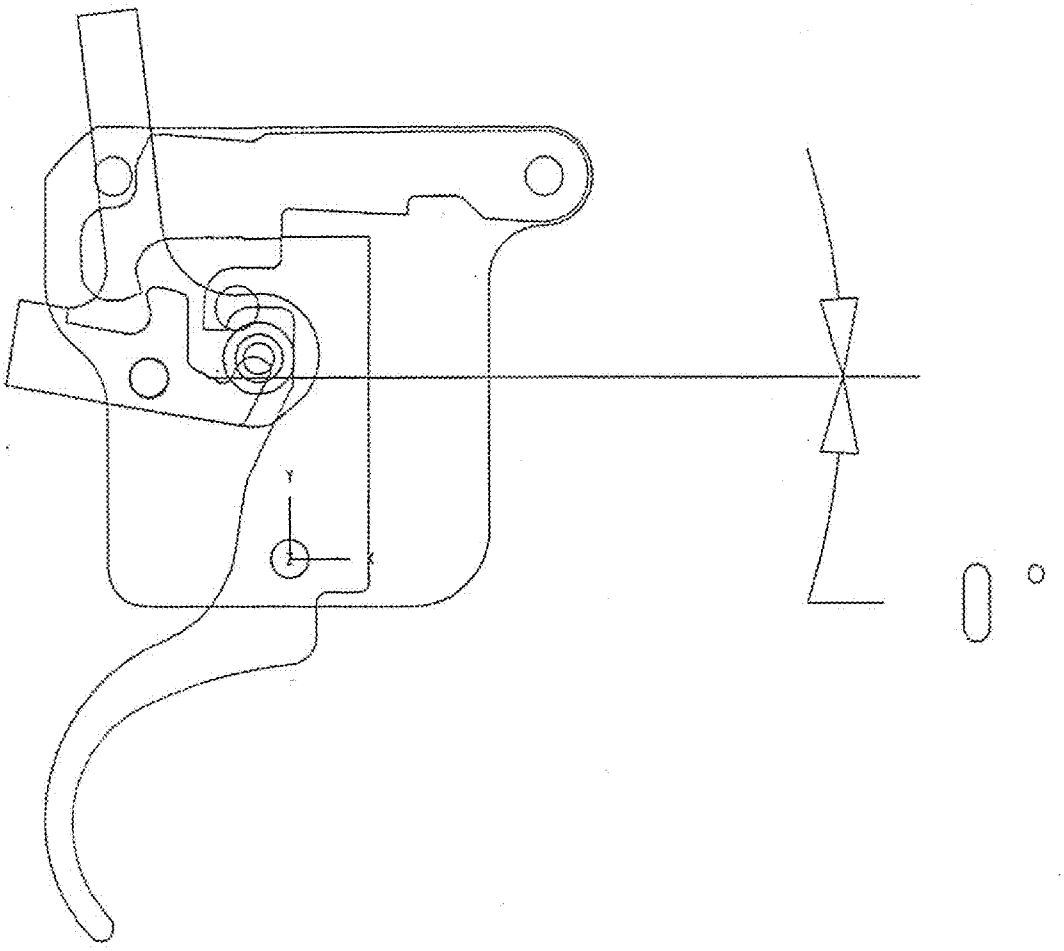

Worst case condition after spent shell is extracted and another cartridge is chambered:
- Spring (unshown) returns trigger to worst case condition - Only slight sear engagement assuming something prohibits full return of trigger by spring.
- Safety in Fire Position @ 0°

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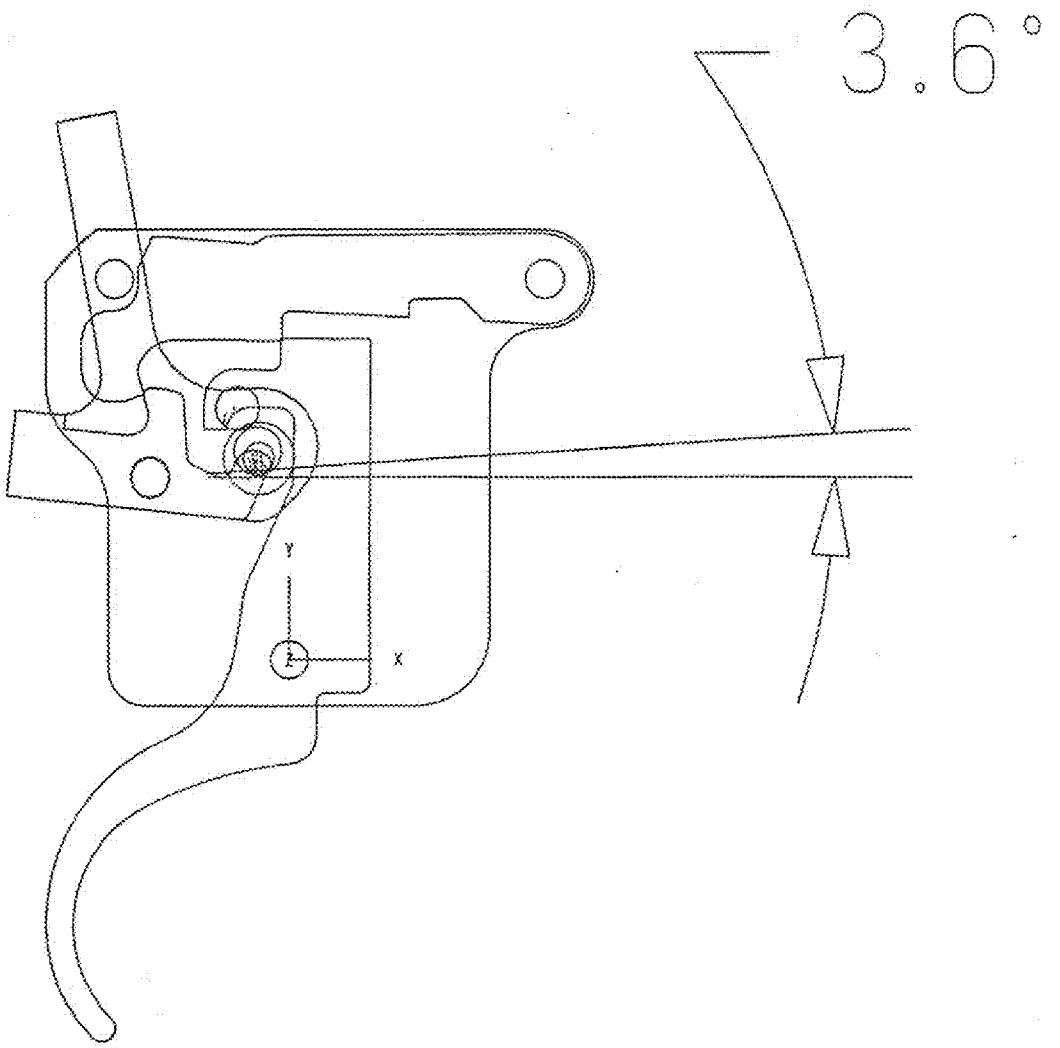

With the Sear/Trigger in the worst case condition:
- Safety rotates only 3.6° before safety cam engages the sear

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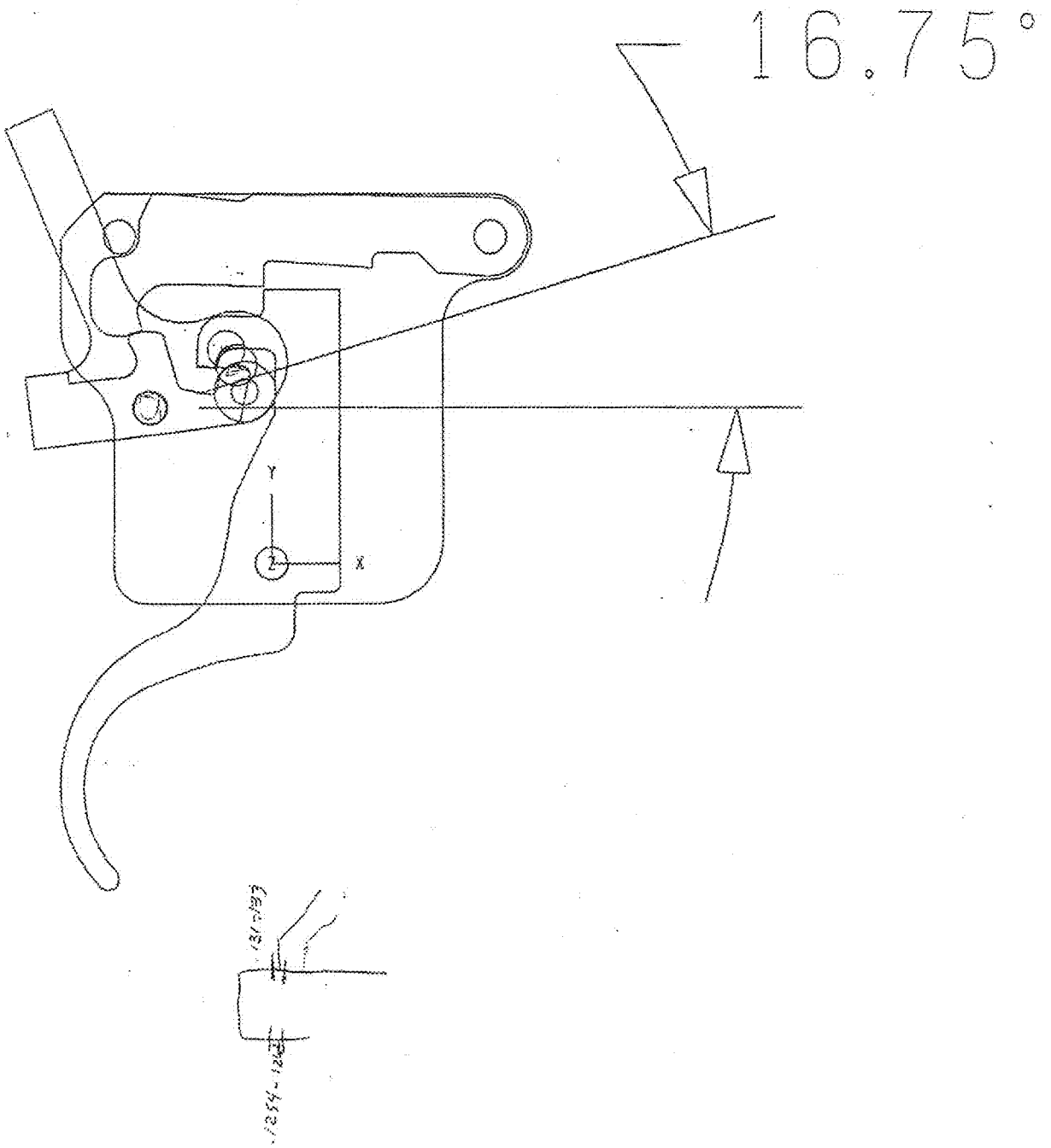

- Safety is rotated further to "click" point position @ 16.75°
- Note trigger is not engaged yet by safety hook

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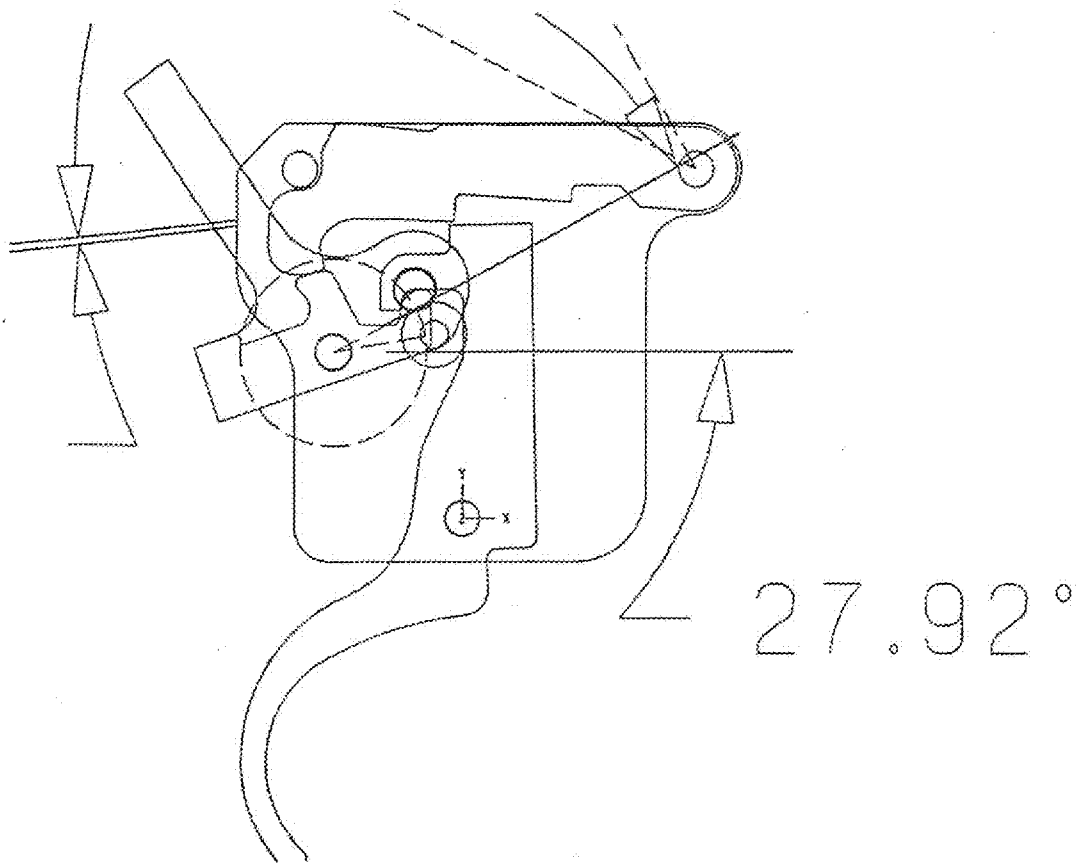

- Safety in full rearward position @ 27.92°
- Note built-in interference between trigger and safety hooks in an attempt to allow for tolerance stack-up

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BARBER - 2.4.130000084

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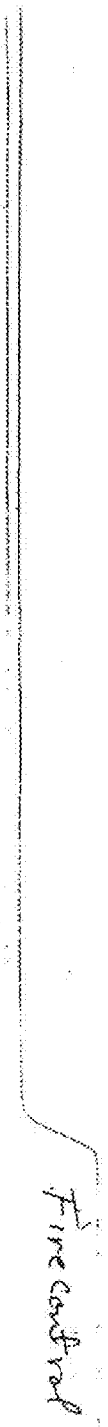

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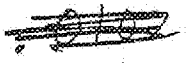
MINIMUM CLEARANCE BETWEEN PLUNGER AND TRIGGER WITH SAFETY IN FIRE POSITION LOOKING DOWN FROM THE TOP - CLEARANCE REQUIRED IN ORDER TO FIRE RIFLE WITH NO BIND.

MEAN PLUNGER CLEARANCE (LAYOUT) = .0265"



.0212 MIN Clearance

Trigger pivot .1259 ± .0005

⌀ .002

Safety pivot .1255 ± .0005

⌀ .002

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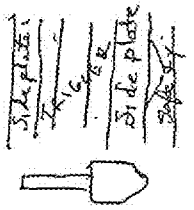
4-6-95
DKS

Min Clearance Between Plunger and Trigger w/ Safety in Fire Position

Trigger to Safety Plunger Detent



1) Trigger Width .165
Side To hole .036
2) Sideplate .058
3) Safety .0266

Smaller Dia ~~goes shallowest & male~~ & steepest & female

.1206

Plunger

Large Dia two Shallowest Male to edge @ Max dia

.1490
.0376
.1114
~~.1324~~
.0120
~~.1004~~ .0994

.1206
~~.1004~~ .0994
.0212 ~~.0166~~ Min Clearance

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DLS
4-7-95

Diametral Clearance of Plunger

.186 - .188	Plunger ~~Hole~~ Ø in Trigger
.0103	Spring Dia.
.060	Plunger Dia
.00225	Slack taken out of
.07255	
.0377	Max OT in x-Direction
.11025	

∴ .186 - .11025 = .07575

(Assume travel in x-direction approximates large radial travel)

Trigger Location w.r.t Safety lever which positions plunger in fire mode

Low ~~Safety~~ .900 ± .003 Trigger Plunger hole w.r.t trigger Pivot

~~.1036 typ~~ ± .003 Safety Plunger detent hole w.r.t safety Pivot @ 9.2517° ✓

~~.3074~~

~~.00675~~ ~~.00675~~ Dia. Mismatch

+.00335 .00335

	Safety Lever ID	.1258 ± .0001	.1262 Max
	Safety-pivot Dia	.124 ± .001	.123 Min
	Sideplate hole ID	.1255 ± .0005	.1245 Max
			.0067
			± .00335

Safety Lever / safety pivot / Sideplate hole

.0032 .0035

~~.00335~~ ⇒ ± .00175 C/L to C/L

+.6515 .650 ± .0015 Safety Pivot to Sear Pivot on Sideplate

~~.2077~~ from Sear pivot

~~.2077~~

~~.3508~~ .3475

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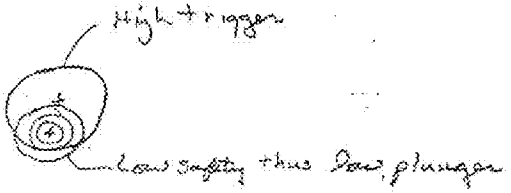
(2

DKS
4-7-95

High Trigger	Dim	Description
-.903	.900 ± .003	Trigger Plunger Hole wrt trigger Pivot sideplate
-.0017	.0017	Trigger Pivot Mismatch
+1.2385	1.240 ± .0015	Trigger Pivot to Sear Pivot on Sideplate
~~.3393~~ .3338		from sear pivot

If you have a high trigger & Low safety location, center of Plunger ~~location~~ to ~~outer~~ plunger hole location in trigger is ~~.3711 — .3333~~ = ~~.03778~~ c+R location mismatch in y direction
.3475, ~~3608~~ — .3338 = ~~.0170~~ .01365



But Plunger hole in sideplate will keep center of plunger up

~~High~~

.160 .159 ± .001 Dia of plunger hole in sideplate
~~.338~~.902 .900 ± .002 Vert. Location of hole in sideplate from Trigger pivot
+1.238 1.240 ± .002 Trigger Pivot to sear Pivot on Sideplate
+.080-.079 half of hole .158 (~~Largest~~ smallest Dia)
~~.075~~ -.078 half of plunger .156 (~~smallest~~ largest Dia)

ET56355

~~.345~~ .337 from sear pivot

∴ Plunger Center vertical location can only go down .3450 - .3333 = .0117 due to sideplate hole location of plunger hole

Diametral clearance should be more than enough but layout would give an exact number using the tube (should be ~.010—

(multiple)

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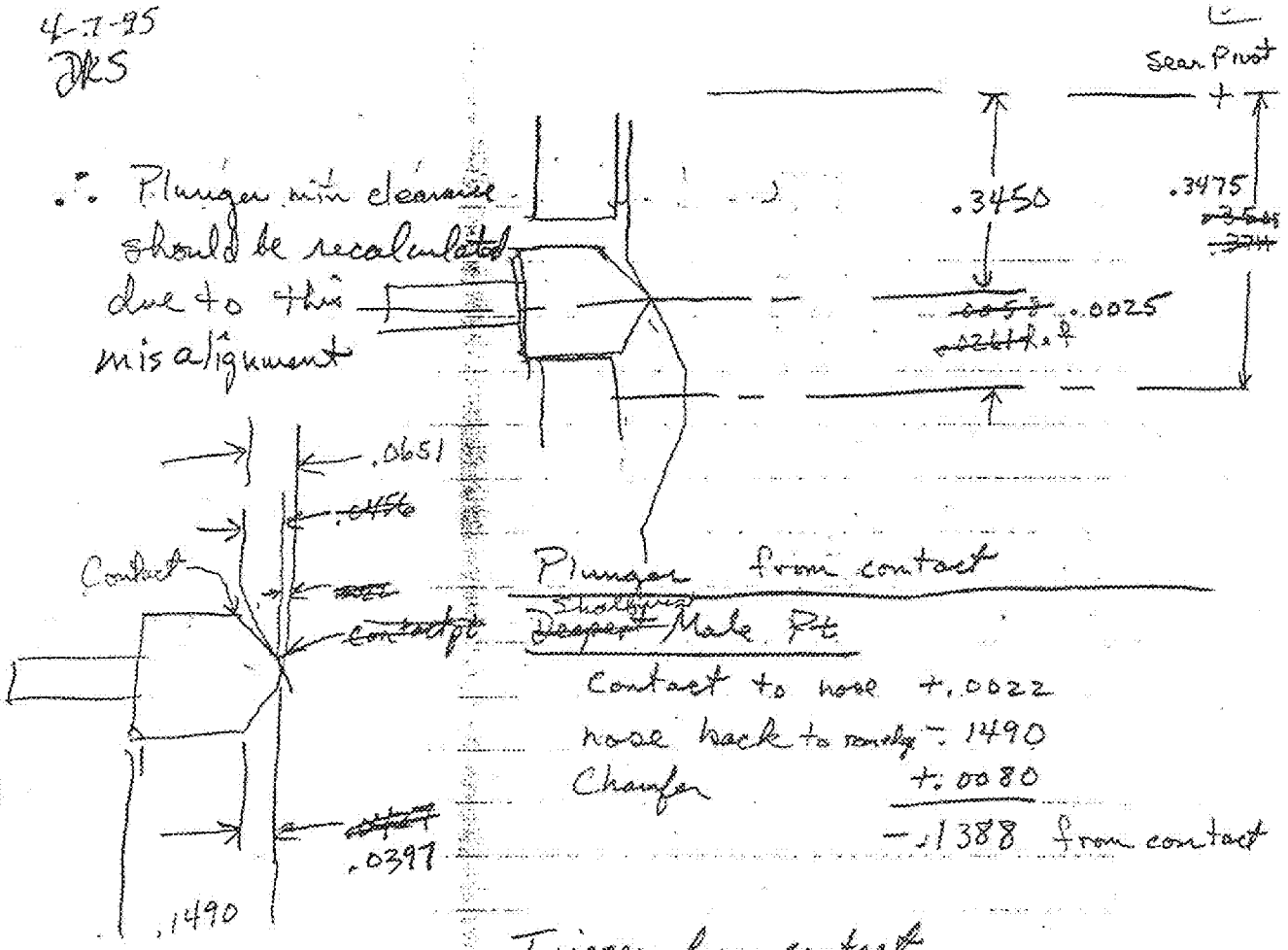
4-7-95
JKS

∴ Plunger with clearance should be recalculated due to this misalignment



Plunger from contact

~~Shortest~~ Deepest Make Pt

Contact to nose +.0022
nose back to cavity -.1490
Chamfer +.0080
-.1388 from contact

Trigger from contact

Safety contact depth -.0456
Sideplate Thk -.0580
Sideplate to hole entrance -.0360
-.1396

∴ .0008 min clearance when misaligned

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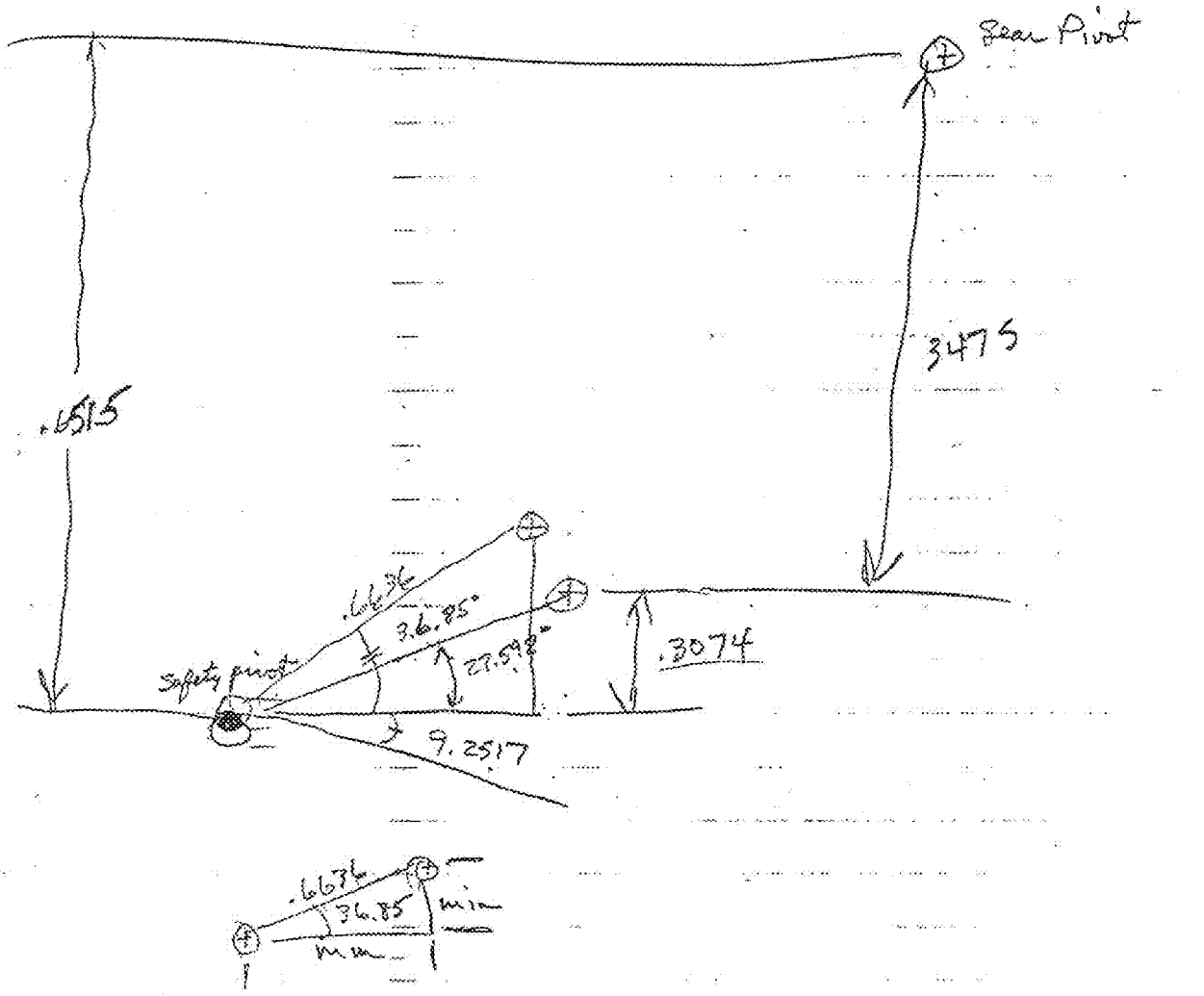
L7



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(3)

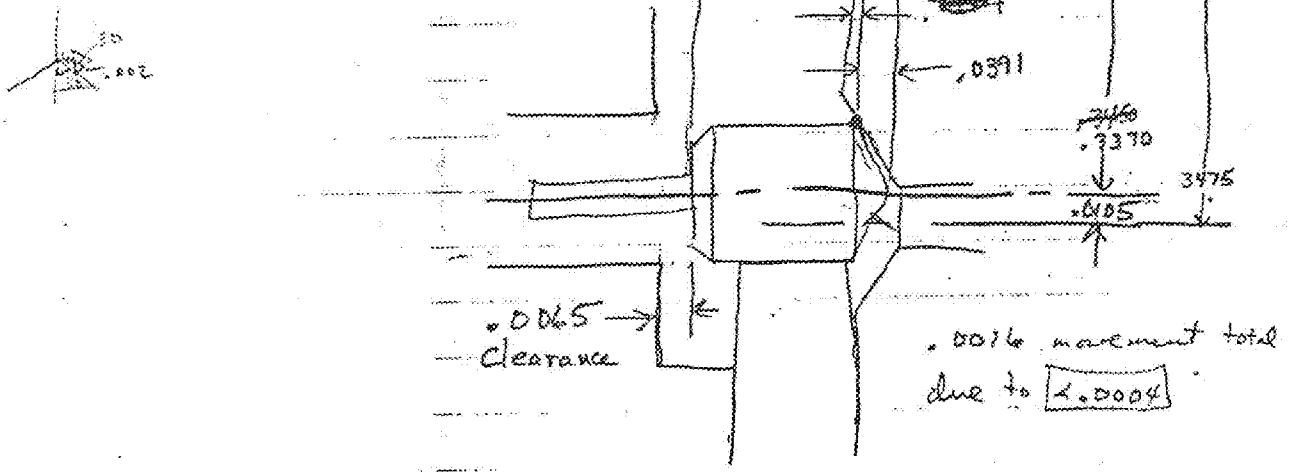
Rear Edge of Plunger from Contact

.1490 clearance surface to plunger tip
−.0391 plunger tip to contact
−.0023 surface tolerance of plunger tip
.1076

Contact to Trigger hole Broken edge

+.0360 clearance surface to sideplate
+.0580 sideplate min thk
+.0198 safety depth to contact (2nd)
−.0020 Surface depth tolerance on chamber
.1118

.1118
= .1076
.0042 clearance minimum



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William A. Barrington

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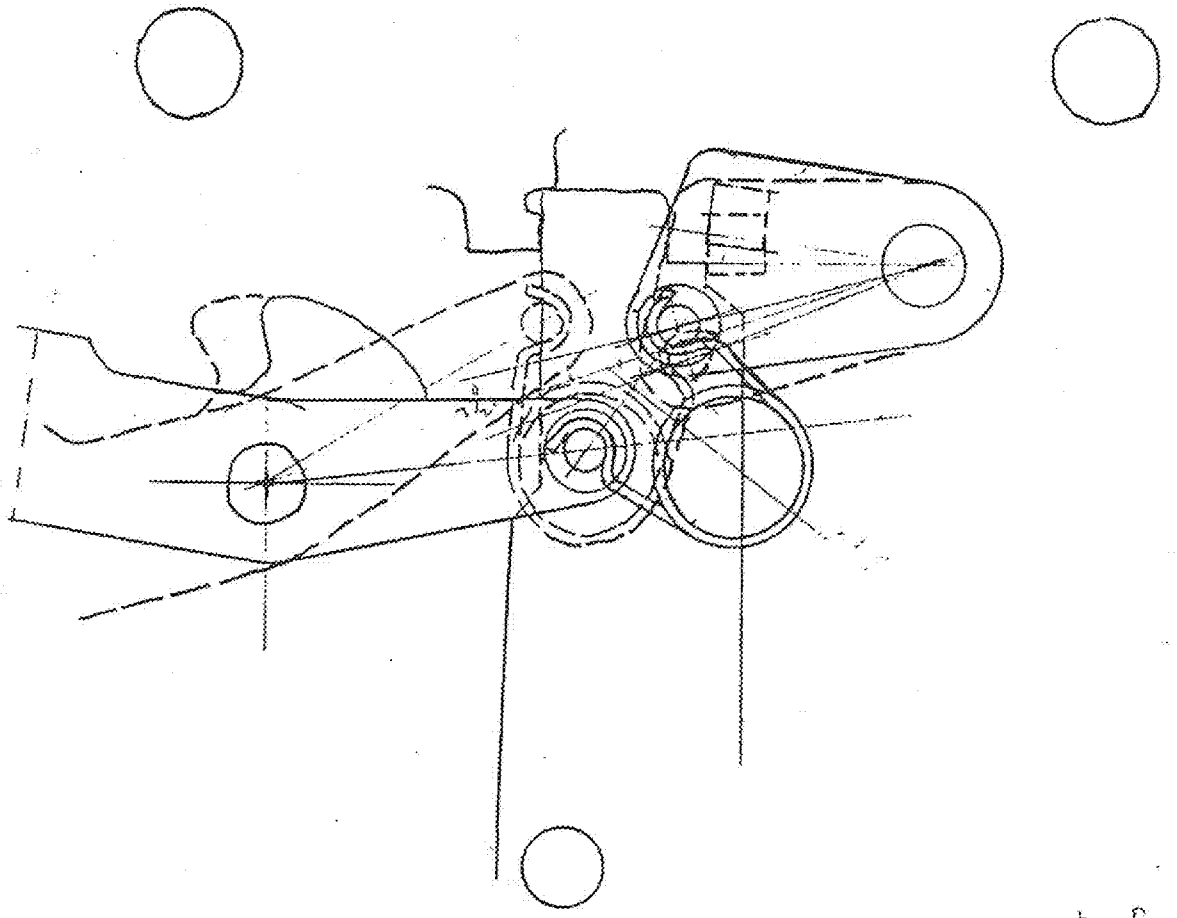

cc to Fred Martin
2/24/95

ET56359

2-22-95

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Danny:

This is an attempt to provide a simple fix for the current design. There is a change in operational philosophy - the safety now forces the trigger under the sear when you go to the "safe" position, and the safety holds the trigger there.

Advantages:

1. Easily implemented in current mechanism, existing parts can be modified, existing adjustments are unchanged.
2. Use of radial surfaces on pawl and trigger stud insures absence of unwanted off-center loads.
3. Same protection against firing if the trigger is pulled while the safety is taken off.

Disadvantages:

1. Difficult disassembly: Stud must be added to the trigger after assembly, and probably should be loctited.
2. New part may get stuck by dirt. However, it is a safe condition since the trigger can't be pulled even if the pawl is stuck.

Thanks to Dave Schluckebier for sending prints and parts.

Standing by for consultation.

Don Rolph

Don Rolph

5/2/95

2/5/95

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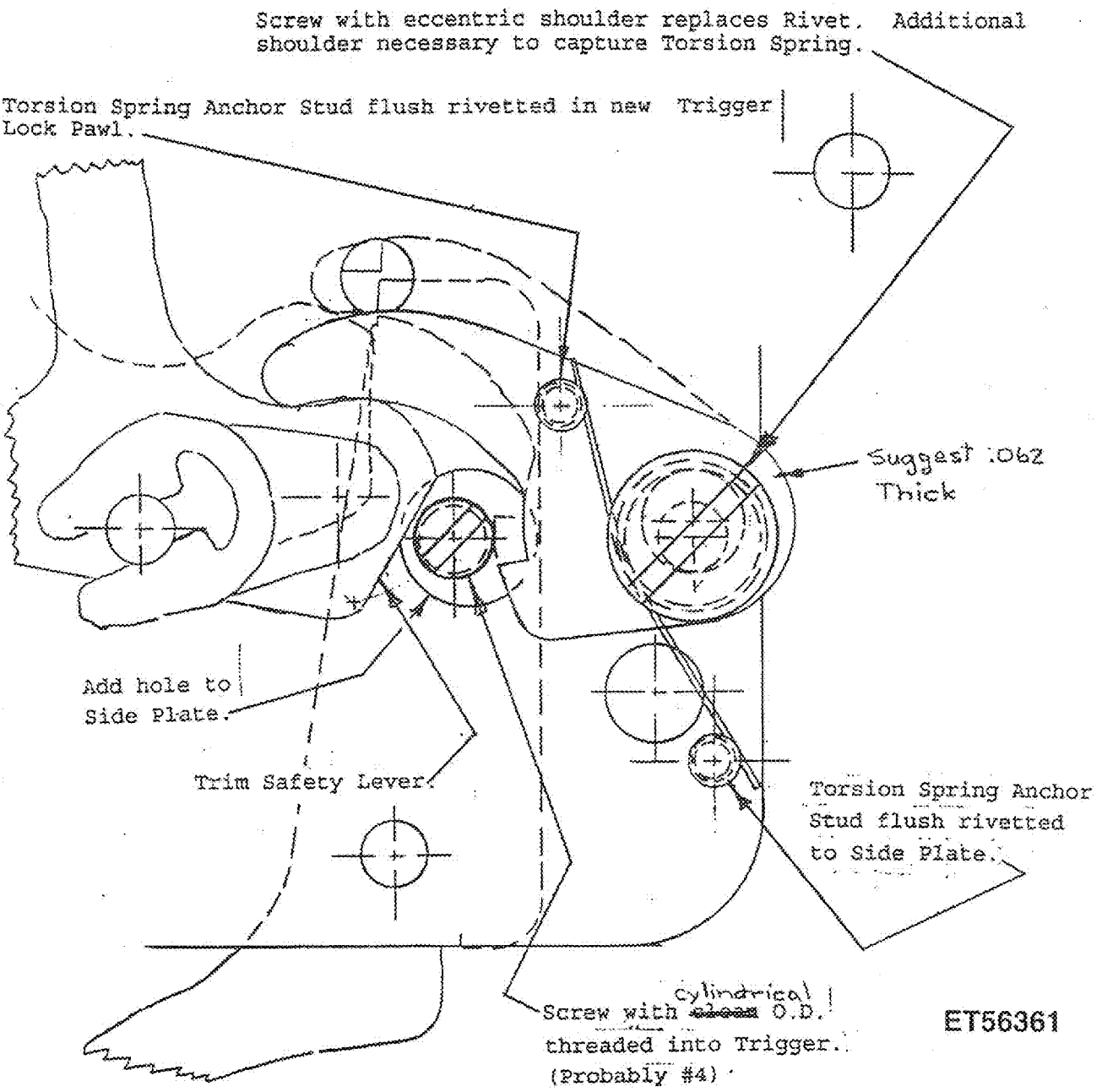

D Rudolph
2/c loc

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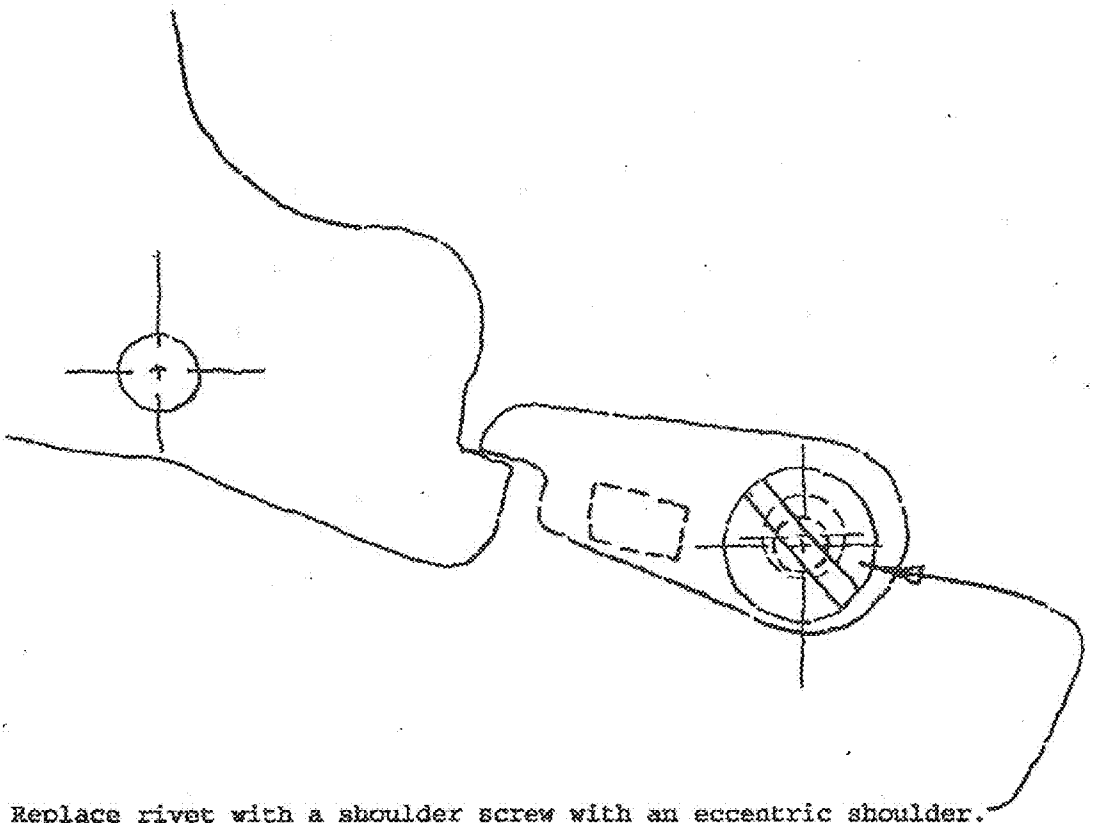
Danny: Here is an easy way to get an adjustment which might allow you to use the lock pawl idea with the current fire control design.



Replace rivet with a shoulder screw with an eccentric shoulder. Loctite the nut on the other side.

ET56362

Dan Rolph

Jan 28, 1995

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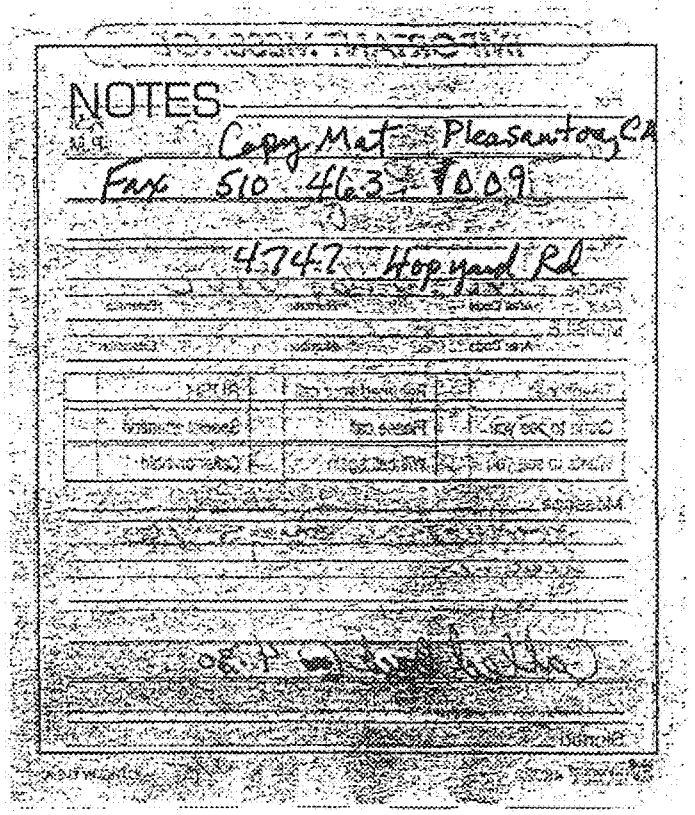

NOTES

Copy Mart Pleasanton, CA

Fax 510 463-1009

4747 Hopyard Rd

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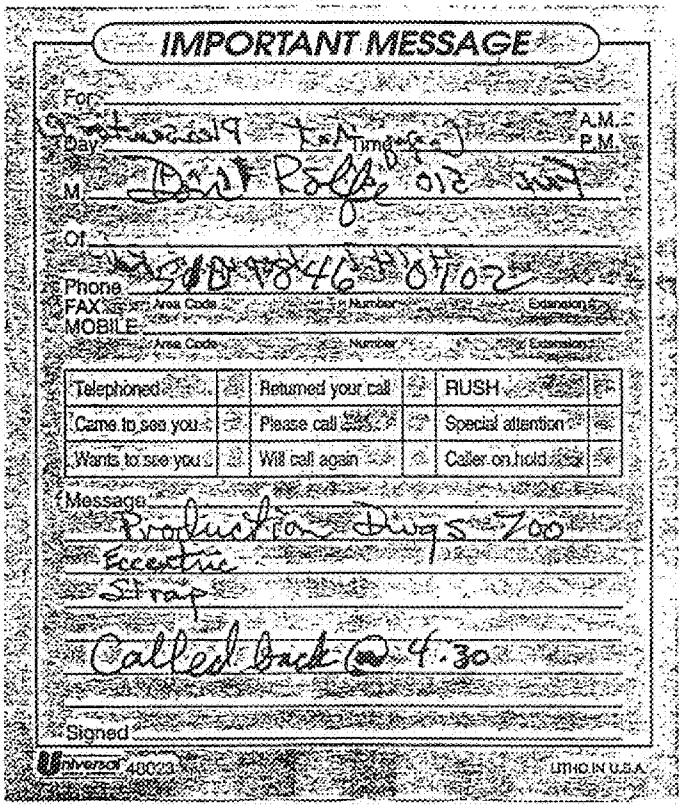
Remington



IMPORTANT MESSAGE

For

Day Time A.M. P.M.

M

Of

Phone Area Code Number Extension

FAX Area Code Number Extension

MOBILE Area Code Number Extension

Telephoned		Returned your call		RUSH	
Came to see you		Please call		Special attention	
Wants to see you		Will call again		Caller on hold	

Message

Eccentric

Strap

Called Back @ 4:30

Signed

Universal 48003 LITHO IN U.S.A.

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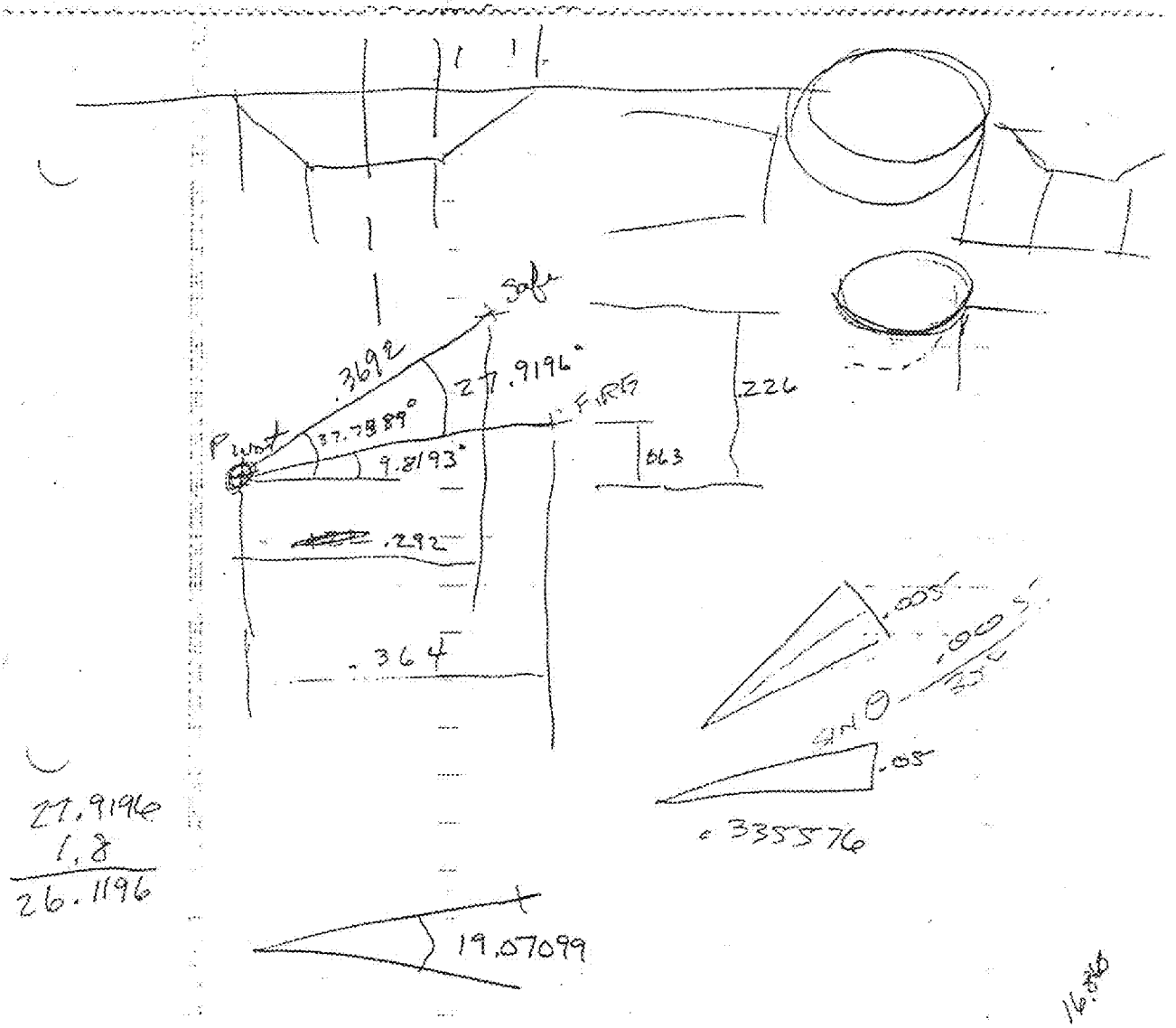

27.9196
1.8
26.1196

9.2517 below
19.6679 above

ET56365

123-126
131 133
1256

.353109 .010

1566-1596
15

1,11
.1560→1576

$\frac{5}{32} \pm \frac{1}{64}$
.156 ± .016

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Safe Position

Approx .010 interference between safety & trigger

Fire Position

Force trigger engage and/or block safety

Trigger Rot 1.7° Total
.031" X-travel
.022" X-travel

Sear lift .006 bound .016-.018 limit
006-008 Lower
016-018 Higher

ET56366

Sear Engage @ 6° from fire
Ball Detent click point 16.754319° from fire
Trigger engage with Safe 26.1196° from fire

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Tolerance Stackup

Safety

Pivot Hole to Surface ±.003

Pivot Pin to Pivot Hole ±.005

Trigger

Pivot Hole to Surface ±.003

Pivot Pin to Pivot Hole ±.00025

Sideplate

Pivot to Pivot Location ±.002

Total ±.01325 (.0265 Range)

Movement of Trigger hook member .019 Total with .010 overtravel & .020 engagement.

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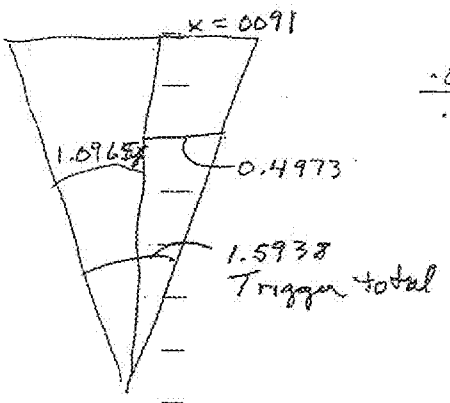
.520 to over travel from sear pivot
.65 to safety pivot " " "
1.24 to trigger pivot " " "

.72 over travel from trig pivot
1.04496 engagement corner " " "



$\frac{.00625}{.72} = \frac{x}{1.04496}$

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Angle

Sear Up in @ 0°
down in @ 2.6°

Safety 0° @ fire condition
3.6° @ sear engagement
16.7543 @ Click point
29.9196 @ Total

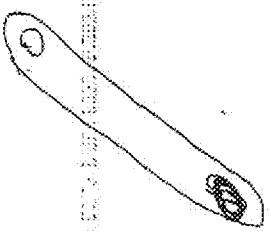
Trigger 1.5938 Total 0° @ overtravel
.4473 To sight engagement 1.1465 @ engagement

Link

@ Safety 3.6°
center to center Link .5303

Trigger pivot (3417) X.034 y .340
Safety @ 3.6° X.129 y.125 .176777

.45675 @ 27.9°
.398166 @ 0



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Link Design 1-27-95

TRIGGER

0° @ 0 engagement
1.1 @ .020 engagement
0.5 @ overtravel

Sear

Up @ 0°
Down @ 2.6°

Safe

0° fire position

16.75° click point
27.9196 Full Travel

Hook

Trigger

1° for .020 engagement
-.1° for 0 engagement

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PAGE BREAK

	Safety Rotation Position	Strap allows "X" Amount of OT	Engagement @ CI. Lg Pt
@ 130	14.33°	Max OT .0075	
~~135~~			
140	4.98°	Max OT .0075	.52° (.0095)
145	6.38	Max OT .0075	.68° (~.013)
160	2.29°	.0026	.84° (~.0155)
~~148~~	~~4.02~~	~~.0047~~	~~.78° (~.0145)~~
~~149~~	~~3.2~~	~~.0037~~	~~.81° .015~~
~~+4° from Trig pivot 2.14~~		~~.0025~~	~~.85°~~

TRIG ROT	Sear Engagement	
~~1.1~~	~~.020~~	
~~1.0~~	~~.018~~	
0.9	.017	
.815°		→ .015
0.8	.0147	
~~0.9~~	~~.013~~	
0.5	.009	
0.3	.006	
0.1		
0	0	

Want ~3.6 Max OT .015

Move Trig pivot +149 strap in second trig	2.14	.0025	.85° (.0155)
147	3.98	.0047	.78° (~.0150)
148	3.07	.0036	.817 (.015)

Strap out ∴ Move Trig Pivot closer ~3° on other side of original Trig pivot

148	6.67	Max .0072	.66 (.012)
150	5.13	.0061	.73° (~.013)
152	3.50°	.0040	.79° (~.014)
153	2.59°	.0029	.82 (~.015)

Move Trig Pivot ~1° on other side of original

150	3.28°	.0038	.80 (.015)

Move Trig Pivot ~2° on other side of original

151	3.39	.0039	.79 (~.014)
152	2.48	.0028	.83 (~.0153)

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Sample Pt	Safety Pot Pass	OT Allowed	Eng @ Click
154	2.89	.0032	.807 (~.015)
153	3.70	.0042	.78 ~.814
.9843 circle 149	7.25	.0073 Max OT	.64°
154	3.24	.0037	.808 (~.015)
Strap In 4° .9055 circle			
146	2.25	.0026	.85 (.016)
145	3.16	.0037	.82
144.7	3.46	.0041	.81
Strap in 7° .9055 Cir 141	4.30	.0052	.78
142	3.47	.1041	.814

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2-6-95

Prorated for .015 (.81°) Tip rotation

	4°	3°	2°	1°	0°	1°	4°
Safety Pos (1)	154	152.07	151.5	150	149	148.25	144.7
Safety Rot Possible (2)	2.89	2.9°	2.94	3.3	3.2	3.3	3.46
DT Allowed (3)	.0032	.0033	.0034	.0038	.0037	.0038	.0041
Engagement Dist (4)	.807	.81	.81	.80	.81	.81	.81

up ⟶ 154

⟶ 3.24

Going in corrd .0037

Direction .81

But up doesn't change much

Go In farther

	7°	10°	13°	16°	20°	25°	35°
(1)	142	139	136.7	134.3	131.3	127.75	121.2
(2)	3.47	3.91	3.985°	4.08°	4.29°	4.52°	4.93°
(3)	.0041 Max .0071	.0048	.0048	.0051	.0053/.0067	.0054/.0067	.0057/.0065
(4)	.81	.804	.81	.81	.81	.81	.81

	65°
(1)	109.7
(2)	5.83
(3)	.0057
(4)	.81

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PAGE BREAK

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Tan

Safety 0° @ Safe

Trig 1.1° @ .020 eng
−0.5 @ .109 over travel max

Sear 0 @ .020 eng fire position
−.85 @ Full Safe
+1.5 Interference w/Trig
+3.9 Interference w/safety hook

	Safety	Sear	Trig
Safe	0	−.85	?
Hit Contact Edge	4.66	−.83	?
Click Pt	11.17	−.85	?
> mid	17.75	−.87	?
Sear Engage	24.32	0	?
FIRE	27.92		.320 - Max OT

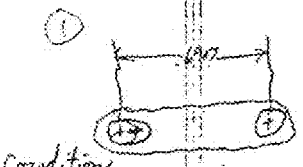
1.565
1.384

①

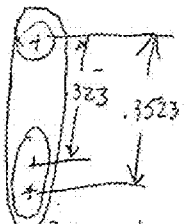
Sear	Trig	Dist
FIRE	Max OT	.7062
0	" "	.713
Safe	.020 eng	.690T

②

Sear	Trig	Dist
Safe	.320 Eng	.3528
0	.020 Eng	.3415
0	0 Eng	.3422
0	Max OT	.3480
FIRE	0	.323
FIRE	Max OT	.3240



Condition
1) Sear pin @ TRIG - could be worst but trigger pin D&A and still force engagement
2) Almost Vertical Loc's E&A
3) Sear Notch loc to trig pin loc C&A
4) Vert sear loc after trig loc B&F
5) B&C



If trigger catches at worst case and Safe will be able to be applied (failing out)
if sear sticks Trigger could be anywhere

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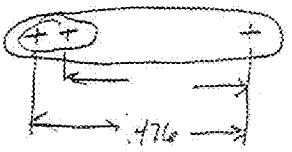
(3)

Sear	Trig	Dist
D	020	.4716
D	0	.4594
D	MaxOT	.4982
FIRE	MaxOT	.491
Safe	.020	.4760

This pivot positioning will not allow trigger to fire

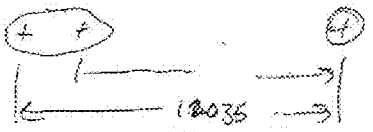


(4)

Sear	Trig	Dist
	020	
D		1.1927
D	0	1.1959
D	MaxOT	1.1974
Safe	.020	1.2075
FIRE	MaxOT	1.1784

If trigger gets stuck
Sear - can rotate .48°
Safety can rotate 8.0°

Trig - Tangent to full engagement @ pivot
Sear - 90° To full safe radial line for pivot



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5)

Sear	Trig	Dist
Safe	020	1.1161
D	020	1.098
O	O	1.101
D	MaxOT	1.102

Safe can be placed on under marginal Disengagement condition

6) F-G

Sear	Trig	Dist
Safe	.020	1.2536
O	020	1.2432
O	O	1.2523
O	MaxOT	1.2565
FIRE	020	1.2248

If Trig is blocked Sear can rotate to Full Safe

7) G-H

Sear	Trig	Dist
Safe	.020	1.2191 ← can't Do
O	020	1.2286
O	O	
O	MaxOT	1.2248
FIRE	020	

8) B-H

Sear	Trig	Dist
Safe	020	1.2163
O	020	1.2082
O	O	1.2114
O	MaxOT	1.213
FIRE	020	1.194
FIRE	MaxOT	1.197

If Trig sticks sear can rotate .51°

9) B & E

Sear	Trig	Dist
Safe	020	1.3011
O	020	1.2904
O	O	1.2936
O	MaxOT	1.2951
FIRE	020	1.2715

Sear can rotate .59°

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14

Strap

A to Flange behind Trig

Safety	Trigger	Dist
(Safety point-fires - 020 in line) 27.92 (Safe)	020	.2585
0 (Fire)	.020	.2177
0	0	.2321
0	Max OT	.2387

If trigger sticks to safety contact click

B 180 (behind point) to Flange behind Trig ①

Safety	Trig	Dist
27.92 Safe	020	.6017 ← No →
0	020	.6177
0	0	.6320
0	Max OT	.6385

B 152.08 behind point ②

Dist	
.6177	→ Want y past 5.6° if trigger is in marginal condition
.6017	
.6174	
.6244	

B 130° behind point ③

Safety	Trig	Dist
Safe	020	.6077
0	020	.5673
0	0	.5837
0	Max OT	.5912

Safety can rotate 14.53°

④ B 163.25 click point farthest away

Safety	Trig	Dist
Safe	020	.6161
Click	020	.6177
0	020	.6129
0	0	.6271
0	Max OT	.6339

3.6

⑤ B 150° behind point

Safety	Trig	Dist
Safe	020	.6174
0	020	.599
0	0	615
0	Max OT	622

Safety can rotate 2.29°

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Strap Design

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⑥ 140° behind pivot

Safety	Trig	Dist
Safe	020	6147
O	020	5852
O	O	6012
O	MaxOT	6086

Safety can rotate 4.976°
When Trigger is @ O engg
Trigger can engage .523°
@ Click pt

⑦ 145° behind pivot

Safety	Trig	Dist
Safe	020	.6166
O	020	5927
O	O	6086
O	MaxOT	6159

Safety can rotate 6.38°
when trig @ O eng
Trigger can engage .68°
@ Click pt

⑧ 148° behind pivot

Safety	Trig	Dist
Safe	020	.6173
O	020	5968
O	O	6126
O	MaxOT	6197

Safety 4.02° when trig @ O eng
Trigger can engage .78°

⑨ 149° behind pivot

Safety	Trig	Dist
Safe	020	.6175
O	020	5980
O	O	6138
O	MaxOT	6210

Safety 3.2° when trig @ O eng
Trigger can engage .81°

S	T	D	
Safe	020	6309	Safety 2.14° @ O eng
O	020	6127	Trig .85° @ Click
O	O	6284	
O	MaxOT	6356	

149° Taken from center of pivot to

ET56378

Moving pin on trig so Safe is in line w/ Pivot/MaxOT -

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(10) 147 behind pivot

Safety	Trig	Dist	
Safe	020	.6307	
0	020	.6102	.78 Trig @ click pt
0	0	.6220	3.98 Safety @ 0 ang
0	MaxOT	.6332	

(11) 148° behind pivot

Safe	020	.6308	.817° Trig
0	020	.6115	3.07° Safety
0	0	.6272	
0	MaxOT	.6343	

Straight 148°

	Safety	Trig	Dist	
(12)	Safe	020	.5779	.46° Trig @ 0 ang
	0	020	.5537	4.67° Safety @ click
	0	0	.5697	
	0	MaxOT	.5769	
150°	Safe	020	.5784	.73° Trig
	0	020	.5564	5.13° Safety
	0	0	.5723	
	0	MaxOT	.5795	
152°	Safe	020	.5788	3.5° Safety
	0	020	.5590	.79° Trig
	0	0	.5748	
	0	Max	.5820	
153°	Safe	020	.5789	.82 Trig .015 ang
	0	020	.5603	2.59° Safety
	0	0	.5760	
	0	Max	.5831	

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Strap out 1° cord original pivot location on Trig

	Safetie	Trig	dist	
150°	Safe	020	.6048	.80° Trig
	0	020	.5853	3.28° Safety
	0	0	6018	
	0	MaxOT	6082	

Strap out 2°

151°	Safe	020	.5918	.79° Trig
	0	020	.5721	
	0	0	.5879	3.39° Safety
	0	MaxOT	5950	
152°	Safe	020	.5719	
	0	020	.5738	.83° Trig
	0	0	5891	2.48 Safety
	0	MaxOT	5963	

Strap out 4°

154°	Safe	020	5641	.81° Trig
	0	020	5471	2.88 Safety
	0	0	5629	
	0	Max	5700	
153°	Safe	020	5659	.78° Trig
	0	020	5459	Safety
	0	0	5617	
	0	Max	5688	

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Strap @ 0° & up .9055R To .95R

149°

	Safety	Trig	Dust	
	Safe	020	.6432	Safety 7.25°
	0	020	6179	Trig .64°
	0	0	6339	
	0	Max OT	6412	
154	safe	020	.6443	Safety 3.24
	0	020	.6248	Trig .808
	0	0	.6406	
	0	Max	6477	

Strap 1402

146° from original link (post-live-020 avg.)
4° post flange position toward front of trig

	Safety	Trig	Dust	
	Safe	020	.6699	Trig .85°
	0	020	.6516	Safety 2.25
	0	0	.6673	
	0	Max	.6744	
145	Safe	020	.6698	
	0	020	.6504	.82 Trig
	0	0	.6661	Safety 3.14
	0	Max	.6732	
144.7	Safe	020	.6698	Trig .81
	0	020	6500	Safety 3.46
	0	0	6657	
	0	Max	6728	

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13° part flange forward front of ring

136	Safety	Trig	Dist	
	Safe	020	7777	.0056/.007
	0	020	7666	Trig .785
	0	0	7821	Safety 4.52
	0	MaxOT	7891	
137	Safe	020	7878	.0044/.0070
	0	020	7679	Trig .822
	0	0	7834	Safety 3.61
	0	MaxOT	7904	

11a° part flange

134	Safe	020	8268	.0054/.0070
	0	020	8061	Trig .80
	0	0	8214	Safety 4.34
	0	MaxOT	8284	
135	Safe	020	7269	.0042/.0070
	0	020	8074	Trig .855
	0	0	8227	Safety 3.42
	0	MaxOT	8297	

20° part flange

131	Safe	020	8785	.0057/.0069
	0	020	8576	.80 Trig
	0	0	8728	
	0	Max	8797	4.9 Safety
132	Safe	020	8786	
	0	020	8590	.0045/.0069
	0	0	8741	Safety 3.65°
	0	MaxOT	8810	Trig .834°

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25° past flange

127°	Safety	Trig Diff		
	Safe	020	.9422	
	0	020	9207	.0066/0067
	0	0	9356	5.21 Safety
	0	MaxOT	9423	.78 Trig
128°	Safe	020	9423	
	0	020	9221	.0053/.0067
	0	0	9370	4.29 Safety
	0	Max	9437	.82 Trig

35° past flange

120	Safe	020	1.0663	.0065/.0065 Max
	0	020	1.0440	Safety 4.20°
	0	0	1.0583	Trig .75°
	0	MaxOT	1.0648	
122	Safe	020	1.0664	
	0	020	1.0468	.0053/.0064
	0	0	1.0611	Safety 4.29°
	0	MaxOT	1.0675	Trig .84°

55° past flange

108	Safe	020	1.2958	MaxOT .0058
	0	020	1.2733	Safety 7.44°
	0	0	1.2863	Trig .73°
	0	MaxOT	1.2921	
111	Safe	020	1.2958	.0053/.0056
	0	020	1.2778	Trig .88°
	0	0	1.2905	Safety 4.44
	0	MaxOT	1.2961	

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56° (Cont'd)	Safety	Trig	Dist	
109.6°	Safe	020	1.2959	.0057 / .0057
	0	020	1.2759	Trig. 805°
	0	0	1.2816	Safe 5.93°
	0	Max OT	1.2943	

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PAGE BREAK

11

Move Link to bottom side of Pivot for Left 2-9-95

0° Safety pattern rotation
.842 Pivot stg diameter

Safety Stg. list

Safe	020	5660
0	020	5543
0	0	5696
0	MaxOT	5766

No needs to be > .001 MaxOT

-5° Safety pattern

Safe	020	5661
0	020	5490
0	0	5645
0	MaxOT	5715

-8°

Safe	020	5658
0	020	5453
0	0	5609
0	MaxOT	5680

-7

Safe	020	5659
0	020	5466
0	0	5621
0	MaxOT	5692

-6

Safe	020	5660
0	020	5478
0	0	5633
0	MaxOT	5703

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(2

.2" Dia
Safety pivot axle

.520 Trig Pivot Radius

	Safety	Trig	Dist	
-75°	Safe	020	5164	Too Much .0253 OT
	0	020	4944	
	0	0	4911	.0032
	0	MaxOT	4943	
-65	Safe	020	5209	
	0	020	4991	Too Much .0146 OT
	0	0	5063	
	0	MaxOT	5096	
-55	Safe	020	5217	.0039/.0036 MaxOT
	0	020	4627	
	0	0	5178	.0036
	0	MaxOT	5214	
-52	Safe	020	5212	.0006/.0036
	0	020	5129	
	0	0	5206	
	0	MaxOT	5242	
-57	Safe	020	5218	.0060/.0035
	0	020	5083	
	0	0	5158	
	0	MaxOT	5193	
-58	Safe	020	5219	
	0	020	5072	
	0	0	5147	
	0	MaxOT	5182	

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.528" Trig Pivot Reading
.4 Safety Pivot Reading
Ref -57.51° extended

	Safety	Trig	Dist
-57.51	Safe	020	7219
	0	020	7014
	0	0	7084
	0	Max	.7116
-55	Safe	020	.7216
	0	020	.7050
	0	0	.7121
	0	Max	7154
slide Trig pivot up to .3 Safety Pivot -55°	Safe	020	.5991
	0	020	.5995 .037 OT Too Much
	0	0	.5911
	0	Max	.5865
-35°	Safe	020	.6130
	0	020	.5985 .0120/.0067
	0	0	.6010
	0	Max	6067
-33°	Safe	020	6134
	0	020	6015 .0094/.0057
	0	0	.6040
	0	Max	6097
-31	Safe	020	6136 .0068/.0058
	0	020	5942
	0	0	6069
	0	Max	6126

-29°

	Safety	Trig	Dist
	Safe	020	6136
	0	020	5968
	0	0	6094
	0	Max	6152
-49°	Safe Click	020	.6107 .0036
	0	020	.6070 Not .0062
	0	0	.6198 -.0062
	0	Max	.6257

.528 Trig Pivot
.3 Safety Pivot

46.9°	Safe	020	6190
	Click	020	6219 .0029
	0	020	6151 .0068
	0	0	6229 .0036
	0	Max	6265

.528 Trig
.4 Safety Pivot

46.9°	Safe	020	.7186
	Click	020	.7219 +.0001 OT
	0	020	7141
	0	0	7218
	0	Max	7253
52.5	Safe Click	020	7211 .7219
		000	7210
	0	020	7082
	0	0	7155
	0	Max	7188

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4

.4 safe pivot
.177 Trig pivot

= 24.6°

Safety	Trig	dist	
Safe	020	.7128	
Mid	020	.7136	.0008
Click	020	.7127	
0	020	.7001	
0	0	.7128	.0058
0	Map	.7186	

ET56388

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Δ° from over strap design

Safety Pattern	OT	Safety Rot Pos	Mining Possible	
.2" safety Pivot .142 pivot	-5°	.0016/.0070	1.5°	.864°
	-8	.0049/.0071	4.22	.763
	-7	.0038/.0071	3.31	.799
	-6	.0027/.0070	2.41	.733
	-6.53°	.0032/.0070	2.89	.815 .015 engagement
.2	-55°	.0039/.0036	4.33°	.9574
	-52°	.0006/.0036	.72°	1.125°
	-57	.0060/.0035	6.85°	.850 .016
	-58	.0072/.0035	7.57	.78 .014
	-57.51	.0066/.0035	7.02°	.815 .015 [1.4° Lock]
.4° Safety pivot .527 trig pivot				
	-52.51	.0135/.0032	10.73°	.67°
	-55	.0095/.0033	7.91°	.89°
	-55.86°	.0109/.0033	8.87°	.815 [2.95° Lock]
Slide Trig pivot .135 up (.677 pivot Rod)				
Trig .3" Rad safety pivot				
	-35	.0120/.0057	8.96	.63°
	-33	.0094/.0057	7.32	.72
	-31	.0068/.0058	5.50	.8083
	-30.95	.0066/.0058	5.36	.815 .015 [.80° Lock]
	-29	.0042/.0058	3.50°	.897 .017 1.05° Lock
.4 Safety pivot Rod .528 Trigger Rod				
slide pivot	-52.5	.0044/.0033	5.72	.781 (.018) [5.6° Lock]

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PAGE BREAK

11

2-20-95

Tolerances

Fire Position

Link to safety

Trigger pivot moved up and left

Safety pivot moved down and in/aft

Nom +.0120

-.0028 sideplate hole loc

-.0030 trigger surface to safety pivot

-.0030 safety surface to safety pivot

-.0010 safety hole

-.0005 safety pivot

-.0005 link hole

-.0005 trig link pivot

-.0010 trig link hole

-.0030 safety link pivot hole loc

-.0005 safety link pin

-.0010 safety link hole

-.0173 Stackup

-.0053 Interference

.009 clearance between link & safety

Add trigger link pivot tolerance +.003 gives .006 clearance

Add safety surface +.003 gives .003 clearance

Safety link pivot to Sideplate

Sideplate +.003 left

+.01895 clearance nominal

✓ -.0005 Pin diameter (safety link pivot)

✓ -.003 Hole location in safety

~~-.0028 Trigger to safety Pivots~~

✓ -.003 sideplate left (surface)

~~-.003 Trigger to Link trig pivot~~

~~-.0005 Link Hole Tol~~

✓ -.0010 Hole in safety (link pivot)

✓ -.0010 Safety pivot hole

✓ -.0005 Safety pivot pin

.0090 Stackup

.0095 clearance

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Safety Position

Link to Back Spacer

+ .02536 Nominal
- .0030 Spacer Surface to center
- .000 Center Pin / hole clearance
- .0028 Spacer center to trigger pivot Loc
- .0028 Spacer center to safety pivot Loc
- .0005 Trig hole pivot
- .0005 Trig pivot pin
- .0030 Trig linkage hole to pivot
- .0005 Trig link pin
- .0010 Trig link hole
- .0010 Safety Pivot hole
- .0005 Safety Pivot pin
- .0030 Safety Link Pivot hole to Safety Pivot
- .0010 Safety Linkage hole
- .0030 Link Length

ET56391

.0226 Stackup
.00276 clearance
.025
.02776 clearance

∴ Make Spacer .200 Dia
Increase length by .025 would give .0197 clearance
for internal safety worst case .037 Nominal clearance
& .00276 clearance from Link to back Spacer

∴ Spacer dia .200 (change)
Add .025 Length to outside Link component section
Move Spacer location on sideplate down .025 in line with link

Worst case Final Clearance:	Worst case	Nom
Link to Safety Pivot	.0197	.037
Safety Link Pivot to Safety Pivot	.0095	.01295
	.02776	.05095

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New Parts Required

Component	Plunger 2	Link
Trigger	yes	yes
Safety	yes (2 pc)	yes (2 pc)
Front Spacer	yes	yes
Back Spacer	yes	yes
Sear	yes	yes
Safety pivot pin	No	No
Safety 2pc pin	yes	yes
Trigger Lid pin	No	yes
Additional parts	2 pc plunger (ext)	3pc Link (ext assy)

New Prototype Parts

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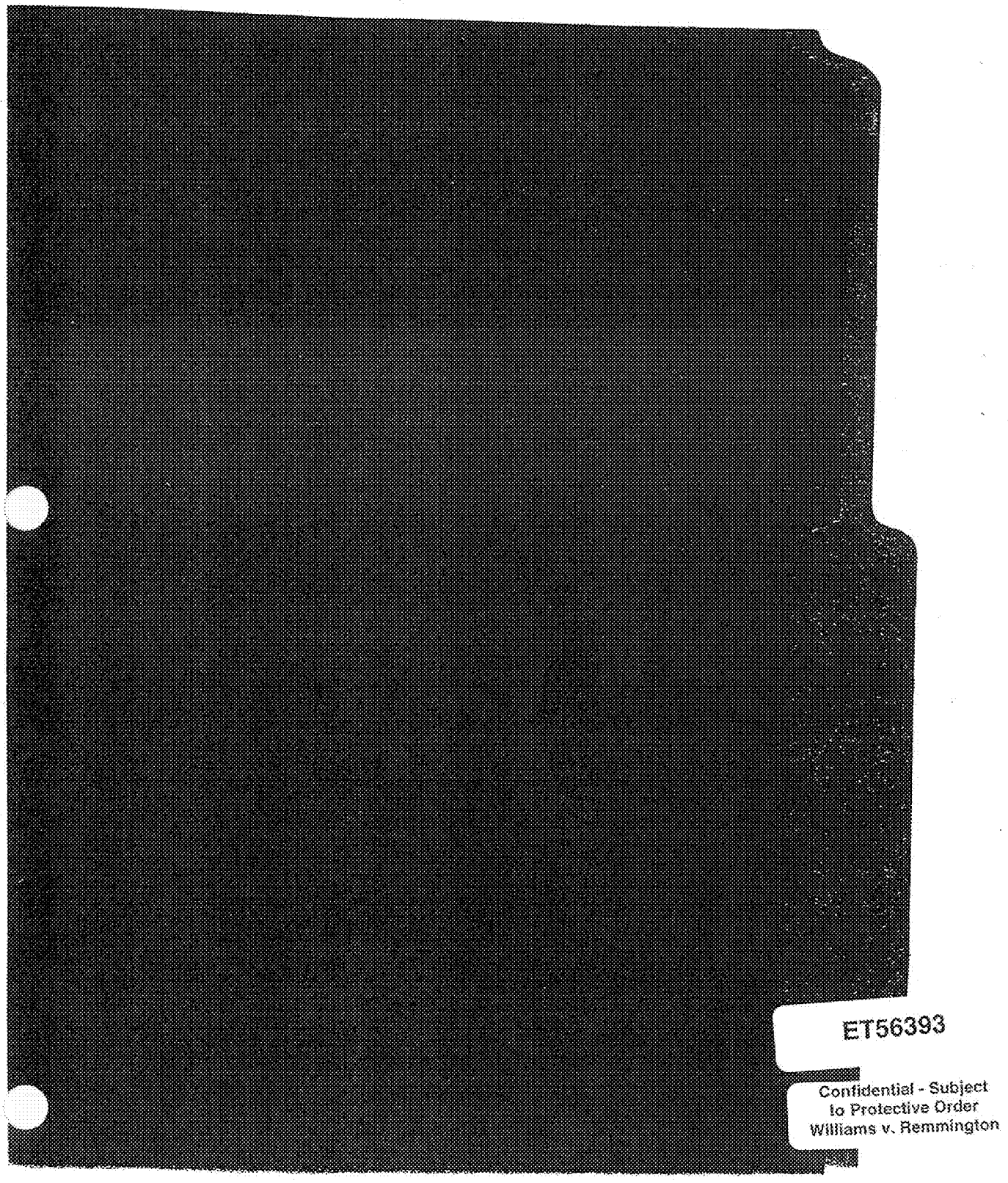
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PAGE BREAK

ENGINEERING DUPONT COMPUTATION SHEET SHEET NO. 10

TITLE OF PROJECT OR STUDY: Trigger Assembly - Pin Design PROJECT OR STUDY NO.

SUBJECT: Free Body Diagram - Trigger WORKS

COMPUTER DATE 3-16-95

F_{TP} : Trigger Pull = 3.4 lbf

F_{SPI} : Spring.

F_{SE} : Sear on Trigger

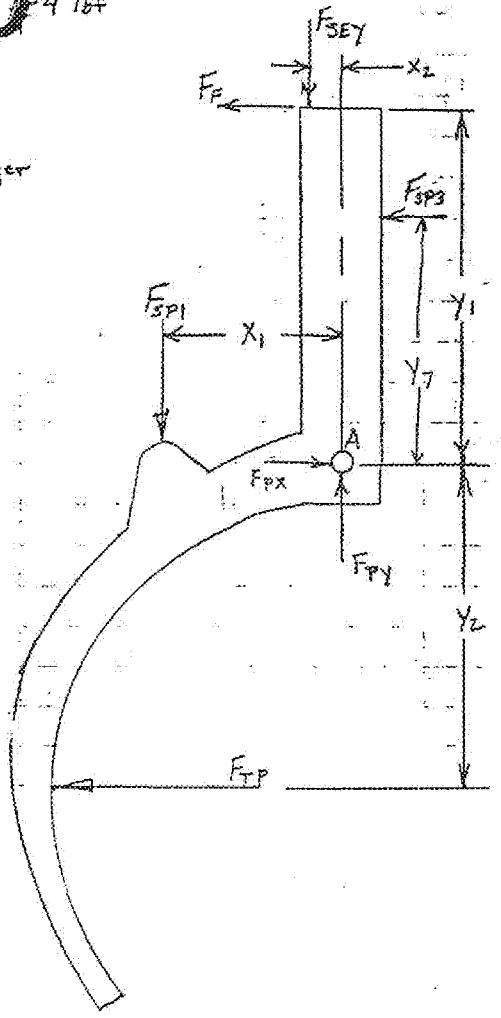
F_F : Friction.

F_{PX} : Pivot x-dir.

F_{PY} : Pivot y-dir.

Mfg variability
Spring Force ± 18%

	Spring Force
Long Action	18.6 - 23.7
Short Action	20.4 - 26.0
Seven	22.9 - 27.2
Overall Range (Std Ind Tolerances)	18.6 - 27.2



$Y_1 = 1.042$
$Y_2 = .853$
$Y_7 = .662$
$X_1 = .466$
$X_2 = .047$

	Long	Short	Seven
F_{SEY}	10.1-13.3	11.3-14.7	12.9-15.6
F_F	0.8-1.1	0.9-1.2	1.0-1.2
F_{SPI}	1.3, 1.8		
F_{TP}	3.5	3.5	3.5

$$\vec{\Sigma} F_X = -F_{TP} - F_F + F_{PX} = 0$$

$$\uparrow^{+} \Sigma F_Y = F_{PY} - F_{SPI} - F_{SEY} = 0$$

$$\circlearrowleft^{+} \Sigma M_A = F_F Y_1 + F_{SPI} X_1 + F_{SEY} X_2 - F_{TP} Y_2 + F_{SP3} Y_7 = 0$$

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Trigger Assembly – Pin Redesign

F_{SP1} 3/8 Long, .148 OD, .021 wire dia – Assoc. Spring Rejected 3-10-95

Long Action

$\Sigma M_A = 0$

$0.8(1.042) + 1.8(.466) + 10.1(.047) - 3.5(.853) + .662 F_{SP3} = 0$

$0.8 + 0.8 + 0.5 - 3.0 + .662 F_{SP3} = 0$

Min Firing pin spring cond. $F_{SP3} = 1.4$ lbf

$1.1(1.042) + 1.8(.466) + 13.3(.047) - 3.5(.853) + .662 F_{SP3} = 0$

$1.1 + 0.8 + 0.6 - 3.0 + .662 F_{SP3} = 0$

Max. Firing pin spring cond. $F_{SP3} = 0.8$ lbf

Nominal $F_{SP3} = 1.1$ lbf

Short Action

(Min) $0.9 + 0.8 + 11.3(.047) - 3 + .662 F_{SP3} = 0$ $F_{SP3} = 1.2$ lbf

(Max) $1.2 + 0.8 + 14.7(.047) - 3 + .662 F_{SP3} = 0$ $F_{SP3} = 0.5$ lbf

Nom. $F_{SP} = 0.9$ lbf

Semi Action

(Min) $1.0 + 0.8 + 12.9(.047) - 3 + .662 F_{SP3} = 0$ $F_{SP3} = 0.9$ lbf

(Max) $1.2 + 0.8 + 15.6(.047) - 3 + .662 F_{SP3} = 0$ $F_{SP3} = 0.4$ lbf

Nom. $F_{SP3} = 0.7$ lbf

This does not include F_{SP1} spring variation

0.8 1.4 0.5 1.2 Nom 0.9

With current Trigger Spring, δ = .002 to .006 ⇒ Too Touchy

for F_{SP3} = 0.4 to 1.4 lbf

Subset Range = 0.8 – 0.9

With current Sear Spring δ = .010 to .034 (1 turn / 1 lbf)

@ 40 TPI & .151 ϕ

order 50 SC053 Use a C0120-016-0440-M (120 OD, .016 wire dia, .440 long

∴ Front Spacer will require drilling .116 hole

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Trigger Assembly - Pin Design

For 5/16 long .148 OD., .021 wire dia - 3-10-95

Long Action

(Min) $0.8 + 0.3\overset{0.1}{\cancel{0}}(466) + .0.5 - 3.0 + .662 F_{sp3} = 0$ $F_{sp3} = 2.4$ lbf

(Max) $1.1 + 0.1 + 0.6 - 3.0 + .662 F_{sp3} = 0$ $F_{sp3} = 1.8$ lbf

Short Action

(Min) $0.9 + 0.1 + 0.5 - 3.0 + .662 F_{sp3} = 0$ $F_{sp3} = 2.3$ lbf

(Max) $1.2 + 0.1 + 0.7 - 3.0 + .662 F_{sp3} = 0$ $F_{sp3} = 1.5$ lbf

Semi Action

(Min) $1.0 + 0.1 + 0.6 - 3.0 + .662 F_{sp3} = 0$ $F_{sp3} = 2.0$ lbf

(Max) $1.2 + 0.1 + 0.7 - 3.0 + .662 F_{sp3} = 0$ $F_{sp3} = 1.5$ lbf

F_{sp3} Range = 1.5 - 2.4 lbf

Subset Range = 1.8 - 2.0 lbf

order 50 Use a C0120 - 016 - 0620 - M

52.03 .120 OD., .016 wire OD., .62 long for 1.85 lbf

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PAGE BREAK

ENGINEERING DUPONT COMPUTATION SHEET

SHEET NO. 1

TITLE OF PROJ OR STUDY: Trigger Assembly - PIN DESIGN

PROJ OR STUDY NO.

SUBJECT: Free Body Diagram - Trigger

WORK'S

COMPUTER

DATE 3-8 19 95

F_{TP} : Trigger Pull = 3-4 lbf

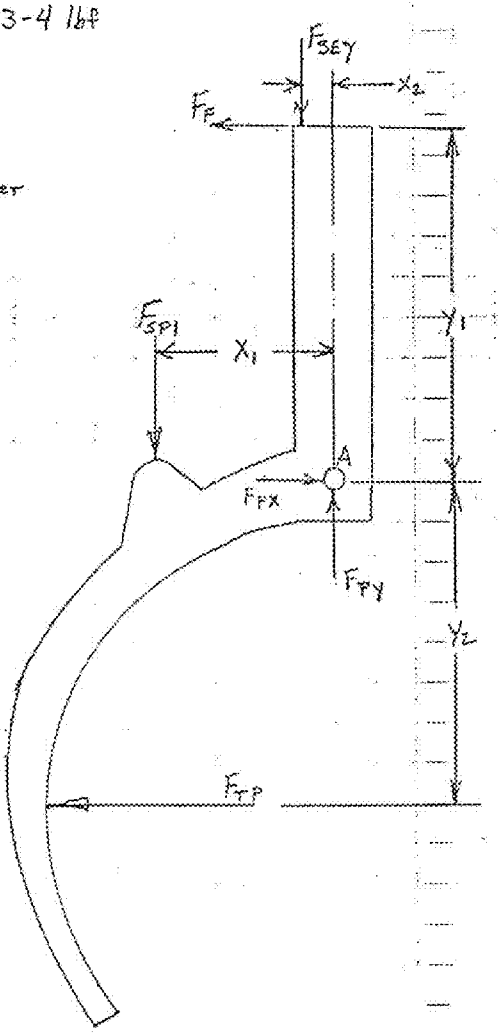
F_{SPI} : Spring

F_{SE} : Sear on Trigger

F_F : Friction

F_{PX} : Pivot x-dir.

F_{PY} : Pivot y-dir.



Spring Force ± 18%

	Spring Force
Long Action	18.6 - 23.7
Short Action	20.4 - 26.0
Seven	22.9 - 27.2
Overall Range (End 3rd Tolerance)	18.6 - 27.2

$$\vec{\Sigma} F_X = -F_{TP} - F_F + F_{PX} = 0$$

$$\uparrow^{+} \Sigma F_Y = F_{PY} - F_{SPI} - F_{SEY} = 0$$

$$\circlearrowleft^{+} \Sigma M_A = F_F Y_1 + F_{SPI} X_1 + F_{SEY} X_2 - F_{TP} Y_2 = 0$$

ET56397

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BARBER - 2.4.13000143

DRAWING NUMBER A-17028

REMINGTON ARMS CO. INC.
RESEARCH & DEV. DEPT.

SCALE | SUPERSEDES-REFERENCE

TITLE: SPRING, HELICAL COMP.

DES. BY DATE	DRN. BY DATE	CHK. BY DATE	APP. BY DATE
	[illegible] 6-11-62		

FOR DETAILS, SEE PROCESS RECORD

MODEL	PART USE	QUAN.	SEE
721	MAIN SPRING	1	A-17033-1
[illegible]	MAIN SPRING		SEE FOR CHANGES
[illegible]	MAIN SPRING		SEE FOR CHANGES
[illegible]	MAIN SPRING		SEE FOR CHANGES

DO NOT SCALE THIS DRAWING WORK TO THIS

UNLESS OTHERWISE NOTED, TOLERANCES ON DECIMAL DIMENSIONS ARE ±.005
& ON FRACTIONAL DIMENSIONS ± 1/64
& ON ANGULAR DIMENSIONS ±00°30'
FINISHES ARE DESIGNATED BY ROOT MEAN SQUARE (R.M.S.) MICRO-INCH ROUGHNESS VALUES AND ARE THE MAXIMUM ROUGHNESS ACCEPTABLE. UNLESS OTHERWISE SPECIFIED, FINISH ROUGHNESS TO BE [illegible] OR BETTER

RECOMMENDED MATERIAL AND HEAT TREAT

MATERIAL: MUSIC WIRE
HEAT TREAT: STRESS RELIEVE
HARDNESS:
COLOR:
[illegible] TO BE DONE BY REMINGTON

Long Action

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Nomid Inl stds
18.6 - 23.7 lbf
4 3.390
4 2.970 21.7-27.6 lbf

INSPECTION

1. To work freely in .220 dia. hole AT WORKING LGTH (2.97)
2. To work freely on .2045 dia. pin AT WORKING LGTH
3. *Load 24.4 to 26.0 lb. at 2.97 length (with set removed)
4. Solid Height 2.26 max. 7. Wind RIGHT H
5. Free Length 3.30 min. 8. Remove set {Yes / No (except for inspection
6. Ends SQUARED & GROUND
* Approximate length limits to nearest 64th inch at constant load in lbs. and nearest 1/4 oz. Load 25 lbs. 2 1/4 ozs. at 2.93 to 3.00 in. length

OUTSIDE DIAMETER FREE LENGTH = .405 MAX.

MANUFACTURE

9. Wire dia. .0355
10. Outside dia. .405 MAX.
11. Free Length 3.34 WITH SET REMOVED
12. Coils 37 Active 39 Total

DESIGN DATA

13. Rate 9.61 lb./in.
14. Solid Stress 232,000 lb/sq.in.
15. Solid Load 32.2 lb.
16. Spring Index 6.45
17. Torsional Mod. G= 11.3x10^6 lb/sq.in.
18. Concentric Corr. .005 SHANK

This Spring must meet the requirements in the "Inspection" section. Figures given in the "Manufacture" section indicate the preferred Spring, but the Manufacturer may deviate from these at his own discretion. Figures in the "Design Data" section are based on those in the "Manufacture" section.

A-17028

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ET56398

ALT.	WAS	Reference	BY	DATE
13	REGRAN	4793	[illegible]	6-11-62

ALTERATIONS

TPA-3 REV. 1

BARBER - 2.4.13000143

PAGE 02
REMINGTON ARMS CO
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Williams v. Remmington
BARBER - 2.4.13000144

NUMBER **A-15411**

REMINGTON ARMS CO. INC.
ELION RESEARCH DIV.

SCALE	SUPERSEDES	REFERENCE
—		

TITLE **SPRING.**

DES. BY DATE	DWN. BY DATE	ENG. BY DATE	APP. BY DATE
	TPowers 12-7-92	C.W.Martin 1-7-92	

MODEL	PART USE
XP100	MAIN SPRING
600	" "
660	" "
7 LWT	" "

ET56399

2.540
-.650
1.890
L1

229 - 27.2 LBS
Stalled Stds

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RECOMMENDED MATERIAL AND HEAT TREAT

MATERIAL MUSIC WIRE - ASTM A228

HEAT TREAT STRESS RELIEVE

Model Seven

INSPECTION

1. TO WORK FREELY IN A .420 DIA. HOLE
2. TO WORK FREELY ON A .283 DIA. PIN
3. LOAD 27.00 TO 30.42 LB. AT 1.605 (L1)
   LOAD — TO — LB. AT — (L2)
4. SOLID HEIGHT 1.44 MAX. 5. WIND EITHER HAND
6. FREE LENGTH 3.758 MIN. 7. ENDS SQUARED & GROUND
8. CHECK HERE FOR NON-COMMERCIAL TOLERANCES ☐

MANUFACTURE

9. WIRE DIA. .055
10. FREE LENGTH 3.850
11. OUTSIDE DIA. .405
12. COILS: ACTIVE 24
    TOTAL 26
13. CHECK HERE FOR SET REMOVAL ☐

DESIGN DATA

14. SPRING RATE 12.783 LB./IN.
15. STATIC STRESS AT SOLID 204,900 LB./SQ.IN.
16. DYNAMIC STRESS — LB./SQ.IN.
17. TOTAL STRESS AT SOLID 204,900 LB./SQ.IN.
18. SOLID LOAD 30.936 LBS.
19. SPRING INDEX 6.36
20. TORSIONAL MODULUS 11.5×10^6 LB./SQ.IN.
21. CURVATURE CORRECTION FACTOR 1.2365 (WAHL)
22. VELOCITY IMPACTING MASS — IN./SEC.
23. CRITICAL FREQUENCY 263 HZ.
24. TOTAL STRESS AS % OF TENSILE STRENGTH 68
25. ENERGY FROM L1 TO L2 — IN.-LBS.

THIS SPRING MUST MEET THE REQUIREMENTS IN THE INSPECTION SECTION. FIGURES GIVEN IN THE MANUFACTURE SECTION INDICATE THE PREFERRED SPRING. THE MANUFACTURER MAY, WITH PRIOR APPROVAL, DEVIATE FROM THESE FIGURES. FIGURES IN THE DESIGN DATA SECTION ARE BASED ON THOSE IN THE MANUFACTURE SECTION.

ALT.	ALTERATIONS	REV.	BY	DATE
5	REVISED & REDRAWN	12739	TP	12/92

TPO-2 REV. 2

CV FILENAME - RES.FORM.SPG2

A-15411

BARBER - 2.4.13000144

(18) A-17058

REMINGTON ARMS CO. INC.
RESEARCH & DEV. DEPT.

SCALE | SUPERSEDES A17058

TITLE
SPRING, HELICAL COMPRESSION

DES. BY DATE	DRN. BY DATE	CHK. BY DATE	APP. BY DATE
JWB 4/4/73		JWB 10/5/73	

FOR DETAILS, SEE PROCESS RECORD

MODEL	PART USE	QUAN.	SEE
700	SHORT ACTION MAIN SPRING		
40XB-CF	SHORT ACTION MAIN SPRING		(21)
SPTS 78	" " " "		(22)

RECOMMENDED MATL. & HEAT TREAT
Material MUSIC WIRE ASTM-A228
Heat Treat . STRESS RELIEVE
Approval (By Date) .....

THIS DRAWING OR INFORMATION IS PROPRIETARY INFORMATION TO THE REMINGTON ARMS COMPANY, INC.

3.390 − .350 / L1 2.540 20.4-26.0 lbf

INSPECTION

(18) 1. To work freely in .420 dia. hole AT WORKING LENGTH
2. To work freely on .283 dia. pin AT WORKING LENGTH
3. Load 20.812 to 23.187 lb. at 2.646 length (with set removed)
(18) 4. Solid Height 2.142 max. 7. Wind R H
5. Free Length 4.907 min. 8. Remove set [redacted]
6. Ends SQUARED & GROUND (No [except for inspection])

MANUFACTURE

9. Wire dia. .055
10. Outside dia. .399
11. Free Length 5.165 [redacted]
12. Coils 36.6 Active 38[redacted] Total

DESIGN DATA

13. Rate 9.206 lb./in.
14. Solid Stress 183,136 lb./sq. in. MAX.
15. Solid Load 27.988 lb. MAX.
16. Spring Index 6.25
17. Torsional Mod. G = 11.5 x 10^6 lb./sq. in.
18. Concentric Corr. 1.241

This Spring must meet the requirements in the "Inspection" section. Figures given in the "Manufacture" section indicate the preferred Spring, but the Manufacturer may deviate from these at his own discretion. Figures in the "Design Data" section are based on those in the "Manufacture" section.

A17058

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ET56400

ALT.	WAS	REFERENCE	BY	DATE
(19) 22	ADDED SPTS 78	11886	R.H.	3/5/84
(15) 21	ADD USE 40XB-CF	DCR 10538	JWB	1/11/78
20	2.165	DCR 09792	JWB	5/16/74
19	ADDED	DCR 09792	JWB	5/16/74
18	REVISE & REDRAWN	DCR 09291	JWB	10/5/73

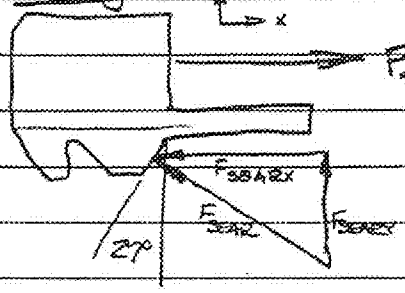
TFA-X REV. 2 ALTERATIONS

BARBER - 2.4.13000145
BARBER - 2.4.13000145

3/7/95 p.1

STATIC FORCE ANALYSIS - NBA TRIGGER ASSEMBLY
- HIGH PLUNGER DESIGN

Long Action 700



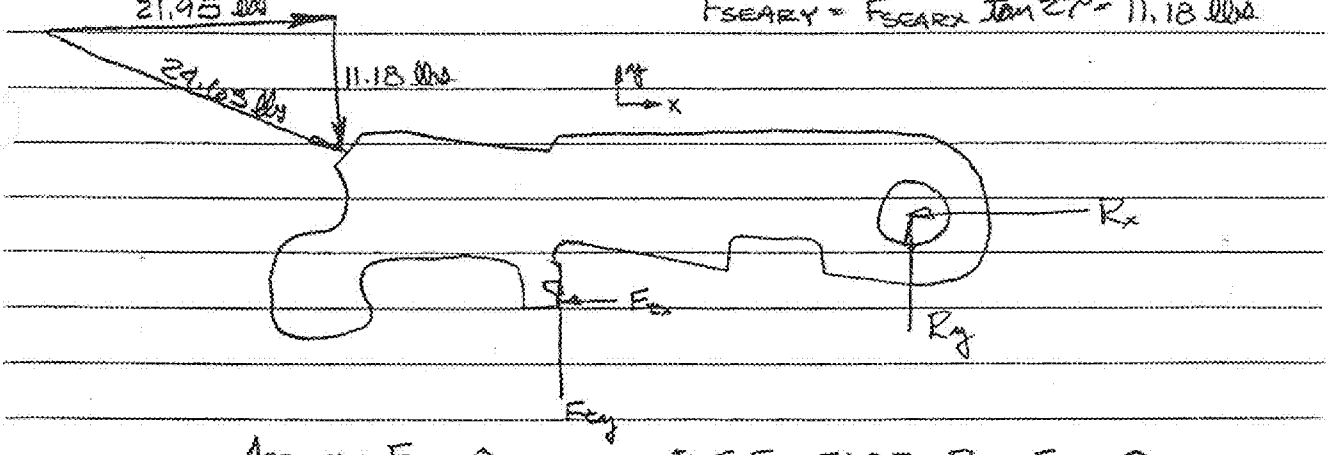
$F_{SPRING} = k\Delta X = 8.161\,(5.94-3.39)$
$= 21.95$ lbs

$\rightarrow \Sigma F_x = F_{SPRING} - F_{SEAREX} = 0$

$F_{SEAREX} = 21.95$ lbs

$F_{SEARE} = \frac{F_{SEAREX}}{\cos 27°} = 24.63$ lbs

$F_{SEARY} = F_{SEAREX} \tan 27° = 11.18$ lbs



ASSUME $F_{ex} = 0$

$\rightarrow \Sigma F_x = 21.95 - R_x - F_{ex} = 0$

$+\uparrow \Sigma F_y = F_{ey} + R_y - 11.18 = 0$

$+\circlearrowleft \Sigma M_o = 24.63(.463) - F_{ey}(.887) - F_{ex}(.220) = 0$

$F_{ey} = \frac{24.63(.463)}{.887} = 12.85$ lbs

$R_y = 1.68$ lbs

$R_x = 21.95$ lbs

ASSUMING 3.5 lb TRIGGER PULL

$F_{ex} = 2.9$ lbs $= \left(3.5\left(\frac{.863}{1.042}\right)\right)$

$F_{ey} = 11.97$ lbs

$R_y = .79$ lbs

$R_x = 19.05$ lbs

ET56401

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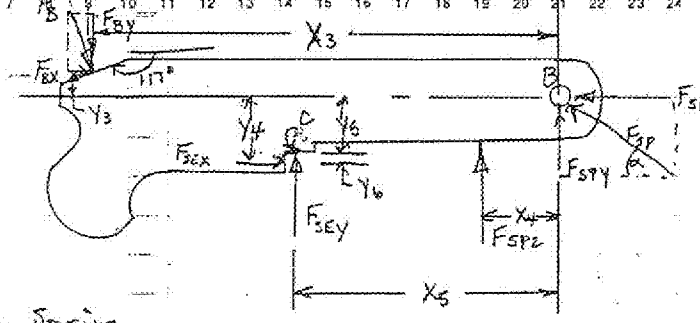
PAGE BREAK

ENGINEERING DUPONT COMPUTATION SHEET — SHEET NO 2

TITLE OF PROJ OR STUDY: Trigger Assembly - Pin Design — PROJ OR STUDY NO

SUBJECT: Free Body Diagram - Sear — WORKS

COMPUTER — DATE 3-8 19 95



F_B : Bolt

F_{BX} : Bolt x-dir.

F_{BY} : Bolt y-dir

F_F : Friction

F_{SP2} : Sear Return Spring

F_{SEX} : Sear on Trigger x-dir.

F_{SEY} : Sear on Trigger y-dir.

F_{SPX} : Sear pivot x-dir.

F_{SPY} : Sear pivot y-dir

$X_3 = 1.314$
$X_4 = .366$
$X_5 = .887$
$Y_3 = .117$
$Y_4 = .271$
$Y_5 = .198$
$Y_6 = .073$
$F_B = 18.6$ lbs
$F_{BX} = F_{SP2} = 18.6 - 27.2 \cos 27° = 3.5$ lbs
$F_{BY} = \tan 27° F_{BX} = 9.5 - 18.9$ lbs
$F_{SP2} = (.485 - .401)\ 41.14 = 3.5$ lbs
$F_{SE} = 21.2 - 12.2$ lbs

$$\pm\rightarrow \quad \Sigma F_x = F_{BX} + F_{SEX} - F_{SPX} = 0$$

$$+\uparrow \quad \Sigma F_y = F_{SEY} - F_{BY} + F_{SPY} + F_{SP2} = 0$$

$$\text{CCW}+ \quad \Sigma M_B = F_{BY} X_5 - F_{BX} Y_3 + F_{SEX} Y_4 - F_{SEY} X_5 - F_{SP2} X_4 = 0$$

F_B Min condition: $\Sigma M_B = 9.5(1.314) - 18.6(.117) + F_{SEX}(.271) - F_{SEY}(.887) - 3.5(.366) = 0$

$= 12.5 - 2.2 + .271 F_{SEX} - .887 F_{SEY} - 1.3 = 0$

① $9.0 + .271 F_{SEX} - .887 F_{SEY} = 0$ $\quad F_{SEY} = \frac{9.0 + .271 F_{SEX}}{.887} = 10.1 + .306 F_{SEX}$

$\Sigma_{26} F_x \Rightarrow$ ② $18.6 + F_{SEX} - F_{SPX} = 0$

$\Sigma_{27} F_y \Rightarrow$ ③ $F_{SEY} - 9.5 + F_{SPY} + 3.5 = 0$

From ② $\quad 18.6 + F_{SEX} - F_{SPX} = 0$

Subst ① into ③ $\quad 4.1 + .306 F_{SEX} + F_{SPY} = 0$

Simultaneous Eq $\quad 16.0 + F_{SEX} - F_{SPX} = 0$

$-(13.4 + F_{SEX} + 3.27 F_{SPY} = 0)$

$2.7 + 0 - F_{SPX} - 3.27 F_{SPY} = 0$

④A $F_{SPX} = 2.7 - 3.27 F_{SPY}$ $\quad$ ④B $F_{SPY} = .8 - .306 F_{SPX}$

⑤ $F_{SPX}^2 + F_{SPY}^2 = F_{SP}^2$

ET56402

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USE STANDARDS FOR MINIMUM ESSENTIAL DISTANCES

13

Trigger Assembly - Pin Design

3-8-95

$$\Sigma M_C = F_{SEX}\,y_6 + F_{SY}(x_3 - x_8) - F_{SX}(y_3 + y_8) + F_{SP_2}(x_5 - x_4) + F_{SPY}\,x_5 + F_{SPX}\,y_5 = 0$$

$$= F_{SEX}(.073) + 9.5(1.314 - .887) - 18.6(.117 + .198) + 3.5(.887 - .364) + F_{SPY}(.887) + F_{SPX}(.198) = 0$$

$$= .073 F_{SEX} + 4.1 - 5.9 + 1.8 + F_{SPY}(.887) + F_{SPX}(.198)$$

(6) $= .073 F_{SEX} + .198 F_{SPX} + .887 F_{SPY} = 0$

Subst (4B) into (6)

$$.073 F_{SEX} + .198 F_{SPX} + .887(.8 + .304 F_{SPX}) = 0$$

(7) $.073 F_{SEX} + .073 F_{SPX} + .710 = 0$

→ Assume $F_{SEX} = 0$

F_B Min Condition: $F_{SEY} = \frac{9.0}{.887} = 10.1$ lbf

F_B Max Condition: $\Sigma M_B = 13.9(1.314) - 27.2(.117) - F_{SEY}(.887) - 3.5(.364)^{\circ}$

$$18.3 - 3.2 - 1.3 - .887 F_{SEY} = 0$$

$$F_{SEY} = \frac{13.8}{.887} = 15.6 \text{ lbf}$$

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ENGINEERING DU PONT COMPUTATION SHEET — SHEET NO. 4

TITLE OF PROJ OR STUDY: Trigger Assembly – Pin Design — PROJ OR STUDY NO.

SUBJECT: Trigger Forces — WORK NO.

COMPUTER — F_{SEY} Range 10.1 – 15.6 lbf — DATE 19

(From page 3) Min Condition (10.1)

$\Sigma M_A = F_F(1.042) + F_{SP1}(.466) + 10.1(.047) - 3(.853) = 0$

$1.042 F_F + .466 F_{SP1} + .47 - 2.56 = 0$

(8) (3 lb F_{TP}) → $1.042 F_F + .466 F_{SP1} = 2.09$

(9) (4 lb F_{TP}) → $1.042 F_F + .466 F_{SP1} = 2.94$

$Y_1 = 1.042$
$Y_2 = .853$
$X_1 = .466$
$X_2 = .047$
$F_{SEY} = 10.1 - 15.6$ lbf
$F_{TP} = 3 - 4$ lbf

Max Condition (15.6)

$1.042 F_F + .466 F_{SP1} + .73 - 2.56 = 0$

(10) (3 lbf F_{TP}) $1.042 F_F + .466 F_{SP1} = 1.83$

(11) (4 lbf F_{TP}) $1.042 F_F + .466 F_{SP1} = 2.68$

→ Assume Friction Coefficient = .08 from Plunger designs' experience

M_{IN} 10.1 $F_F = .08 F_{SEY} = (.08)\,10.1 = 0.8$ lbf

Max 15.3 $F_F = (.08)\,15.6 = 1.2$ lbf

From (8) – (11) above

$.83 + .466 F_{SP1} = 2.09$	$F_{SP1} = 2.7$ lbf	(3 lb TP Min Cond)
$.83 + .466 F_{SP1} = 2.94$	$F_{SP1} = 4.5$ lbf	(4 lb TP Min Cond)
$1.25 + .466 F_{SP1} = 1.83$	$F_{SP1} = 1.2$ lbf	(3 lb TP Max Cond)
$1.25 + .466 F_{SP1} = 2.68$	$F_{SP1} = 3.1$ lbf	(4 lb TP Max Cond)

Spring made 2 ± 18% lbf 1.64 lbf — 2.36 lbf

At Nominal Firing pin spring force for:

Long Action	Short Action	Seven
$F_{BX} = 18.6 - 23.7$ lbf	$F_{BX} = 20.4 - 26.0$ lbf	$F_{BX} = 22.9 - 27.2$ lbf
$F_{BY} = 9.5 - 12.1$ lbf	$F_{BY} = 10.4 - 13.2$ lbf	$F_{BY} = 11.7 - 13.9$
Min condition –		
$\Sigma_{SM} = 9.5(1.314) - 18.6(.117)$	$10.4(1.314) - 20.4(.117)$	$11.7(1.314) - 22.9(.117) - .887 F_{SEY}$
$- F_{SEY}(.887) - 3.5(.366) = 0$	$- .887 F_{SEY} - 1.3 = 0$	$- 1.3 = 0$
$12.5 - 2.2 - 1.3 - .887 F_{SEY}$	$13.7 - 2.4 - 1.3 - .887 F_{SEY} = 0$	$15.4 - 2.7 - 1.3 - .887 F_{SEY} = 0$
$F_{SEY} = 10.1$ lbf min	$F_{SEY} = 11.3$ lbf min	$F_{SEY} = 12.9$ lbf min

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Trigger Assembly - Pin Design

3-8-95

Long Action	Short Action	Seven Action
Max Condition		
$\Sigma M =$		
$12.1(1.314) - 23.7(.117) - 1.3 - F_{SEY}(.887) = 0$	$13.2(1.314) - 26.0(.117) - 1.3 - F_{SEY}(.887) = 0$	$13.9(1.314) - 27.2(.117) - 1.3 - F_{SEY}(.887) = 0$
$15.9 - 2.8 - 1.3 - .887F_{SEY} = 0$	$17.3 - 3.0 - 1.3 - F_{SEY}(.887) = 0$	$18.3 - 3.2 - 1.3 - .887F_{SEY} = 0$
$F_{SEY} = 13.3$ lbf Max	$F_{SEY} = 14.7$ lbf Max	$F_{SEY} = 15.6$ lbf Max
$\therefore F_{SEY} = 10.1 - 13.3$ lbf	$F_{SEY} = 11.3 - 14.7$ lbf	$F_{SEY} = 12.9 - 15.6$ lbf
$F_{F_{min}} = .08(10.1) = 0.8$ lbf	$F_{F_{min}} = .08(11.3) = 0.9$ lbf	$F_{F_{min}} = .08(12.9) = 1.0$ lbf
$F_{F_{max}} = .08(13.3) = 1.1$ lbf	$F_{F_{max}} = .08(14.7) = 1.2$ lbf	$F_{F_{max}} = .08(15.6) = 1.2$ lbf
Min Condition		
$\Sigma M =$		
$0.8(1.042) + .466F_{SP1} + .047(10.1) - F_{TP}(.853) = 0$	$0.9(1.042) + .466F_{SP1} + .047(11.3) - F_{TP}(.853) = 0$	$1.0(1.042) + .466F_{SP1} + .047(12.9) - F_{TP}(.853) = 0$
$0.8 + 0.5 + .466F_{SP1} - .853F_{TP} = 0$	$0.9 + 0.5 + .466F_{SP1} - F_{TP}(.853) = 0$	$1.0 + 0.6 + .466F_{SP1} - F_{TP}(.853) = 0$
For $F_{TP} = 3.0$ lbf:		
$1.3 + .466F_{SP1} - 2.6 = 0$	$1.4 + .466F_{SP1} - 2.6 = 0$	$1.6 + .466F_{SP1} - 2.6 = 0$
$F_{SP1} = 2.8$ lbf	$F_{SP1} = 2.6$ lbf	$F_{SP1} = 2.1$ lbf
For $F_{TP} = 4.0$ lbf:		
$1.3 + .466F_{SP1} - 3.4 = 0$	$1.4 + .466F_{SP1} - 3.4 = 0$	$1.6 + .466F_{SP1} - 3.4 = 0$
$F_{SP1} = 4.5$ lbf	$F_{SP1} = 4.3$ lbf	$F_{SP1} = 3.9$ lbf

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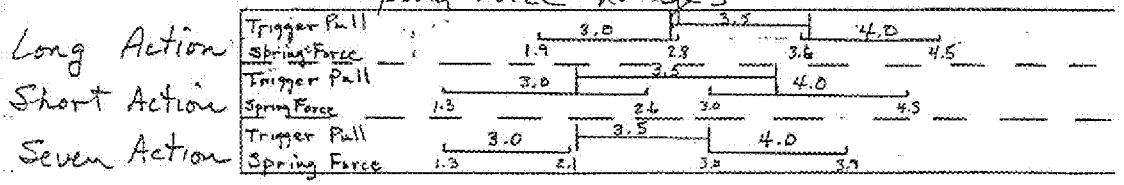
TRIGGER Assembly – PIN DESIGN

3-9-95

Long Action	Short Action	Seven
Max Condition		
$\Sigma M = 1.1(1.042) + .466F_{SP1} + .047(13.3) - .853F_{TP} = 0$	$1.2(1.042) + .466F_{SP1} + .047(14.7) - .853F_{TP} = 0$	$1.2(1.042) + .466F_{SP1} + .047(15.6) - .853F_{TP} = 0$
$= 1.1 + 0.6 + .466F_{SP1} - .853F_{TP}$	$1.3 + 0.7 + .466F_{SP1} - .853F_{TP} = 0$	$1.3 + 0.7 + .466F_{SP1} - .853F_{TP} = 0$
For $F_{TP} = 3.0$ lbf:		
$1.7 + .466F_{SP1} - 2.6 = 0$	$2.0 + .466F_{SP1} - 2.6 = 0$	$2.0 + .466F_{SP1} - 2.6 = 0$
$F_{SP1} = 1.9$ lbf	$F_{SP1} = 1.3$ lbf	$F_{SP1} = 1.3$ lbf
For $F_{TP} = 4.0$ lbf:		
$1.7 + .466F_{SP1} - 3.4 = 0$	$2.0 + .466F_{SP1} - 3.4 = 0$	$2.0 + .466F_{SP1} - 3.4 = 0$
$F_{SP1} = 3.6$ lbf	$F_{SP1} = 3.0$ lbf	$F_{SP1} = 3.0$ lbf

For Min/Max Firing Pin Spring Tolerances & 3 to 4 lbf Trigger Pull Requirements

Spring Force Ranges



SAAMI Min Trigger Pull is 3.0 lbf. To account for spring force degradation over the springs life, set Nominal Trigger pull @ 3.5 lbf and check trigger pull after dry cycle test for degradation below 3.0 lbf.

For the trigger assembly to work with all three actions, the nominal TP ranges would have to be coincident and the spring (F_{SP1})

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Trigger Assembly - Pin Design

3-9-95

force tolerance would need to be in this subset of the three ranges and the total tolerance of the spring force must not exceed this subset range and must observe SAAMI Lower limit of 3 lbf (trigger pull). To satisfy these requirements the spring Force (F_{SP1}) would have a range of 2.8 - 3.0 lbf with nominal @ 2.9 lbf with a tolerance of ± 3.5%.

Since this is unrealistic, 2 options exist. Either enlarge bullet pull spec. or replace (F_{SP1}) spring with a light return spring and add a spring for TP whether it be adjustable or not. Most likely you would want it to be adjustable so 3.5 lbf TP could be set for all actions.

@ 4.5 lbf TP for Model Seven Action @ Max F_{SEY} condition

$$\Sigma M = 2.0 \pm .466 F_{SP1} - 3.8 = 0$$

$$F_{SP1} = 3.9 \text{ lbf}$$

∴ therefore subset range coincident for all three Actions

is F_{SP1} : 2.8 - 3.5 lbf approx ± 11% 3.1 lbf nominal

F_{TP} : 3 - 4.5 lbf

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Long Action	Short Action	Seven Action
F_F = 0.8 – 1.1	F_F = 0.9 – 1.2	F_F = 1.0 – 1.2
F_{SEY} = 10.1 – 13.3	F_{SEY} = 11.3 – 14.7	F_{SEY} = 12.9 – 15.6
F_{SPI} = 2.8 – 3.5		
Min F_{SPI} > Min F_{SEY}		
$\Sigma M = 0$		
0.8 (1.042) + 10.1 (.047) + 2.8 (.466) = F_{TP} (.853)	0.9 (1.042) + 11.3 (.047) + 2.8 (.466) = F_{TP} (.853)	1.0 (1.042) + 12.9 (.047) + 2.8 (.466) = F_{TP} (.853)
0.8 + 0.5 + 1.3 = .853 F_{TP}	0.9 + 0.5 + 1.3 = .853 F_{TP}	1.0 + 0.6 + 1.3 = .853 F_{TP}
F_{TP} = 3.0 lbf	F_{TP} = 3.2 lbf	F_{TP} = 3.4 lbf
Max F_{SPI} > Min F_{SEY}		
0.8 + 0.5 + 1.6 = .853 F_{TP}	0.9 + 0.5 + 1.6 = .853 F_{TP}	1.0 + 0.6 + 1.6 = .853 F_{TP}
F_{TP} = 3.4 lbf	F_{TP} = 3.5 lbf	F_{TP} = 3.8 lbf
Min F_{SPI} > Max F_{SEY}		
1.1 (1.042) + 13.3 (.047) + 1.3 = .853 F_{TP}	1.2 (1.042) + 14.7 (.047) + 1.3 = .853 F_{TP}	1.2 (1.042) + 15.6 (.047) + 1.3 = .853 F_{TP}
1.1 + 0.6 + 1.3 = .853 F_{TP}	1.3 + 0.7 + 1.3 = .853 F_{TP}	1.3 + 0.7 + 1.3 = .853 F_{TP}
F_{TP} = 3.5 lbf	F_{TP} = 3.9 lbf	F_{TP} = 3.9 lbf
Max F_{SPI} > Max F_{SEY}		
1.1 + 0.6 + 1.6 = .853 F_{TP}	1.3 + 0.7 + 1.6 = .853 F_{TP}	
F_{TP} = 3.9 lbf	F_{TP} = 4.2 lbf	F_{TP} = 4.2 lbf
F_{TP} Range		
3.0 – 3.9 lbf	3.2 – 4.2 lbf	3.4 – 4.2 lbf
3.45 Nom	3.7 nom	3.8 nom

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Trigger Assembly – Pin Assembly

Possible ranges for long stroke although within 3.0-4.2 lbf TP, are at the lower limit of SAAMI's with no room for error. (including missing our guess on $F_{Friction}$).

At this point only way to keep 3.0 - 4.0 lbf TP is to incorporate an adjustable trigger spring on trigger front surface and use a light return spring on the pin.

ET56409

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ENGINEERING COMPUTATION SHEET

SHEET NO.

TITLE OF PROJ OR STUDY

PROJ OR STUDY NO.

SUBJECT

WORK

COMPUTER

DATE 3-6-95

Safety out	153
Safety in	150
Plunger	155
Back Spacer	140
Trigger	182
Sideplate	140
Plunger Adj	141
Moving Safety	142
Trigger Rivet	143
Adj Plunger #2	143

Engagement	Trigger Knob Lift
.020	0
.015	.0022
.010	.0045
.005	.0067
0	.0090

1.486, 1.062

.064 / .030 / .062

45° .025 Deep

Sear/trigger Area = .170 x .02

Bolt force @ w/firing 117#

ET56410

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USE STANDARDS FOR MINIMUM ESSENTIAL INSTALLATIONS

6-65 REV. 5-73 ENGINEERING COMPUTATION SHEET SHEET NO.

TITLE OF PROJ. OR STUDY PROJ. OR STUDY NO.

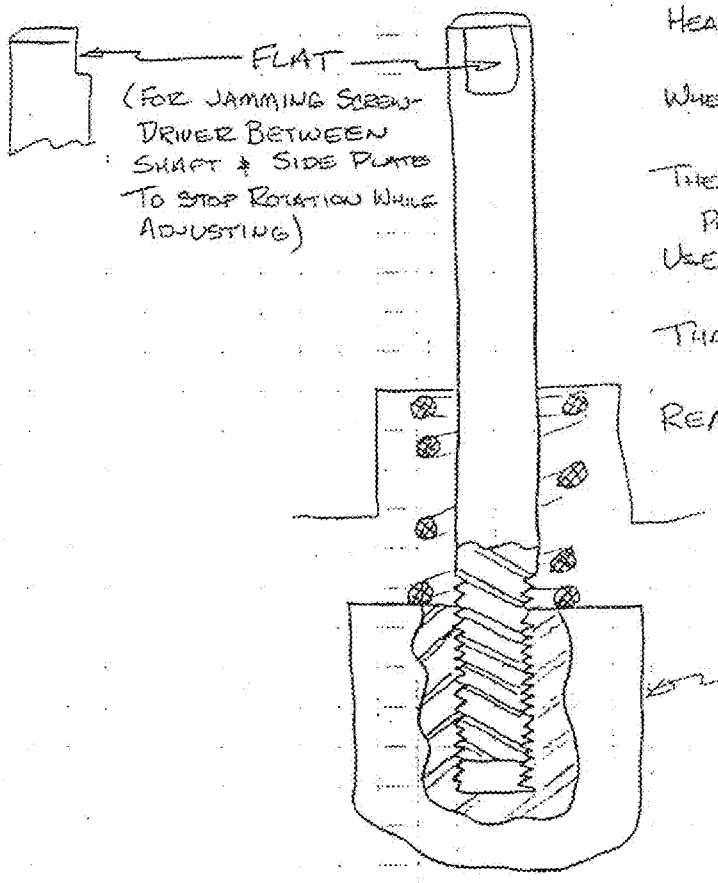
SUBJECT WORKS

COMPUTER DATE 3/8/95 19

DAVE,

HOW WOULD THIS WORK FOR YOUR DESIGN?

OVERALL LENGTH IS ADJUSTED BY THREAD - THE LARGE DIAMETER HEAD CAN BE TURNED EVEN WHEN FULLY ASSEMBLED IN THE TRIGGER ASSEMBLY, USE PERMANENT LOCTITE ON THREADS SO THAT THE USER CANNOT READJUST LATER,



J.R. 3/8/94

ET56411

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BARBER - 2.4.130000157

BARBER - 2.4.130000158

BARBER - 2.4.130000158

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REMINGTON ARMS CO. INC.
RESEARCH & DEV. DEPT.

ET56412

DO NOT SCALE THIS DRAWING. WORK TO FIGURES UNLESS OTHERWISE NOTED. TOLERANCES ON DECIMAL DIMENSIONS ARE ± .005 & ON FRACTIONAL DIMENSIONS ± 1/64 & ON ANGULAR DIMENSIONS ± 00°30'
FINISHES ARE DESIGNATED BY ROOT MEAN SQUARE (R.M.S.) MICRO-INCH ROUGHNESS VALUES AND ARE THE MAXIMUM ROUGHNESS ACCEPTABLE UNLESS OTHERWISE SPECIFIED. FINISH ROUGHNESS TO BE 125 OR BETTER.

RECOMMENDED MATERIAL & HEAT TREAT

MATERIAL Music wire
HEAT TREAT Stress Relieve
HARDNESS
COLOR
HEAT TREAT AND COLOR TO BE DONE BY REMINGTON

NOTE: (9) END COIL OUTSIDE DIAMETER NOT TO EXCEED O.D. OF SPRING

(8) (3) (2) (7) Both Ends open ends ground

INSPECTION

1. To Work freely in .117 dia. hole
2. To work freely on .060 dia. pin
3. *Load 50 # to 6.7 lb. at .177 length (~~with coil removed~~) (1)
4. Solid Height 1.150 max.
5. Free Length 1.200 min.
6. Ends (8) CLOSED ENDS GROUND
7. Wind L H
8. Remove set (Yes (No (~~except for inspection~~)

* Approximate length limits to nearest 64th inch at constant load in lbs. and nearest 1/10 oz. Load ____ lbs. ____ ozs. at ____ to ____ in. length

MANUFACTURE

9. Wire dia. .027
10. Outside dia. 1.118
11. Free Length 1.203
12. Coils 5 Active 5 1/2 Total

DESIGN DATA

13. Rate 1.225 lb./in.
14. Solid Stress 202,000 lb/sq.in.
15. Solid Load 11.9 lb.
16. Spring Index 3.2
17. Torsional Mod. G= 11.5x10⁶ lb/sq.in.
18. ~~Concentric Coef.~~ WAHL FACTOR 1.53

This Spring must meet the requirements in the "Inspection" section. Figures given in the "Manufacture" section indicate the preferred Spring, but the Manufacturer may deviate from these at his own discretion. Figures in the "Design Data" section are based on those in the "Manufacture" section.

A-1504

THIS DRAWING OR INFORMATION IS PROPRIETARY INFORMATION TO THE REMINGTON ARMS COMPANY, INC.

THIS DRAWING OR INFORMATION IS PROPRIETARY INFORMATION TO THE REMINGTON ARMS COMPANY, INC.

		11030			
		11000			
		22.9			
		2005			
		2110			
		2459			
		2120			
		4485			
		4382			

NUMBER A-17047

REMINGTON ARMS CO. INC.
RESEARCH & DEV. DEPT.

SCALE 2/1 | SUPERSEDED-REFERENCE SKA-1950

TITLE SPRING, HELICAL COMP.

DES. BY DATE	DRN. BY DATE	CHK. BY DATE	APP. BY DATE
	JWR 6/19/69		

FOR DETAILS, SEE PROCESS RECORD

MODEL	PART USE	QUAN.	SEE
700	SEAR SPRING		
788	SEAR SPRING		
XMKE	SEAR SPRING		
600	SEAR SPRING		
XMKB-IFR	SEAR SPRING FOR TOGGLE		
(22) MOHAWK 600	SEAR SPRING		
7LWT	" " "		(23)
SP-10	MAGAZINE FOLLOWER		
(24) MAG.	PLUNGER SPRING		

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RECOMMENDED MATL & HEAT TREAT
Material .....
Heat Treat .....
Approval (By Date) .....

(21)

INSPECTION

1. To work freely in .160 dia. hole
2. To work freely on ——— dia. pin
3. (25) Load 5.5 to 7.0 lb. at 3.20 length (with set removed)
4. Solid Height .303 max. 7. Wind R H
5. Free Length .460 min. 8. Remove set Yes
6. Ends SQ & GE (No except for inspection)

MANUFACTURE

9. Wire dia. .026
10. O.D. .312

DESIGN DATA

13. Rate 5.0 lb./in.
14. Solid Stress 124,600 lb./sq. in.
15. Solid Load 7.48 lbs.
16. Free Load 5.0 lbs.
17. Torsional Rate 1.0 lb. in./deg.
18. Concentric Corr. .250

This Spring must meet the requirements in the "Inspection" section. Figures given in the "Manufacture" section indicate the preferred Spring and the Manufacturer may deviate from these at his own discretion. Figures in the "Design Data" section are based on those in the "Manufacture" section.

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ET56413

ALT.	WAS	REFERENCE	BY	DATE
(21) 25	6.0 TO 6.8	12096	JWR	8-16-91
(24) 24	ADD USE	12316	TGB	10-12-88
(23) 23	ADD USE 7LWT	11667	DLC	12/1/82
22	ADD MOHAWK USE 600	8445	RCL	9-11-76
21	.153		JK	1/9/70
20	REVISED REDRAWN	8179	JK	8-31-69

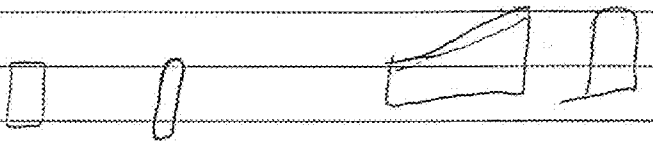
TFA-3 REV. 2 ALTERATIONS

22 24 23

BARBER - 2.4.13000159

BARBER - 2.4.13000159

L	D	
.0225	.050	
.1505	.095	.364 Max Y
.10	20°	



Pin Design

Tolerance Buildup

Trig:	± .0030	surface
	± .0010	Pivot hole & Pin Dia
Location:	± .0020	Sideplate hole location
~~Safety~~	± .0005	Sideplate hole dia
Safety:	± .002	Pivot hole & Pin Dia
	± .003	Surface
	± .0115	

Nom .00

± .003

± .006

± .009

ET56414

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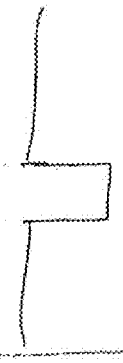
	Safety Rotation	
Full safe	27.92°	3-15-95
Release Eng.	23.42°	
click Pt	16.75°	
.020 Feelle Engagement	14.0°	



$1.19\ F_{Thumb} = .147\ F_{block}$

$F_{block} = 8.095\ F_{Thumb}$

Pin Block

$S_{ult} = 500$ BHN Rc 50 approx converts to 475

$S_{ult} = 500\ (475) = 237{,}500$; $FS = 2$

$\sigma = \frac{S_{ult}}{FS} = 118{,}750$ psi $M_{max} = \frac{Mc}{I} = \frac{.013\ F_{block}\ (.093)}{\frac{1}{64}\pi (.093)^4}$

D = .026

$\tau_{max} = \frac{4}{3}\frac{F_{block}}{\pi r^2}$

.050 cyl 9 lb = $F_{Thumb\ max}$

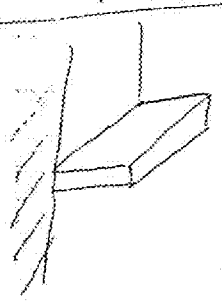
.075 cyl 30.34 lbf = $F_{Thumb\ max}$

$118750 = \frac{7534}{4.594}\ F_{block}$

$15\frac{3}{4}$ lbf = F_{block} Cylinder

$F_{Thumb} = \frac{1.95\ lbf}{1\frac{1}{4}\ lbf}$ max .013 cyl by max .020 cyl by

ET56415



$I = \frac{1}{12}(.165)\ .025^3 = 2 \times 10^{-7}$ in⁴

$118750 = \frac{.020\ (.013)\ F_{block}}{2 \times 10^{-7}} = 1210\ F_{block}$

$F_{block} = 98.1$ lbf

$F_{Thumb} = 12.1$ lbf

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MJK
JRS

1st Trial Assembly
PIN Design
(Soft Parts)

3-17-95

TA	Pin Length	Preplay	Trig Pull N=5
#3	.768 pin	~~No Preplay~~	~~3#~~
#4	.770	None	3 1/8 # consistent
#2	.768	~~Small Preplay No Sear Spring~~	3.

#2	#3
3	3 1/4
2 7/8	2 3/4
3	3 1/4
3	3 1/4
2 7/8	3 3/4
	3 1/4
	3 1/4

Clinto

~~Remove Bushing #2~~

~~Cut Top of Safety Lever Tab off~~

Roll pins

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PAGE BREAK

Spiro Tsacopoulos

ET56417

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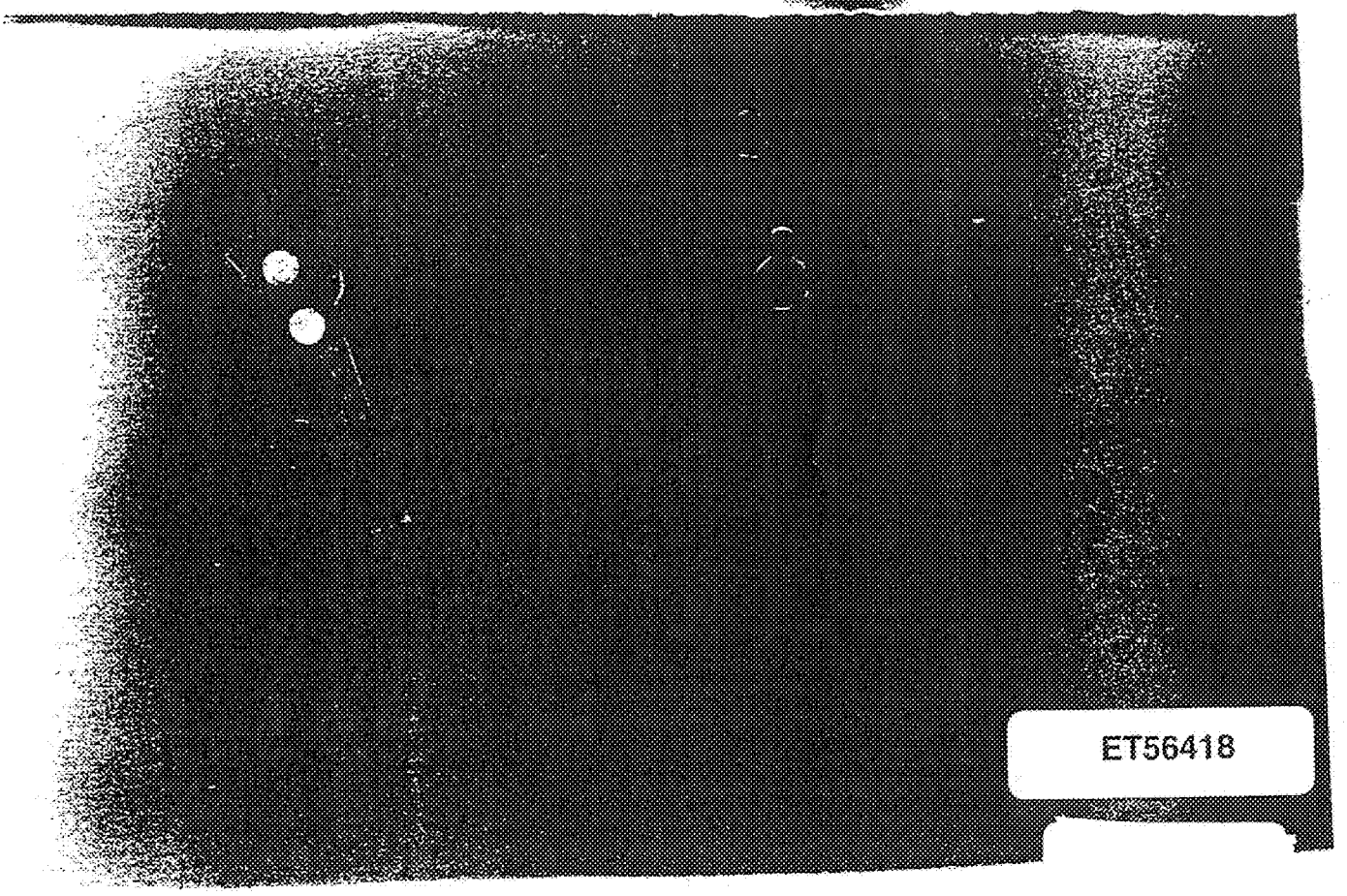
[illegible]	C					lowalloy			07-15-94		10:09:16
C	0.50	S	.012	Mn	0.55	Mo	0.00	Cr*1	0.06	Ni*1	0.07
P	.020	Si*1	0.47	Pb	.0030	V *1	.006	Cu*1	.046	Co	.020
Al	.040	Ti	.001	Fe	.2260						

[illegible]	C					lowalloy			07-15-94		10:10:23
C	0.46	S	.011	Mn	0.56	Mo	0.00	Cr*1	0.06	Ni*1	0.08
P	.022	Si*1	0.45	Pb	.0001	V *1	.006	Cu*1	.045	Co	.029
Al	.037	Ti	.001	Fe	.2371						

150



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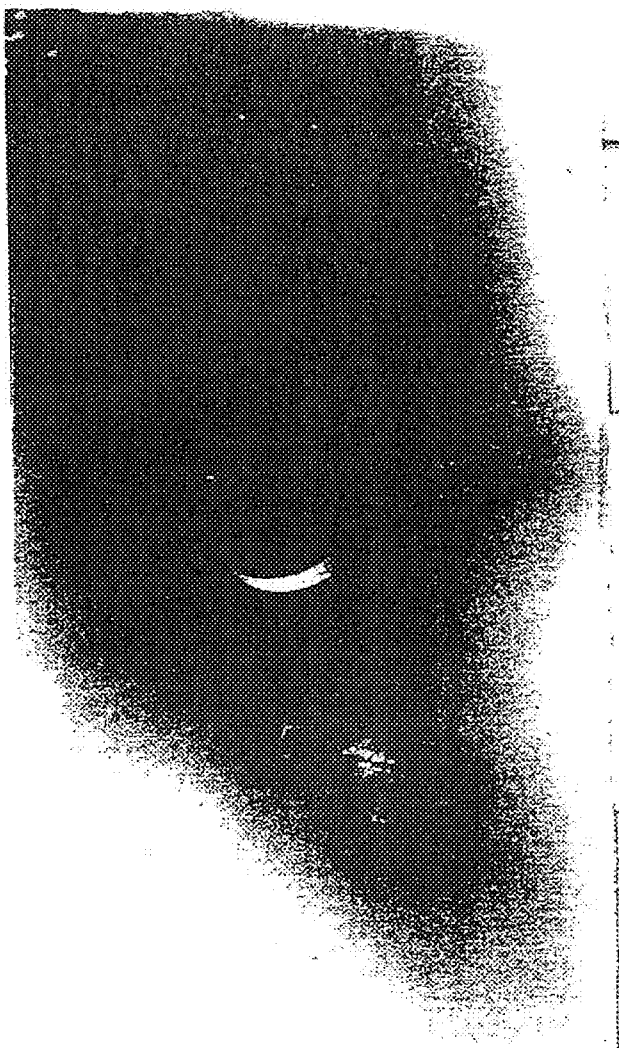

TRIGGER - 15N 90 91
EC-60-61

JIG-94
P.T.(MA

← 15N-90
EC-58-59

LARGER PART
NOT HEAT TREATED
EB-90

ET56419

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TRIGGER - 15N 90 91 2N 94
RC-60-61 P.S. Mfg.

← 15N-90
RC-58-59

LARGER PART
NOT HEAT TREATED
RB-90

ET56420

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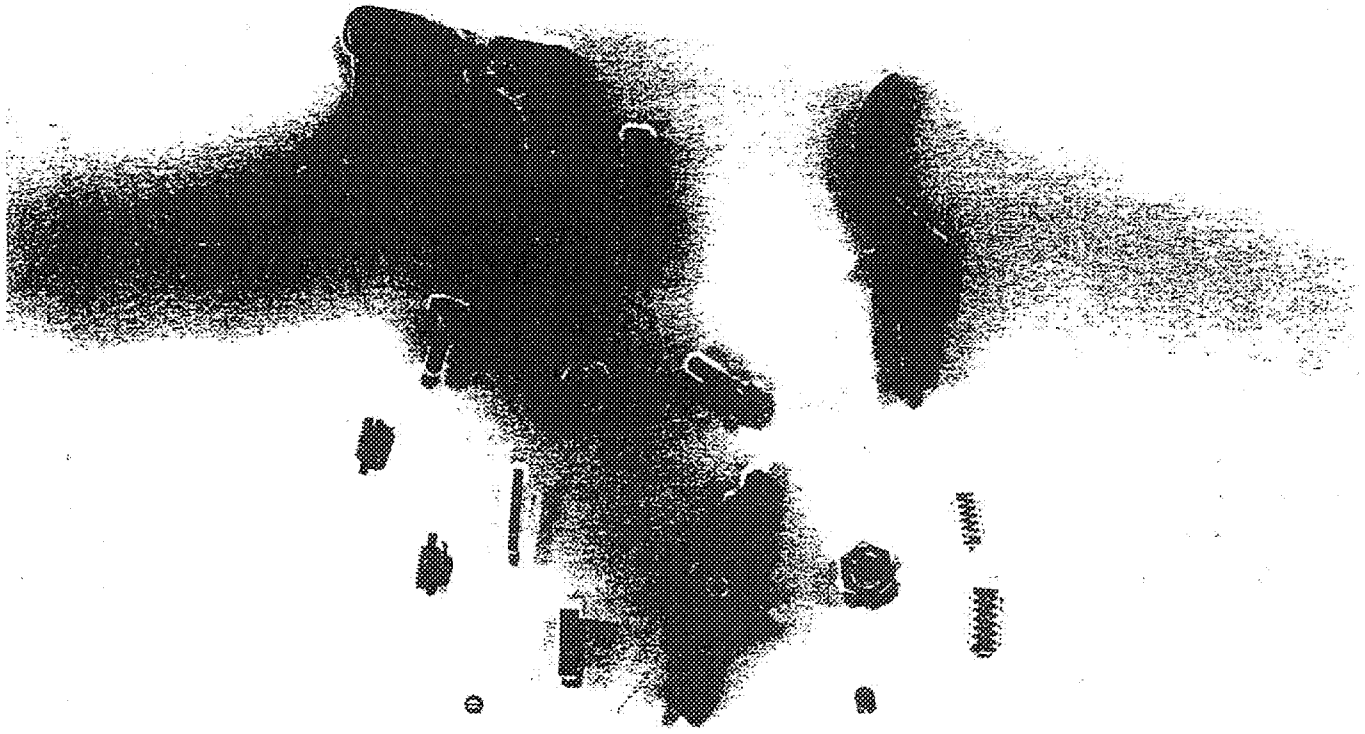

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Test Request No. 933193

RESEARCH TEST & MEASUREMENT LAB WORK REQUEST

Purpose for Testing:

X Developmental	__ Design Change Eval.	__ Ammunition Evaluation
__ Design Acceptance	__ Plant Assistance	__ Cost Reduction
__ Trial & Pilot	__ Marketing Request	__ Litigation Support
__ Safety Issue	__ Quality Evaluation	__ Other

Types of Testing Requested:

__ Intentional Abuse	__ Endurance Testing	__ Photography/Video
__ Function Test	__ Dry Cycle Testing	__ High Speed Photography
__ Accuracy Test	__ Ammunition Testing	X Other (specify)
__ Measurements	__ Environmental Testing	DROP TEST

Type Report Desired:
__ Formal Written
__ Informal Written
X Results only

Date Requested: 11 / 15 / 93 (dd / mm / yy)
Date Needed: 11 / 20 / 93 (dd / mm / yy)

Work Order No. to be Charged for This Testing: _____

Name of Requester: D. FULTON
Extension where you can reached: _____
Pager Number: _____

Firearm Descriptions:

Model(s): SAKO	Model(s):	Model(s):
Gage/Cal:	Gage/Cal:	Gage/Cal:
Barrel Type:	Barrel Type:	Barrel Type:
RAMAC #:	RAMAC #:	RAMAC #:
No.of samples:	No.of samples:	No.of samples:

Explain in DETAIL the reason(s) for conducting this test.
- what are we trying to learn?
- what will be the criteria used to judge the results?
- use back of sheet if more room is needed .

DROP TEST ALL ALTERED SAKO FIREARMS ON SAAMI DUMMY RIFLE

- 4' SAFETY OFF BOLT UP
- 8' SAFETY ON BOLT UP
- 8' SAFETY OFF BOLT UP

TL-FORM # -001 TIKKA See DSF

Note: No firearms or parts will be tested in the Lab unless accompanied by a Work Request that is completely filled out along with the guns or parts that are to be tested. NO EXCEPTIONS

Date completed: ___/___/___
Completed By: _____
Report Completed: ___/___/___

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SAAMI DROP TEST

TEST TITLE _____

REPORT # 933193 W.O.# _____ DATE 11/16/93

MODEL SAKO A II SERIAL# 382057 TRIGGER PULL (LBS.) _____

COMMENTS _____

BRANCED TRIGGER W/ PLUS FIRECONTROL

WEDGED TIGHT TO RECEIVER AT BACK END

SAAMI SPEC: JAR OFF TEST IS 12 INCH DROP, WITH SAFE IN "OFF" POSITION, MEASURED FROM THE LOWEST POINT OF GUN.
ONE DROP IN EACH OF THE FOLLOWING POSITIONS AGAINST A 1 INCH, 85 +/- 5 DUROMETER "SHORE A" RUBBER MAT BACKED BY CONCRETE.

~~48~~ INCH DROP (SAFE OFF)

BARREL VERTICAL, MUZZLE UP	_____
BARREL VERTICAL, MUZZLE DOWN	_____
BARREL HORIZONTAL, BOTTOM DOWN	_____
BARREL HORIZONTAL, BOTTOM UP	OK, ok, ok
BARREL HORIZONTAL, LEFT SIDE UP	_____
BARREL HORIZONTAL, RIGHT SIDE UP	

~~48~~ 96 INCH DROP (SAFE ON)

NOTE: DROP IS 48 INCHES FROM THE CENTER OF GRAVITY OF THE FIREARM

BARREL VERTICAL, MUZZLE UP	SAFE ON _____	SAFE OFF
BARREL VERTICAL, MUZZLE DOWN	_____	
BARREL HORIZONTAL, BOTTOM DOWN	_____	
BARREL HORIZONTAL, BOTTOM UP	OK	OK, ok, ok
BARREL HORIZONTAL, LEFT SIDE UP	_____	
BARREL HORIZONTAL, RIGHT SIDE UP		

"ROTATION TEST"
BUTT ON MAT, LET FIREARM FALL TO LEFT AND RIGHT

LEFT SIDE UP	_____
RIGHT SIDE UP	_____

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SAAMI DROP TEST

TEST TITLE Drop Test

REPORT # _____ W.O.# _____ DATE 11-11-93

MODEL SAKO SERIAL# 382057 TRIGGER PULL (LBS.) 4.9

COMMENTS BALANCED TRIGGER

SAAMI SPEC: JAR OFF TEST IS 12 INCH DROP, WITH SAFE IN "OFF" POSITION, MEASURED FROM THE LOWEST POINT OF GUN.
ONE DROP IN EACH OF THE FOLLOWING POSITIONS AGAINST A 1 INCH, 65 +/- 5 DUROMETER "SHORE A" RUBBER MAT BACKED BY CONCRETE.

12 INCH DROP (SAFE OFF)

BARREL VERTICAL, MUZZLE UP	ok
BARREL VERTICAL, MUZZLE DOWN	ok
BARREL HORIZONTAL, BOTTOM DOWN	ok
BARREL HORIZONTAL, BOTTOM UP	OK.
BARREL HORIZONTAL, LEFT SIDE UP	ok
BARREL HORIZONTAL, RIGHT SIDE UP	ok

48 INCH DROP (SAFE ON)

NOTE: DROP IS 48 INCHES FROM THE CENTER OF GRAVITY OF THE FIREARM

BARREL VERTICAL, MUZZLE UP	____
BARREL VERTICAL, MUZZLE DOWN	____
BARREL HORIZONTAL, BOTTOM DOWN	② ok Stock Broke
BARREL HORIZONTAL, BOTTOM UP	① ok
BARREL HORIZONTAL, LEFT SIDE UP	____
BARREL HORIZONTAL, RIGHT SIDE UP	

"ROTATION TEST"
BUTT ON MAT, LET FIREARM FALL TO LEFT AND RIGHT

LEFT SIDE UP ____

RIGHT SIDE UP ____

SAFETY OFF 48" BOTTOM UP ok X X

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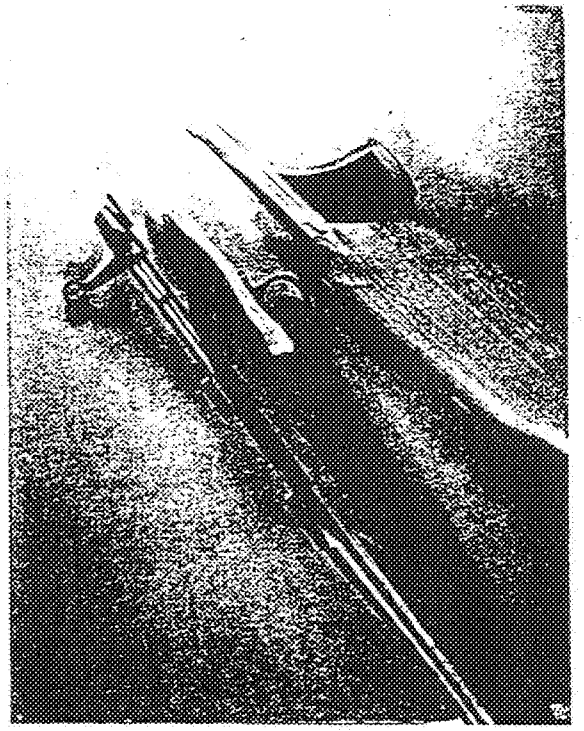

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SAAMI DROP TEST

TEST TITLE _____

REPORT # _____ W.O.# _____ DATE 10-20-93

MODEL A II - SAKO SERIAL# 382057 TRIGGER PULL (LBS.) 3.6 LBS

COMMENTS _____

SAAMI SPEC: JAR OFF TEST IS 12 INCH DROP, WITH SAFE IN "OFF" POSITION, MEASURED FROM THE LOWEST POINT OF GUN.
ONE DROP IN EACH OF THE FOLLOWING POSITIONS AGAINST A 1 INCH, 85 +/- 5 DUROMETER "SHORE A" RUBBER MAT BACKED BY CONCRETE.

12 INCH DROP (SAFE OFF)

BARREL VERTICAL, MUZZLE UP	OK
BARREL VERTICAL, MUZZLE DOWN	OK
BARREL HORIZONTAL, BOTTOM DOWN	OK
BARREL HORIZONTAL, BOTTOM UP	- FIRED. .021 INDENT
BARREL HORIZONTAL, LEFT SIDE UP	OK.
BARREL HORIZONTAL, RIGHT SIDE UP	OK

48 INCH DROP (SAFE ON)

NOTE: DROP IS 48 INCHES FROM THE CENTER OF GRAVITY OF THE FIREARM

BARREL VERTICAL, MUZZLE UP	
BARREL VERTICAL, MUZZLE DOWN	
BARREL HORIZONTAL, BOTTOM DOWN	
BARREL HORIZONTAL, BOTTOM UP	
BARREL HORIZONTAL, LEFT SIDE UP	
BARREL HORIZONTAL, RIGHT SIDE UP	

"ROTATION TEST"
BUTT ON MAT, LET FIREARM FALL TO LEFT AND RIGHT

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LEFT SIDE UP

RIGHT SIDE UP

ET56427

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M/700 SUPREME
BOLT LOCK

1/94

ET56428

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to Protective Order
Williams v. Remmington

Sorry
Latest Rent
For your
File
DSK

ET56429

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to Protective Order

Scotty
Latest Rev
For your
File
DSK

cc: L.W. Baum
R. Jackson
S. Franz
G. Barnes
D. Shumway

Feb. 14, 1994

To: D. Findlay
From: J. Butera

Subject: M/700 Bolt Lock - E-EXP2606
Std. Plant Mfg. Cost (Quote #0062)

Per your request, tooling, development and standard cost for manufacturing the subject part by MIM process from a 2% nickel steel alloy has been estimated and given below.

- Est. Tooling Cost:
  - Mold operation - (1) cavity mold $22,000
  - Mold operation - (2) cavity mold $37,000
  - Coin operation - $3,000
- Development Cost: - $5,500
- Est. mfg. cost/unit:

Annual production reqts.	Std. Variable Cost/Pc
5,000 Pcs. (1 cav.)	$1.18
5,000 Pcs. (2 cav.)	$1.01
10,000 Pcs. (1 cav.)	$1.12
10,000 Pcs. (2 cav.)	$0.96
20,000 pcs. (1 cav.)	$1.07
20,000 pcs. (2 cav.)	$0.92

- Exceptions:
  - Remington Arms to : Heat treat, straighten after heat treat, and nitre black.
  - Machine support pillar if needed for processing purposes.

ET56430

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Williams v. Remmington

xc: L.W. Baum
R. Jackson
S. Franz
G. Barnes
D. Shumway

Feb. 14, 1994

To: D. Findlay
From: J. Butera

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20,000 pcs. (1 cav.)	$1.07
20,000 pcs. (2 cav.)	$0.92

- Exceptions:
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  - Machine support pillar if needed for processing purposes.

ET56431

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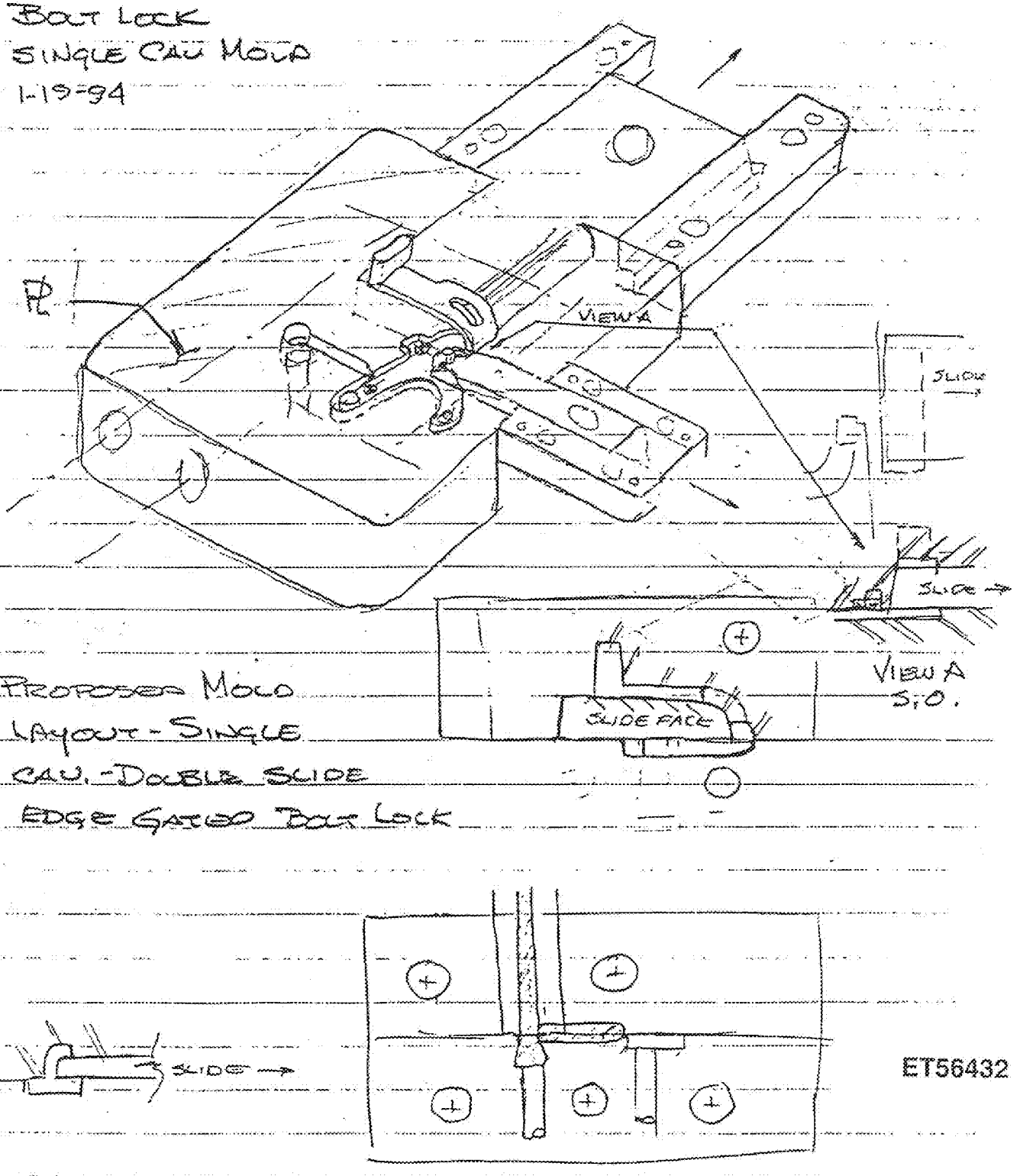
REMINGTON ARMS
P/N E-EXP2606
BOLT LOCK
SINGLE CAV MOLD
1-19-94



PROPOSED MOLD
LAYOUT - SINGLE
CAV. - DOUBLE SLIDE
EDGE GATED BOLT LOCK

ET56432

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to Protective Order
Williams v. Remington

TRT
Three Rivers Tool, Co.

QUOTATION

P.O. Box 22
428 Chestnut Street
Phoenix, New York 13135
(315) 695-7221

Mr. Bill Rathbun
Remington Arms Co. Inc.
MIM Division
14 Hoefler Avenue
Ilion, New York 13357

DATE: January 19, 1994

QUOTATION NO.: 94-018

DATE OF INQUIRY: 1-18-94

INQUIRY NO. Letter

In reply to your inquiry, we are pleased to quote you, subject to the terms and conditions stated, as follows:

Design and Build one (1) Single-Cavity Mold to produce Remington Arms "Bolt Lock" per Drawing #E-EXP2606 as follows:

ESTIMATED COST.....$19,400.00
DELIVERY.....12 weeks A.R.O. @ TRT

Mold Type: DME 2-Plate, number 2 base with S-7 hardened core/cavity and slides, standard ejection, and tunnel-gated.

Note: Tool Concept Sketch enclosed.

ET56433

DELIVERY: 12 weeks A.R.O. @ TRT F.O.B.: Phoenix, New York 13135

TERMS: 1/3 with P.O., 1/3 upon completion, 1/3 upon approval, or (30) days.

This Quotation is made subject to the terms and conditions of sale appearing on the face and reverse sides of this page.

This Quotation is valid for 30 days from the date hereof, and subject to change without notice at the expiration of the 30 day period, unless otherwise stated in writing by Three Rivers Tool Co.

Thank you for your inquiry,
Three Rivers Tool Co.

John M Rathbun

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1/21/94

Bolt Lock P/N E-EXP 2606

Need all Mat. Prop. : ~~F~~ FE-2% NI ?

Tensile, YLD, μ,

2:00 P.M. 1/24/94

Concerns: → Hole .128 ϕ thin, knit Line

Concerned about Dim. control on area.

Ht. Treat

Nitre Black - effect on Heat Treatment

carburize & slow cool to get Hardness

what effect would the nitre Black temp. Have.

We would quote

Hang parts for Heat Treatment

→ Hott Sprue

75% probability of success

Coining • possibly 2 sep. coins

" 1 coin after Ht. Treat

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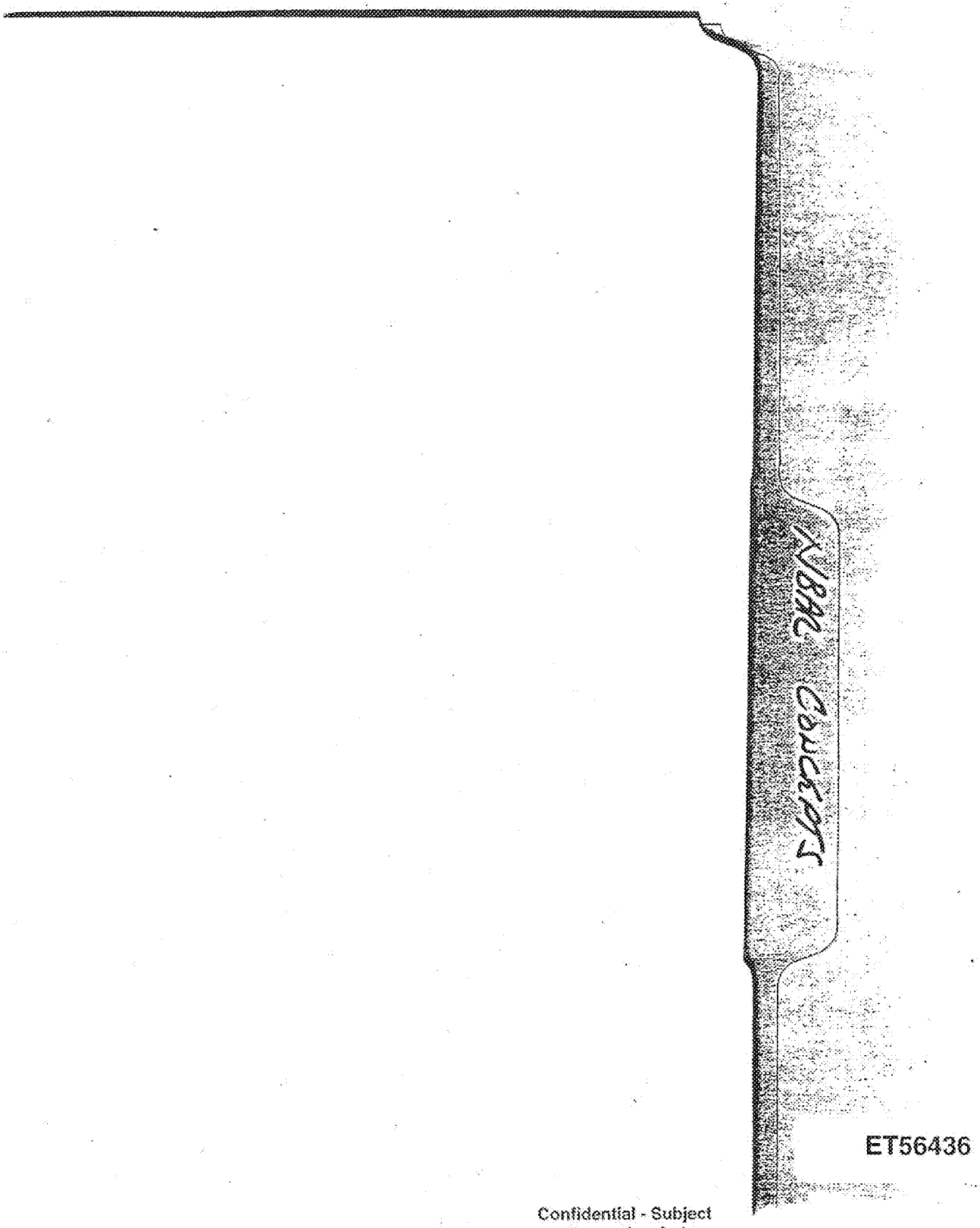

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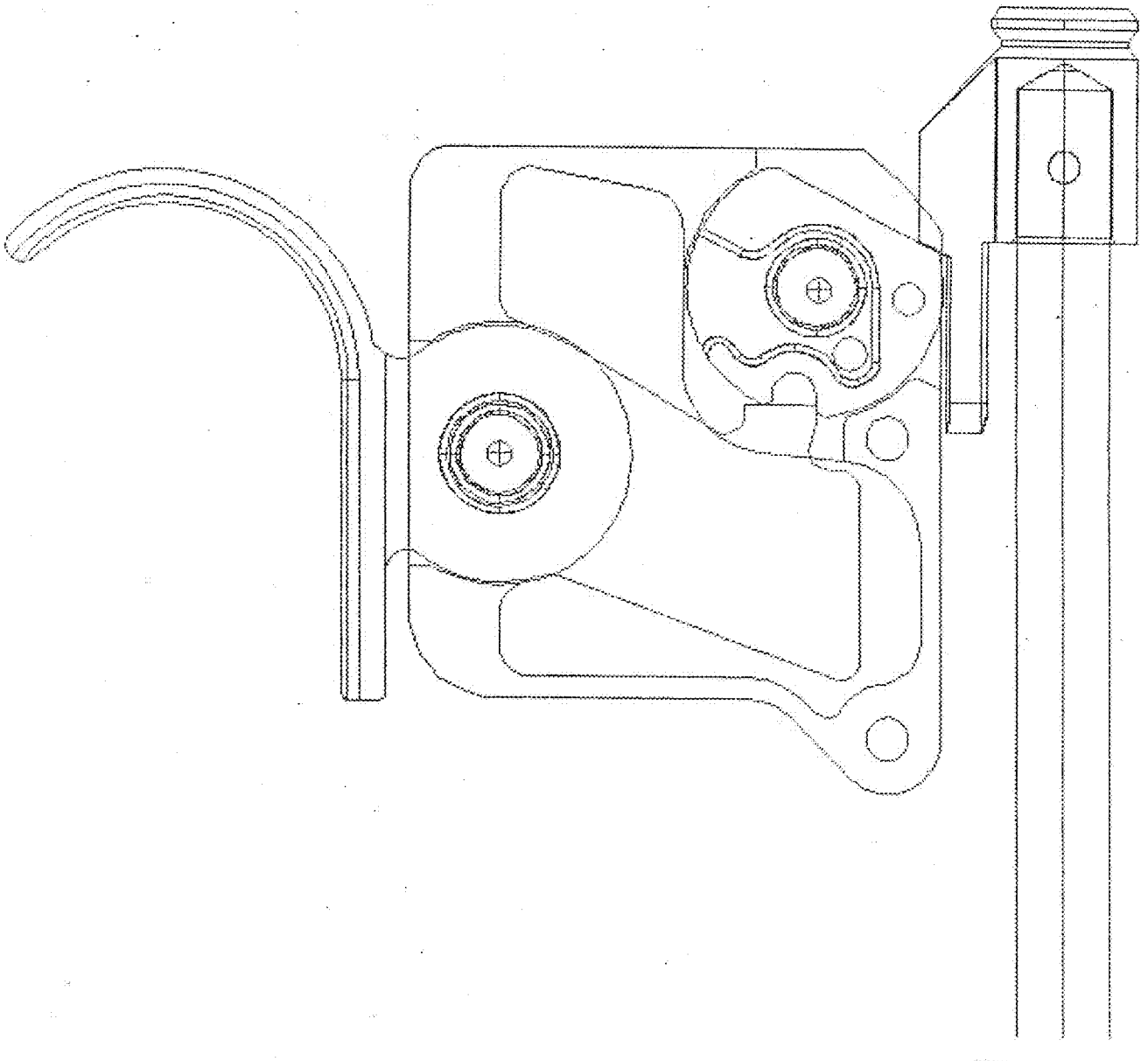
Williams v. Remmington



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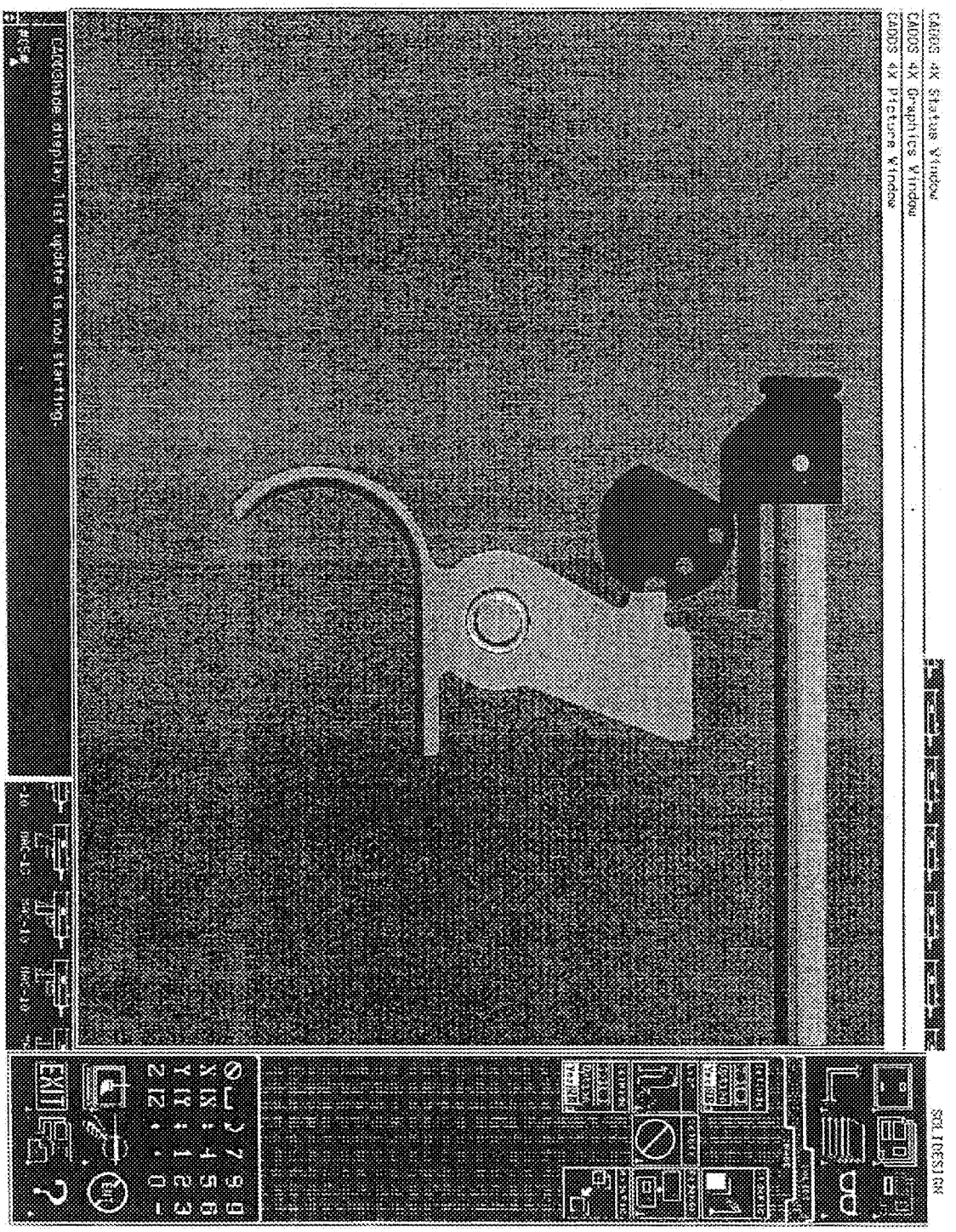

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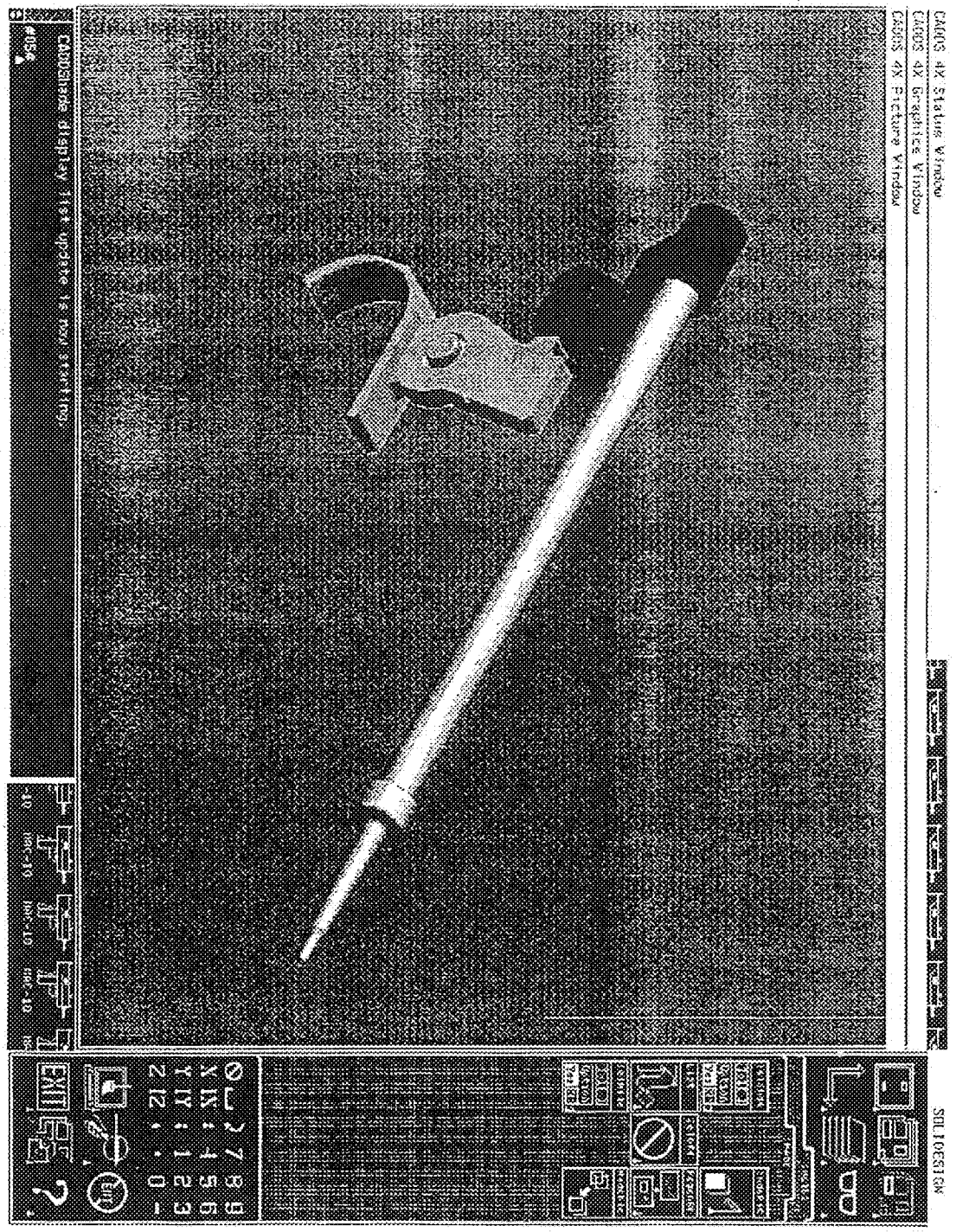

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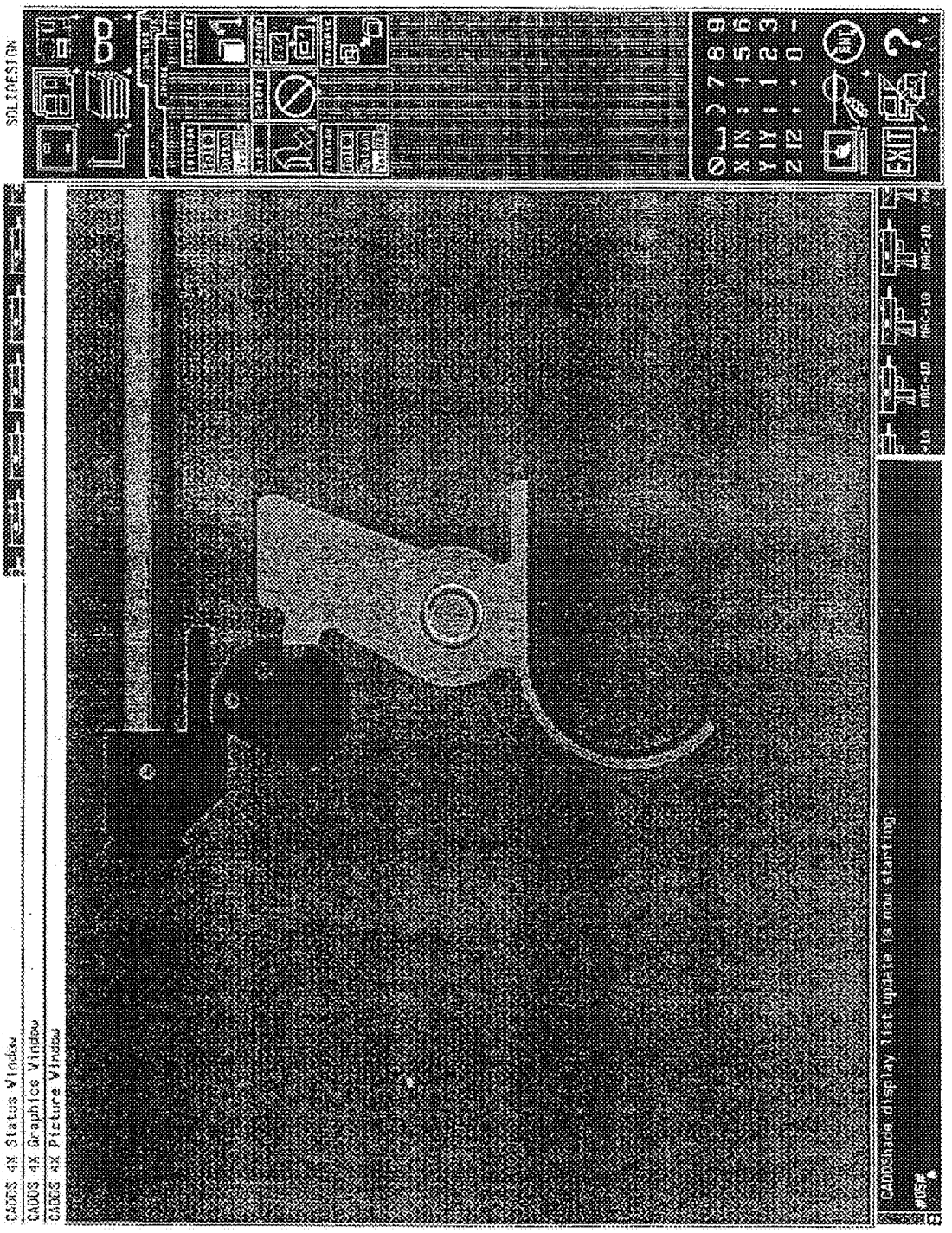
Williams v. Remmington



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CENTER FIRE RIFLES - 1994

RIFLE MODEL	LOCATION AND TYPE OF SAFETY	BOLT LOCK	TRIGGER BLOCK	SEAR BLOCK	STRIKER BLOCK	TRIGGER PULL ADJ.	OVER TRAVEL ADJ.	ENGAGE ADJ.
WINCHESTER M/70	ROTARY WING RH SIDE 3 POSITION	YES			YES	YES	NO	NO
RUGER M/77 MARKII	ROTARY WING RH SIDE 3 POSITION	YES	YES		YES	NO	NO	NO
REMINGTON M/700	SWING RH SIDE 2 POSITION	NO		YES		YES	YES	YES
BROWNING A-BOLT II	SLIDING CENTER TANG 2 POSITION	YES		YES		YES	NO	NO
SAVAGE M/110	SLIDING CENTER TANG 3 POSITION	YES	YES			YES	YES	YES
SAKO	SWING RH SIDE 2 POSITION	NO	YES			YES	YES	NO
WEATHERBY MK5	ROTATING RH SIDE 2 POSITION	YES			YES	YES	NO	YES
WEATHERBY VANGARD	SWING RH SIDE 2 POSITION	YES	YES			YES	NO	YES

RES.DSF,CF-RIFLE-SURVEY

ET56441

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Williams v. Remington
BARBER - 2.4.130000194

BARBER - 2.4.130000194

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GENERAL AREAS OF COST REDUCTION
FROM MOST REDUCTION OF COST TO LEAST EFFECT

1. USE A SYNTHETIC STOCK MOLDED IN HOUSE (APPROX. 3-5$) WITH NEW OUTSIDE CONTOUR TO MAKE THE GUN LOOK DIFFERENT WITH NO GRIP CAP AND NO RECOIL PAD (LIKE M/522 STOCK)

2. LOOK AT THE ENTIRE M/700 MANUFACTURING LINE WITH THE IDEA OF REPROCESSING IT TO REDUCE FACTORY COST.
   - CNC STAND ALONE MACHINE CENTERS
   - CHANGES TO GFM FORMING
   - ECM RIFLING/BUTTON RIFLED AT THE VERY END OF THE PROCESS

3. RE-DESIGN OF THE BOLT HANDLE AS A STAMPING/FORGING TO REDUCE ITS COMPONENT PRICE.

4. USE SYNTHETIC PLASTIC FOR THE FOLLOWING COMPONENTS

   1. MAGAZINE FOLLOWER
   2. TRIGGER GUARD (NEW CONTOUR-DIFFERENT THAN ADL) OR TRIGGER GUARD/FLOOR PLATE COMBINED INTO ONE COMPONENT
   3. MAG. BOX BODY

5. RECEIVER CUTS/DESIGN CHANGED TO REDUCE OPERATIONS AND CHANGE COSMETICS

   1. "ONE CUT" PORT CUT
   2. "FULL ROUND" RECEIVER

6. REDUCED SHIPPING CARTON AND PACKING REQUIREMENTS

7. RE-DESIGN THE HOUSING ASSEMBLY FOR THE M/700 AS A MIM COMPONENT WITH A STAMPED COVER PLATE. THIS MIM COMPONENT WOULD COMBINE THE ONE SIDE PIECE (STAMPING) THE TWO SPACERS AND ELIMINATE THE 4 RIVETS.

8. RECOIL LUG ELIMINATED BY HAVING THE STOCK PERFORM THAT FUNCTION (STOCK COMES UP INTO THE RECEIVER (2 PLACES?) RATHER THAN THE LUG COMING DOWN INTO A CAVITY IN THE STOCK

9. ONE PIECE BOLT
   COMBINE THE BOLT BODY AND BOLT HEAD INTO ONE COMPONENT

10. BOLT PLUG RE-CONTOURED AND DESIGNED AS A SIMPLER SCREW MACHINE COMPONENT

ET56442

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Sept 19, 1994

BOLT ACTION RIFLE MEETING

I. WHERE ARE WE NOW? HOW DOES THE M/700 STACK UP TO THE COMPETITION? WHAT IS OUR CURRENT MARKETING APPROACH?

- PRICE

- CUSTOMER CONCERNS/FEATURES

DOES THE RIFLE FEEL GOOD?
- STYLING
- STOCK FIT
- LEFT HAND VERSION
- FIT AND FINISHES
- RECOIL FEEL (MUZZLE BRAKE)

DOES THE RIFLE COME IN THE CALIBER I WANT?

DOES THE RIFLE FIRE WHEN I PULL THE TRIGGER?
- FEEDING RELIABILITY
- DETACHABLE MAGAZINE BOX FLOOR PLATE/BLIND MAGAZINE
- BOLT LOCK
- EXTRACTOR DESIGN

CAN I HIT WHAT I AM AIMING AT?
- ACCURACY
- LOCK-TIME
- FIRECONTROL FIRING "FEEL"
- FIRECONTROL ADJUSTMENTS
- SCOPE MOUNTING PROVISIONS

CAN I OPERATE THE RIFLE EASILY AND IS IT SMOOTH?
- DEGREES OF BOLT ROTATION
- BOLT LIFT FORCE
- "NO DRAG" FOLLOWER

IS THE RIFLE EASY TO MAINTAIN?
- EASY DISASSEMBLY OF THE BOLT
- SYNTHETIC STOCK VERSION
- STAINLESS STEEL VERSION
- CORROSION RESISTANCE

IS THE RIFLE SAFE?
- COCKING INDICATOR
- REPUTATION (PRODUCT LIABILITY)

II. WHERE DO WE WANT TO BE?
WHAT IS OUR MARKETING APPROACH (LOW END/HIGH END)?

III. WHAT ARE OUR OVERALL RIFLE OBJECTIVES?
WHAT ARE OUR FIRECONTROL OBJECTIVES?

ET56443

IV. HOW DO WE ACHIEVE OUR OBJECTIVES?

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NBAR FIRE CONTROL DESIGN OBJECTIVES

- NON INTERCHANGABLE WITH M/700
- USER "FRIENDLY" DESIGN
- IMPROVED "TACTILE FEEL" OF THE TRIGGER
- IMPROVED "TACTILE FEEL" OF THE SAFETY (TWO POSITION)
- CUSTOMER ABLE TO OPEN AND CLOSE BOLT WITH SAFETY "ON"
- BOLT LOCKED DOWN IN A "S" CONDITION
- CUSTOMER ADJUSTABLE TRIGGER PULL FORCE ONLY WITHIN PRESCRIBED LIMITS
- BOLT STOP RELEASE RELOCATED WITH IMPROVE "TACTILE FEEL"
- LEFT HANDED VERSION TO BE DESIGNED
- DESIGN FOR MANUFACTURABILITY PRINCIPLES UTILIZED
- DESIGN FOR ASSEMBLY PRINCIPLES UTILIZED
- "SEALED" DESIGN ROBUST AGAINST TAMPERING
- RIFLE WILL NOT FIRE IF TRIGGER PULLED AND HELD AS SAFETY IS MOVED FROM "S" TO "F"
- ROBUST AGAINST IMPACT
- COMPEL TRIGGER TO SUPPORT POSITION IN MOVING SAFETY FROM "F" TO "S"
- "NO LUBRICATION" DESIGN
- ENHANCED CORROSION RESISTANCE

D.S Findlay
11-5-93

ET56444

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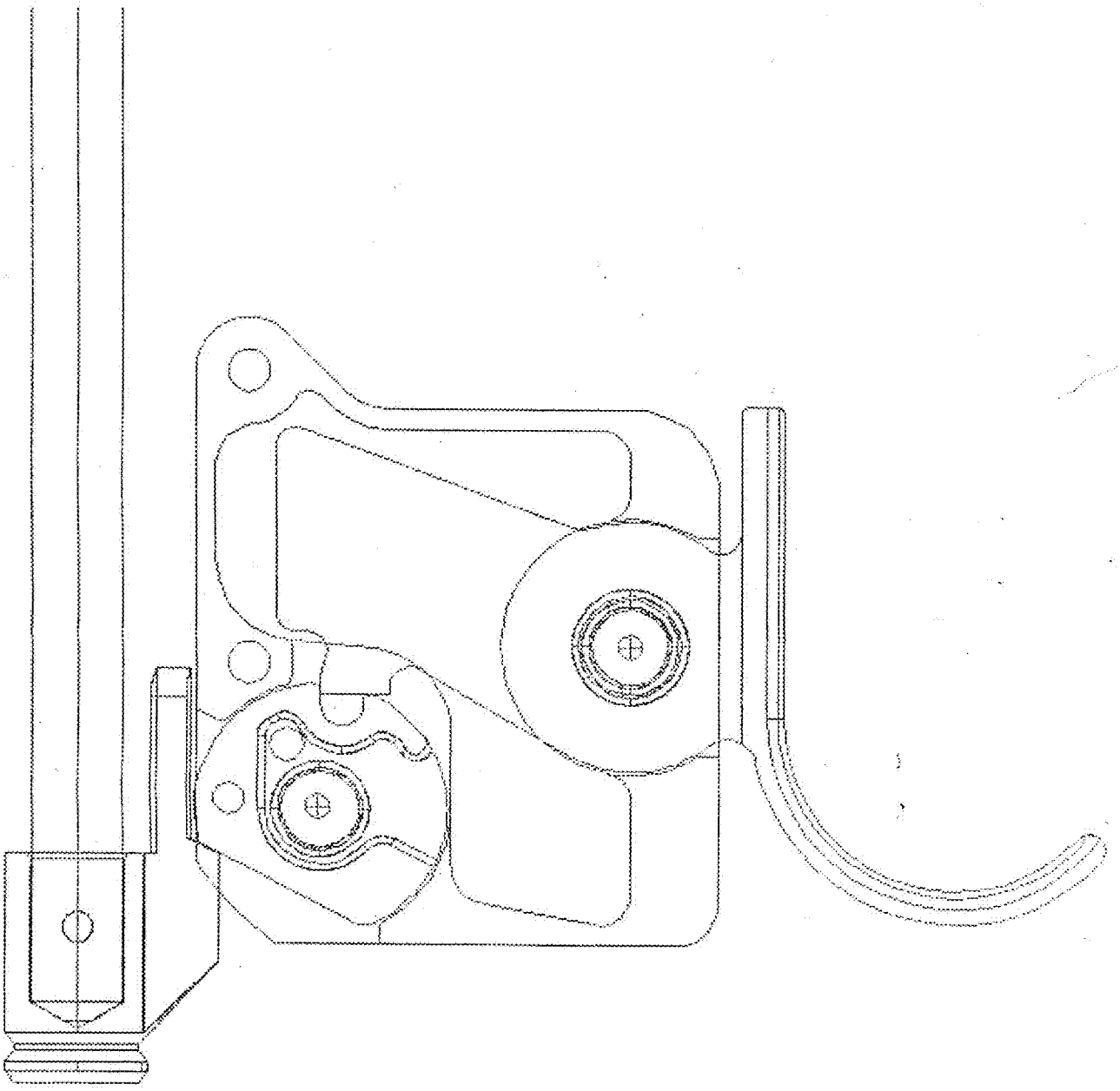

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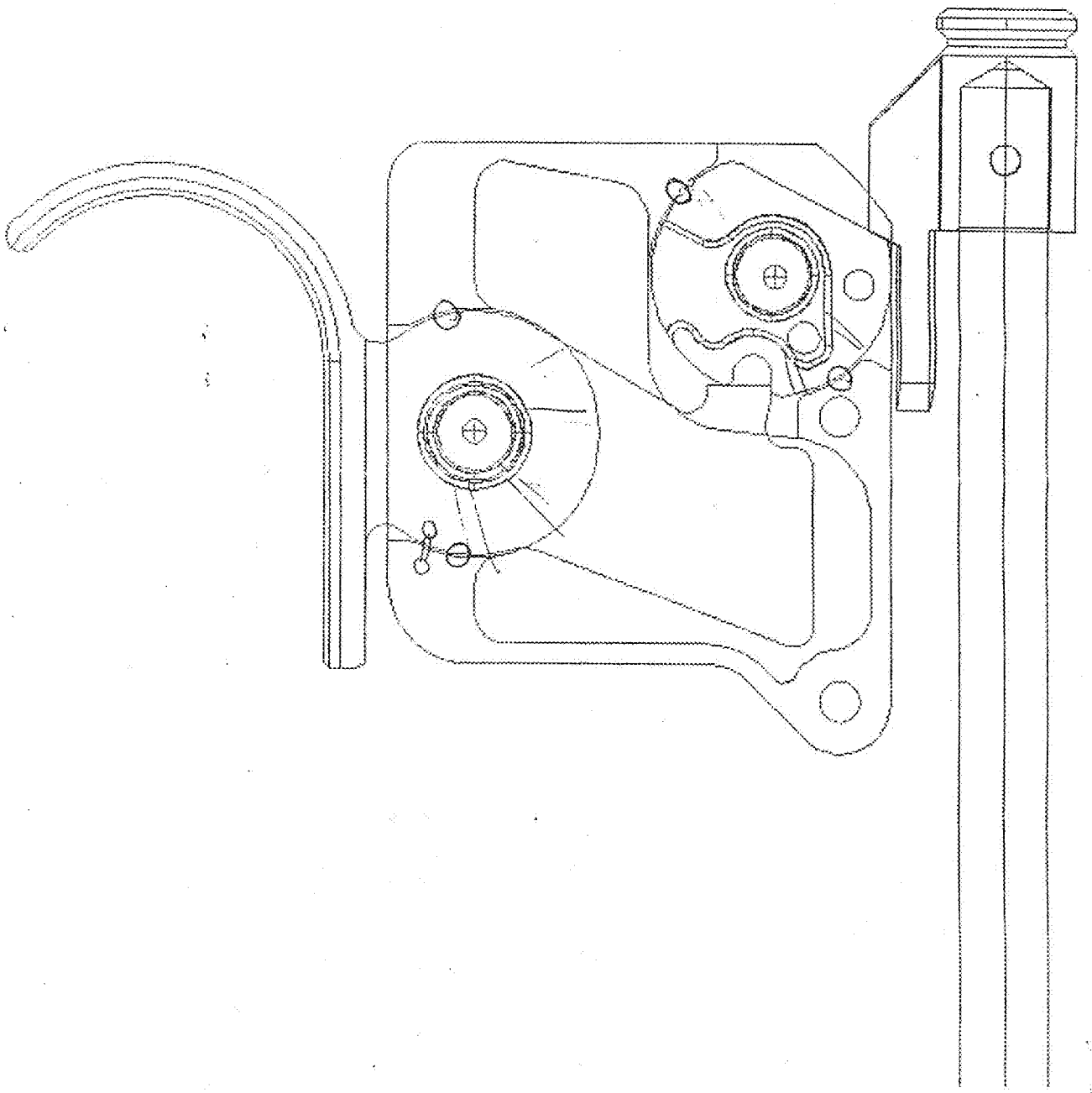

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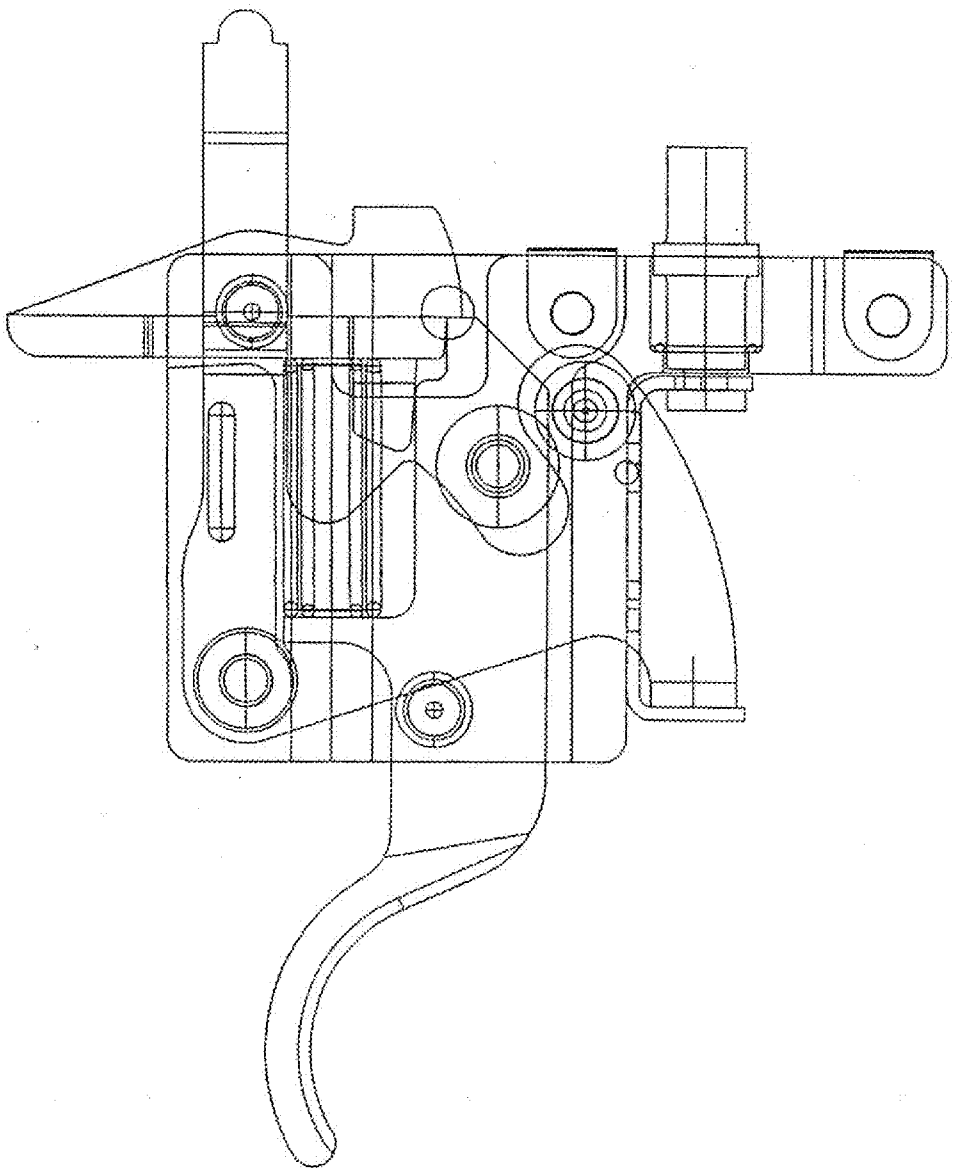

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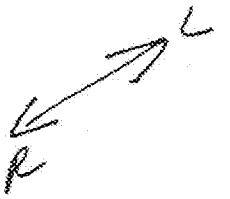
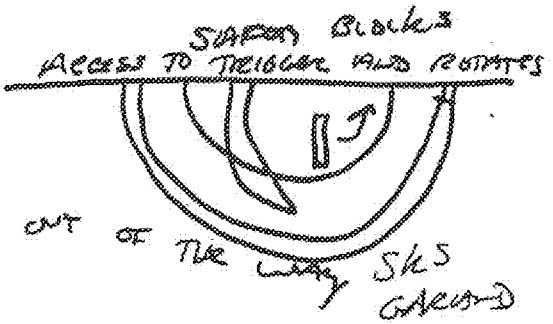
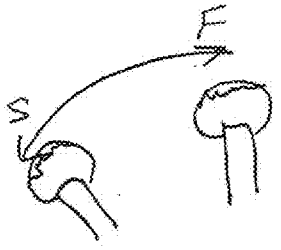
SAFETY MOTION

ON SIDE OF STOCK



PUSH BUTTON





LIKE WE HAVE IT

G

ROTATE ON PALM

ROTATE ON BOLT - PLUG
IE 3 POSITION

ET56448

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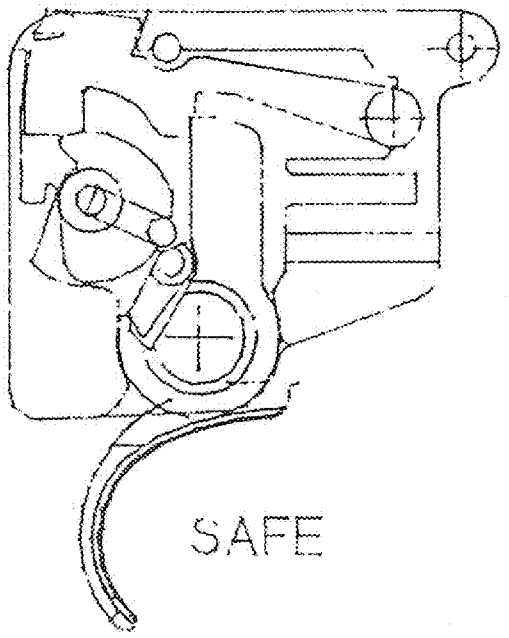
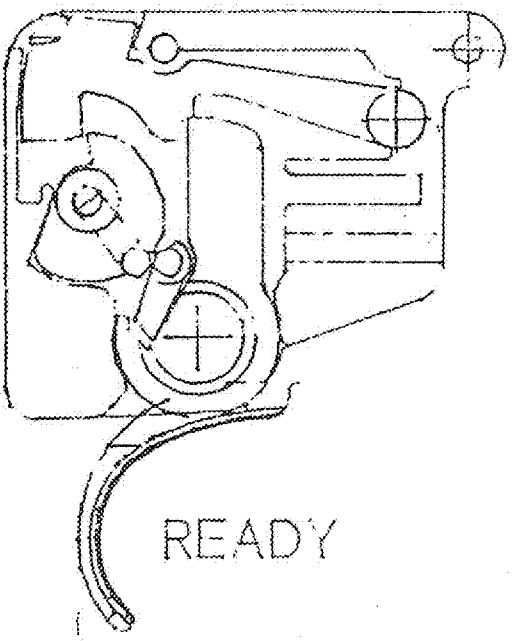
Williams v. Remmington





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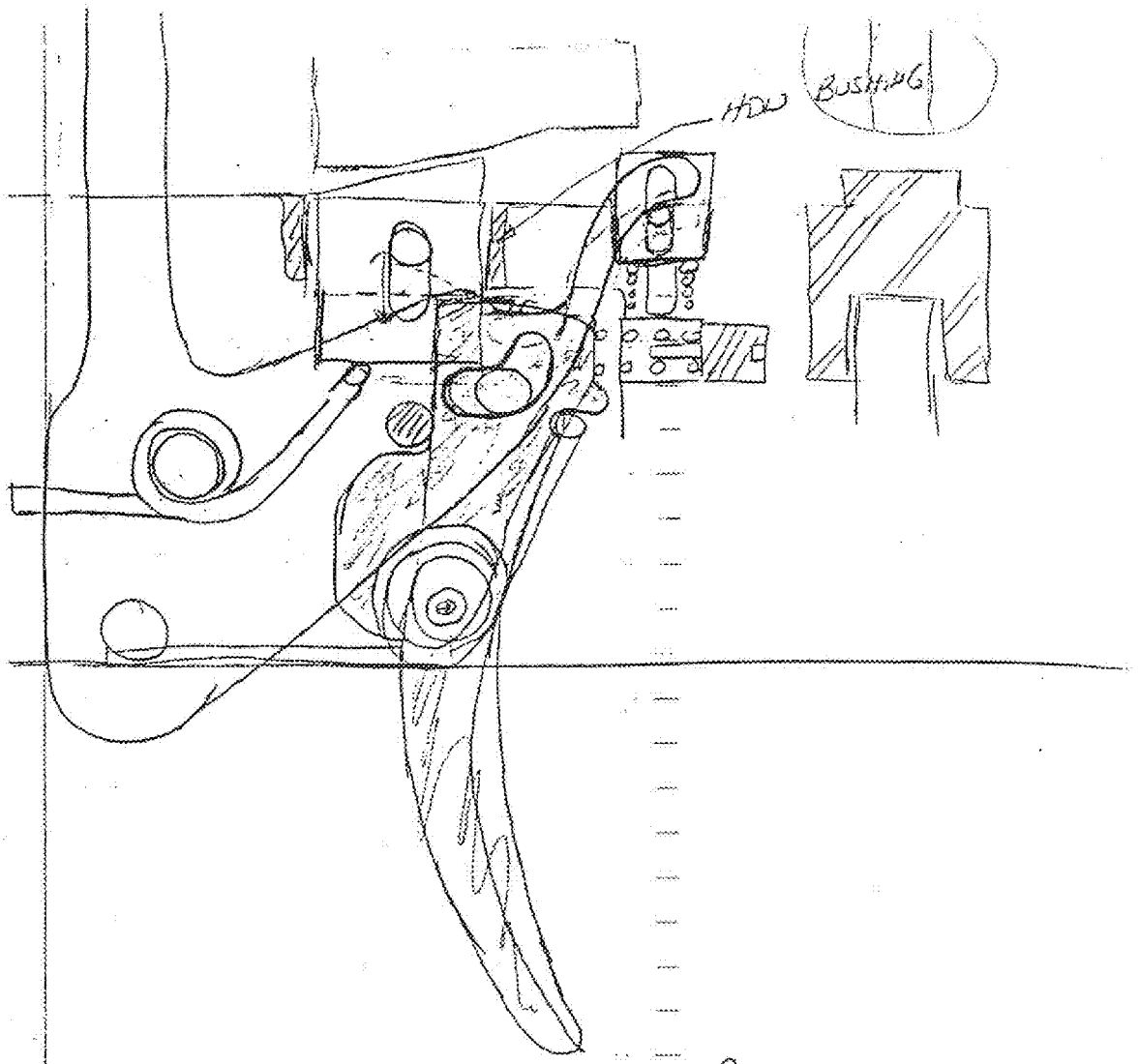

= TRIG + SEAR STOP

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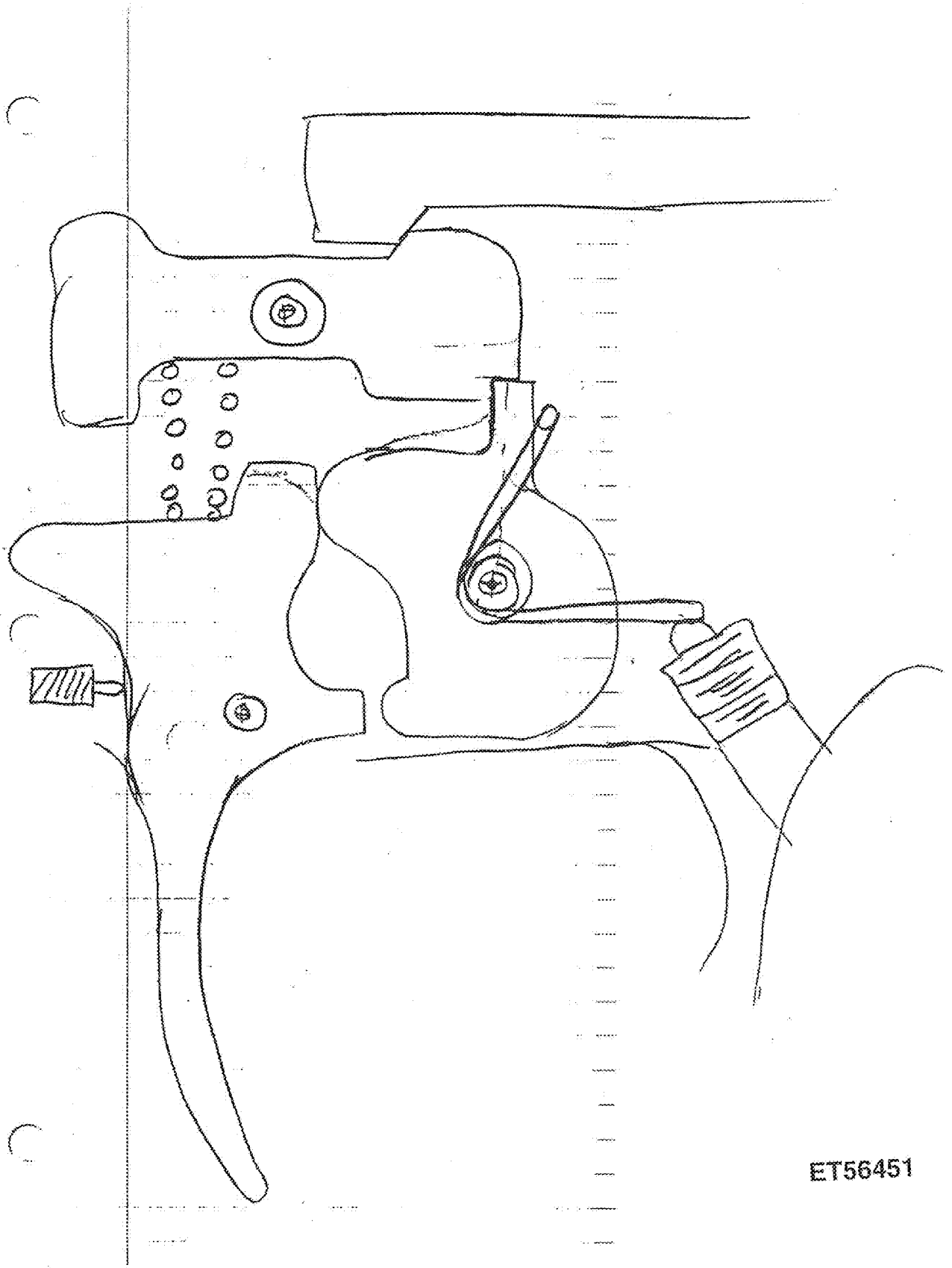

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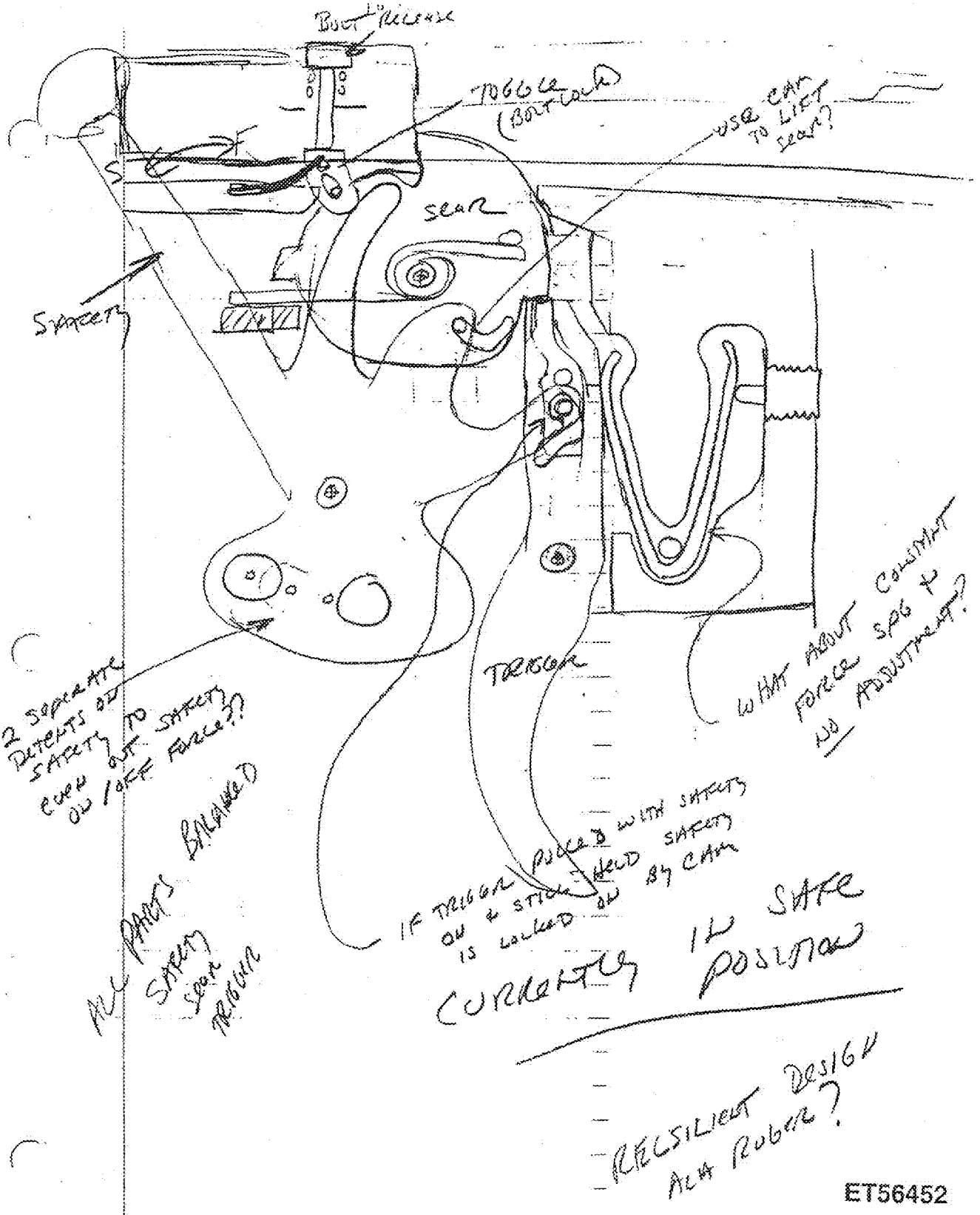

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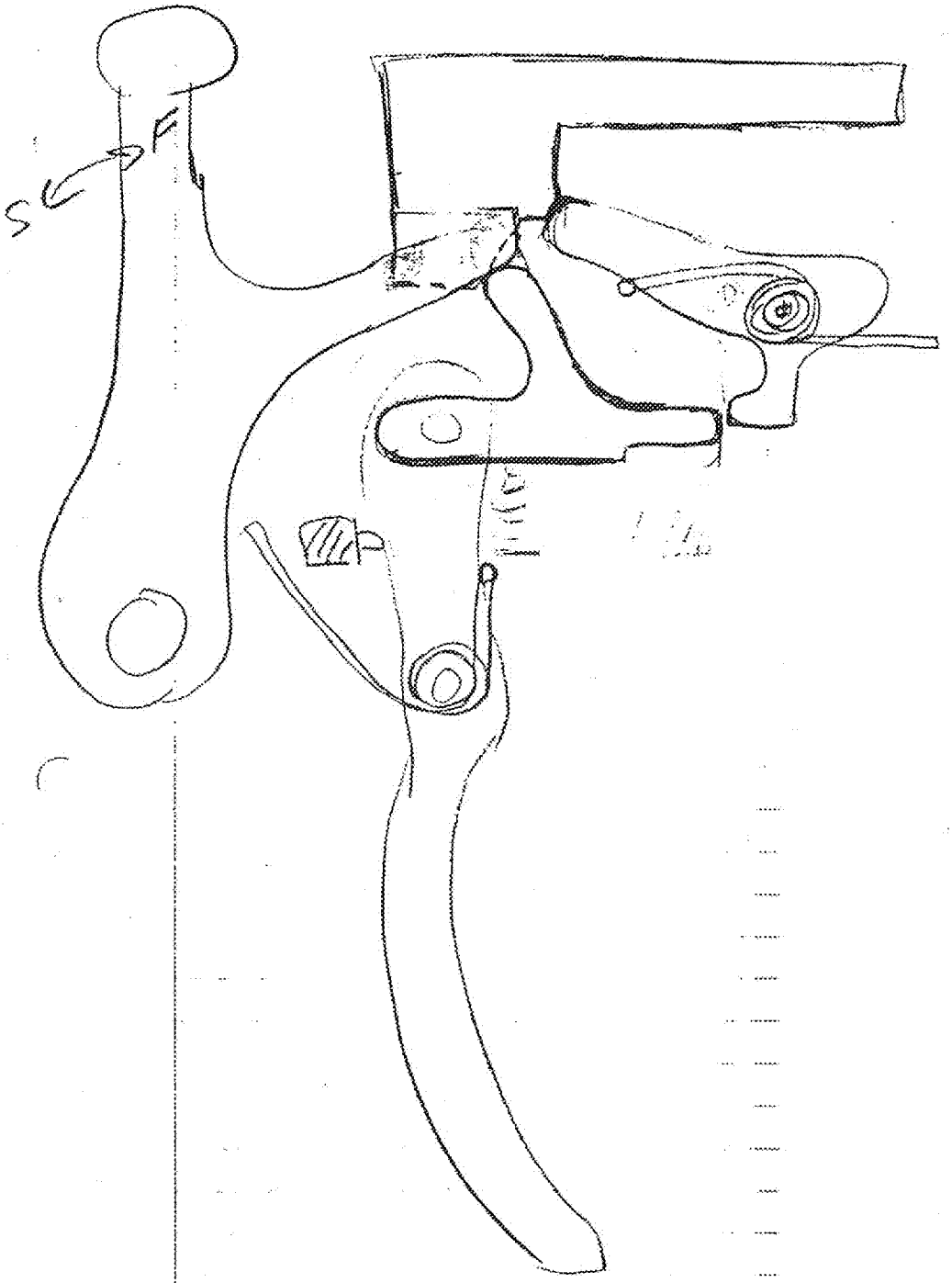
Williams v. Barrow



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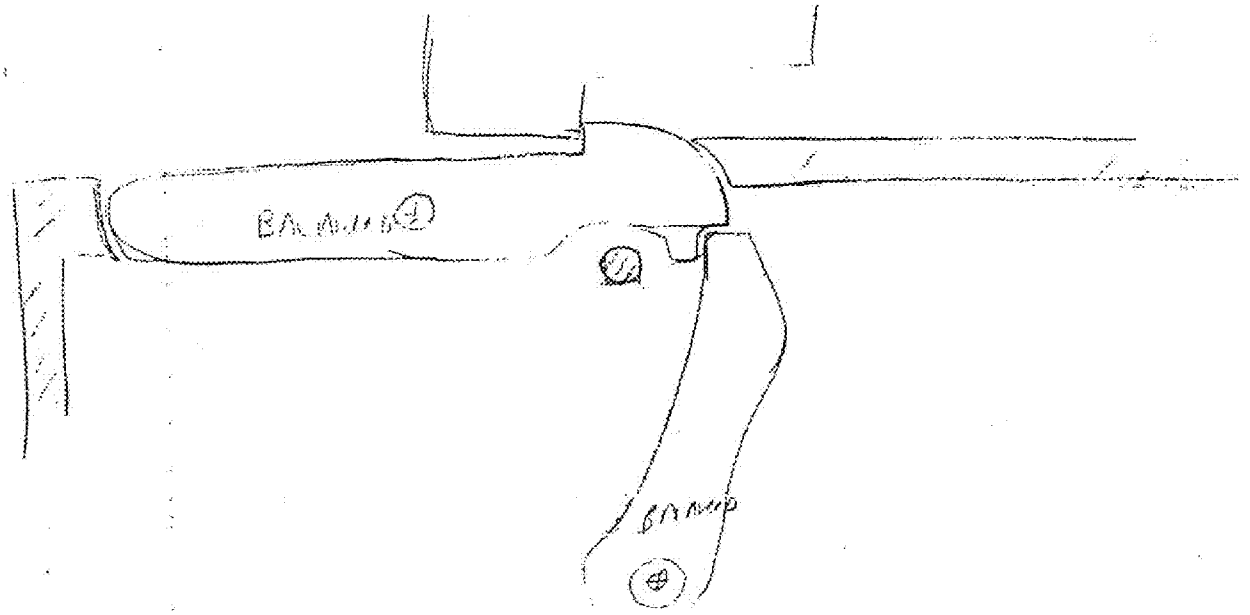
Williams v. Pennington



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FROM: TODD ZEILINGER

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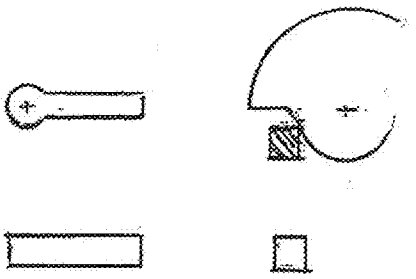

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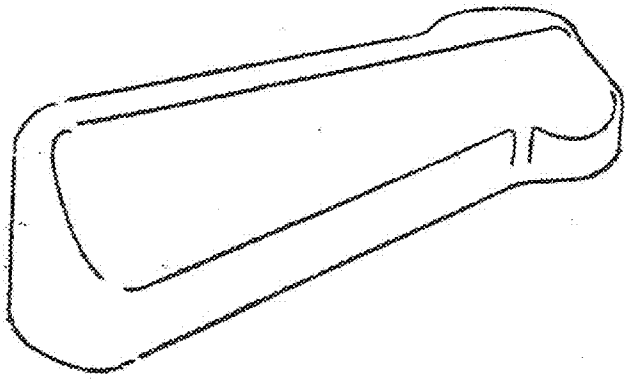

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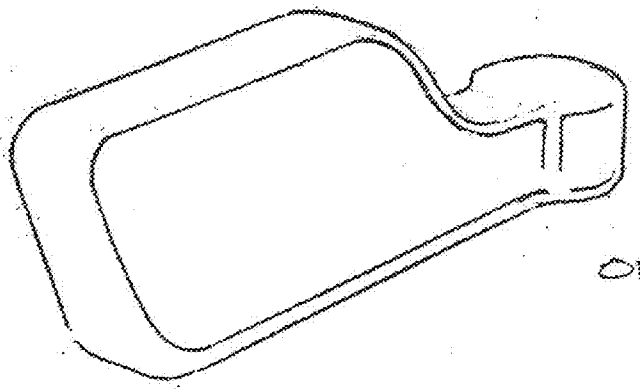

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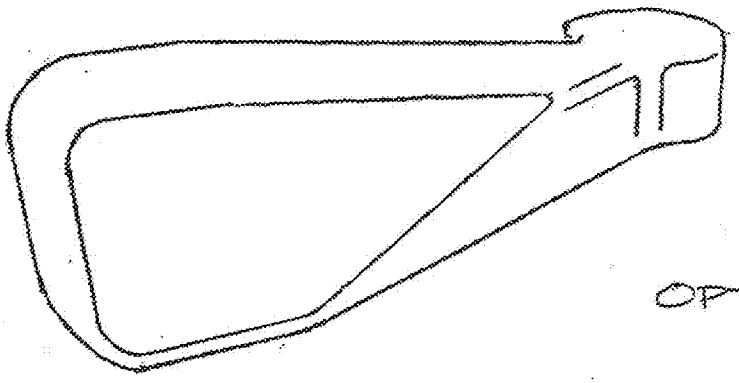

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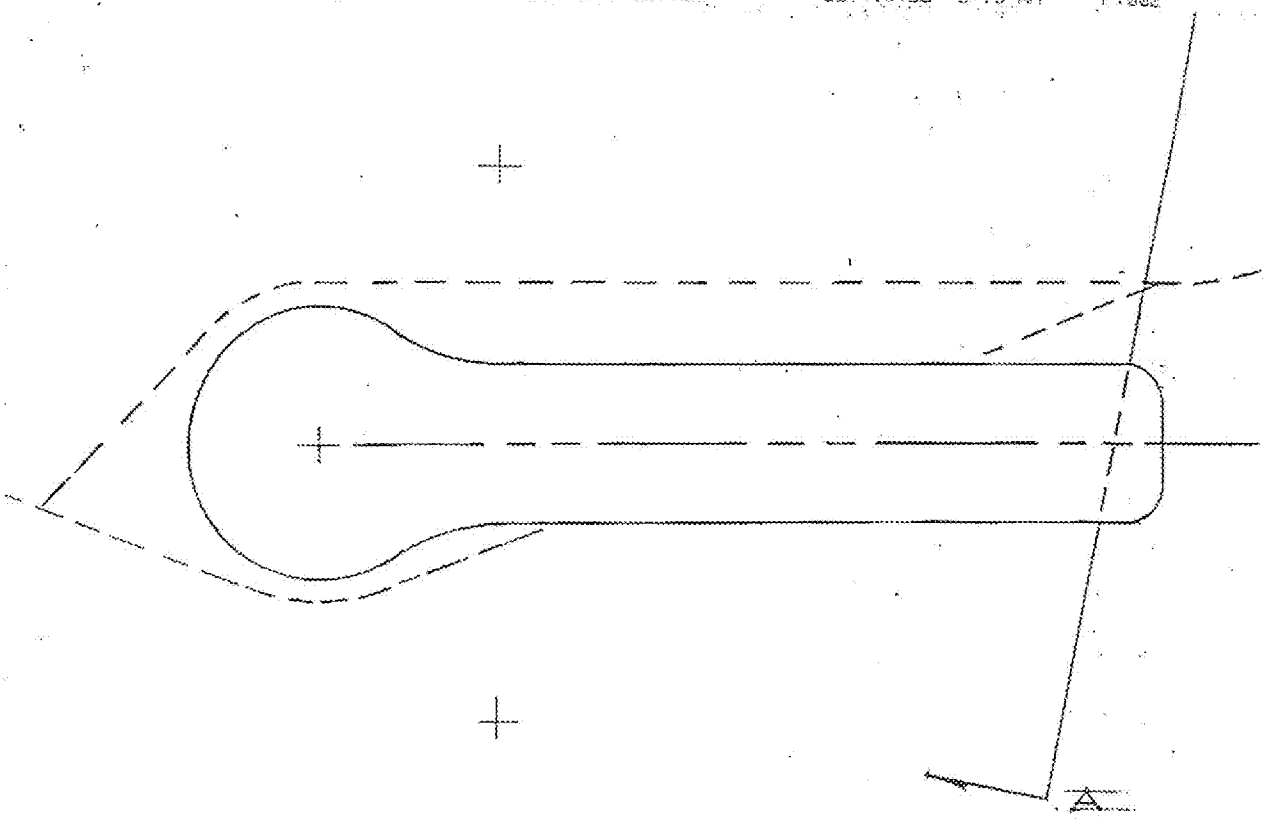

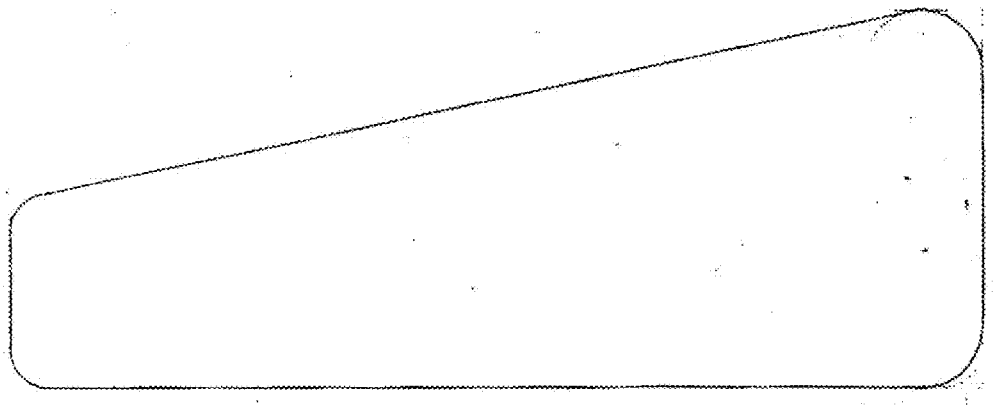

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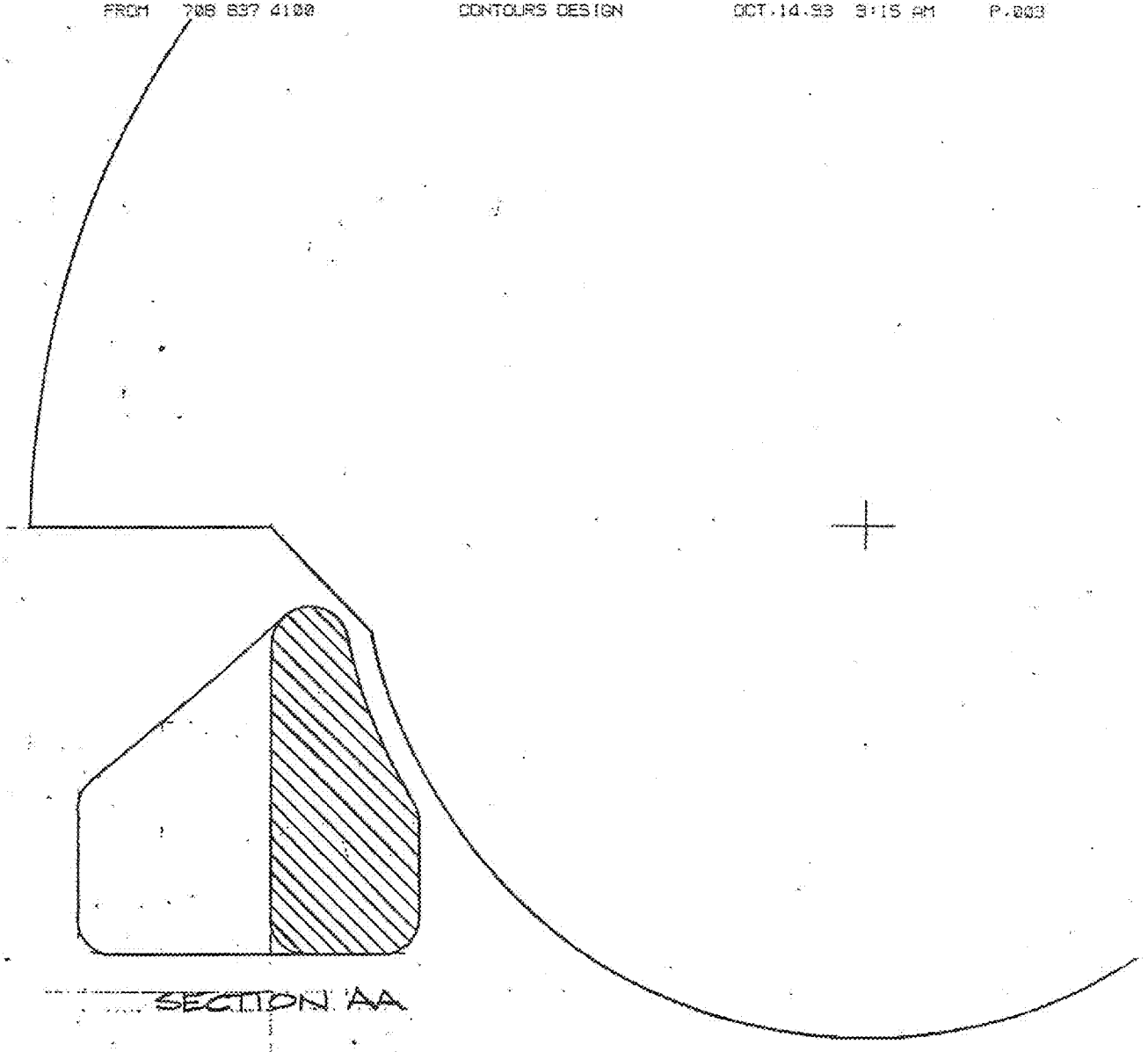

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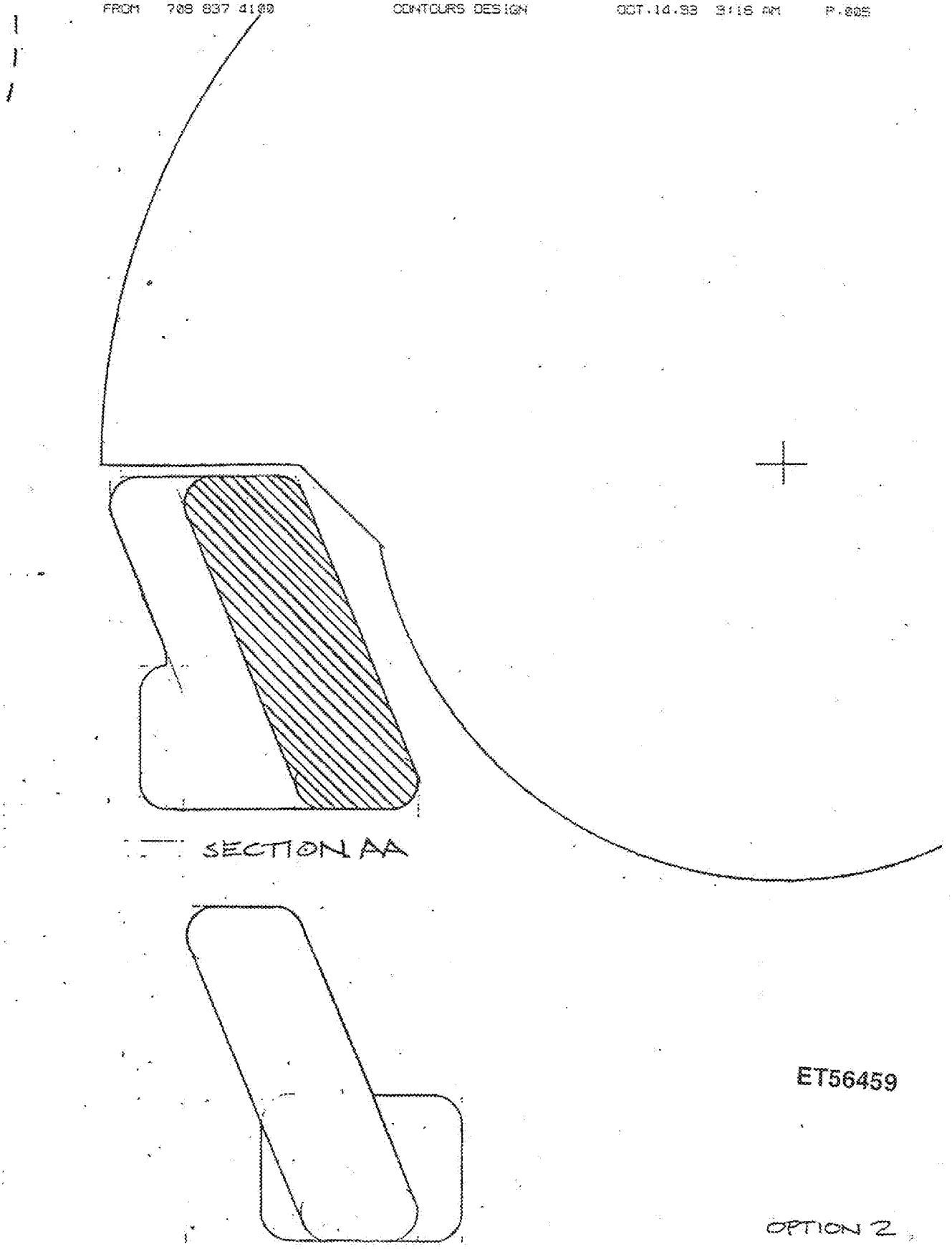

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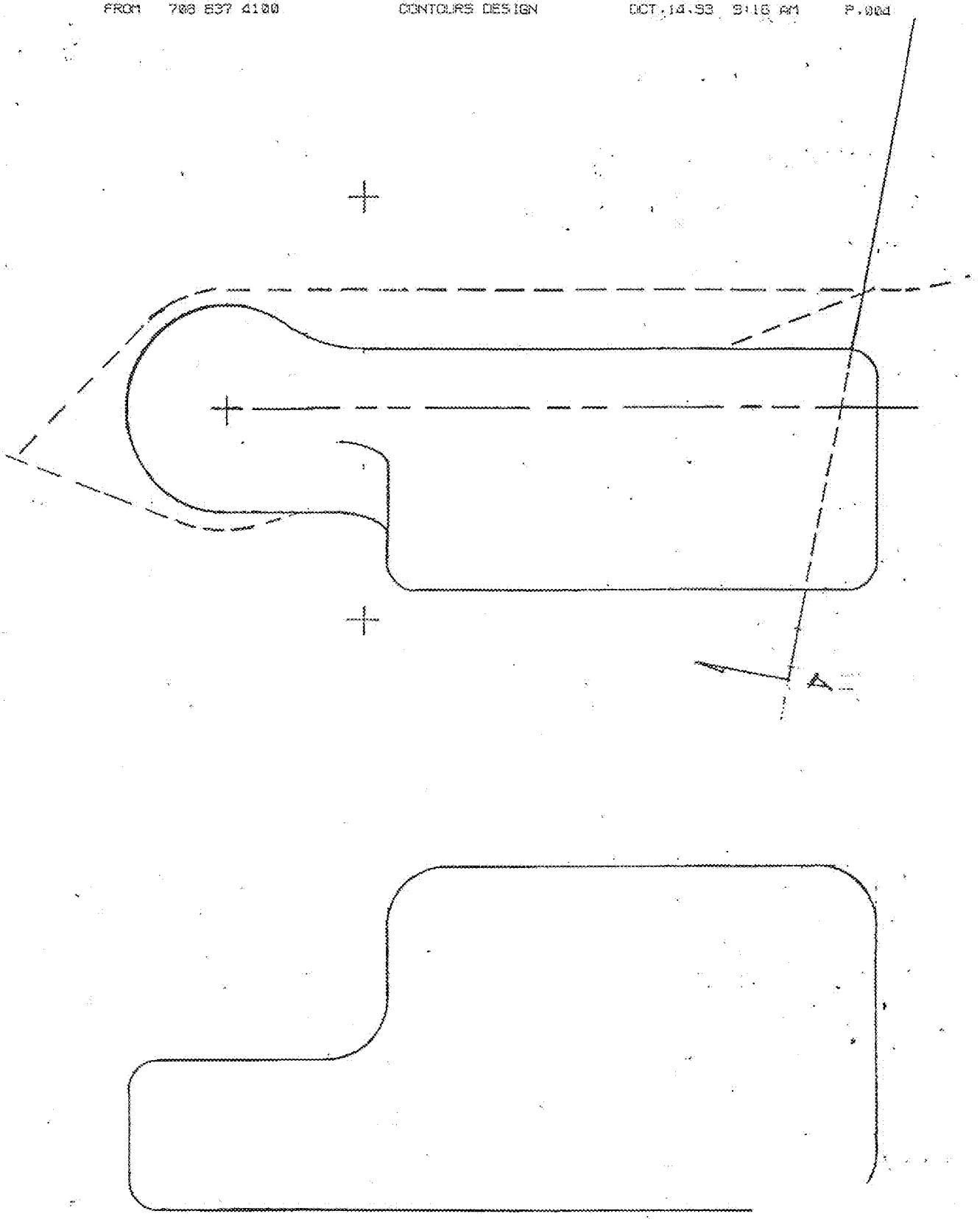

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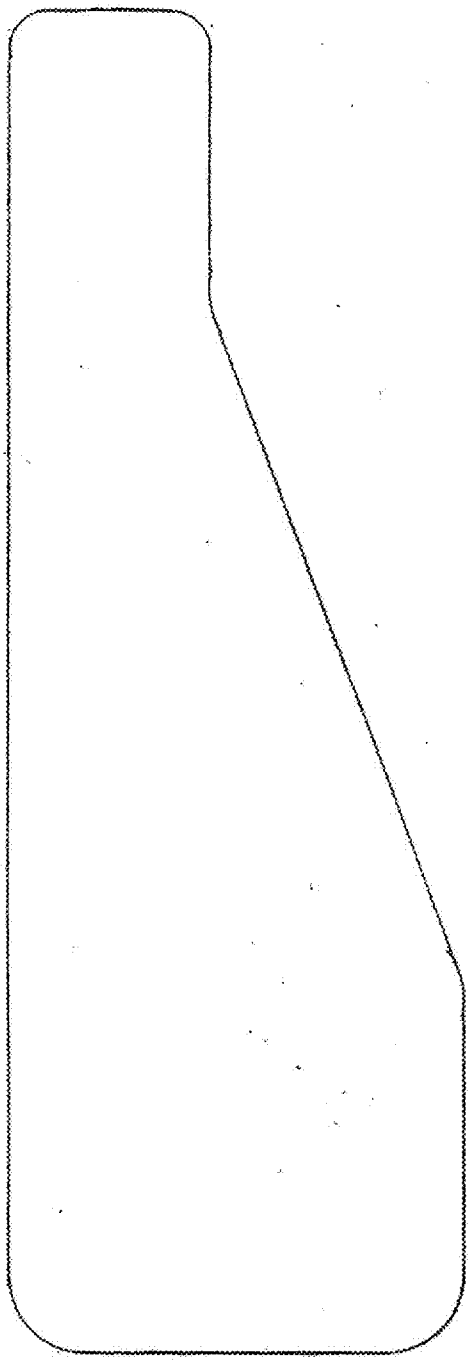

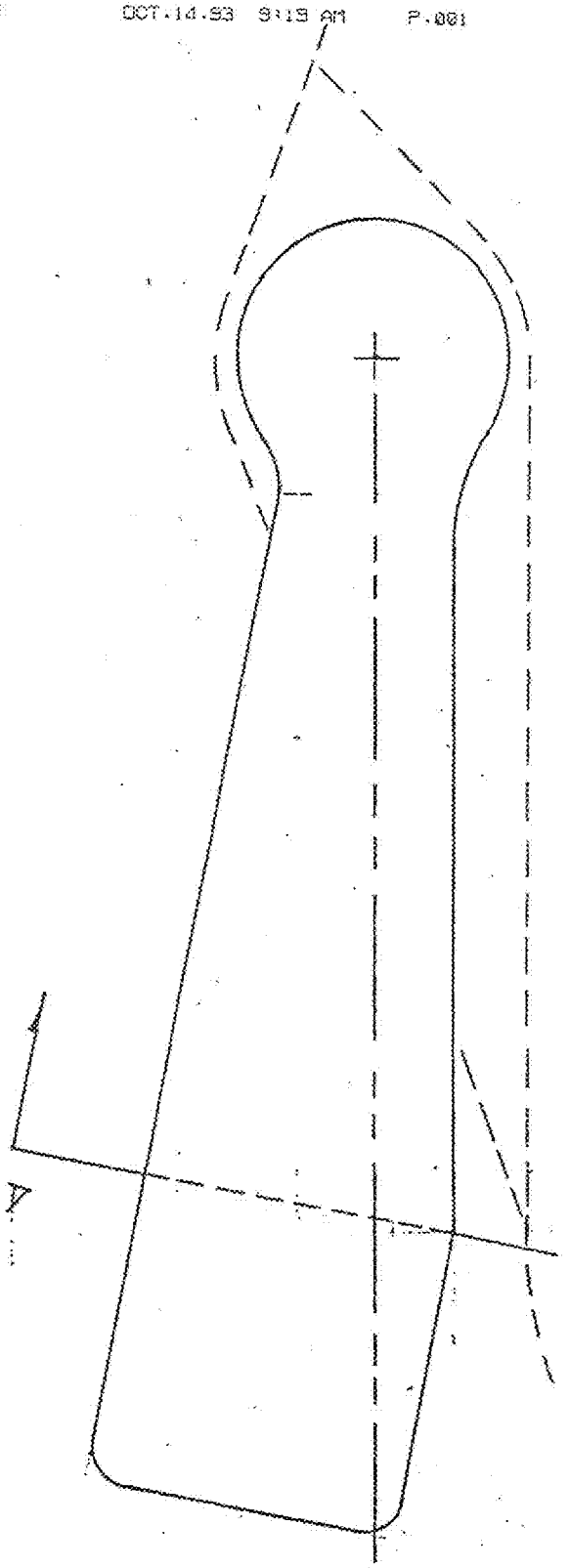

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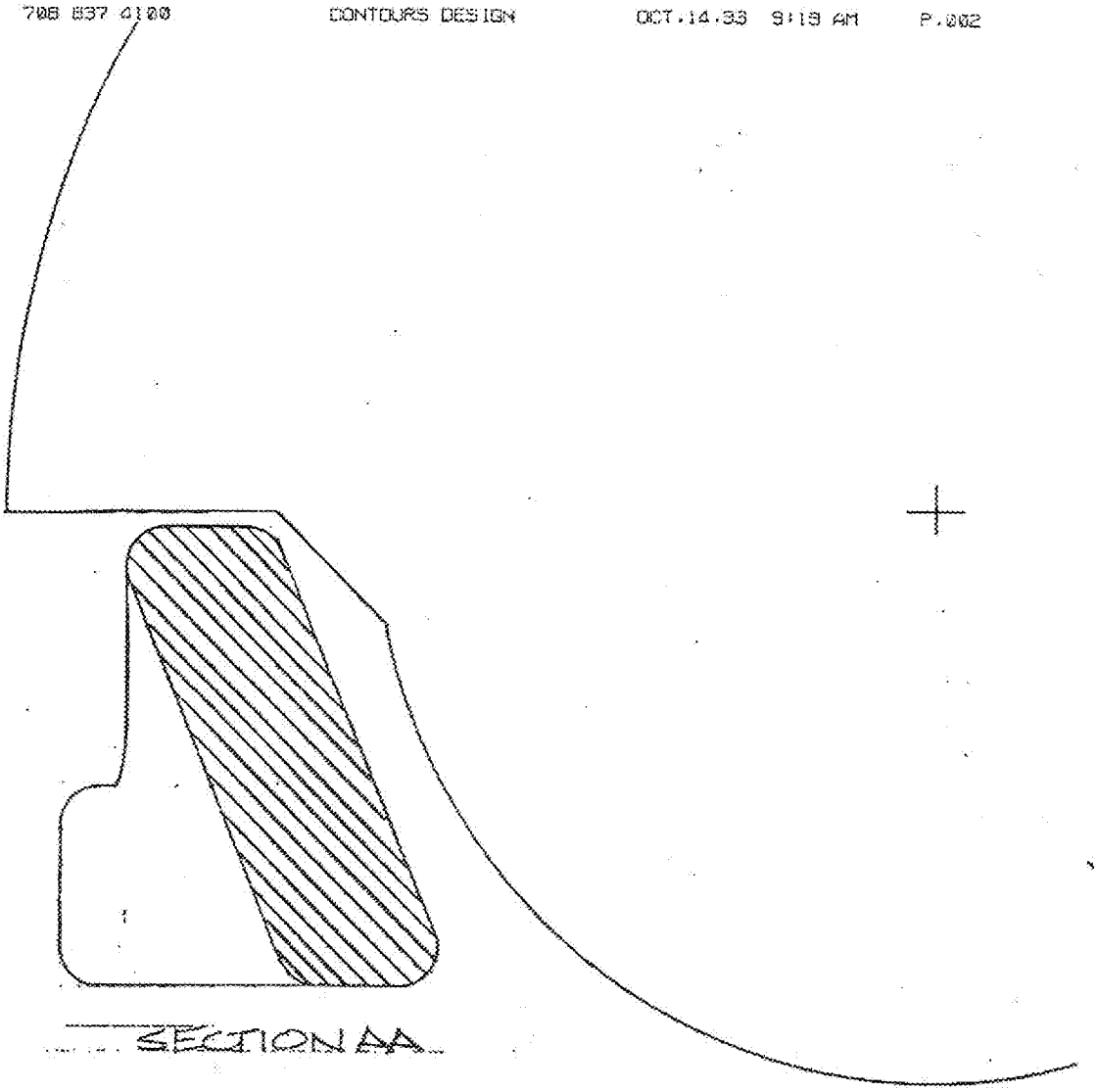

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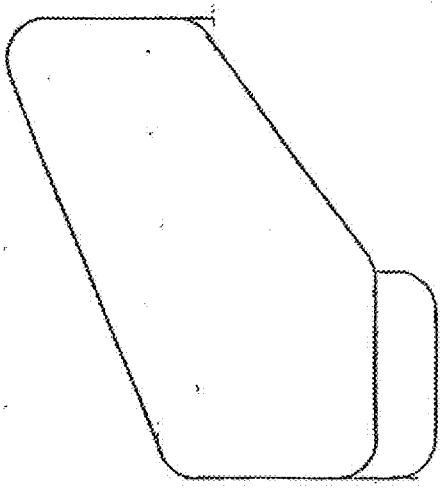

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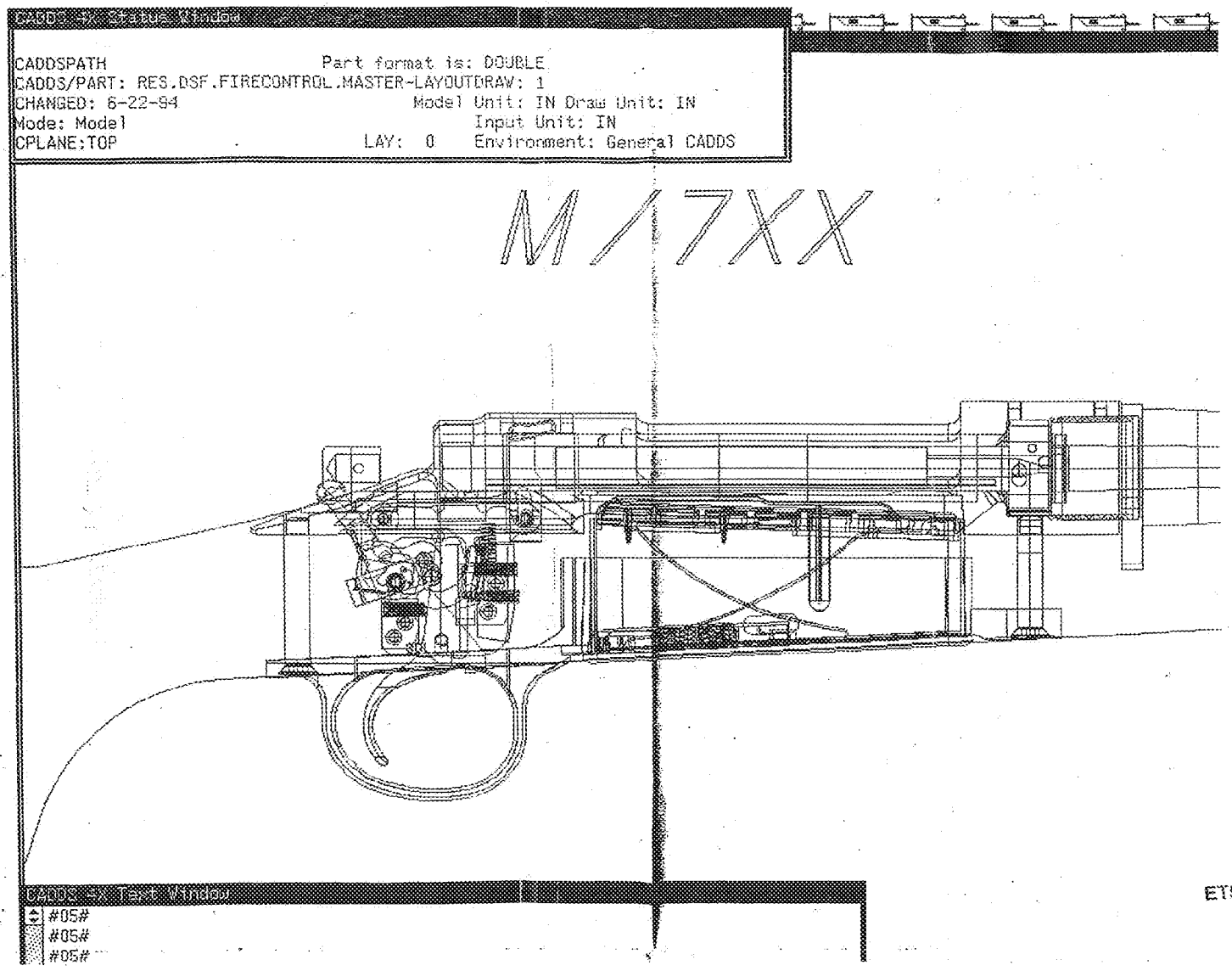

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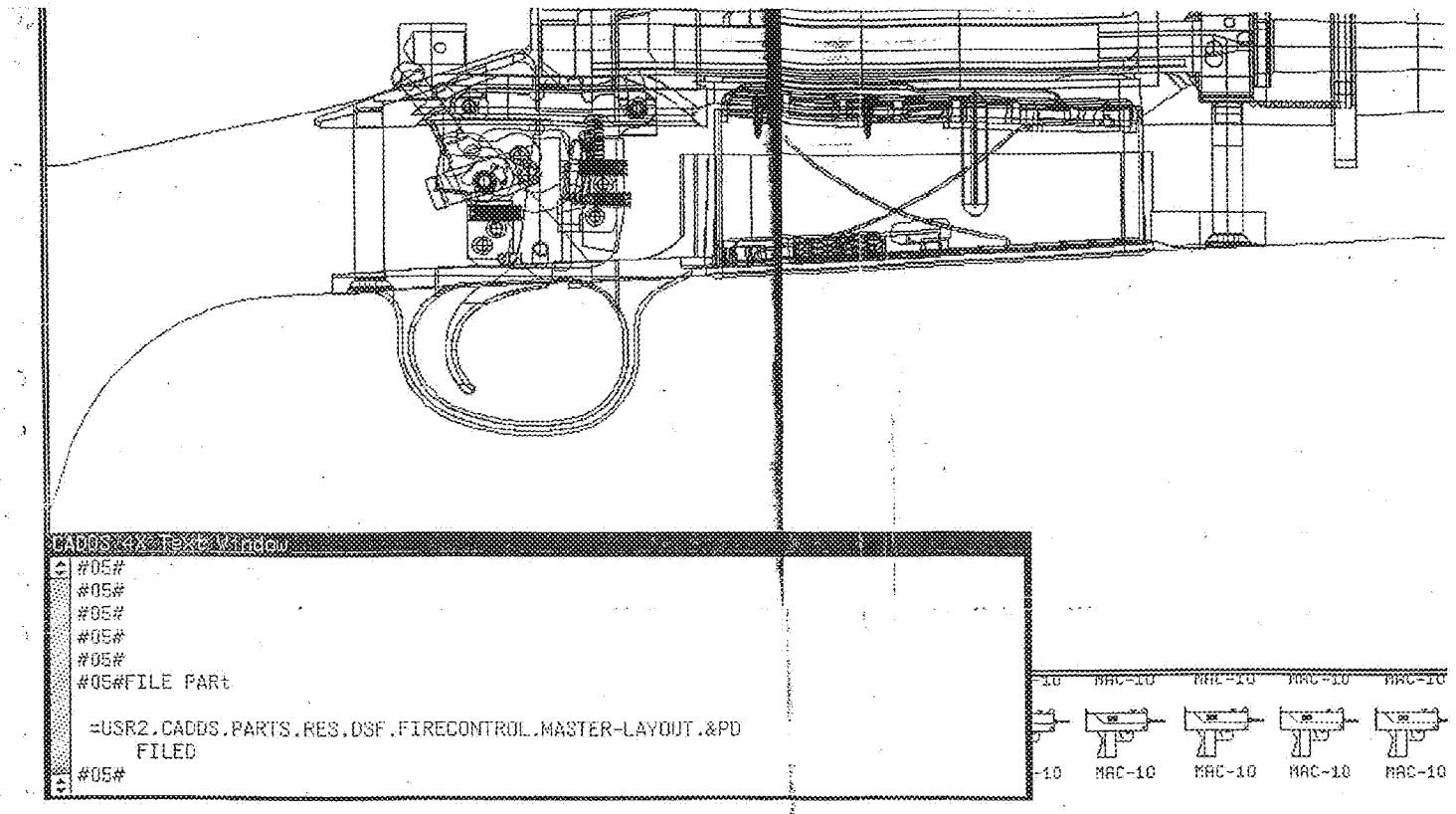

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BARBER - 2.4.130000222

ET56465

2 piece Housing (Housing + Cover Route) RTV Sealer and/or Spot welded

Double stop on safety?

SAFETY PLUNGER REF AT ASSY?

Chamfer on plunger engaging pin to support pivot?

Could be a Flat-Spring (Wire) working on a Ball on the Sear?

SEAR ASY

Safety Pivot & Spring Retainer?

Electroless Ni with Teflon coated (Stainless?) steel components

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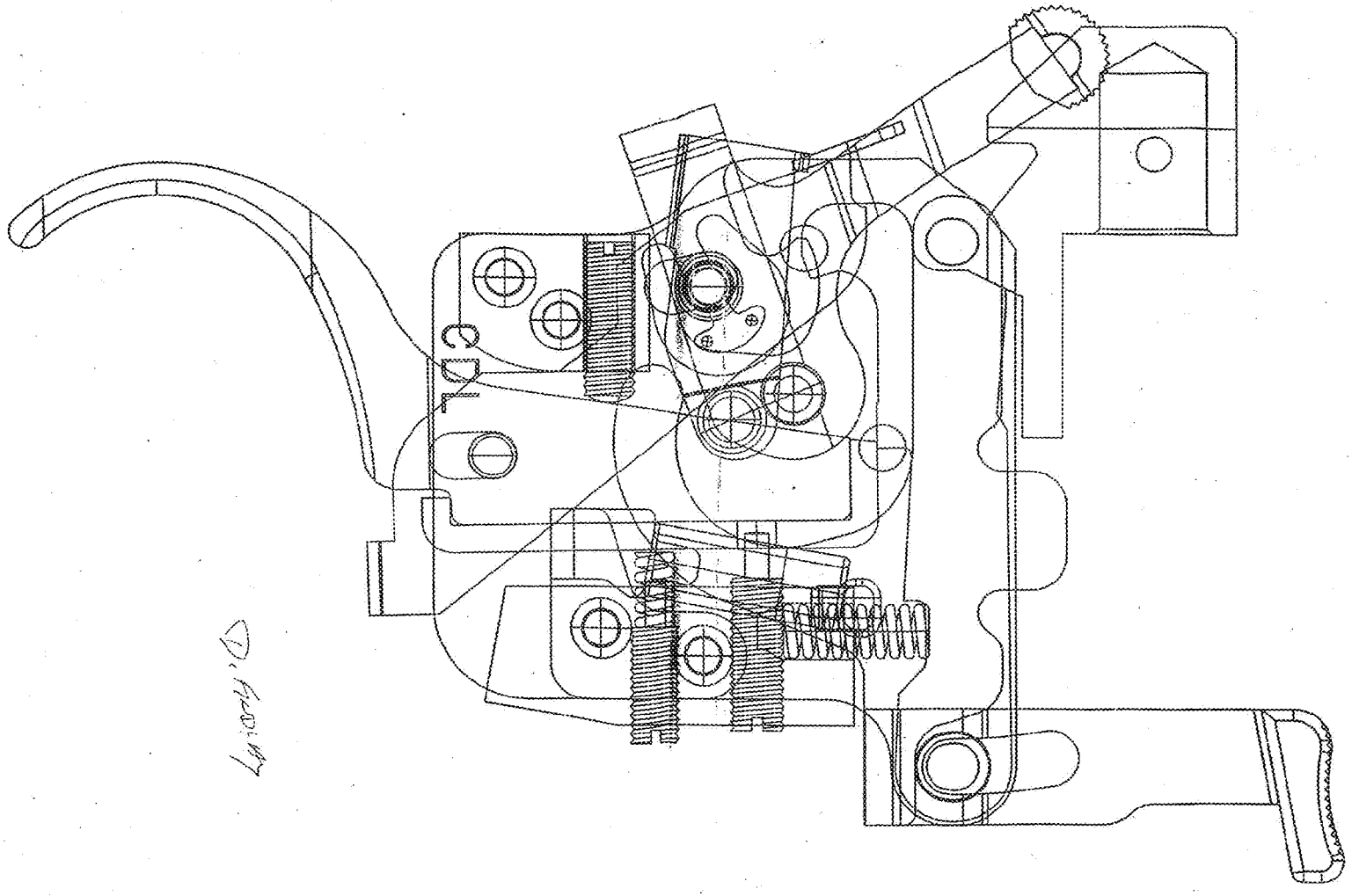

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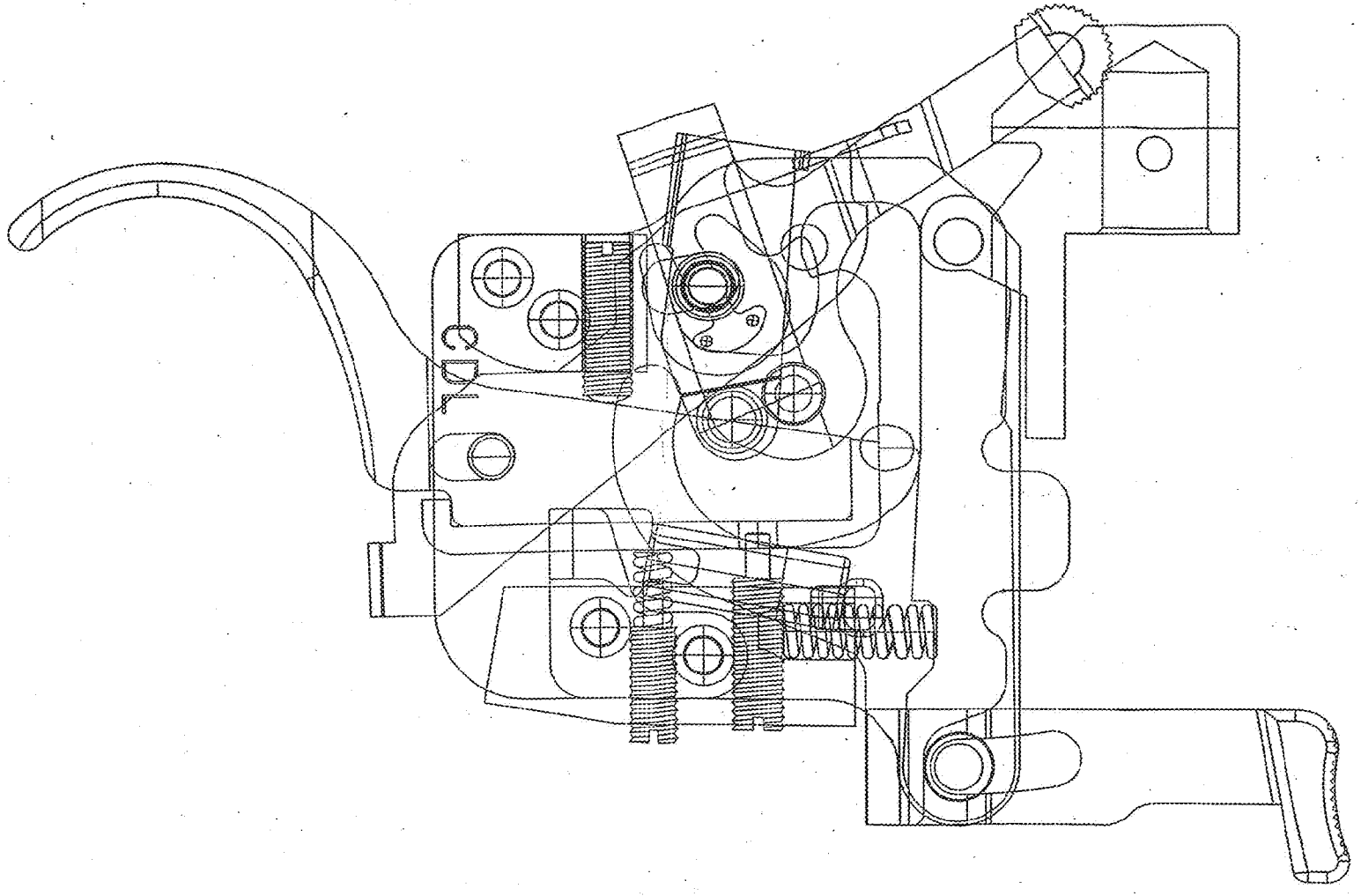

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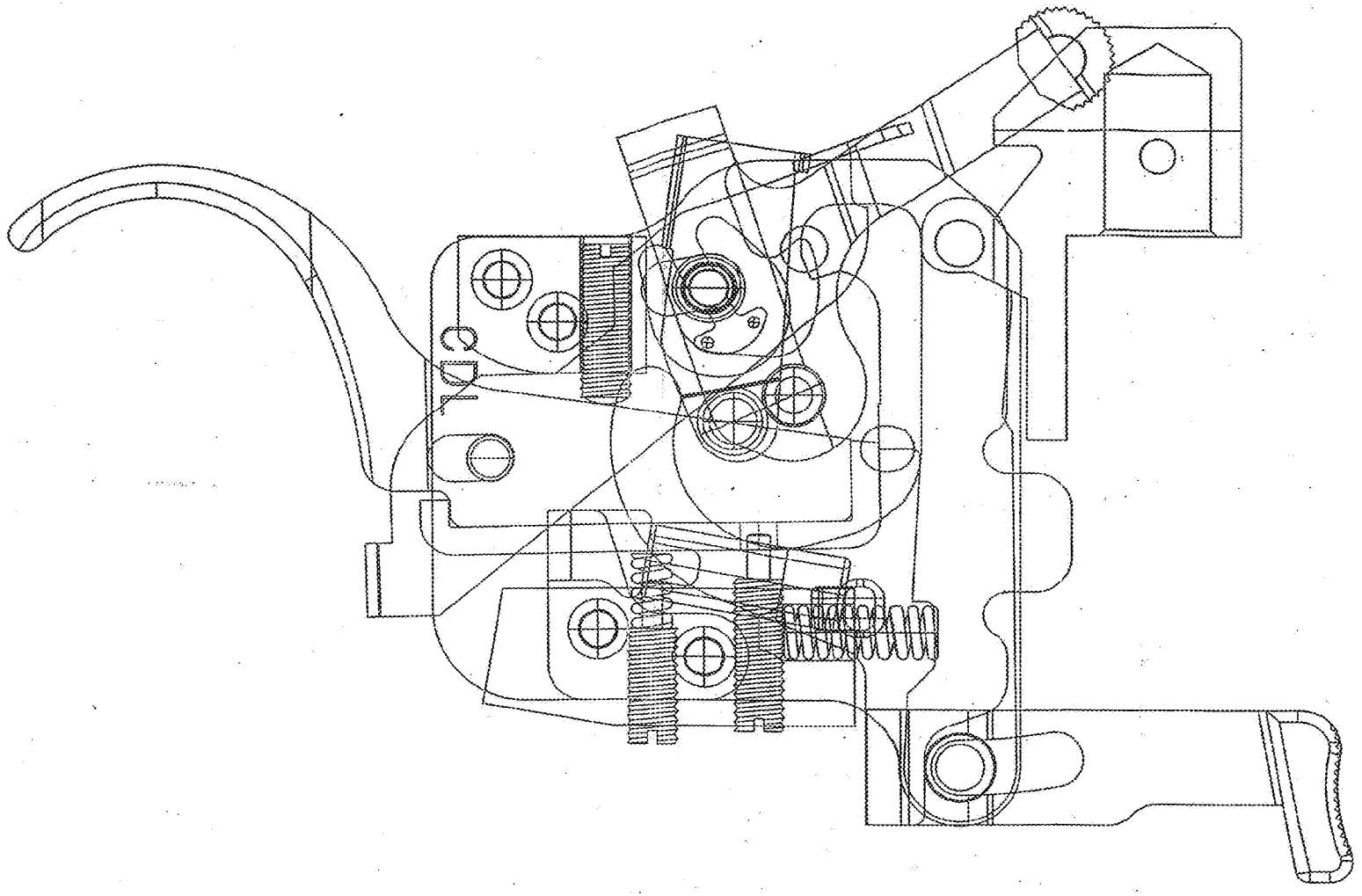

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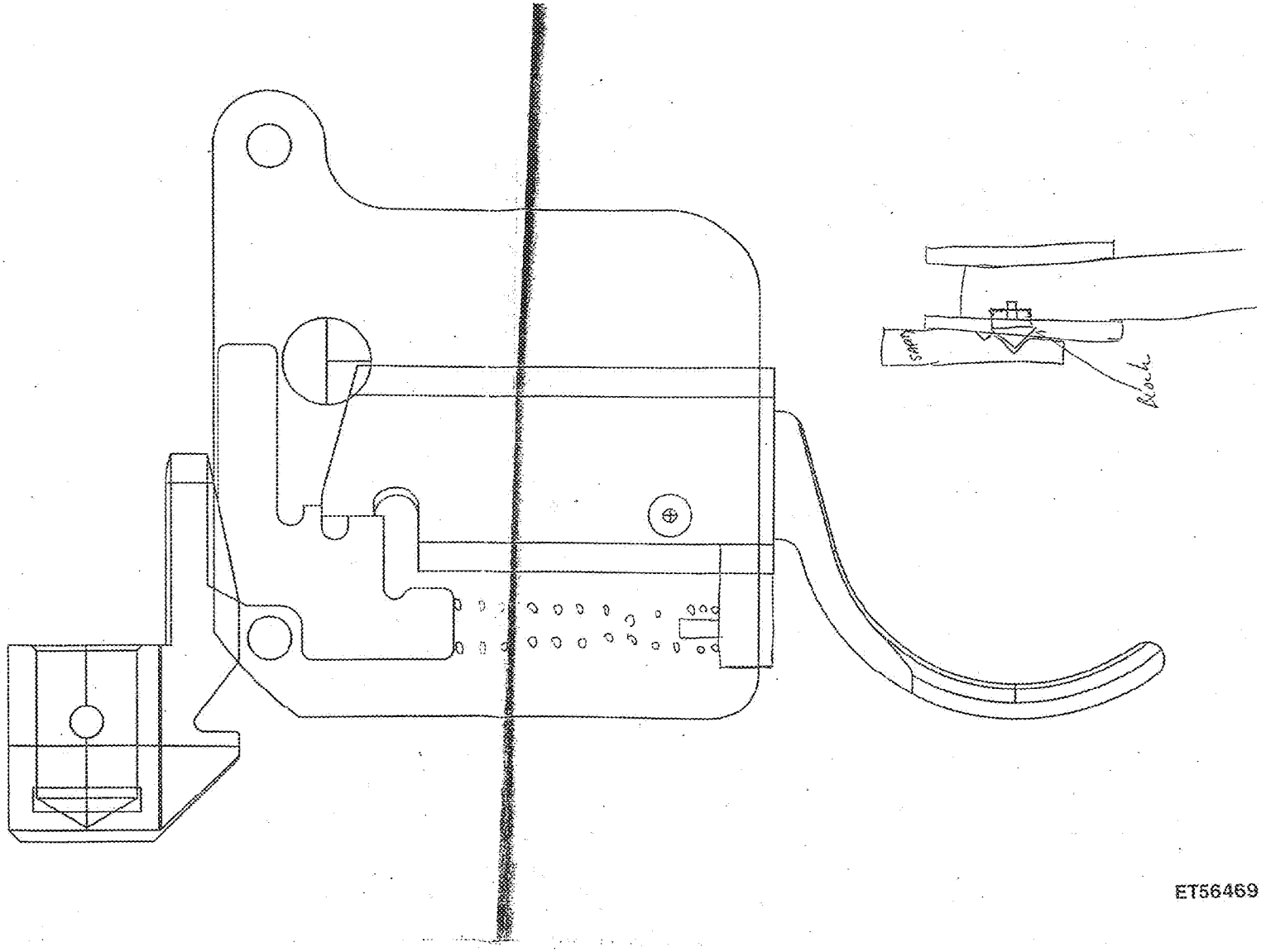
Williams v. Formosa



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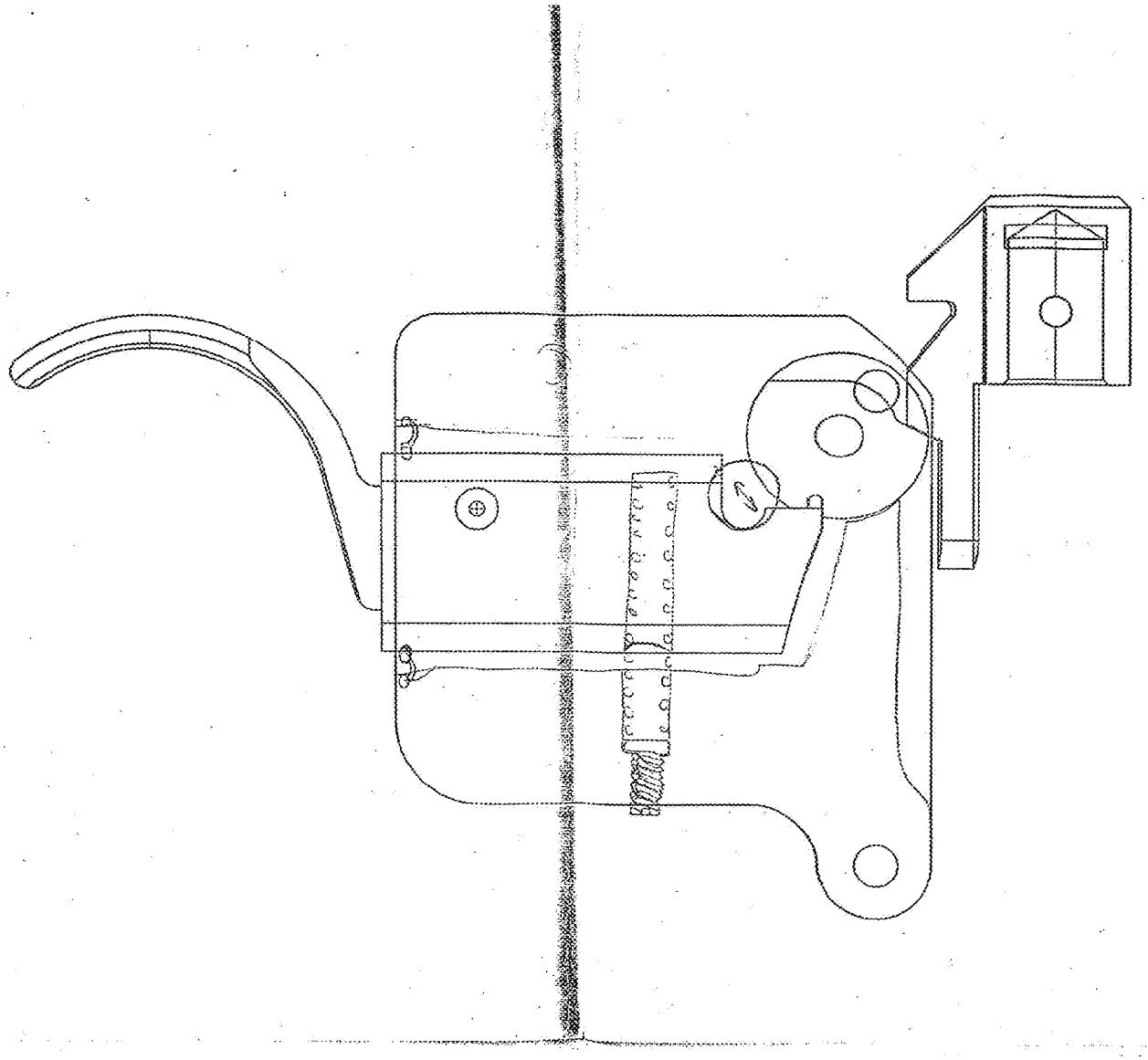
Williams Termination



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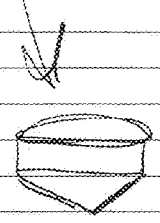

SMALL PLUNGER
THAT MATES TO
A HOLE

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NBAR FIRE CONTROL DESIGN OBJECTIVES

- NON INTERCHANGABLE WITH M/700
- USER "FRIENDLY" DESIGN
- IMPROVED "TACTILE FEEL" OF THE TRIGGER
- IMPROVED "TACTILE FEEL" OF THE SAFETY (TWO POSITION)
- CUSTOMER ABLE TO OPEN AND CLOSE BOLT WITH SAFETY "ON"
- BOLT LOCKED DOWN IN A "S" CONDITION
- CUSTOMER ADJUSTABLE TRIGGER PULL FORCE ONLY WITHIN PRESCRIBED LIMITS
- BOLT STOP RELEASE RELOCATED WITH IMPROVE "TACTILE FEEL"
- LEFT HANDED VERSION TO BE DESIGNED
- DESIGN FOR MANUFACTURABILITY PRINCIPLES UTILIZED
- DESIGN FOR ASSEMBLY PRINCIPLES UTILIZED
- "SEALED" DESIGN ROBUST AGAINST TAMPERING
- RIFLE WILL NOT FIRE IF TRIGGER PULLED AND HELD AS SAFETY IS MOVED FROM "S" TO "F"
- ROBUST AGAINST IMPACT
- COMPEL TRIGGER TO SUPPORT POSITION IN MOVING SAFETY FROM "F" TO "S"
- "NO LUBRICATION" DESIGN
- ENHANCED CORROSION RESISTANCE

D.S Findlay
11-5-93

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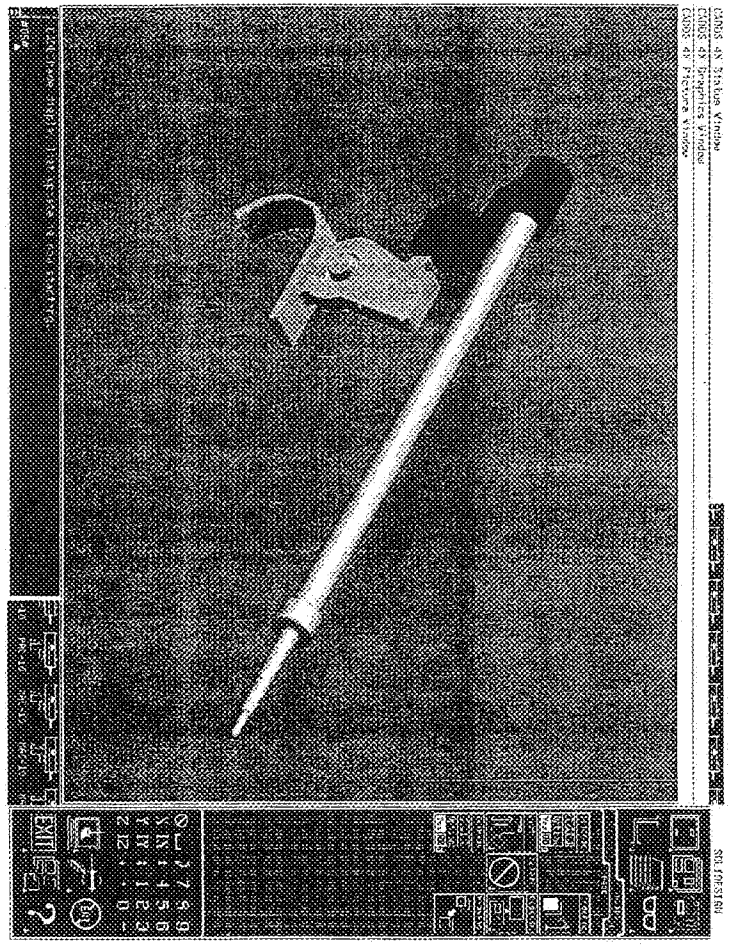

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CENTER FIRE RIFLES - 1994

RIFLE MODEL	LOCATION AND TYPE OF SAFETY	BOLT LOCK	TRIGGER BLOCK	SEAR BLOCK	STRIKER BLOCK	TRIGGER PULL ADJ.	OVER TRAVEL ADJ.	ENGAGE ADJ.
WINCHESTER M/70	ROTARY WING RH SIDE 3 POSITION	YES			YES	YES	NO	NO
RUGER M/77 MARKII	ROTARY WING RH SIDE 3 POSITION	YES	YES		YES	NO	NO	NO
REMINGTON M/700	SWING RH SIDE 2 POSITION	NO		YES		YES	YES	YES
BROWNING A-BOLT II	SLIDING CENTER TANG 2 POSITION	YES		YES		YES	NO	NO
SAVAGE M/110	SLIDING CENTER TANG 3 POSITION	YES	YES			YES	YES	YES
SAKO	SWING RH SIDE 2 POSITION	NO	YES			YES	YES	NO
WEATHERBY MK5	ROTATING RH SIDE 2 POSITION	YES			YES	YES	NO	YES
WEATHERBY VANGARD	SWING RH SIDE 2 POSITION	YES	YES			YES	NO	YES

REG.DEF.CC-RIFLE-SURVEY

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GENERAL AREAS OF COST REDUCTION
FROM MOST REDUCTION OF COST TO LEAST EFFECT

1. USE A SYNTHETIC STOCK MOLDED IN HOUSE (APPROX. 3-5$) WITH NEW OUTSIDE CONTOUR TO MAKE THE GUN LOOK DIFFERENT WITH NO GRIP CAP AND NO RECOIL PAD (LIKE M/522 STOCK)

2. LOOK AT THE ENTIRE M/700 MANUFACTURING LINE WITH THE IDEA OF REPROCESSING IT TO REDUCE FACTORY COST.
   - CNC STAND ALONE MACHINE CENTERS
   - CHANGES TO GFM FORMING
   - ECM RIFLING/BUTTON RIFLED AT THE VERY END OF THE PROCESS

3. RE-DESIGN OF THE BOLT HANDLE AS A STAMPING/FORGING TO REDUCE ITS COMPONENT PRICE.

4. USE SYNTHETIC PLASTIC FOR THE FOLLOWING COMPONENTS

   1. MAGAZINE FOLLOWER
   2. TRIGGER GUARD (NEW CONTOUR-DIFFERENT THAN ADL) OR TRIGGER GUARD/FLOOR PLATE COMBINED INTO ONE COMPONENT
   3. MAG. BOX BODY

5. RECEIVER CUTS/DESIGN CHANGED TO REDUCE OPERATIONS AND CHANGE COSMETICS

   1. "ONE CUT" PORT CUT
   2. "FULL ROUND" RECEIVER

6. REDUCED SHIPPING CARTON AND PACKING REQUIREMENTS

7. RE-DESIGN THE HOUSING ASSEMBLY FOR THE M/700 AS A MIM COMPONENT WITH A STAMPED COVER PLATE. THIS MIM COMPONENT WOULD COMBINE THE ONE SIDE PIECE (STAMPING) THE TWO SPACERS AND ELIMINATE THE 4 RIVETS.

8. RECOIL LUG ELIMINATED BY HAVING THE STOCK PERFORM THAT FUNCTION (STOCK COMES UP INTO THE RECEIVER (2 PLACES?) RATHER THAN THE LUG COMING DOWN INTO A CAVITY IN THE STOCK

9. ONE PIECE BOLT
   COMBINE THE BOLT BODY AND BOLT HEAD INTO ONE COMPONENT

10. BOLT PLUG RE-CONTOURED AND DESIGNED AS A SIMPLER SCREW MACHINE COMPONENT

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Sept 13, 1994

BOLT ACTION RIFLE MEETING

I. WHERE ARE WE NOW? HOW DOES THE M/700 STACK UP TO THE COMPETITION? WHAT IS OUR CURRENT MARKETING APPROACH?

- PRICE

- CUSTOMER CONCERNS/FEATURES

DOES THE RIFLE FEEL GOOD?
- STYLING
- STOCK FIT
- LEFT HAND VERSION
- FIT AND FINISHES
- RECOIL FEEL (MUZZLE BRAKE)

DOES THE RIFLE COME IN THE CALIBER I WANT?

DOES THE RIFLE FIRE WHEN I PULL THE TRIGGER?
- FEEDING RELIABILITY
- DETACHABLE MAGAZINE BOX FLOOR PLATE/BLIND MAGAZINE
- BOLT LOCK
- EXTRACTOR DESIGN

CAN I HIT WHAT I AM AIMING AT?
- ACCURACY
- LOCK-TIME
- FIRECONTROL FIRING "FEEL"
- FIRECONTROL ADJUSTMENTS
- SCOPE MOUNTING PROVISIONS

CAN I OPERATE THE RIFLE EASILY AND IS IT SMOOTH?
- DEGREES OF BOLT ROTATION
- BOLT LIFT FORCE
- "NO DRAG" FOLLOWER

IS THE RIFLE EASY TO MAINTAIN?
- EASY DISASSEMBLY OF THE BOLT
- SYNTHETIC STOCK VERSION
- STAINLESS STEEL VERSION
- CORROSION RESISTANCE

IS THE RIFLE SAFE?
- COCKING INDICATOR
- REPUTATION (PRODUCT LIABILITY)

II. WHERE DO WE WANT TO BE?
WHAT IS OUR MARKETING APPROACH (LOW END/HIGH END)?

III. WHAT ARE OUR OVERALL RIFLE OBJECTIVES?
WHAT ARE OUR FIRECONTROL OBJECTIVES?

ET56482

IV. HOW DO WE ACHIEVE OUR OBJECTIVES?

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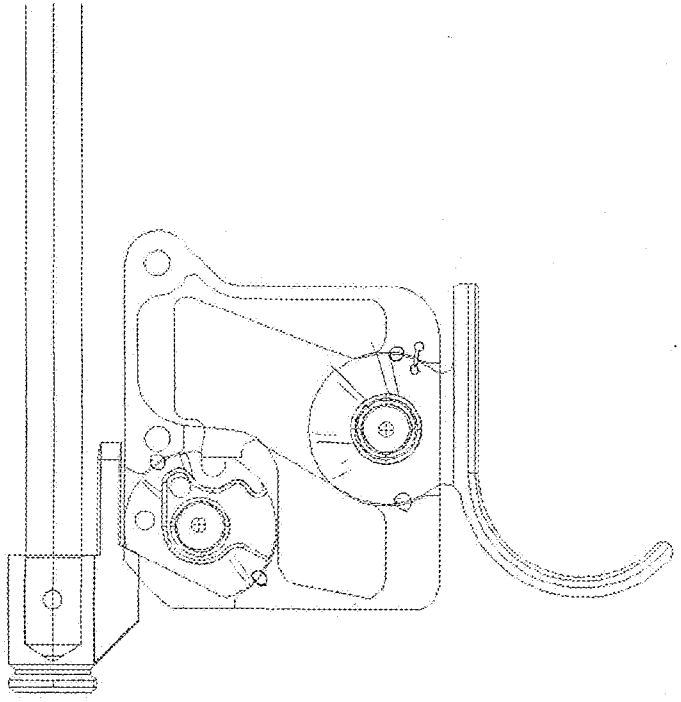

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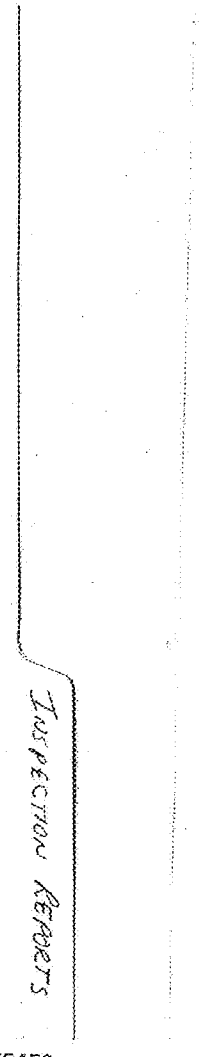

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BARBER - 2.4.130000238

21 Aug., 1995

DON'T SAY IT - WRITE IT !

TO: Fred Schmidt
Peter J. Cross

FROM: Glen D. Sietsema

RE: Prototype M/700 Safety Button

Fred and Pete,

Enclosed find thirty prototype M/700 Safety Arms and Safety Buttons.

Please:

- Weld into Safety Assys.
- Microcarb harden as per attached print (15N 88 - 92)
- Black Oxide Color 15 assys
- Give 15 assys to F.E. Schmidt for E-Ni plate per the attached print (exception - min. 8 hours bake). See M/700 Spec

When the assemblies are completed, please give them to Ed Ford. Ed will be on site Wed - Fri., and Mon - ??. You will be able to reach Ed through Bonnie Morotti. The target date to assemble these parts is Mon. 8/28/95.

INSPECTED

If I can be of any assistance please call me at 562-769-7617.

AUG 2 . 1995

15pcs black OXIDE

Thanks, Sietsema

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B-107315

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2 PLACE (.01) - TOLERANCE ± .010
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& ON FRACTIONAL DIMENSIONS ± 1/64
& ON ANGULAR DIMENSIONS ± 00°-30'
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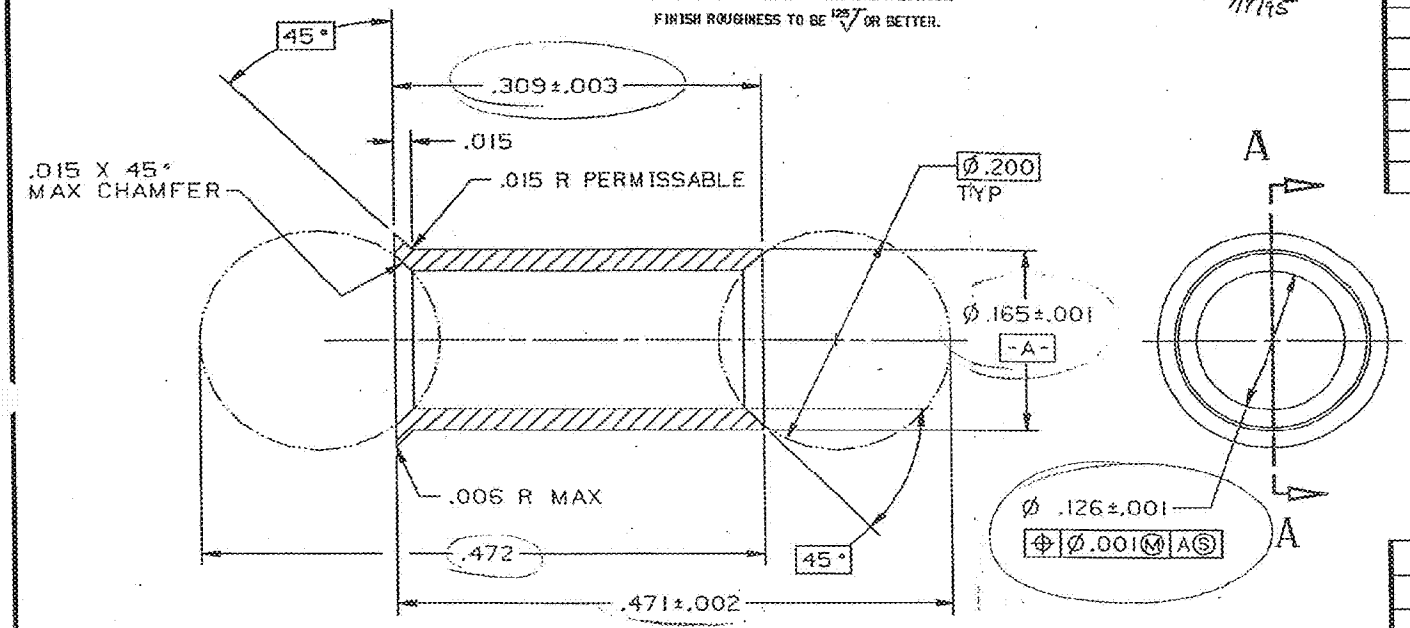
FINISH ROUGHNESS TO BE 125√ OR BETTER.

RECOMMENDED MATERIAL AND HEAT TREAT
MATERIAL AISI 416 STAINLESS
HEAT TREAT NONE
HARDNESS HRB 50 MIN
COLOR BRIGHT
HEAT TREAT AND COLOR TO BE DONE BY REMINGTON DSF 7/7/95

ALTERATIONS

ALT.	WAS	REF.	BY	DATE



SECTION A-A

ET55455

AUTHORIZED
PROCESS ENGINEERING

FOR BLANK ORDER PART NUMBER 107310

M/750	107315	TRIGGER PLATE BUSHING
MODEL	PART NO.	PART USE

DES. BY DATE	DRN. BY DATE	CHK. BY DATE	APP. BY DATE
FEM 10-7-94	MMH 2-23-95	DSF 2-23-95	

TITLE TRIGGER PLATE BUSHING

NUMBER	SCALE	SUPERSEDES	REFERENCE
B-107315	10X		

REMINGTON ARMS CO. INC.
R.ION RESEARCH DIV.

CV FILENAME - RIF.750.TRIG-PLATE-BUSHING.107315

Confidential - Subject to Protective Order
Williams v. Remmington

CUSTOMER	PART NO.	PART NAME
Remington	B-107315	Trigger Plate Bushing
DATE	REV	INSPECTOR
7-21-95	-- —	465 II
SPECIAL INSTRUCTIONS		
SET-UP		

Parts not Hardened

		SAMPLE #	0.309 ±.003	0.472 ±.005	0.471 ±.003	Ø 0.165 ±.001
B/P #	CHARACTERISTIC	TOL.	ACTUAL	ACTUAL	ACTUAL	ACTUAL
1			0.3084	0.4731	0.4725	0.1656
2			0.3084	0.4733	0.4724	0.1659
3			0.3087	0.4725	0.4723	0.1658
4			0.3087	0.4744	0.4723	(0.1663)
5			0.3078	0.4741	0.4724	(0.1662)
6			0.3084	0.4734	0.4724	(0.1651)
7			0.3082	0.4747	0.4724	(0.1662)
8			0.3086	0.4721	0.4726	0.1656
9			0.3084	0.4731	0.4722	0.1653
10			(0.3097)	0.4729	0.4705	0.1655
11			0.3087	0.4727	0.4725	0.1655
12			0.3090	0.4742	0.4725	0.1653
13			0.3083	0.4739	0.4724	0.1653
14			0.3087	0.4733	0.4726	0.1659
15			0.3087	0.4749	0.4727	0.1655
16			0.3085	0.4732	0.4724	0.1656
17			0.3086	0.4728	0.4724	0.1656
18			0.3083	0.4720	0.4724	0.1658
19			0.3090	0.4722	0.4725	0.1651
20			0.3087	0.4747	0.4724	0.1660
21			0.3090	0.4741	0.4723	0.1657
22			0.3086	0.4731	0.4725	0.1654
23			0.3086	0.4729	0.4723	0.1654
24			0.3093	0.4736	0.4725	0.1657
25			0.3081	0.4742	0.4724	(0.1661)
26			0.3085	0.4741	0.4724	0.1659
27			0.3085	0.4747	0.4723	0.1658
28			0.3090	0.4724	0.4724	0.1656

Confidential - Subject to Protective Order
Williams v. Remington

ET55456

BARBER - 2.4.130000241

LAYOUT CONT.

CUSTOMER		PART NO.				
		SAMPLE #	0.309 ±.005	0.472 ±.005	0.471 ±.002	Ø 0.165 ±.001
B/P #	CHARACTERISTIC	TOL.	ACTUAL	ACTUAL	ACTUAL	ACTUAL
29			0.3059	0.4722	0.4711	0.1652
30			0.3091	0.4736	0.4724	0.1652
31			0.3082	0.4733	0.4725	0.1658
32			0.3082	0.4732	0.4722	(0.1662)
33			0.3088	0.4747	0.4726	0.1653
34			(0.2937)	(0.4506)	(0.4578)	0.1660
35			0.3087	0.4732	0.4723	0.1658
36			0.3082	0.4726	0.4721	(0.1663)
37			0.3088	0.4695	0.4725	0.1654
38			0.3067	0.4734	0.4717	0.1653
39			0.3084	0.4745	0.4724	0.1657
40			0.3082	0.4744	0.4723	0.1660
41			0.3078	0.4727	0.4725	0.1652
42			0.3082	0.4739	0.4726	0.1658
43			0.3091	0.4728	0.4726	0.1655
44			0.3085	0.4713	0.4723	0.1656
45			0.3091	0.4711	0.4724	0.1653
46			0.3082	0.4732	0.4723	0.1652
47			0.3085	0.4735	0.4722	(0.1662)
48			0.3089	0.4739	0.4734	0.1658
49			0.3061	0.4736	0.4716	0.1653
50			0.5090	0.4718	0.4724	0.1653

ET55457

Confidential - Subject to Protective Order
Williams v. Remmington

CUSTOMER	PART NO.	PART NAME
Remington	B-107315	Trigger Plate Bushing
DATE	REV	INSPECTOR
7-21-95	— —	HGSII
SPECIAL INSTRUCTIONS		
SET-UP		

		SAMPLE #	Ø 0.1256 ±.001	#12 .0010 MAX		
B/P #	CHARACTERISTIC	TOL.	ACTUAL	ACTUAL	ACTUAL	ACTUAL
1			0.1260	0.0009		
2			0.1260	0.0034		
3			0.1260	0.0008		
4			0.1260	0.0023		
5			0.1260	0.0014		
6			0.1260	0.0021		
7			0.1260	0.0012		
8			0.1260	0.0015		
9			0.1260	0.0009		
10			0.1260	0.0012		
11			0.1260	0.0020		
12			0.1260	0.0017		
13			0.1260	0.0017		
14			0.1260	0.0027		
15			0.1260	0.0027		
16			0.1260	0.0033		
17			0.1260	0.0026		
18			0.1260	0.0008		
19			0.1260	0.0016		
20			0.1260	0.0032		
21			0.1260	0.0031		
22			0.1260	0.0080		
23			0.1260	0.0015		
24			0.1260	0.0017		
25			0.1260	0.0022		
26			0.1260	0.0018		
27			0.1260	0.0023		
28			0.1260	0.0043		

ET55458

Confidential - Subject to Protective Order
Williams v. Remmington

LAYOUT CONT.

CUSTOMER		PART NO.				
		SAMPLE #	Ø 0.126 ±.001	Ø.0005 M(S) L(S)		
S/P #	CHARACTERISTIC	TOL.	ACTUAL	ACTUAL	ACTUAL	ACTUAL
29			0.1260	0.0032		
30			0.1260	0.0011		
31			0.1260	0.0018		
32			0.1260	0.0016		
33			0.1260	0.0015		
34			0.1260	0.0007 OK		
35			0.1260	0.0027		
36			0.1260	0.0033		
37			0.1260	0.0022		
38			0.1260	0.0003		
39			0.1260	0.0009		
40			0.1260	0.0027		
41			0.1260	0.0018		
42			0.1260	0.0015		
43			0.1260	0.0016		
44			0.1260	0.0018		
45			0.1260	0.0039		
46			0.1260	0.0020		
47			0.1260	0.0009		
48			0.1260	0.0018		
49			0.1260	0.0032		
50			0.1260	0.0025		

ET55459

Confidential - Subject to Protective Order
Williams v. Remington

Program: 700bush.MVP Units: Inches Time: Thu Aug 17 10:56:59 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 1						
9 Diameter	[8]					
Diameter	0.16441	0.16500	0.00100	0.00100	-0.00059	
X position	-0.00000					
Y position	-0.00000					
12 Diameter	[11]					
Diameter	0.12690	0.12600	0.00100	0.00100	0.00090	
X position	0.00072					
Y position	0.00016					
Roundness	0.00199					

Hardness indent made ϕ out of round.
Checking with micrometers:
.165 ± .001 ~ .1623 – .1680 (one end)

ET55460

Confidential - Subject
to Protective Order
Williams v. Remmington

Program: 700BUSH.MVP Units: Inches Time: Thu Aug 17 13:13:17 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol

Program: 700BUSH.MVP Units: Inches Time: Thu Aug 17 13:14:27 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 2						
9 Diameter	[8]					
Diameter	0.16520	0.16500	0.00100	0.00100	0.00020	
X position	-0.00000					
Y position	-0.00000					
12 Diameter	[11]					
Diameter	0.12665	0.12600	0.00100	0.00100	0.00065	
X position	-0.00067					
Y position	0.00165					
Roundness	0.00030					

ϕ.1659 mics

ET55461

Confidential - Subject
to Protective Order
Williams v. Remington

Program: No name Units: Inches Time: Thu Aug 17 13:34:08 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 3						
9 Diameter	[8]					
Diameter	0.16492	0.16500	0.00100	0.00100	-0.00008	
X position	0.00000					
Y position	-0.00000					
12 Diameter	[11]					
Diameter	0.12682	0.12600	0.00100	0.00100	0.00082	
X position	-0.00011					
Y position	0.00027					
Roundness	0.00023					

ET55462

Confidential - Subject to Protective Order
Williams v. Remmington

Program: No name Units: Inches Time: Thu Aug 17 13:39:47 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 4						
9 Diameter	[8]					
Diameter	0.16550	0.16500	0.00100	0.00100	0.00050	
X position	0.00000					
Y position	-0.00000					
12 Diameter	[11]					
Diameter	0.12689	0.12600	0.00100	0.00100	0.00089	
X position	0.00069					
Y position	-0.00111					
Roundness	0.00016					

doing Mico:

Dia = .1661

ET55463

Confidential - Subject
to Protective Order
Williams v. Remmington

Program: No name Units: Inches Time: Thu Aug 17 13:49:41 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 5						
9 Diameter	[8]					
Diameter	0.16566	0.16500	0.00100	0.00100	0.00066	
X position	-0.00000					
Y position	0.00000					
12 Diameter	[11]					
Diameter	0.12677	0.12600	0.00100	0.00100	0.00077	
X position	0.00033					
Y position	0.00078					
Roundness	0.00014					

ET55464

Confidential - Subject
to Protective Order
Williams v. Remmington

Program: No name Units: Inches Time: Thu Aug 17 14:06:38 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 6						
9 Diameter	[8]					
155 Diameter	0.16520	0.16500	0.00100	0.00100	0.00020	
1661 X position	-0.00000					
Y position	-0.00000					
12 Diameter	[11]					
Diameter	0.12676	0.12600	0.00100	0.00100	0.00076	
X position	0.00123					
Y position	-0.00039					
Roundness	0.00005					

ET55465

Confidential - Subject
to Protective Order
Williams v. Remmington

Program: No name Units: Inches Time: Thu Aug 17 14:04:35 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 7						
9 Diameter	[8]					
Diameter	0.16560	0.16500	0.00100	0.00100	0.00060	
X position	0.00000					
Y position	0.00000					
12 Diameter	[11]					
Diameter	0.12659	0.12600	0.00100	0.00100	0.00059	
X position	0.00019					
Y position	0.00061					
Roundness	0.00008					

ET55466

Confidential - Subject
to Protective Order
Williams v. Remmington

Program: No name Units: Inches Time: Thu Aug 17 14:09:50 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 8						
9 Diameter	[8]					
1653 Diameter	0.16456	0.16500	0.00100	0.00100	-0.00044	
X position	0.00000					
Y position	-0.00000					
12 Diameter	[11]					
Diameter	0.12657	0.12600	0.00100	0.00100	0.00057	
X position	-0.00035					
Y position	0.00060					
Roundness	0.00017					

ET55467

Confidential - Subject
to Protective Order
Williams v. Remmington

Program: No name Units: Inches Time: Thu Aug 17 14:16:56 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 9						
11059 Diameter	[8]					
653 Diameter	0.16485	0.16500	0.00100	0.00100	-0.00015	
X position	0.00000					
Y position	0.00000					
12 Diameter	[11]					
Diameter	0.12691	0.12600	0.00100	0.00100	0.00091	
X position	-0.00080					
Y position	-0.00014					
Roundness	0.00019					

ET55468

Confidential - Subject
to Protective Order
Williams v. Remmington

Program: No name Units: Inches Time: Thu Aug 17 14:22:13 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 11						
9 Diameter	[8]					
Diameter	0.16512	0.16500	0.00100	0.00100	0.00012	
X position	-0.00000					
Y position	0.00000					
12 Diameter	[11]					
Diameter	0.12673	0.12600	0.00100	0.00100	0.00073	
X position	0.00087					
Y position	0.00025					
Roundness	0.00031					

Program: No name Units: Inches Time: Thu Aug 17 14:24:10 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol

~~13 Text~~
~~sample #: 2~~

Mics
@ .1654

ET55469

Confidential - Subject
to Protective Order
Williams v. Remmington

Program: 700bush.MVP Units: Inches Time: Thu Aug 17 14:28:07 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 12						

Program: 700bush.MVP Units: Inches Time: Thu Aug 17 14:29:52 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 12						

Program: 700bush.MVP Units: Inches Time: Thu Aug 17 14:32:05 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 12						
9 Diameter	[8]					
Diameter	0.16463	0.16500	0.00100	0.00100	-0.00037	
X position	0.00000					
Y position	-0.00000					
12 Diameter	[11]					
Diameter	0.12659	0.12600	0.00100	0.00100	0.00059	
X position	0.00063					
Y position	0.00059					
Roundness	0.00014					

ET55470

MICS
,1652

Confidential - Subject
to Protective Order
Williams v. Remmington

Program: No name Units: Inches Time: Thu Aug 17 14:34:59 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 13						
9 Diameter	[8]					
Diameter	0.16459	0.16500	0.00100	0.00100	-0.00041	
X position	-0.00000					
Y position	-0.00000					
12 Diameter	[11]					
Diameter	0.12682	0.12600	0.00100	0.00100	0.00082	
X position	-0.00030					
Y position	-0.00012					
Roundness	0.00014					

MICs:
ϕ .1654

ET55471

Confidential - Subject
to Protective Order
Williams v. Remington

Program: No name Units: Inches Time: Thu Aug 17 14:39:29 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 14						
9 Diameter	[8]					
Diameter	0.16547	0.16500	0.00100	0.00100	0.00047	
X position	0.00000					
Y position	0.00000					
12 Diameter	[11]					
Diameter	0.12670	0.12600	0.00100	0.00100	0.00070	
X position	-0.00138					
Y position	0.00042					
Roundness	0.00022					

MICS
ϕ .1660

ET55472

Confidential - Subject
to Protective Order
Williams v. Remmington

Program: No name Units: Inches Time: Thu Aug 17 14:41:43 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 15						
9 Diameter	[8]					
Diameter	0.16498	0.16500	0.00100	0.00100	-0.00002	
X position	-0.00000					
Y position	-0.00000					
12 Diameter	[11]					
Diameter	0.12642	0.12600	0.00100	0.00100	0.00042	
X position	0.00060					
Y position	0.00133					
Roundness	0.00013					

Mics
~~ϕ.1665~~
ϕ.1655

ET55473

Confidential - Subject
to Protective Order
Williams v. Remmington

Program: No name Units: Inches Time: Thu Aug 17 14:44:32 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 16						
9 Diameter	[8]					
Diameter	0.16511	0.16500	0.00100	0.00100	0.00011	
X position	0.00000					
Y position	0.00000					
12 Diameter	[11]					
Diameter	0.12659	0.12600	0.00100	0.00100	0.00059	
X position	0.00081					
Y position	0.00107					
Roundness	0.00011					

MICS
ϕ.1657

ET55474

Confidential - Subject
to Protective Order
Williams v. Remmington

Program: No name Units: Inches Time: Thu Aug 17 14:46:49 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 17						
9 Diameter	[8]					
Diameter	0.16504	0.16500	0.00100	0.00100	0.00004	
X position	-0.00000					
Y position	-0.00000					
12 Diameter	[11]					
Diameter	0.12695	0.12600	0.00100	0.00100	0.00095	
X position	-0.00050					
Y position	-0.00105					
Roundness	0.00041					

MICS
ϕ.1655

ET55475

Confidential - Subject
to Protective Order
Williams v. Remmington

Program: No name Units: Inches Time: Thu Aug 17 14:52:19 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 13						
9 Diameter	[8]					
Diameter	0.16500	0.16500	0.00100	0.00100	0.00000	
X position	0.00000					
Y position	-0.00000					
12 Diameter	[11]					
Diameter	0.12763	0.12800	0.00100	0.00100	0.00163	0.00063
X position	-0.00046					
Y position	-0.00049					
Roundness	0.00052					

ϕ,1659 MICS

ET55476

Confidential - Subject
to Protective Order
Williams v. Remmington

Program: No name Units: Inches Time: Thu Aug 17 14:54:37 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 19						
9 Diameter	[8]					
Diameter	0.16453	0.16500	0.00100	0.00100	-0.00047	
X position	0.00000					
Y position	0.00000					
12 Diameter	[11]					
Diameter	0.12669	0.12600	0.00100	0.00100	0.00069	
X position	0.00052					
Y position	0.00064					
Roundness	0.00023					

ϕ .1653 Mics

ET55477

Confidential - Subject
to Protective Order
Williams v. Remmington

Program: PROGRAM.BAK Units: Inches Time: Thu Aug 17 14:58:52 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 20						
9 Diameter	[8]					
Diameter	0.16589	0.16500	0.00100	0.00100	0.00069	
X position	0.00000					
Y position	0.00000					
12 Diameter	[11]					
Diameter	0.12707	0.12600	0.00100	0.00100	0.00107	0.00007
X position	-0.00137					
Y position	0.00046					
Roundness	0.00030					

ϕ.1661 mics

ET55478

Confidential - Subject
to Protective Order
Williams v. Remmington

Program: No name Units: Inches Time: Thu Aug 17 15:01:12 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 21						
9 Diameter	[8]					
Diameter	0.16514	0.16500	0.00100	0.00100	0.00014	
X position	0.00000					
Y position	-0.00000					
12 Diameter	[11]					
Diameter	0.12845	0.12600	0.00100	0.00100	0.00245	0.00145
X position	-0.00082					
Y position	-0.00151					
Roundness	0.00027					

ϕ.1658 MICS

ET55479

Confidential - Subject
to Protective Order
Williams v. Remmington

LAYOUT CONT.

CUSTOMER		PART NO.				
		SAMPLE #	0.309 ±.003	0.472 ±.005	±.471 ±.002	Ø 0.165 ±.001
B/P #	CHARACTERISTIC	TOL.	ACTUAL	ACTUAL	ACTUAL	ACTUAL
29			0.3059	0.4722	0.4711	0.1652
30			0.3091	0.4736	0.4724	0.1652
31			0.3082	0.4733	0.4725	0.1658
32			0.3082	0.4732	0.4722	0.1662
33			0.3088	0.4747	0.4726	0.1653
34			0.2987	0.4506	0.4578	0.1660
35			0.3087	0.4732	0.4723	0.1658
36			0.3082	0.4726	0.4721	0.1663
37			0.3088	0.4695	0.4725	0.1654
38			0.3067	0.4734	0.4717	0.1653
39			0.3084	0.4745	0.4724	0.1657
40			0.3082	0.4744	0.4723	0.1660
41			0.3078	0.4727	0.4725	0.1652
42			0.3082	0.4739	0.4726	0.1658
43			0.3091	0.4728	0.4726	0.1655
44			0.3085	0.4713	0.4723	0.1656
45			0.3091	0.4711	0.4724	0.1653
46			0.3082	0.4732	0.4723	0.1652
47			0.3083	0.4733	0.4722	0.1662
48			0.3089	0.4739	0.4734	0.1658
49			0.3061	0.4736	0.4716	0.1653
50			0.3090	0.4718	0.4724	0.1653

ET55457

Confidential - Subject to Protective Order
Williams v. Remmington

CUSTOMER	PART NO.	PART NAME
Remington	B-107315	Trigger Plate Bushing
DATE	REV	INSPECTOR
7-21-95	— —	HGSII
SPECIAL INSTRUCTIONS		
SET-UP		

		SAMPLE #	Ø0.126 ±.001	Ø.126 +.001 -.000 [M] [A]		
B/P #	CHARACTERISTIC	TOL.	ACTUAL	ACTUAL	ACTUAL	ACTUAL
1			0.1260	0.0009		
2			0.1260	0.0034		
3			0.1260	0.0009		
4			0.1260	0.0023		
5			0.1260	0.0014		
6			0.1260	0.0024		
7			0.1260	0.0012		
8			0.1260	0.0015		
9			0.1260	0.0009		
10			0.1260	0.0012		
11			0.1260	0.0020		
12			0.1260	0.0017		
13			0.1260	0.0017		
14			0.1260	0.0027		
15			0.1260	0.0027		
16			0.1260	0.0033		
17			0.1260	0.0026		
18			0.1260	0.0008		
19			0.1260	0.0016		
20			0.1260	0.0032		
21			0.1260	0.0031		
22			0.1260	0.0020		
23			0.1260	0.0015		
24			0.1260	0.0017		
25			0.1260	0.0022		
26			0.1260	0.0018		
27			0.1260	0.0023		
28			0.1260	0.0043		

ET55458

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LAYOUT CONT.

CUSTOMER		PART NO.				
		SAMPLE #	Ø0.1265 Ø/Ø.001(M)/A(B)			
B/P #	CHARACTERISTIC	TOL.	ACTUAL	ACTUAL	ACTUAL	ACTUAL
29			0.1260	0.0032		
30			0.1260	0.0011		
31			0.1260	0.0018		
32			0.1260	0.0016		
33			0.1260	0.0015		
34			0.1260	0.0007 OK		
35			0.1260	0.0027		
36			0.1260	0.0033		
37			0.1260	0.0022		
38			0.1260	0.0003		
39			0.1260	0.0009		
40			0.1260	0.0027		
41			0.1260	0.0018		
42			0.1260	0.0015		
43			0.1260	0.0016		
44			0.1260	0.0018		
45			0.1260	0.0039		
46			0.1260	0.0020		
47			0.1260	0.0009		
48			0.1260	0.0018		
49			0.1260	0.0032		
50			0.1260	0.0025		

ET55459

Confidential - Subject to Protective Order
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Program: 700bush.MVP Units: Inches Time: Thu Aug 17 10:56:59 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 1						
9 Diameter	[8]					
Diameter	0.16441	0.16500	0.00100	0.00100	-0.00059	
X position	-0.00000					
Y position	-0.00000					
12 Diameter	[11]					
Diameter	0.12690	0.12600	0.00100	0.00100	0.00090	
X position	0.00072					
Y position	0.00016					
Roundness	0.00199					

Hardness indent made ϕ out of round.
Checking with micrometers:
.165 ± .001 ~ .1623 – .1680 (me and)

ET55460

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Program: 700BUSH.MVP Units: Inches Time: Thu Aug 17 13:13:17 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol

Program: 700BUSH.MVP Units: Inches Time: Thu Aug 17 13:14:27 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 2						
9 Diameter	[9]					
Diameter	0.16520	0.16500	0.00100	0.00100	0.00020	
X position	-0.00000					
Y position	-0.00000					
12 Diameter	[11]					
Diameter	0.12665	0.12600	0.00100	0.00100	0.00065	
X position	-0.00067					
Y position	0.00165					
Roundness	0.00030					

Ø.1659 MICS

ET55461

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to Protective Order
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Program: No name Units: Inches Time: Thu Aug 17 13:34:08 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 3						
9 Diameter	[8]					
Diameter	0.16492	0.16500	0.00100	0.00100	-0.00008	
X position	0.00000					
Y position	-0.00000					
12 Diameter	[11]					
Diameter	0.12682	0.12600	0.00100	0.00100	0.00082	
X position	-0.00011					
Y position	0.00027					
Roundness	0.00023					

ET55462

Confidential - Subject to Protective Order
Williams v. Remmington

Program: No name Units: Inches Time: Thu Aug 17 13:39:47 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 4						
9 Diameter	[8]					
Diameter	0.16550	0.16500	0.00100	0.00100	0.00050	
X position	0.00000					
Y position	-0.00000					
12 Diameter	[11]					
Diameter	0.12689	0.12600	0.00100	0.00100	0.00089	
X position	0.00069					
Y position	-0.00111					
Roundness	0.00016					

Using Mics:

Dia = .1661

ET55463

Confidential - Subject to Protective Order
Williams v. Remmington

Program: No name Units: Inches Time: Thu Aug 17 13:49:41 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 5						
CS 9 Diameter	[8]					
11604 Diameter	0.16566	0.16500	0.00100	0.00100	0.00066	
X position	-0.00000					
Y position	0.00000					
12 Diameter	[11]					
Diameter	0.12677	0.12600	0.00100	0.00100	0.00077	
X position	0.00033					
Y position	0.00078					
Roundness	0.00014					

ET55464

Confidential - Subject
to Protective Order
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Program: No name Units: Inches Time: Thu Aug 17 14:06:38 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 6						
9 Diameter	[8]					
Diameter	0.16520	0.16500	0.00100	0.00100	0.00020	
X position	-0.00000					
Y position	-0.00000					
12 Diameter	[11]					
Diameter	0.12676	0.12600	0.00100	0.00100	0.00076	
X position	0.00123					
Y position	-0.00039					
Roundness	0.00005					

ICS
1661

ET55465

Confidential - Subject
to Protective Order
Williams v. Remmington

Program: No name Units: Inches Time: Thu Aug 17 14:04:35 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 7						
cs 9 Diameter	[8]					
662 Diameter	0.16560	0.16500	0.00100	0.00100	0.00060	
X position	0.00000					
Y position	0.00000					
12 Diameter	[11]					
Diameter	0.12659	0.12600	0.00100	0.00100	0.00059	
X position	0.00019					
Y position	0.00061					
Roundness	0.00008					

ET55466

Confidential - Subject
to Protective Order
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Program: No name Units: Inches Time: Thu Aug 17 14:09:50 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 8						
9 Diameter	[8]					
1653 Diameter	0.16456	0.16500	0.00100	0.00100	-0.00044	
X position	0.00000					
Y position	-0.00000					
12 Diameter	[11]					
Diameter	0.12657	0.12600	0.00100	0.00100	0.00057	
X position	-0.00025					
Y position	0.00060					
Roundness	0.00017					

ET55467

Confidential - Subject
to Protective Order
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Program: No name Units: Inches Time: Thu Aug 17 14:16:56 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 9						
1059 Diameter	[8]					
653 Diameter	0.16485	0.16500	0.00100	0.00100	-0.00015	
X position	0.00000					
Y position	0.00000					
12 Diameter	[11]					
Diameter	0.12691	0.12600	0.00100	0.00100	0.00091	
X position	-0.00080					
Y position	-0.00014					
Roundness	0.00019					

ET55468

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to Protective Order
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Program: No name Units: Inches Time: Thu Aug 17 14:22:13 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 11						
9 Diameter	[8]					
Diameter	0.16512	0.16500	0.00100	0.00100	0.00012	
X position	-0.00000					
Y position	0.00000					
12 Diameter	[11]					
Diameter	0.12673	0.12600	0.00100	0.00100	0.00073	
X position	0.00087					
Y position	0.00025					
Roundness	0.00031					

Program: No name Units: Inches Time: Thu Aug 17 14:24:10 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol

~~13 Text~~
~~sample #: 8~~

Mics
Ø .1654

ET55469

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Program: 700bush.MVP Units: Inches Time: Thu Aug 17 14:28:07 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 12						

Program: 700bush.MVP Units: Inches Time: Thu Aug 17 14:29:52 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 12						

Program: 700bush.MVP Units: Inches Time: Thu Aug 17 14:32:05 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 12						
9 Diameter	[8]					
Diameter	0.16463	0.16500	0.00100	0.00100	-0.00037	
X position	0.00000					
Y position	-0.00000					
12 Diameter	[11]					
Diameter	0.12659	0.12600	0.00100	0.00100	0.00059	
X position	0.00063					
Y position	0.00059					
Roundness	0.00014					

ET55470

MICS
,1652

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Program: No name Units: Inches Time: Thu Aug 17 14:34:59 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 13						
9 Diameter	[8]					
Diameter	0.16459	0.16500	0.00100	0.00100	-0.00041	
X position	-0.00000					
Y position	-0.00000					
12 Diameter	[11]					
Diameter	0.12682	0.12600	0.00100	0.00100	0.00082	
X position	-0.00030					
Y position	-0.00012					
Roundness	0.00014					

MICS:
ϕ .1654

ET55471

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Program: No name Units: Inches Time: Thu Aug 17 14:39:29 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 14						
9 Diameter	[8]					
Diameter	0.16547	0.16500	0.00100	0.00100	0.00047	
X position	0.00000					
Y position	0.00000					
12 Diameter	[11]					
Diameter	0.12670	0.12600	0.00100	0.00100	0.00070	
X position	-0.00138					
Y position	0.00042					
Roundness	0.00022					

MICS
ϕ .1660

ET55472

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Program: No name Units: Inches Time: Thu Aug 17 14:41:43 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 15						
9 Diameter	[8]					
Diameter	0.16498	0.16500	0.00100	0.00100	-0.00002	
X position	-0.00000					
Y position	-0.00000					
12 Diameter	[11]					
Diameter	0.12642	0.12600	0.00100	0.00100	0.00042	
X position	0.00060					
Y position	0.00133					
Roundness	0.00013					

MICS
~~ϕ.1655~~
ϕ.1655

ET55473

Confidential - Subject to Protective Order
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Program: No name Units: Inches Time: Thu Aug 17 14:44:32 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 16						
9 Diameter	[8]					
Diameter	0.16511	0.16500	0.00100	0.00100	0.00011	
X position	0.00000					
Y position	0.00000					
12 Diameter	[11]					
Diameter	0.12659	0.12600	0.00100	0.00100	0.00059	
X position	0.00081					
Y position	0.00107					
Roundness	0.00011					

MICS
ϕ.1657

ET55474

Confidential - Subject
to Protective Order
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Program: No name Units: Inches Time: Thu Aug 17 14:46:49 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 17						
9 Diameter	[8]					
Diameter	0.16504	0.16500	0.00100	0.00100	0.00004	
X position	-0.00000					
Y position	-0.00000					
12 Diameter	[11]					
Diameter	0.12685	0.12600	0.00100	0.00100	0.00085	
X position	-0.00050					
Y position	-0.00105					
Roundness	0.00041					

MICS
ϕ.1655

ET55475

Confidential - Subject to Protective Order
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Program: No name Units: Inches Time: Thu Aug 17 14:52:19 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 18						
9 Diameter	[8]					
Diameter	0.16500	0.16500	0.00100	0.00100	0.00000	
X position	0.00000					
Y position	-0.00000					
12 Diameter	[11]					
Diameter	0.12763	0.12600	0.00100	0.00100	0.00163	0.00063
X position	-0.00046					
Y position	-0.00049					
Roundness	0.00032					

ϕ.1659 MICS

ET55476

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Program: No name Units: Inches Time: Thu Aug 17 14:54:37 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 19						
9 Diameter	[8]					
Diameter	0.16453	0.16500	0.00100	0.00100	-0.00047	
X position	0.00000					
Y position	0.00000					
12 Diameter	[11]					
Diameter	0.12669	0.12600	0.00100	0.00100	0.00069	
X position	0.00052					
Y position	0.00064					
Roundness	0.00023					

ϕ .1653 MICS

ET55477

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Program: PROGRAM.BAK Units: Inches Time: Thu Aug 17 14:58:52 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 20						
9 Diameter	[8]					
Diameter	0.16569	0.16500	0.00100	0.00100	0.00069	
X position	0.00000					
Y position	0.00000					
12 Diameter	[11]					
Diameter	0.12707	0.12600	0.00100	0.00100	0.00107	0.00007
X position	-0.00137					
Y position	0.00046					
Roundness	0.00030					

ϕ.1661 MICS

ET55478

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Program: No name Units: Inches Time: Thu Aug 17 15:01:12 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 21						
9 Diameter	[8]					
Diameter	0.16514	0.16500	0.00100	0.00100	0.00014	
X position	0.00000					
Y position	-0.00000					
12 Diameter	[11]					
Diameter	0.12845	0.12600	0.00100	0.00100	0.00245	0.00145
X position	-0.00082					
Y position	-0.00151					
Roundness	0.00027					

ϕ.1658 MICS

ET55479

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Program: No name Units: Inches Time: Thu Aug 17 15:03:27 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 22						
9 Diameter	[8]					
Diameter	0.16491	0.16500	0.00100	0.00100	-0.00009	
X position	0.00000					
Y position	-0.00000					
12 Diameter	[11]					
Diameter	0.12678	0.12600	0.00100	0.00100	0.00078	
X position	0.00054					
Y position	0.00143					
Roundness	0.00026					

ϕ.1656 MICS

ET55480

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Program: No name Units: Inches Time: Thu Aug 17 15:06:02 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 23						
9 Diameter	[8]					
Diameter	0.16477	0.16500	0.00100	0.00100	-0.00023	
X position	0.00000					
Y position	-0.00000					
12 Diameter	[11]					
Diameter	0.12681	0.12600	0.00100	0.00100	0.00081	
X position	-0.00078					
Y position	-0.00018					
Roundness	0.00012					

ϕ.1655 MICS

ET55481

Confidential - Subject to Protective Order
Williams v. Remmington

Program: No name Units: Inches Time: Thu Aug 17 16:40:22 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 24						
9 Diameter	[8]					
Diameter	0.16552	0.16500	0.00100	0.00100	0.00052	
X position	-0.00000					
Y position	0.00000					
12 Diameter	[11]					
Diameter	0.12694	0.12600	0.00100	0.00100	0.00094	
X position	0.00067					
Y position	0.00047					
Roundness	0.00059					

ϕ.1657 MICS

ET55482

Confidential - Subject to Protective Order
Williams v. Remmington

Program: No name Units: Inches Time: Thu Aug 17 15:09:59 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 25						
9 Diameter	[8]					
Diameter	0.16547	0.16500	0.00100	0.00100	0.00047	
X position	0.00000					
Y position	0.00000					
12 Diameter	[11]					
Diameter	0.12680	0.12600	0.00100	0.00100	0.00080	
X position	0.00038					
Y position	-0.00118					
Roundness	0.00013					

ϕ.1662 MICS

ET55483

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Program: No name Units: Inches Time: Thu Aug 17 15:12:16 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 26						
9 Diameter	[8]					
Diameter	0.16546	0.16500	0.00100	0.00100	0.00046	
X position	-0.00000					
Y position	-0.00000					
12 Diameter	[11]					
Diameter	0.12691	0.12600	0.00100	0.00100	0.00091	
X position	0.00053					
Y position	0.00072					
Roundness	0.00015					

ϕ.1660 MICS

ET55484

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Program: No name Units: Inches Time: Thu Aug 17 15:14:37 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 27						
9 Diameter	[8]					
Diameter	0.16547	0.16500	0.00100	0.00100	0.00047	
X position	0.00000					
Y position	0.00000					
12 Diameter	[11]					
Diameter	0.12684	0.12600	0.00100	0.00100	0.00084	
X position	-0.00116					
Y position	0.00058					
Roundness	0.00019					

ϕ.1659 MICS

ET55485

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Program: No name Units: Inches Time: Thu Aug 17 15:16:45 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
Sample #: 28						
9 Diameter	[8]					
Diameter	0.16505	0.16500	0.00100	0.00100	0.00005	
X position	0.00000					
Y position	0.00000					
12 Diameter	[11]					
Diameter	0.12677	0.12600	0.00100	0.00100	0.00077	
X position	-0.00016					
Y position	0.00221					
Roundness	0.00011					

ϕ.1656 MICS

ET55486

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Program: No name Units: Inches Time: Thu Aug 17 16:32:49 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 29						
9 Diameter	[8]					
Diameter	0.16493	0.16500	0.00100	0.00100	-0.00007	
X position	-0.00000					
Y position	-0.00000					
12 Diameter	[11]					
Diameter	0.12682	0.12600	0.00100	0.00100	0.00082	
X position	-0.00050					
Y position	0.00150					
Roundness	0.00013					

ϕ.1654 MICS

ET55487

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Program: No name Units: Inches Time: Thu Aug 17 15:21:11 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 30						
9 Diameter	[8]					
Diameter	0.16473	0.16500	0.00100	0.00100	-0.00027	
X position	0.00000					
Y position	-0.00000					
12 Diameter	[11]					
Diameter	0.12697	0.12600	0.00100	0.00100	0.00097	
X position	0.00034					
Y position	-0.00002					
Roundness	0.00016					

Ø.1654 MCS

ET55488

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Program: No name Units: Inches Time: Thu Aug 17 15:23:17 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 31						
9 Diameter	[8]					
Diameter	0.16519	0.16500	0.00100	0.00100	0.00019	
X position	-0.00000					
Y position	0.00000					
12 Diameter	[11]					
Diameter	0.12670	0.12600	0.00100	0.00100	0.00070	
X position	-0.00059					
Y position	-0.00021					
Roundness	0.00021					

ϕ.1659 MICS

ET55489

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Program: No name Units: Inches Time: Thu Aug 17 15:25:28 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 32						
9 Diameter	[8]					
Diameter	0.16564	0.16500	0.00100	0.00100	0.00064	
X position	-0.00000					
Y position	-0.00000					
12 Diameter	[11]					
Diameter	0.12678	0.12600	0.00100	0.00100	0.00078	
X position	-0.00008					
Y position	-0.00058					
Roundness	0.00020					

ϕ.1663 MICS

ET55490

Confidential - Subject
to Protective Order
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Program: No name Units: Inches Time: Thu Aug 17 15:27:35 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 33						
9 Diameter	[8]					
Diameter	0.16468	0.16500	0.00100	0.00100	-0.00032	
X position	-0.00000					
Y position	-0.00000					
12 Diameter	[11]					
Diameter	0.12696	0.12600	0.00100	0.00100	0.00096	
X position	-0.00063					
Y position	-0.00082					
Roundness	0.00015					

ϕ.1655 MICS

ET55491

Confidential - Subject
to Protective Order
Williams v. Remmington

Program: No name Units: Inches Time: Thu Aug 17 15:29:34 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 35						
9 Diameter	[8]					
Diameter	0.16472	0.16500	0.00100	0.00100	-0.00028	
X position	-0.00000					
Y position	0.00000					
12 Diameter	[11]					
Diameter	0.12696	0.12600	0.00100	0.00100	0.00096	
X position	0.00015					
Y position	-0.00110					
Roundness	0.00009					

ϕ .1659 MICS

ET55492

Confidential - Subject
to Protective Order
Williams v. Remmington

Program: No name Units: Inches Time: Thu Aug 17 15:32:08 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 36						
9 Diameter	[8]					
Diameter	0.16579	0.16500	0.00100	0.00100	0.00079	
X position	-0.00000					
Y position	-0.00000					
12 Diameter	[11]					
Diameter	0.12687	0.12600	0.00100	0.00100	0.00087	
X position	0.00133					
Y position	-0.00091					
Roundness	0.00033					

Ø.1664 MICS

ET55493

Confidential - Subject to Protective Order
Williams v. Remington

Program: No name Units: Inches Time: Thu Aug 17 15:34:25 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 37						
9 Diameter	[8]					
Diameter	0.16468	0.16500	0.00100	0.00100	-0.00032	
X position	0.00000					
Y position	0.00000					
12 Diameter	[11]					
Diameter	0.12662	0.12600	0.00100	0.00100	0.00062	
X position	-0.00044					
Y position	0.00110					
Roundness	0.00016					

ϕ.1655 HICS

ET55494

Confidential - Subject
to Protective Order
Williams v. Remmington

Program: No name Units: Inches Time: Thu Aug 17 15:36:46 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 38						
9 Diameter	[8]					
Diameter	0.16477	0.16500	0.00100	0.00100	-0.00023	
X position	-0.00000					
Y position	-0.00000					
12 Diameter	[11]					
Diameter	0.12673	0.12600	0.00100	0.00100	0.00073	
X position	0.00015					
Y position	0.00017					
Roundness	0.00025					

ϕ.1654 mics

ET55495

Confidential - Subject
to Protective Order
Williams v. Remmington

Program: No name Units: Inches Time: Thu Aug 17 15:42:56 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 39						
9 Diameter	[8]					
Diameter	0.16516	0.16500	0.00100	0.00100	0.00016	
X position	0.00000					
Y position	0.00000					
12 Diameter	[11]					
Diameter	0.12698	0.12600	0.00100	0.00100	0.00098	
X position	-0.00012					
Y position	0.00048					
Roundness	0.00020					

ϕ.1657 MICS

ET55496

Confidential - Subject
to Protective Order
Williams v. Remmington

Program: No name Units: Inches Time: Thu Aug 17 15:45:10 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 40						
9 Diameter	[8]					
Diameter	0.16529	0.16500	0.00100	0.00100	0.00029	
X position	0.00000					
Y position	-0.00000					
12 Diameter	[11]					
Diameter	0.12679	0.12600	0.00100	0.00100	0.00079	
X position	0.00081					
Y position	0.00102					
Roundness	0.00019					

ϕ.1660 Mics

ET55497

Confidential - Subject
to Protective Order
Williams v. Remmington

Program: No name Units: Inches Time: Thu Aug 17 15:47:40 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 41						
9 Diameter	[8]					
Diameter	0.16450	0.16500	0.00100	0.00100	-0.00050	
X position	-0.00000					
Y position	-0.00000					
12 Diameter	[11]					
Diameter	0.12648	0.12600	0.00100	0.00100	0.00048	
X position	0.00062					
Y position	-0.00049					
Roundness	0.00016					

ϕ.1653 MICS

ET55498

Confidential - Subject
to Protective Order
Williams v. Remmington

Program: No name Units: Inches Time: Thu Aug 17 15:49:37 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 42						
9 Diameter	[8]					
Diameter	0.16485	0.16500	0.00100	0.00100	-0.00015	
X position	-0.00000					
Y position	-0.00000					
12 Diameter	[11]					
Diameter	0.12672	0.12600	0.00100	0.00100	0.00072	
X position	-0.00082					
Y position	0.00053					
Roundness	0.00019					

Ø.1658 MICS

ET55499

Confidential - Subject to Protective Order
Williams v. Remmington

Program: No name Units: Inches Time: Thu Aug 17 15:51:57 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 43						
9 Diameter	[8]					
Diameter	0.16502	0.16500	0.00100	0.00100	0.00002	
X position	-0.00000					
Y position	0.00000					
12 Diameter	[11]					
Diameter	0.12678	0.12600	0.00100	0.00100	0.00078	
X position	0.00057					
Y position	0.00045					
Roundness	0.00016					

Ø.1656 MICS

ET55500

Confidential - Subject
to Protective Order

Program: No name Units: Inches Time: Thu Aug 17 15:54:02 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 44						
9 Diameter	[8]					
Diameter	0.16497	0.16500	0.00100	0.00100	-0.00003	
X position	0.00000					
Y position	-0.00000					
12 Diameter	[11]					
Diameter	0.12681	0.12600	0.00100	0.00100	0.00081	
X position	0.00057					
Y position	-0.00079					
Roundness	0.00022					

ϕ.1657 MICS

ET55501

Confidential - Subject
to Protective Order
Williams v. Remmington

Program: No name Units: Inches Time: Thu Aug 17 16:06:27 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 45						
9 Diameter	[8]					
Diameter	0.16470	0.16500	0.00100	0.00100	-0.00030	
X position	0.00000					
Y position	-0.00000					
12 Diameter	[11]					
Diameter	0.12667	0.12600	0.00100	0.00100	0.00067	
X position	-0.00005					
Y position	0.00195					
Roundness	0.00028					

ϕ.1652 mics

ET55502

Confidential - Subject
to Protective Order
Williams v. Remmington

Program: No name Units: Inches Time: Thu Aug 17 16:09:38 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 46						
9 Diameter	[8]					
Diameter	0.16461	0.16500	0.00100	0.00100	-0.00039	
X position	-0.00000					
Y position	-0.00000					
12 Diameter	[11]					
Diameter	0.12679	0.12600	0.00100	0.00100	0.00079	
X position	0.00089					
Y position	-0.00031					
Roundness	0.00007					

ϕ.1654 MICS

ET55503

Confidential - Subject to Protective Order
Williams v. Remmington

Program: No name Units: Inches Time: Thu Aug 17 16:11:37 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 47						
9 Diameter	[8]					
Diameter	0.16564	0.16500	0.00100	0.00100	0.00064	
X position	0.00000					
Y position	0.00000					
12 Diameter	[11]					
Diameter	0.12679	0.12600	0.00100	0.00100	0.00079	
X position	-0.00005					
Y position	-0.00057					
Roundness	0.00013					

Φ.1662 MICS

ET55504

Confidential - Subject to Protective Order
Williams v. Remington

Program: No name Units: Inches Time: Thu Aug 17 16:13:55 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
Sample #: 48						
9 Diameter	[8]					
Diameter	0.16534	0.16500	0.00100	0.00100	0.00034	
X position	-0.00000					
Y position	0.00000					
12 Diameter	[11]					
Diameter	0.12708	0.12600	0.00100	0.00100	0.00108	0.00008
X position	0.00012					
Y position	-0.00101					
Roundness	0.00019					

ϕ .1660 MICS

ET55505

Confidential - Subject to Protective Order
Williams v. Remmington

Program: No name Units: Inches Time: Thu Aug 17 16:17:09 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 49						
9 Diameter	[8]					
Diameter	0.16466	0.16500	0.00100	0.00100	-0.00034	
X position	-0.00000					
Y position	-0.00000					
12 Diameter	[11]					
Diameter	0.12686	0.12600	0.00100	0.00100	0.00086	
X position	-0.00006					
Y position	0.00143					
Roundness	0.00015					

ϕ.1653 MICS

ET55506

Confidential - Subject
to Protective Order
Williams v. Remmington

Program: No name Units: Inches Time: Thu Aug 17 16:20:35 1995

Feature	Actual	Nominal	+Tol	-Tol	Dev/nom	Out/tol
13 Text						
sample #: 50						
9 Diameter	[8]					
Diameter	0.16483	0.16500	0.00100	0.00100	-0.00017	
X position	-0.00000					
Y position	0.00000					
12 Diameter	[11]					
Diameter	0.12660	0.12600	0.00100	0.00100	0.00060	
X position	-0.00015					
Y position	0.00108					
Roundness	0.00013					

ϕ.1654 MICS

ET55507

Confidential - Subject to Protective Order
Williams v Remington

PAGE BREAK

PARTS NO GOOD
DUE TO WARPAGE
AT HEAT TREAT.

[RE-MADE PARTS]
SEE OTHER INSPECTION SHEETS

ET55508

Confidential - Subject to Protective Order
Williams v. Remington

RT. SIDE PLATE - PRIOR TO H.T.

CUSTOMER	PART NO.	PART NAME
Remington	D-107375 D-99250	Lt Side Plate
DATE 7-18-95	REV -	INSPECTOR HGS II
SPECIAL INSTRUCTIONS		
SET-UP PARTS WERE STONED PRIOR TO Thkness & Flatness Check. Burr found between holes 12 & 13 on chamfer.		

			SAMPLE # 1	2	3	4
B/P #	CHARACTERISTIC	TOL	ACTUAL	ACTUAL	ACTUAL	ACTUAL
Datum B	Ø 0.1675	±0.0005	0.1675	0.1675	0.1675	0.1675
1	Ø 0.1675	±0.0005	0.1675	0.1675	0.1675	0.1675
2	Ø 0.312	±0.005	0.3120	0.3120	0.3120	0.3120
3	Ø 0.125	±0.005	0.1250	0.1250	0.1250	0.1250
4	Ø 0.250	±0.005	0.2505	0.2505	0.2505	0.2505
5	Ø 0.1255	±0.0005	0.1255	0.1255	0.1255	0.1255
6	Ø 0.312	±0.005	0.3120	0.3120	0.3120	0.3120
7	Ø 0.102	±0.001	0.1025	0.1025	0.1025	0.1025
8	Ø 0.250	±0.005	0.2500	0.2500	0.2500	0.2500
9	Ø 0.1259	±0.0005	0.1260	0.1260	0.1260	0.1260
10	Ø 0.125	±0.001	0.1250	0.1250	0.1250	0.1250
11	Ø 0.102	±0.001	0.1020	0.1020	0.1020	0.1020
12	Ø 0.143	±0.005	0.1430	0.1430	0.1430	0.1430
13	Ø 0.102	±0.002	0.1020	0.1020	0.1020	0.1020
14	Ø 0.102	±0.001	0.1020	0.1020	0.1020	0.1020
15	Ø 0.102	±0.001	0.1030	0.1030	0.1030	0.1030
	0.062	±0.002	0.0637	0.0640	0.0640	0.0638
	⌭ | 0.002	LIMIT	0.0008	0.0007	0.0006	0.0007
	0.255 Lf	±0.002	0.2552	0.2557	0.2549	0.2553
	0.255 Rt	±0.002	0.2554	0.2551	0.2552	0.2553
	0.265	±0.002	0.2669	0.2660	0.2642	0.2655

ET55509

Confidential - Subject to Protective Order
Williams v. Remmington

CUSTOMER	PART NO.	PART NAME
Remington	D-107375 D-99250	Lf Side Plate
DATE	REV	INSPECTOR
7-18-95	–	HGS II
SPECIAL INSTRUCTIONS		
SET-UP		

		SAMPLE #	5	6	7	8
B/P #	CHARACTERISTIC	TOL.	ACTUAL	ACTUAL	ACTUAL	ACTUAL
Datum D	Ø 0.1675	±0.0005	0.1675	0.1675	0.1675	0.1675
1	Ø 0.1675	±0.0005	0.1675	0.1675	0.1675	0.1675
2	Ø 0.312	±0.005	0.3120	0.3120	0.3120	0.3120
3	Ø 0.125	±0.005	0.1250	0.1250	0.1250	0.1250
4	Ø 0.250	±0.005	0.2505	0.2505	0.2505	0.2505
5	Ø 0.1255	±0.0005	0.1255	0.1255	0.1255	0.1255
6	Ø 0.312	±0.005	0.3120	0.3120	0.3120	0.3120
7	Ø 0.102	±0.001	0.1025	0.1025	0.1025	0.1025
8	Ø 0.250	±0.005	0.2500	0.2500	0.2500	0.2500
9	Ø 0.1259	±0.0005	0.1260	0.1260	0.1260	0.1260
10	Ø 0.125	±0.001	0.1250	0.1250	0.1250	0.1250
11	Ø 0.102	±0.001	0.1020	0.1020	0.1020	0.1020
12	Ø 0.143	±0.005	0.1430	0.1430	0.1430	0.1430
13	Ø 0.102	±0.002	0.1020	0.1020	0.1020	0.1020
14	Ø 0.102	±0.001	0.1020	0.1020	0.1020	0.1020
15	Ø 0.102	±0.001	0.1030	0.1030	0.1030	0.1030
	0.062	±0.002	0.0635	0.0639	0.0638	0.0630
	⏥ 0.002	LIMIT	0.0007	0.0004	0.0004	0.0003
	0.255 Lf	±0.002	0.2555	0.2553	0.2555	0.2552
	0.255 Rt	±0.002	0.2552	0.2551	0.2548	0.2547
	0.265	±0.002	0.2656	0.2667	0.2645	(0.2567)

ET55510

Confidential - Subject to Protective Order
Williams v. Remmington

CUSTOMER	PART NO.	PART NAME
Remington	D-107375 D-99250	Lt Side Plate
DATE	REV	INSPECTOR
7-18-95	-	HGS III
SPECIAL INSTRUCTIONS		
SET-UP		

		SAMPLE #	9	10	11	12
B/P #	CHARACTERISTIC	TOL.	ACTUAL	ACTUAL	ACTUAL	ACTUAL
Datum B	Ø 0.1675	±0.0005	0.1675	0.1675	0.1675	0.1675
1	Ø 0.1675	±0.0005	0.1675	0.1675	0.1675	0.1675
2	Ø 0.312	±0.005	0.3120	0.3120	0.3120	0.3120
3	Ø 0.125	±0.005	0.1250	0.1250	0.1250	0.1250
4	Ø 0.250	±0.005	0.2505	0.2505	0.2505	0.2505
5	Ø 0.1255	±0.0005	0.1255	0.1255	0.1255	0.1255
6	Ø 0.312	±0.005	0.3120	0.3120	0.3120	0.3120
7	Ø 0.102	±0.001	0.1025	0.1025	0.1025	0.1025
8	Ø 0.250	±0.005	0.2500	0.2500	0.2500	0.2500
9	Ø 0.1259	±0.0005	0.1260	0.1260	0.1260	0.1260
10	Ø 0.125	±0.001	0.1250	0.1250	0.1250	0.1250
11	Ø 0.102	±0.001	0.1020	0.1020	0.1020	0.1020
12	Ø 0.143	±0.005	0.1430	0.1430	0.1430	0.1430
13	Ø 0.102	±0.002	0.1020	0.1020	0.1020	0.1020
14	Ø 0.102	±0.001	0.1020	0.1020	0.1020	0.1020
15	Ø 0.102	±0.001	0.1030	0.1030	0.1030	0.1030
	0.062	±0.002	0.0640	0.0640	0.0640	0.0637
	⌭ 0.002	LIMIT	0.0004	0.0010	0.0005	0.0004
	0.255 Lf	±0.002	0.2546	0.2551	0.2556	0.2567
	0.255 Rt	±0.002	0.2546	0.2549	0.2553	0.2555
	1.265	±0.002	0.2634	0.2670	0.2656	0.2662

ET55511

Confidential - Subject to Protective Order
Williams v. Remmington

CUSTOMER	PART NO.	PART NAME
Remington	D-107375 D-99250	Lt Side Plate
DATE	REV	INSPECTOR
7-18-95	–	HGS II

SPECIAL INSTRUCTIONS

SET-UP

		SAMPLE #	13	14	15	16
B/P #	CHARACTERISTIC	TOL.	ACTUAL	ACTUAL	ACTUAL	ACTUAL
Datum B	Ø 0.1675	±0.0005	0.1675	0.1675	0.1675	0.1675
1	Ø 0.1675	±0.0005	0.1675	0.1675	0.1675	0.1675
2	Ø 0.312	±0.005	0.3120	0.3120	0.3120	0.3120
3	Ø 0.125	±0.005	0.1250	0.1250	0.1250	0.1250
4	Ø 0.250	±0.005	0.2505	0.2505	0.2505	0.2505
5	Ø 0.1255	±0.0005	0.1255	0.1255	0.1255	0.1255
6	Ø 0.312	±0.005	0.3120	0.3120	0.3120	0.3120
7	Ø 0.102	±0.001	0.1025	0.1025	0.1025	0.1025
8	Ø 0.250	±0.005	0.2500	0.2500	0.2500	0.2500
9	Ø 0.1259	±0.0005	0.1260	0.1260	0.1260	0.1260
10	Ø 0.125	±0.001	0.1250	0.1250	0.1250	0.1250
11	Ø 0.102	±0.001	0.1020	0.1020	0.1020	0.1020
12	Ø 0.143	±0.005	0.1430	0.1430	0.1430	0.1430
13	Ø 0.102	±0.002	0.1020	0.1020	0.1020	0.1020
14	Ø 0.102	±0.001	0.1020	0.1020	0.1020	0.1020
15	Ø 0.102	±0.001	0.1030	0.1030	0.1030	0.1030
	0.062	±0.002	0.0638	0.0639	0.0636	0.0637
	⊡ 0.002	LIMIT	0.0005	0.0006	0.0003	0.0008
	0.255 Lf	±0.002	0.2553	0.2552	0.2565	0.2557
	0.255 Rt	±0.002	0.2550	0.2549	0.2551	0.2554
	0.265	±0.002	0.2653	0.2661	0.2651	0.2652

Confidential - Subject to Protective Order
Williams v. Remmington

ET55512

CUSTOMER	PART NO.	PART NAME
Remington	D-107375 D-99250	Lt Side Plate
DATE	REV	INSPECTOR
7-18-95	-	H&S II
SPECIAL INSTRUCTIONS		
SET-UP		

		SAMPLE #	17	18	19	20
B/P #	CHARACTERISTIC	TOL.	ACTUAL	ACTUAL	ACTUAL	ACTUAL
Datum B	Ø 0.1675	±0.0005	0.1675	0.1675	0.1675	0.1675
1	Ø 0.1675	±0.0005	0.1675	0.1675	0.1675	0.1675
2	Ø 0.312	±0.005	0.3120	0.3120	0.3120	0.3120
3	Ø 0.125	±0.005	0.1250	0.1250	0.1250	0.1250
4	Ø 0.250	±0.005	0.2505	0.2505	0.2505	0.2505
5	Ø 0.1255	±0.0005	0.1255	0.1255	0.1255	0.1255
6	Ø 0.312	±0.005	0.3120	0.3120	0.3120	0.3120
7	Ø 0.102	±0.001	0.1025	0.1025	0.1025	0.1025
8	Ø 0.250	±0.005	0.2500	0.2500	0.2500	0.2500
9	Ø 0.1259	±0.0005	0.1260	0.1260	0.1260	0.1260
10	Ø 0.125	±0.001	0.1250	0.1250	0.1250	0.1250
11	Ø 0.102	±0.001	0.1020	0.1020	0.1020	0.1020
12	Ø 0.143	±0.005	0.1430	0.1430	0.1430	0.1430
13	Ø 0.102	±0.002	0.1020	0.1020	0.1020	0.1020
14	Ø 0.102	±0.001	0.1020	0.1020	0.1020	0.1020
15	Ø 0.102	±0.001	0.1030	0.1030	0.1030	0.1030
	0.062	±0.002	0.0635	0.0635	0.0634	0.0640
	⌭ 0.002	LIMIT	0.0003	0.0006	0.0002	0.0006
	0.255 LF	±0.002	0.2557	0.2560	0.2553	0.2555
	0.255 RT	±0.002	0.2552	0.2554	0.2553	0.2500
	0.265	±0.002	0.2662	0.2645	0.2656	0.2661

ET55513

Confidential - Subject to Protective Order
Williams v. Remmington

CUSTOMER	PART NO.	PART NAME
Remington	D-107375 D-99250	Lf Side Plate
DATE	REV	INSPECTOR
7-18-95	-	HGS II

SPECIAL INSTRUCTIONS

SET-UP

		SAMPLE #	21	22	23	24
B/P #	CHARACTERISTIC	TOL.	ACTUAL	ACTUAL	ACTUAL	ACTUAL
Datum B	Ø 0.1675	±0.0005	0.1675	0.1675	0.1675	0.1675
1	Ø 0.1675	±0.0005	0.1675	0.1675	0.1675	0.1675
2	Ø 0.312	±0.005	0.3120	0.3120	0.3120	0.3120
3	Ø 0.125	±0.005	0.1250	0.1250	0.1250	0.1250
4	Ø 0.250	±0.005	0.2505	0.2505	0.2505	0.2505
5	Ø 0.1255	±0.0005	0.1255	0.1255	0.1255	0.1255
6	Ø 0.312	±0.005	0.3120	0.3120	0.3120	0.3120
7	Ø 0.102	±0.001	0.1025	0.1025	0.1025	0.1025
8	Ø 0.250	±0.005	0.2500	0.2500	0.2500	0.2500
9	Ø 0.1259	±0.0005	0.1260	0.1260	0.1260	0.1260
10	Ø 0.125	±0.001	0.1250	0.1250	0.1250	0.1250
11	Ø 0.102	±0.001	0.1020	0.1020	0.1020	0.1020
12	Ø 0.143	±0.005	0.1430	0.1430	0.1430	0.1430
13	Ø 0.102	±0.002	0.1020	0.1020	0.1020	0.1020
14	Ø 0.102	±0.001	0.1020	0.1020	0.1020	0.1020
15	Ø 0.102	±0.001	0.1030	0.1030	0.1030	0.1030
	0.062	±0.002	0.0633	0.0630	0.0630	0.0630
	⌷ 0.002	LIMIT	0.0004	0.0004	0.0010	0.0013
	0.255 Lf	±0.002	0.2556	0.2552	0.2554	0.2553
	0.255 Rt	±0.002	0.2550	0.2545	0.2557	0.2534
	0.265	±0.002	0.2666	0.2653	0.2662	0.2647

ET55514

Confidential - Subject to Protective Order
Williams v. Remmington

CUSTOMER	PART NO.	PART NAME
Remington	D-107375 D-99250	Lt Side Plate
DATE	REV	INSPECTOR
7-18-95	–	HGS II
SPECIAL INSTRUCTIONS		
SET-UP		

		SAMPLE #	25	26	27	28
B/P #	CHARACTERISTIC	TOL.	ACTUAL	ACTUAL	ACTUAL	ACTUAL
Datum B	Ø 0.1675	±0.0005	0.1675	0.1675	0.1675	0.1675
1	Ø 0.1675	±0.0005	0.1675	0.1675	0.1675	0.1675
2	Ø 0.312	±0.005	0.3120	0.3120	0.3120	0.3120
3	Ø 0.125	±0.005	0.1250	0.1250	0.1250	0.1250
4	Ø 0.250	±0.005	0.2505	0.2505	0.2505	0.2505
5	Ø 0.1255	±0.0005	0.1255	0.1255	0.1255	0.1255
6	Ø 0.312	±0.005	0.3120	0.3120	0.3120	0.3120
7	Ø 0.102	±0.001	0.1025	0.1025	0.1025	0.1025
8	Ø 0.250	±0.005	0.2500	0.2500	0.2500	0.2500
9	Ø 0.1259	±0.0005	0.1260	0.1260	0.1260	0.1260
10	Ø 0.125	±0.001	0.1250	0.1250	0.1250	0.1250
11	Ø 0.102	±0.001	0.1020	0.1020	0.1020	0.1020
12	Ø 0.143	±0.005	0.1430	0.1430	0.1430	0.1430
13	Ø 0.102	±0.002	0.1020	0.1020	0.1020	0.1020
14	Ø 0.102	±0.001	0.1020	0.1020	0.1020	0.1020
15	Ø 0.102	±0.001	0.1030	0.1030	0.1030	0.1030
	0.062	±0.002	0.0638	0.0605	0.0626	0.0627
	☐ 0.002	LIMIT	0.0006	0.0012	0.0007	0.0008
	0.255 Lf	±0.002	0.2556	0.2555	0.2549	0.2556
	0.255 Rt	±0.002	0.2557	0.2557	0.2557	0.2554
	0.265	±0.002	(0.2614)	0.2653	0.2653	0.2653

Confidential - Subject to Protective Order
Williams v. Remmington

ET55515

CUSTOMER	PART NO.	PART NAME
Remington	D-107375 D-99250	Lt Side Plate
DATE 7-18-95	REV -	INSPECTOR HGS II
SPECIAL INSTRUCTIONS		
SET-UP		

		SAMPLE #		29	30		
B/P #	CHARACTERISTIC	TOL	ACTUAL	ACTUAL	ACTUAL	ACTUAL	
Datum B	Ø 0.1675	±0.0005	0.1675	0.1675			
1	Ø 0.1675	±0.0005	0.1675	0.1675			
2	Ø 0.312	±0.005	0.3120	0.3120			
3	Ø 0.125	±0.005	0.1250	0.1250			
4	Ø 0.250	±0.005	0.2505	0.2505			
5	Ø 0.1255	±0.0005	0.1255	0.1255			
6	Ø 0.312	±0.005	0.3120	0.3120			
7	Ø 0.102	±0.001	0.1025	0.1025			
8	Ø 0.250	±0.005	0.2500	0.2500			
9	Ø 0.1259	±0.0005	0.1260	0.1260			
10	Ø 0.125	±0.001	0.1250	0.1250			
11	Ø 0.102	±0.001	0.1020	0.1020			
12	Ø 0.143	±0.005	0.1430	0.1430			
13	Ø 0.102	±0.002	0.1020	0.1020			
14	Ø 0.102	±0.001	0.1020	0.1020			
15	Ø 0.102	±0.001	0.1030	0.1030			
	0.062	±0.002	0.0622	0.0639			
	⊏ 0002	LIMIT	0.0008	0.0004			
	0.255 Lf	±0.002	0.2551	0.2535			
	0.255 Rt	±0.002	0.2535	0.2551			
	0.265	±0.002	0.2653	0.2651			

ET55516

Confidential - Subject to Protective Order
Williams v. Remmington

PAGE BREAK

QC-4000 Feature Print Out

Date: 7-21-95
Job: Remington

Part: ~~Lf Sd Plate~~ Rt Sd Plate #1

Operator: ~~HGS II~~ DKS

FEATURE	ACTUAL	NOMINAL	FLG	DEVIATION	FORM
hole1 True Pos. Inch	X = -1.42801 Y = 0.00000	-1.42800 0.00000		0.00001 P	
hole2 True Pos. Inch	X = -1.16471 Y = -0.15989	-1.16500 -0.16000		0.00062 P	
hole3 True Pos. Inch	X = -0.86607 Y = -0.18253	-0.86700 -0.18300		0.00210 P	
hole4 True Pos. Inch	X = -0.58759 Y = -0.15993	-0.58800 -0.16000		0.00083 P	
hole5 True Pos. Inch	X = -1.30557 Y = -0.65003	-1.30600 -0.65000		0.00086 P	
hole6 True Pos. Inch	X = -0.74918 Y = -0.80016	-0.75000 -0.80000		0.00166 P	
hole7 True Pos. Inch	X = -0.29671 Y = -0.66426	-0.29750 -0.66450		0.00165 P	
hole8 True Pos. Inch	X = -0.49908 Y = -1.18802	-0.50000 -1.18800		0.00183 P	
hole9 True Pos. Inch	X = -0.83940 Y = -1.24024	-0.84000 -1.24000		0.00130 P	
hole10 True Pos. Inch	X = -1.06157 Y = -1.24999	-1.06200 -1.25000		0.00087 P	
hole11 True Pos. Inch	X = -1.21168 Y = -1.05839	-1.21250 -1.05850		0.00165 P	
hole12 True Pos. Inch	X = 0.29215 Y = 0.22651	0.29200 0.22600		0.00107 P	

ET55517

Confidential - Subject to Protective Order
Williams v. Remmington

QC-4000 Feature Print Out

Date: 7-21-95
Job: Remington Part: Lf Sd Plate #1 Operator: HGS II

FEATURE	ACTUAL	NOMINAL	FLG	DEVIATION	FORM
hole13	X = 0.36421	0.36400		0.00054 P	
True Pos.	Y = 0.06317	0.06300			
Inch					
hole14	X = -0.07394	-0.07400		0.00058 P	
True Pos.	Y = -0.28628	-0.28600			
Inch					
hole15	X = -0.11525	-0.11500		0.00063 P	
True Pos.	Y = -0.14981	-0.15000			
Inch					

ET55518

Confidential - Subject
to Protective Order
Williams v. Remmington

PAGE BREAK

QC-4000 Feature Print Out

Date: 7-21-95
Job: Remington

Part: Rt Sd Plate #2

Operator: DKS

FEATURE	ACTUAL	NOMINAL	FLG	DEVIATION	FORM
Hole 1 True Pos. Inch	X = -1.42787 Y = 0.00000	-1.42800 0.00000		0.00026 P	
Hole 2 True Pos. Inch	X = -1.16449 Y = -0.16003	-1.16500 -0.16000		0.00102 P	
Hole 3 True Pos. Inch	X = -0.86636 Y = -0.18281	-0.86700 -0.18300		0.00134 P	
Hole 4 True Pos. Inch	X = -0.58754 Y = -0.15978	-0.58800 -0.16000		0.00102 P	
Datum B True Pos. Inch	X = 0.00000 Y = 0.00000	0.00000 0.00000		0.00000 P	
Hole 6 True Pos. Inch	X = -0.74912 Y = -0.80013	-0.75000 -0.80000		0.00177 P	
Hole 7 True Pos. Inch	X = -0.29673 Y = -0.66462	-0.29750 -0.66450		0.00157 P	
Hole 8 True Pos. Inch	X = -0.49887 Y = -1.18832	-0.50000 -1.18800		0.00236 P	
Hole 9 True Pos. Inch	X = -0.83901 Y = -1.24014	-0.84000 -1.24000	P	0.00201 F 0.0001 BONUS	OK
Hole 10 True Pos. Inch	X = -1.06124 Y = -1.25029	-1.06200 -1.25000		0.00162 P	
Hole 11 True Pos. Inch	X = -1.21148 Y = -1.05869	-1.21250 -1.05850		0.00208 P	
Hole 5 True Pos. Inch	X = -1.30512 Y = -0.65032	-1.30600 -0.65000		0.00187 P	

ET55519

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Williams v. Remmington

Date: 7-21-95
Job: Remington Part: Rt Sd Plate #2 Operator: DKS

FEATURE	ACTUAL	NOMINAL	FLG	DEVIATION	FORM
Hole 12 True Pos. Inch	X = 0.29196 Y = 0.22630	0.29200 0.22600		0.00060 P	
Hole 13 True Pos. Inch	X = 0.36377 Y = 0.06327	0.36400 0.06300		0.00071 P	
Hole 14 True Pos. Inch	X = -0.07385 Y = -0.28577	-0.07400 -0.28600		0.00055 P	
Hole 15 True Pos. Inch	X = -0.11502 Y = -0.15011	-0.11500 -0.15000		0.00022 P	

ET55520

Confidential - Subject
to Protective Order
Williams v. Remmington

PAGE BREAK

QC-4000 Feature Print Out

Date: 7-21-95
Job: Remington
Part: Rt Sd Plate #4
Operator: DKS

FEATURE	ACTUAL	NOMINAL	FLG	DEVIATION	FORM
Hole 1 True Pos. Inch	X = -1.42828 Y = 0.00000	-1.42800 0.00000		0.00057 P	
Hole 2 True Pos. Inch	X = -1.16512 Y = -0.16011	-1.16500 -0.16000		0.00034 P	
Hole 3 True Pos. Inch	X = -0.86690 Y = -0.18284	-0.86700 -0.18300		0.00037 P	
Hole 4 True Pos. Inch	X = -0.58787 Y = -0.15990	-0.58800 -0.16000		0.00033 P	
Hole 5 True Pos. Inch	X = -1.30558 Y = -0.65036	-1.30600 -0.65000		0.00111 P	
Hole 6 True Pos. Inch	X = -0.74938 Y = -0.80014	-0.75000 -0.80000		0.00127 P	
Hole 7 True Pos. Inch	X = -0.29675 Y = -0.66458	-0.29750 -0.66450		0.00151 P	
Hole 8 True Pos. Inch	X = -0.49900 Y = -1.18843	-0.50000 -1.18800		0.00218 P	
Hole 9 True Pos. Inch	X = -0.83922 Y = -1.24030	-0.84000 -1.24000		0.00167 P	
Hole 10 True Pos. Inch	X = -1.06170 Y = -1.25039	-1.06200 -1.25000		0.00099 P	
Hole 11 True Pos. Inch	X = -1.21177 Y = -1.05887	-1.21250 -1.05850		0.00164 P	ET55523
Hole 12 True Pos. Inch	X = 0.29181 Y = 0.22600	0.29200 0.22600		0.00038 P	

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QC-4000 Feature Print Out

Date: 7-21-95
Job: Remington Part: Rt Sd Plate #4 Operator: DKS

FEATURE		ACTUAL	NOMINAL	FLG	DEVIATION	FORM
Hole 13 True Pos. Inch	X =	0.36415	0.36400		0.00056 P	
	Y =	0.06324	0.06300			
Hole 14 True Pos. Inch	X =	-0.07404	-0.07400		0.00026 P	
	Y =	-0.28613	-0.28600			
Hole 15 True Pos. Inch	X =	-0.11509	-0.11500		0.00018 P	
	Y =	-0.15002	-0.15000			

ET55524

Confidential - Subject to Protective Order
Williams v. Remmington

PAGE BREAK

QC-4000 Feature Print Out

Date: 7-21-95
Job: Remington Part: Rt Sd Plate #5 Operator: DKS

FEATURE		ACTUAL	NOMINAL	FLG	DEVIATION	FORM
Hole 1 True Pos. Inch	X =	-1.42844	-1.42800		0.00087 P	
	Y =	0.00000	0.00000			
Hole 2 True Pos. Inch	X =	-1.16524	-1.16500		0.00061 P	
	Y =	-0.16019	-0.16000			
Hole 3 True Pos. Inch	X =	-0.86687	-0.86700		0.00027 P	
	Y =	-0.18305	-0.18300			
Hole 4 True Pos. Inch	X =	-0.58806	-0.58800		0.00020 P	
	Y =	-0.16008	-0.16000			
Hole 5 True Pos. Inch	X =	-1.30594	-1.30600		0.00046 P	
	Y =	-0.65022	-0.65000			
Hole 6 True Pos. Inch	X =	-0.74997	-0.75000		0.00076 P	
	Y =	-0.80038	-0.80000			
Hole 7 True Pos. Inch	X =	-0.29725	-0.29750		0.00090 P	
	Y =	-0.66488	-0.66450			
Hole 8 True Pos. Inch	X =	-0.49976	-0.50000		0.00095 P	
	Y =	-1.18841	-1.18800			
Hole 9 True Pos. Inch	X =	-0.83993	-0.84000		0.00076 P	
	Y =	-1.24038	-1.24000			
Hole 10 True Pos. Inch	X =	-1.06213	-1.06200		0.00072 P	
	Y =	-1.25033	-1.25000			
Hole 11 True Pos. Inch	X =	-1.21229	-1.21250		0.00083 P	
	Y =	-1.05886	-1.05850			
Hole 12 True Pos. Inch	X =	0.29246	0.29200		0.00143 P	
	Y =	0.22654	0.22600			

ET55525

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QC-4000 Feature Print Out

Date: 7-21-95
Job: Remington Part: Rt Sd Plate #5 Operator: DKS

FEATURE		ACTUAL	NOMINAL	FLG	DEVIATION	FORM
Hole 13 True Pos. Inch	X =	0.36414	0.36400		0.00043 P	
	Y =	0.06316	0.06300			
Hole 14 True Pos. Inch	X =	-0.07422	-0.07400		0.00055 P	
	Y =	-0.28584	-0.28600			
Hole 15 True Pos. Inch	X =	-0.11498	-0.11500		0.00010 P	
	Y =	-0.14996	-0.15000			

ET55526

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to Protective Order
Williams v. Remmington

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QC-4000 Feature Print Out

Date: 7-21-95
Job: Remington Part: Rt Sd Plate #6 Operator: DKS

FEATURE	ACTUAL	NOMINAL	FLG	DEVIATION	FORM
Hole 1 True Pos. Inch	X = -1.42812 Y = 0.00000	-1.42800 0.00000		0.00025 P	
Hole 2 True Pos. Inch	X = -1.16485 Y = -0.16016	-1.16500 -0.16000		0.00044 P	
Hole 3 True Pos. Inch	X = -0.86671 Y = -0.18297	-0.86700 -0.18300		0.00057 P	
Hole 4 True Pos. Inch	X = -0.58772 Y = -0.15987	-0.58800 -0.16000		0.00062 P	
Hole 5 True Pos. Inch	X = -1.30554 Y = -0.65034	-1.30600 -0.65000		0.00113 P	
Hole 6 True Pos. Inch	X = -0.74813 Y = -0.80092	-0.75000 -0.80000		0.00416 P	
Hole 7 True Pos. Inch	X = -0.29708 Y = -0.66455	-0.29750 -0.66450		0.00085 P	
Hole 8 True Pos. Inch	X = -0.49943 Y = -1.18812	-0.50000 -1.18800		0.00117 P	
Hole 9 True Pos. Inch	X = -0.83925 Y = -1.24032	-0.84000 -1.24000		0.00164 P	
Hole 10 True Pos. Inch	X = -1.06171 Y = -1.25035	-1.06200 -1.25000		0.00091 P	
Hole 11 True Pos. Inch	X = -1.21199 Y = -1.05890	-1.21250 -1.05850		0.00130 P	ET55527
Hole 12 True Pos. Inch	X = 0.29278 Y = 0.22666	0.29200 0.22600		0.00205 P	Confidential - Subject to Protective Order Williams v. Remmington

QC-4000 Feature Print Out

Date: 7-21-95
Job: Remington Part: Rt Sd Plate #6 Operator: DKS

FEATURE		ACTUAL	NOMINAL	FLG	DEVIATION	FORM
Hole 13	X =	0.36430	0.36400		0.00061 P	
True Pos.	Y =	0.06307	0.06300			
Inch						
Hole 14	X =	-0.07392	-0.07400		0.00047 P	
True Pos.	Y =	-0.28622	-0.28600			
Inch						
Hole 15	X =	-0.11499	-0.11500		0.00012 P	
True Pos.	Y =	-0.14994	-0.15000			
Inch						

ET55528

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QC-4000 Feature Print Out

Date: 7-21-95
Job: Remington Part: Rt Sd Plate #7 Operator: DKS

FEATURE	ACTUAL	NOMINAL	FLG	DEVIATION	FORM
Hole 1 True Pos. Inch	X = -1.42807 Y = 0.00000	-1.42800 0.00000		0.00014 P	
Hole 2 True Pos. Inch	X = -1.16459 Y = -0.15971	-1.16500 -0.16000		0.00100 P	
Hole 3 True Pos. Inch	X = -0.86627 Y = -0.18281	-0.86700 -0.18300		0.00150 P	
Hole 4 True Pos. Inch	X = -0.58788 Y = -0.15972	-0.58800 -0.16000		0.00062 P	
Hole 5 True Pos. Inch	X = -1.30530 Y = -0.65016	-1.30600 -0.65000		0.00143 P	
Hole 6 True Pos. Inch	X = -0.74932 Y = -0.79999	-0.75000 -0.80000		0.00137 P	
Hole 7 True Pos. Inch	X = -0.29680 Y = -0.66463	-0.29750 -0.66450		0.00143 P	
Hole 8 True Pos. Inch	X = -0.49913 Y = -1.18822	-0.50000 -1.18800		0.00180 P	
Hole 9 True Pos. Inch	X = -0.83940 Y = -1.24016	-0.84000 -1.24000		0.00125 P	
Hole 10 True Pos. Inch	X = -1.06156 Y = -1.25018	-1.06200 -1.25000		0.00095 P	
Hole 11 True Pos. Inch	X = -1.21158 Y = -1.05884	-1.21250 -1.05850		0.00196 P	
Hole 12 True Pos. Inch	X = 0.29191 Y = 0.22611	0.29200 0.22600		0.00029 P	

ET55529

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QC-4000 Feature Print Out

Date: 7-21-95
Job: Remington Part: Rt Sd Plate #7 Operator: DKS

FEATURE	ACTUAL	NOMINAL	FLG	DEVIATION	FORM
Hole 13 True Pos. Inch	X = 0.36392 Y = 0.06308	0.36400 0.06300		0.00023 P	
Hole 14 True Pos. Inch	X = -0.07391 Y = -0.28567	-0.07400 -0.28600		0.00069 P	
Hole 15 True Pos. Inch	X = -0.11506 Y = -0.14983	-0.11500 -0.15000		0.00035 P	

ET55530

Confidential - Subject
to Protective Order
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QC-4000 Feature Print Out

Date: 7-21-95
Job: Remington Part: Rt Sd Plate #8 Operator: DKS

FEATURE	ACTUAL	NOMINAL	FLG	DEVIATION	FORM
Hole 1 True Pos. Inch	X = -1.42849 Y = 0.00000	-1.42800 0.00000		0.00097 P	
Hole 2 True Pos. Inch	X = -1.16511 Y = -0.16012	-1.16500 -0.16000		0.00033 P	
Hole 3 True Pos. Inch	X = -0.86716 Y = -0.18319	-0.86700 -0.18300		0.00050 P	
Hole 4 True Pos. Inch	X = -0.58825 Y = -0.16002	-0.58800 -0.16000		0.00050 P	
Hole 5 True Pos. Inch	X = -1.30603 Y = -0.65010	-1.30600 -0.65000		0.00020 P	
Hole 6 True Pos. Inch	X = -0.74978 Y = -0.80019	-0.75000 -0.80000		0.00059 P	
Hole 7 True Pos. Inch	X = -0.29713 Y = -0.66477	-0.29750 -0.66450		0.00091 P	
Hole 8 True Pos. Inch	X = -0.49978 Y = -1.18825	-0.50000 -1.18800		0.00067 P	
Hole 9 True Pos. Inch	X = -0.83974 Y = -1.24010	-0.84000 -1.24000		0.00057 P	
Hole 10 True Pos. Inch	X = -1.06199 Y = -1.25004	-1.06200 -1.25000		0.00009 P	
Hole 11 True Pos. Inch	X = -1.21214 Y = -1.05841	-1.21250 -1.05850		0.00074 P	ET55531
Hole 12 True Pos. Inch	X = 0.29164 Y = 0.22636	0.29200 0.22600		0.00102 P	Confidential - Subject to Protective Order Williams v. Remmington

QC-4000 Feature Print Out

Date: 7-21-95
Job: Remington Part: Rt Sd Plate #8 Operator: DKS

FEATURE	ACTUAL	NOMINAL	FLG	DEVIATION	FORM
Hole 13 True Pos. Inch	X = 0.36437 Y = 0.06380	0.36400 0.06300		0.00175 P	
Hole 14 True Pos. Inch	X = -0.07431 Y = -0.28581	-0.07400 -0.28600		0.00073 P	
Hole 15 True Pos. Inch	X = -0.11523 Y = -0.15007	-0.11500 -0.15000		0.00047 P	

ET55532

Confidential - Subject
to Protective Order
Williams v. Remmington

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QC-4000 Feature Print Out

Date: 7-21-95
Job: Remington Part: Rt Sd Plate #9 Operator: DKS

FEATURE	ACTUAL	NOMINAL	FLG	DEVIATION	FORM
Hole 1 True Pos. Inch	X = -1.42831 Y = 0.00000	-1.42800 0.00000		0.00063 P	
Hole 2 True Pos. Inch	X = -1.16516 Y = -0.16010	-1.16500 -0.16000		0.00037 P	
Hole 3 True Pos. Inch	X = -0.86677 Y = -0.18277	-0.86700 -0.18300		0.00065 P	
Hole 4 True Pos. Inch	X = -0.58783 Y = -0.15986	-0.58800 -0.16000		0.00043 P	
Hole 5 True Pos. Inch	X = -1.30553 Y = -0.65025	-1.30600 -0.65000		0.00106 P	
Hole 6 True Pos. Inch	X = -0.74956 Y = -0.80020	-0.75000 -0.80000		0.00096 P	
Hole 7 True Pos. Inch	X = -0.29696 Y = -0.66472	-0.29750 -0.66450		0.00116 P	
Hole 8 True Pos. Inch	X = -0.49945 Y = -1.18829	-0.50000 -1.18800		0.00124 P	
Hole 9 True Pos. Inch	X = -0.83945 Y = -1.24020	-0.84000 -1.24000		0.00117 P	
Hole 10 True Pos. Inch	X = -1.06194 Y = -1.25017	-1.06200 -1.25000		0.00036 P	
Hole 11 True Pos. Inch	X = -1.21212 Y = -1.05875	-1.21250 -1.05850		0.00091 P	
Hole 12 True Pos. Inch	X = 0.29234 Y = 0.22592	0.29200 0.22600		0.00070 P	

ET55533

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QC-4000 Feature Print Out

Date: 7-21-95
Job: Remington Part: Rt Sd Plate #9 Operator: DKS

FEATURE	ACTUAL	NOMINAL	FLG	DEVIATION	FORM
Hole 13 True Pos. Inch	X = 0.36412 Y = 0.06252	0.36400 0.06300		0.00099 P	
Hole 14 True Pos. Inch	X = -0.07410 Y = -0.28585	-0.07400 -0.28600		0.00037 P	
Hole 15 True Pos. Inch	X = -0.11501 Y = -0.14998	-0.11500 -0.15000		0.00004 P	

ET55534

Confidential - Subject
to Protective Order
Williams v. Remmington

PAGE BREAK

QC-4000 Feature Print Out

Date: 7-21-95
Job: Remington Part: Rt Sd Plate #10 Operator: DKS

FEATURE		ACTUAL	NOMINAL	FLG	DEVIATION	FORM
Hole 1 True Pos. Inch	X =	-1.42800	-1.42800		0.00000 P	
	Y =	0.00000	0.00000			
Hole 2 True Pos. Inch	X =	-1.16482	-1.16500		0.00038 P	
	Y =	-0.15995	-0.16000			
Hole 3 True Pos. Inch	X =	-0.86655	-0.86700		0.00090 P	
	Y =	-0.18297	-0.18300			
Hole 4 True Pos. Inch	X =	-0.58781	-0.58800		0.00042 P	
	Y =	-0.15992	-0.16000			
Hole 5 True Pos. Inch	X =	-1.30561	-1.30600		0.00104 P	
	Y =	-0.65034	-0.65000			
Hole 6 True Pos. Inch	X =	-0.74944	-0.75000		0.00119 P	
	Y =	-0.80021	-0.80000			
Hole 7 True Pos. Inch	X =	-0.29688	-0.29750		0.00150 P	
	Y =	-0.66492	-0.66450			
Hole 8 True Pos. Inch	X =	-0.49963	-0.50000		0.00126 P	
	Y =	-1.18851	-1.18800			
Hole 9 True Pos. Inch	X =	-0.83949	-0.84000		0.00116 P	
	Y =	-1.24027	-1.24000			
Hole 10 True Pos. Inch	X =	-1.06181	-1.06200		0.00049 P	
	Y =	-1.25016	-1.25000			
Hole 11 True Pos. Inch	X =	-1.21198	-1.21250		0.00146 P	
	Y =	-1.05901	-1.05850			
Hole 12 True Pos. Inch	X =	0.29190	0.29200		0.00137 P	
	Y =	0.22668	0.22600			

ET55535

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Williams v. Remmington

QC-4000 Feature Print Out

Date: 7-21-95
Job: Remington Part: Rt Sd Plate #10 Operator: DKS

FEATURE	ACTUAL	NOMINAL	FLG	DEVIATION	FORM
Hole 13 True Pos. Inch	X = 0.36404 Y = 0.06274	0.36400 0.06300		0.00052 P	
Hole 14 True Pos. Inch	X = -0.07426 Y = -0.28594	-0.07400 -0.28600		0.00054 P	
Hole 15 True Pos. Inch	X = -0.11506 Y = -0.14986	-0.11500 -0.15000		0.00031 P	

ET55536

Confidential - Subject
to Protective Order
Williams v. Remmington

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QC-4000 Feature Print Out

Date: 7-21-95
Job: Remington

Part: Rt Sd Plate #11

Operator: DKS

FEATURE		ACTUAL	NOMINAL	FLG	DEVIATION	FORM
Hole 1 True Pos. Inch	X =	-1.42822	-1.42800		0.00044 P	
	Y =	0.00000	0.00000			
Hole 2 True Pos. Inch	X =	-1.16494	-1.16500		0.00026 P	
	Y =	-0.15988	-0.16000			
Hole 3 True Pos. Inch	X =	-0.86681	-0.86700		0.00076 P	
	Y =	-0.18267	-0.18300			
Hole 4 True Pos. Inch	X =	-0.58775	-0.58800		0.00070 P	
	Y =	-0.15975	-0.16000			
Hole 5 True Pos. Inch	X =	-1.30572	-1.30600		0.00072 P	
	Y =	-0.65023	-0.65000			
Hole 6 True Pos. Inch	X =	-0.74963	-0.75000		0.00074 P	
	Y =	-0.80002	-0.80000			
Hole 7 True Pos. Inch	X =	-0.29675	-0.29750		0.00160 P	
	Y =	-0.66477	-0.66450			
Hole 8 True Pos. Inch	X =	-0.49917	-0.50000		0.00166 P	
	Y =	-1.18804	-1.18800			
Hole 9 True Pos. Inch	X =	-0.83926	-0.84000		0.00155 P	
	Y =	-1.24022	-1.24000			
Hole 10 True Pos. Inch	X =	-1.06199	-1.06200		0.00065 P	
	Y =	-1.25033	-1.25000			
Hole 11 True Pos. Inch	X =	-1.21187	-1.21250		0.00126 P	
	Y =	-1.05855	-1.05850			
Hole 12 True Pos. Inch	X =	0.29204	0.29200		0.00215 P	
	Y =	0.22708	0.22600			

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QC-4000 Feature Print Out

Date: 7-21-95
Job: Remington Part: Rt Sd Plate #// Operator: DKS

FEATURE	ACTUAL	NOMINAL	FLG	DEVIATION	FORM
Hole 13 True Pos. Inch	X = 0.36430 Y = 0.06258	0.36400 0.06300		0.00104 P	
Hole 14 True Pos. Inch	X = -0.07428 Y = -0.28577	-0.07400 -0.28600		0.00072 P	
Hole 15 True Pos. Inch	X = -0.11517 Y = -0.15024	-0.11500 -0.15000		0.00059 P	

ET55538

Confidential - Subject to Protective Order
Williams v. Remmington

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QC-4000 Feature Print Out

Date: 7-21-95
Job: Remington Part: Rt Sd Plate #12 Operator: DKS

FEATURE	ACTUAL	NOMINAL	FLG	DEVIATION	FORM
Hole 1 True Pos. Inch	X = -1.42790 Y = 0.00000	-1.42800 0.00000		0.00021 P	
Hole 2 True Pos. Inch	X = -1.16465 Y = -0.16005	-1.16500 -0.16000		0.00071 P	
Hole 3 True Pos. Inch	X = -0.86658 Y = -0.18279	-0.86700 -0.18300		0.00095 P	
Hole 4 True Pos. Inch	X = -0.58763 Y = -0.15987	-0.58800 -0.16000		0.00078 P	
Hole 5 True Pos. Inch	X = -1.30548 Y = -0.65021	-1.30600 -0.65000		0.00113 P	
Hole 6 True Pos. Inch	X = -0.74922 Y = -0.79996	-0.75000 -0.80000		0.00157 P	
Hole 7 True Pos. Inch	X = -0.29643 Y = -0.66449	-0.29750 -0.66450	P	0.00213 F 0,0005 Bonus	vok
Hole 8 True Pos. Inch	X = -0.49920 Y = -1.18801	-0.50000 -1.18800		0.00160 P	
Hole 9 True Pos. Inch	X = -0.83913 Y = -1.24023	-0.84000 -1.24000		0.00179 P	
Hole 10 True Pos. Inch	X = -1.06142 Y = -1.25024	-1.06200 -1.25000		0.00125 P	
Hole 11 True Pos. Inch	X = -1.21177 Y = -1.05870	-1.21250 -1.05850		0.00151 P	
Hole 12 True Pos. Inch	X = 0.29220 Y = 0.22686	0.29200 0.22600		0.00176 P	

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Williams v. Remmington

QC-4000 Feature Print Out

Date: 7-21-95
Job: Remington Part: Rt Sd Plate #12 Operator: DKS

FEATURE	ACTUAL	NOMINAL	FLG	DEVIATION	FORM
Hole 13 True Pos. Inch	X = 0.36428 Y = 0.06324	0.36400 0.06300		0.00074 P	
Hole 14 True Pos. Inch	X = -0.07440 Y = -0.28596	-0.07400 -0.28600		0.00081 P	
Hole 15 True Pos. Inch	X = -0.11490 Y = -0.15001	-0.11500 -0.15000		0.00020 P	

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to Protective Order
Williams v. Remmington

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QC-4000 Feature Print Out

Date: 7-21-95
Job: Remington Part: Rt Sd Plate #13 Operator: DKS

FEATURE	ACTUAL	NOMINAL	FLG	DEVIATION	FORM
Hole 1 True Pos. Inch	X = -1.42813 Y = 0.00000	-1.42800 0.00000		0.00026 P	
Hole 2 True Pos. Inch	X = -1.16464 Y = -0.15992	-1.16500 -0.16000		0.00075 P	
Hole 3 True Pos. Inch	X = -0.86672 Y = -0.18273	-0.86700 -0.18300		0.00078 P	
Hole 4 True Pos. Inch	X = -0.58773 Y = -0.15983	-0.58800 -0.16000		0.00064 P	
Hole 5 True Pos. Inch	X = -1.30572 Y = -0.65023	-1.30600 -0.65000		0.00073 P	
Hole 6 True Pos. Inch	X = -0.74957 Y = -0.80004	-0.75000 -0.80000		0.00086 P	
Hole 7 True Pos. Inch	X = -0.29702 Y = -0.66475	-0.29750 -0.66450		0.00108 P	
Hole 8 True Pos. Inch	X = -0.49924 Y = -1.18816	-0.50000 -1.18800		0.00156 P	
Hole 9 True Pos. Inch	X = -0.83938 Y = -1.24021	-0.84000 -1.24000		0.00131 P	
Hole 10 True Pos. Inch	X = -1.06179 Y = -1.25015	-1.06200 -1.25000		0.00051 P	
Hole 11 True Pos. Inch	X = -1.21203 Y = -1.05869	-1.21250 -1.05850		0.00102 P	
Hole 12 True Pos. Inch	X = 0.29231 Y = 0.22649	0.29200 0.22600		0.00116 P	

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QC-4000 Feature Print Out

Date: 7-21-95
Job: Remington Part: Rt Sd Plate #13 Operator: DKS

FEATURE		ACTUAL	NOMINAL	FLG	DEVIATION	FORM
Hole 13 True Pos. Inch	X =	0.36459	0.36400		0.00123 P	
	Y =	0.06315	0.06300			
Hole 14 True Pos. Inch	X =	-0.07394	-0.07400		0.00057 P	
	Y =	-0.28572	-0.28600			
Hole 15 True Pos. Inch	X =	-0.11506	-0.11500		0.00016 P	
	Y =	-0.15005	-0.15000			

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Confidential - Subject
to Protective Order
Williams v. Remmington

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QC-4000 Feature Print Out

Date: 7-21-95
Job: Remington Part: Rt Sd Plate #14 Operator: DKS

FEATURE	ACTUAL	NOMINAL	FLG	DEVIATION	FORM
Hole 1 True Pos. Inch	X = -1.42802 Y = 0.00000	-1.42800 0.00000		0.00003 P	
Hole 2 True Pos. Inch	X = -1.16485 Y = -0.15997	-1.16500 -0.16000		0.00031 P	
Hole 3 True Pos. Inch	X = -0.86670 Y = -0.18284	-0.86700 -0.18300		0.00067 P	
Hole 4 True Pos. Inch	X = -0.58780 Y = -0.15989	-0.58800 -0.16000		0.00045 P	
Hole 5 True Pos. Inch	X = -1.30531 Y = -0.65032	-1.30600 -0.65000		0.00152 P	
Hole 6 True Pos. Inch	X = -0.74942 Y = -0.80024	-0.75000 -0.80000		0.00126 P	
Hole 7 True Pos. Inch	X = -0.29676 Y = -0.66455	-0.29750 -0.66450		0.00147 P	
Hole 8 True Pos. Inch	X = -0.49910 Y = -1.18826	-0.50000 -1.18800		0.00187 P	
Hole 9 True Pos. Inch	X = -0.83915 Y = -1.24025	-0.84000 -1.24000		0.00177 P	
Hole 10 True Pos. Inch	X = -1.06149 Y = -1.25017	-1.06200 -1.25000		0.00108 P	
Hole 11 True Pos. Inch	X = -1.21170 Y = -1.05869	-1.21250 -1.05850		0.00164 P	
Hole 12 True Pos. Inch	X = 0.29198 Y = 0.22626	0.29200 0.22600		0.00053 P	

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Date: 7-21-95
Job: Remington Part: Rt Sd Plate #14 Operator: DKS

FEATURE		ACTUAL	NOMINAL	FLG	DEVIATION	FORM
Hole 13	X =	0.36401	0.36400		0.00066 P	
True Pos.	Y =	0.06333	0.06300			
Inch						
Hole 14	X =	-0.07417	-0.07400		0.00035 P	
True Pos.	Y =	-0.28603	-0.28600			
Inch						
Hole 15	X =	-0.11494	-0.11500		0.00016 P	
True Pos.	Y =	-0.15005	-0.15000			
Inch						

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Confidential - Subject
to Protective Order
Williams v. Remmington

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QC=4000 Feature Print Out

Date: 7-21-95
Job: Remington Part: Rt Sd Plate #15 Operator: DKS

FEATURE	ACTUAL	NOMINAL	FLG	DEVIATION	FORM
Hole 1 True Pos. Inch	X = -1.42825 Y = 0.00000	-1.42800 0.00000		0.00051 P	
Hole 2 True Pos. Inch	X = -1.16502 Y = -0.15994	-1.16500 -0.16000		0.00012 P	
Hole 3 True Pos. Inch	X = -0.86686 Y = -0.18287	-0.86700 -0.18300		0.00037 P	
Hole 4 True Pos. Inch	X = -0.58803 Y = -0.16020	-0.58800 -0.16000		0.00040 P	
Hole 5 True Pos. Inch	X = -1.30590 Y = -0.65025	-1.30600 -0.65000		0.00054 P	
Hole 6 True Pos. Inch	X = -0.74979 Y = -0.80031	-0.75000 -0.80000		0.00076 P	
Hole 7 True Pos. Inch	X = -0.29708 Y = -0.66457	-0.29750 -0.66450		0.00084 P	
Hole 8 True Pos. Inch	X = -0.49938 Y = -1.18841	-0.50000 -1.18800		0.00149 P	
Hole 9 True Pos. Inch	X = -0.83947 Y = -1.24040	-0.84000 -1.24000		0.00132 P	
Hole 10 True Pos. Inch	X = -1.06187 Y = -1.25032	-1.06200 -1.25000		0.00069 P	
Hole 11 True Pos. Inch	X = -1.21216 Y = -1.05874	-1.21250 -1.05850		0.00084 P	
Hole 12 True Pos. Inch	X = 0.29267 Y = 0.22655	0.29200 0.22600		0.00172 P	

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QC-4000 Feature Print Out

Date: 7-21-95
Job: Remington Part: Rt Sd Plate #15 Operator: DKS

FEATURE	ACTUAL	NOMINAL	FLG	DEVIATION	FORM
Hole 13 True Pos. Inch	X = 0.36414 Y = 0.06325	0.36400 0.06300		0.00057 P	
Hole 14 True Pos. Inch	X = -0.07414 Y = -0.28607	-0.07400 -0.28600		0.00032 P	
Hole 15 True Pos. Inch	X = -0.11480 Y = -0.14994	-0.11500 -0.15000		0.00043 P	

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Confidential - Subject
to Protective Order
Williams v. Remmington

PAGE BREAK

QC-4000 Feature Print Out

Date: 7-21-95
Job: Remington Part: Rt Sd Plate #16 Operator: DKS

FEATURE		ACTUAL	NOMINAL	FLG	DEVIATION	FORM
Hole 1 True Pos. Inch	X =	-1.42822	-1.42800		0.00044 P	
	Y =	0.00000	0.00000			
Hole 2 True Pos. Inch	X =	-1.16493	-1.16500		0.00025 P	
	Y =	-0.16011	-0.16000			
Hole 3 True Pos. Inch	X =	-0.86677	-0.86700		0.00046 P	
	Y =	-0.18299	-0.18300			
Hole 4 True Pos. Inch	X =	-0.58765	-0.58800		0.00071 P	
	Y =	-0.15994	-0.16000			
Hole 5 True Pos. Inch	X =	-1.30560	-1.30600		0.00089 P	
	Y =	-0.65019	-0.65000			
Hole 6 True Pos. Inch	X =	-0.74949	-0.75000		0.00129 P	
	Y =	-0.80040	-0.80000			
Hole 7 True Pos. Inch	X =	-0.29710	-0.29750		0.00089 P	
	Y =	-0.66470	-0.66450			
Hole 8 True Pos. Inch	X =	-0.49918	-0.50000		0.00182 P	
	Y =	-1.18838	-1.18800			
Hole 9 True Pos. Inch	X =	-0.83918	-0.84000		0.00187 P	
	Y =	-1.24045	-1.24000			
Hole 10 True Pos. Inch	X =	-1.06153	-1.06200		0.00118 P	
	Y =	-1.25035	-1.25000			
Hole 11 True Pos. Inch	X =	-1.21173	-1.21250		0.00180 P	
	Y =	-1.05896	-1.05850			
Hole 12 True Pos. Inch	X =	0.29192	0.29200		0.00068 P	
	Y =	0.22633	0.22600			

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QC-4000 Feature Print Out

Date: 7-21-95
Job: Remington Part: Rt Sd Plate #16 Operator: DKS

FEATURE	ACTUAL	NOMINAL	FLG	DEVIATION	FORM
Hole 13 True Pos. Inch	X = 0.36402 Y = 0.06284	0.36400 0.06300		0.00032 P	
Hole 14 True Pos. Inch	X = -0.07374 Y = -0.28602	-0.07400 -0.28600		0.00053 P	
Hole 15 True Pos. Inch	X = -0.11526 Y = -0.15004	-0.11500 -0.15000		0.00053 P	

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QC-4000 Feature Print Out

Date: 7-21-95
Job: Remington Part: Rt Sd Plate #/7 Operator: DKS

FEATURE		ACTUAL	NOMINAL	FLG	DEVIATION	FORM
Hole 1 True Pos. Inch	X =	-1.42823	-1.42800		0.00046 P	
	Y =	0.00000	0.00000			
Hole 2 True Pos. Inch	X =	-1.16502	-1.16500		0.00044 P	
	Y =	-0.16022	-0.16000			
Hole 3 True Pos. Inch	X =	-0.86678	-0.86700		0.00046 P	
	Y =	-0.18297	-0.18300			
Hole 4 True Pos. Inch	X =	-0.58797	-0.58800		0.00014 P	
	Y =	-0.15994	-0.16000			
Hole 5 True Pos. Inch	X =	-1.30566	-1.30600		0.00092 P	
	Y =	-0.65031	-0.65000			
Hole 6 True Pos. Inch	X =	-0.74945	-0.75000		0.00115 P	
	Y =	-0.80019	-0.80000			
Hole 7 True Pos. Inch	X =	-0.29703	-0.29750		0.00110 P	
	Y =	-0.66479	-0.66450			
Hole 8 True Pos. Inch	X =	-0.49949	-0.50000		0.00111 P	
	Y =	-1.18822	-1.18800			
Hole 9 True Pos. Inch	X =	-0.83954	-0.84000		0.00104 P	
	Y =	-1.24023	-1.24000			
Hole 10 True Pos. Inch	X =	-1.06184	-1.06200		0.00056 P	
	Y =	-1.25023	-1.25000			
Hole 11 True Pos. Inch	X =	-1.21216	-1.21250		0.00085 P	
	Y =	-1.05875	-1.05850			
Hole 12 True Pos. Inch	X =	0.29230	0.29200		0.00071 P	
	Y =	0.22619	0.22600			

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QC-4000 Feature Print Out

Date: 7-21-95
Job: Remington Part: Rt Sd Plate #17 Operator: DKS

FEATURE		ACTUAL	NOMINAL	FLG	DEVIATION	FORM
Hole 13 True Pos. Inch	X =	0.36383	0.36400		0.00064 P	
	Y =	0.06327	0.06300			
Hole 14 True Pos. Inch	X =	-0.07401	-0.07400		0.00038 P	
	Y =	-0.28581	-0.28600			
Hole 15 True Pos. Inch	X =	-0.11492	-0.11500		0.00017 P	
	Y =	-0.15001	-0.15000			

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QC-4000 Feature Print Out

Date: 7-21-95
Job: Remington Part: Rt Sd Plate #18 Operator: DKS

FEATURE		ACTUAL	NOMINAL	FLG	DEVIATION	FORM
Hole 1	X =	-1.42818	-1.42800		0.00036 P	
True Pos.	Y =	0.00000	0.00000			
Inch						
Hole 2	X =	-1.16502	-1.16500		0.00058 P	
True Pos.	Y =	-0.15971	-0.16000			
Inch						
Hole 3	X =	-0.86687	-0.86700		0.00056 P	
True Pos.	Y =	-0.18275	-0.18300			
Inch						
Hole 4	X =	-0.58810	-0.58800		0.00041 P	
True Pos.	Y =	-0.15982	-0.16000			
Inch						
Hole 5	X =	-1.30587	-1.30600		0.00032 P	
True Pos.	Y =	-0.65010	-0.65000			
Inch						
Hole 6	X =	-0.74977	-0.75000		0.00064 P	
True Pos.	Y =	-0.80023	-0.80000			
Inch						
Hole 7	X =	-0.29716	-0.29750		0.00074 P	
True Pos.	Y =	-0.66464	-0.66450			
Inch						
Hole 8	X =	-0.49958	-0.50000		0.00110 P	
True Pos.	Y =	-1.18835	-1.18800			
Inch						
Hole 9	X =	-0.83982	-0.84000		0.00079 P	
True Pos.	Y =	-1.24035	-1.24000			
Inch						
Hole 10	X =	-1.06218	-1.06200		0.00053 P	
True Pos.	Y =	-1.25020	-1.25000			
Inch						
Hole 11	X =	-1.21244	-1.21250		0.00013 P	
True Pos.	Y =	-1.05848	-1.05850			
Inch						
Hole 12	X =	0.29209	0.29200		0.00048 P	
True Pos.	Y =	0.22622	0.22600			
Inch						

ET55551

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Williams v. Remmington

QC-4000 Feature Print Out

Date: 7-21-95
Job: Remington Part: Rt Sd Plate #18 Operator: DKS

FEATURE		ACTUAL	NOMINAL	FLG	DEVIATION	FORM
Hole 13 True Pos. Inch	X =	0.36417	0.36400		0.00037 P	
	Y =	0.06307	0.06300			
Hole 14 True Pos. Inch	X =	-0.07414	-0.07400		0.00041 P	
	Y =	-0.28585	-0.28600			
Hole 15 True Pos. Inch	X =	-0.11509	-0.11500		0.00023 P	
	Y =	-0.15007	-0.15000			

ET55552

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to Protective Order
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QC-4000 Feature Print Out

Date: 7-21-95
Job: Remington Part: Rt Sd Plate #19 Operator: DKS

FEATURE	ACTUAL	NOMINAL	FLG	DEVIATION	FORM
Hole 1 True Pos. Inch	X = -1.42825 Y = 0.00000	-1.42800 0.00000		0.00050 P	
Hole 2 True Pos. Inch	X = -1.16509 Y = -0.16000	-1.16500 -0.16000		0.00019 P	
Hole 3 True Pos. Inch	X = -0.86668 Y = -0.18291	-0.86700 -0.18300		0.00066 P	
Hole 4 True Pos. Inch	X = -0.58779 Y = -0.15989	-0.58800 -0.16000		0.00047 P	
Hole 5 True Pos. Inch	X = -1.30591 Y = -0.65025	-1.30600 -0.65000		0.00053 P	
Hole 6 True Pos. Inch	X = -0.74979 Y = -0.80015	-0.75000 -0.80000		0.00052 P	
Hole 7 True Pos. Inch	X = -0.29704 Y = -0.66481	-0.29750 -0.66450		0.00111 P	
Hole 8 True Pos. Inch	X = -0.49983 Y = -1.18827	-0.50000 -1.18800		0.00063 P	
Hole 9 True Pos. Inch	X = -0.83950 Y = -1.24018	-0.84000 -1.24000		0.00106 P	
Hole 10 True Pos. Inch	X = -1.06192 Y = -1.25019	-1.06200 -1.25000		0.00041 P	ET55553
Hole 11 True Pos. Inch	X = -1.21240 Y = -1.05859	-1.21250 -1.05850		0.00026 P	
Hole 12 True Pos. Inch	X = 0.29226 Y = 0.22671	0.29200 0.22600		0.00151 P	

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QC-4000 Feature Print Out

Data: 7-21-95
Job: Remington Part: Rt Sd Plate #19 Operator: DKS

FEATURE	ACTUAL	NOMINAL	FLG	DEVIATION	FORM
Hole 13 True Pos. Inch	X = 0.36436 Y = 0.06347	0.36400 0.06300		0.00119 P	
Hole 14 True Pos. Inch	X = -0.07404 Y = -0.28576	-0.07400 -0.28600		0.00049 P	
Hole 15 True Pos. Inch	X = -0.11485 Y = -0.15003	-0.11500 -0.15000		0.00031 P	

ET55554

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to Protective Order
Williams v. Remmington

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QC-4000 Feature Print Out

Date: 7-21-95
Job: Remington Part: Rt Sd Plate #20 Operator: DKS

FEATURE	ACTUAL	NOMINAL	FLG	DEVIATION	FORM
Hole 1 True Pos. Inch	X = -1.42839 Y = 0.00000	-1.42800 0.00000		0.00078 P	
Hole 2 True Pos. Inch	X = -1.16499 Y = -0.15997	-1.16500 -0.16000		0.00006 P	
Hole 3 True Pos. Inch	X = -0.86690 Y = -0.18284	-0.86700 -0.18300		0.00038 P	
Hole 4 True Pos. Inch	X = -0.58807 Y = -0.15994	-0.58800 -0.16000		0.00019 P	
Hole 5 True Pos. Inch	X = -1.30586 Y = -0.65019	-1.30600 -0.65000		0.00047 P	
Hole 6 True Pos. Inch	X = -0.74975 Y = -0.80018	-0.75000 -0.80000		0.00063 P	
Hole 7 True Pos. Inch	X = -0.29719 Y = -0.66471	-0.29750 -0.66450		0.00076 P	
Hole 8 True Pos. Inch	X = -0.49963 Y = -1.18832	-0.50000 -1.18800		0.00097 P	
Hole 9 True Pos. Inch	X = -0.83961 Y = -1.24021	-0.84000 -1.24000		0.00089 P	
Hole 10 True Pos. Inch	X = -1.06210 Y = -1.25005	-1.06200 -1.25000		0.00022 P	
Hole 11 True Pos. Inch	X = -1.21221 Y = -1.05852	-1.21250 -1.05850		0.00057 P	
Hole 12 True Pos. Inch	X = 0.29202 Y = 0.22708	0.29200 0.22600		0.00215 P	

ET55555

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Williams v. Remmington

QC-4000 Feature Print Out

Date: 7-21-95
Job: Remington Part: Rt Sd Plate #20 Operator: DKS

FEATURE	ACTUAL	NOMINAL	FLG	DEVIATION	FORM
Hole 13 True Pos. Inch	X = 0.36409 Y = 0.06320	0.36400 0.06300		0.00044 P	
Hole 14 True Pos. Inch	X = -0.07417 Y = -0.28575	-0.07400 -0.28600		0.00061 P	
Hole 15 True Pos. Inch	X = -0.11517 Y = -0.15031	-0.11500 -0.15000		0.00070 P	

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QC-4000 Feature Print Out

Date: 7-21-95
Job: Remington Part: Rt Sd Plate #2 / Operator: DKS

FEATURE	ACTUAL	NOMINAL	FLG	DEVIATION	FORM
Hole 1 True Pos. Inch	X = -1.42840 Y = 0.00000	-1.42800 0.00000		0.00080 P	
Hole 2 True Pos. Inch	X = -1.16524 Y = -0.15993	-1.16500 -0.16000		0.00050 P	
Hole 3 True Pos. Inch	X = -0.86703 Y = -0.18276	-0.86700 -0.18300		0.00048 P	
Hole 4 True Pos. Inch	X = -0.58793 Y = -0.16000	-0.58800 -0.16000		0.00014 P	
Hole 5 True Pos. Inch	X = -1.30604 Y = -0.65018	-1.30600 -0.65000		0.00037 P	
Hole 6 True Pos. Inch	X = -0.74988 Y = -0.80017	-0.75000 -0.80000		0.00042 P	
Hole 7 True Pos. Inch	X = -0.29716 Y = -0.66466	-0.29750 -0.66450		0.00075 P	
Hole 8 True Pos. Inch	X = -0.49976 Y = -1.18834	-0.50000 -1.18800		0.00084 P	
Hole 9 True Pos. Inch	X = -0.83981 Y = -1.24024	-0.84000 -1.24000		0.00062 P	
Hole 10 True Pos. Inch	X = -1.06208 Y = -1.25018	-1.06200 -1.25000		0.00040 P	ET55557
Hole 11 True Pos. Inch	X = -1.21245 Y = -1.05872	-1.21250 -1.05850		0.00046 P	
Hole 12 True Pos. Inch	X = 0.29268 Y = 0.22639	0.29200 0.22600		0.00157 P	

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QC-4000 Feature Print Out

Date: 7-21-95
Job: Remington Part: Rt Sd Plate #2/ Operator: DKS

FEATURE		ACTUAL	NOMINAL	FLG	DEVIATION	FORM
Hole 13 True Pos. Inch	X =	0.36443	0.36400		0.00124 P	
	Y =	0.06344	0.06300			
Hole 14 True Pos. Inch	X =	-0.07429	-0.07400		0.00060 P	
	Y =	-0.28592	-0.28600			
Hole 15 True Pos. Inch	X =	-0.11498	-0.11500		0.00019 P	
	Y =	-0.15009	-0.15000			

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QC-4000 Feature Print Out

Date: 7-21-95
Job: Remington Part: Rt Sd Plate #22 Operator: DKS

FEATURE	ACTUAL	NOMINAL	FLG	DEVIATION	FORM
Hole 1 True Pos. Inch	X = -1.42825 Y = 0.00000	-1.42800 0.00000		0.00050 P	
Hole 2 True Pos. Inch	X = -1.16503 Y = -0.16010	-1.16500 -0.16000		0.00021 P	
Hole 3 True Pos. Inch	X = -0.86685 Y = -0.18282	-0.86700 -0.18300		0.00046 P	
Hole 4 True Pos. Inch	X = -0.58785 Y = -0.15981	-0.58800 -0.16000		0.00048 P	
Hole 5 True Pos. Inch	X = -1.30581 Y = -0.64989	-1.30600 -0.65000		0.00044 P	
Hole 6 True Pos. Inch	X = -0.74958 Y = -0.80032	-0.75000 -0.80000		0.00106 P	
Hole 7 True Pos. Inch	X = -0.29694 Y = -0.66473	-0.29750 -0.66450		0.00120 P	
Hole 8 True Pos. Inch	X = -0.49935 Y = -1.18841	-0.50000 -1.18800		0.00153 P	
Hole 9 True Pos. Inch	X = -0.83962 Y = -1.24032	-0.84000 -1.24000		0.00099 P	
Hole 10 True Pos. Inch	X = -1.06168 Y = -1.25033	-1.06200 -1.25000		0.00092 P	
Hole 11 True Pos. Inch	X = -1.21215 Y = -1.05879	-1.21250 -1.05850		0.00092 P	
Hole 12 True Pos. Inch	X = 0.29234 Y = 0.22578	0.29200 0.22600		0.00081 P	

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QC-4000 Feature Print Out

Date: 7-21-95
Job: Remington Part: Rt Sd Plate #22 Operator: DKS

FEATURE		ACTUAL	NOMINAL	FLG	DEVIATION	FORM
Hole 13 True Pos. Inch	X =	0.36426	0.36400		0.00067 P	
	Y =	0.06279	0.06300			
Hole 14 True Pos. Inch	X =	-0.07421	-0.07400		0.00044 P	
	Y =	-0.28592	-0.28600			
Hole 15 True Pos. Inch	X =	-0.11493	-0.11500		0.00033 P	
	Y =	-0.15015	-0.15000			

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QC-4000 Feature Print Out

Date: 7-21-95
Job: Remington

Part: Rt Sd Plate #23 Operator: DKS

FEATURE	ACTUAL	NOMINAL	FLG	DEVIATION	FORM
Hole 1 True Pos. Inch	X = -1.42804 Y = 0.00000	-1.42800 0.00000		0.00007 P	
Hole 2 True Pos. Inch	X = -1.16478 Y = -0.15997	-1.16500 -0.16000		0.00044 P	
Hole 3 True Pos. Inch	X = -0.86685 Y = -0.18306	-0.86700 -0.18300		0.00032 P	
Hole 4 True Pos. Inch	X = -0.58765 Y = -0.15997	-0.58800 -0.16000		0.00070 P	
Hole 5 True Pos. Inch	X = -1.30582 Y = -0.65008	-1.30600 -0.65000		0.00039 P	
Hole 6 True Pos. Inch	X = -0.74974 Y = -0.80031	-0.75000 -0.80000		0.00080 P	
Hole 7 True Pos. Inch	X = -0.29688 Y = -0.66490	-0.29750 -0.66450		0.00148 P	
Hole 8 True Pos. Inch	X = -0.49955 Y = -1.18847	-0.50000 -1.18800		0.00131 P	
Hole 9 True Pos. Inch	X = -0.83952 Y = -1.24023	-0.84000 -1.24000		0.00105 P	
Hole 10 True Pos. Inch	X = -1.06193 Y = -1.25018	-1.06200 -1.25000		0.00038 P	
Hole 11 True Pos. Inch	X = -1.21212 Y = -1.05849	-1.21250 -1.05850		0.00076 P	
Hole 12 True Pos. Inch	X = 0.29278 Y = 0.22661	0.29200 0.22600		0.00198 P	

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QC-4000 Feature Print Out

Date: 7-21-95
Job: Remington Part: Rt Sd Plate #23 Operator: DKS

FEATURE	ACTUAL	NOMINAL	FLG	DEVIATION	FORM
Hole 13 True Pos. Inch	X = 0.36445 Y = 0.06337	0.36400 0.06300		0.00116 P	
Hole 14 True Pos. Inch	X = -0.07440 Y = -0.28576	-0.07400 -0.28600		0.00092 P	
Hole 15 True Pos. Inch	X = -0.11527 Y = -0.15010	-0.11500 -0.15000		0.00057 P	

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to Protective Order
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QC-4000 Feature Print Out

Date: 7-21-95
Job: Remington Part: Rt Sd Plate #24 Operator: DKS

FEATURE		ACTUAL	NOMINAL	FLG	DEVIATION	FORM
Hole 1 True Pos. Inch	X =	-1.42843	-1.42800		0.00087 P	
	Y =	0.00000	0.00000			
Hole 2 True Pos. Inch	X =	-1.16503	-1.16500		0.00016 P	
	Y =	-0.16007	-0.16000			
Hole 3 True Pos. Inch	X =	-0.86696	-0.86700		0.00013 P	
	Y =	-0.18295	-0.18300			
Hole 4 True Pos. Inch	X =	-0.58803	-0.58800		0.00025 P	
	Y =	-0.16012	-0.16000			
Hole 5 True Pos. Inch	X =	-1.30555	-1.30600		0.00108 P	
	Y =	-0.65029	-0.65000			
Hole 6 True Pos. Inch	X =	-0.74962	-0.75000		0.00084 P	
	Y =	-0.80017	-0.80000			
Hole 7 True Pos. Inch	X =	-0.29692	-0.29750		0.00115 P	
	Y =	-0.66449	-0.66450			
Hole 8 True Pos. Inch	X =	-0.49940	-0.50000		0.00135 P	
	Y =	-1.18830	-1.18800			
Hole 9 True Pos. Inch	X =	-0.83937	-0.84000		0.00133 P	
	Y =	-1.24021	-1.24000			
Hole 10 True Pos. Inch	X =	-1.06152	-1.06200		0.00097 P	
	Y =	-1.25006	-1.25000			
Hole 11 True Pos. Inch	X =	-1.21178	-1.21250		0.00153 P	
	Y =	-1.05875	-1.05850			
Hole 12 True Pos. Inch	X =	0.29237	0.29200		0.00209 P	
	Y =	0.22698	0.22600			

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Williams v. Remmington

QC-4000 Feature Print Out

Date: 7-21-95
Job: Remington Part: Rt Sd Plate #24 Operator: DKS

FEATURE		ACTUAL	NOMINAL	FLG	DEVIATION	FORM
Hole 13 True Pos. Inch	X =	0.36399	0.36400		0.00042 P	
	Y =	0.06321	0.06300			
Hole 14 True Pos. Inch	X =	-0.07402	-0.07400		0.00009 P	
	Y =	-0.28596	-0.28600			
Hole 15 True Pos. Inch	X =	-0.11522	-0.11500		0.00047 P	
	Y =	-0.15008	-0.15000			

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to Protective Order
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QC-4000 Feature Print Out

Date: 7-21-95
Job: Remington Part: Rt Sd Plate #25 Operator: DKS

FEATURE	ACTUAL	NOMINAL	FLG	DEVIATION	FORM
Hole 1 True Pos. Inch	X = -1.42877 Y = 0.00000	-1.42800 0.00000		0.00154 P	
Hole 2 True Pos. Inch	X = -1.16525 Y = -0.16011	-1.16500 -0.16000		0.00055 P	
Hole 3 True Pos. Inch	X = -0.86696 Y = -0.18291	-0.86700 -0.18300		0.00020 P	
Hole 4 True Pos. Inch	X = -0.58796 Y = -0.16019	-0.58800 -0.16000		0.00040 P	
Hole 5 True Pos. Inch	X = -1.30622 Y = -0.65017	-1.30600 -0.65000		0.00055 P	
Hole 6 True Pos. Inch	X = -0.75011 Y = -0.80028	-0.75000 -0.80000		0.00061 P	
Hole 7 True Pos. Inch	X = -0.29727 Y = -0.66481	-0.29750 -0.66450		0.00076 P	
Hole 8 True Pos. Inch	X = -0.50002 Y = -1.18846	-0.50000 -1.18800		0.00093 P	
Hole 9 True Pos. Inch	X = -0.83989 Y = -1.24018	-0.84000 -1.24000		0.00042 P	
Hole 10 True Pos. Inch	X = -1.06227 Y = -1.25005	-1.06200 -1.25000		0.00054 P	
Hole 11 True Pos. Inch	X = -1.21269 Y = -1.05863	-1.21250 -1.05850		0.00045 P	
Hole 12 True Pos. Inch	X = 0.29161 Y = 0.22727	0.29200 0.22600		0.00265 P	

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Rt Side Plate #26

Hole 1 True Pos. Inch	X = Y =	-1.42831 0.00000	-1.42800 0.00000		0.00062 P
Hole 2 True Pos. Inch	X = Y =	-1.16470 -0.16018	-1.16500 -0.16000		0.00069 P
Hole 3 True Pos. Inch	X = Y =	-0.86676 -0.18299	-0.86700 -0.18300		0.00048 P
Hole 4 True Pos. Inch	X = Y =	-0.58786 -0.15996	-0.58800 -0.16000		0.00030 P
Hole 5 True Pos. Inch	X = Y =	-1.30572 -0.65057	-1.30600 -0.65000		0.00127 P
Hole 6 True Pos. Inch	X = Y =	-0.74949 -0.80033	-0.75000 -0.80000		0.00122 P
Hole 7 True Pos. Inch	X = Y =	-0.29676 -0.66481	-0.29750 -0.66450		0.00160 P
Hole 8 True Pos. Inch	X = Y =	-0.49929 -1.18848	-0.50000 -1.18800		0.00171 P
Hole 9 True Pos. Inch	X = Y =	-0.83920 -1.24040	-0.84000 -1.24000		0.00179 P
Hole 10 True Pos. Inch	X = Y =	-1.06144 -1.25034	-1.06200 -1.25000		0.00130 P
Hole 11 True Pos. Inch	X = Y =	-1.21185 -1.05891	-1.21250 -1.05850		0.00154 P
Hole 12 True Pos. Inch	X = Y =	0.29204 0.22667	0.29200 0.22600		0.00135 P

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Date: 7-21-95
Job: Remington Part: Rt Sd Plate #2C Operator: DKS

FEATURE		ACTUAL	NOMINAL	FLG	DEVIATION	FORM
Hole 13 True Pos. Inch	X =	0.36456	0.36400		0.00120 P	
	Y =	0.06320	0.06300			
Hole 14 True Pos. Inch	X =	-0.07417	-0.07400		0.00043 P	
	Y =	-0.28587	-0.28600			
Hole 15 True Pos. Inch	X =	-0.11498	-0.11500		0.00026 P	
	Y =	-0.15013	-0.15000			

QC-4000 Feature Print Out

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QC-4000 Feature Print Out

Date: 7-21-95
Job: Remington Part: Rt Sd Plate #27 Operator: DKS

FEATURE	ACTUAL	NOMINAL	FLG	DEVIATION	FORM
Hole 1 True Pos. Inch	X = -1.42802 Y = 0.00000	-1.42800 0.00000		0.00004 P	
Hole 2 True Pos. Inch	X = -1.16473 Y = -0.16019	-1.16500 -0.16000		0.00067 P	
Hole 3 True Pos. Inch	X = -0.86689 Y = -0.18307	-0.86700 -0.18300		0.00026 P	
Hole 4 True Pos. Inch	X = -0.58771 Y = -0.15984	-0.58800 -0.16000		0.00066 P	
Hole 5 True Pos. Inch	X = -1.30560 Y = -0.65031	-1.30600 -0.65000		0.00101 P	
Hole 6 True Pos. Inch	X = -0.74924 Y = -0.80023	-0.75000 -0.80000		0.00159 P	
Hole 7 True Pos. Inch	X = -0.29648 Y = -0.66475	-0.29750 -0.66450	P	0.00210 F 0.0005 Bonus	ok
Hole 8 True Pos. Inch	X = -0.49918 Y = -1.18833	-0.50000 -1.18800		0.00177 P	
Hole 9 True Pos. Inch	X = -0.83916 Y = -1.24056	-0.84000 -1.24000	P	0.00202 F 0.0001 Bonus	ok
Hole 10 True Pos. Inch	X = -1.06099 Y = -1.24945	-1.06200 -1.25000		0.00230 P	
Hole 11 True Pos. Inch	X = -1.21177 Y = -1.05899	-1.21250 -1.05850		0.00176 P	
Hole 12 True Pos. Inch	X = 0.29228 Y = 0.22642	0.29200 0.22600		0.00101 P	

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QC-4000 Feature Print Out

Date: 7-21-95
Job: Remington Part: Rt Sd Plate #27 Operator: DKS

FEATURE	ACTUAL	NOMINAL	FLG	DEVIATION	FORM
Hole 13 True Pos. Inch	X = 0.36438 Y = 0.06327	0.36400 0.06300		0.00094 P	
Hole 14 True Pos. Inch	X = -0.07428 Y = -0.28607	-0.07400 -0.28600		0.00058 P	
Hole 15 True Pos. Inch	X = -0.11520 Y = -0.15004	-0.11500 -0.15000		0.00040 P	

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to Protective Order
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QC-4000 Feature Print Out

Date: 7-21-95
Job: Remington Part: Rt Sd Plate #28 Operator: DKS

FEATURE		ACTUAL	NOMINAL	FLG	DEVIATION	FORM
Hole 1 True Pos. Inch	X =	-1.42817	-1.42800		0.00034 P	
	Y =	0.00000	0.00000			
Hole 2 True Pos. Inch	X =	-1.16517	-1.16500		0.00038 P	
	Y =	-0.16008	-0.16000			
Hole 3 True Pos. Inch	X =	-0.86683	-0.86700		0.00039 P	
	Y =	-0.18310	-0.18300			
Hole 4 True Pos. Inch	X =	-0.58768	-0.58800		0.00070 P	
	Y =	-0.15985	-0.16000			
Hole 5 True Pos. Inch	X =	-1.30587	-1.30600		0.00060 P	
	Y =	-0.65027	-0.65000			
Hole 6 True Pos. Inch	X =	-0.74978	-0.75000		0.00062 P	
	Y =	-0.80021	-0.80000			
Hole 7 True Pos. Inch	X =	-0.29700	-0.29750		0.00111 P	
	Y =	-0.66474	-0.66450			
Hole 8 True Pos. Inch	X =	-0.49935	-0.50000		0.00145 P	
	Y =	-1.18833	-1.18800			
Hole 9 True Pos. Inch	X =	-0.83923	-0.84000		0.00161 P	
	Y =	-1.24022	-1.24000			
Hole 10 True Pos. Inch	X =	-1.06176	-1.06200		0.00089 P	
	Y =	-1.25037	-1.25000			
Hole 11 True Pos. Inch	X =	-1.21208	-1.21250		0.00104 P	
	Y =	-1.05880	-1.05850			
Hole 12 True Pos. Inch	X =	0.29237	0.29200		0.00080 P	
	Y =	0.22615	0.22600			

ET55571

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Williams v. Remmington

QC-4000 Feature Print Out

Date: 7-21-95
Job: Remington Part: Rt Sd Plate #28 Operator: DKS

FEATURE	ACTUAL	NOMINAL	FLG	DEVIATION	FORM
Hole 13 True Pos. Inch	X = 0.36462 Y = 0.06319	0.36400 0.06300		0.00130 P	
Hole 14 True Pos. Inch	X = -0.07384 Y = -0.28592	-0.07400 -0.28600		0.00036 P	
Hole 15 True Pos. Inch	X = -0.11501 Y = -0.15007	-0.11500 -0.15000		0.00015 P	

ET55572

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Williams v. Remmington

QC-4000 Feature Print Out

Date: 7-21-95
Job: Remington Part: Rt Sd Plate #29 Operator: DKS

FEATURE		ACTUAL	NOMINAL	FLG	DEVIATION	FORM
Hole 1 True Pos. Inch	X =	-1.42815	-1.42800		0.00031 P	
	Y =	0.00000	0.00000			
Hole 2 True Pos. Inch	X =	-1.16493	-1.16500		0.00028 P	
	Y =	-0.16012	-0.16000			
Hole 3 True Pos. Inch	X =	-0.86674	-0.86700		0.00057 P	
	Y =	-0.18311	-0.18300			
Hole 4 True Pos. Inch	X =	-0.58767	-0.58800		0.00067 P	
	Y =	-0.16006	-0.16000			
Hole 5 True Pos. Inch	X =	-1.30558	-1.30600		0.00111 P	
	Y =	-0.65036	-0.65000			
Hole 6 True Pos. Inch	X =	-0.74958	-0.75000		0.00117 P	
	Y =	-0.80041	-0.80000			
Hole 7 True Pos. Inch	X =	-0.29659	-0.29750		0.00191 P	
	Y =	-0.66479	-0.66450			
Hole 8 True Pos. Inch	X =	-0.49916	-0.50000		0.00192 P	
	Y =	-1.18847	-1.18800			
Hole 9 True Pos. Inch	X =	-0.83903	-0.84000	P	0.00213 F 0.000 / Bonus	OK
	Y =	-1.24044	-1.24000			
Hole 10 True Pos. Inch	X =	-1.06131	-1.06200		0.00157 P	
	Y =	-1.25037	-1.25000			
Hole 11 True Pos. Inch	X =	-1.21164	-1.21250		0.00187 P	
	Y =	-1.05887	-1.05850			
Hole 12 True Pos. Inch	X =	0.29204	0.29200		0.00077 P	
	Y =	0.22638	0.22600			

ET55573

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Williams v. Remmington

QC-4000 Feature Print Out

Date: 7-21-95
Job: Remington Part: Rt Sd Plate #29 Operator: DKS

FEATURE	ACTUAL	NOMINAL	FLG	DEVIATION	FORM
Hole 13 True Pos. Inch	X = 0.36450 Y = 0.06351	0.36400 0.06300		0.00142 P	
Hole 14 True Pos. Inch	X = -0.07405 Y = -0.28578	-0.07400 -0.28600		0.00045 P	
Hole 15 True Pos. Inch	X = -0.11526 Y = -0.15014	-0.11500 -0.15000		0.00059 P	

ET55574

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Williams v. Remmington

QC-4000 Feature Print Out

Date: 7-21-95
Job: Remington Part: Rt Sd Plate #30 Operator: DKS

FEATURE		ACTUAL	NOMINAL	FLG	DEVIATION	FORM
Hole 1 True Pos. Inch	X =	-1.42837	-1.42800		0.00074 P	
	Y =	0.00000	0.00000			
Hole 2 True Pos. Inch	X =	-1.16497	-1.16500		0.00015 P	
	Y =	-0.15993	-0.16000			
Hole 3 True Pos. Inch	X =	-0.86670	-0.86700		0.00059 P	
	Y =	-0.18303	-0.18300			
Hole 4 True Pos. Inch	X =	-0.58788	-0.58800		0.00030 P	
	Y =	-0.15992	-0.16000			
Hole 5 True Pos. Inch	X =	-1.30574	-1.30600		0.00075 P	
	Y =	-0.65027	-0.65000			
Hole 6 True Pos. Inch	X =	-0.74961	-0.75000		0.00099 P	
	Y =	-0.80030	-0.80000			
Hole 7 True Pos. Inch	X =	-0.29693	-0.29750		0.00151 P	
	Y =	-0.66500	-0.66450			
Hole 8 True Pos. Inch	X =	-0.49933	-0.50000		0.00147 P	
	Y =	-1.18831	-1.18800			
Hole 9 True Pos. Inch	X =	-0.83944	-0.84000		0.00147 P	
	Y =	-1.24047	-1.24000			
Hole 10 True Pos. Inch	X =	-1.06170	-1.06200		0.00105 P	
	Y =	-1.25043	-1.25000			
Hole 11 True Pos. Inch	X =	-1.21203	-1.21250		0.00119 P	
	Y =	-1.05887	-1.05850			
Hole 12 True Pos. Inch	X =	0.29208	0.29200		0.00020 P	
	Y =	0.22594	0.22600			

ET55575

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Williams v. Remmington

QC-4000 Feature Print Out

Date: 7-21-95
Job: Remington Part: Rt Sd Plate #30 Operator: DKS

FEATURE	ACTUAL	NOMINAL	FLG	DEVIATION	FORM
Hole 13 True Pos. Inch	X = 0.36412 Y = 0.06308	0.36400 0.06300		0.00030 P	
Hole 14 True Pos. Inch	X = -0.07415 Y = -0.28575	-0.07400 -0.28600		0.00058 P	
Hole 15 True Pos. Inch	X = -0.11505 Y = -0.15009	-0.11500 -0.15000		0.00022 P	

ET55576

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Williams v. Remmington

Status Reports

ET56028

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Williams v. Remmington

M/700 Performance Enhancements

Status as of 5/17/95

ET56029

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Williams v. Remmington

Definition

- ❒ New fire control with the following changes:
  - One piece trigger
  - Smooth trigger bow
  - Trigger Pull of 3.0 lbs. -0 lbs. +"T" lbs.
    - ✓ "T" is the manufacturing tolerance
  - Assembly will be tamper evident
  - Sear, trigger, and housing will be skeletonized to allow:
    - ✓ Flushing with a solvent from the sear downwards towards the trigger bow
    - ✓ Visual inspection to ensure that the mechanism is clean
  - The safety lever arm and knob will be redesigned to be more user friendly.
  - The trigger will be balanced to the extent possible without moving the pivot point. The physical position of the bow may change to allow balancing.
  - The materials used will be those used in the current M/700 stainless steel firearm fire control.
- ❒ Improved Accuracy
  - At this time, we do not feel this is demonstrably feasible for 1996.
- ❒ Lock Time Improvements
  - Titanium Firing Pin
- ❒ Ergonomic Improvements
  - Safety Button redesigned
  - Bolt Release relocated and redesigned
- ❒ Recoil Reduction
  - Muzzle Break

ET56030

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Williams v. Remmington

Status

- ❒ Fire Control
  - 3 sets of skeletonized side plates assembled and routed to Bob Haskin and Sam Rensi for review. (5/19/95)
  - Drawing package complete except for side plate, housing assembly, and final assembly drawings.

- ❒ Lock Time Improvements
  - Ordered titanium firing pins from Brownell 5/19/95.
    - ✓ 5 long action (stock # 840-700-002)
    - ✓ 5 short action (stock # 840-700-001)

- ❒ Ergonomic Improvements
  - Two different safety button designs currently being prototyped with an expected delivery of 6/6/95.

- ❒ Recoil Reduction
  - Ordered a Gentry "Quiet" brake Model #1 308 caliber (stock # 339-101-308).
  - Designed and detailed a muzzle break integral with barrel (C-EXP2878).
  - Designed a muzzle break to reduce recoil as well as noise which is threaded on to barrel.

ET56031

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Williams v. Remmington

Action Items

Description	Status	Responsibility	Date
Need decision on skeletonized side plates.	Side plate samples being shipped to Sam Renzi.	Renzi, Haskin	5/30/95
Need to determine how we are going to measure recoil.		Danner	6/30/95
Need to purchase sound measuring equipment.		Danner	6/09/95
Build prototypes of fire control.		Ford	8/04/95
Complete prototype build of safety buttons.	In progress.	Ford	6/06/95
Need a decision on color of trigger.		Balio, Bunting, Haskin	6/16/95

ET56032

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Program Schedule

	Initial	Current

ET56033

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Areas of Concern

- Need to determine how we are going to measure recoil.
- Buying a machine

ET56034

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Williams v. Remmington

BARBER - 2.4.130000416

PAGE BREAK

M/700 Performance Enhancements

Status as of 6/02/95

ET56035

Confidential - Subject
to Protective Order
Williams v. Remmington

BARBER - 2.4.130000418

Definition

- New fire control with the following changes:
  - One piece trigger
  - Smooth trigger bow
  - Trigger Pull of 3.0 lbs. -0 lbs. +"T" lbs.
    - ✓ "T" is the manufacturing tolerance
  - Assembly will be tamper evident
  - Sear, trigger, and housing will be skeletonized to allow:
    - ✓ Flushing with a solvent from the sear downwards towards the trigger bow
    - ✓ Visual inspection to ensure that the mechanism is clean
  - The safety lever arm and knob will be redesigned to be more user friendly.
  - The trigger will be balanced to the extent possible without moving the pivot point. The physical position of the bow may change to allow balancing.
  - The materials used will be those used in the current M/700 stainless steel firearm fire control.
- Improved Accuracy
  - At this time, we do not feel this is demonstrably feasible for 1996.
- Lock Time Improvements
  - Titanium Firing Pin
- Ergonomic Improvements
  - Safety Button redesigned
  - Bolt Release relocated and redesigned
- Recoil Reduction
  - Muzzle Break

ET56036

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Williams v. Remmington

BARBER - 2.4.130000419

Status

- ❒ Fire Control
  - Side plate skeletonization defined.
    - ✓ Side plate drawing C-EXP2867
  - Drawing package complete except for side plate, housing assembly, and final assembly drawings.
  - Drawings of Sear and Trigger sent to Ilion for quote.
  - Drawings of Trigger Plate Bushing, Trigger Pull Screw, Trigger Pivot Pin, Safety Pivot Pin, Screw, and Tamper Cap sent to Advanced Grinding & Machine, Inc. for quote.

- ❒ Lock Time Improvements
  - Ordered titanium firing pins from Brownell 5/19/95.
    - ✓ 5 long action (stock # 840-700-002)
    - ✓ 5 short action (stock # 840-700-001)

- ❒ Ergonomic Improvements
  - Three safety button designs currently being prototyped with an expected delivery of 6/30/95.

- ❒ Recoil Reduction
  - Ordered a Gentry "Quiet" brake Model #1 308 caliber (stock # 339-101-308).
  - Designed and detailed a muzzle break integral with barrel (C-EXP2878).
  - Designed and detailed a one-piece muzzle break which is threaded onto barrel.
    - ✓ No noise attenuation

ET56037

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Williams v. Remmington

Status (continued)

- ❒ Recoil Reduction (cont'd)
  - Designed and detailed a two-piece muzzle break which is threaded onto barrel.
    - ✓ No noise attenuation
  - Five prototypes of both the one-piece and the two-piece muzzle breaks are ordered with a delivery date not to exceed 06/30/95.
    - ✓ Advanced Grinding & Machine, Inc.
  - One prototype of the muzzle break integral with the barrel is ordered with a delivery date not to exceed 06/30/95.

ET56038

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Williams v. Remmington

Action Items

Description	Status	Responsibility	Date
Need decision on skeletonized side plates.	Completed.	Rossi, Haskin	5/30/95
Need to determine how we are going to measure recoil.		Danner	6/30/95
Need to improve current method of measuring lock time.		Danner	7/14/95
Need to purchase sound measuring equipment.		Danner	6/30/95
Build prototypes of fire control.	Trigger and Sear sent to Ilion for quote. Bushings, Screws, Pivot Pins and Tamper Caps sent to Advanced Grinding & Machine, Inc. for quote.	Ford	7/14/95
Build prototypes of muzzle brake.	On order at Advanced Grinding & Machine, Inc.	Ford	6/30/95
Build prototypes of different safety button designs.	On order at Kellems & Coe Tool Co.	Ford	6/30/95
Need a decision on color of trigger.		Ballo, Bunting, Haskin	6/16/95

ET56039

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Areas of Concern

- Need to determine how we are going to measure recoil.
- Need to improve current method of measuring lock time.
- Not sufficient time to test accuracy improvements.

ET56040

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PAGE BREAK

M/700 Performance Enhancements

Status as of 6/09/95

ET56041

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Williams v. Remmington

BARBER - 2.4.130000425

Definition

- New fire control with the following changes:
  - One piece trigger
  - Smooth trigger bow
  - Trigger Pull of 3.0 lbs. -0 lbs. +"T" lbs.
    - ✓ "T" is the manufacturing tolerance
  - Assembly will be tamper evident
  - Sear, trigger, and housing will be skeletonized to allow:
    - ✓ Flushing with a solvent from the sear downwards towards the trigger bow
    - ✓ Visual inspection to ensure that the mechanism is clean
  - The safety lever arm and knob will be redesigned to be more user friendly.
  - The trigger will be balanced to the extent possible without moving the pivot point. The physical position of the bow may change to allow balancing.
  - The materials used will be those used in the current M/700 stainless steel firearm fire control.
- Improved Accuracy
  - At this time, we do not feel this is demonstrably feasible for 1996.
- Lock Time Improvements
  - Titanium Firing Pin
- Ergonomic Improvements
  - Safety Button redesigned
  - Bolt Release relocated and redesigned
- Recoil Reduction
  - Muzzle Break

ET56042

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Williams v. Remmington

Status

- ❒ Fire Control
  - Side plate skeletonization defined.
    - ✓ Side plate drawing C-EXP2867
  - Drawing package complete except for side plate, housing assembly, and final assembly drawings.
  - Twenty five sears and thirty triggers on order. Due 06/30/95.
    - ✓ Illion tool room.
  - Drawings of trigger plate bushing, trigger pull screw, trigger pivot pin, safety pivot pin, screw, and tamper cap sent to Advanced Grinding & Machine, Inc. for quotation.

- ❒ Improved Accuracy
  - Reviewed an unsolicited idea consisting of a slider block in the stock.
    - ✓ Forwarded to Tony Hancock for further consideration.

- ❒ Lock Time Improvements
  - Received titanium firing pins from Brownell.
    - ✓ 5 long action (stock # 840-700-002)
    - ✓ 5 short action (stock # 840-700-001)

- ❒ Ergonomic Improvements
  - Three safety button designs currently being prototyped with an expected delivery of 6/30/95.
    - ✓ Kellems & Coe Tool Co.

ET56043

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Williams v. Remmington

BARBER - 2.4.130000427

Status (continued)

- ❒ Recoil Reduction
  - Received a Gentry "Quiet" brake Model #1 308 caliber (stock # 339-101-308).
  - Designed and detailed a muzzle break integral with barrel (C-EXP2878).
  - Designed and detailed a one-piece muzzle break which is threaded onto barrel.
    - ✓ No noise attenuation
  - Designed and detailed a two-piece muzzle break which is threaded onto barrel.
    - ✓ No noise attenuation
  - Five prototypes of both the one-piece and the two-piece muzzle breaks due 06/30/95.
    - ✓ Advanced Grinding & Machine, Inc.
  - One prototype of the muzzle break integral with the barrel due 06/30/95.

ET56044

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Williams v. Remmington

BARBER - 2.4.130000428

Action Items

Description	Status	Responsibility	Date
Need to determine how we are going to measure recoil		Danner	6/30/95
Need to improve current method of measuring lock time		Danner	7/14/95
Need to purchase sound measuring equipment		Danner	6/30/95
Build prototypes of fire control.	Trigger and Sear on order. Bushings, Screws, Pivot Pins and Tamper Caps sent to Advanced Grinding & Machine, Inc. for quote.	Ford	7/14/95
Build prototypes of muzzle breaks.	On order at Advanced Grinding & Machine, Inc.	Ford	6/30/95
Build prototypes of different safety button designs.	On order at Kellems & Coe Tool Co.	Ford	6/30/95
Need a decision on color of trigger.		Dolio, Dusing, Haslin	6/16/95

ET56045

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Williams v. Remmington

Areas of Concern

- Need to determine how we are going to measure recoil.
- Need to improve current method of measuring lock time.
- Not sufficient time to test accuracy improvements.

ET56046

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Williams v. Remmington

PAGE BREAK

M/700 Performance Enhancements

Status as of 6/23/95

ET56047

Confidential - Subject
to Protective Order
Williams v. Remmington

BARBER - 2.4.130000432

Definition

- New fire control with the following changes:
  - One piece trigger
  - Smooth trigger bow
  - Trigger Pull of 3.0 lbs. -0 lbs. +"T" lbs.
    - ✓ "T" is the manufacturing tolerance
  - Assembly will be tamper evident
  - Sear, trigger, and housing will be skeletonized to allow:
    - ✓ Flushing with a solvent from the sear downwards towards the trigger bow
    - ✓ Visual inspection to ensure that the mechanism is clean
  - The safety lever arm and knob will be redesigned to be more user friendly.
  - The trigger will be balanced to the extent possible without moving the pivot point. The physical position of the bow may change to allow balancing.
  - The materials used will be those used in the current M/700 stainless steel firearm fire control.
- Improved Accuracy
  - At this time, we do not feel this is demonstrably feasible for 1996.
- Lock Time Improvements
  - Titanium Firing Pin
- Ergonomic Improvements
  - Safety Button redesigned
  - Bolt Release relocated and redesigned
- Recoil Reduction
  - Muzzle Break

ET56048

Confidential - Subject to Protective Order
Williams v. Remmington

Status

- ❒ Fire Control
  - Side plate skeletonization defined.
    - ✓ Side plate drawing C-EXP2867
  - Drawing package complete except for side plate, housing assembly, and final assembly drawings.
  - Twenty five sears and thirty triggers on order. Due 06/30/95.
    - ✓ Ilion tool room.
  - Drawings of trigger plate bushing, trigger pull screw, trigger pivot pin, safety pivot pin, screw, and tamper cap sent to Advanced Grinding & Machine, Inc. for quotation.

- ❒ Improved Accuracy
  - Reviewed an unsolicited idea consisting of a slider block in the stock.
    - ✓ Forwarded to Tony Hancock for further consideration.

- ❒ Lock Time Improvements
  - Received titanium firing pins from Brownell.
    - ✓ 5 long action (stock # 840-700-002)
    - ✓ 5 short action (stock # 840-700-001)

- ❒ Ergonomic Improvements
  - Three safety button designs currently being prototyped with an expected delivery of 6/30/95.
    - ✓ Kellems & Coe Tool Co.

ET56049

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Williams v. Remmington

Status (continued)

- ☐ Recoil Reduction
  - Received a Gentry "Quiet" brake Model #1 308 caliber (stock # 339-101-308).
  - Designed and detailed a muzzle break integral with barrel (C-EXP2878).
  - Designed and detailed a one-piece muzzle break which is threaded onto barrel.
    - ✓ No noise attenuation
  - Designed and detailed a two-piece muzzle break which is threaded onto barrel.
    - ✓ No noise attenuation
  - Five prototypes of both the one-piece and the two-piece muzzle breaks due 06/30/95.
    - ✓ Advanced Grinding & Machine, Inc.
  - One prototype of the muzzle break integral with the barrel due 06/30/95.

ET56050

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Action Items

Description	Status	Responsibility	Date
Need to determine how we are going to measure recoil.		Dinner	6/30/95
Need to improve current method of measuring lock time		Dinner	7/14/95
Need to purchase sound measuring equipment.		Dinner	6/30/95
Build prototypes of fire control.	Trigger and Sear on order. Bushings, Screws, Pivot Pins and Tamper Ops sent to Advanced Grinding & Machine, Inc. for quote.	Ford	7/14/95
Build prototypes of muzzle breaks.	On order at Advanced Grinding & Machine, Inc.	Ford	6/30/95
Build prototypes of different safety button designs.	On order at Kellam & Cte Tool Co.	Ford	6/30/95
Need a decision on color of trigger.		Bahn, Bunting, Hoskin	6/16/95

ET56051

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Williams v. Remmington

Areas of Concern

- Need to determine how we are going to measure recoil.
- Need to improve current method of measuring lock time.
- Not sufficient time to test accuracy improvements.

ET56052

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Williams v. Remmington

PAGE BREAK

M/700 Performance Enhancements

Status as of 7/21/95

ET56053

Confidential - Subject
to Protective Order
Williams v. Remmington

BARBER - 2.4.130000439

Definition

- ❒ New fire control with the following changes:
  - One piece trigger
  - Smooth trigger bow
  - Trigger Pull of 3.0 lbs. -0 lbs. +"T" lbs.
    - ✓ "T" is the manufacturing tolerance
  - Assembly will be tamper evident
  - Sear, trigger, and housing will be skeletonized to allow:
    - ✓ Flushing with a solvent from the sear downwards towards the trigger bow
    - ✓ Visual inspection to ensure that the mechanism is clean
  - The safety lever arm and knob will be redesigned to be more user friendly.
  - The trigger will be balanced to the extent possible without moving the pivot point. The physical position of the bow may change to allow balancing.
  - The materials used will be those used in the current M/700 stainless steel firearm fire control.
  - The M/700 SS will have an electroless nickel trigger and the M/700 will have a gold plated trigger.
- ❒ Improved Accuracy
  - Improve bedding of barreled action in stock.
- ❒ Lock Time Improvements
  - Lighter firing pin and potentially a heavier spring.
- ❒ Ergonomic Improvements
  - Safety Button redesigned.

ET56054

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Williams v. Remmington

Status

- Fire Control
  - All prototype parts due week beginning 07/24/95.
  - Assembly of fire controls in Ilion week beginning 08/07/95.

- Improved Accuracy
  - Investigating use of a material to act as a bedding block in the stock.

- Lock Time Improvements
  - 15 long action, short action, and M/Seven external tapered firing pins on order. Due 08/10/95.
  - 15 long action, short action, and M/Seven tubular firing pins on order. Due 08/10/95.

- Ergonomic Improvements
  - Two prototypes of each of three different safety button designs received. All six prototypes sent to Ilion to be assembled to fire controls for evaluation.

ET56055

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BARBER - 2.4.130000441

Action Items

Description	Status	Responsibility	Date
Need to improve current method of measuring lock time.	Designing fixture to be mounted on receiver using scope mounting holes.	Diner	08/11/95
Build prototypes of fire control.	All prototype parts due week beginning 07/24/95.	Ford	07/28/95
Need prototype firing pins for lock time testing.	Prototype firing pins on order.	Ford	08/10/95

ET56056

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Williams v. Remmington

Program Schedule

	Initial	Current
❒ Fire Control		
• Prototype Build	07/28/95	07/28/95
• Heat Treat Prototype Parts	07/28/95	07/28/95
• Inspect Prototype Parts	08/04/95	08/04/95
• Assemble Prototype Parts	08/11/95	08/11/95
• Design Acceptance Testing	09/15/95	09/15/95
• Transmittal & Parts List	09/22/95	09/22/95
• Documentation Package	09/29/95	09/29/95
• Route Transmittal	10/06/95	10/06/95
❒ Improved Accuracy		
• Investigate Material for Bedding	08/25/95	08/25/95
❒ Improved Lock Time		
• Prototype Build	08/10/95	08/10/95
• Heat Treat Prototype Parts	08/16/95	08/16/95
• Inspect Prototype Parts	08/25/95	08/25/95
• Assemble Prototype Parts	08/30/95	08/30/95
• Design Acceptance Testing	09/15/95	09/15/95
• Transmittal & Parts List	09/22/95	09/22/95
• Documentation Package	09/29/95	09/29/95
• Route Transmittal	10/06/95	10/06/95

ET56057

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Areas of Concern

- Need to improve current method of measuring lock time.
- Concerned about timing for catalog samples.

ET56058

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M/700 Performance Enhancements

Status as of 8/04/95

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Definition

- ❒ New fire control with the following changes:
  - One piece trigger
  - Smooth trigger bow
  - Trigger Pull of 3.0 lbs. -0 lbs. +"T" lbs.
    - ✓ "T" is the manufacturing tolerance
  - Assembly will be tamper evident
  - Sear, trigger, and housing will be skeletonized to allow:
    - ✓ Flushing with a solvent from the sear downwards towards the trigger bow
    - ✓ Visual inspection to ensure that the mechanism is clean
  - The safety lever arm and knob will be redesigned to be more user friendly.
  - The trigger will be balanced to the extent possible without moving the pivot point. The physical position of the bow may change to allow balancing.
  - The materials used will be those used in the current M/700 stainless steel firearm fire control.
  - The M/700 SS will have an electroless nickel trigger and the M/700 will have a gold plated trigger.
- ❒ Improved Bedding
  - Improve bedding of barreled action in stock.
- ❒ Lock Time Improvements
  - Lighter firing pin and potentially a heavier spring.
- ❒ Ergonomic Improvements
  - Safety button redesigned.

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Status

- ❒ Fire Control
  - Right side plates distorted during heat treat. Trigger pivot hole and safety pivot hole out of position. Ordered 30 new right side plates. Due 8/15/95.
  - All triggers out of specification due to the .002 max break specification on top rear corner of trigger and straightness.
  - Safety levers out of specification for position of lever arm with respect to pivot hole.

- ❒ Improved Bedding
  - One barreled action bedded with Loctite Form-A-Thread.
    - ✓ Shot 140 rounds. No failure.
  - Received 5 M/700 7MM Magnum rifles for bedding.
    - ✓ Alterations to stocks to be completed by 8/10/95.
  - Ordered Acraglas, Acra-quick, and Steelbed for comparison testing.
    - ✓ Acraglas currently used in Custom Shop.
  - Received photo sensitive polymers for bedding.
    - ✓ Dupont SOMOS 3100 and 6100.
    - ✓ Waiting on UV curing source.

- ❒ Lock Time Improvements
  - 15 long action, short action, and M/Seven external tapered firing pins on order. Due 08/11/95.
  - 15 long action, short action, and M/Seven tubular firing pins on order. Due 08/11/95.
  - Received 50 long action, short action, and M/Seven firing pin springs.

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BARBER - 2.4.130000448

Status

- ❒ Ergonomic Improvements
  - Three different safety button designs reviewed by management. Selected button C-99301.
  - Ordered 30 prototypes of safety button C-99301. Due 08/15/95.

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BARBER - 2.4.130000449

Action Items

Description	Status	Responsibility	Date
Need to improve current method of measuring lock time.	Designing fixture to be mounted on receiver using scope mounting holes.	Danner	08/11/95
Build prototypes of fire control.	Right side plates out of specification. Ordered new plates. Due 08/15/95.	Ford	08/15/95
Need prototype firing pins for locktime testing.	Prototype firing pins due 08/15/95.	Ford	08/15/95
Inspect new firing pin springs.	Design a fixture to measure springs.	Lewis	08/09/95
Decide if safety levers are usable or repairable..		Ford, Orf	08/08/95
Need to get all 4 dry cycle machines operational.	Order necessary parts and load cells for all dry cycle machines.	Danner	09/01/95
Repair Triggers and Sear Safety Cams.		Ford	08/18/95

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Program Schedule

	Initial	Current
❒ Fire Control		
• Prototype Build	07/28/95	07/28/95
• Heat Treat Prototype Parts	07/28/95	07/28/95
• Inspect Prototype Parts	08/04/95	08/04/95
• Assemble Prototype Parts	08/11/95	08/25/95
• Design Acceptance Testing	09/15/95	09/21/95
• Transmittal & Parts List	09/22/95	09/22/95
• Documentation Package	09/29/95	09/29/95
• Route Transmittal	10/06/95	10/06/95
❒ Improved Bedding		
• Investigate Material for Bedding	08/25/95	08/25/95
❒ Improved Lock Time		
• Prototype Build	08/10/95	08/11/95
• Heat Treat Prototype Parts	08/16/95	08/16/95
• Inspect Prototype Parts	08/25/95	08/25/95
• Assemble Prototype Parts	08/30/95	08/30/95
• Design Acceptance Testing	09/15/95	09/21/95
• Transmittal & Parts List	09/22/95	09/22/95
• Documentation Package	09/29/95	09/29/95
• Route Transmittal	10/06/95	10/06/95

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Areas of Concern

- Concerned about timing for catalog samples.
- Transmittal date in jeopardy due to parts out of specification.
- Application procedure of Loctite Form-A-Thread to barreled action is tedious.
- M/700 DM magazine box height effected by bedding.

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Remington Arms Technical Center

Project Name: M/700 FA **Revised: 09/14/95**

Project Manager: Edward Ford **Marketing Manager: Jay Bunting**
Technical Lead: David Findlay **Plant Contact: Joe Mead**

Abstract:

Status/Summary	Schedule	Completion
Twenty Eight prototype fire controls were assembled in Ilion 08/30/95. Fifteen are in dry cycle testing in E-town and five are in dry cycle testing in Ilion. Five are awaiting actions and stocks for environmental testing at HP White laboratories. Design Acceptance testing is not going well and the transmittal date is in jeopardy.	In Jeopardy	10/22/95

Accomplishments Since Last Revision:

1. Assembled twenty-eight prototype fire controls.
2. Design acceptance testing started.

Areas of Concern:

1 Fire control D25 failed drop testing at 0 cycles. (Ilion)
2 Fire control D3 failed drop testing at 20,000 cycles. (E-town)
3 Safety retaining clips breaking.
- 7 of 15 broke at less than 10,000 cycles.
- 2 of 15 broke between 10,000 and 20,000 cycles.

4 Safety buttons interfering with stock.
5 Safety detent springs breaking.
- 1 of 15 broke at less than 10,000 cycles.
- 9 of 15 broke between 10,000 and 20,000 cycles.
- 2 of 15 broke between 20,000 and 30,000 cycles.
- 1 of 15 broke between 40,000 and 50,000 cycles.

6 Environmental testing not started due to lack of barreled actions and stocks.

Current Activities:

Action Item	Status	Responsible	Date
1. Investigating cause of drop test failures.	Sensitivity Test developed and in progress.	D. Findlay	9/21/95
2. Environmental testing.	Trying to locate 10 barreled actions and stocks.	J. Hennings	9/15/95

Schedule / Key Milestones:

Milestone	Original Date	Current Date
Design Acceptance Testing Complete	9/15/95	9/21/95
Transmittal	9/22/95	9/22/95

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Project Name: M/700 Improvements **Revised: 09/21/95**

Project Manager: Edward Ford **Marketing Manager: Jay Bunting**
Technical Lead: David Findlay **Plant Contact: Joe Mead**

Abstract:

Status/Summary	Schedule	Completion
Design acceptance testing is continuing. Seven prototypes are at 50,000 cycles. Five are ready for shipment to HP White Laboratories for environmental testing.	Revised	TBD

Accomplishments Since Last Revision:

1. Seven prototypes have completed design acceptance testing.
2. Five prototypes assembled to actions and stocks and are ready for environmental testing at HP White Laboratories.
3. Five new safety detent springs were sent to Ilion for heat treat and plating.
4. Twenty-five new safety retaining clips were ordered 9/15/95.
5. Twenty new screws and trigger pull screws with varying body diameters were ordered 9/18/95.

Areas of Concern:

1. Testing still incomplete.

Current Activities:

Action Item	Status	Responsible	Date
1. Complete Testing	Still in process	Development Team	TBD
2. Environmental testing.	10 guns ready for shipment to HP White Laboratories.	J. Hennings	9/21/95

Schedule / Key Milestones:

Milestone	Original Date	Current Date
Design Acceptance Testing Complete	9/15/95	9/29/95
Transmittal	9/22/95	TBD

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Remington Arms Technical Center

Project Name: M/700 Improvements **Revised: 09/28/95**

Project Manager: Edward Ford **Marketing Manager: Jay Bunting**
Technical Lead: David Findlay **Plant Contact: Joe Mead**

Abstract:

Status/Summary	Schedule	Completion
Design acceptance and Sensitivity tests are continuing.. Five prototype and five current production fire controls are at HP White Laboratories for environmental testing.	Revised	TBD

Accomplishments Since Last Revision:

1. Five new safety detent springs were received and are ready for testing.
2. Five prototypes and five current production fire controls are at HP White Laboratories.
3. Sensitivity test is continuing.

Areas of Concern:

1. Testing still incomplete.

Current Activities:

Action Item	Status	Responsible	Date
1. Sensitivity Test	Still in process	Development Team	TBD
2. Environmental testing.	10 guns at HP White Laboratories.	J. Hennings	9/21/95

Schedule / Key Milestones:

Milestone	Original Date	Current Date
Design Acceptance Testing Complete	9/15/95	TBD
Transmittal	9/22/95	TBD

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Project Name: M/700 Improvements **Revised: 10/05/95**

Project Manager: Edward Ford **Marketing Manager: Jay Bunting**
Technical Lead: David Findlay **Plant Contact: Joe Mead**

Abstract:

Status/Summary	Schedule	Completion
Design acceptance and Sensitivity tests are continuing. Five prototype and five current production fire controls are at HP White Laboratories for environmental testing.	Revised	TBD

Accomplishments Since Last Revision:

1. Five new safety detent springs and safety retaining clips are ready for testing.
2. Five prototypes and five current production fire controls are at HP White Laboratories.
3. Sensitivity test is continuing.

Areas of Concern:

1. Testing still incomplete.

Current Activities:

Action Item	Status	Responsible	Date
1. Sensitivity Test	In progress.	Development Team	TBD
2. Environmental testing	10 guns at HP White Laboratories.	J. Hennings	10/20/95

Schedule / Key Milestones:

Milestone	Original Date	Current Date
Design Acceptance Testing Complete	9/15/95	TBD
Transmittal	9/22/95	TBD

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Remington Arms Technical Center

Project Name: M/700 Improvements **Revised: 10/12/95**

Project Manager: Edward Ford
Technical Lead: David Findlay

Marketing Manager: Jay Bunting
Plant Contact: Joe Mead

Abstract:

Status/Summary	Schedule	Completion
Sensitivity test is continuing. Five prototype and five current production fire controls are at HP White Laboratories for environmental testing. Design acceptance testing is rescheduled until the week beginning December 4, 1995 to allow for new prototypes to be built.	Revised	TBD

Accomplishments Since Last Revision:

1. Five new safety detent springs have passed 50,000 cycles with no part breakage.
2. Twenty safety retaining clips made to the current clip profile but with AISI 6150 are complete and ready for heat treat and plating.
3. Five prototypes and five current production fire controls are at HP White Laboratories.
4. Sensitivity test is continuing.

Areas of Concern:

1. Testing still incomplete.

Current Activities:

Action Item	Status	Responsible	Date
1. Sensitivity Test	In progress.	Development Team	TBD
2. Environmental testing.	10 guns at HP White Laboratories.	J. Snedeker	10/20/95

Schedule / Key Milestones:

Milestone	Original Date	Current Date
Design Acceptance Testing Complete	9/15/95	TBD
Transmittal	9/22/95	TBD

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Project Name: M/700 Improvements **Revised: 10/19/95**

Project Manager: Edward Ford **Marketing Manager: Jay Bunting**
Technical Lead: David Findlay **Plant Contact: Joe Mead**

Abstract:

Status/Summary	Schedule	Completion
Five prototype and five current production fire controls are at HP White Laboratories for environmental testing. Environmental testing is scheduled to be complete by 10/20/95 with the report issued 10/25/95. Design acceptance testing is rescheduled until the week beginning December 4, 1995 to allow for new prototypes to be built.	Revised	01/26/96

Accomplishments Since Last Revision:

1. Environmental testing complete with the exception of the static and dynamic dust tests.
2. Drawings of the trigger plate bushings, tamper caps, safety detent spring, safety pivot pin, and trigger pivot pin sent to LIMMCO for quotation.
3. Lighter trigger design complete and 5 prototypes ordered with an expected delivery of 10/25/95.
4. Completed new trigger design with a .100" diameter boss to establish three points of contact.
5. Ordered a MIM slug mold to produce a 2.5" x 1.5" x .25" slug. This slug will be the blank from which the prototype triggers will be manufactured.
6. Twenty safety retaining clips made to the current clip profile but with AISI 6150 are ready for dry cycle testing.

Areas of Concern:

1. Drop Test.

Current Activities:

Action Item	Status	Responsible	Date
1. Environmental testing.	All tests complete with the exception of the static and dynamic dust tests.	J. Snedeker	10/20/95
2. Prototype parts for Design Acceptance testing.	Drawings of the trigger plate bushings, tamper caps, safety detent spring, safety pivot pin, and trigger pivot pin out for quotation.	E. Ford	12/01/95

Schedule / Key Milestones:

Milestone	Original Date	Current Date
Design Acceptance Testing Complete	9/15/95	01/19/96
Transmittal	9/22/95	01/26/96

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Remington Arms Technical Center

Project Name: M/700 Improvements **Revised: 10/26/95**

Project Manager: Edward Ford **Marketing Manager: Jay Bunting**
Technical Lead: David Findlay **Plant Contact: Joe Mead**

Abstract:

Status/Summary	Schedule	Completion
Environmental testing complete. Report received 10/25/95. Ordered trigger pivot pins, safety pivot pins, safety detent springs and trigger plate bushings for 50 prototype assemblies. Design acceptance testing is rescheduled until the week beginning December 4, 1995 to allow for new prototypes to be built.	Revised	01/26/96

Accomplishments Since Last Revision:

1. Environmental testing complete.
2. Ordered 100 trigger plate bushings, 50 safety detent springs, 50 safety pivot pins, and 50 trigger pivot pins.
3. Received 4 prototype triggers per drawing D-EXP3210. Sent triggers to Ilion for heat treat and color.
4. Ordered 4 prototype triggers per drawing D-EXP3234.
5. Joe Mead released the production tooling for the tamper caps. Therefore, the production tooling will be used to provide 100 tamper caps for the prototype assemblies.
6. Altered 5 sear safety cams to drawing D-EXP3212. Sent sears to Ilion for deplating, heat treat, and plating.

Areas of Concern:

1. Drop Test.
2. Environmental test results.

Current Activities:

Action Item	Status	Responsible	Date
1. Environmental testing.	Testing complete.	J. Snedeker	10/20/95
2. Prototype parts for Design Acceptance testing.	Ordered trigger plate bushings, safety detent springs, safety pivot pins, and trigger pivot pins.	E. Ford	12/01/95

Schedule / Key Milestones:

Milestone	Original Date	Current Date
Design Acceptance Testing Complete	9/15/95	01/19/96
Transmittal	9/22/95	01/26/96

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Project Name: M/700 Improvements **Revised: 11/02/95**

Project Manager: Edward Ford **Marketing Manager: Jay Bunting**
Technical Lead: David Findlay **Plant Contact: Joe Mead**

Abstract:

Status/Summary	Schedule	Completion
All parts necessary to build 50 prototype assemblies are on order with the exception of the trigger and sear safety cam. Design acceptance testing is on hold until the trigger and sear design is finalized.	Revised	01/26/96

Accomplishments Since Last Revision:

1. Ordered 50 right side plates, 50 left side plates, and 50 safety retaining clips from Kellems & Coe Tool, Inc.
2. Ordered 50 trigger springs, 50 sear springs, 50 trigger housing spacers - front, 50 trigger housing spacers - rear, 50 M/700 safeties, 50 M/7LWT safeties, 50 M/700 bolt release blanks, and 50 M/7LWT bolt release blanks from Ilion.
3. Four prototype triggers per drawing D-EXP3210 are at Quackenbush for plating. Expected delivery 11/03/95.
4. Five sear safety cams per drawing D-EXP3212 are at Quackenbush for plating. Expected delivery 11/05/95
5. Four safety retaining clips per drawing B-107415 are in dry cycle testing.

Areas of Concern:

1. Drop Test.

Current Activities:

Action Item	Status	Responsible	Date
1. Prototype parts for Design Acceptance testing.	All parts necessary for 50 assemblies are on order with the exception of the trigger and sear safety cam.	E. Ford	12/01/95

Schedule / Key Milestones:

Milestone	Original Date	Current Date
Design Acceptance Testing Complete	9/15/95	01/19/96
Transmittal	9/22/95	01/26/96

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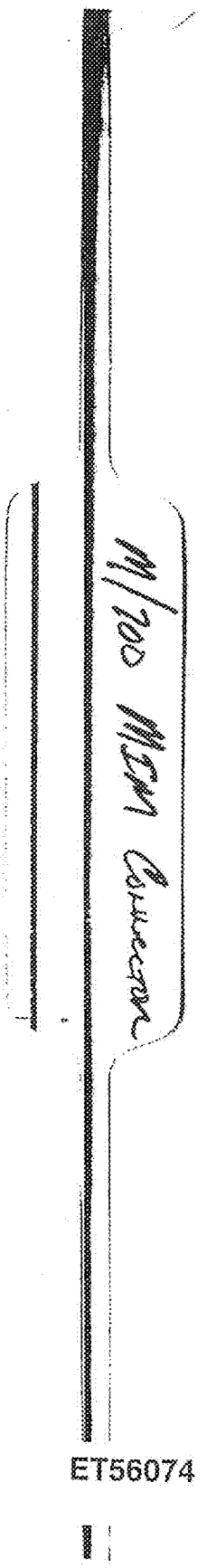

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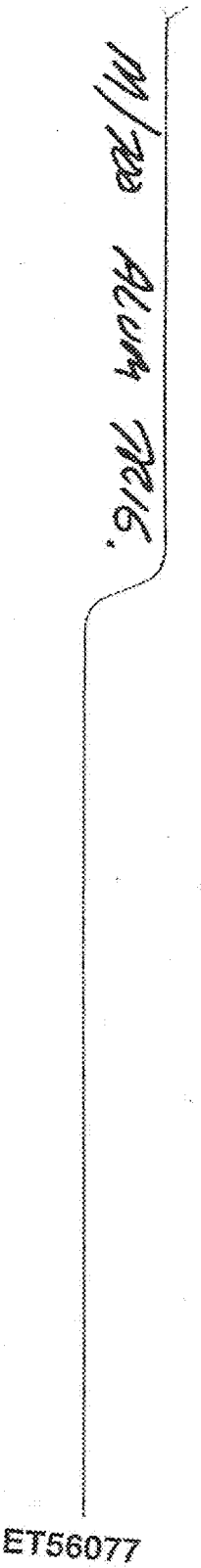

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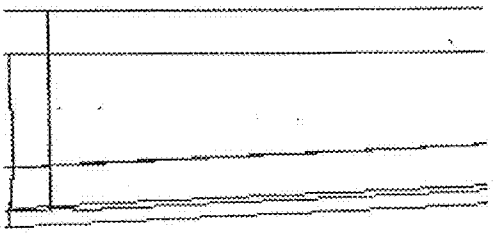

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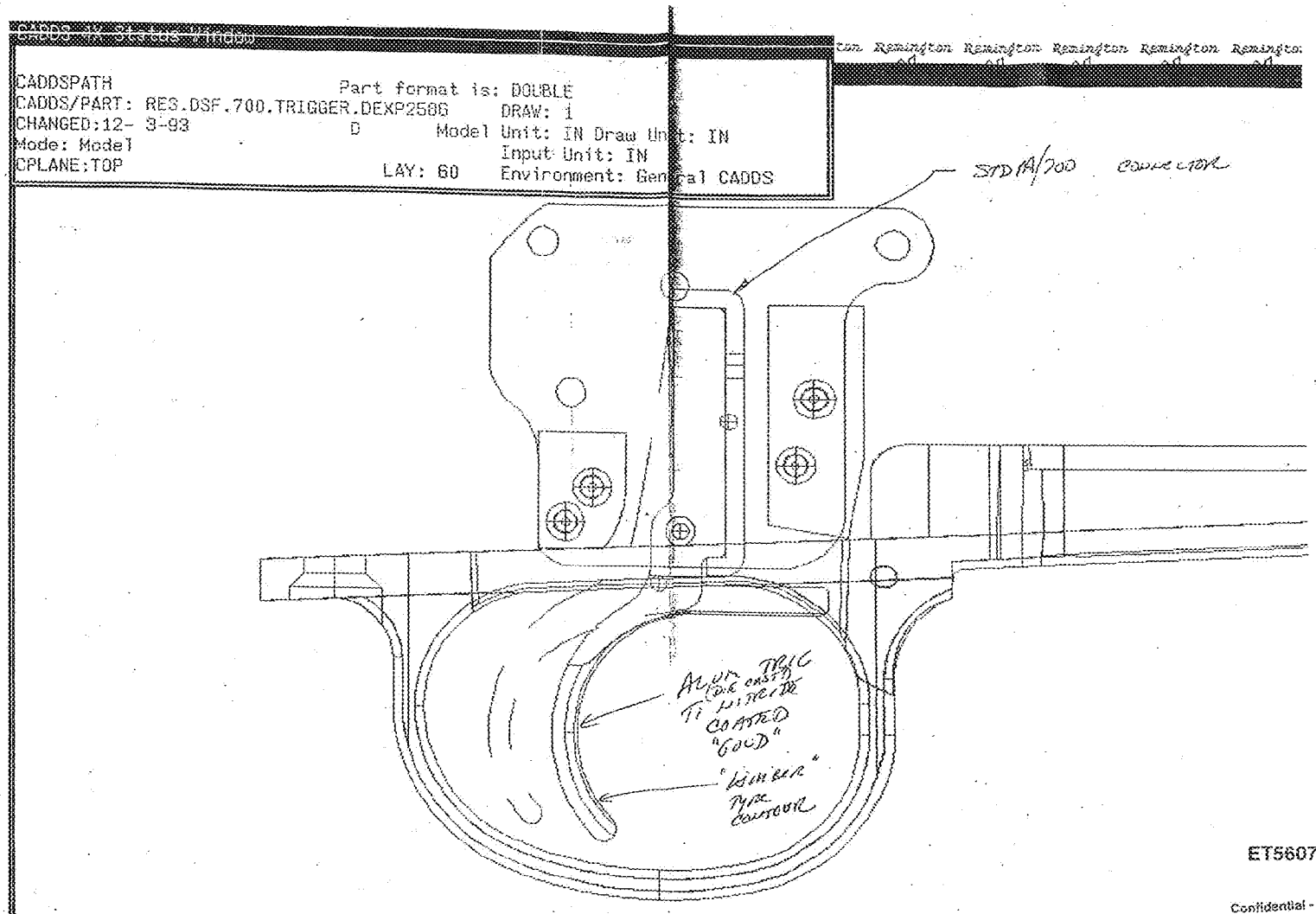
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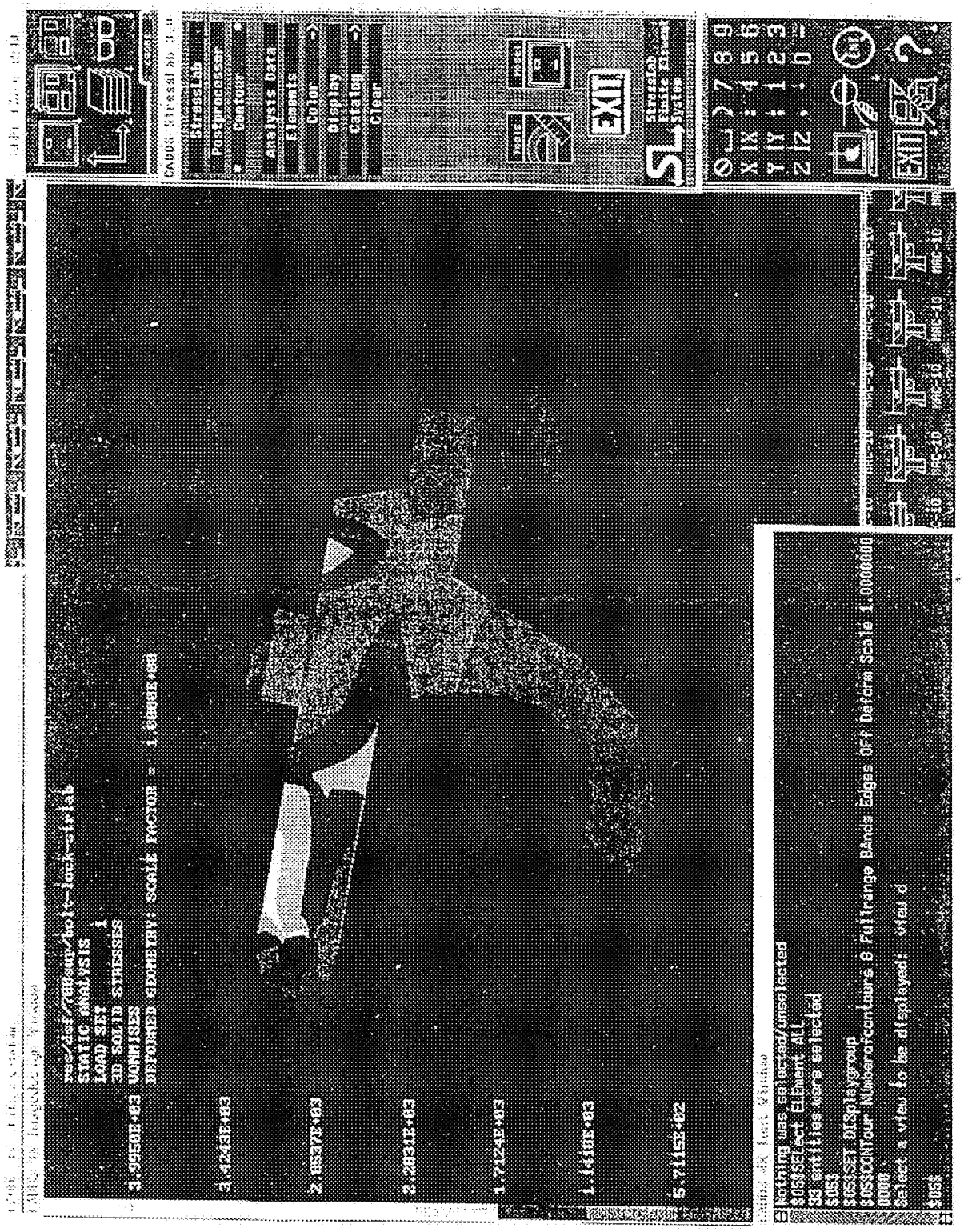

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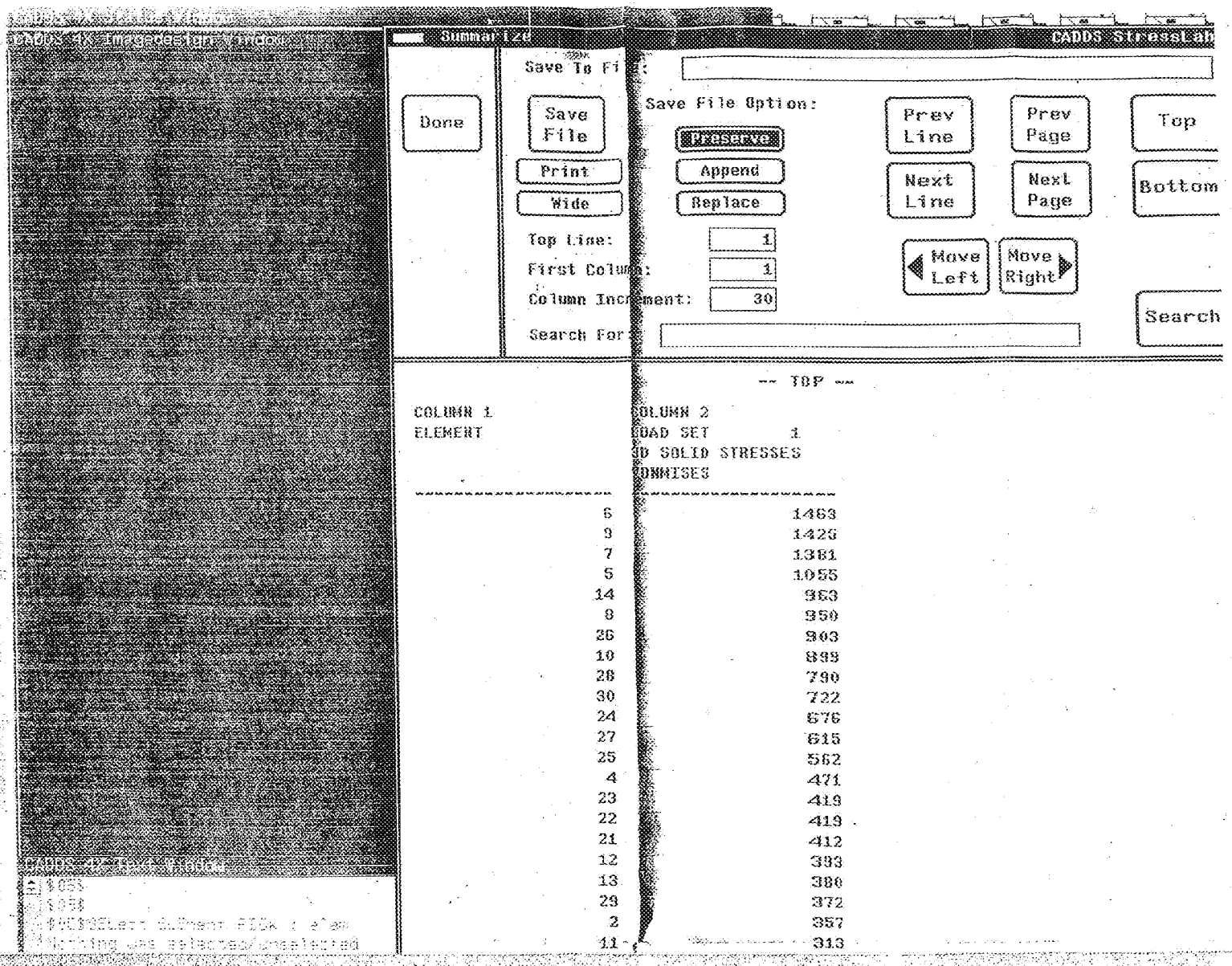

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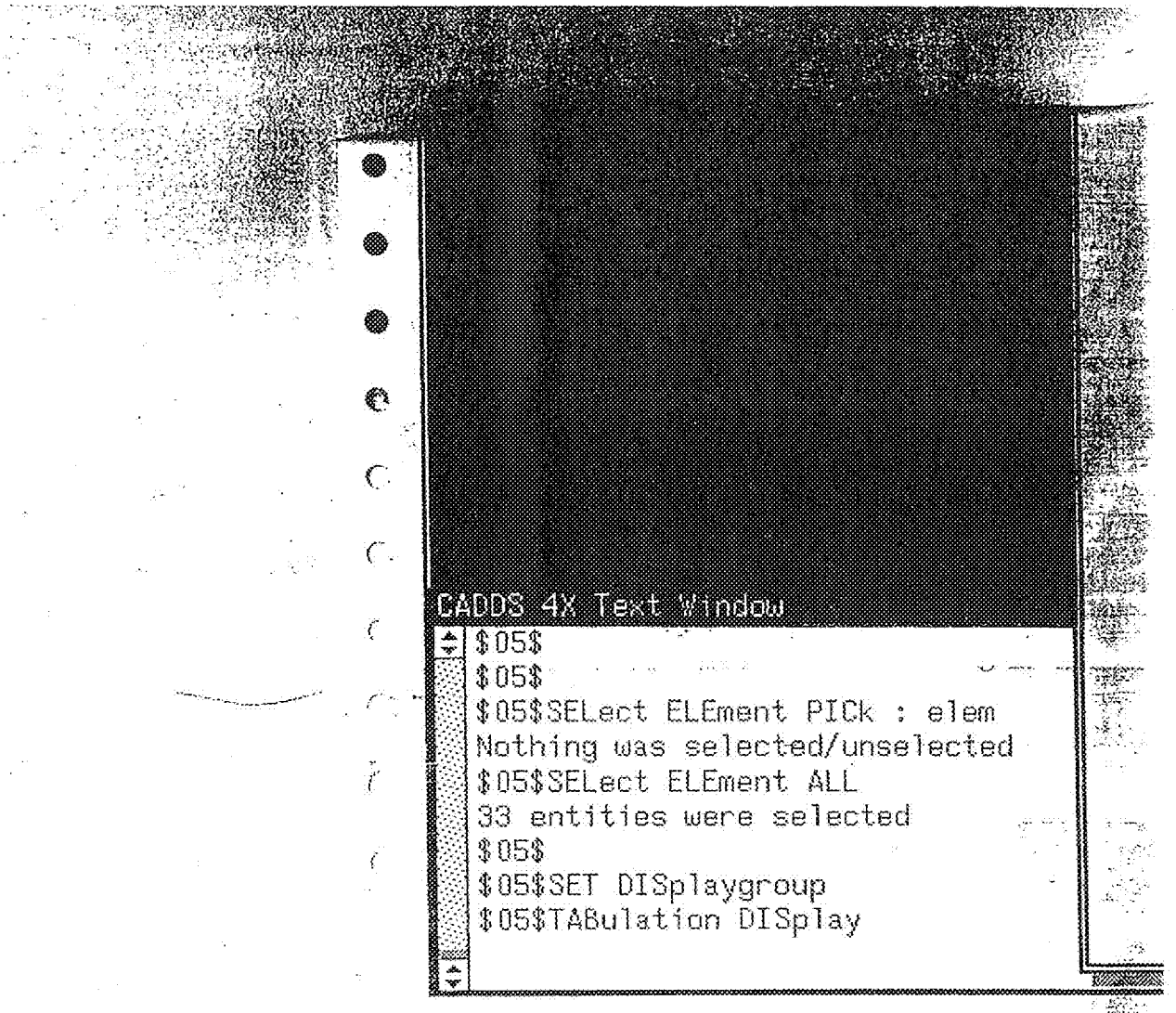

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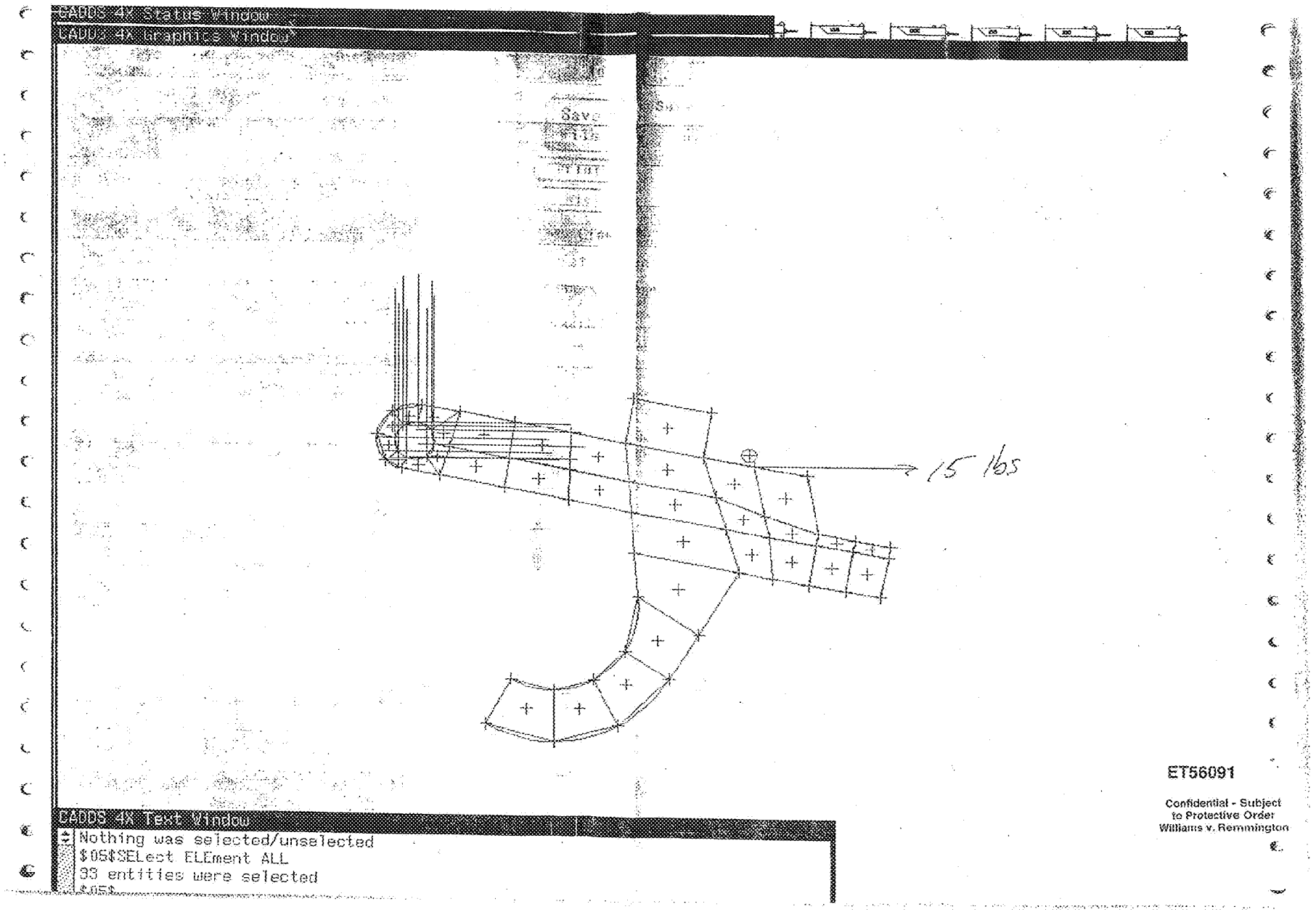

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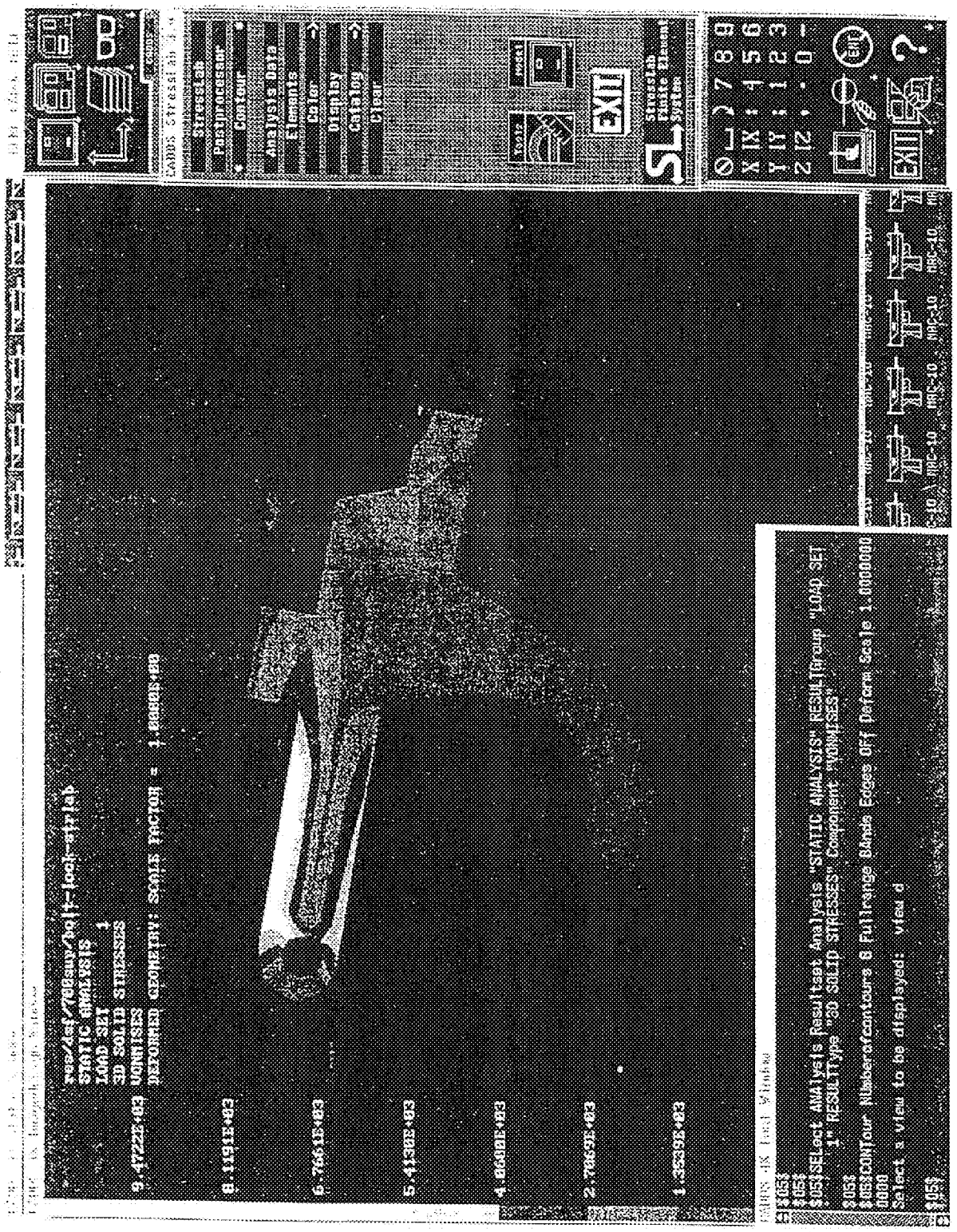

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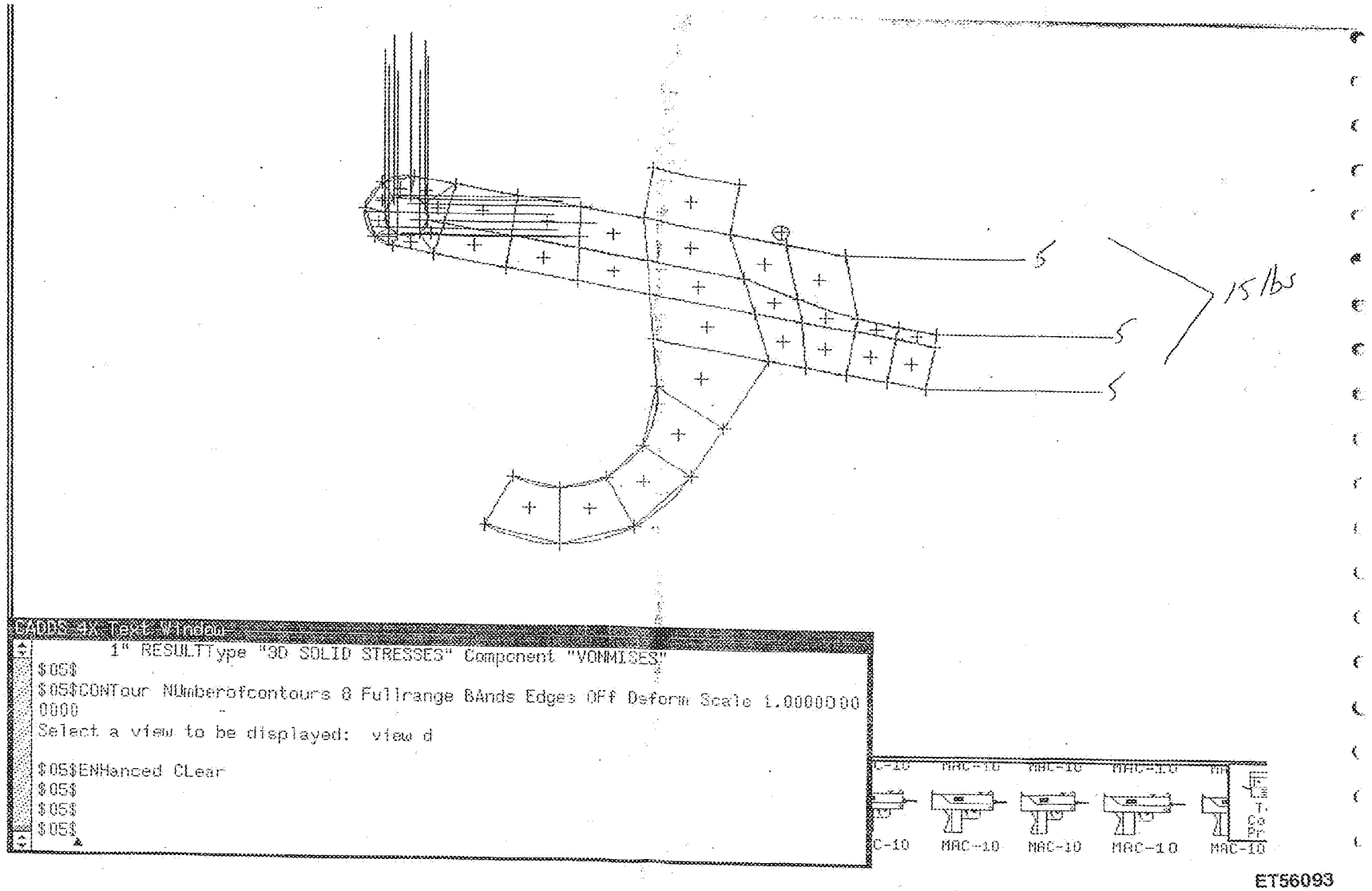

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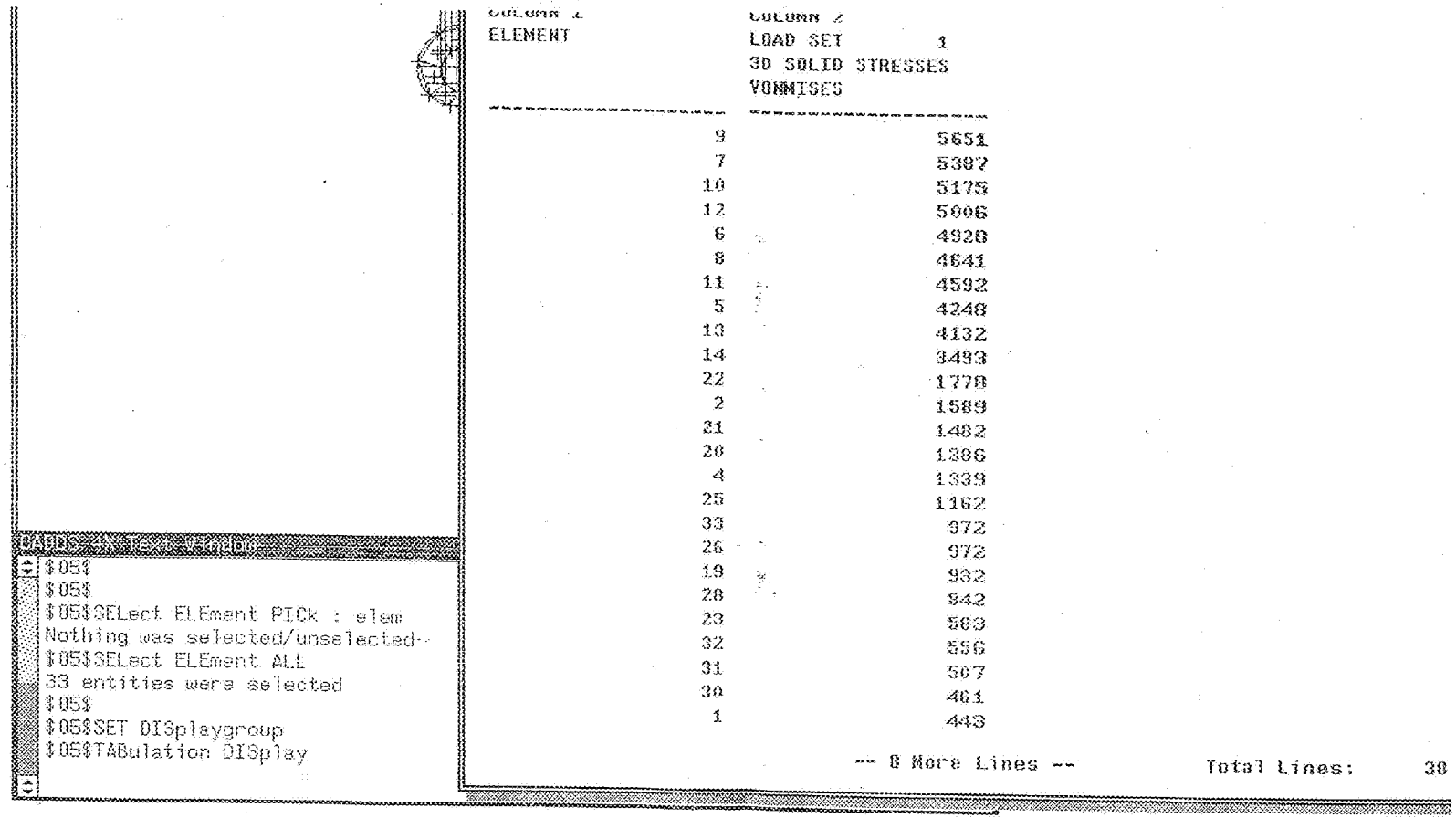

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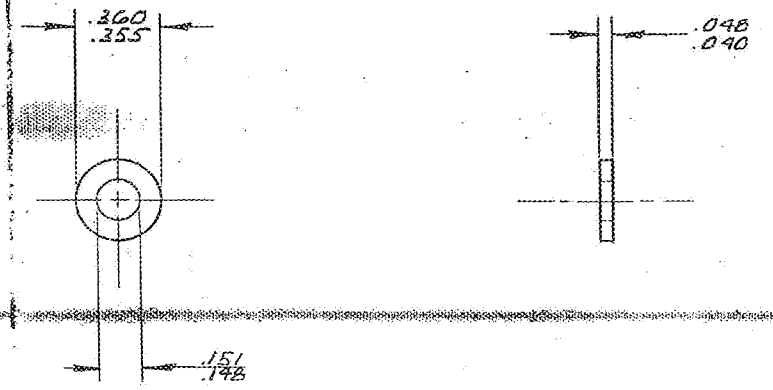
TOLERANCES ON DECIMAL DIMENSIONS ARE:
1 PLACE (.1) — TOLERANCE ± .015
2 PLACE (.03) — TOLERANCE ± .010
3 PLACE (.001) — TOLERANCE ± .005
& ON FRACTIONAL DIMENSIONS ± 1/64
& ON ANGULAR DIMENSIONS ± 00°–30'
FINISHES ARE DESIGNATED BY ROOT MEAN SQUARE (R.M.S.) MICRO-INCH ROUGHNESS VALUES AND ARE THE MAXIMUM ROUGHNESS ACCEPTABLE UNLESS OTHERWISE SPECIFIED.
FINISH ROUGHNESS TO BE $\frac{125}{\sqrt{}}$ OR BETTER.

RECOMMENDED MATERIAL AND HEAT TREAT
MATERIAL .08-.20 C. STL
HEAT TREAT
HARDNESS
COLOR
HEAT TREAT AND COLOR TO BE DONE BY REMINGTON

ALTERATIONS				
ALT.	WAS	REF.	BY	DATE
1	ADDED 700 BDL	13003	RS	9/12/83
2	ADDED 700 BDL-DM	"	"	"
3	ADDED 700 MR-DM	"	"	"
4	ADDED 700 ADL	"	"	"



	MODEL	PART NO.	PART USE
4	700 ADL	92844	STOCK REINFORCEMENT RIVET WASHER
3	700 MR DM	92844	STOCK REINFORCEMENT RIVET WASHER
2	700 BDL DM	92844	STOCK REINFORCEMENT RIVET WASHER
1	700 BDL	92844	STOCK REINFORCEMENT RIVET WASHER
	M-700 M.R.	92844	STOCK REINFORCEMENT RIVET WASHER

DES. BY DATE	DRN. BY DATE	CHK. BY DATE	APP. BY DATE
	L. MARTIN 6-13-83	AE 9-29-83	JS MABRY 9-29-83

TITLE: WASHER

NUMBER	SCALE	SUPERSEDES	REFERENCE
B-92844	2X		DCR 11850

REMINGTON ARMS CO. INC.
ILION RESEARCH DIV.

FORM TFB REV. 2/80 R.M.S. 18 852

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5826-8

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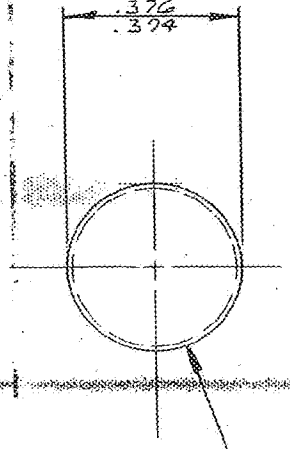
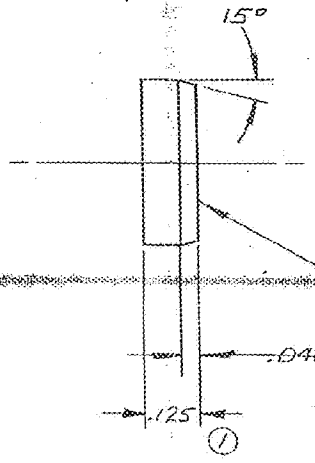
1 PLACE (.1) — TOLERANCE ± .015
2 PLACE (.01) — TOLERANCE ± .010
3 PLACE (.001) — TOLERANCE ± .005
& ON FRACTIONAL DIMENSIONS ± 1/64
& ON ANGULAR DIMENSIONS ± 00° 30'
FINISHES ARE DESIGNATED BY ROOT MEAN SQUARE (R.M.S.) MICRO-INCH ROUGHNESS VALUES AND ARE THE MAXIMUM ROUGHNESS ACCEPTABLE UNLESS OTHERWISE SPECIFIED.
FINISH ROUGHNESS TO BE 125 OR BETTER.

RECOMMENDED MATERIAL AND HEAT TREAT
MATERIAL DUREZ #791
HEAT TREAT
HARDNESS
COLOR
HEAT TREAT AND COLOR TO BE DONE BY REMINGTON

ALTERATIONS

ALT.	WAS	REF.	BY	DATE
1	WAS .250	11912	K-H	5-10-84
2	WAS 4 REQ'D.	11997	W.P.	4/11/85
3	ADDED 700 BDL	13003	R.S.	8/12/93
4	ADDED 700 BDL - DM	"	"	"
5	ADDED 700 M.R. - DM	"	"	"
6	ADDED 700 ADL	"	"	"





SEE NOTE FOR DIE SURFACE PREPARATION

NOTE
THIS SURFACE TO BE ROUGHENED FOR BONDING PURPOSES - SAND BLAST OR EQUIVALENT ON DIE

6	700 ADL	92854	REINFORCEMENT - PLUG
5	700 M.R. DM	92854	REINFORCEMENT SCR. PLUG
4	700 BDL DM	92854	REINFORCEMENT SCR. PLUG
3	700 BDL	92854	REINFORCEMENT SCR. PLUG
	M-700 M.R.	92854	REINFORCEMENT SCR. PLUG (2) (2)
MODEL	PART NO.	PART USE	

DES. BY DATE	DRN. BY DATE	CHK. BY DATE	APP. BY DATE
	P. Martin	AE 9-29-83	W. Smedley 9-29-83

TITLE: PLUG

NUMBER	SCALE	SUPERSEDES	REFERENCE
B-92854	4 X		DCP 11850

REMINGTON ARMS CO. INC.
ILION RESEARCH DIV.

ET56098

FORM 1251 REV. 2/80 R.N.S. 10 933

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B-92843

THIS DRAWING OR INFORMATION IS PROPRIETARY INFORMATION TO THE REMINGTON ARMS COMPANY, INC.

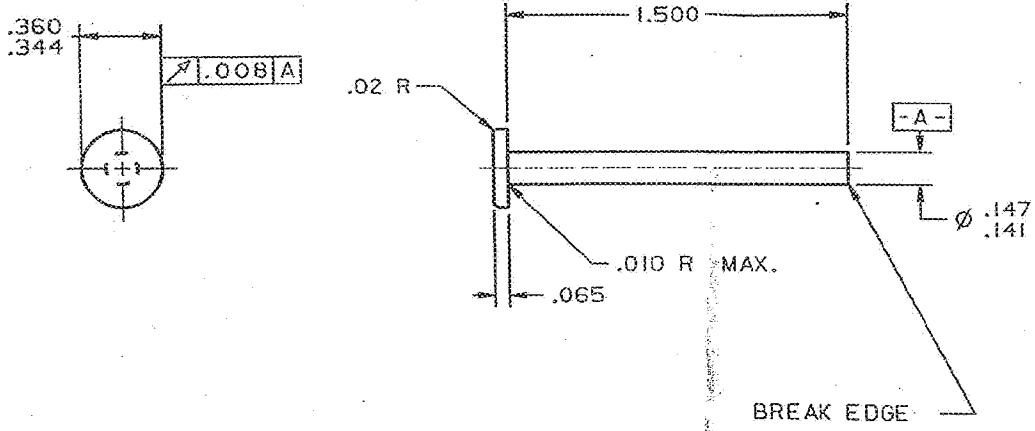
DO NOT SCALE THIS DRAWING: WORK TO FIGURES UNLESS OTHERWISE NOTED.
TOLERANCES ON DECIMAL DIMENSIONS ARE:
1 PLACE .0 - TOLERANCE ± .015
2 PLACE .00 - TOLERANCE ± .010
3 PLACE .000 - TOLERANCE ± .005
& ON FRACTIONAL DIMENSIONS ± 1/64
& ON ANGULAR DIMENSIONS ± 00° 30'
FINISHES ARE DESIGNATED BY ROOT MEAN SQUARE (R.M.S.) MICRO-INCH ROUGHNESS VALUES AND ARE THE MAXIMUM ROUGHNESS ACCEPTABLE. UNLESS OTHERWISE SPECIFIED,

FINISH ROUGHNESS TO BE 125 OR BETTER.

RECOMMENDED MATERIAL AND HEAT TREAT
MATERIAL C-1008
HEAT TREAT
HARDNESS
COLOR
HEAT TREAT AND COLOR TO BE DONE BY REMINGTON

ALTERATIONS

ALT.	DESCRIPTION	REF.	BY	DATE
3	REDRAWN AND REVISED	12058	WFP	10-22-85
4	ADDED 700 BDL	13003	JRR	8-16-93
5	ADDED 700 BDL-DM	13003	JRR	8-16-93
6	ADDED 700 MR-DM	13003	JRR	8-16-93
7	ADDED 700 ADL	13003	JRR	8-16-93



	MODEL	PART NO.	PART USE
7	700 ADL	92843	STOCK REINFORCEMENT RIVET
6	700 MR DM	92843	STOCK REINFORCEMENT RIVET
5	700 BDL DM	92843	STOCK REINFORCEMENT RIVET
4	700 BDL	92843	STOCK REINFORCEMENT RIVET
	700 MR	92843	STOCK REINFORCEMENT RIVET

DES. BY DATE	DRN. BY DATE	CHK. BY DATE	APP. BY DATE
	W.P. 2-1-85	R.S.M. 3-18-85	

TITLE RIVET

NUMBER B-92843

SCALE	SUPERSEDES	REFERENCE DCR #12058
2X		

REMINGTON ARMS CO. INC.
ILION RESEARCH DIV.

ET56099

AUTHORIZED
8-24-93
PROCESS ENGINEERING

CV FILENAME - RES.700.892843.STOCK-RIVET.SMM

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11/720 SUPREME BOLT LOCK PART / DRAWING STATUS

	PART NAME	PROPOSED PROCESS	DRAWING NUMBER	DRAWING COMPLETE	ISSUED TO	# REQUESTED	WO #	PARTS RELEASED	DRAWING OUT FOR QUOTE
1	BOLT LOCK	MILL	EXP 26006	YES	NC - Tool Room 7/19	12	A086611	YES	1/7-1/14
2	SPRING KEEPER	STAMPING	DEXP 26007	YES	C/C - Tool Room 1/19	12	A086604	YES	1/10/14
3	FRONT HOUSING RIVETS	SCREW MACHINE	AEXP 2603	YES	Tool Room 1/19/14	50	A086478	YES	
4	SLAVE PINS	SCREW MACHINE	AEXP 2604	YES	Tool Room 1/19	30	A086489	YES	
5	BOLT LOCK SPG	OVERDOG	AEXP 2028	YES	Tool Room 1/19	12	A086481	YES	
6	SAFETY DETENT SPG	W-SCREW				25		YES	
7	RECEIVER	MACHINED	EEXP 2600	YES	Tool Room 1/18	12	A086619	YES	
8	STOCK	MACHINED	DEXP 2605	YES	Tool Room 1/19	12	A086610	YES	
9	FRONT AR CONTROL PIN	SCREW MACHINE	DEXP 2599	YES	Tool Room 1/19	12	A086605	YES	
10	RT SIDE PLATE 2 CHAMFERS	STAMPING + SECONDARY	CEXP 2626	YES		15		YES	
11	SAFETY PIVOT PIN								
12	BOLT LOCK BUSHING	SCREW MACH				15		YES	
13	BOLT HANDLE					15			
14	BOLT LOCK (STAMPED) BLANK	STAMPED	EXP 2612	YES					1/24/13
15	BOLT LOCK (FINISHED)	MACHINED	CEXP 2604	YES					1/24/13
16	BOLT LOCK ASSY	LOCKED	CEXP 2613	YES					2/1/13
17	BOLT LOCK BUTTON	MILL	CEXP 2601	YES	Tool Room 1/19	25	A086486		1/24/13
18	EJECTOR SPG	OVERDOG	AEXP 2605	YES	Tool Room	12			
19	EXTRACTOR SPG	OVERDOG	AEXP 2606	YES	Tool Room	12			
20									
21									
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40									

RIVETING FIXTURE ??

ET56100
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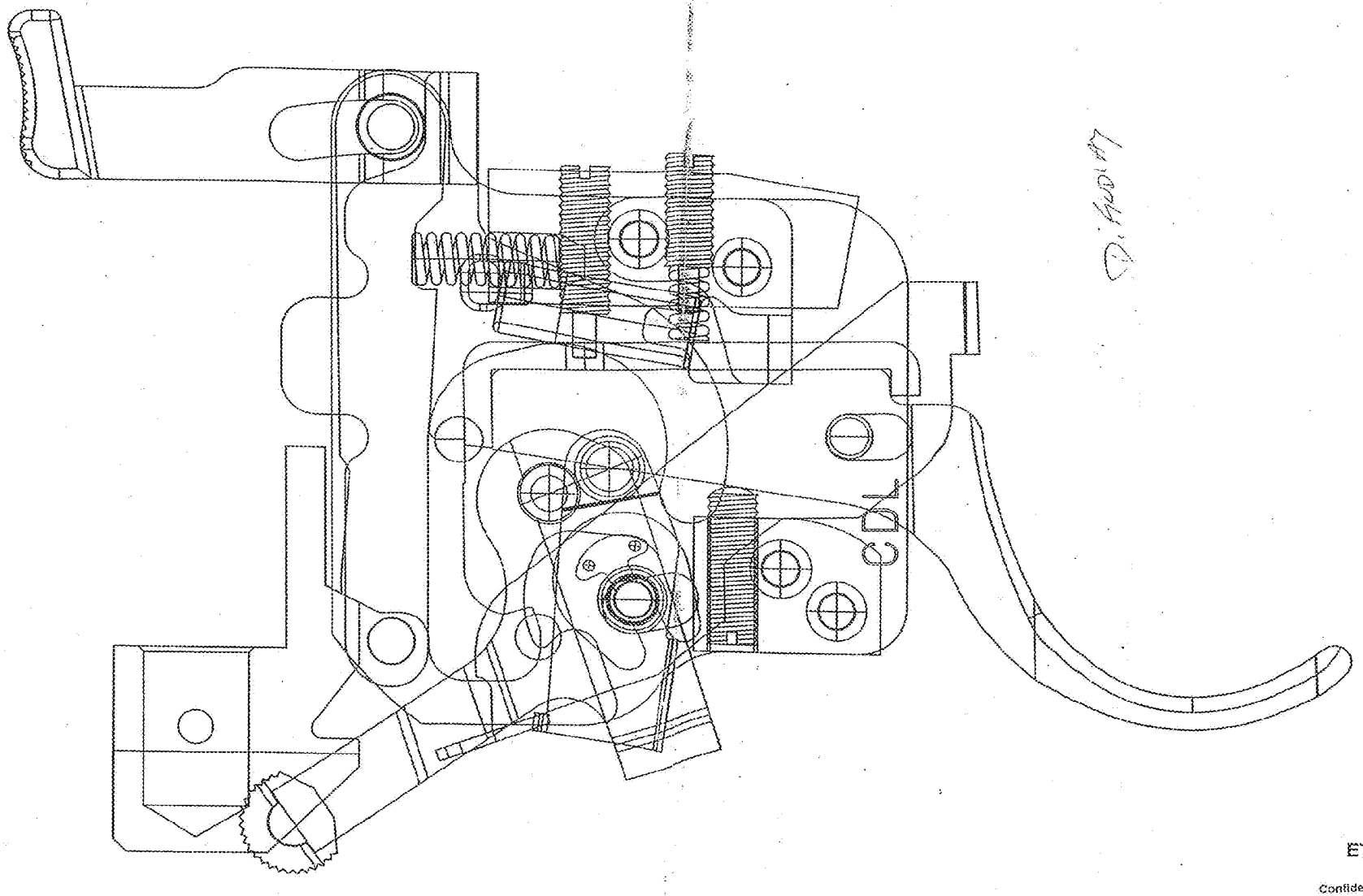

ET56101

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PAGE BREAK

BARBER - 2.4.130000485

DRG. NO.	PART NAME	CDL LONG PART NUMBERS	CDL MAGNUM PART NUMBERS
	CALIBERS RAMAC#	Dotted line (- - -) indicates same part number	
	270	927466	
	25-06 Rem.	927464	
	30-06	927468	
	7mm Rem. Mag		927470
	300 Win. Mag.		927472
D-98003	DOCUMENT ENVELOPE ASSEMBLY		
	Document Envelope	1461	
	Firearm Safety Booklet	1410	
	Instruction Book (RD 5461)		
	Product Owners Card	1426	
	Remington Authorized Gunsmith (Form RD 6890)	3413	
	CARTON ASSEMBLY		
	Box & Envelope Label		
	NOTE: THE ABOVE PARTS ARE FOR PACKAGING ONLY		
D-107020	BARREL ASSEMBLY COMPLETE		
"	270	107020	
"	25-06	107021	
"	30-06	107022	
"	7mm Rem. Mag.		107023
"	300 Win. Mag.		107024
D-106990	BARREL ASSEMBLY (Mkg. D-15360)		
"	270	106990	
"	25-06	106991	
"	30-06	106992	
"	7mm Rem. Mag.		106993
	300 Win. Mag.		106994

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ET56102

BARBER - 2.4.13000486

BARBER - 2.4.13000486

DWG. NO.	PART NAME	CDL LONG	CDL MAGNUM
		PART NUMBERS Dotted line (- - -) indicates same part number	
D-106960	Barrel		
"	270 25"	106960	
"	25-06 25"	106961	
"	30-06 25"	106962	
D-106980	7mm Rem. Mag. 25"		106980
"	300 Win. Mag. 25"		106981
B-14810	Barrel Bracket (Blk. A-15128)	14810	- - -
	Receiver (Mfg. D-15360)		
E-106925	270, 25-06, 30-06	106925	
"	7mm Rem. Mag., 300 Win. Mag.		106925
	BOLT ASSEMBLY		
D-107050	270, 25-06, 30-06	107050	
"	7mm Rem. Mag., 300 Win. Mag.		107051
	Bolt Body Assembly		
D-28695	270, 25-06, 30-06,	28697	
D-33255	7mm Rem. Mag., 300 Win. Mag.,		33257
C-20200	Bolt Body	20200	- - -
A-18493	Bolt Body Brazing Slug	18493	- - -
	Bolt Head (Blk. 32820)		
D-28665	270, 25-06, 30-06	28665	
C-15706	7mm Rem. Mag., 300 Win. Mag.		15706
A-18758	Bolt Pin	18758	- - -
B-17011	Ejector Washer	17011	- - -
D-98990	Bolt Handle (Blk. 98989)	98990	- - -
C-20185	Bolt Handle Brazing Shim	20186	- - -
A-17017	Ejector (Blk. A-13974)	17017	- - -
A-94555	Ejector Pin	94555	- - -
A-17019	Ejector Spring	17019	- - -
	Extractor		
C-91816	270, 25-06, 30-06 (Blk. 90523)	91816	
C-97322	7mm Rem. Mag., 300 Win. Mag. (Blk. 97321)		97322
C-27340	Extractor Rivet (use with Extractor 97322 only)		27341

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ET56103

BARBER - 2.4.13000487

BARBER - 2.4.13000487

DWG. NO.	PART NAME	CDL LONG	CDL MAGNUM
		PART NUMBERS Dotted line (- - -) indicates same part number	
B-99028	Bolt Lock (Blk. 99027)	99028	- - -
B-99019	Bolt Lock Spacer	99019	- - -
A-99017	Bolt Lock Spring	99017	- - -
B-17013	Bolt Stop (Blk. B-90492)	17013	- - -
C-24475	Bolt Stop Pin	24475	- - -
B-15224	Bolt Stop Spring	15224	- - -
B-22040	FIRING PIN ASSEMBLY	99036	- - -
C-17012	Bolt Plug (Blk. C-19894)	99037	- - -
C-22020	Firing Pin (Blk. C-22805)	22020	- - -
B-17022	Firing Pin Cross Pin	17022	- - -
C-23320	Firing Pin Head (Blk. B-27975)	23320	- - -
A-17029	Main Spring	17029	- - -
C-104125	Front Guard Screw (Blk. 104139)	104129	- - -
D-106335	MAGAZINE ASSEMBLY - Long		
A-98012	Latch Spring (2)	98012	- - -
D-97980	Magazine Follower (MIM) (Blk. 97981)	97980	- - -
D-106250	Magazine Latch, RH MIM (Blank 97994)	106250	- - -
D-106255	Magazine Latch, LH MIM (Blank 97997)	106255	- - -
D-106575	Magazine Subassembly - Color		
D-106190	Magazine Subassembly - Long		
C-97986	Floor Plate - Long	97987	- - -
D-97984	Magazine Body - Long Std.	97984	
D-97985	Magazine Body - Long Magnum		97985
D-97899	Magazine Spring - Long (Blk. 98078)	97899	- - -
C-106125	Rear Guard Screw (Blk. 104136)	104126	- - -
B-17034	Receiver Plug Screw (4)	17034	- - -
B-99021	Sear Pin (Blk. 99020)	99021	- - -
	STOCK ASSEMBLY		
D-107070	CDL	107070	107071
	Vendor WIP #	99034	99035
A-94799	Recoil Pad	94799	- - -
B-25410	Recoil Pad Screw	25410	- - -

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Williams v. Remington

ET56104

BARBER - 2.4.13000488

BARBER - 2.4.13000488

DWG. NO.	PART NAME	CDL LONG PART NUMBERS	CDL MAGNUM Dotted line (- - -) indicates same part number
B-107060	Stock	107060	107061
B-92854	Stock Reinforcement Plug (2) Magnums require (4)	92854	92854
B-92843	Stock Reinforcement Rivet Magnums require (2)	92843	92843
B-92844	Stock Reinforcement Rivet Washer Magnums require (2)	92844	92844
B-15358	Swivel Screw Front	15358	- - -
B-15358	Swivel Screw Rear	15358	- - -
B-94241	Swivel Screw Washer (2)	94241	- - -
D-99030	TRIGGER ASSEMBLY	99030	- - -
C-15478	Bolt Stop Release (Blk. C-91917)	15478	- - -
B-92297	SAFETY ASSEMBLY	92297	- - -
C-92212	Safety	92212	- - -
C-91852	Safety Button	91852	- - -
B-23220	Safety Detent Ball	23222	- - -
C-99024	Safety Detent Spring (Blk. 99023)	99024	- - -
B-99014	Safety Pivot Pin (Blk. 99013)	99014	- - -
A-17044	Safety Snap Washer	17044	- - -
C-15666	Sear Safety Cam (Blk. C-91919)	15666	- - -
A-17047	Sear Spring	17047	- - -
C-15280	Trigger (Blk. C-91912)	15280	- - -
B-17053	Trigger Screw Front (Blk. B-91920)	17053	- - -
C-19461	Trigger Connector (Blk. C-91921) (Blk. C-91937)	19461	- - -
B-91128	Trigger Engagement Screw (Blk. B-91922)	91128	- - -
D-99029	TRIGGER HOUSING ASSEMBLY	99029	- - -
A-99018	Trigger Housing Rivet, Front (2)	99018	- - -
B-14632	Trigger Housing Rivet, Rear (2)	14632	- - -
B-14630	Trigger Housing Spacer, Front (Blk. 91923)	14630	- - -
B-14631	Trigger Housing Spacer, Rear (Blk. 91924)	14631	- - -

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Williams v. Remmington
ET56105

BARBER - 2.4.13000489

BARBER - 2.4.13000489

DRG. NO.	PART NAME	CDL LONG	CDL MAGNUM
		PART NUMBERS Dotted line (- - -) indicates same part number	
C-99022	Trigger Side Plate, Right (Blk. C-99033)	99022	- - -
C-30780	Trigger Side Plate, Left	30781	- - -
D-99026	Bolt Lock Spring Retainer (Blk. 99025)	99026	- - -
C-24475	Trigger Pin	24477	- - -
A-15400	Trigger Spring	15400	- - -
A-15481	Trigger Stop Screw (Blk. A-91926)	15481	- - -
E-106915	Trigger Guard (Blk. E-98949)	106915	- - -

ET56106
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BARBER - 2.4.13000490

BARBER - 2.4.13000490

PAGE BREAK

```
                        WORK ORDER CHANGE/DELETE PG. 1                PRPMISWI
  DELETE ?                              ILION                ORIGINATOR PH= 3415
  WO NUMBER   = A10378   ST: RT     ORIGINATOR: DAVID S. FINDLAY
  WO TITLE    = MACHINE M/700 EJECTOR
  DESCRIPTION= PLEASE MAKE 1 (ONE) M/700 EJECTOR TO MARKED
             = PRINT #A-17017.PRINT SUPPLIED.PART SUPPLIED.
*END OF DATA =
  JOB TYPE    = MR          COST/CAP = COST
  AREA        = S2R&D       SUB-AREA = 4152
  EQUIP NAME  = RESEARCH PROJECTS;RIFLE PROD IMP
  EQUIP ID    = 481152                    DATE REQ'D                  =
  SAF PRI     = 5                         DISCRETIONARY PRIORITY      = 5
  BUS PRI     = 5                         GEN LEDGER                  = 1110
  SYSTEM      =                           ACCOUNT CODE                = 004152
  LOCATION    =                           JUSTIFICATION CATEGORY      =
  PRE S/U SFTY REV? N   SYSTEM S/D REQ ? N   DESIGN REQ? N   S/D RESERVE? N
  EQUIP S/D REQ   ? N   PLANNING REQ   ? Y   MDV       ? N
  SAFETY COMMENTS =
PF1= NXT WO       =
PF2= PRV WO   LAB HRS=              CRW=         SKIL=       MATL $ =
PF9= EV/SE DET   FAA NO=                                      PIC=    PF10= EV PL
ENTER= UPD PF11= APPR(AO) PF12= APPR(AN) PF13= SPLIT PF14= NXT WO PF15= UPD PG2
PF16= EST PF17= ADD DESC PF18= RTE LST PF19= RTE CMTS PF20= CHG HIST PF21= HELP
W130 RECORD RETRIEVED.  PLEASE TAKE APPROPRIATE ACTION
```

ET56107

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DES. BY DATE	DRN. BY DATE	CHK BY DATE	APP. BY DATE
[illegible] 12-13-72	[illegible] 12-15-72	JWB 12-15-72	[illegible] 12/19/72

TITLE: EJECTOR

NUMBER	SCALE	SUPERSEDES	REFERENCE
A-17017	2:1		A-17017 9-27-66

REMINGTON ARMS CO., INC.
ILION RESEARCH DIV.

MODEL	PART NO.	PART USE	SEE
700		EJECTOR	FL.
MOHAWK 600		"	"
40XCR		"	"
760		"	
XP100		EJECTOR	"
7LWT		"	" (51)

DO NOT SCALE THIS DRAWING. WORK TO FIGURES UNLESS OTHERWISE NOTED.
TOLERANCES ON DECIMAL DIMENSIONS ARE:
1 PLACE (.1) — TOLERANCE ± .015
2 PLACE (.01) — TOLERANCE ± .010
3 PLACE (.001) — TOLERANCE ± .005
& ON FRACTIONAL DIMENSIONS ± 1/64
& ON ANGULAR DIMENSIONS ± 00° 30'
FINISHES ARE DESIGNATED BY ROOT MEAN SQUARE (R.M.S.) MICRO-INCH ROUGHNESS VALUES AND ARE THE MAXIMUM ROUGHNESS ACCEPTABLE. UNLESS OTHERWISE SPECIFIED.
FINISH ROUGHNESS TO BE 125 OR BETTER.

RECOMMENDED
MATERIAL C1095 DRAWN ROD
HEAT TREAT MS. NITRE DRAW
HARDNESS RC 50-55
COLOR NONE
HEAT TREAT [illegible] RC 47-52

FOR BLANK DRAWING SEE A-13974 (50)

(49)

THIS DRAWING OR INFORMATION IS PROPRIETARY INFORMATION TO THE REMINGTON ARMS COMPANY, INC.

Finish Reamer Bottom

.356
.351
.242
30° 2 PLS.
.141 R
.010 R
.010 45°
.075 DIA. .070
.460
.020 R
.1406 DIA. .1400
1.180
NO CUT OFF BURR PERMISSABLE
REMOVE .022

W.O. # A10378

ALT	WAS	REF.	BY	DATE
51	ADD USE 7LWT	11667	DGB	12/8/82
50	A-91602	11379	FH	4.20 81
49	ADDED	11204	VB	3/31/82
48	Revised + Redrawn	9310	dlk	12/13/72

ALTERATIONS

NOTE: MAX. ECCENTRICITY FOR .075 DIA. & .1406 DIA. TO BE .070 & .1400 DIA. TO BE .003 (.006 T.I.R.)

A-17017

51 49 50

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Williams v. Remington
ET56108
BARBER - 2.4.13000493
BARBER - 2.4.13000493

PAGE BREAK

xc: L.W. Baum
R. Jackson
S. Franz
G. Barnes
D. Shumway

Feb. 14, 1994

To: D. Findlay
From: J. Butera

Subject: M/700 Bolt Lock - E-EXP2606
Std. Plant Mfg. Cost (Quote #0062)

Per your request, tooling, development and standard cost for manufacturing the subject part by MIM process from a 2% nickel steel alloy has been estimated and given below.

- Est. Tooling Cost:
  - Mold operation - (1) cavity mold $22,000
  - Mold operation - (2) cavity mold $37,000
  - Coin operation - $3,000
- Development Cost: - $5,500
- Est. mfg. cost/unit:

Annual production reqts.	Std. Variable Cost/Pc
5,000 Pcs. (1 cav.)	$1.18
5,000 Pcs. (2 cav.)	$1.01
10,000 Pcs. (1 cav.)	$1.12
10,000 Pcs. (2 cav.)	$0.96
20,000 pcs. (1 cav.)	$1.07
20,000 pcs. (2 cav.)	$0.92

ET56109

- Exceptions:
  - Remington Arms to : Heat treat, straighten after heat treat, and nitre black.
  - Machine support pillar if needed for processing purposes.

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Spring, Wire Form, Stamping and Assembly Specialists

RESPONSE TO RFQ

THE CONNECTICUT SPRING & STAMPING CORPORATION

cc Done 2/28

2/14/94

QUOTATION # 45866-001

In correspondence on this quotation please refer to above number.

E.I.DUPONT DE NEMOURS &CO
C/O REMINGTON ARMS CO,INC
P.O. BOX 179
ILION NY 13357 U.S.A.

ATTN: CHERYL S. PHONE: 315-895-3200

ar Customer: We are pleased to submit our quotation as follows:

	QUANTITY	PRICE	DELIVERY ARO
RT: E-EXP2612	1,000	$4.300 EA	
SC: BOLT LOCK BLANK	5,000	$3.380 EA	*Please call us*
Q: RFQ-BOLT LOCK	10,000	$3.180 EA	
OLING COST: $21,000			

NOTES AND EXCEPTIONS

QUOTED BULK PACK

estions? Please call your customer service representative, John Torda, at 203-677-1341, ext. 227.

TERMS AND CONDITIONS

[illegible] ORDERS RELEASE TO $150

CANCELLATIONS: Orders are not subject to cancellation except with our consent and on terms that will indemnify us for all loss or damage.
CLAIMS: If product supplied is defective or fails to meet specifications, you shall notify us of your claim immediately. No rejections will be allowed unless made within 30 days from the date of shipment. Our liability is limited to the repair or replacement of parts. Under no circumstances shall we be liable for consequential damages. Delivery estimates are made in good faith, based on current business conditions and the availability of material. They are not guaranteed and we do not assume any risk of delay. For a special overtime fee, urgent orders can often be expedited.
ADDITIONS TO PRICE: You are to pay us for any excise, retail, sales or use taxes for which we may be liable. Unless otherwise specified, you are to pay us for all samples you request, and for idle machine time while awaiting the approval of submitted samples. Interest of 1½% per month will be charged on all invoices not paid within terms.
VARIATIONS: As material herein specified is made to order, we are to be allowed an overrun or underrun on the actual amount ordered of 10% unless otherwise specifically agreed. Since it has been the policy of the metals industry to revise their prices at the time of shipment to us, it may become necessary also to revise our final price accordingly.
TOLERANCE: Unless purchaser limits all dimensions by specific tolerances, it is understood that commercial tolerances apply.

TOOLS: Tooling orders of $3,000 or more will be invoiced 1/2 when order is placed, 1/2 with shipment of samples. There will be a charge for samples on all tool alteration orders unless a corresponding production order is entered.
GENERAL: Shipments are F.O.B. Farmington, CT. Terms are NET 30 DAYS. Quotations are valid for 90 days, unless otherwise noted.

e appreciate the opportunity to furnish you with this quotation, d hope that our prices, delivery and quality reputation lead u to place your order with us.

THE CONNECTICUT SPRING & STAMPING CORPORATION

Larry Minor

Customer Service Manager

e Equal Opportunity Clause in Section 202 of Executive Order 11246, as amended, relative to equal employment opportunity and the implementing rules d regulations of the office of federal contracts compliance are incorporated herein by specific reference.

Spring Lane, Farmington, CT 06034 (203) 677-1341 Fax: (203) 677-7199

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ET56110

PAGE BREAK

02/28/1994 16:03 FROM Square Stamping MFG. Corp TO 1-8953665 P.02

METAL STAMPINGS

Square Stamping Mfg. Corp.

TOOLS and DIES

cc Dave 2/28

North St., Barneveld, N.Y. 13304
315 - 896 - 2641
FAX NO. 315 - 896 - 2734

DATE: February 25, 1994 QUOTATION NO.:

TO: Remington Arms Co., Inc.
P.O. Box 179
Ilion, NY 13357

Attention: Cheryl Staring

In accordance with your request, we are submitting our quotation below, for your consideration:

JANTITY	DESCRIPTION	PRICE
	Bolt Lock Blank #EXP 2612 1,000 pcs. $623.65/M 5,000 pcs. $466.40/M 10,000 pcs. $446.75/M TOOLING: $24,600.00	

O.B.: Barneveld, New York Quotation effective for 60 days.

: PARTS: ½ 10 Days, Net 30 Days TOOLING: Net 30

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ERY: PARTS: TOOLING:

Thank you for the opportunity to be of service. If you have any questions, please feel free to contact us.

Very truly yours,
SQUARE STAMPING MFG., CORPORATION

THE PECK SPRING COMPANY

80 WHITING STREET
PLAINVILLE, CONNECTICUT 06062
TELEPHONE 203-747-5715 FAX 203-747-5008

January 31, 1994

Remington Arms Company
Hoefler Ave
Ilion, NY 13357

Please Refer
To Quotation No. F20758-N

Attention: Cheryl Staring

Gentlemen:

In response to your inquiry dated 1-18-94
we are pleased to submit the following quotation for your consideration:

D-EXP2607 Spring Keeper	1,000	$ 500.00 per M
to B/P Rev. -	2,500	250.00 per M
Quoting: Angles +/- 2°.	5,000	190.00 per M
If ordered, we need to be		
provided with an optical comparator		
chart indicating dimensional limits		
Made from commercially available		
C1070 material		

EXTRA: Tools $ 5150.00 extra

DELIVERY: 8-10 weeks

CALL US IF YOU NEED IT SOONER!

Acceptance of an order based on this quotation is with the understanding that all government regulations are being complied with. Prices are for immediate acceptance, subject to change without notice, and to conditions as set forth on reverse side of this sheet.

Thank you for this inquiry and trust we may be favored with your order.

Very truly yours,

THE PECK SPRING CO.

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ET56112

Normand J. Turcotte, Sales Engineer TG/PW

Screw
Machine
Products

Springs
Four Slide
Wire Forms

BARBER - 2.4.130000499

METAL STAMPINGS

Square Stamping Mfg. Corp.

TOOLS and DIES

North St., Barneveld, N.Y. 13304
315 - 896 - 2641
FAX NO. 315 - 896 - 2734

DATE: February 2, 1994 QUOTATION NO.: _____

TO: Remington Arms Co., Inc.
P.O. Box 179
Ilion, NY 13357

Attention: Cheryl Staring

In accordance with your request, we are submitting our quotation below, for your consideration:

QUANTITY	DESCRIPTION	PRICE
	Spring Keeper #D-EXP2607 1,000 pcs. $349.16/M 2,500 pcs. $275.78/M 5,000 pcs. $251.32/M NOTE: Above part quoted to print with the exception of material which is 1008 Cold Rolled Annealed (.059" + - .002) TOOLING: $18,475.00	

F.O.B.: Barneveld, New York Quotation effective for 60 days.

TMS: PARTS: ½% 10 Days, Net 30 Days TOOLING: Net 30

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DELIVERY: PARTS: 6-8 weeks TOOLING: 14 - 16 weeks

Thank you for the opportunity to be of service. If you have any questions, please feel free to contact us.

Very truly yours,
SQUARE STAMPING MFG., CORPORATION

Dan Hart

Dan Hart, General Manager

PAGE BREAK

M/700 Supreme Capital Project Estimation

Rel. Bolt Lock (MIM)	$60 M	
Stock	60	
Bolt Handle	5	
Trig. Gd.	18.5	
Machining Metal	50	(Rec. TKI-ORD Cams ? Porting ? Trig. Gd. Secondaries ?)
Finishing	100	(Almco Fixturing ?)
Production Aids	10	

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M/700
SUPREME COSTS ABOVE M/700 BDL DM

MATERIAL:

DUCTILE IRON TRIG. GUARD	$15.65
SPECIAL SWIVEL & FASTENING HARDWARE	7.—
RECOIL PAD VS BUTT PLATE	4.—
MIM RELEASABLE BOLT LOCK	1.—
P/M SPRING KEEPER	.25
SPRING	.10
SUB TOTAL	$28.—

ADDITIONAL MATERIAL COST

PROCESSING:

BLACK CHROME TRIG. GD	$3.—
BLACK CHROME MAG. BOX	3.—
BLACK CHROME MAG. LATCHES	.60
EXTRA STOCK CUTS	.20
EXTRA RECEIVER CUTS	.20
ALMCO BARREL ASSEMBLY	2.—
TRIG. GD 320 @ 50/hr	.36
TRIG GD BUFF @ 50/hr	.36
RECEIVER EXTRA 320 @ 25/hr	.72
RECEIVER EXTRA BABER @ 25/hr	.72
BBL. BRACKET 320 @ 500/hr	.04
BARREL 320 @ 75/hr.	.24
BOLT PLUG 320 @ 50/hr.	.36
BOLT PLUG BUFF @ 50/hr	.36
BOLT HANDLE 320 @ 20/hr	.90
BOLT HANDLE BUFF @ 20/hr.	.90
MAG BOX BOTTOM 320 @ 60/hr	.30
MAG BOX BOTTOM BUFF @ 60/hr	.30
EXTRA HANDLING	1.—
SUBTOTAL	$15.56

USE POLISHER RATE + E-B. OF $18/hr.

ADDITIONAL PROCESSING COST

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VIPER SYNTHETIC MAGAZINE BOX

COST: 160 Engineer hours
400 Test Lab hours
$40M capital

BENEFIT: * Reduce cost of completed mag. box from $6 to $1/unit.
* Free-up a CNC Bridgeport milling mach.

SYNTHETIC TRIG. PLATE

COST: 600 Engineer hours
500 Test Lab hours
$50M capital (mold)
$115M capital (machine/option)

BENEFIT: * Reduce cost of completed trigger plate from $5 to $1/unit.
* Eliminate need for 1 person at p-coat.
* Free-up a CNC Bridgeport milling mach.

FIT MIYANO CNC FOR EJECTOR DRILL SYSTEM

COST: 40 Engineer hours
$8M capital

BENEFIT: * 50% increase in output at M/700 receiver constraint operation.
* Reduce O.T. by $10M/year.

ELIMINATE FILING ON M/522 BOLT JOB

COST: 250 Engineer hours
$75M capital

BENEFIT: * Eliminate need for 2-3 filers.
* Increase quality and function of M/522

PUT M/700 BDL TRIG. GUARD ON BRIDGEPORT CNC MILL

COST: 150 Engineer hours
$50M capital

BENEFIT: * Reduce need for 1-2 people.

FORM GFM RIMFIRE BARRELS

COST: 80 Engineer hours
25 Test Lab hours

BENEFIT: * 30% increase in rimfire barrel capacity (overcome major hurdle in making rimfire schedule reliably.)
* $15M saving/yr. in O.T.

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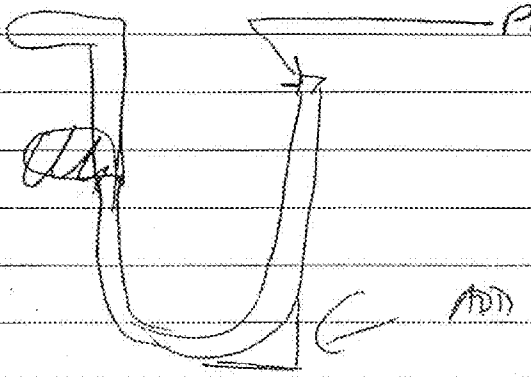
1) 2.4 GR/CC ,0225 lbf

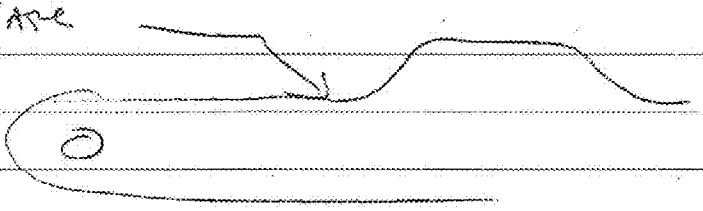
2.) POISSON RATIO

YOUNG'S MODULUS

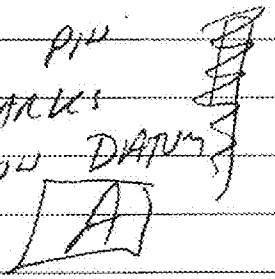
3.



(4)



(5) REJECTOR PIN MARKS ON DRAW



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(6) FLOW WILL OPEN RECEIVER SLOT??

OF A-

(7) SUPPORT PLANE (8) CHAMFER UNDER HERE

M/700 SUPREME BOLT LOCK SCHEDULE

JAN 1	START DESIGN
JAN 15	DESIGN COMPLETE PARTS ORDERED FROM TOOL ROOM TOOLS OUT FOR QUOTATION
FEB 15	PARTS AVAILABLE FROM TOOL ROOM
FEB 21	PARTS IN TEST
FEB 28	TOOLS ON ORDER FOR ALL COMPONENTS TRANSMITTAL
MARCH/APRIL/MAY	ADDITIONAL TESTING TOOL CONSTRUCTION
MAY 15	START TRAIL AND PILOT
JULY 30	START TRAIL AND PILOT TESTING

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PAGE BREAK

MASTER LAYOUT LAYERING

RES.DSF.700SUP.MASTER-LAYOUT
(RES.DSF.700.LA-DM.MASTER-LAYOUT)

LAY 10	RECEIVER
LAY 20	RECOIL LUG BRACKET
LAY 30	MAG BOX ASSEMBLY
LAY 40	TAKEDOWN SCREWS
LAY 50	STOCK
LAY 60	BARREL
LAY 70	TRIGGER GUARD
LAY 80	BOLT BODY
LAY 90	FRONT ADJUSTING SCREWS
LAY 95	SAFETY PIVOT PIN
LAY 100	SEAR SAFETY CAM
LAY 105	SAFETY TRUARC RING
LAY 110	RIGHT SIDE PLATE
LAY 120	CONNECTOR
LAY 125	TRIGGER
LAY 130	REAR SPACER BLOCK
LAY 135	BOLT RELEASE
LAY 140	FRONT SPACER BLOCK
LAY 145	SAFETY DETENT SPRING
LAY 150	HOUSING RIVETS
LAY 155	FRONT TRIG. GROUP RETAINING PIN
LAY 160	LEFT SIDE PLATE
LAY 165	REAR TRIG. GROUP RETAINING PIN

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LAY 170	SAFETY ASSEMBLY (ON SAFE)
LAY 175	SAFETY ASSEMBLY (FIRE POSITION)
LAY 180	BOLT LOCK SPRING
LAY 190	BOLT LOCK BUTTON (STAMPED BOLT LOCK DESIGN) (ON SAFE POSITION)
LAY 195	BOLT LOCK BUTTON (STAMPED BOLT LOCK DESIGN) (FIRE POSITION)
LAY 220	SPRING KEEPER
LAY 230	BOLT LOCK (MIM DESIGN) SAFE POSITION
LAY 235	BOLT LOCK (MIM DESIGN) FIRE POSITION

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PAGE BREAK

M/700 "SUPREME" SPECIFICATIONS

GENERAL:

- PREMIUM GRADE M/700 RIFLE WITH CLASSIC RIFLE STOCK, OFFERED IN SEVEN CALIBERS WITH STANDARD M/700 BDL BARREL CONTOURS
- CALIBERS: 243 WIN, 7MM-08 REM, 25-06 REM, 270 WIN, 30-06, 7MM REM MAG & 300 WIN MAG
- DETACHABLE MAGAZINE BOX
- VOLUME: 10M - 14M
- PRICE: $100 PREMIUM OVER M/700 BDL DM

FINISH:

- BUFFED, BLUED METAL
- JEWELED BOLT
- SATIN WOOD (FILLED, 30 GLOSS)

STOCK:

- "A" GRADE AMERICAN WALNUT
- SAME SHAPE AS THE M/700 APR STOCK; NON-MONTE CARLO, WITH CHEEK PIECE
- NO GRIP CAP OR FORE-END TIP
- CUT CHECKERED; NEW "CLASSIC RIFLE" PATTERN
- SOLID BLACK RECOIL PAD; ALL CALIBERS - SAME PAD AS (OR SIMILAR TO) THE M/700 APR PAD
- STEEL TRIGGER GUARD
- SLING SWIVEL STUDS - CUSTOM SHOP STYLE

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BARREL:

- o CLEAN - NO SIGHTS
- o CONTOUR:
  - SHORT & LONG ACTION CALIBERS: STANDARD M/700 BDL CONTOUR
  - MAGNUM CALIBERS: M/700 BDL MAGNUM CONTOUR
- o LENGTH:
  - SHORT & LONG ACTION CALIBERS: 23 INCHES
  - MAGNUM CALIBERS: 25 INCHES
- o ROLL MARK SIMILAR TO M/700 VS SF
- o CROWN: M/700 MOUNTAIN RIFLE STYLE

ACTION: (STANDARD M/700 BDL DM ACTION EXCEPT AS NOTED)

- o NEW BOLT HANDLE SHAPE - SIMILAR TO EARLY M/700 STYLE
- o RELEASEABLE BOLT LOCK

PACKAGING:

- o FOAM TRAY WITH GREEN BOX
- o UPDATED LITERATURE

PREPARED BY: 1/10/94

REVIEWED BY: 1/10/94

ET56122

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BRITTON
MACHINERY SALES INC.

January 6, 1994

Remington Arms Co. Inc.
14 Hoefler Avenue
Ilion, New York 13357

ATTENTION: Mr. Dave Filey

Dear Dave:

I understand that you might be looking at a locking bolt as a potential rapid prototyping part. The enclosed form should help you prepare a quote for our 3D Systems Service Bureau.

If I can be of any further assistance, please feel free to call.

Very truly yours,

R. H. BRITTON MACHINERY SALES, INC.

Doug MacCallum Jr.

Douglas J. MacCallum
Sales Representative

DJM/jh
Enc.

ET56123

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Williams v. Remmington

01 Victor Heights Parkway, P.O. Box 599, Victor NY 14564-0599 • Phone: (716) 924-9335 • Fax: (716) 924-2071

PAGE BREAK

App 2608

Spring Drawing Output

DATE : 14-JAN-94 08:48:13

Material: ROUND Music Wire A228

INSPECTION

1. Hole Diameter (in)	0.250					
2. Pin Diameter	0.000					
3. Load (lbs)	1.79	to	2.28	@	0.550	(L1)
Load (lbs)	5.68	to	7.53	@	0.370	(L2)
4. MAX Solid Height	0.323					
5. Wind						
6. MIN Free Length	0.602					
7. Ends	Squared					
8. Check Here for Non-Commercial Tols						

MANUFACTURE

9. Wire Diameter	0.029
10. Free Length	0.630
11. Outside Diameter	0.200
12. COILS Active	8.00
Total	10.00
13. Check Here for Set Removal	

DESIGN DATA

14. Spring Rate (lbs/in)	25.42	
15. Static Stress at Solid (psi)	177468.	
16. Dynamic Stress (psi).....	32694.	
17. Total Stress at Solid (psi)	210162.	
18. Solid Load (lbs)	7.90	
19. Spring Index	5.90	
20. Torsional Modulus	11500000.	
21. Curvature Corr. Factor ...	1.257	(WAHL)
22. Velocity Impacting Mass ..	100.	
23. Critical Freq (Hz)	1744.	
24. Total Stress as % of Tensile	63.	
25. Energy from L1 - L2 (in-lbs)	0.78	

NOTE:
Tolerances are to commercial specifications
Tighter tolerances (60% of commercial) can be held

ET56124

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Williams v. Remmington

SPRING ANALYSIS OUTPUT

DATE : 14-JAN-94 08:48:16
Material: ROUND Music Wire A228 with Squared Ends

OUTSIDE DIAMETER .....:	0.2000	+/-	0.0040
WIRE DIAMETER .....:	0.0290	+/-	0.0004
HOLE DIAMETER .....:	0.2500		
PIN DIAMETER .....:	0.0000		
TOTAL TURNS .....:	10.0000		
ACTIVE TURNS .....:	8.0000		
ACTIVE TURNS PER INCH ..:	12.6984		
FREE LENGTH .....:	0.6300	+/-	0.0278
SOLID HEIGHT.....:	0.3190	+/-	0.0044
CURVATURE CORRECTION ...:	1.2575		
SPRING RATE (lbs/in) ...:	25.4168		
DIA. CHANGE (FL -> SH)..:	0.0017		
MEAN DIAMETER .....:	0.1710		
SPRING INDEX .....:	5.8966		
CRITICAL FREQ (hz) .....:	1744.1170		

Stress and Load

LOAD (lbs) @ L1= 0.550 :	2.0333		
DEFLECTION @ L1 .....:	0.0800		
LOAD VARIATION @ L1 ....:	1.7893	TO	2.2773
STRESS @ L1 .....:	45651.0143		
LOAD (lbs) @ L2= 0.370 :	6.6084		
DEFLECTION @ L2 .....:	0.2600		
LOAD VARIATION @ L2 ....:	5.6832	TO	7.5336
STRESS @ L2 .....:	148365.7964		
LOAD TOLERANCE .....:	0.1200		
FORCE TO SOLID (lbs)....:	7.9046		
STATIC STRESS @ SOLID ..:	177468.3180		
SPRING VELOCITY (in/sec):	100.0000		
DYNAMIC STRESS .....:	32694.1488		
TOTAL STRESS @ SOLID....:	210162.4667		
ENERGY (in-lbs) .....:	0.7778		
TENSILE STRENGTH .....:	332946.1232		
DESIGN STRESS @ 62.00 %:	206426.5964		
MAX STRESS (STATIC + DYN) AS % OF TENSILE STRENGTH:	63.1221		

ARNING: DEFLECTION AT L2 > 80%. INCREASE L2.

NOTE:
Tolerances are to commercial specifications
Tighter tolerances (60% of commercial) can be held

029 025 058

.200 - .059 .142 - .004 .138

ET56125

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A&G 2609

Spring Drawing Output

DATE : 14-JAN-94 08:54:06

Material: ROUND Music Wire A228

INSPECTION					
1. Hole Diameter (in)	0.250				
2. Pin Diameter	0.000				
3. Load (lbs)	1.54	to	2.42 @	0.550	(L1)
Load (lbs)	3.90	to	5.34 @	0.370	(L2)
4. MAX Solid Height	0.302				
5. Wind					
6. MIN Free Length	0.651				
7. Ends	Squared				
8. Check Here for Non-Commercial Tols					
MANUFACTURE					
9. Wire Diameter	0.026				
10. Free Length	0.685				
11. Outside Diameter	0.200				
12. COILS Active	8.50				
Total	10.50				
13. Check Here for Set Removal					
DESIGN DATA					
14. Spring Rate (lbs/in)	14.67				
15. Static Stress at Solid (psi)	174683.				
16. Dynamic Stress (psi).....	31815.				
17. Total Stress at Solid (psi)	206498.				
18. Solid Load (lbs)	5.66				
19. Spring Index	6.69				
20. Torsional Modulus	11500000.				
21. Curvature Corr. Factor ...	1.224 (WAHL)				
22. Velocity Impacting Mass ..	100.				
23. Critical Freq (Hz)	1421.				
24. Total Stress as % of Tensile	61.				
25. Energy from L1 - L2 (in-lbs)	0.59				

NOTE:
Tolerances are to commercial specifications
Tighter tolerances (60% of commercial) can be held

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SPRING ANALYSIS OUTPUT

DATE : 14-JAN-94 08:54:10
Material: ROUND Music Wire A228 with Squared Ends

OUTSIDE DIAMETER .....:	0.2000	+/-	0.0060
WIRE DIAMETER .....:	0.0260	+/-	0.0003
HOLE DIAMETER .....:	0.2500		
PIN DIAMETER .....:	0.0000		
TOTAL TURNS .....:	10.5000		
ACTIVE TURNS .....:	8.5000		
ACTIVE TURNS PER INCH ..:	12.4088		
FREE LENGTH .....:	0.6850	+/-	0.0338
SOLID HEIGHT.....:	0.2990	+/-	0.0034
CURVATURE CORRECTION ...:	1.2237		
SPRING RATE (lbs/in) ...:	14.6702		
DIA. CHANGE (FL -> SH)..:	0.0020		
MEAN DIAMETER .....:	0.1740		
SPRING INDEX .....:	6.6923		
CRITICAL FREQ (hz) .....:	1421.3981		

Stress and Load

LOAD (lbs) @ L1= 0.550 :	1.9805		
DEFLECTION @ L1 .....:	0.1350		
LOAD VARIATION @ L1 ....:	1.5448	TO	2.4162
STRESS @ L1 .....:	61093.6469		
LOAD (lbs) @ L2= 0.370 :	4.6211		
DEFLECTION @ L2 .....:	0.3150		
LOAD VARIATION @ L2 ....:	3.9048	TO	5.3374
STRESS @ L2 .....:	142551.8428		
LOAD TOLERANCE .....:	0.2200		
FORCE TO SOLID (lbs).....:	5.6627		
STATIC STRESS @ SOLID ..:	174682.5756		
SPRING VELOCITY (in/sec):	100.0000		
DYNAMIC STRESS .....:	31814.9860		
TOTAL STRESS @ SOLID....:	206497.5616		
ENERGY (in-lbs) .....:	0.5941		
TENSILE STRENGTH .....:	338494.2117		
DESIGN STRESS @ 62.00 %:	209866.4112		
MAX STRESS (STATIC + DYN) AS % OF TENSILE STRENGTH:	61.0048		

ARNING: DEFLECTION AT L2 > 80%. INCREASE L2.

NOTE:
Tolerances are to commercial specifications
Tighter tolerances (60% of commercial) can be held

ET56127

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Williams v. Remmington

PAGE BREAK

Spring Drawing Output

DATE : 27-JAN-94 16:14:49

Material: ROUND Music Wire A228

INSPECTION

1. Hole Diameter (in)	0.140				
2. Pin Diameter	0.075				
3. Load (lbs)	2.83	to	4.07 @	0.875	(L1)
Load (lbs)	4.13	to	5.65 @	0.770	(L2)
4. MAX Solid Height	0.680				
5. Wind					
6. MIN Free Length	1.095				
7. Ends	Squared/Ground				
8. Check Here for Non-Commercial Tols					

MANUFACTURE

9. Wire Diameter	0.024
10. Free Length	1.125
11. Outside Diameter	0.134
12. COILS Active	26.00
Total	28.00
13. Check Here for Set Removal	

AEMP 2616

DESIGN DATA

14. Spring Rate (lbs/in)	13.78	
15. Static Stress at Solid (psi)	169954.	
16. Dynamic Stress (psi).....	0.	
17. Total Stress at Solid (psi)	169954.	
18. Solid Load (lbs)	6.24	
19. Spring Index	4.58	
20. Torsional Modulus	11500000.	
21. Curvature Corr. Factor ...	1.343	(WAHL)
22. Velocity Impacting Mass ..	0.	
23. Critical Freq (Hz)	1073.	
24. Total Stress as % of Tensile	50.	
25. Energy from L1 - L2 (in-lbs)	0.44	

NOTE:
Tolerances are to commercial specifications
Tighter tolerances (60% of commercial) can be held

ET56128

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Williams Production

BARBER - 2.4.13000521

BARBER - 2.4.13000521

SPRING ANALYSIS OUTPUT

DATE : 27-JAN-94 16:14:52
Material: ROUND Music Wire A228 with Squared/Ground Ends

OUTSIDE DIAMETER .....:	0.1340	+/-	0.0040
WIRE DIAMETER .....:	0.0240	+/-	0.0003
HOLE DIAMETER .....:	0.1400		
PIN DIAMETER .....:	0.0750		
TOTAL TURNS .....:	28.0000		
ACTIVE TURNS .....:	26.0000		
ACTIVE TURNS PER INCH ..:	23.1111		
FREE LENGTH .....:	1.1250	+/-	0.0304
SOLID HEIGHT.....:	0.6720	+/-	0.0084
CURVATURE CORRECTION ...:	1.3435		
SPRING RATE (lbs/in) ...:	13.7817		
DIA. CHANGE (FL -> SH)..:	0.0007		
MEAN DIAMETER .....:	0.1100		
SPRING INDEX .....:	4.5833		
CRITICAL FREQ (hz) .....:	1073.2783		

Stress and Load

LOAD (lbs) @ L1= 0.875 :	3.4454		
DEFLECTION @ L1 .....:	0.2500		
LOAD VARIATION @ L1 ....:	2.8252	TO	4.0656
STRESS @ L1 .....:	93793.5653		
LOAD (lbs) @ L2= 0.770 :	4.8925		
DEFLECTION @ L2 .....:	0.3550		
LOAD VARIATION @ L2 ....:	4.1342	TO	5.6508
STRESS @ L2 .....:	133186.8628		
LOAD TOLERANCE .....:	0.1800		
FORCE TO SOLID (lbs)....:	6.2431		
STATIC STRESS @ SOLID ..:	169953.9404		
SPRING VELOCITY (in/sec):	0.0000		
DYNAMIC STRESS .....:	0.0000		
TOTAL STRESS @ SOLID....:	169953.9404		
ENERGY (in-lbs) .....:	0.4377		
TENSILE STRENGTH .....:	342560.9415		
DESIGN STRESS @ 62.00 %:	212387.7837		
MAX STRESS (STATIC + DYN) AS % OF TENSILE STRENGTH:	49.6128		

NOTE:
Tolerances are to commercial specifications
Tighter tolerances (60% of commercial) can be held

ET56129

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Williams v. Remmington
BARBER - 2.4.13000522

BARBER - 2.4.13000522

SPRING ANALYSIS OUTPUT

DATE : 27-JAN-94 16:11:38
Material: ROUND Music Wire A228 with Squared/Ground Ends

OUTSIDE DIAMETER .....:	0.1340	+/-	0.0040
WIRE DIAMETER .....:	0.0240	+/-	0.0003
HOLE DIAMETER .....:	0.1400		
PIN DIAMETER .....:	0.0750		
TOTAL TURNS .....:	28.0000		
ACTIVE TURNS .....:	26.0000		
ACTIVE TURNS PER INCH ..:	20.8000		
FREE LENGTH .....:	1.2500	+/-	0.0338
SOLID HEIGHT.....:	0.6720	+/-	0.0084
CURVATURE CORRECTION ...:	1.3435		
SPRING RATE (lbs/in) ...:	13.7817		
DIA. CHANGE (FL -> SH)..:	0.0010		
MEAN DIAMETER .....:	0.1100		
SPRING INDEX .....:	4.5833		
CRITICAL FREQ (hz) .....:	1073.2783		

Stress and Load

LOAD (lbs) @ L1= 0.875 :	5.1681		
DEFLECTION @ L1 .....:	0.3750		
LOAD VARIATION @ L1 ....:	4.3671	TO	5.9692
STRESS @ L1 .....:	140690.3480		
LOAD (lbs) @ L2= 0.770 :	6.6152		
DEFLECTION @ L2 .....:	0.4800		
LOAD VARIATION @ L2 ....:	5.8214	TO	7.4090
STRESS @ L2 .....:	180083.6455		
LOAD TOLERANCE .....:	0.1550		
FORCE TO SOLID (lbs)....:	7.9658		
STATIC STRESS @ SOLID ..:	216850.7231		
SPRING VELOCITY (in/sec):	0.0000		
DYNAMIC STRESS .....:	0.0000		
TOTAL STRESS @ SOLID....:	216850.7231		
ENERGY (in-lbs) .....:	0.6186		
TENSILE STRENGTH .....:	342560.9415		
DESIGN STRESS @ 62.00 %:	212387.7837		
MAX STRESS (STATIC + DYN) AS % OF TENSILE STRENGTH:	63.3028		

ARNING: DEFLECTION AT L2 > 80%. INCREASE L2.

NOTE:
Tolerances are to commercial specifications
Tighter tolerances (60% of commercial) can be held

ET56130

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BARBER - 2.4.13000523

Spring Drawing Output

DATE : 27-JAN-94 16:11:33

Material: ROUND Music Wire A228

INSPECTION

1. Bole Diameter (in)	0.140				
2. Pin Diameter	0.075				
3. Load (lbs)	4.37	to	5.97 @	0.875	(L1)
Load (lbs)	5.82	to	7.41 @	0.770	(L2)
4. MAX Solid Height	0.680				
5. Wind					
6. MIN Free Length	1.216				
7. Ends	Squared/Ground				
8. Check Here for Non-Commercial Tols					

MANUFACTURE

9. Wire Diameter	0.024
10. Free Length	1.250
11. Outside Diameter	0.134
12. COILS Active	26.00
Total	28.00
13. Check Here for Set Removal	

DESIGN DATA

14. Spring Rate (lbs/in)	13.78	
15. Static Stress at Solid (psi)	216851.	
16. Dynamic Stress (psi).....	0.	
17. Total Stress at Solid (psi)	216851.	
18. Solid Load (lbs)	7.97	
19. Spring Index	4.58	
20. Torsional Modulus	11500000.	
21. Curvature Corr. Factor ...	1.343	(WAHL)
22. Velocity Impacting Mass ..	0.	
23. Critical Freq (Hz)	1073.	
24. Total Stress as % of Tensile	63.	
25. Energy from L1 - L2 (in-lbs)	0.62	

NOTE:
Tolerances are to commercial specifications
Tighter tolerances (60% of commercial) can be held

AEP 2005

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BARBER - 2.4.13000524

BARBER - 2.4.13000524

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NUMBER
A-17019

REMINGTON ARMS CO. INC.
& ION RESEARCH DIV.

SCALE	SUPERSEDES	REFERENCE

TITLE
SPRING, HELICAL COMPRESSION

DES. BY DATE	DRN. BY DATE	CHK. BY DATE	APP. BY DATE
	TPOWERS 11-7-91	Martin 11-7-91	

MODEL	PART USE	
700	EJECTOR SPRING	
721	"	"
722	"	"
760	"	" .222 REM.
40XC	"	"
XP 700	"	"
600	"	"
660	"	"

AUTHORIZED
11-12-91
Process Engineering

THIS DRAWING OR INFORMATION IS PROPRIETARY INFORMATION TO THE REMINGTON ARMS COMPANY, INC.

RECOMMENDED MATERIAL AND HEAT TREAT
MATERIAL MUSIC WIRE ASTM A228
HEAT TREAT STRESS RELIEVE

INSPECTION

1. TO WORK FREELY IN A .140 DIA. HOLE
2. TO WORK FREELY ON A .075 DIA. PIN
3. LOAD ____ TO ____ LB. AT ____ (L1)
   LOAD 7.29 TO 8.79 LB. AT .770 (L2)
4. SOLID HEIGHT .681 MAX. 5. WIND RIGHT HAND
6. FREE LENGTH 1.122 MIN. 7. ENDS SQUARED & GROUND
8. CHECK HERE FOR NON-COMMERCIAL TOLERANCES ☑

MANUFACTURE

9. WIRE DIA. .026
10. FREE LENGTH 1.140
11. OUTSIDE DIA. .134
12. COILS: ACTIVE 24
    TOTAL 26
13. CHECK HERE FOR SET REMOVAL ☐

DESIGN DATA

14. SPRING RATE 21.73 LB./IN.
15. STATIC STRESS AT SOLID 218625 LB./SQ.IN.
16. DYNAMIC STRESS – LB./SQ.IN.
17. TOTAL STRESS AT SOLID 218625 LB./SQ.IN.
18. SOLID LOAD 10.08 LBS.
19. SPRING INDEX 4.15
20. TORSIONAL MODULUS 11.5×10^6 LB./SQ.IN.
21. CURVATURE CORRECTION FACTOR 1.386 (WAHL)
22. VELOCITY IMPACTING MASS – IN./SEC.
23. CRITICAL FREQUENCY 1306 HZ.
24. TOTAL STRESS AS % OF TENSILE STRENGTH 65
25. ENERGY FROM L1 TO L2 1.17 IN.-LBS.

ALT.	WAS	REF.	BY	DATE
32	REVISED & REDRAWN	12697	TP	11/7/91

TFA-3 REV. 3 ALTERATIONS

THIS SPRING MUST MEET THE REQUIREMENTS IN THE INSPECTION SECTION. FIGURES GIVEN IN THE MANUFACTURE SECTION INDICATE THE PREFERRED SPRING. THE MANUFACTURER MAY, WITH PRIOR APPROVAL, DEVIATE FROM THESE FIGURES. FIGURES IN THE DESIGN DATA SECTION ARE BASED ON THOSE IN THE MANUFACTURE SECTION.

CV FILENAME - RES.FORM.SPG2

A-17019

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ET56132
BARBER - 2.4.13000526

BARBER - 2.4.13000526

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02/07/1994 16:31 FROM Square Stamping MFG. Corp TO 1-895-3665 P.01

FACSIMILE TRANSMISSION COVER SHEET

DATE: 2/7/94

TIME:

Please deliver the following pages to:

NAME: Dave Findlay

COMPANY: Remington Arms

CITY:

FAX NO.

FROM: Dan Hart

COMPANY: SQUARE STAMPING MFG., CORPORATION

CITY: BARNEVELD, NEW YORK 13304

PHONE: (315) 896-2641

FAX NO. (315) 896-2734

Total number of pages 3, including cover letter

If you do not receive all pages, please call back as soon as possible.

REMARKS: Subj: Bolt Lock Blank Dwg # EXP 2612
Would changes on Pages #2 of #3 be
acceptable for manufacturing?
Please call —
Dan

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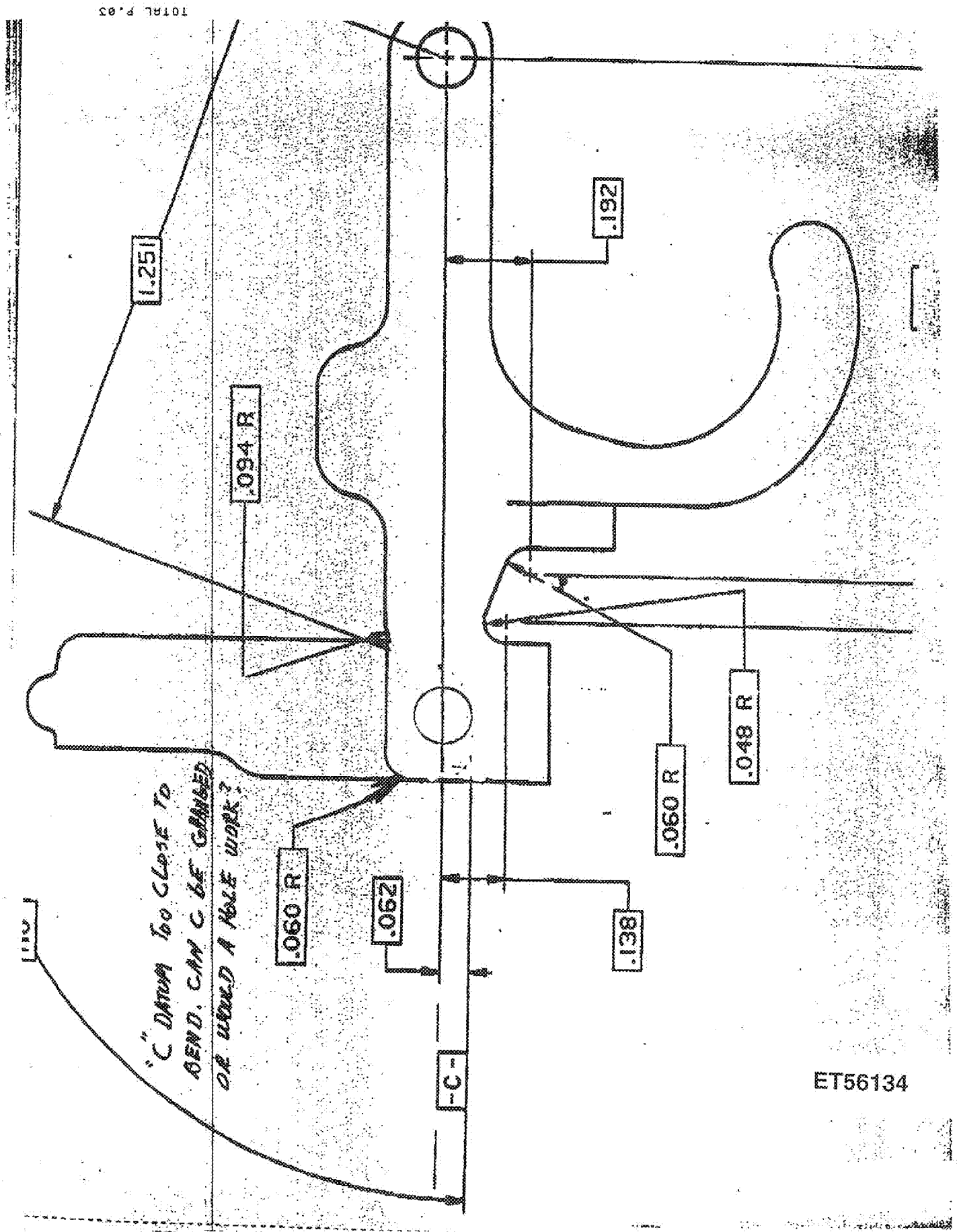

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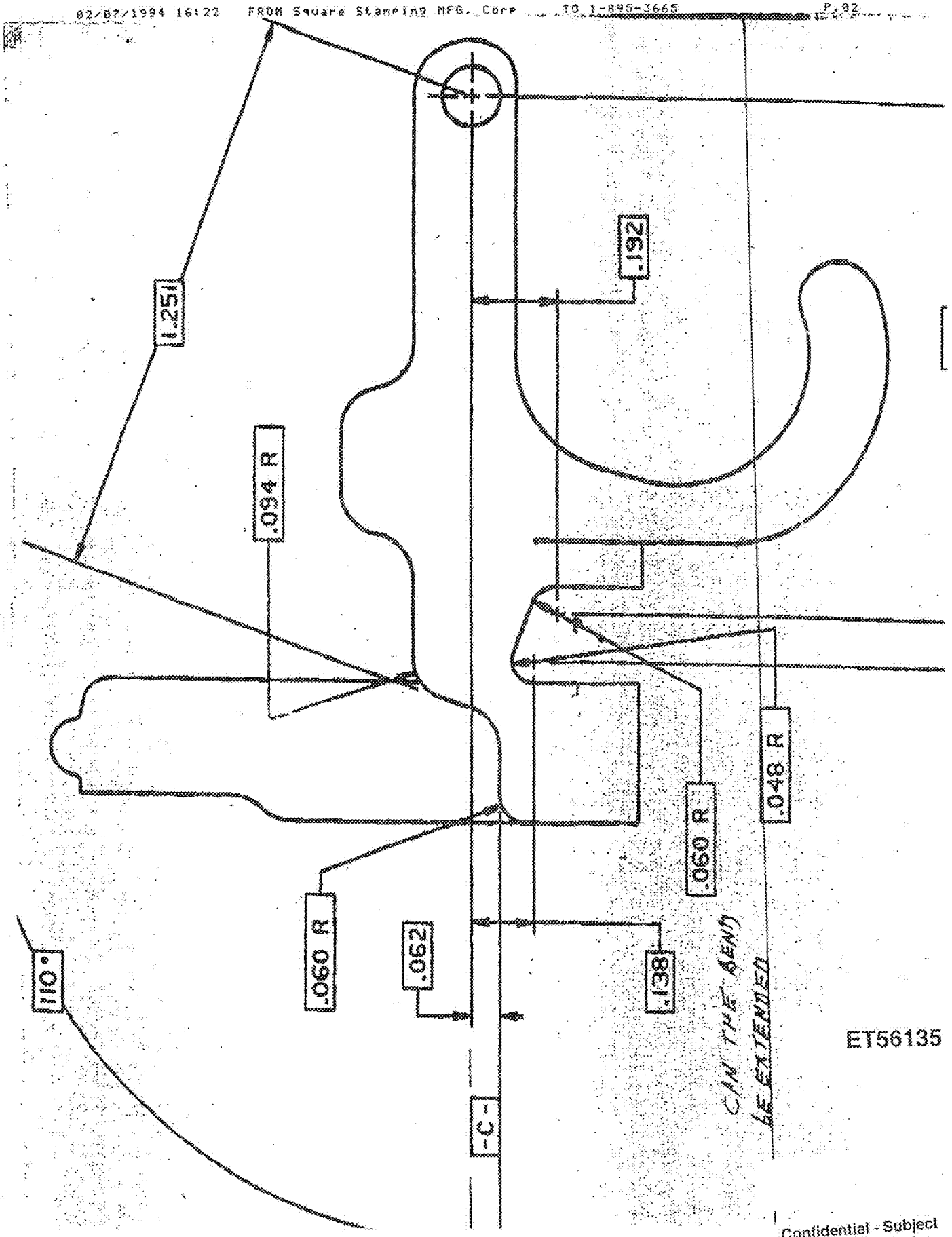

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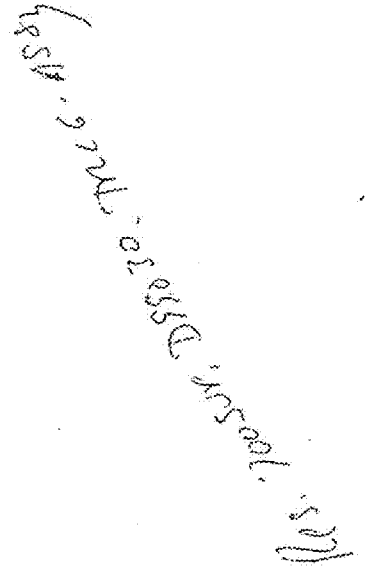

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7000 cyc
OFF 3.9, 4.0, 4.1, 4.1, 4.1
ON 10.8, 9.5, 9.2, 8.9, 9.3

300 CBY D6200083

0 cycles
OFF 5.5, 6.0, 5.5, 5.6, 5.1
ON 8.7, 8.1, 8.0, 7.6, 7.8

1000
OFF 5.5, 5.5, 5.7, 5.5, 5.4
ON 9.2, 8.5, 8.3, 7.4, 7.7

2000
OFF 5.1, 5.5, 4.8, 4.7, 5.7
ON 9.4, 8.9, 8.6, 8.6, 8.6

3000
OFF 5.0, 6.4, 5.8, 5.9, 5.6
ON 11.0, 10.5, 10.7, 10.3, 10.3,

4000
OFF 7.9, 7.3, 7.8, 7.5, 7.7
ON 11.8, 12.0, 11.9, 11.8, 11.4

4000 Label
Safety
OFF 4.9, 4.7, 4.7, 4.9, 4.7
ON 5.3, 5.8, 5.9, 5.8, 5.6

6000
OFF 5.8, 4.8, 3.6, 2.4, 4.5
ON 10.1, 9.6, 9.8, 9.2, 8.8

OFF 4.9, 4.6, 4.6, 4.6, 4.5
10.3, 10.7, 10.1, 9.4, 8.5

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8000 off > 4.5, 5.1, 4.8, 4.6, 3.8
on > 10.1, 10.3, 9.6, 9.4, 9.5

9000 off > 4.9, 5.1, 4.8, 5.1, 5.1
on > 10.2, 9.8, 9.3, 9.4, 9.2

10 000 off > 5.0, 5.1, 5.2, 5.3, 5.5
on > 11.0, 10.1, 9.9, 9.4, 9.7

11000 off > 4.7, 4.9, 3.8, 5.1, 4.8
on > 9.6, 9.4, 9.6, 9.0, 9.4

12000 off > 4.5, 4.8, 5.0, 4.1, 4.4
on > 10.3, 10.3, 9.6, 11.2, 9.4

13000 off > 4.1, 4.4, 4.8, 4.7, 4.6
on > 10.2, 10.8, 10.5, 10.8, 10.0

14000 off > 4.9, 5.5, 5.2, 5.0, 5.0
on > 10.5, 10.7, 9.9, 9.2, 8.7

15000 off > 5.3, 4.3, 5.0, 4.3, 4.6
on > 9.2, 8.9, 8.5, 7.9, 8.9

ET56141

16000 off > 5.3, 4.7, 4.5, 4.0, 4.5
on > 6.7, 6.7, 6.5, 6.1, 6.4

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M/700 300 WBS D6 200083

17 000 off > 4.9, 4.3, 4.3, 4.3, 3.5
on > 6.1, 6.1, 5.9, 6.2, 5.5

18 000 off > 5.0, 4.1, 4.8, 4.3, 4.0
on > 5.5, 5.9, 5.8, 5.6, 5.6.

19 000 off > 4.4, 4.5, 4.5, 4.4, 4.0
on > 7.0, 6.6, 6.2, 6.0, 5.9.

30 000 off > 5.1, 4.8, 4.7, 4.5, 4.8
on > 6.5, 6.2, 6.0, 5.5, 6.3.

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M/700 D62000033

0 cycles

off 5.5, 5.5, 5.1, 5.3, 5.4
on 9.6, 9.4, 8.7, 9.1, 9.5

1000 cyc

off 5.5, 5.1, 5.1, 5.2, 4.8,
on 10.2, 9.6, 9.0, 9.6, 9.9

off 5.5, 5.2, 5.2, 5.0, 4.9
on 9.6, 9.7, 9.2, 9.4, 9.9

3000

off 4.7, 5.0, 4.8, 4.6, 4.7
on 8.5, 8.7, 8.2, 8.4, 8.8

off 4.2, 4.3, 4.2, 3.9, 4.1
on 8.4, 8.9, 8.5, 8.9, 8.9

4000

off 3.6, 3.9, 3.3, 3.2, 3.2
on 7.9, 8.4, 6.9, 8.2, 8.5

off 4.2, 4.2, 4.2, 4.1, 4.6
on 8.4, 8.1, 7.6, 8.5, 7.2

5000

off 4.4, 4.3, 4.2, 4.2, 4.1
on 8.0, 7.0, 6.9, 7.6, 7.1

off 4.6, 4.6, 4.5, 4.5, 4.6
on 7.9, 7.1, 7.6, 8.1, 8.3

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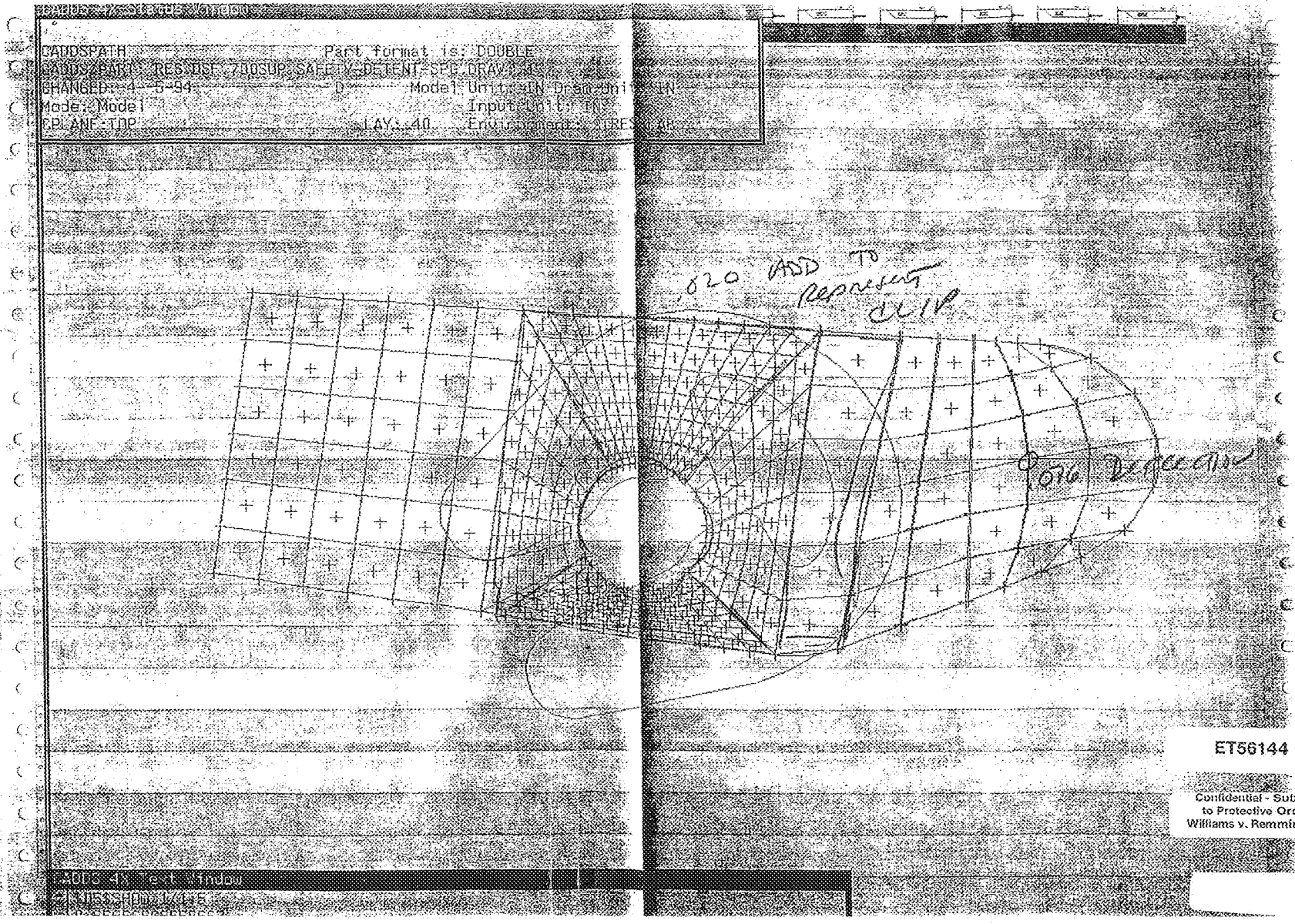

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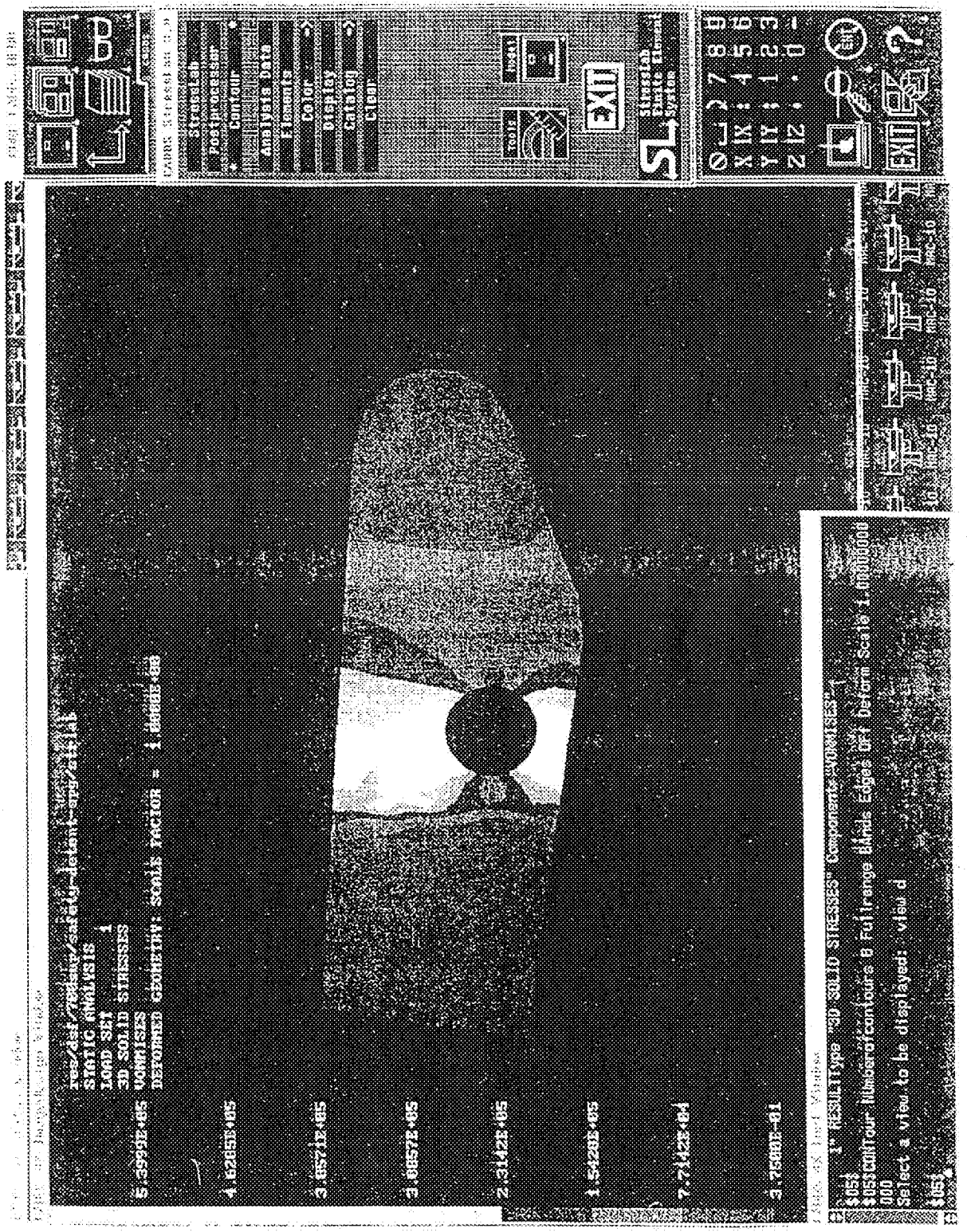

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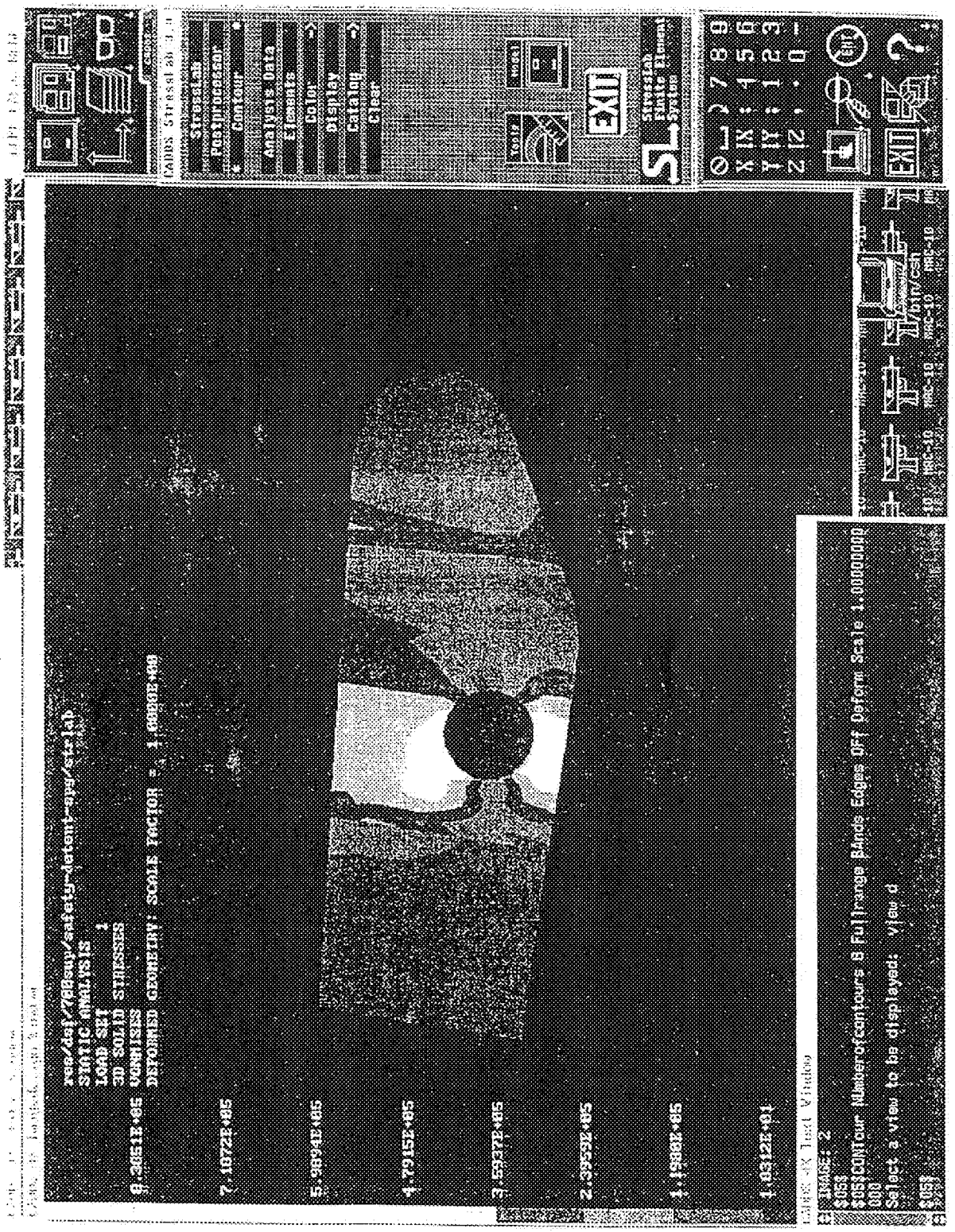

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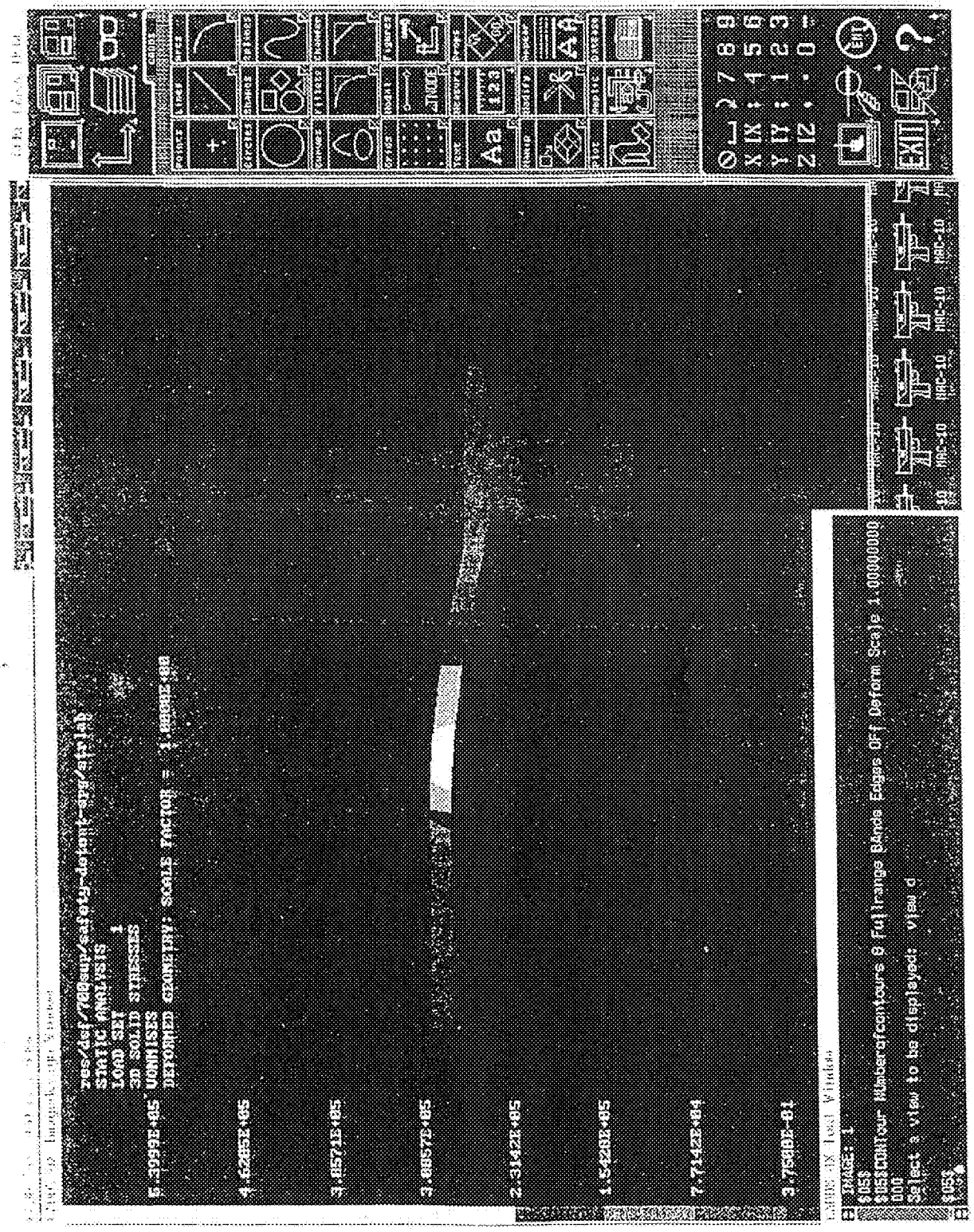
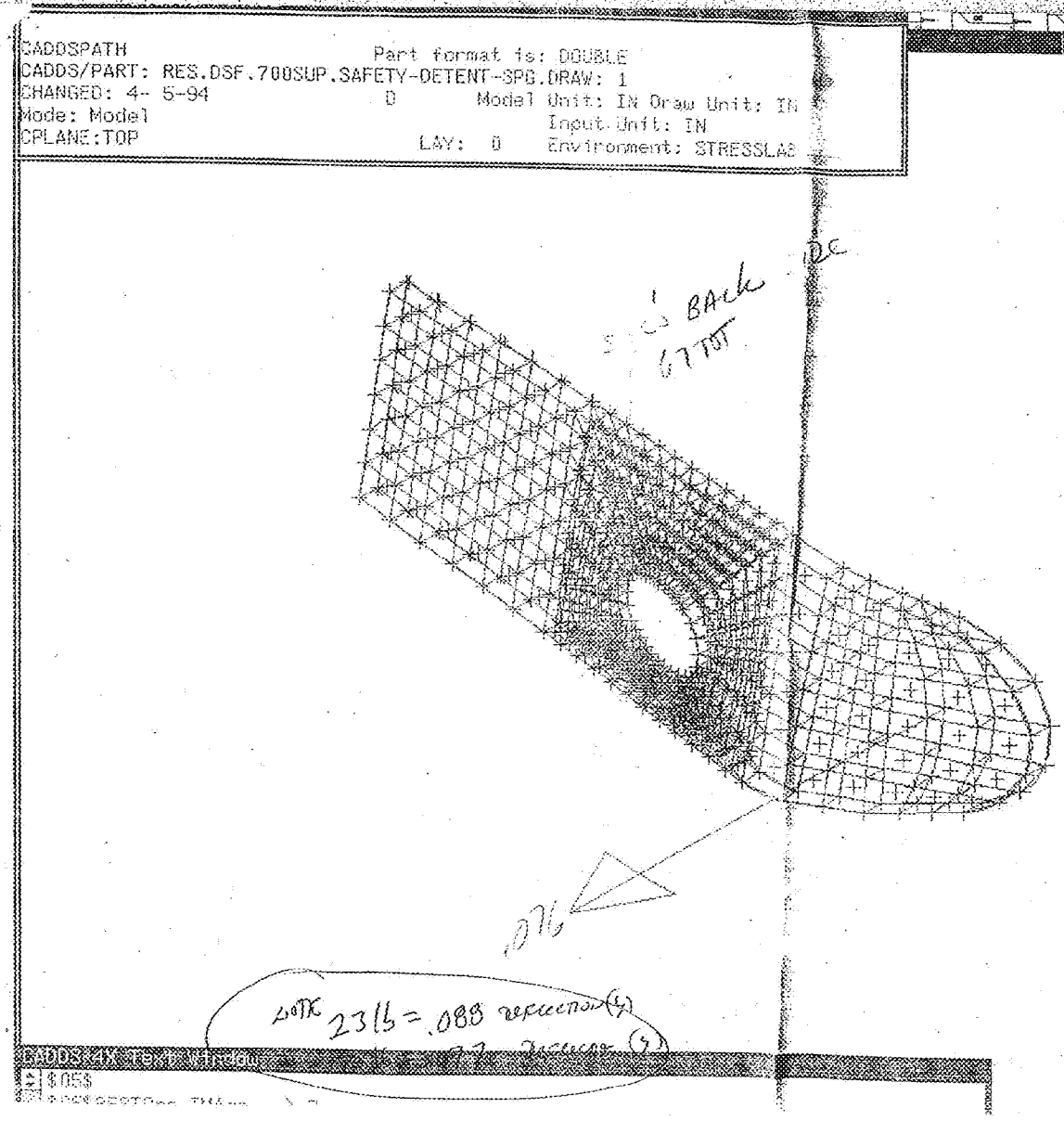

Deformed Shape with Undeformed Edges
Deformed Shape with Undeformed Edges
Deformed Shape with Undeformed Edges



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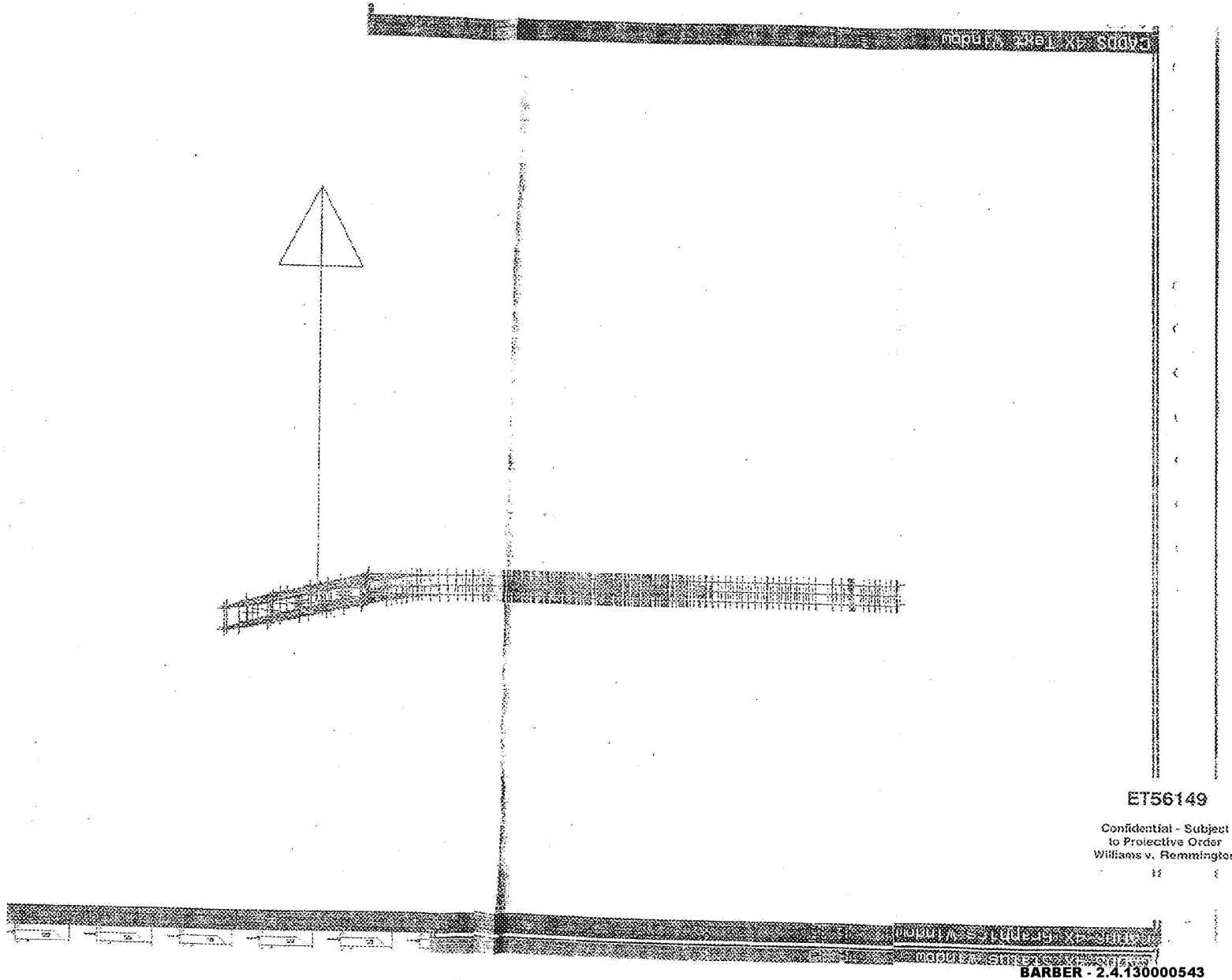

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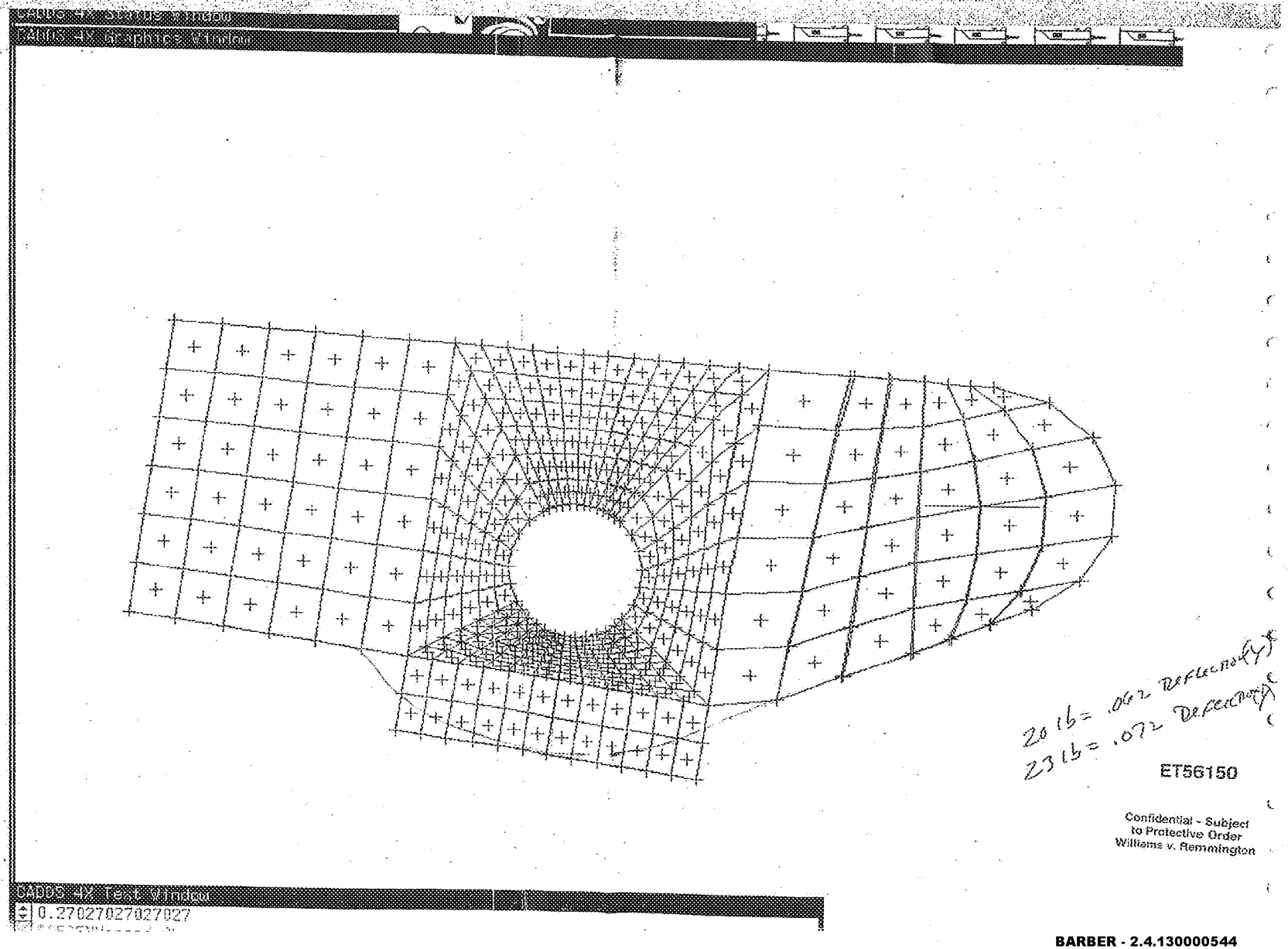

20 lb = .062 Deflection(y)
23 lb = .072 Deflection(y)

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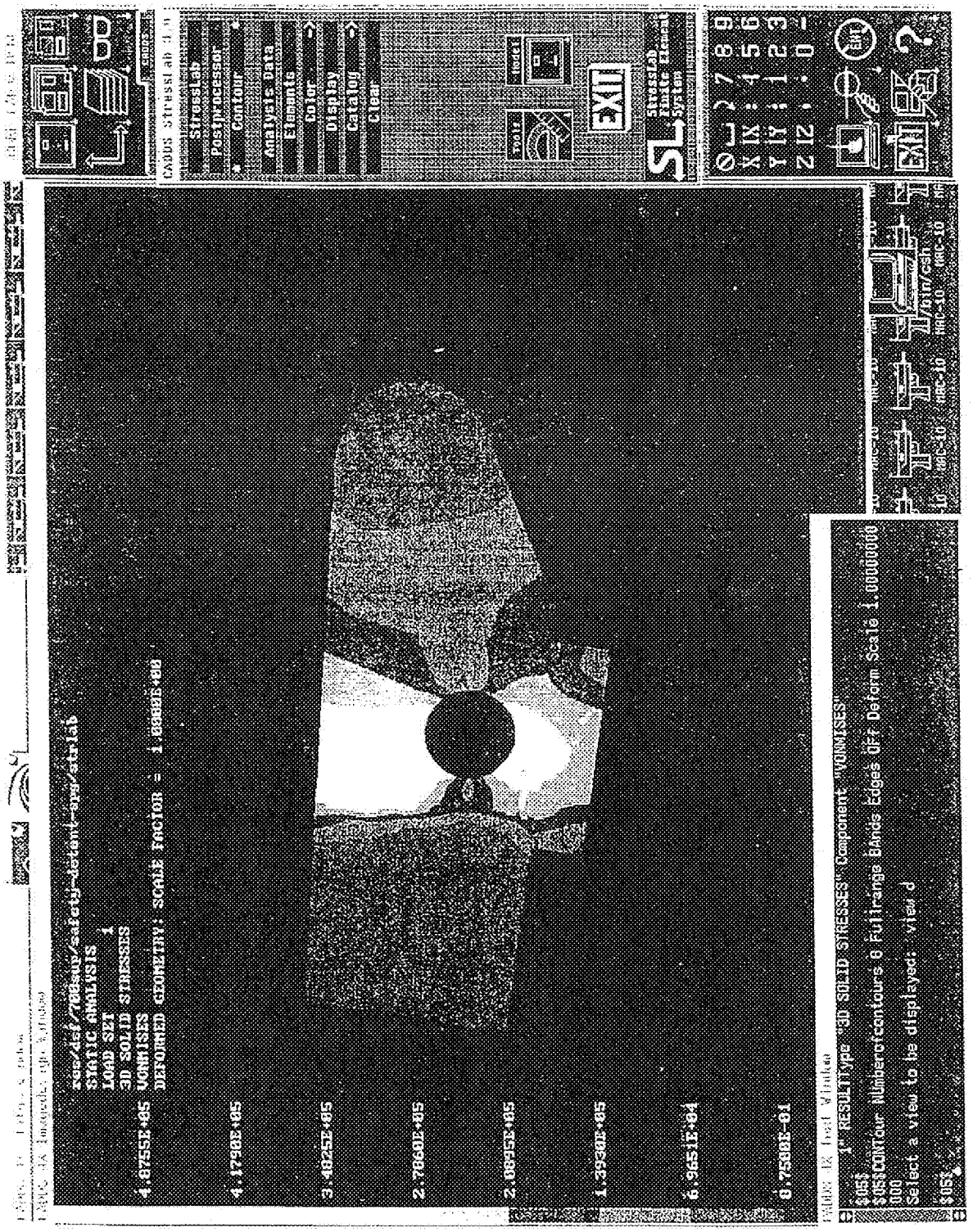

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G-88

DON'T SAY IT - WRITE IT

To: _____ Date: _____

From: _____

.034
+.081
.115

.024
.076

.576
+.005
.081

.574

"AT REMINGTON, WE KEEP SAFETY IN OUR SIGHTS"

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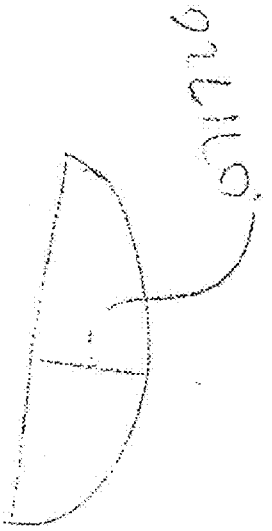

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LPC

SPAT

LPC> RESTART TCPIPDX

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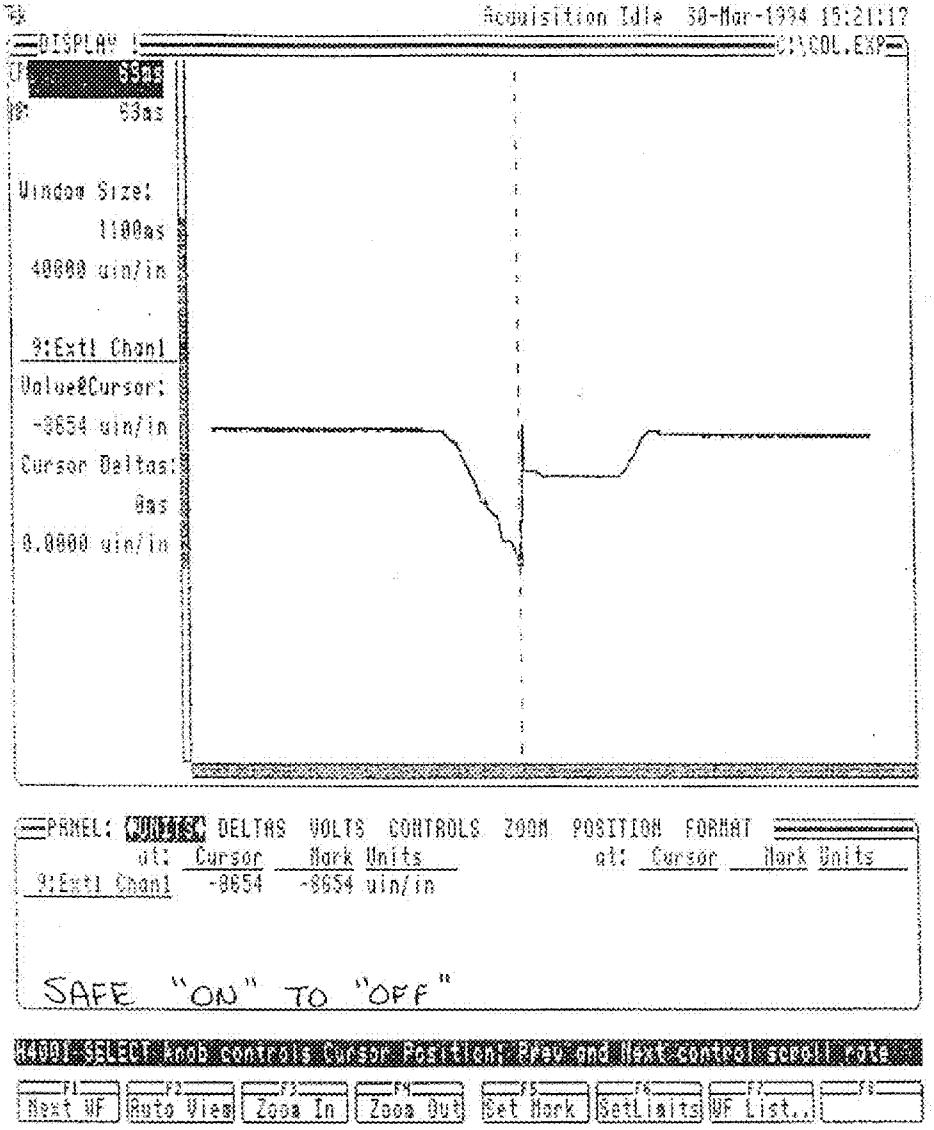
12.15

Tektronix 2500 TestLab Print Screen 30-Mar-1994 15:21:17



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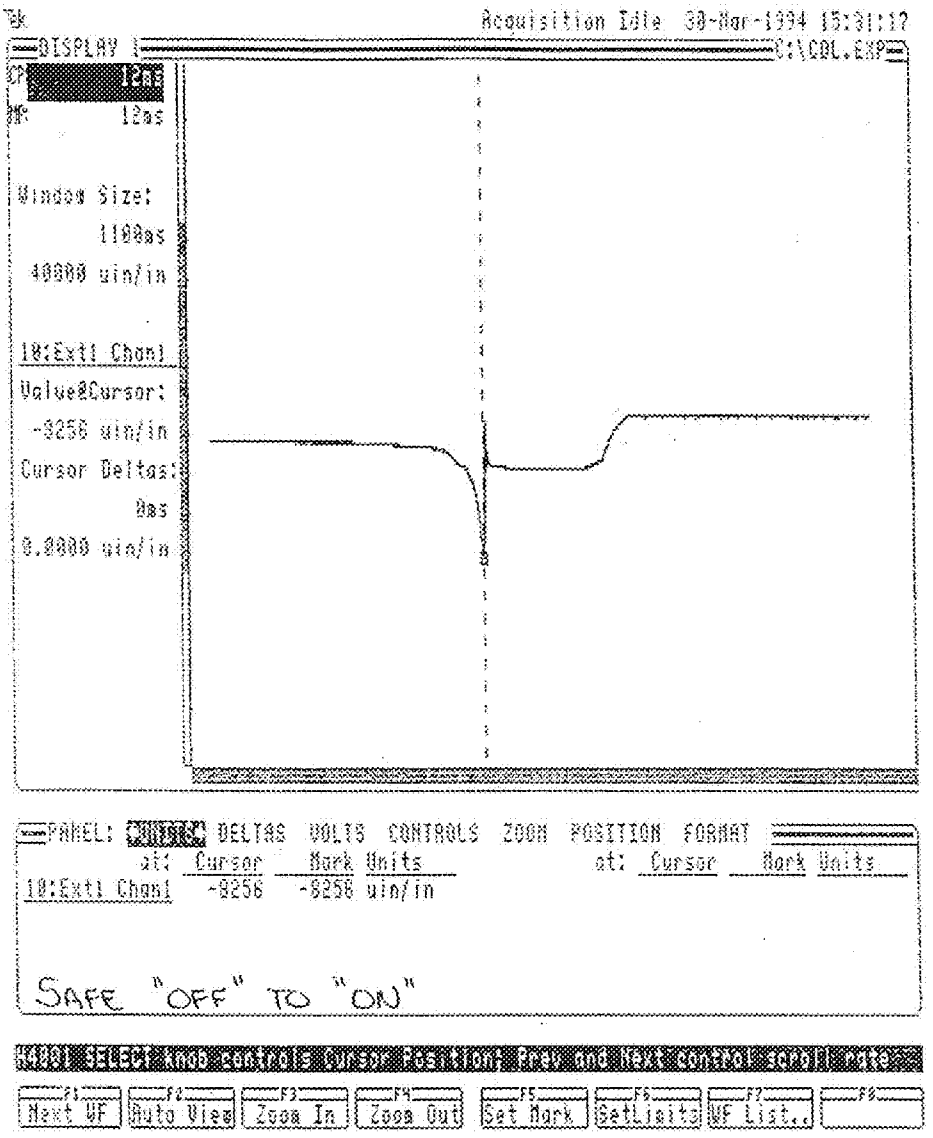

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B-SERIES TEST REPORTS

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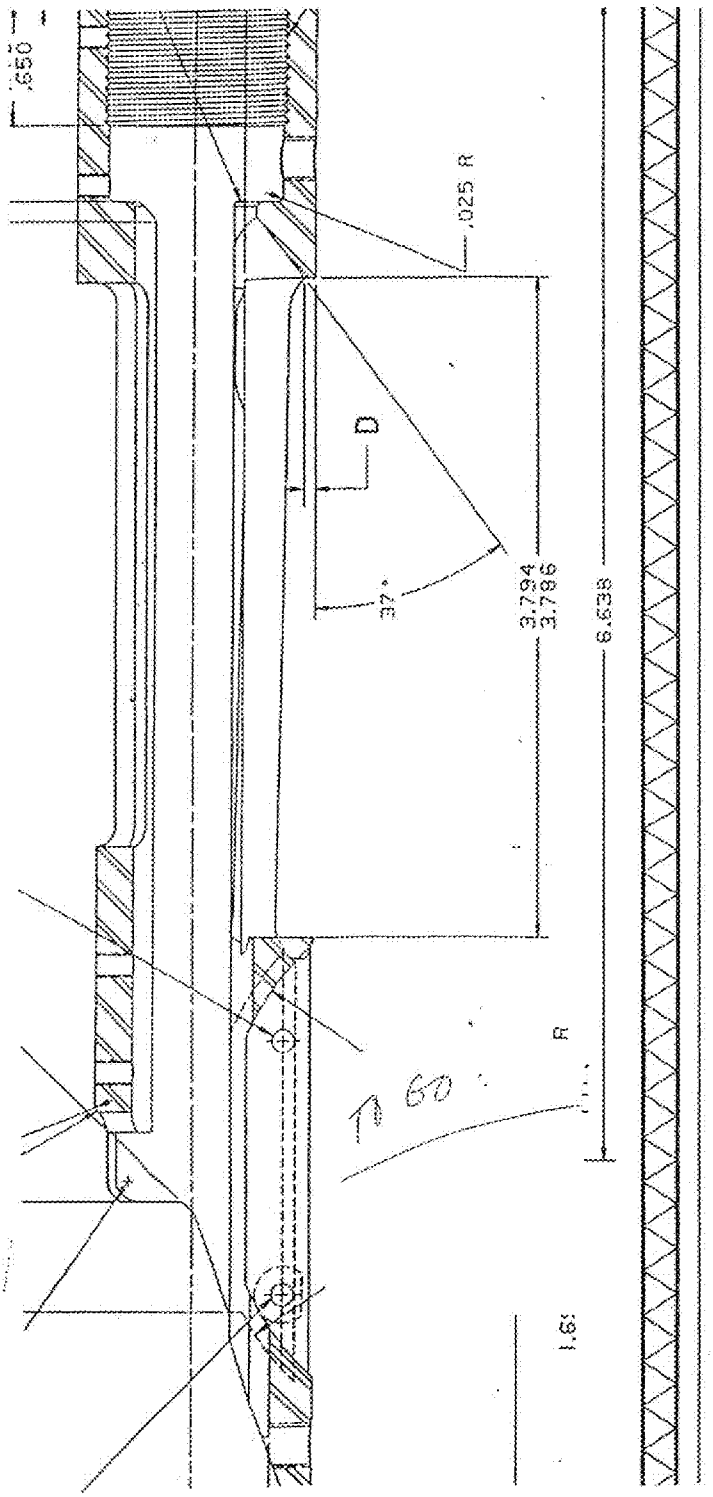

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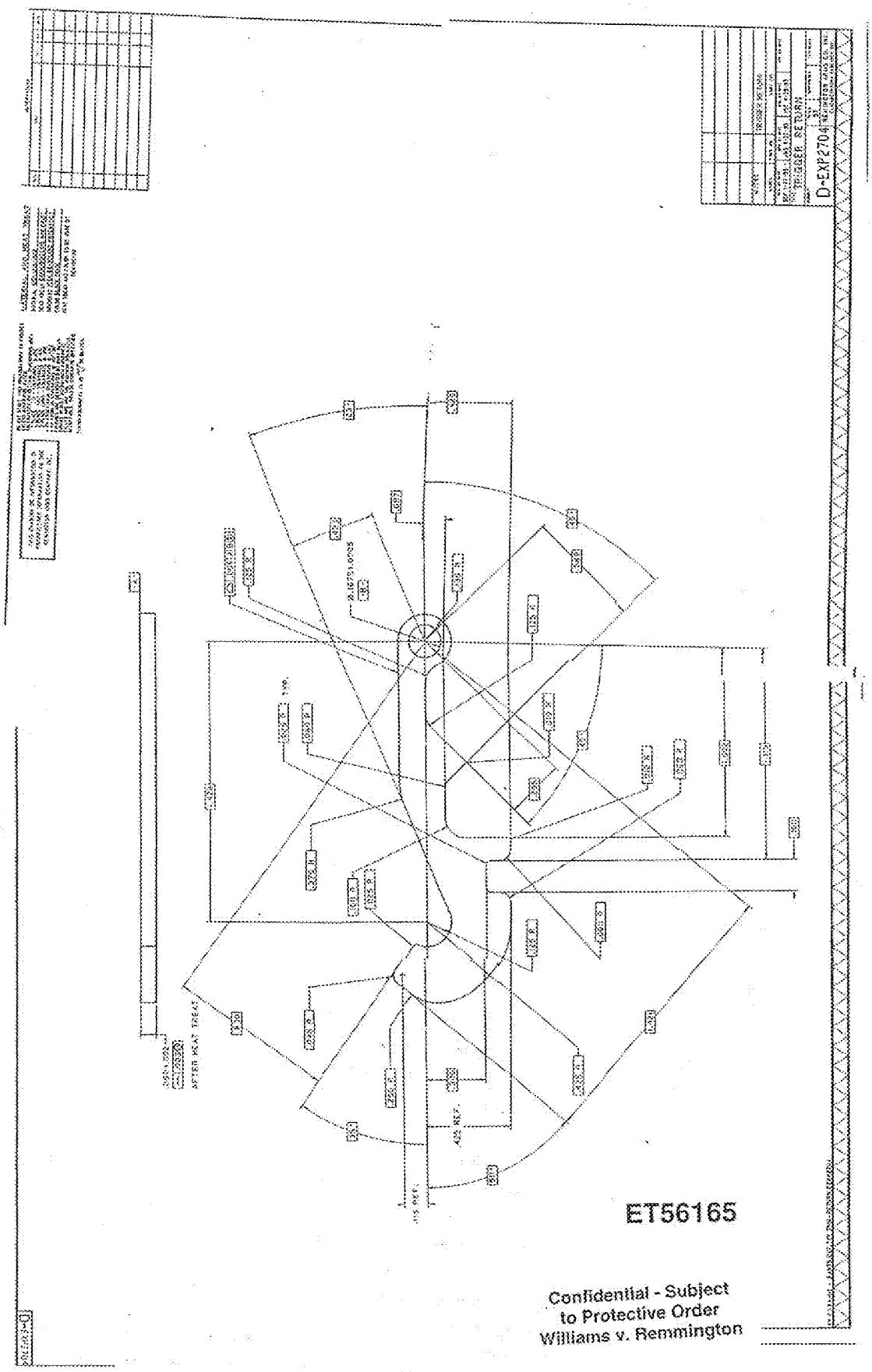
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ET56166

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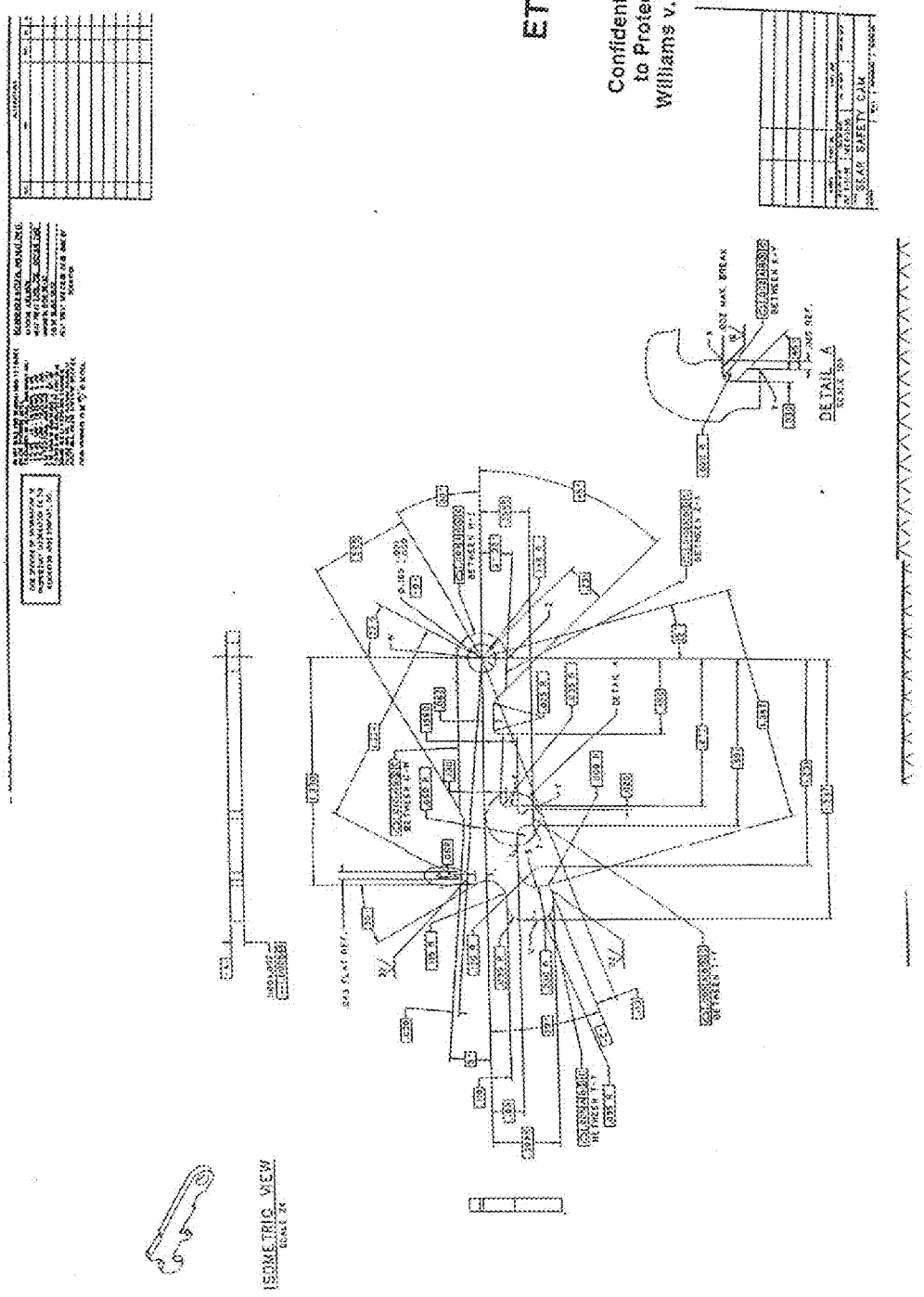

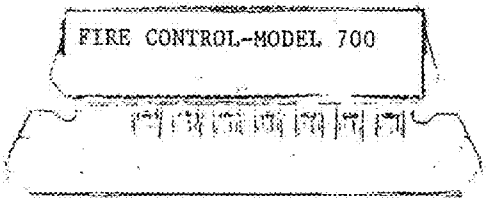

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ACTION REQUIRED

ET56168

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Fire Control Matrix

Trigger Objectives	Plunger	Hook
Required:		
1. Trigger assembly must be retrofitable to consumer Model 700 and Model 7 rifles	Yes	Yes
2. Placement of safety lever in "safe" position forces engagement of trigger and sear within specifications	Yes. However, requires addition of plate to bolster safety cam strength. Force on the safety arm is not transferred to trigger. See below	No. In theory trigger in this instance is camed in place by safety arm. However, tolerance stack-up prevents guaranteed performance.
3. Trigger assembly will not allow placement of safety lever in "safe" position unless minimum engagement achieved	Yes. See above	No. See above
4. Prevent fire on safety release under normal operation (i.e. assume trigger is not being pulled)	Yes. See above	No. See above
5. Trigger assembly must be manufacturable	Unknown. Must build prototypes. However, plunger concept is process sensitive.	Unknown. Must build prototype.
6. Any attempt to tamper with factory default trigger settings must be readily evident	Yes	Yes. All adjustments will rendered tamper proof. Evidence of tampering will be insured.
7. Trigger pull 3.0 lbs -0 + 1.0 lbs	Yes. Should be able to source spring with adequate tolerance. However, may require pull adjustment	Yes. Will modify assembly instructions and or specs.
8. Trigger "feel" and performance must meet or exceed current production trigger assembly	Probably.	Probably
9. Trigger assembly must pass all SAAMI drop test requirements	Probably	Probably
10. Fire control must pass all functional testing	Probably.	Probably.
Nice to Have:		
1. March 1995 Production	No. Prototypes in process at two locations. Assuming design verification believe May 95 possible	No. Modeling in process now. Assuming design verification believe mid-April 95 possible
2. Skeletonized side plates	Yes.	No. Unless after design proved, side plates can be easily and predictably modified
3. Rifle will not fire if trigger is pulled and held rearward as safety is moved from safe to fire position	Yes. But we do not yet know why	No.
4. Cost reduction	Expected, but do not have cost breakdown.	No.
5. Part reduction	Yes	Yes. Connector removed
6. Improved manufacturability	Unclear	No
7. Set .015 engagement as default	No. Current range is .020 +/- .002, reducing only makes more process sensitive	Yes. Modification to current comparator screen required
8. Balanced Trigger	Yes	No
9. Ambidextrous design	Yes	Yes

ET56169

~~C.S.B.~~ 1/23/95

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Barber v. Remington

TITLE: Final Assy 700 BDL, BDL LH

Continued ...
Operation Procedure Notes Operation: 640
Description

10. Stamp Final Inspection and Code Marks on Left rear side of barrel, sign gun tag.

11. Stock Rejects only:
1A. Place 3/4" yellow dot with identification stamp and nonconformity code, close to nonconformity on stock rejects.

*Special Dial Gage D-44581, use with 5/64 Balldriver Hex Tool Bondhus Cat. #10604, Series 106, or equivalent.

ET56170

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Snap Shot of numbers relating to the Fire Control and Barrel Steel Projects...

as of 6/13/95

FIRE CONTROL

1994...			
Engineering time logs not kept.			
Purchases:		$	6,329
1995...			
Engineering payroll estimates:	JAN '95		23,475
	FEB '95		30,426
	MAR '95		37,381
	APR '95		24,350
	MAY '95	*	
Purchases...			160,063
Travel...	JAN '95	*	
	FEB '95		1,910
	MAR '95		3,737
	APR '95		62
	MAY '95		4,210
*NOT YET AVAIL.			
			$ 291,943

Barrel Steel

1994...			
Engineering time logs not kept.			
Purchases:		$	468
1995...			
Engineering payroll estimates:	JAN '95		15,895
	FEB '95		11,102
	MAR '95		13,795
	APR '95		6,992
	MAY '95	*	
Purchases...			12,374
Travel...	JAN '95	*	
	FEB '95		747
	MAR '95		4,847
	APR '95		1,020
	MAY '95		3,528
*NOT YET AVAIL.			
			$ 70,768

Grand Total...	$ 362,711

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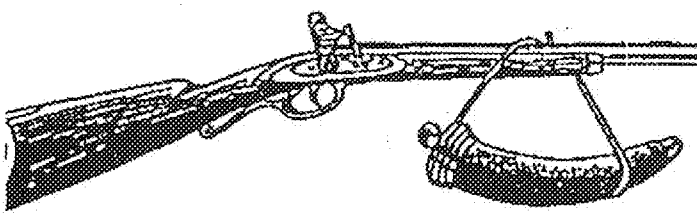

Remington.

Remington Arms Company, Inc.
Firearms Technical Division
Ilion, New York – 13357
Fax (315) 895-3670
Tel. (315) 895-3200

DATE: 19 Sept. 95 TIME: 4:35 p.m.

TO: Don Lewis
Remington Arms Co. (BLDG./ROOM NO.)
(502) 765-4420 FAX (PHONE)

FROM: Dick Jackson
Remington Arms Co. (BLDG./ROOM NO.)
(315) 895-3305 (PHONE)

TOTAL NUMBER OF PAGES, INCLUDING THIS SHEET: 6

RECEIPT VERIFICATION CALL REQUIRED? (YES/NO)

COMMENTS: See Proc. Record Sheet (4) of (5)
for spec. you wanted.

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TITLE: Final Assy 700 BDL, BDL LH

Header

Process Header

Document ID: Fin Assy 700 BDL — Remington Arms Company
Part Name: Final Assy 700 BDL, BDL LH
Product Line: Centerfire — Effective Date: 19-SEP-1995-09:00:00
Engineering Group: Centerfire — Origination Date: 13-Feb-1993

Operation Step Detail — Operation: 640

Step	Operation / Step Description
[redacted]	FINAL INSPECTION

Operation Tool Detail — Operation: 640

Tool Number	Tooling Description
[redacted]	BRASS CLEANING ROD
[redacted]	CLEANING PATCHES
STD	REM OIL

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TITLE: Final Assy 700 BDL, BDL LH

Operation Procedure Notes Operation: 640

Description

FINAL ASSEMBLY
OPER. NAME-FINAL INSPECTION
SEQUENCE OF INSPECTION POINTS (See Following)

1. SAFETY
2. STAMPS
3. SPECIFICATIONS
4. GUN GRADES
5. STOCK
6. METAL PARTS, FINISH
7. HEADING
8. SAFE
9. STAMP FINAL INSPECTION AND CODE MARKS

TO WAREHOUSE

Item:
1. SAFETY
Inspect chamber and Magazine NO LIVE AMMUNITION. Must see follower.

2. Stamps on Barrel
(Rep) (Important, Proof, Test and Target Stamps on right side, rear.)

Magnaflux-Triangle with number in center on right side of Breech-Visible
Stock.

3. Specifications
Matches gun tag.

Receiver Marking:
Remington Model and Serial No., on left side.
Model No. must be recognizable.

Barrel Marking:
Patent & Cal. on left side.
(per gun tag)

Bolt Marking: (Disassemble Bolt) Check Bolt Release, must be free. Check Serial #-Must agree with Receiver #. Check for mars, finish, Brass in Bolt Head, Proof mark on underside of Bolt Handle. Check for Extractor in Position. Only Extractor claw should be visible.

WIPE BORE WITH BRASS CLEANING ROD & CLEANING PATCH SOAKED IN REM OIL

Document Number: Fin Assy 700 BDL Rev: 02

VAXcamps V2.2 Hardcopy Utility Page: 2 Of 5

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TITLE: Final Assy 700 BDL, BDL LH

Continued ...

Operation Procedure Notes Operation: 640
Description

1. Gun Grades:
Camo or Gray

2. Stock-Inspect for Handling Damage. Max allowance for Stock-Rec. Gap at Tang is .030". Trigger Guard & Floor Plate stock opening maybe excessive but must be uniform, not jagged. Inspect floor plate for mars, finish and proper function. Mountain Rifle barrel to be free floating with a minimum of .005 clearance. Trigger Guard Screws tight. Assemble correct Rear Swivel if specified on gun tag.

3. Front Sight Bead not jammed, Sights must be central. Slight mars per Inspection Stds. Crown good finish. Accept 1/16" light ring at bore. Uniform wall.

7. Min. and Max heading plugs.
1. Insert Min. plug in chamber, must close with no more than slight drag.
2. Insert Inspection Max. plug in chamber, Bolt must stop or lock with noticable pressure.

Caliber		Min. Plug	Insp. Max Plug
1. 17 Rem.		B-38336	B-38113
2. 222 Rem.		B-81544	B-82320
3. 22-250		B-87465	B-87468
4. 223 Rem		B-86881	B-86883
5. 6mm Rem.		B-81268	B-82325
6. 243 Win.		B-81229-A	B-81229-C
7. 25-06		B-73438	B-82327
8. 257 Roberts		B-73286	B-82326
9. 270 Win.		B-73438	B-82327
10. 280 Rem.		B-81578	B-82329
11. 7mm-08 Rem.		B-81229-A	B-81229-C
12. 7mm Mauser (7x57)		B-44975-A	B-44975-C
13. 7mm Rem. Mag.		B-85241-A	B-85241-B
	(BELT)	B-83853-A	B-83853-C
14. 7mm Wby. Mag.		B-48583	B-48584
	(BELT)	B-83583-A	B-83853-C
15. 300 Savage		B-70556	B-82333
16. 30-06		B-73438	B-82327
17. 300 WBY. Mag.		B-48096	B-48097
	(BELT)	B-83583-A	B-83853-C
18. 308		B-81229-A	B-81229-C
19. 300 Win. Mag.		B-86567	B-86586
	(BELT)	B-83853-A	B-83853-C
20. 35 Whelen		B-73438	B-82327

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TITLE: Final Assy 700 BDL, BDL LH

Continued ...
Operation Procedure Notes Operation: 640
Description

21. 338 Win. Mag.		B-85241-A	B-85241-B
	(BELT)	B-83853-A	B-83853-C
22. 220 Swift		B-49143	B-49145

Remove Heading Plug

3. With Action in fired position, lift Bolt while pressing foreward firmly, release handle, then close handle, Bolt must cock and remain cocked.

4. Hold Bolt handle down hard, pull Trigger, Firing Pin must fall without drag or movement of Bolt Handle.

5. Action:

A. Operate Bolt 3 times and fire, no bind, Bolt Handle raises and lowers easily.

B. Open and close Bolt forcibly 3 times. Firing Pin must not follow down.

C. Check for jar off by applying steady pressure on end of firing pin head with safety in "F" or "off" position. (use end of hammer handle).

6. Safe, Gun cocked:

A. Clean sharp single detent.
TRY THREE TIMES
WITH SAFETY IN "S" OR "ON" POSITION, CAN'T FIRE WITH HEAVY TRIGGER PRESSURE. TRIGGER MUST RETRACT. PUSH SAFETY HALFWAY TO THE "F" OR "OFF" POSITION, PULL TRIGGER, MUST NOT FIRE. PUSH SAFETY TO "F" OR "OFF" POSITION. FIRING PIN MUST NOT FOLLOW DOWN, SAFETY MUST RETURN TO OFF POSTION UNDER TENSION.
USE DOWNWARD PRESSURE ON SAFETY.
Bolt handle must unlock with safety ON.
Safety should snap in detent in both "ON" and "OFF" position.

B. Check trigger pull-no creep (3 to 5 lbs. on M/700)
Check for Trigger Clearance In Guard and Floor Plate - Must Not Bind. Trigger Must Not Be Exposed Outside of Guard. A (.030) Shim Must Fit Between End of Trigger and Inside of Guard Bow While Trigger is in Full Rearward or Relaxed Position

C. With bolt open, pull safety on, close bolt and lock down. Bolt must lock down without catching on safety. Bolt must open with safety on.

*D. Remove Bolt and insert Special Dial Gage into Receiver and measure Safe-ON, Sear Connector clearance. If clearance is less the .006, reject. Remove gage and reinsert Bolt.

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Trigger Objectives	Trigger Bow Pin Design
Requirement:	
1. Trigger assembly must be retrofitable to consumer Model 700 and Model Seven Rifles	Yes absolutely no issues
2. Placement of safety lever in "safe" position forces engagement of trigger and sear within specifications	Yes Cannot put safety ON If pin is up cannot put safety on.
3. Trigger assembly will not allow placement of safety lever in "safe" position unless minimum engagement achieved	Yes Blocks
4. Prevent fire on safety release under normal operation(i.e. assume trigger is not being pulled)	Yes Cannot force finger that trigger must be under sear
5. Any attempt to tamper with factory default trigger settings must be readily evident	Yes O.K. / Look site
6. Trigger pull 3.0-4.0 lbs. 3.0 - 5.0	Yes Adjustable
7. Trigger "feel" and performance must meet or exceed current production trigger assembly	Probably - indefinite since only one has been made (and without heat treat) Over travel
8. Trigger assembly must pass all SAAMI drop tests	~~Unknown~~ No reason it should not
9. Firecontrol must pass all functional tests	~~Unknown, but probably~~ Passes
10. Trigger assembly must be manufacturable Adjustable pin standard machine screw parts.	Yes - Adjustment screws and 2 of 3 springs are off the shelf, same sear spring, new trigger, sear similar to current TA, 2-piece safety connected by a rivet, 2-piece ajustable pin, similar front and rear spacer, similar sideplates
11. Balanced Trigger	Yes
12. Ambidextrous design	Yes, Outer safety lever and sideplates are only changes
Nice to Have:	
1. Part reduction	No, 2 sear bushings, 1 safety rivet, inner safety hook, and 2-piece pin are extra. Connector and over travel screw is omitted - Net total extra: 4.
2. Cost Reduction	Unknown
3. Improved manufacturability	Unknown
4. Skeletonized sideplates	No, but could implement
5. Rifle will not fire if trigger is pulled and held rearward as safety is moved from safe to fire position	No, but consistent with majority of currently manufactured bolt action rifles Cannot happen

two piece safety

General changes this design has in contrast with the current 700 firecontrol is as follows:

1. Implemented adjustable pin to ensure engagement when safety is in the on position.

2. Moved engagement set-screw from rear to front spacer

3. Omit over-travel screw and use front spacer as trigger forward stop.

4. Split Safety

5. If trigger is stuck forward for any reason, adjustable pin will not allow safety hook to be rotated to the "safe" position.

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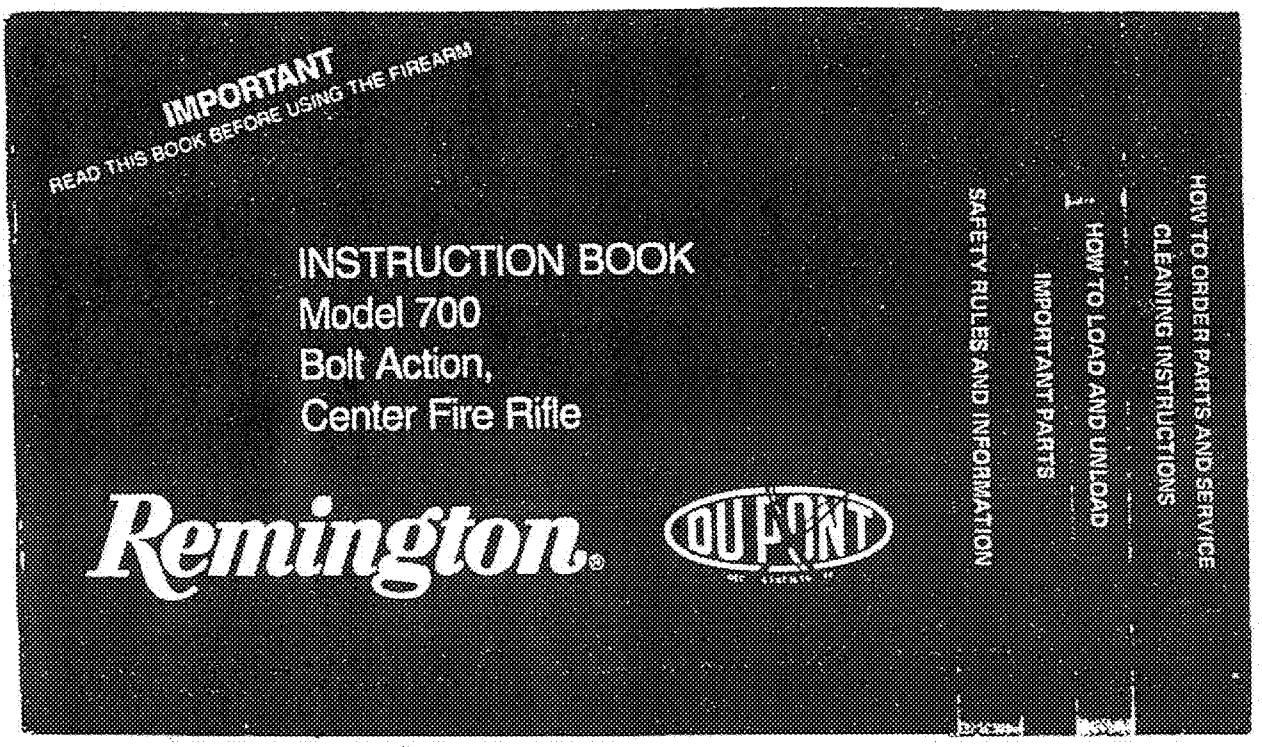

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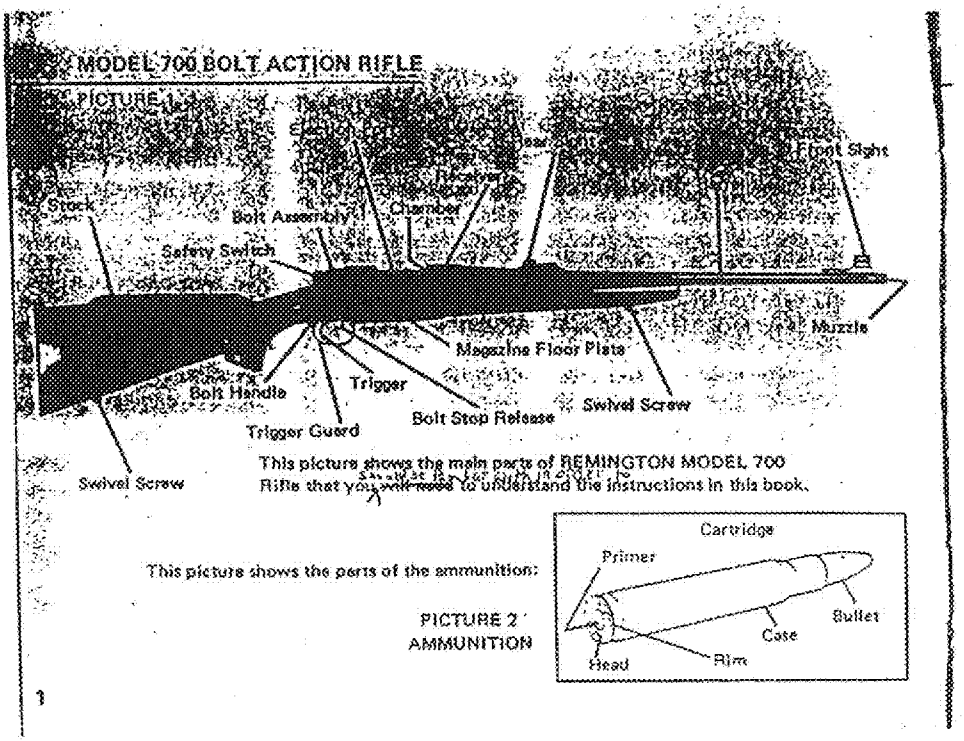

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SAFETY RULES

WARNING

READ THESE BASIC SAFETY RULES. Learn how to handle your firearm safely. Failure to obey these rules can result in serious personal injuries. Only you can prevent accidents.

KNOW YOUR FIREARM. To use it correctly and safely, read and follow the instructions in the enclosed firearms safety booklet and this instruction book.

TREAT EVERY FIREARM AS IF IT WERE LOADED. Don't rely on the safety switch. Use it as shown in this book.

NEVER MAKE ADJUSTMENTS. Do not make changes or alterations to any parts of a firearm. Use only REMINGTON parts. Never make an adjustment to the trigger, or change the shape or size of the sear, sear notch, or other parts.

MAKE YOURSELF SAFE. Wear eye protection, such as glasses or sunglasses, when shooting. Wear ear protection, such as ear plugs or muffs, when target shooting or plinking. Repeated exposure to shooting noise can cause permanent hearing loss. Never drink alcoholic beverages before or during shooting.

TAKE CARE OF YOUR FIREARM. Keep the barrel clean and free of obstructions. Clean and have the firearm checked periodically to make sure it is mechanically correct. Worn, damaged or missing parts maybe dangerous.

WATCH YOUR MUZZLE. Always keep the firearm pointed in a safe direction.

HOW TO ORDER PARTS AND SERVICE
CLEANING INSTRUCTIONS
HOW TO LOAD AND UNLOAD
IMPORTANT PARTS
SAFETY RULES AND INFORMATION

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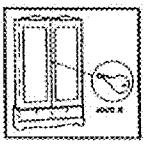
SAFETY RULES



NEVER USE THE WRONG AMMUNITION. Only use ammunition that exactly matches the caliber or gauge markings on your firearm. Handloads can be dangerous. Remington Arms Company, Inc. is not responsible for accidents or damage caused by badly loaded handloads.

LOAD YOUR FIREARM SAFELY. Never load a firearm until you are in a location where it is safe to shoot, and you are ready to shoot.

KNOW YOUR TARGET. Before you pull the trigger, make sure you can see the target clearly, and the path of the bullet, slug, or shot charge beyond the target. Never shoot at water, rocks, or any hard surface. Bullets may glance off such surfaces and cause injuries.

KNOW THE RANGE OF YOUR FIREARM. Remember, shotgun pellets can travel 500 yards and shotgun slugs have a range of more than ~~one half~~ mile. Rimfire bullets can travel more than 1½ miles. Centerfire bullets can travel up to 5 miles.

IF FIREARM FAILS TO FIRE keep it pointed in safe direction, then unload carefully avoiding exposure to breech. If firearm fires but report or recoil seems weak, unload and then make sure the barrel is not obstructed.

UNLOAD YOUR FIREARM WHENEVER YOU ARE NOT SHOOTING. Never carry or store a loaded firearm in a building or a vehicle. Unload your firearm before climbing up or over a fallen tree, fence or slippery area.

STORE YOUR FIREARM SAFELY. Keep firearms and ammunition away from children. Lock unloaded firearms and ammunition securely in separate locations.

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BARBER - 2.4.130000574

IMPORTANT PARTS OF THE FIREARM

HE SAFETY SWITCH

ne safety switch provides protection against accidental or nintentional discharge under normal usage when properly ngaged.

o engage the safety switch, put the switch in the "S" osition. See picture 3.

lways put the safety switch in the "S" position before andling, loading or unloading the firearm.

hen you are ready to fire the firearm, put the safety witch in the "F" position. See picture 4.

o not touch the trigger while moving the safety switch.

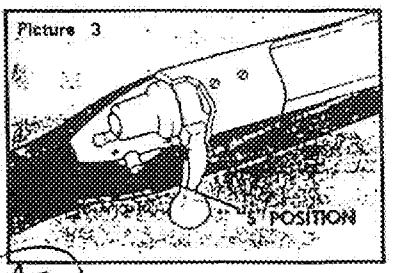
ver pull the trigger when the safety switch is in the "S" sition.

ARNING: The firearm will fire when the trigger is pulled the safety switch is in the "F" position.

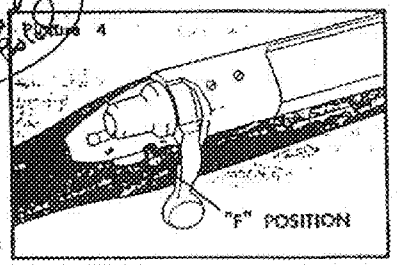
STOP

Even when the safety switch is in the "S" position, careless handling can cause the firearm to fire. Always keep the firearm pointed in a safe direction.

Picture 3



Picture 4



4

HOW TO ORDER PARTS AND SERVICE
CLEANING INSTRUCTIONS
HOW TO LOAD AND UNLOAD
IMPORTANT PARTS

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THE BOLT ASSEMBLY

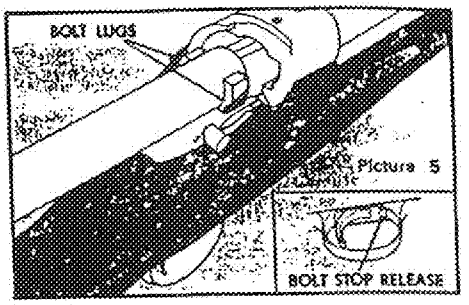
The bolt assembly locks the cartridge into the chamber.

TO INSTALL THE BOLT ASSEMBLY:

1. Point the firearm in a safe direction.
2. Put the safety switch in the "S" position.
3. Align the lugs on the bolt assembly with the receiver. See picture 5.
4. Slide the bolt assembly into the receiver and push all the way in.
5. To lock the bolt assembly into position push the bolt handle down.

TO REMOVE THE BOLT ASSEMBLY:

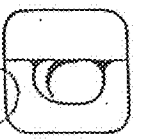
1. Point the firearm in a safe direction.
2. Put the safety switch in the "S" position.
3. Do not touch the trigger while moving the safety switch.
4. Raise the bolt handle.
5. Pull the bolt handle all the way back.
6. Push the bolt stop release. See picture 5.
7. As you push the bolt stop release, slide the bolt from the firearm.



Picture 5

THE TRIGGER ASSEMBLY

Pulling the trigger fires the firearm.



The trigger is adjusted at the factory. All adjustments to the trigger must be made by the factory or a REMINGTON RECOMMENDED GUNSMITH.

Never remove the trigger mechanism, or make adjustments to the trigger or trigger assembly.

NEVER put your finger on the trigger unless you are going to fire the firearm.

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THE BARREL

The inside of the barrel must be clean and free of obstructions.

I. TO CHECK THE INSIDE OF THE BARREL:

1. Point the firearm in a safe direction.
2. Put the safety switch in the "S" position.
3. Raise the bolt handle.
4. Pull the bolt handle all the way back.
5. Remove any ammunition from the chamber or magazine. See page 8.
6. Remove the bolt. See page 5.
7. Look through the inside of the barrel from the chamber end to the muzzle. See picture 1.

II TO REMOVE OBJECT FROM INSIDE THE BARREL:

1. Use the correct size cleaning rod.
2. Push the cleaning rod from the chamber end all the way through the barrel, until the rod comes out the muzzle.
3. If an object cannot be easily pushed out of the barrel with a cleaning rod, return the firearm to the factory or a REMINGTON RECOMMENDED GUNSMITH.

STOP NEVER try to remove an object from the barrel by loading another cartridge and firing.

III TO CLEAN THE BARREL FOLLOW INSTRUCTIONS SHOWN ON PAGE 11.

Before loading the firearm make sure the inside of the barrel is free of dirt, or other objects.

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BARBER - 2.4.130000577

TO LOAD THE FIREARM

I TO LOAD THE MAGAZINE AND CHAMBER:

1. Point the firearm in a safe direction.
2. Put the safety switch in the "S" position.
3. Raise the bolt handle.
4. Pull the bolt handle all the way back.
5. Push four cartridges of the correct caliber, one at a time, into the magazine. If the firearm is a magnum, you can only load three cartridges. If the firearm is a 17, 222, or 223 caliber, the magazine will hold 5 cartridges. Keep the bullets aligned toward the chamber. See Picture 6.
6. Put one cartridge into the chamber.
7. Use your fingers to push the cartridges in the magazine all the way down. Slowly slide the bolt assembly forward, so that the bolt slides over the top of the cartridges in the magazine.
8. Push the bolt handle down.

THE FIREARM IS NOW LOADED.

9. To fire the firearm put the safety switch in the "F" position.

THE FIREARM IS READY TO FIRE.

II TO LOAD ONE CARTRIDGE ONLY:

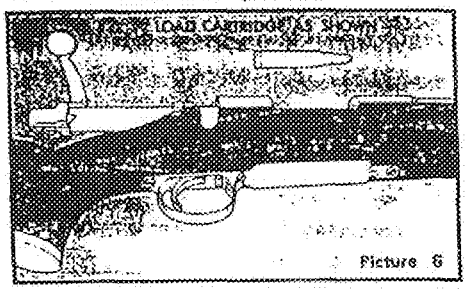
1. Point the firearm in a safe direction.
2. Put the safety switch in the "S" position.
3. Raise the bolt handle.
4. Pull the bolt handle all the way back.
5. Put one cartridge of the correct caliber on the magazine follower, or in the chamber. See picture 6.
6. Slide the bolt handle forward, then push the bolt handle down to lock the cartridge into the chamber.

THE FIREARM IS NOW LOADED.

7. To fire the firearm put the safety switch in the "F" position.

THE FIREARM IS READY TO FIRE.

WARNING: Always check the cartridge for the correct caliber before loading the firearm.



Picture 6

7

up to

why don't we tell them to pull the trigger?

why describe here and not THE FIREARM IS NOW LOADED. in lieu of such

Currently DM manual is separate. Is it an objective of ours to only have one M700 manual?

ET56185

TO UNLOAD THE FIREARM

There are two types of Model 700 rifles, one with a FLOOR PLATE and one without a FLOOR PLATE.

INSTRUCTIONS FOR THE MODELS WITH A FLOOR PLATE

1. Point the muzzle in a safe direction.
2. Put the safety switch in the "S" position.
3. Raise the bolt handle.
4. Put one hand over the top of the ejection port.
5. Slowly pull the bolt handle back with your other hand to remove the cartridge from the chamber.
6. Hold the cartridge and remove it from the firearm.
7. Put your hand under the floor plate.
8. Push the floor plate latch to release the floor plate. See picture 7.
   The magazine spring and follower will be released from the magazine.
9. Remove released cartridges.
10. Push in the magazine follower, then close the floor plate.

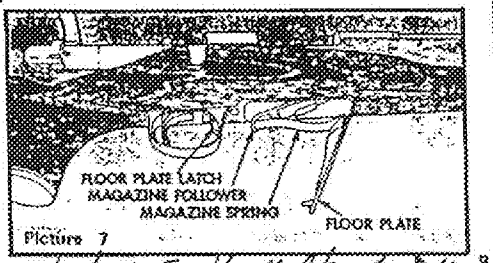
WARNING: Make sure there are no cartridges in the chamber or magazine.

INSTRUCTIONS FOR THE MODELS WITHOUT A FLOOR PLATE

1. Point the muzzle in a safe direction.
2. Put the safety switch in the "S" position.
3. Raise the bolt handle.
4. Put one hand over the top of the ejection port.
5. Slowly pull the bolt handle back with your other hand to remove the cartridge from the chamber.
6. Hold the cartridge and remove it from the firearm.
7. Keep the muzzle pointed up, push the bolt handle slowly forward until the cartridge is released from the magazine. CAUTION: The cartridge may slide into the chamber, if the bolt is pushed too far forward. See note below.
8. Pull the bolt handle fully back and remove the cartridge from the ejection port.
9. Repeat this until the magazine is empty.

WARNING: Check the chamber and the magazine to make sure there are no cartridges in the firearm.

NOTE: If the bolt is pushed all the way forward, and a cartridge slides into the chamber, the gun can be fired. Normally, the cartridges will slide out of the chamber when the bolt is pulled back. If the cartridge remains in the chamber, point the muzzle in a safe direction, slide the bolt forward all the way and push the bolt handle down to lock the bolt. Then repeat steps 2 through 9 above.



Picture 7

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TO ADJUST THE SIGHTS

The sights are adjusted at the factory to hit a target at 100 yards. NOTE: For all models except the Varmint and Classic Grade.

TO ADJUST THE REAR SIGHT

Move the rear sight in the same direction as you need to move the bullet on the target.

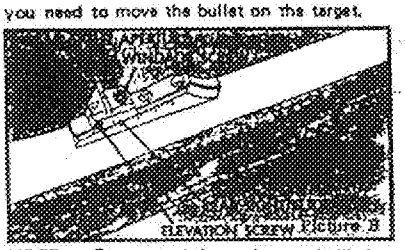
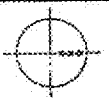


FIGURE 3

NOTE: For more information on ballistics and trajectory, see the REMINGTON catalog.

TELESCOPIC SIGHTS

The top of the receiver has holes for the installation of telescopic sights.

POSITION ON TARGET	ADJUSTMENTS
Bullet hits above the center.	a. Loosen the elevation screw on the rear sight. b. Slide the rear sight down (backward) on the ramp. c. Tighten the elevation screw.
Bullet hits below the center.	a. Loosen the elevation screw on the rear sight. b. Slide the rear sight up (forward) on the ramp. c. Tighten the elevation screw.
Bullet hits to the left.	a. Loosen the windage screw on the rear sight. b. Slide the rear sight aperture to the right. c. Tighten the windage screw.
 Bullet hits to the right.	a. Loosen the windage screw on the rear sight. b. Slide the rear sight aperture to the left. c. Tighten the windage screw.

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TO ASSEMBLE THE SLING STRAP

See picture 9 for the location of parts:

1. Slide the strap through the band.
2. Push the strap up through the first swivel.
3. Slide the strap back through the band.
4. Push the strap into and through the buckle.
5. Push the strap down and through the second swivel.
6. Align the slots in the strap and fasten with the brass fastener.

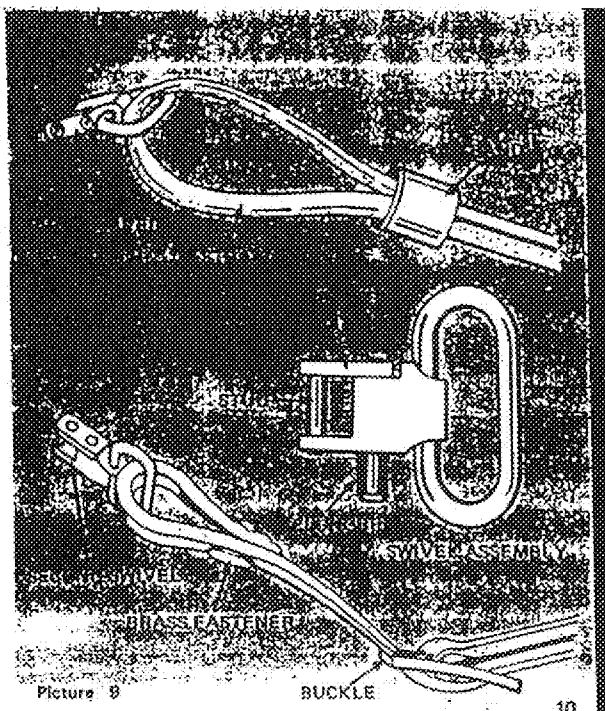
TO ATTACH THE SLING STRAP ASSEMBLY TO THE STOCK.

See picture 9 for location of parts:

7. Push plunger on swivel until the small plate lifts and is free of the stud.
8. Push the stud into the center of the swivel screw.
9. Close the plate on the swivel to lock the swivel to the swivel screw.
10. To adjust the length of the strap, pull the strap through the buckle.

TO REMOVE THE SLING FROM THE STOCK

To remove the sling strap assembly from the stock repeat step 7.



Picture 9

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Firearms must be regularly cleaned and lubricated at least once a year to keep them in a safe and reliable operating condition. More frequent cleaning is required if the firearm is used

LUBRICATION AND MAINTENANCE

LUBRICATION:

Over-lubrication should be avoided at all times. A thin coat of Rem™ Oil is all that is needed to prevent the possibility of rusting. See note below.

When the firearm is to be stored, it should be carefully cleaned and thoroughly oiled. Outside surfaces should be wiped with a light coat of Rem™ Oil occasionally.

When firearm is to be reused, all excess lubrication must be removed. The chamber and bore must be thoroughly wiped dry.

NOTE: Remington Rem™ Oil ~~with DuPont Teflon Wax Lubricant~~ is available from your local dealer. If your dealer is out of stock, ask him to order Rem™ Oil from his Remington distributor.

TO CLEAN THE BARREL

WARNING: Check the chamber and magazine to make sure there are no cartridges in the firearm.

1. Use the equipment provided in a good cleaning kit. For recommendations, see your
2. Remove the bolt assembly. See instructions on Page 5.
3. Select the correct caliber cleaning brush and attach the brush to the cleaning rod.
4. Put the cleaning brush into the gun cleaning solvent.

   NOTE: Barrel should lay horizontally with the ejection port facing down during cleaning. Always clean the barrel from the chamber end to the muzzle.

5. Push the cleaning brush through the barrel several times.
6. Remove brush from rod, attach tip with patch, and push through the bore.
7. Repeat several times, using a new cleaning patch each time, until the patch is not dirty.
8. Push a clean patch saturated with Rem™ Oil through the barrel.
9. Push a clean dry patch through the barrel to remove excess lubricant.
10. Apply a thin coat of Rem™ Oil to the outside of the barrel with a soft clean cloth.
11. After cleaning the barrel, clean the receiver and the trigger assembly.

WARNING: This firearm should be checked periodically by the Remington Arms Company, Inc. or a REMINGTON RECOMMENDED GUNSMITH. This will insure proper inspection and any necessary replacement of worn or damaged parts.

Remington Authorized Gunsmith.

Remington products should be mentioned specifically in cleaning and lubrication.

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under adverse conditions.

TO CLEAN THE RECEIVER AND TRIGGER ASSEMBLY

TO CLEAN THE RECEIVER AND TRIGGER ASSEMBLY

1. Put safety switch to "S" position.
2. Remove the bolt assembly. See Instructions on Page 6.
3. Turn the rifle upside down.
4. Remove the screws from the trigger guard. See Picture 10.
5. Lift the stock away from the receiver and trigger assembly.

MODELS WITHOUT A FLOOR PLATE:
Remove the magazine spring and follower from the receiver.

NOTE: Clean the receiver and trigger assembly as a unit with Rem™ Oil.

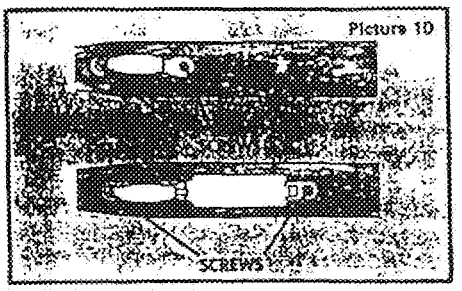
6. Spray the receiver and ~~the four pieces of~~ the trigger assembly with Rem™ Oil (see Picture 11). Let stand for 15 minutes. Spray again to wash off components. Shake off excess lubricant. Carefully inspect the trigger assembly to be sure it is clean and free of sticky lubricant and residue.

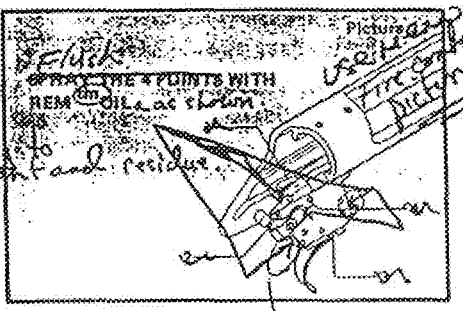
WARNING: Excessive use of a non-recommended lubricant could cause serious function problems possibly leading to accidental firing.

flush

as shown

Picture 10





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HOW TO ORDER PARTS AND SERVICE

There is no opening in these locations.

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TO ASSEMBLE THE MODELS WITHOUT A FLOOR PLATE

1. Put the magazine follower and the spring into the magazine.
2. Put the stock over the receiver and trigger assembly.
3. Replace and tighten the screws on the trigger guard.

WARNING: Before you replace the bolt assembly, make sure the barrel is free of obstructions.

4. Replace the bolt assembly. See Instruction on Page 5.

WARNING: After cleaning the trigger assembly, check the chamber and magazine to make sure there are no cartridges in the firearm. Put the safety switch in the "F" position. Close the bolt smartly. The firing pin must remain cocked. To check, pull the trigger. The firing pin must fall. Repeat the test at least ten times. If the firing pin will not remain cocked when the bolt is closed smartly, return the firearm to the factory, or a REMINGTON RECOMMENDED GUNSMITH.

TO ASSEMBLE THE MODELS WITH A FLOOR PLATE

1. Put the magazine all the way into the bottom of the receiver.
2. Assemble the trigger guard assembly on the stock.
3. Put the stock over the receiver and trigger assembly.
4. Replace and tighten the trigger guard screws.
5. Close the Floor Plate.

WARNING: Before you replace the bolt assembly, make sure the barrel is free of obstructions.

6. Replace the bolt assembly. See Instruction on Page 5.

WARNING: After cleaning the trigger assembly, check the chamber and magazine to make sure there are no cartridges in the firearm. Put the safety switch in the "F" position. Close the bolt smartly. The firing pin must remain cocked. To check, pull the trigger. The firing pin must fall. Repeat the test at least ten times. If the firing pin will not remain cocked when the bolt is closed smartly, return the firearm to the factory, or a REMINGTON RECOMMENDED GUNSMITH.

CLEANING FREQUENCY

1. Before and after long term storage [illegible] [illegible] than once or year.
2. If the rifle has been subjected to adverse conditions; such as, shooting in the rain, snow, sleet, or in salt water areas.
3. If the rifle is exposed to dirty conditions; such as, laying on the ground outdoors, dropped in mud, etc.

What was meant by smartly?

Is any further instruction required for models with DM?

Yes, if we choose to have DM in the manual.

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INSTRUCTIONS FOR CLEANING THE BOLT ASSEMBLY

TO DISASSEMBLE THE BOLT FOR CLEANING

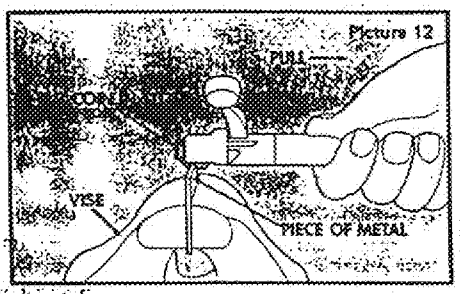
1. Remove the bolt assembly from the firearm. See Instruction on Page 5.
2. Put the notch on the firing pin head over a metal edge. Pull the bolt assembly away from the firing pin. Put a coin into the slot near the back edge of the firing pin head. See Picture 12.
3. Hold the bolt assembly and turn the bolt plug counter clockwise until the firing pin assembly can be removed from the bolt assembly.

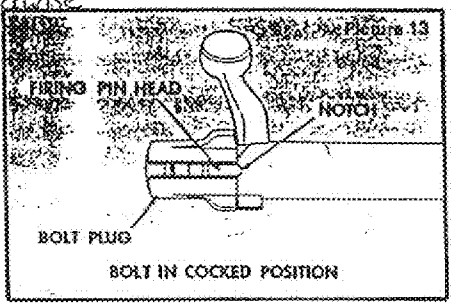
CAUTION: Clean the firing pin assembly as a unit.

4. Clean all parts with gun cleaning solvent. Dry with a clean cloth.
5. Apply a thin coat of Rem Oil.

TO ASSEMBLE

1. Put the firing pin assembly into the rear of the bolt assembly.
2. Tighten the bolt plug into the bolt assembly by turning with your hand.
3. Pull the coin from the slot in the firing pin head.
4. Turn the bolt plug until the firing pin head goes into the small notch on the rear rim of the bolt. The bolt is now cocked. See Picture 13.
   NOTE: The bolt must be cocked to be assembled into the rifle.
5. Assemble the bolt assembly into the rifle. See Instructions on Page 5.





BOLT IN COCKED POSITION

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HOW TO ORDER PARTS FROM THE REMINGTON FACTORY

TO ORDER PARTS
Arms Service - Parts (315) 895-7393

1. Use the picture on page 16 to find the correct part name and number.
2. Write the model and serial number of your firearm, and the part name and number on the parts order.
3. Send parts order to:
   Arms Service Division
   Remington Arms Company, Inc.
   Ilion, New York 13357
4. We can ship your order on a C.O.D. basis or provide an estimate of your required remittance.
   NOTE: Bolts, barrels, or receivers for centerfire rifles, pistols, and rimfire rifles are not sold separately. Repairs or replacements for these parts must be done by Remington Arms Company, Inc. Barrels and bolts for shotguns are available as parts.

WARNING: Use only Remington parts in Remington firearms.

TO ORDER FACTORY SERVICE:
Arms Service - Repairs (315) 895-7391 — 1-800-
Write a short description of the problem.

1. Give the model and serial number. Make a copy of this note. Attach the original note to the firearm, and put the copy in an envelope attached to the outside of the shipping box.
2. Make sure the gun is unloaded. Never include any ammunition in the package with the firearm.
3. Send by either United Parcel Service or Parcel Post. NOTE: Make sure the gun is unloaded, and there is no ammunition in the box.
4. Get insurance for the firearm.
5. Record serial number, it is required when calling factory to inquire if firearm has been received for repairs.
6. Send firearms for factory service to:
   Arms Service Division
   Remington Arms Company, Inc.
   Ilion, New York 13357

INSTRUCTION BOOKS:

To get instruction books for any Remington firearm, write to Remington Arms Co., Inc., Arms Service Division, Ilion, New York 13357. Give the model, serial number, gauge or caliber, or call toll free 1-800-

REMINGTON AUTHORIZED GUNSMITHS:

A listing is available from Remington Arms Company, write to Remington Arms Co., Inc., Arms Service Division, Ilion, New York 13357, or call toll free 1-800-

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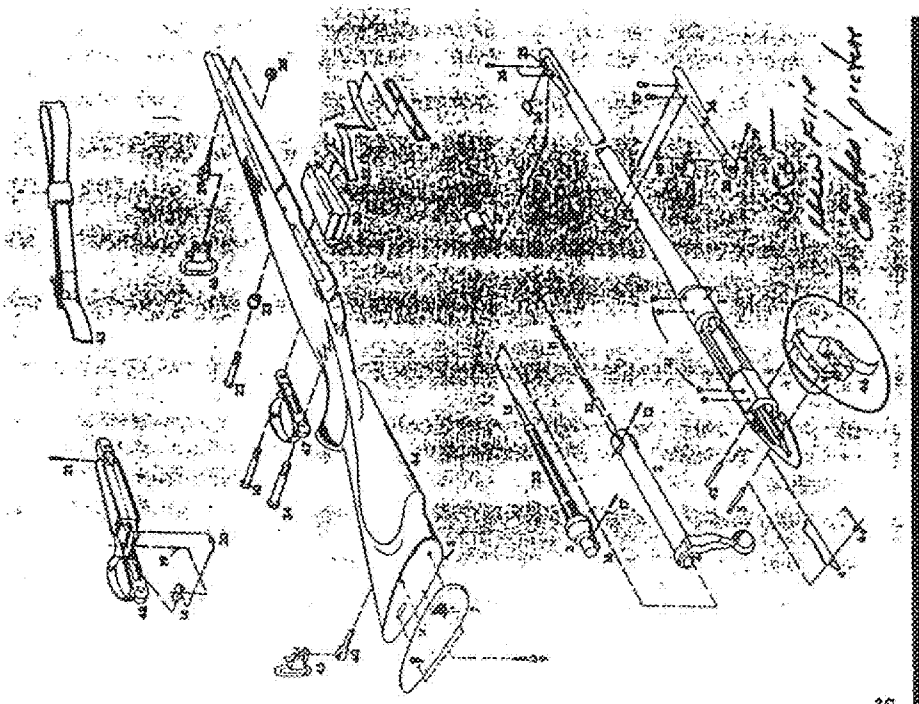
MODEL 700
Bolt Action Center Fire Rifle



HOW TO ORDER PARTS AND SERVICE

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MODEL 700 PARTS LIST

PARTS SUBJECT TO CHANGE WITHOUT NOTICE:
FOB Ilion, N.Y.

View No.	Part No.	NAME	View No.	Part No.	NAME
		NOTE: For 30-06 Caliber data, see below.		17017	Ejector Spring
				91816	Extractor
		Barrel Assembly	MB	22020	Firing Pin
2		Bolt Assembly	16	22043	Firing Pin Assembly, ADL Grade
		Bolt Final Assembly		22040	Firing Pin Assembly BDL Grade
3	92510	Bolt Plug ADL	17	17022	Firing Pin Cross Pin
4	17012	Bolt Plug BDL	18	15291	Floor Plate Latch, BDL Grade
5	17013	Bolt Stop (Restricted)	19	16451	Floor Plate Latch Pin, BDL Grade
6	24475	Bolt Stop Pin (Restricted)	20	16452	Floor Plate Latch Spring, BDL Grade
8	15224	Bolt Stop Spring (Restricted)	21	16453	Floor Plate Pivot Pin, BDL Grade
7	90953	Butt Plate	22	22035	Front Guard Screw
8	90954	Butt Plate Spacer BDL Grade	23	15161	Front Guard Screw Bushing, ADL Grade
9	25380	Butt Plate Screw	24	16373	Front Sight
10	15287	Center Guard Screw ADL Grade		15719	Front Sight (Low)
11	17017	Ejector	25	28510	Front Sight Ramp
12	17676	Ejector Pin		15635	Front Sight Ramp, BDL Grade
17			26	28505	Front Sight Ramp Screw

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View No.	Part No.	NAME
27	15363	Front Sight Hood, BDL Grade
29	15358	Front Swivel Screw
	90957	Grip Cap, BDL Grade (not shown)
	29380	Grip Cap Screw
	90958	Grip Cap Spacer, BDL Grade (not shown)
30	15284	Magazine, ADL Grade
	16430	Magazine, BDL Grade (not shown)
31	92492	Magazine Follower, ADL
	91017	Magazine Follower, BDL
	15940	Magazine Tab Screw, ADL Grade
32	17028	Magazine Spring
	16677	Magazine Spring, BDL Grade
33	17029	Main Spring
34	26365	Rear Guard Screw
35	32510	Rear Sight Aperture
	32524	Rear Sight Assembly
36	91595	Rear Sight Base

View No.	Part No.	NAME
37	29505	Rear Sight Base Screw (2)
38	90905	Rear Sight Slide
39	90906	Elevation Screw
40	15358	Rear Swivel Screw
41	17034	Receiver Plug Screw
42	24476	Stor Pin (Restricted)
43	30855	Sling Strap Assembly, BDL Grade
	26990	Sling Strap Assembly & Mountings Comp
44	100021	Stock Assembly, ADL Grade
	33371	Stock Assembly, BDL Grade
	18156	Stock Reinforcing Screw (not shown)
	16970	Stock Reinforcing Screw Dowel (not shown)
45	26555	Swivel Assembly, BDL Grade (Q.D.)
	26990	Sling Strap Assembly & Mountings Comp
46	26345	Trigger Assembly (Restricted)
47	15281	Trigger Guard 18

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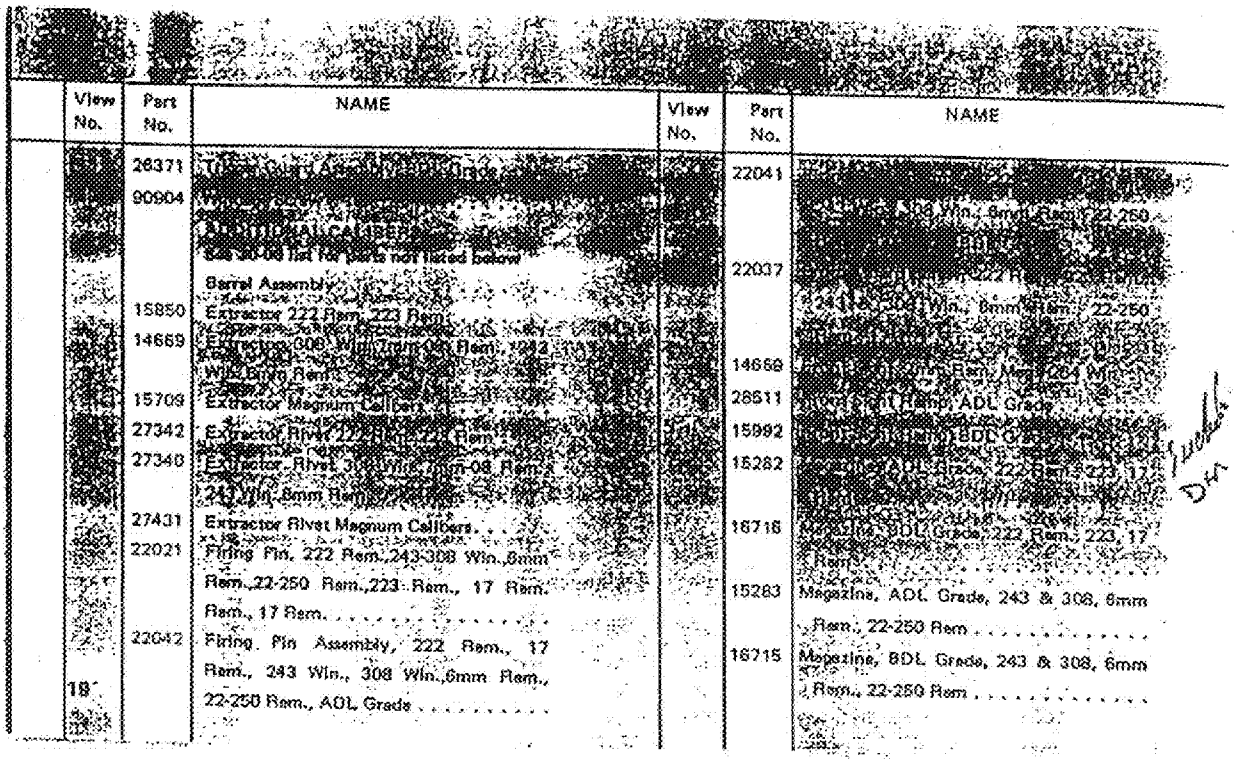

View No.	Part No.	NAME
[illegible]	26371	[illegible]
	90904	[illegible]
		[illegible]
		See all-06 list for parts not listed below
		Barrel Assembly, [illegible]
	15850	Extractor 222 Rem, 223 Rem
	14669	Extractor 308 Win 7mm-08 Rem, 243 Win, 6mm Rem
	15709	Extractor Magnum Calibers
	27342	Extractor Rivet 222 Rem, 223 Rem
	27340	Extractor Rivet 308 Win, 7mm-08 Rem, 243 Win, 6mm Rem
	27431	Extractor Rivet Magnum Calibers
	22021	Firing Pin, 222 Rem, 243-308 Win, 6mm Rem, 22-250 Rem, 223 Rem, 17 Rem. Rem., 17 Rem.
	22042	Firing Pin Assembly, 222 Rem., 17 Rem., 243 Win., 308 Win., 6mm Rem., 22-250 Rem., ADL Grade
18		

View No.	Part No.	NAME
[illegible]	22041	[illegible]
		[illegible] 308 Win., 6mm Rem., 22-250 [illegible]
	22037	[illegible]
		[illegible] 243 Win., 6mm Rem., 22-250 [illegible]
	14669	[illegible] Rem., Mag. 264 Win
	28611	[illegible] Rem., ADL Grade
	15992	[illegible] BDL Grade
	15282	[illegible] ADL Grade, 222 Rem., 223 [illegible]
	16718	[illegible] BDL Grade, 222 Rem., 223, 17 Rem.
	15283	Magazine, ADL Grade, 243 & 308, 6mm Rem., 22-250 Rem
	16715	Magazine, BDL Grade, 243 & 308, 6mm Rem., 22-250 Rem

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View No.	Part No.	NAME
	92508	Magazine Follower, 222 ADL
	90951	Magazine Follower, 223, BDL
	92455	Magazine Follower, 243, 308, 6mm, 22-250 ADL
	90982	Magazine Follower, 243 & 308 Win., 6mm Rem., 22-250 Rem., BDL
	90951	Magazine Follower, 223, 17 Rem., BDL
	91017	Magazine Follower, 270, 25-06, 30-06 (BDL Grade)
	90952	Magazine Follower, 6mm Rem. Mag., BDL Grade
	15286	Magazine Spacer, 222 Rem., BDL Grade
	15742	Magazine Spacer, 222 Rem., ADL Grade
	15286	Magazine Spacer, 223 Rem., BDL Grade, 17 Rem.
	91133	Magazine Spring, 222 Rem., 223 Rem., 17 Rem.

View No.	Part No.	NAME
	17891	Magazine Spring, 243 & 308 Win., 6mm
	15698	Magazine Spring, 22-250 Rem., 6mm
	17068	[illegible] 223 Rem., 308
	90949	[illegible] Mag., 243 & 308 Win., 6mm Rem., Mag., 22-250 Rem., BDL
	25410	Recoil Pad Screw, 7mm Rem. Mag., 264 & 300 Win., 6mm Rem. Mag., 338
	100022	Stock Assembly, 7mm Rem. Mag., ADL Grade
	100020	Stock Assembly, 222 Rem., 243 Win., 308 Win., 6mm Rem., 22-250 Rem., ADL Grade
	33365	Stock Assembly, 222 Rem., 243 Win., 308 Win., 6mm Rem., 22-250 Rem., ADL Grade 20

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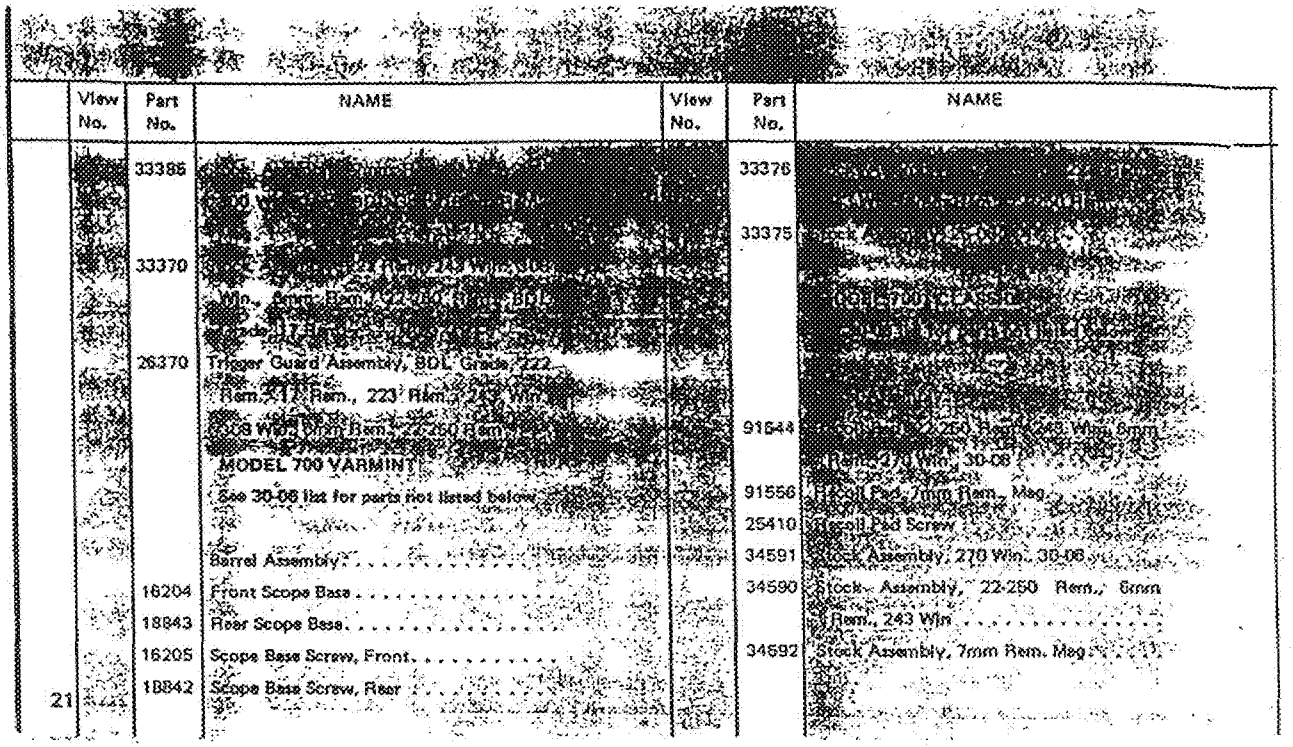

	View No.	Part No.	NAME
		33385	[illegible]
			[illegible]
			[illegible]
		33370	[illegible]
			[illegible]
			[illegible]
		26370	Trigger Guard Assembly, BDL Grade, 222, Rem., 17 Rem., 223 Rem., 243 Win., [illegible]
			[illegible]
			MODEL 700 VARMINT
			See 30-06 list for parts not listed below.
			Barrel Assembly . . . . .
		16204	Front Scope Base . . . . .
		18843	Rear Scope Base . . . . .
		16205	Scope Base Screw, Front . . . . .
21		18842	Scope Base Screw, Rear . . . . .

View No.	Part No.	NAME
	33376	[illegible]
		[illegible]
	33375	[illegible]
		[illegible]
		[illegible]
		[illegible]
		[illegible]
	91644	[illegible] 22-250 Rem., 6mm Rem., 243 Win., 6mm Rem., 270 Win., 30-06
	91556	Recoil Pad, 7mm Rem. Mag.
	25410	Recoil Pad Screw
	34591	Stock Assembly, 270 Win., 30-06
	34590	Stock Assembly, 22-250 Rem., 6mm Rem., 243 Win. . . . .
	34592	Stock Assembly, 7mm Rem. Mag.

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Williams v. Remington

[redacted]

View No.	Part No.	NAME
		MODEL 700 MOUNTAIN RIFLE
		See 30-06 SDL for parts not listed
	92510	[redacted]
	22043	[redacted]
	92755	[redacted]
	92762	Recoil Pad
	35418	Recoil Pad Screw
	100565	Stock Assembly
		MODEL 700 POLICE
		See 30-06 list for parts not listed below.
		Barrel Assembly
		Bolt Assembly
	93785	Bolt Plug
	15287	Center Guard Screw
	22044	Firing Pin Assembly
	22037	Front Guard Screw
	93353	Magazine Follower 223
	93120	Magazine Follower 308
	91133	Magazine Spring 223
	17891	Magazine Spring 308
	102820	Stock Assembly
	92829	Trigger Guard

View No.	Part No.	NAME
		MODEL 700 LEFT HAND
		See 30-06 list for parts not listed below.
		[redacted]
	90884	[redacted] (Restricted)
	90962	Magazine Follower 22-250, 243 & 308
	90952	Magazine Follower 7mm
	15899	Magazine Spring 22-250
	17891	Magazine Spring 243 308
	33390	Stock Assembly 22-250, 243, 308
	33391	Stock Assembly 7mm
	33395	Stock Assembly Magnum
	32905	Trigger Housing Assembly (Restricted)

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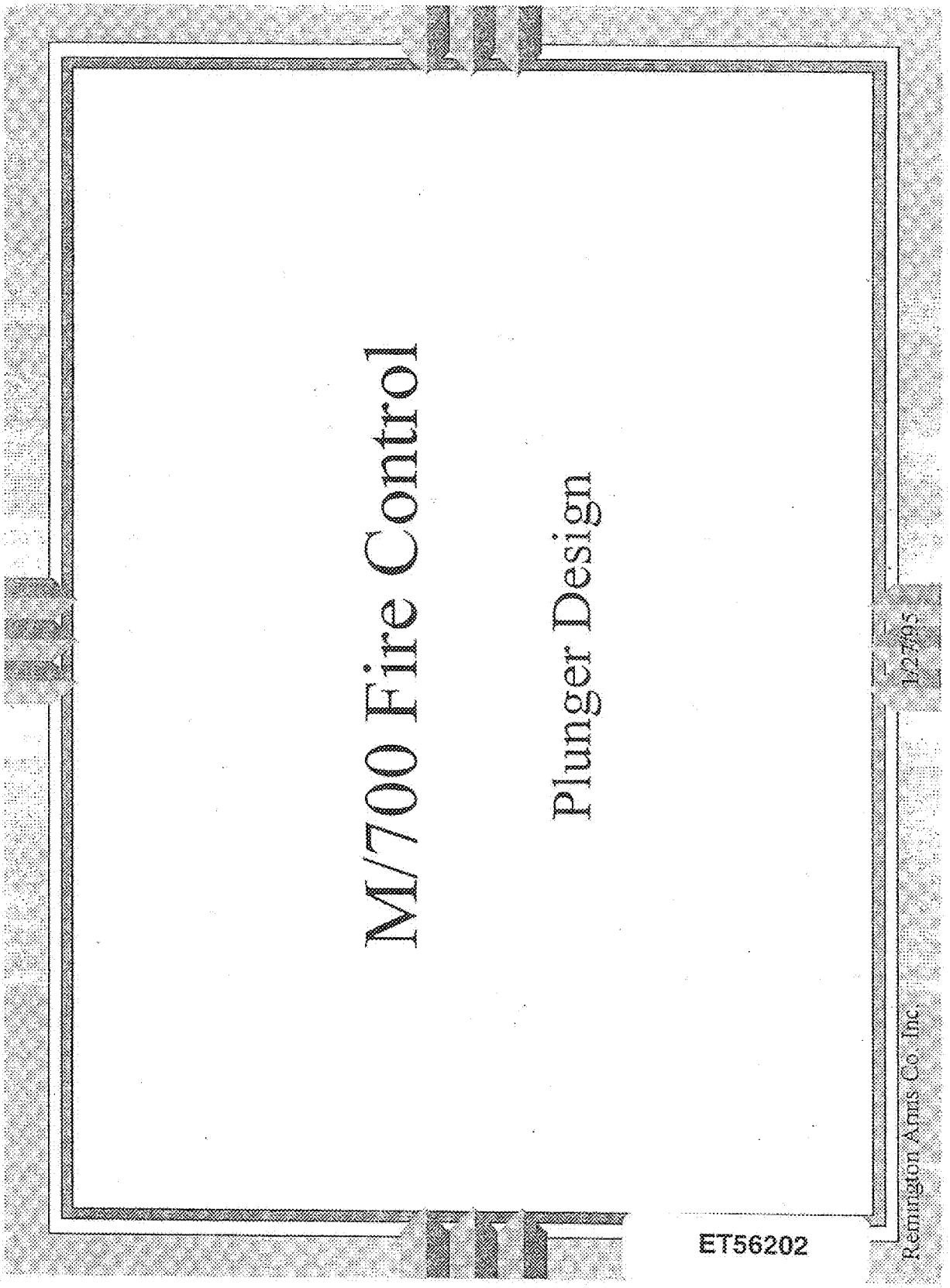

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Williams v. Remington

BARBER - 2.4.13000597

Problem:

- Trigger block plunger binds in trigger assembly.

Cause:

- Assembly method located off trigger block plunger and the sear was forced down against the trigger while drilling the trigger pivot hole.

Solution:

- Alter assembly method to locate off trigger block plunger hole with a max. diameter + .0005" pin.

ET56203

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Barber v. Remington
BARBER - 2.4.13000597

Problem:

- Trigger shoe out of position.

Cause:

- In the process of balancing the trigger the engagement surface moved out of position by .020" in the horizontal direction and .005" out of position in the vertical position.

Solution:

- Re-balance trigger with proper engagement.

ET56204

Confidential - Subject to Protective Order

BARBER - 2.4.13000598

BARBER - 2.4.13000599

Problem:

- Hard safe "on" forces

Cause:

- Original assembly method allowed for sear to drop too low causing the radii on the sear and safety to interlock.

Solution:

- New assembly method eliminates sear being forced too far down during assembly thereby eliminating interlocking radii on sear and safety.

ET56205

Confidential - Subject
BARBER - 2.4.13000599
Williams v. Remmington

Problem:

- Safety does not force trigger engagement.

Cause:

- Safety arm flexes outward and rides over the trigger block plunger instead of forcing the trigger block plunger into the mating hole in the trigger.

Solution:

- Added a safety strap to prevent the safety arm from flexing outward.

ET56206

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BARBER - 2.4.13000600

BARBER - 2.4.13000601

Problem:

- Safety can be removed in the field with no evidence thereby allowing removal of trigger block plunger and spring.

Cause:

- Current design uses current M/700 safety components which can be romoved easily.

Solution:

- Design a new safety retaining clip which is unable to remove without being destroyed.

ET56207

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BARBER - 2.4.13000601

BARBER - 2.4.13000602

Recommendations

- Make both side plates from the same die thus eliminating tolerance variances between side plates.
- Tighten surface finish specification and diameter tolerance on trigger block plunger.
- Demagnitize trigger block plunger and trigger.

ET56208

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Williams v. Remington
BARBER - 2.4.13000602

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BARBER - 2.4.1300060 5

Deer season opens with surprising bang

No, I haven't shot a deer yet. But I did shoot something even bigger opening morning.

I shot my truck.

Jim Ramberg

Capital-Journal outdoor writer

It was bone-chilling cold on the prairie Wednesday morning. I'd parted in a pasture before dawn and my deer hunting buddies and I split up to hunt separate draws.

Shortly after 8 a.m. I began to think how wonderful a hot cup of coffee would taste and went back to the truck. I leaned my rifle, a Remington 700 in .270 caliber, on the passenger seat with the barrel pointing down toward the floorboard.

The coffee tasted as great as I thought it would. I smoked a cigarette. Watched some crows. Looked through the binoculars. About 100 yards away I saw one of my partners come out of the draw. It he's as cold as I was, I thought, I bet he'd appreciate a ride.

Now, we have an iron-clad rule. We don't ride around hampy pastures with loaded guns, even if they are on safety.

Accidents happen that way.

I REACHED OVER, flicked the safety to the "fire" position. To those who have a limited knowledge of rifles, it is necessary to do this in order to release the bolt action and extract the shell from the chamber of the rifle.

Nothing happened when I moved the safety to "fire." However, when I flicked the bolt up to jack the shell out, the rifle went off with a terrible roar in that enclosed space.

I got out, my ears ringing (they're still ringing as a matter of fact), my hands shaking, aware of a loud hissing sound coming from the truck.

The round went through the floorboard and came out, creating a jagged hole, through the right tire well. En route, it apparently hit part of the air conditioning system. The hissing sound was Freon gas escaping.

As well as shooting my truck, I had added to the snow layer problem.

At first I was embarrassed. Then I got shook. The round could easily have ricocheted around the cab.

Then I got curious.

I WENT THROUGH the sequence of events and was 100 percent positive I hadn't touched the trigger.

Gene Lawver, a gunsmith and owner of the High Plains Gunshop out on I-70, had an explanation.

"There's a couple ways it could have happened," he said. "Probably the oil in the sear had congealed from the cold. The firing pin in the bolt was partially engaged. As soon as you lifted the bolt, it fired.

"Or there could have been some dirt or a weed seed in the trigger itself that set up the discharge."

Lawver had a few stories himself. "I knew three guys that went out to Colorado," he said. "One was shooting a .300 Weatherby and it discharged in the cab much like yours did. It blew out all the windows, went through the floorboard, ricocheted off the road back into the steering column. Those boys were deaf for days but they weren't hurt. You have to respect guns."

BUT I ALWAYS KNEW that. Years ago, I'd seen a Remington 1100 shotgun go crazy. The guy shooting put four rounds in the magazine. When he slipped a round in the chamber the gun fired all five rounds off. The firing pin had somehow stuck in the fire position. Luckily, he had the gun pointed away from us.

Will Coakley, who runs Coakley Farms, a shooting preserve and sporting clays operation northwest of Topeka, is around guns on a daily basis.

"I've seen plenty of guns malfunction," he said. "Sometimes it's bad ammo, sometimes a weak firing pin. I've seen guns where you pull the trigger and the gun fires a second time all by itself.

"The key is muzzle control. You always want to point the gun in a safe direction."

I've always considered myself a safe, careful hunter.

I've got a hole in my truck the air conditioner is down, my ears ring. The only good to come of the whole affair is that I'm now an even more safe, more careful hunter.

ET56209

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BARBER - 2.4.1300060 5

PAGE BREAK

TO : DOUG DIKE
FROM : DAVID S. FLOYD
DATE : 12/14/14
SUBJECT : LBAR FIRECONTROL

UNLESS A DESIGN REVIEW MEETING IS SCHEDULED FOR TOMORROW HERE ARE SOME THINGS THAT SHOULD BE BROUGHT UP, THAT I THINK SHOULD CHANGE

✓ 1. THE SAFETY MOTION SHOULD BE CHANGED AS WELL AS SAFETY LOCATION

2. THE FIRECONTROL SHOULD BE CLOSED NOT OPEN SIDE PLATES

.030 not relevant 3. THE TRIGGER IS NOT BALANCED WELL ENOUGH; IT IS opinion BETTER THAN THE M700 BUT NOT PERFECTLY BALANCED (WITHIN .020")

Doesn't use investment casting 4. THE TRIGGER MATERIAL SHOULD BE STAINLESS STEEL NOT MIM (SEAR AS WELL)

① Wing X 5. THERE SHOULD BE A
② not interested Bronwells BOLT LOCK TO BE COMPATIBLE
③ Retro Littlebe bolt lock / Ultra Arms WITH RIFLES CURRENTLY AVAILABLE

ET56210

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6. THE TRIGGER NEEDS TO BE POSITIVELY MOVED TO THE ENGAGED POSITION UNDER THE SEAR TO ENSURE FULL ENGAGEMENT WITH THE SEAR (NO-GO BINDS FIRECONTROL WHEN ALLOWED TO SIT)

jSmooth edges
jKnife edges
safety cam tripper
full engagement

7. THE FIRECONTROL MOUNTING PINS MUST BE ENCLOSED IN THE FIRECONTROL SO THAT ASSEMBLY DOES NOT EFFECT THE MECHANISM

ET56211

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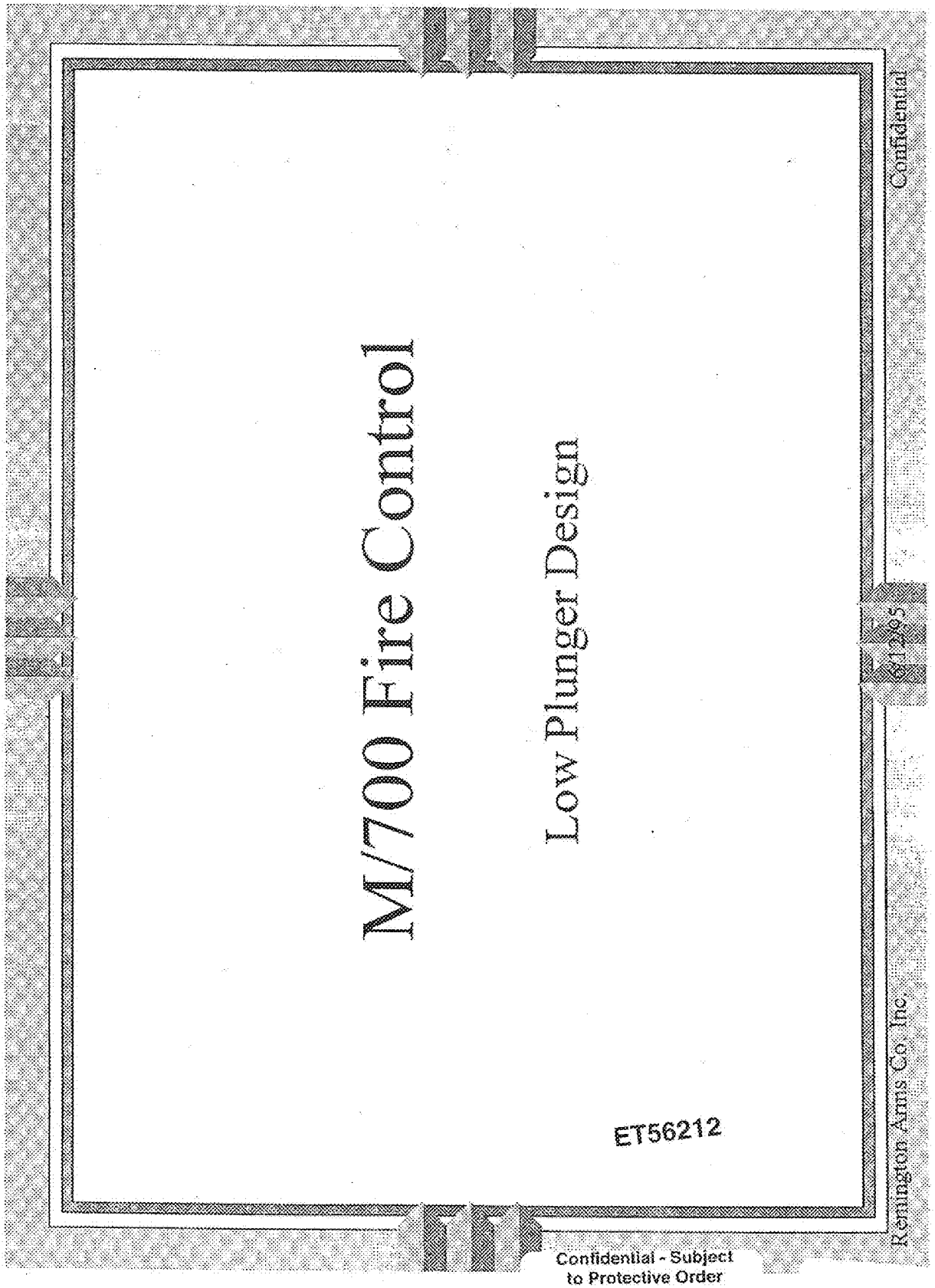
PAGE BREAK


M/700 Fire Control
Low Plunger Design
ET56212
Confidential
6d1265
Remington Arms Co. Inc.
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to Protective Order
Williams v. Remmington

Current Prototype Status

- Components for twenty-four assemblies were manufactured and delivered 2/10/95.
- Critical dimensions for each component were measured and logged prior to and after heat treat.
- Assembled five soft assemblies on 2/16/95. All five assemblies functioned normally and four of the five assemblies passed the bind test.
- Three soft triggers were drilled prior to final assembly. Two of the three assemblies passed the bind test. These assemblies had .019" and .016" preplay. The remaining assembly had .023" preplay
- Components for fifteen assemblies were heat treated.
- Eight hardened component sets wereassembled per predescribed procedure on 2/18/95. All assemblies bound and would not fire.
- One hardened trigger was drilled prior to final assembly and functioned. However, there was .011" of preplay.
- Dimensional review of all trigger assemblies in process, to be completed by Monday 2/27/95

ET56213

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Williams v. Remington BARBER - 2.4.13000611

BARBER - 2.4.13000611

Current Design Status

Left and Right Side Plates have been redesigned to be manufactured from the same blank.

A new safety snap washer designed to eliminate removal in the field without destroying washer.

A complete drawing package for the plunger design completed on 2/10/95.

A drilling fixture was designed, manufactured, and delivered 2/15/95.

ET56214

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Williams v. Remington BARBER - 2.4.13000612

BARBER - 2.4.13000612

BARBER - 2.4.13000613

Problem:

- Trigger block plunger binds in hardened trigger assemblies, causing trigger binding and hard safety forces.

Cause:

- Assembly process does not simulate bolt and firing pin forces and therefore does not consistently position trigger.

Solution:

- Redesign drill fixture to incorporate bolt assembly. Increase locating pin to max diameter plunger + .001"

ET56215

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BARBER - 2.4.13000613

BARBER - 2.4.13000614

Problem:

- Soft parts work and hard parts do not.

Cause:

- Unknown at this time. Suspect that case hardness adversly affects drill and trigger movement in side plates.

Solution:

- Modify drilling process to only start center drill with trigger in side plates

ET56216

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BARBER - 2.4.13000614

Action Item List

Description	Status	Responsible	Date
1. Redesign drill fixture to incorporate bolt assembly	Redesign complete. Drawings currently with tool maker	Ronkainen / Norton / Humphreys	complete
2. Complete design of reaming fixture	Design complete. Drawings currently with tool maker.	Norton	complete
3. Build of both fixtures	Drawings at Kellems & Coe	Kellems & Coe	2/24/95
4. Build new plunger locating pin.	Drawings at Kellems & Coe	Kellems & Coe	2/24/95
5. Analyze inspection data	In process	Ford	2/27/95
6. Measure engagement and preplay on soft assemblies	Will perform at Kellems & Coe	Team	2/24/95
7. Assemble remaining hardened trigger assemblies	Scheduled with Kellems & Coe	Team	2/24/95

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BARBER - 2.4.13000615
BARBER - 2.4.13000615

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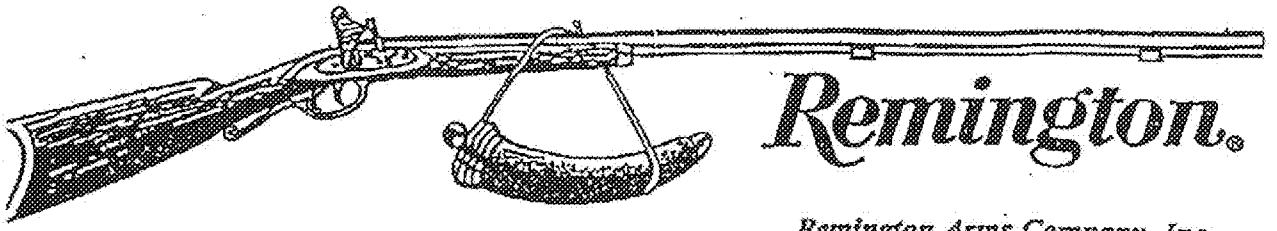
12/27/94 11:32 [illegible] 001



Remington.

Remington Arms Company, Inc.
Firearms Technical Division
Ilion, New York – 13357
Fax (315) 895-3670
Tel. (315) 895-3200

DATE: 12-27-94 TIME: 11:48

TO: Tony Hancock, Jim Snedeker, Fred Martin

_____ (BLDG./ROOM NO.)

_____ (PHONE)

Danny F4, L 7M

FROM: Jim Hennings

_____ (BLDG./ROOM NO.)

_____ (PHONE)

TOTAL NUMBER OF PAGES, INCLUDING THIS SHEET: 3

RECEIPT VERIFICATION CALL REQUIRED? (~~YES~~/NO)

COMMENTS: Here it update #3.
I am on ½ days this week
so will be gone @ 2 P.M.
Home # 315-866-0498

The information contained in this FAX is confidential and/or privileged. This Fax is intended to be reviewed initially by only the individual named above. If the reader of this Transmittal Page is not the intended recipient or a representive, you are hereby notified that any review, dissemination or copying of this FAX or the information contained herein is prohibited. If you have received this FAX in error, please immediately notify the sender by telephone and return this FAX to the sender at the above address. Thank you.

ET56218

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12/27/94 11:33 ☎ 002

TEST AND MEASUREMENTS LAB

DECEMBER 27, 1994

MODEL 700 FIRE CONTROL TEST PROGRAM

UPDATE # 3

TO: R. J. ORF
FROM: J. H. HENNINGS

XC: E. G. RENSI
D. L. THOMPSON
R. A. JACKSON
T. A. HANCOCK
F. E. MARTIN
J. R. SNEDEKER

* Test program under way on CONTROL SAMPLES. A total of 46 samples at 10,000 cycles. Fifteen (15) samples selected to continue to 20,000 cycles.

* Three (3) Dry Cycle machines in operation. When the additional parts ordered are received, the fourth machine will be constructed.

* Special drop test frame and fixtures has been located. Also have the modified actions and stocks to fit the fixture. The fixture is being set up for testing. Video results from previous tests being copied for "E" Town shipment. High Speed Camera system ready for use. New 16mm color film ordered. Impact Media yet to be determined and obtained.

* Cables have been installed for the Pendulum Drop Test Area. Attachment collars and snaps have to be made and tested. Maple Plank and SAAMI Rubber Mat media ready for use.

* Revised Test Lab work schedule underway. The week of Dec. 27 will have some people out at various times because of vacation time, but this will not affect program dramatically.

The week between Christmas and New Years will be a 14 hour Test Day with all phases of the program covered.

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After the first of the year the Test Day extends to 22 hours per day with all phases of the program covered.
Weekends; the Majority of the men would rather work extra during the week and have the weekends off but several are willing to work Saturdays as well. There are several people out in Plant Production Area more than qualified to assist and willing to work week ends if requested. A list is being prepared.

* Procedures being established for Environmental and Debris Tests.

* Lock Time measurements completed on control samples with results within Design parameters.

* SAAMI Drop Tests completed on Control Samples with acceptable results.

ET56220

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William [illegible]

PAGE BREAK

SENT BY: 1-26-95 ;11:02AM ; KINKO'S PLEASANTON→ 5027379576;# 1/ 2

FAX COVER SHEET

FAX Number (502) 737-9576

To: Donny Diaz Phone (502) 769-3418

From: Don Rolph Phone (510) 846-0102

Pages (including this half sheet): _____

kinko's®
the copy center

Kinko's Pleasanton
6070 Johnson Drive
Pleasanton, CA 94588
Phone: (510) 416-0494
FAX: (510) 416-0523

NOTES: _____

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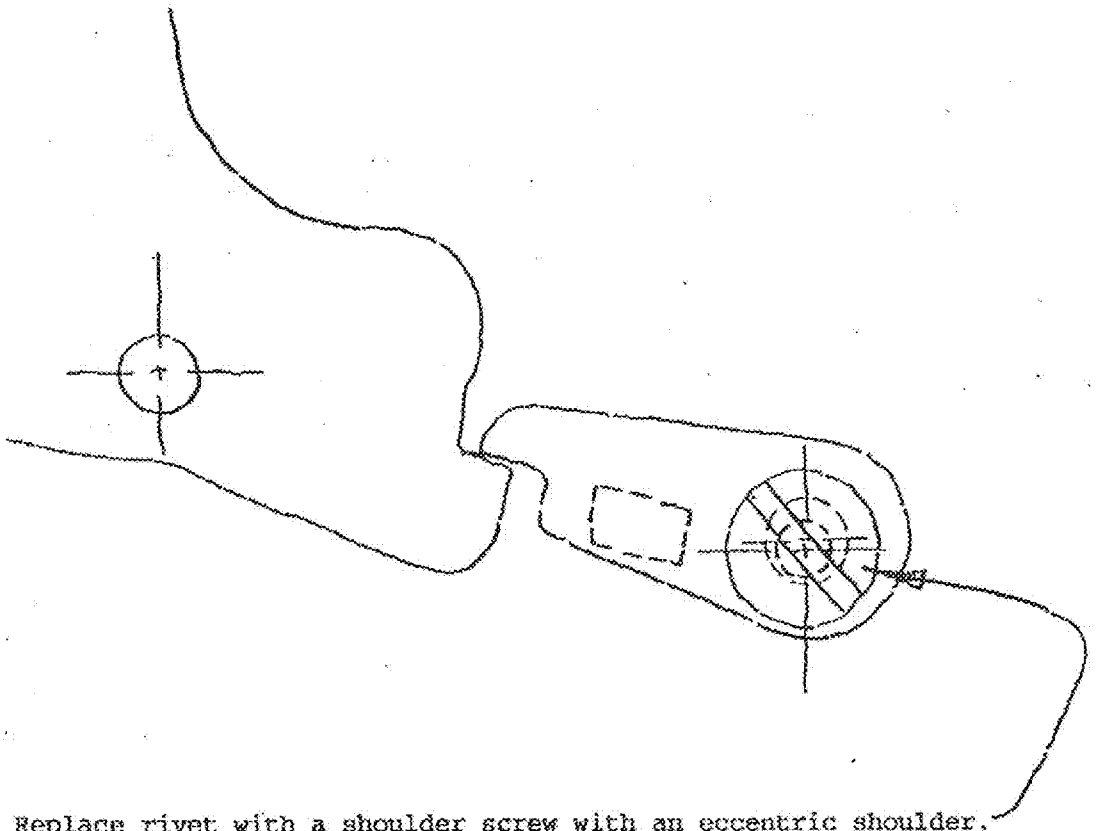
Danny: Here is an easy way to get an adjustment which might allow you to use the lock pawl idea with the current fire control design.



Replace rivet with a shoulder screw with an eccentric shoulder. Loctite the nut on the other side.

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Dan Rolph
Jan 28, 1995

PAGE BREAK

Dan W

DRAFT

NEW FIRE CONTROL - TEST PROGRAM

ENVIRONMENTAL TESTING:

GENERAL:

THE FOLLOWING SERIES OF ENVIRONMENTAL TESTS WILL BE INCLUDED IN THE TEST PROGRAM FOLLOWING THE COMPLETION OF DRY CYCLE, MEASUREMENTS, DROP TESTING AND LIVE FIRE TESTING.

-HOT AND COLD TESTING

-"DIRT", "DEBRIS" AND WET TYPES OF TESTING

-"BAKED-ON" LUBRICATION TESTING USING THE FOLLOWING "LUBRICANTS/SOLVENTS":

WD-40
HOPPE'S OIL
REM OIL
SHOOTER'S CHOICE
REMINGTON WONDER LUBE

FOR THE ABOVE SPECIFIED TESTS, THREE OF EACH OF THREE TYPES OF FIRE CONTROLS WILL BE TESTED. OF THE NEW DESIGN FIRE CONTROL, THREE OF THE "SKELETONIZED" SIDE PLATE VERSIONS AND THREE OF THE NON-SKELETONIZED SIDE PLATE VERSIONS WILL BE CHOSEN AT RANDOM FOR THE SERIES OF ENVIRONMENTAL TESTS. IN ADDITION, THREE OF THE TEST PROGRAM "CONTROLS" (THE CURRENT M/700 FIRE CONTROLS) THAT HAVE COMPLETED THE 50,000 DRY CYCLES, DROP TESTING, MEASUREMENTS AND LIVE FIRE TESTING WILL BE INCLUDED IN THE TEST PROGRAM FOR COMPARISON PURPOSES.

ET56223

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01/23/1995 06:38 3158953578 REMINGTON ARMS CO PAGE 02

COLD TESTING:

60 ROUNDS OF AMMUNITION APPROPRIATE TO THE CALIBER OF THE ASSEMBLED ACTIONS WILL BE SELECTED AND ASSIGNED TO BE SHOT IN EACH OF THE TEST RIFLES. THE 60 ROUNDS PER RIFLE SHOULD ALL BE FROM THE SAME MANUFACTURER AND SHOULD BE OF THE SAME LOT NUMBER.

EACH OF THE NINE FIRE CONTROLS TO BE USED FOR THE TEST WILL BE COMPLETELY CLEANED IN THE SOLVENT TANK (TO REMOVE THE ANY VARIABLE AMOUNTS OF OLD LUBRICANT,ETC.), AIR DRIED AND THEN LUBRICATED PER THE OWNERS MANUAL USING REM OIL.

THE NINE FIRE CONTROLS SELECTED FOR THE ENVIRONMENTAL TESTING PROGRAM WILL BE ASSEMBLED INTO NINE ACTIONS. ASSEMBLY CLEARANCES WILL BE CHECKED FOR EACH RIFLE ASSEMBLED.

EACH OF THE NINE ACTIONS WILL THEN BE LIVE FIRE FUNCTION TESTED WITH 20 ROUNDS OF THE SELECTED AMMUNITION TO ASSURE THAT THE ACTION WILL FUNCTION AS INTENDED IN AN AMBIENT TEMPERATURE ENVIRONMENT. TO PASS THIS TEST EACH RIFLE MUST FUNCTION WITHOUT THE OCCURRENCE OF ANY RECOGNIZED MALFUNCTION FOR ALL TWENTY ROUNDS. IF ANY RIFLE FAILS THIS TWENTY ROUND TEST EITHER THE ACTION OR FIRECONTROL WILL BE REPLACED UNTIL AN ACTION/FIRE CONTROL COMBINATION PASSES THIS TWENTY ROUND MALFUNCTION FREE CRITERION.

IF EACH RIFLE PASSES THIS AMBIENT TEMPERATURE FUNCTION TEST THEN ALL NINE RIFLES WITH FIRECONTROLS ATTACHED WILL BE PLACED IN THE FREEZER IN THE TEST LAB AREA AND CONDITIONED TO A TEMPERATURE OF -40°F. AND HELD IN THE FREEZER FOR AT LEAST 24 HOURS.

AT THE END OF THE 24 HOUR CONDITIONING PERIOD THE FREEZER LID WILL BE OPENED AND ONE RIFLE WILL BE REMOVED FROM THE FREEZER, THE LID OF THE FREEZER CLOSED IMMEDIATELY AND A SIGN WILL BE ATTACHED TO THE FREEZER NOTING THE TIME THE FREEZER LID WAS CLOSED. THE RIFLE WILL BE TAKEN TO THE LIVE FIRE TEST BOOTH AND IMMEDIATELY SHOT TWENTY ROUNDS USING THE AMMUNITION FROM THE LOT SELECTED FOR THAT PARTICULAR RIFLE. ANY MALFUNCTIONS THAT OCCUR WILL BE NOTED AND RECORDED.

IF THE FREEZER LID HAS BEEN CLOSED FOR A MINIMUM OF ½ HOUR THEN THE NEXT RIFLE MAY BE SELECTED FROM WITHIN THE FREEZER AND THE TEST PERFORMED ON THE SECOND SAMPLE, AGAIN NOTING ON A SIGN THE TIME THE FREEZER LID WAS CLOSED.

ALL NINE SAMPLES WILL BE TESTED USING THIS METHOD WITH EACH RIFLE BEING PUT ASIDE FOR THE HOT TESTING.

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HOT TEST:

AFTER COMPLETION OF THE COLD TESTING, ALL NINE RIFLES WILL BE PLACED IN THE TALL OVEN LOCATED IN THE TEST LAB AREA. THE TEMPERATURE WILL BE BROUGHT TO 150° F. AND THE RIFLES CONDITIONED AT THIS TEMPERATURE FOR A PERIOD OF AT LEAST 24 HOURS.

EACH TEST RIFLE WILL BE SELECTED, ONE AT A TIME FROM THE OVEN (AND A SIGN NOTING THE TIME THE OVEN DOOR WAS CLOSED WILL BE ATTACHED TO THE OVEN) AND IMMEDIATELY TAKEN TO THE TEST BOOTH AREA AND SHOT WITH TWENTY ROUNDS OF THE REMAINING AMMUNITION DESIGNATED FOR THAT RIFLE. ANY MALFUNCTIONS WILL BE NOTED AND RECORDED.

THE OVEN DOOR MUST REMAIN CLOSED FOR A MINIMUM OF ½ HOUR BETWEEN SELECTIONS OF TEST RIFLES TO ASSURE MAINTENANCE OF THE TEST TEMPERATURE FOR EACH OF THE TEST RIFLES.

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"DIRT - DEBRIS - WET" TESTING:

THIS TESTING WILL BE DONE ON THE NINE SAMPLE RIFLES AT H.P.WHITE LABORATORY, INC. PER MILITARY TEST PROCEDURE TOP-3-2-045 (AS MODIFIED FOR A BOLT ACTION RIFLE.)

SEE ATTACHED PROCEDURE AND ESTIMATE OF TEST TIME AND COSTS.

ET56226

01/23/1995 06:38 3158953678 REMINGTON ARMS CO PAGE 85

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"BAKED-ON" LUBRICATION/SOLVENT TESTING:

AFTER RETURN FROM H.P.WHITE THE NINE RIFLES WILL BE COMPLETELY CLEANED AND RE-CHECKED FOR FUNCTION.

FOR THIS TEST 400 ROUNDS OF AMMUNITION WILL BE SELECTED FOR USE WITH EACH TEST RIFLE. THE AMMUNITION SHOULD BE FROM THE SAME MANUFACTURER AND FROM THE SAME LOT NUMBER IF POSSIBLE.

THE FIRE CONTROLS WILL BE COMPLETELY CLEANED IN THE SOLVENT TANK, LUBRICATED PER THE OWNER'S MANUAL USING EACH OF THE FOLLOWING LUBRICANTS/SOLVENTS IN THE ORDER LISTED.

1. REM OIL
2. REMINGTON WONDER LUBE
3. WD-40
4. HOPPE'S OIL
5. SHOOTER'S CHOICE

AFTER BEING CLEANED AND DRIED THE FIRST LUBRICANT WILL BE APPLIED TO THE FIRE CONTROL USING THE PROCEDURE OUTLINED IN THE OWNER'S MANUAL.

EACH TEST RIFLE WILL BE SHOT USING 20 ROUNDS OF THE SELECTED AMMUNITION AND ANY MALFUNCTIONS WILL BE NOTED AND RECORDED. THIS WILL ESTABLISH A BASE LINE FOR FUNCTION.

ALL NINE RIFLES WILL BE CONDITIONED IN THE TALL OVEN IN THE TEST LAB AT A CONDITIONING TEMPERATURE OF 150°F. FOR A MINIMUM PERIOD OF 72 HOURS. AT THE END OF 72 HOURS THE SAMPLE RIFLES WILL TAKEN FROM THE OVEN BE ALLOWED TO COOL TO AMBIENT TEMPERATURE FOR A PERIOD OF AT LEAST TWO HOURS OUTSIDE OF THE OVEN. AT THE END OF THE TWO HOUR COOL DOWN THE TEST RIFLES WILL BE TAKEN TO THE TEST BOOTH AREA AND TWENTY ROUNDS WILL BE FIRED THROUGH EACH RIFLE USING THE AMMUNITION DESIGNATED FOR THAT RIFLE. MALFUNCTIONS WILL BE NOTED AND RECORDED.

AT THE COMPLETION OF THE TWENTY ROUND TEST FOR ALL NINE OF THE RIFLES, EACH FIRE CONTROL WILL BE REMOVED FROM ITS ACTION AND COMPLETELY CLEANED IN THE SOLVENT TANK PRIOR TO THE APPLICATION OF THE NEXT LUBRICANT AND/OR SOLVENT. THE NEXT SCHEDULED LUBRICANT/SOLVENT WILL THEN BE APPLIED USING THE OWNER'S MANUAL PROCEDURE AND THE RIFLES AGAIN TESTED WITH TWENTY ROUNDS OF THE DESIGNATED AMMUNITION TO DETERMINE PROPER FUNCTION BEFORE PLACEMENT IN THE OVEN.

THE RIFLES WILL THEN BE STORED IN THE TALL OVEN FOR A PERIOD OF AT LEAST 72 HOURS, REMOVED AND COOLED TO AMBIENT FOR AT LEAST TWO HOURS AND THEN RETESTED FOR TWENTY ROUND FUNCTION.

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THIS PROCEDURE WILL BE REPEATED FOR EACH OF THE LUBRICANTS/SOLVENTS LISTED.

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"DIRT - DEBRIS - WET" TESTING:

THIS TESTING WILL BE DONE ON THE NINE SAMPLE RIFLES AT H.P.WHITE LABORATORY, INC. PER MILITARY TEST PROCEDURE TOP-3-2-045 (AS MODIFIED FOR A BOLT ACTION RIFLE.)

SEE ATTACHED PROCEDURE AND ESTIMATE OF TEST TIME AND COSTS.

ET56226

01/23/1995 06:38 3158953878 REMINGTON ARMS CO PAGE 05

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"BAKED-ON" LUBRICATION/SOLVENT TESTING:

AFTER RETURN FROM H.P.WHITE THE NINE RIFLES WILL BE COMPLETELY CLEANED AND RE-CHECKED FOR FUNCTION.

FOR THIS TEST 400 ROUNDS OF AMMUNITION WILL BE SELECTED FOR USE WITH EACH TEST RIFLE. THE AMMUNITION SHOULD BE FROM THE SAME MANUFACTURER AND FROM THE SAME LOT NUMBER IF POSSIBLE.

THE FIRE CONTROLS WILL BE COMPLETELY CLEANED IN THE SOLVENT TANK, LUBRICATED PER THE OWNER'S MANUAL USING EACH OF THE FOLLOWING LUBRICANTS/SOLVENTS IN THE ORDER LISTED.

1. REM OIL
2. REMINGTON WONDER LUBE
3. WD-40
4. HOPPE'S OIL
5. SHOOTER'S CHOICE

AFTER BEING CLEANED AND DRIED THE FIRST LUBRICANT WILL BE APPLIED TO THE FIRE CONTROL USING THE PROCEDURE OUTLINED IN THE OWNER'S MANUAL.

EACH TEST RIFLE WILL BE SHOT USING 20 ROUNDS OF THE SELECTED AMMUNITION AND ANY MALFUNCTIONS WILL BE NOTED AND RECORDED. THIS WILL ESTABLISH A BASE LINE FOR FUNCTION.

ALL NINE RIFLES WILL BE CONDITIONED IN THE TALL OVEN IN THE TEST LAB AT A CONDITIONING TEMPERATURE OF 150°F. FOR A MINIMUM PERIOD OF 72 HOURS. AT THE END OF 72 HOURS THE SAMPLE RIFLES WILL TAKEN FROM THE OVEN BE ALLOWED TO COOL TO AMBIENT TEMPERATURE FOR A PERIOD OF AT LEAST TWO HOURS OUTSIDE OF THE OVEN. AT THE END OF THE TWO HOUR COOL DOWN THE TEST RIFLES WILL BE TAKEN TO THE TEST BOOTH AREA AND TWENTY ROUNDS WILL BE FIRED THROUGH EACH RIFLE USING THE AMMUNITION DESIGNATED FOR THAT RIFLE. MALFUNCTIONS WILL BE NOTED AND RECORDED.

AT THE COMPLETION OF THE TWENTY ROUND TEST FOR ALL NINE OF THE RIFLES, EACH FIRE CONTROL WILL BE REMOVED FROM ITS ACTION AND COMPLETELY CLEANED IN THE SOLVENT TANK PRIOR TO THE APPLICATION OF THE NEXT LUBRICANT AND/OR SOLVENT. THE NEXT SCHEDULED LUBRICANT/SOLVENT WILL THEN BE APPLIED USING THE OWNER'S MANUAL PROCEDURE AND THE RIFLES AGAIN TESTED WITH TWENTY ROUNDS OF THE DESIGNATED AMMUNITION TO DETERMINE PROPER FUNCTION BEFORE PLACEMENT IN THE OVEN.

THE RIFLES WILL THEN BE STORED IN THE TALL OVEN FOR A PERIOD OF AT LEAST 72 HOURS, REMOVED AND COOLED TO AMBIENT FOR AT LEAST TWO HOURS AND THEN RETESTED FOR TWENTY ROUND FUNCTION.

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THIS PROCEDURE WILL BE REPEATED FOR EACH OF THE LUBRICANTS/SOLVENTS LISTED.

ET56228

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Williams v. Remington

H.P. White Laboratory Inc.

3114 Scarboro Road • Street, Maryland 21154-1822
PHONE (410) 838-6550
FAX No. (410) 838-2802
INTERNATIONAL PHONE No. (0101 410) 838-6550
INTERNATIONAL FAX No. (0101 410) 838-2802

• FAX COVER LETTER •

PLEASE DELIVER THE FOLLOWING PAGE(S)

TO:

NAME: Mr. James H. Hennings

COMPANY: Remington Arms Company, Inc.

FAX NO.: (315) 895-3670

PHONE NO.:

FROM:

NAME: Donald R. Dunn

COMPANY: H.P. White Laboratory, Inc. JOB NO.: W-04/95-004

Total number of pages including cover letter: 13

Date: 7 April 1995 Originals: XXX will ____ will not follow VIA mail.

If you did not receive all pages, please call the following number as soon as possible: (410) 838-6550

ITEMS FAXED:

MESSAGE:

ET56229

RESEARCH • DEVELOPMENT • ENGINEERING

01/23/1995 08:38 3158953678 REMINGTON ARMS CO PAGE 08

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H.P. WHITE LABORATORY, INC.
[illegible]

7 April 1995
(W-04/95-004)

Remington Arms Company, Inc.
Box 179
Ilion, New York 13357

Attention: Mr. James R. Mennings

Gentlemen:

Thank you for your recent inquiry regarding ENVIRONMENTAL TESTING of several configurations of caliber 7mm, Magnum, Remington MODEL 700 RIFLES.

We understand that the purpose of this testing is to establish the relative performance of rifles fitted with the current production Fire Control Group and two modified configurations of the Fire Control Group - 3 each, totalling 9 rifles.

It is our further understanding that the scope of testing is to include the DUST, MUD and WATER SPRAY Testing specified by U.S. Army Test and Evaluation Command, TOP 3-2-045, AUTOMATIC WEAPONS, MACHINE GUNS, HAND AND SHOULDER FIRED WEAPONS. Inasmuch as these procedures are intended for automatic and semi-automatic firearms, some adjustment in the firing cycles will be necessary to reflect the Bolt action operation of the Model 700.

Enclosed are those portions of TOP 3-2-045 which define the procedures of those tests. You will note that there are two variations each of the Dust Test (Static and Dynamic) and Mud Test (Mud Test 01 and Mud Test 02). We have included individual pricing for these variations to enable you to select one or both of the variations of each test.

Please note that each of these tests is potentially destructive, capable of producing damage ranging from minor distortion and breakage to high pressure failure. Accordingly, we have arranged the sequence of the testing in what we believe to be ascending order of potential damage to minimize the effect of earlier test results on subsequent tests of the same samples.

With the potential destructiveness of these tests in mind, we suggest you consider:

1. The level of damage and/or frequency of malfunctions which will justify cessation of testing, and

2. Replacement parts for damage which falls short of 1, above.

ET56230

01/23/1995 06:38 3158553678 REMINGTON ARMS CO PAGE 09

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BARBER - 2.4.130000635

Finally, we understand that the guns will be provided cleaned and lubricated, ready for testing. We have included cleaning and lubrication between tests in our estimate and request you specify the cleaner and lubricant to be used.

TABLE I. SCHEDULE OF TESTING AND PRICING

Testing Sequence	Description	Rifles	Rounds Per Rifle	Rounds Total	Pricing ($US) Per Rifle	Pricing ($US) Total
01	Water Spray	9	120(a)	1080	1680	1958
02	Static Dust	9	10(a)	90	1715	4870
03	Dynamic Dust	9	10(a)	90	2075	5715
04	Mud Test #1	9	10(a)	90	1180	3260
05	Mud Test #2	9	10(a)	90	915	2995
	TOTAL	9	160	1440	7485	18,798

(a) Arbitrarily selected in the absence of TOP 3-2-045, bolt action requirements.

The prices of Table I are not-to-exceed prices and are to be adjusted downward only by actual costs and/or premature termination of testing.

We estimate that acquisition of the specified ingredients in the "MIL-STD" Dust and Mud will require 10 days from receipt of your authorization to proceed and that this testing will require an additional 10 days to complete. We have included the cost of black-and-white photographs of significant details of the test setups, conditioned guns and breakage (if any) which will be bound along with all firing data in two copies of the final report.

Should you have any questions regarding this matter or if we may be of any further service, please do not hesitate to contact us.

Very truly yours,

H. P. WHITE LABORATORY, INC.

Donald R. Dunn

DRD/jlt

ET56231

01/23/1995 06:38 3158953678 REMINGTON ARMS CO PAGE 18 PAGE 3

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BARBER - 2.4.130000635

BARBER - 2.4.130000636

c. After 1,000 rounds have been fired through each weapon, remove the weapons from the conditioning chamber and disassemble, thoroughly inspect, clean, and oil each one. Record any damage noted.

4.5.3.2.2 Data Required. Record data as specified in 4.5.1.6.

4.5.4 Water Spray (rain) Test. This subtest is an accelerated test to determine the effects of a heavy rainfall on weapon performance.

a. Method.

(1) Disassemble, clean, lubricate, and reassemble the required weapons.

(2) Adjust the water supply to provide a spray of water falling at a rate of about 10 mm (0.4 in.) per minute, or 610 ±80mm (24 ±3 in.) per hour from a height great enough to direct the spray over the entire weapon.

(3) Conduct the water spray test for hand gun and shoulder weapons according to the basic sequence of operations listed in Table 11. For machineguns and automatic weapons, conduct the test as shown in Table 12.

NOTE: There is no break in time between the end of Part I and the beginning of Part II of the table.

b. Data Required. Record the following:

(1) Rate of rainfall
(2) Water and ambient air temperatures
(3) Malfunctions in accordance with paragraph 5
(4) Cyclic rate of automatic fire

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TABLE II

WATER SPRAY TEST FOR HAND GUNS AND SHOULDER WEAPONS

Test Condition	Exposure Time (minutes)	Cumulative Exp. Time (minutes)	Rain (cm)	Rain (in)	Cumulative Rain (cm)	Cumulative Rain (in)
		Part I				
Weapon Horizontal						
a. Bolt open	5	5	5.1	2.0	5.1	2.0
b. Loaded, bolt closed	5	10	5.1	2.0	10.2	4.0
c. (100) rounds fired as specified in 4.3.1.1	4	14	4.1	1.6	14.2	5.6
d. Bolt open	5	19	5.1	2.0	19.3	7.6
e. Loaded, bolt closed	5	24	5.1	2.0	24.4	9.6
f. (100) rounds automatic	4	28	4.1	1.6	28.4	11.2
		Part II				
Weapon Muzzle Up*						
a. Bolt open	5	33	5.1	2.0	33.5	13.2
b. Loaded, bolt closed	5	38	5.1	2.0	38.6	15.2
c. (100) rounds fired as specified in 4.3.1.1	4	42	4.1	1.6	42.7	16.8
d. Bolt open	5	47	5.1	2.0	47.8	18.8
e. Loaded, bolt closed	5	52	5.1	2.0	52.8	20.8
f. (100) rounds automatic	4	56	4.1	1.6	56.9	22.4
Weapon Muzzle Down*						
a. Bolt open	5	61	5.1	2.0	62	24.4
b. Loaded, bolt closed	5	66	5.1	2.0	67.1	26.4
c. (100) rounds fired as specified in 4.3.1.1	4	70	4.1	1.6	71.1	28.0
d. Bolt open	5**	75	5.1**	2.0	76.2	30.0
e. Loaded, bolt closed	5**	80	5.1**	2.0	81.3	32.0
f. (100) rounds automatic	4**	84	4.1**	1.6		

*Before attempting to fire, hold the weapon with muzzle down; unlock the bolt slightly, and attempt to remove water accumulated in the bore.

**Or as required to finish the program with at least 81 cm (32.0 in.) cumulative rain total.

(100) - 20 ROUNDS EACH (4 MINUTES)

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(1) Number of rounds fired
(2) Malfunctions in accordance with paragraph 5
(3) Number of attempts to overcome each malfunction
(4) Sand and dust dispensing rate
(5) Maintenance actions performed

4.5.6 Mud Test. This subtest determines the effects of mud on weapon performance.

4.5.6.1 Hand Guns and Shoulder Weapons.

4.5.6.1.1 Method.

a. Clean and lubricate three test weapons and close the muzzles with tape. Load three magazines for each weapon.

b. Prepare a mud bath as described in 4.5.6.2.1.

c. After immersing the weapon, wipe it with bare hands to remove excess mud, remove the tape from the muzzle, and fire 30 rounds (one 30-round burst in automatic weapons). NOTE: The predominant malfunction encountered in this test is that the bolt cannot be retracted or closed by hand or by gun action without considerable effort. In most instances, it will be necessary to strike the bolt-retracting lever a sharp blow with the hand to open the action.

d. If firing is unsatisfactory with the magazine assembled in the weapon, expose and use a second loaded magazine as in the static dust test. If firing is still unsuccessful, use a clean magazine.

e. If firing with a clean magazine is unsatisfactory, immerse the entire weapon (with the bolt open) and the contaminated magazines in clean water, and agitate them as rapidly as possible for 60 seconds. Try to fire again after draining the water from the weapon bore.

f. If firing continues to be unsatisfactory, perform a 3-minute field stripping operation, with parts hand-wiped with a cloth, to determine whether the weapon can be returned to a serviceable condition in the field.

4.5.6.1.2 Data Required. Record the following:

a. Number of rounds fired
b. Malfunctions in accordance with paragraph 5
c. Number of attempts to overcome each malfunction
d. Maintenance actions performed

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4.5.6.2 Machineguns and Automatic Weapons.

4.5.6.2.1 Mud Test No. 1.

a. Method. This test is conducted by immersing the weapon in a mixture of 4.5 kg (10 lb) of montmorillonite clay, 0.9 kg (2 lb) of silica sand, and about 45.5 l (48 qt) of water. The amount of water to be added to the sand and clay mixture may vary with the moisture content of these components. The water content will be limited to the quantity producing a mud viscosity of about 4,600

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centipoises as determined with a Brookfield viscometer. The measurement conditions are as follow:

Room temperature of 23° ±1.7° C (73° ±3° F)
Spindle No. 3 used at 10 rpm
Container diameter greater than 7 cm (2-3/4 in.)
One-minute test duration

NOTE: Sources of supply are available on direct inquiry to Commanding Officer, Aberdeen Proving Ground, ATTN: STEAP-MT-I, Aberdeen Proving Ground, Maryland 21005.

The silica sand mixture used in this test is the "No. 3 O-Rok", one of the components of the mixture used in the sand-dust tests. This sand is of angular structure with the characteristics shown in Table 14.

TABLE 14

CHARACTERISTICS OF SAND USED IN MUD TEST MIXTURE

Sieve No.	% of Grains Retained
16	1.2
18	12.5
20	28.9
30	51.3
40	7.3
50	0.6
(pass 50)	0.2

(1) Clean and lubricate three test weapons. Tape the muzzle of one weapon shut; fully load the gun, and place the safety in the ON position. Completely immerse the weapon (and 50-round belt of ammunition or loaded magazine and mount if applicable) in a horizontal position for 60 seconds.

(2) After removing the gun from the mud, remove the tape from the muzzle. Without opening the weapon cover or breech, attempt to clean the weapon and ammunition by wiping with bare hands, blowing on congested areas, and jarring the weapon and ammunition.

(3) As in the static sand-dust test, attempt to fire 50 rounds in a continuous burst. If the weapon fails to function satisfactorily, open the cover and perform additional cleaning, as specified above, to obtain proper functioning. If the weapon still fails to function, attempt to fire using a clean belt of ammunition (or magazine when applicable).

(4) If firing is unsatisfactory, immerse the entire weapon (with the bolt open) and the contaminated ammunition in clean water, and agitate as rapidly as possible for 60 seconds. Then attempt to fire again.

(5) If functioning continues to be unsatisfactory, perform a field stripping operation, with parts hand-wiped with a cloth and then relubricated, to determine whether the weapon can be returned to a serviceable condition in the field.

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(6) Test the two remaining weapons as described above.

b. Data Required. Record data as listed in 4.5.6.1.2.

4.5.6.2.3 Mud Test No. 2.

a. Method. Conduct this test in a manner identical to that of Test No. 1, except that the weapons and ammunition are permitted to dry for at least 4 hours after being removed from the mud bath.

4.5.7 Icing Test (-6.7° C [20° F]). This subtest determines the operability of a weapon after exposure to freezing rain (see TOP 2-2-815[15]) resulting in a glazed coating.

4.5.7.1 Method.

a. Disassemble, clean, lubricate, and reassemble at least three test weapons, and tape the muzzles closed.

b. Expose the weapons (and ammunition) to a temperature of -17.8° C for 6 hours.

c. Raise the chamber temperature to -6.7° C, and subject the test items to a light spray of water until 3.2 to 6.4 mm (1/8 to 1/4 in.) of ice accumulates on the top surface of hand and shoulder weapons, including shoulder-fired machineguns and 6.4 to 12.8 mm (1/4 to 1/2 in.) on other machineguns. Each gun is exposed with a 50-round belt of ammunition (or loaded magazine) engaged but with the chamber empty and the bolt closed, requiring charging to complete weapon loading. Weapons firing from the open-bolt position are readied by closure of the bolt on an empty chamber, requiring only retraction of the bolt to fully load each weapon. When belt-fed weapons are provided with a belt container attached to the weapon, the container will be used.

d. Remove the tape from the muzzles following exposure to icing. Only tools or other equipment normally available to military firing personnel in the field will be used to remove ice from the weapons.

e. Attempt to fire with the exposed ammunition. If functioning is unsatisfactory, attempt to fire a belt (or magazine) of ammunition conditioned at the temperature (6 hours) but not subjected to icing.

f. If the weapon cannot be charged to initiate firing, due to the ice accumulation on the weapon, repeat the test by fully loading each weapon before exposing to icing. Guns firing from a closed bolt are readied for icing by closing the bolt on a chambered round; guns firing from the open-bolt position are readied by leaving the chamber empty and the bolt in the seared position. If the weapon fails to function properly, replace the belt (or magazine) with ammunition conditioned at the temperature (6 hours) but not subjected to icing.

4.5.7.2 Data Required. Record the following:

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a. Test temperatures
b. Glaze accumulation
c. Number of rounds fired

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APPENDIX A
SAND AND DUST FACILITIES

A variable speed blower with volumetric dry feeder attached is mounted outside the test chamber. The feeder must deliver a constant but adjustable flow of dust mixture to the air-delivery pipe of the blower. The blower-feeder combination must be capable of dispensing sand and dust so that the mixture falls evenly on the area concerned at a rate of 100 ±25 g/min/m^2.

Two types of chambers may be used for the sand and dust test, as follows.

Type A. This type is used for standardized testing (NATO, some specifications) of smaller weapons. The test chamber is a box made of 25-mm (1-in.) plywood 0.9 m (3 ft) wide, 1.2 m (4 ft) high, and 1.8 m (4.5 ft) long, with transparent sides and an interior gun cradle. A 7.6-cm (3-in.) vent hole aligned with the blower is in the end of the box opposite the blower. A pair of rubber gauntlet gloves for the gunner is attached over hand openings on each side of the box. The gloves provide dust-sealed access to the gun and permit full control of the weapon, including installing magazines and firing.

Type B. This type of chamber is used for larger weapons or when it is not convenient to use type A. This chamber consists of a box of any size that allows free circulation of the sand- and dust-laden atmosphere around the weapon. The chamber is provided with vents to relieve any buildup of air pressure, and aid in circulating the dust. It may be bottomless so that it can be placed over the weapon. Access doors and ports are provided as needed but must fit closely enough to contain the circulating atmosphere. NOTE: The dust-laden atmosphere should not be breathed by personnel. Do not allow anyone to enter the chamber without approved breathing protection or unless the chamber is first purged of any visible dust.

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4.5.5 Sand and Dust Tests.

4.5.5.1 Dynamic Test. This subtest is conducted to determine the effects of blowing sand and dust on weapon performance. Conduct firing in one of the sand and dust facilities described in Appendix A.

a. Method.

(1) Prepare a sand and dust mixture of angular structure, with particle size distribution determined by weight, using the US standard sieve series. The composition may be obtained by mixing 42% "No. 1 dry" sand, 8% "No. 3 O-Rok" sand, and 50% 140-mesh silica flour, which will provide the blend shown in Table 13. NOTE: Supply sources are available on direct inquiry to Commanding Officer, Aberdeen Proving Ground, ATTN: STEAP-MT-I, Aberdeen Proving Ground, Maryland 21005.

TABLE 13

COMPOSITION OF SAND AND DUST MIXTURE
(by percent particles, by weight, retained in sieves)

Sieve Size (US gage sieve no.)	Percent of weight retained	Particle Size (microns)
20	3	842 to 1000
30	5	595 to 841
45	17	355 to 595
60	14	251 to 354
100	10	150 to 250
(pass 100)	<1	. . . . .
140-mesh silica flour		
140	1	105 to 149
200	4	74 to 105
325	7.5	44 to 74
(pass 325)	37.5	less than 44

Calibrate the sand and dust feeder of the facility to dispense the mixture at a rate of 100 ±25 g/min/ft^2 over the area concerned.

(2) Clean and lubricate three test weapons. Place one weapon and complement of ammunition in the facility. The weapon should be in the orientation in which it would normally be fired; multiple tests may be necessary if there is more than one possible orientation. The ammunition complement will be seven magazines for magazine-fed weapons; for belt-fed infantry weapons, no less than 25 rounds below that required to produce a cookoff in the gun; or one full complement of ammunition for weapons using special ammunition containers or feed mechanisms (such as armored vehicles, anti-aircraft systems, aircraft weapons, etc.).

Fully load the test weapon and place any safety switch in the "safe" position. Close any dust covers incorporated in the weapon. Engineering judgment is necessary to determine the protection given the ammunition. Remaining magazines

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are normally covered with plastic bags. Ammunition in standard shipping and storage containers is usually left sealed. Ammunition is left exposed when it can be expected to be exposed in combat.

(3) Turn on the dust dispenser and allow to operate for one minute before firing. The firing schedule for magazine-fed weapons is one magazine every 20 seconds, with the first five fired full automatic and the last two fired in short bursts. For belt-fed weapons, the schedule is 20 rounds every 20 seconds, with the first half of the ammunition fired in 20-round bursts and the last half fired in short bursts. Firing schedules may also be based on combat scenario, weapon specifications, or other available information.

(4) Use a cyclic rate recorder continuously throughout each test so that a chronological record of total test time, time to first stoppage, time to clear, etc., as well as cyclic rate of fire are obtained. The total time that the bolt remains open (to clear stoppages, to change magazines, etc.) is a critical measurement in this test.

(5) If the firings are performed without any malfunction that cannot be readily cleared by immediate action, i.e., one requiring the use of tools or weapon disassembly, continue the test until such a malfunction occurs or until all of the ammunition is fired.

(6) Repeat the test with the other two weapons.

b. Data Required. Record the following:

(1) Sand and dust dispensing rate
(2) Cyclic rate of automatic fire
(3) Malfunctions in accordance with paragraph 5
(4) Number of rounds fired

4.3.5.2 Static Test. This test also determines the effects of blowing sand and dust on weapon performance, but the firing is conducted after the weapon is removed from the sand and dust environment. Thus, the exposure box need not accommodate firings. Use the same sand and dust mixture listed in Table 13.

4.3.5.2.1 Method. Clean and lubricate three test weapons and close the muzzles with tape.

a. Hand Guns and Shoulder Weapons.

(1) For weapons fired from a closed bolt, chamber a round. Weapons fired from an open bolt will have the bolt open on the empty chamber. Close the dust cover and set the safety on "safe." Assemble a fully loaded magazine in the weapon.

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(2) Expose the weapon as follows:

Place the weapon and a second loaded magazine in the center of the box, forward from the pour hole, and fasten the box lid.

Operate the blower handle at about 80 rpm as the sand and dust mixture is poured through the hole at a rate of 2.3 kg (5 lb) per minute.

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After 1 minute, stop the blower, remove the lid, and turn the weapon and magazine upside down in the box. Replace the lid and repeat the sand and dust blast for another minute.

(3) Remove the weapon and spare magazine from the box and wipe clean with bare hands. Clean congested parts as much as possible by blowing sharply or by jarring the weapon. Remove the tape from the muzzle.

(4) Fire a full magazine from the weapon. If repeated malfunctions make this impossible, attempt to fire with the second magazine. If firing is still unsatisfactory, attempt to fire with a clean magazine, container, bandolier, etc., loaded with clean ammunition. If repeated malfunctions make it impossible to fire all of the ammunition, field strip and clean the weapon in accordance with the applicable operator's manual. Then attempt to fire the remaining ammunition. If repeated malfunctions make it impractical to fire the remaining ammunition, completely disassemble the weapon in accordance with applicable technical manuals. Attempt to determine the exact source of dust-induced malfunctions. Reassemble the weapon and fire to verify serviceability.

(5) Repeat the test with the remaining weapons.

b. Machineguns and Automatic Weapons.

(1) Fully load the weapons with a 50-round belt of ammunition and place the safety in the ON position. Place the gun in the sand/dust box but not directly underneath the pour hole. Expose the test items to the mixture for 1 minute with their top sides up and for 1 minute upside down while the blower is turned at a handle speed of 60 revolutions per minute, and the mixture is poured at a rate of 2.3 kg per minute through the hole.

(2) After removing the weapon from the box, attempt to clean the weapon and ammunition by wiping with bare hands, blowing on congested areas, and jarring the weapon and ammunition, WITHOUT opening the weapon cover (or breech). Remove the tape from the muzzle.

(3) Attempt to fire 50 rounds in a continuous burst. If the weapon fails to function satisfactorily, open the weapon feed or breech cover and perform additional cleaning, as specified above, in an attempt to obtain proper functioning. If satisfactory functioning is still not obtained, make another attempt to fire using a clean belt of ammunition.

(4) If the weapon is fired from an open bolt and the gun fails to function satisfactorily with "clean" ammunition, repeat the test with the bolt closed and the weapon half loaded before the exposure.

(5) Repeat the test with the remaining weapons.

NOTE: If repeated malfunctions make it impossible to fire all of the ammunition, conduct field strip operations (and completely disassemble the weapon if subsequently deemed necessary) as described for hand guns and shoulder weapons, and attempt to fire.

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4.5.5.2.2 Data Required. Record the following:

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(1) Number of rounds fired
(2) Malfunctions in accordance with paragraph 5
(3) Number of attempts to overcome each malfunction
(4) Sand and dust dispensing rate
(5) Maintenance actions performed

4.5.6 Mud Test. This subtest determines the effects of mud on weapon performance.

4.5.6.1 Hand Guns and Shoulder Weapons.

4.5.6.1.1 Method.

a. Clean and lubricate three test weapons and close the muzzles with tape. Load three magazines for each weapon.

b. Prepare a mud bath as described in 4.5.6.2.1.

c. After immersing the weapon, wipe it with bare hands to remove excess mud, remove the tape from the muzzle, and fire 30 rounds (one 30-round burst in automatic weapons). NOTE: The predominant malfunction encountered in this test is that the bolt cannot be retracted or closed by hand or by gun action without considerable effort. In most instances, it will be necessary to strike the bolt-retracting lever a sharp blow with the hand to open the action.

d. If firing is unsatisfactory with the magazine assembled in the weapon, expose and use a second loaded magazine as in the static dust test. If firing is still unsuccessful, use a clean magazine.

e. If firing with a clean magazine is unsatisfactory, immerse the entire weapon (with the bolt open) and the contaminated magazines in clean water, and agitate them as rapidly as possible for 60 seconds. Try to fire again after draining the water from the weapon bore.

f. If firing continues to be unsatisfactory, perform a 3-minute field stripping operation, with parts hand-wiped with a cloth, to determine whether the weapon can be returned to a serviceable condition in the field.

4.5.6.1.2 Data Required. Record the following:

a. Number of rounds fired
b. Malfunctions in accordance with paragraph 5
c. Number of attempts to overcome each malfunction
d. Maintenance actions performed

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4.5.6.2 Machineguns and Automatic Weapons.

4.5.6.2.1 Mud Test No. 1.

a. Method. This test is conducted by immersing the weapon in a mixture of 4.5 kg (10 lb) of montmorillonite clay, 0.9 kg (2 lb) of silica sand, and about 45.5 l (48 qt) of water. The amount of water to be added to the sand and clay mixture may vary with the moisture content of these components. The water content will be limited to the quantity producing a mud viscosity of about 4,800

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REMINGTON ARMS COMPANY, INC.
RESEARCH & DEVELOPMENT TECHNOLOGY CENTER
P.O. BOX 5016 / 315 W. RING ROAD
ELIZABETHTOWN, KENTUCKY 42702-5016
(502) 737-9456 FAX (502) 737-9576

February 27, 1995

Mr. Don Rolph
7777 Fairbrook Court
Pleasanton, CA 94588

Re: New Drawings for Low and High Plunger Designs

Dear Don:

Enclosed are complete sets of current drawings for the lower and upper plunger designs of the trigger assembly. For the upper plunger design, a few of the drawings are still in the process of being drawn on the CAD system; I have given you the old hand drawings for these parts, when they were available.

We received the fax you sent to us on Sunday. I believe we will be able to try your idea out either later today or early tomorrow at Kellems & Coe. I would also like to thank you for the time and help you gave us this last weekend. Your counsel is greatly appreciated.

If you have any questions about the drawings, please feel free to call me at (502) 769-4615 or fax me at (502) 737-9576.

Sincerely,

James W. Ronkainen
Project Manager

cc: Ed Ford
Danny Diaz
Dale Danner
Dr. Tony Hancock

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Tolerance Study of Sear Position Sheet1 34760.5722

Bushing	OD	MAX	0.1660
		MIN	0.1640
	ID	MAX	0.1270
		MIN	0.1250
Side Plate	Pivot Hole	MAX	0.1680
		MIN	0.1670
Sear	Pivot Hole	MAX	0.1680
		MIN	0.1670
Pin	OD	MAX	0.1250
		MIN	0.1248

Worst Case

Motion	Sear Pivot Hole - MAX	0.1680	0.0020
Due	Bushing OD - MIN	0.1640	
To	Bushing ID - MAX	0.1270	0.0011
Load	Pin - MIN	0.1248	
	Total		0.0031
Mis-position	Side Plate - MAX	0.1680	0.0020
of Bushing	Bushing OD - MIN	0.1640	
Misposition of	Sear Stop - MIN	0.0010	0.0010
Sear Stop Surf.			
Total			0.0061

Nominal Case

Motion	Sear Pivot Hole - Nom	0.1675	0.0013
Due	Bushing OD - Nom	0.1650	
To	Bushing ID - Nom	0.1260	0.0006
Load	Pin - Nom	0.1249	
	Total		0.0018
Mis-position	Side Plate - Nom	0.1675	0.0013
of Bushing	Bushing OD - Nom	0.1650	
Misposition of	Sear Stop - Nom	0.0000	0.0000
Sear Stop Surf.			
Total			0.0031

Best Case

Motion	Sear Pivot Hole - MIN	0.1670	0.0005
Due	Bushing OD - MAX	0.1660	
To	Bushing ID - MIN	0.1250	0.0000
Load	Pin - MAX	0.1250	
	Total		0.0005
Mis-position	Side Plate - MIN	0.1670	0.0005
of Bushing	Bushing OD - MAX	0.1660	
Misposition of	Sear Stop - MAX	-0.0010	-0.0010
Sear Stop Surf.			
Total			0.0000

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FAX COVER SHEET

FAX Number (502) 737-9576

To: Danny Diaz Phone 502-769-3418

From: Don Ralph Phone 510-846-0102

Pages (including this half sheet): 3

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NOTES:

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Jan. 26, 1995

Dear Danny,

One has plenty of time to think on an airplane, and I can never stop thinking about a problem until it is solved. So here are a few additional thoughts which have leaked out of the old gray cell cavity.

I think the basic approach of providing a mutually exclusive interlock system is the proper one. This, of course, is one in which you cannot pull the trigger if the safety is out of the fire position, and you cannot put the safety in the safe position if the trigger is not in position to properly engage the sear. Both the plug and the hook designs will accomplish this. However, the plug design adds a new feature: If the trigger is being pulled while the safety is being moved to the fire position, nothing happens because the plug is still in the way and is held there by pressure of the trigger. You must release the trigger, allowing the plug to release, before you can fire the gun. That is not true with the hook design. The key to this is the new intermediate member - the plug. You could provide the same action by adding another part to the hook design, with expected increase in cost and complexity. I think this feature is very important, and perhaps should be explored from a patent standpoint.

I think it would be a mistake to go beyond this basic interlock concept. I think it satisfies all of the operational and legal requirements, even though, (in the case of the hook design), someone might be dumb enough to pull the trigger while he releases the safety. To go further by providing something that will force the trigger back to its home position is bound to affect trigger operation and will add unwanted mechanical complexities.

Obviously, I favor the plug design as a permanent long range solution, and quite possibly the design which you should go with for the immediate future. As we discussed, it is process sensitive, which is always the case when you eliminate adjustments. In my opinion, if you concentrate on solving the problems of putting this thing together, you should have a winner.

It may be worthwhile to explore variations of the hook design involving an intermediate member which will do the same thing as the plug. This allows you to eliminate the side forces inherent in the plug design, which you had to overcome with the capture plate.

Thank you for your hospitality and willingness to listen to an old out-of-date designer, and for allowing me to get out of the retirement rut and once more tackle a good design problem.

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I have written a note to Tony Hancock, telling him that I would write this letter to you. I am leaving copy distribution up to you.

Thanks again. You have a bunch of good engineers with a great attitude. Please extend my thanks and best regards to all of them.

With best personal regards,

Don Rolph

Don Rolph

Danny - Take a look at my suggestions in the circled paragraph. The added part might allow a "no-play" trigger drilling method which would eliminate the tolerance problem. I am working on a couple of sketches which could help, but don't wait for me.

Don.

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In reviewing the transmission confirmation on this it looks like they sent it to the wrong place, so I am sending it again so it will be available for you in the morning.

Don 1/26/95 11:36 P.M. PST.

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M/700 Fire Control - High Plunger Design
Action Items

Thursday 3/16/95

1. Pick up 15 triggers at National Metal Processing and deliver to Accu-Chek for inspection.
2. Pick up 20 Left Side Plates and 20 Right Side Plates at Accu-Chek and deliver to National Metal Processing for heat treat.
3. 10 Safety Assemblies from Ilion should arrive at Accu-Chek for inspection.
4. Pick up Bolt Stop Releases at Kellems and Coe.
5. Pick up 20 .154 diameter Trigger Block Plungers at Advanced Grinding and Machine, Inc.

Friday 3/17/95

1. Pick up 20 Left Side Plates and 20 Right Side Plates at National Metal Processing. Work 3 Jobs 5pm
2. Arrange for Kellems and Coe to Federal Express 10 .154 diameter Trigger Block Plungers and 10 .156 diameter Trigger Block Plungers to Glen Sietsema's attention in Ilion.
3. Federal Express the 20 .154 diameter Trigger Block Plungers from Advanced Grinding and Machine, Inc. to Glen Sietsema's attention in Ilion.

Saturday 3/18/95

1. Deliver 20 Left Side Plates and 20 Right Side Plates to Accu-Chek for inspection.
2. 20 Trigger Block Plunger Springs, 20 Trigger Return Springs, and 20 Trigger Block Plunger Springs (Lighter Load) from Moore Industries should arrive Federal Express.

Monday 3/20/95

1. Pick up 20 Left Side Plates, 20 Right Side Plates, 10 Safety Assemblies, and 10 Triggers from Accu-Chek.
2. Assemble Side Plate Assemblies at Kellems and Coe.
3. Fly to Ilion at 2:00 pm.

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Kellems & Coe
1636 Production Rd.
Jeffersonville, IN 47131

Take I-65 North to Indiana.
Take Exit 4. When exiting stay in the center lane and go straight through the intersection.
Cross over the railroad tracks and make an immediate right into the Industrial Park.
Turn left onto Production Rd. Kellems & Coe is the last building on the right.

Contact: Kenny Ulrich
(812)283-4435

Accu - Chek Inc.
8385 State Road 64
Georgetown, IN 47122

When leaving Kellems & Coe, take I-65 North one exit. (I-265 West)
Follow I-265 to I-64 West.
Follow I-64 to exit 118 (Georgetown).
Bear right off exit ramp onto state road 64.
As you enter the town of Georgetown, there will be a drive-in theater on the right. Continue into town and there will be a pale green house on the left which is now a pool store. Directly behind the pool store is a red building (Accu - Check). Turn left just past the pale green house. Park in front of the red building.

Contact: Herschel Smith or Daniel
(812) 951-2206

National Metal Processing
450 North Estill Ave.
Richmond, KY 40476

From E-town,
Take the BlueGrass Parkway to Lexington.
Turn right onto Versailles Rd. Stay in the right lane.
The right lane turns into Rt. 876 (New Circle Road).
Follow Rt. 876 to the Richmond Exit.
Bear right off exit.
Take I-75 south to exit 90A (US 25 south).
Follow US 25 until you cross over a set of railroad tracks.
Take the first left (Estill Avenue).
Last building on right.

Contact: Norm Graves
(606) 623-9291

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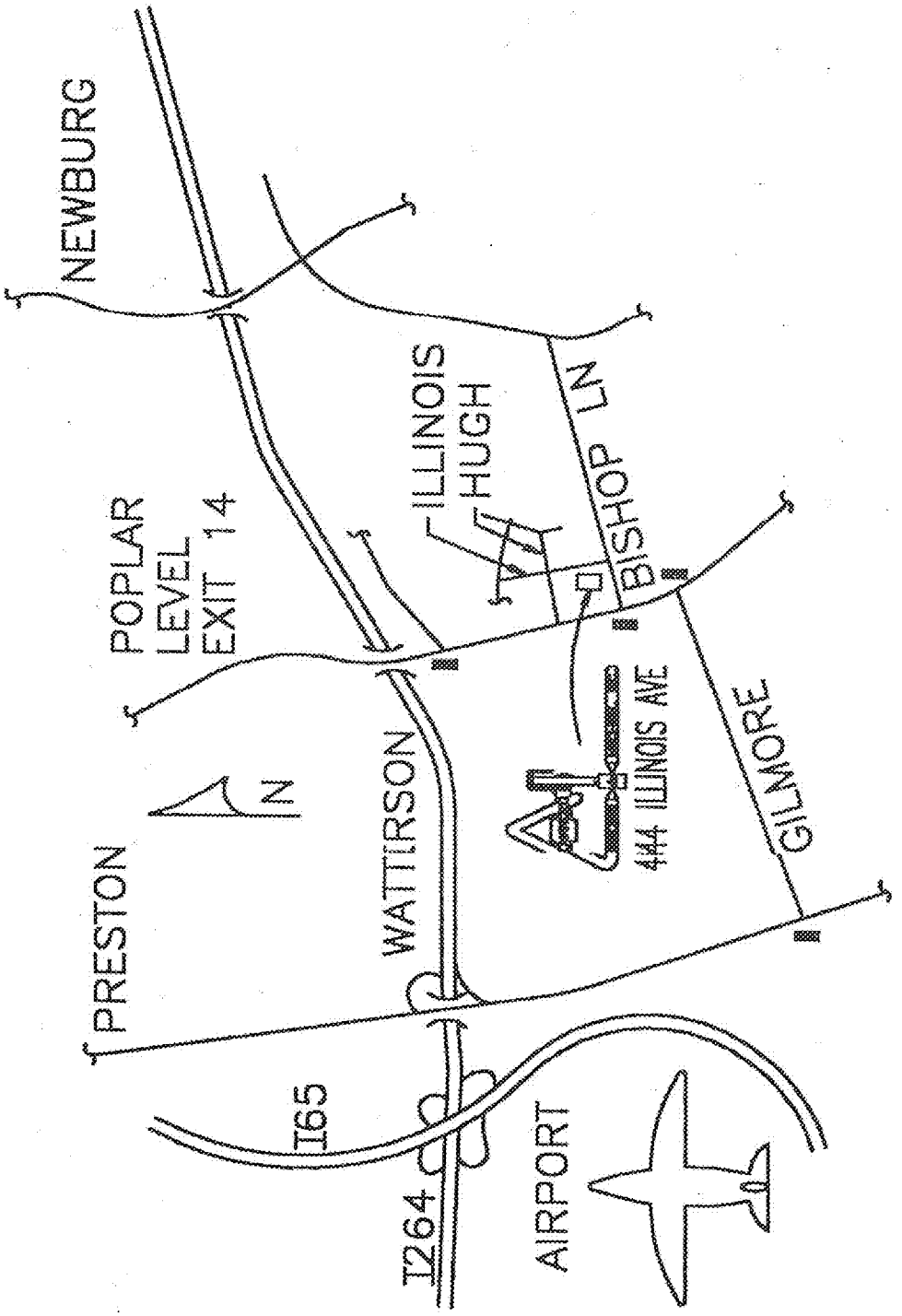

502—452—9851 Advanced Grinding & Machine, Inc.

Tue, Mar 14, 1995 3:14 PM To: ED FORD From: ADVANCED GRINDING & MACHINE, IN Page: 2 of 2

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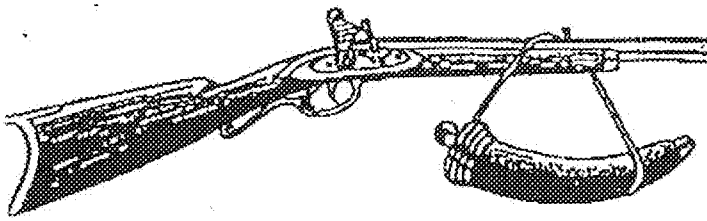

Remington®

Remington Arms Company, Inc.
Firearms Technical Division
Ilion, New York – 13357
Fax (315) 895-3670
Tel (315) 895-3200

DATE: 24 MAR 95 TIME: 9:05 AM

TO: T. HANCOCK
E'TOWN (BLDG./ROOM NO.)
_____ (PHONE)

FROM: J. R. SNEDEKER
_____ (BLDG./ROOM NO.)
315 895 3283 (PHONE)

TOTAL NUMBER OF PAGES, INCLUDING THIS SHEET: 18

RECEIPT VERIFICATION CALL REQUIRED? (YES/NO)

COMMENTS: DRAFT OF TEST PLAN FOR REVIEW

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DRAFT ONLY

NEW FIRE CONTROL - TEST PROGRAM

GENERAL:

FOR EACH FIRE CONTROL, (BOTH EXPERIMENTAL AND CONTROL) IN THE TEST, THE FOLLOWING INFORMATION WILL BE RECORDED:

THE ID NUMBER OF THE FIRE CONTROL BEING TESTED
THE DATE ON WHICH EACH CHECK IS MADE
THE FIRE CONTROL TYPE, EITHER CONTROL (C) OR EXPERIMENTAL (E).
THE ID NUMBER OF THE DRY CYCLE MACHINE USED
THE ID NUMBER OF THE "MEASUREMENT GUN" USED
THE ID OF THE TESTER MAKING THE MEASUREMENTS
THE TEST LOCATION, EITHER ILION (I) OR ELIZABETHTOWN (E).

IN ADDITION, ANY COMMENTS ARE TO BE NOTED ON THE DATA SHEET UNDER THE COMMENTS SECTION, ANY BREAKAGES OF PARTS ARE TO BE RECORDED, THE CYCLE/ROUND LEVEL OF THE BREAKAGE WHEN NOTED IS TO BE RECORDED, MODE OF FAILURE AND THE EFFECT OF THE FAILURE IS TO BE NOTED WHERE APPROPRIATE.

NOTE 1: A CONTROL GROUP MUST BE INCLUDED IN ANY OF THE TESTS PERFORMED OR MEASUREMENTS MADE UNLESS OTHERWISE SPECIFICALLY EXCLUDED.

NOTE 2: LUBRICATION PROCEDURE - THE FIRE CONTROLS (BOTH EXPERIMENTAL AND CONTROL) WILL BE SUPPLIED FOR THIS TEST WITH INITIAL LUBRICATION PER THE STANDARD ASSEMBLY PROCEDURE USED FOR THE M/700 FIRECONTROL. TRIGGER PULL FORCES, SAFE FORCE MEASUREMENTS AND OTHER MEASUREMENTS SPECIFIED FOR THIS TEST WILL BE DONE AS SUPPLIED USING THIS LUBRICATION PROCEDURE PRIOR TO THE START OF DRY CYCLE TESTING.

THEREAFTER, MEASUREMENTS OF TRIGGER PULL FORCES (AS WELL AS THE OTHER MEASUREMENTS SPECIFIED TO BE CHECKED) WILL BE MEASURED TWO TIMES AT EACH INSPECTION LEVEL. THE FIRST SET OF TRIGGER PULL MEASUREMENTS WILL BE MADE AS THEY COME OUT OF THE DRY CYCLE MACHINE AND THEN AGAIN AFTER LUBRICATION PER THE MODEL 700 OWNERS MANUAL. NO OTHER LUBRICATION WILL BE ADDED TO THE FIRE CONTROL BETWEEN CYCLE LEVEL CHECKS. HOWEVER, ADDITIONAL LUBRICATION SUCH AS "NEVER SEIZE" MAY BE ADDED AS NECESSARY TO THE BOLT COCKING CAM SURFACE TO PREVENT GALLING OF THE CAM SURFACE AND TO THE LOCKING LUGS AS NECESSARY TO ALLOW DRY CYCLING TO CONTINUE. THE FIRE CONTROLS ARE NOT TO BE CLEANED DURING TEST WITH THE ONE EXCEPTION OF USING AN AIR HOSE APPLIED TO THE SEAR/TRIGGER ENGAGEMENT INSPECTION HOLE THAT MAY BE NECESSARY TO PROPERLY MEASURE CHARACTERISTICS ON THE COMPARATOR SCREEN.

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IDENTIFICATION OF ASSEMBLIES:

THE EXPERIMENTAL FIRECONTROLS WILL BE LABELED USING AN ALPHA-NUMERIC OF A1-A50. THE CONTROL GROUP WILL BE LABELED USING THE ALPHA-NUMERIC A51-A100. IF A SECOND SERIES OF TESTS IS STARTED THESE ASSEMBLIES WILL BE LABELED B1-B50 WITH CORRESPONDING CONTROLS LABELED B51-B100, AND SO ON.

MEASUREMENTS :

THE FOLLOWING MEASUREMENTS, VISUAL INSPECTIONS OR TESTS WILL BE CONDUCTED ON THE NEW DESIGN FIRE CONTROL AND ON THE CONTROL GROUP.

CHARACTERISTIC	NEW FIRE CONTROL	M/700 FIRE CONTROL
SEAR LIFT	(SPECS. .006" - .018")	(SPECS. .006" - .018")
SEAR ENGAGEMENT	(SPECS. .018" - .022")	(SPECS. .015" - .020")
TRIGGER PULL	(SPECS. 3 - 5 LBS.)	(SPECS. 3 - 5 LBS.)
TRIGGER PRE-PLAY	(SPECS. .004" - .010")	NOT APPLICABLE
TOTAL TRIGGER TRAVEL	(NO SPECS. ESTABLISHED) (RECORD INFO ONLY)	NOT APPLICABLE
SAFE ON to OFF FORCE	(NO SPECS. ESTABLISHED) (RECORD, INFO ONLY)	(NO SPECS. ESTABLISHED) (RECORD, INFO ONLY)
SAFE OFF to ON FORCE	(NO SPECS. ESTABLISHED) (RECORD, INFO ONLY)	(NO SPECS. ESTABLISHED) (RECORD, INFO ONLY)

VISUAL INSPECTIONS:

AT THE START OF THE TEST THE RADII AT THE WORKING EDGES OF THE SEAR/TRIGGER ENGAGEMENT SURFACES WILL BE RECORDED PHOTOGRAPHICALLY ON THE 30" COMPARATOR SCREEN FOR EACH FIRECONTROL ASSEMBLY AND RE-PHOTOGRAPHED AT EACH INSPECTION LEVEL TO TRACK ANY VISUAL CHANGES DUE TO WEAR.

AT THE COMPLETION OF THE 50,000 DRY CYCLES A VISUAL INSPECTION WILL BE MADE OF THE SAMPLES AFTER DISASSEMBLY AND NOTES RECORDED AS TO APPARENT CONDITION OF THE WEAR SURFACES, NOTING ESPECIALLY ANY UNUSUAL WEAR OR BREAKDOWN OF THE CRITICAL EDGES OR OTHER SURFACES.

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FUNCTION TESTS:

THE FOLLOWING FUNCTION TESTS WILL BE INCLUDED IN THE TEST PROGRAM WITH MEASUREMENTS, FUNCTION AND DROP TESTING AT 0, 10,000, 20,000, 30,000, 40,000, AND AT 50,000 CYCLES.:

-DRY CYCLE TESTING TO 50,000 CYCLES. (DRY CYCLE TESTING WILL INCLUDE THE DRY CYCLING OF THE SAFETY LEVER.)

-SAFETY FUNCTION TEST(S) - (SEE PROCEDURES ATTACHED.)

-DROP TESTING TO BE DONE IN ACCORDANCE WITH ESTABLISHED ANSI/SAAMI Z299.5-1999 TITLED "AMERICAN NATIONAL STANDARD VOLUNTARY INDUSTRY PERFORMANCE STANDARDS CRITERIA FOR EVALUATION OF NEW FIREARMS DESIGNS UNDER CONDITIONS OF ABUSIVE MISHANDLING FOR THE USE OF COMMERCIAL MANUFACTURERS."

ENVIRONMENTAL:

NOTE: THESE TESTS ARE NOT YET FULLY DEFINED AND THE TEST PROGRAM WILL NOT BE HELD UP DUE TO PENDING DECISIONS ON THESE TESTS.

THE FOLLOWING SERIES OF ENVIRONMENTAL TESTS MAY BE INCLUDED IN THE TEST PROGRAM AFTER COMPLETION OF THE DRY CYCLE, MEASUREMENT, DROP AND LIVE FIRE FUNCTION TESTING FOR COMPARISON PURPOSES ONLY BETWEEN THE CURRENT DESIGN AND THE NEW DESIGN.

-DIRT AND DEBRIS (WHILE ATTACHED TO THE ACTION)

-HOT, COLD AND WET FUNCTION TESTING (ATTACHED TO ACTION.)

-SALT SPRAY (ATTACHED TO AN ACTION)

-"BAKED" ON LUBRICATION TESTING (ATTACHED TO AN ACTION) USING THE FOLLOWING "LUBRICANTS/SOLVENTS":
WD-40
HOPPE'S OIL
REM OIL
SHOOTER'S CHOICE
NEW REM LUBE

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LIVE FIRE FUNCTION:

THE FOLLOWING LIVE FIRE TESTING WILL BE DONE.

-AT THE START OF THE TEST, AFTER MEASUREMENTS, INSPECTIONS AND FUNCTION CHECKS ARE COMPLETED, 12 EACH OF THE EXPERIMENTAL AND 12 EACH OF THE CONTROL FIRE CONTROLS WILL BE ASSEMBLED TO ACTIONS AND FIRED WITH 100 ROUNDS OF AMMUNITION. THIS IS TO CHECK FOR BASIC FIT & FUNCTION TO ASSURE THAT THE FIRE CONTROLS WILL FUNCTION IN THE ACTIONS PRIOR TO THE START OF EXTENSIVE DRY CYCLE TESTING.

ANY MALFUNCTIONS WILL BE RECORDED AND ANY MALFUNCTIONS RELATED TO THE FIRECONTROL / ACTION INTERFACE WILL BE NOTED AND FLAGGED. A RECORD IS TO BE KEPT OF EACH CALIBER SHOT, EACH ACTION TYPE USED AND THE SERIAL NUMBER OF EACH RIFLE USED IN THIS TEST.

-AT THE COMPLETION OF 50,000 DRY CYCLES AND AFTER APPROPRIATE MEASUREMENTS ARE MADE AND RECORDED A SAMPLE OF AT LEAST 8 OF EACH TYPE (i.e. EXPERIMENTAL AND CONTROL) FIRECONTROLS WILL BE ASSEMBLED TO AN ACTION AND FUNCTION TESTED FOR 1000 ROUNDS.

FOUR OF THE ACTIONS USED WILL BE SHORT ACTION USING AT LEAST FOUR DIFFERENT CALIBERS. FOUR OF THE ACTIONS WILL BE LONG ACTION, TWO WHICH WILL BE CHAMBERED FOR TWO DIFFERENT STANDARD ROUNDS AND TWO TO BE CHAMBERED FOR TWO DIFFERENT MAGNUM ROUNDS OF AMMUNITION. A RECORD IS TO BE KEPT OF EACH CALIBER SHOT, EACH ACTION TYPE USED AND THE SERIAL NUMBER OF EACH RIFLE TESTED.

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GENERAL TEST PROCEDURE FOR THE DRY CYCLE, MEASUREMENTS, DROP TESTING PORTION OF THE TEST PROGRAM.

THE FOLLOWING PROCEDURE OUTLINES THE "FLOW" OF ASSEMBLIES THROUGH THE DRY CYCLE, MEASUREMENT AND DROP TESTING.

PRIOR TO THE START OF DRY CYCLE AND DROP TESTING:

1. MARK ALL FIRECONTROL ASSEMBLIES PER THE IDENTIFICATION PROCEDURE OUTLINED ABOVE.

2. ASSEMBLE A FIRE CONTROL INTO ONE OF THE MASTER ACTIONS. RECORD MASTER ACTION ID ON THE DATA COLLECTION FORM IN THE SPACE PROVIDED.

3. PUT THE MASTER ACTION ONTO SWS STOCK.

4. PUT SWS / MASTER ACTION / FIRE CONTROL INTO SWS TRIGGER PULL MEASURING DEVICE AND PERFORM THE ASSEMBLY CHECKS TO INSURE PROPER CLEARANCES ARE MAINTAINED BETWEEN COMPONENTS AND SUB-ASSEMBLIES.

5. RECORD THE RESULTS OF EACH OF 3 TRIALS FOR TRIGGER PULL AS MEASURED BY THE DEVICE. RECORD IN THE "B.LUBE" COLUMN ON THE "0" ROUND LEVEL OF THE FORM.

6. WHILE STILL IN THE SWS STOCK MEASURE SAFE-ON TO SAFE-OFF FORCES. RECORD THE RESULTS OF EACH OF 3 TRIALS USING THE HAND-HELD CHATILLION FORCE GAGE.
NOTE: THE CORRECT COLUMN TO RECORD THIS DATA ON THE FORM IS WHERE THE SAFETY LEVER "ENDS UP" AS THE CHECK IS MADE. THAT IS, THE "SAFE ON FORCE" COLUMN IS WHERE THE FORCE READING IS RECORDED WHEN THE SAFE-OFF TO SAFE-ON CHECK IS MADE. THE "SAFE *OFF* FORCE" COLUMN IS WHERE THE FORCE READING IS RECORDED WHEN THE SAFE-ON TO SAFE-OFF CHECK IS MADE.

7. MEASURE SAFE-OFF TO SAFE-ON FORCES. RECORD THE RESULTS OF EACH OF 3 TRIALS USING THE HAND-HELD CHATILLION FORCE GAGE.

8. MEASURE SEAR LIFT WITH GAGE #D-44581 AND RECORD THE MEASUREMENT ON THE INSPECTION FORM.

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9. REMOVE MASTER ACTION AND THE ATTACHED FIRECONTROL FROM THE SWS STOCK.

10. USE AN AIR HOSE TO CLEAN OFF THE TRIGGER/SEAR ENGAGEMENT SURFACES BY BLOWING COMPRESSED AIR THROUGH THE INSPECTION HOLE SO THAT MEASUREMENTS CAN BE ACCURATELY MADE ON THE COMPARATOR SCREEN. DO NOT USE THE COMPRESSED AIR TO CLEAN ANY OF THE REST OF THE FIRECONTROL. DO NOT CLEAN THE FIRECONTROL IN ANY SOLVENTS OR USE ANY OTHER CLEANING METHODS.

11. PLACE MASTER ACTION WITH ATTACHED FIRECONTROL IN THE OPTICAL COMPARATOR FIXTURE LOCATED IN PURCHASE PART INSPECTION AND MEASURE THE SEAR ENGAGEMENT AND TRIGGER PRE-PLAY. PUT THE SAFETY LEVER IN THE ON-SAFE POSITION. PLACE A LABEL ON THE SCREEN WITH A PIECE TAPE AND A PIECE OF PAPER WITH THE FIRECONTROL ID AND INSPECTION LEVEL WRITTEN ON IT AND TAKE A PHOTOGRAPH WITH THE EDGE OF THE SEAR ENGAGEMENT SURFACE, THE EDGE OF THE TRIGGER AND THE LABEL IN THE FIELD OF VIEW.

12. REMOVE THE FIRE CONTROL FROM THE MASTER ACTION

13. ASSEMBLE THE FIRE CONTROL TO THE SPECIAL ACTION PROVIDED FOR THE SAFETY LEVER FUNCTION TEST.

14. PERFORM THE SAFETY LEVER FUNCTION TEST PER THE PROCEDURE PROVIDED. RECORD THE RESULTS AS PASS (P) OR FAIL (F) IN THE SPACE PROVIDED ON THE DATA COLLECTION FORM.

15. REMOVE FIRE CONTROL FROM THE SPECIAL ACTION USED FOR THE SAFETY LEVER FUNCTION TEST.

16. ASSEMBLE EACH OF THE 12 TEST FIRECONTROLS AND EACH OF THE 12 CONTROL FIRECONTROLS INTO A FUNCTIONAL ACTION AND STOCK AND FIRE 100 ROUNDS OF LIVE AMMUNITION THROUGH EACH FIRE CONTROL/ACTION . RECORD ANY MALFUNCTIONS AND NOTE ESPECIALLY ANY RELATED TO THE FIRE CONTROL/ ACTION. RECORD THE CALIBER, TYPE OF ACTION AND SERIAL NUMBER OF EACH RIFLE SHOT. RECORD THIS INFORMATION IN THE COMMENTS SECTION AT THE BOTTOM OF THE DATA COLLECTION FORM.

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17. REMOVE THE FIRECONTROLS FROM THE LIVE FIRE TEST STOCKS AND ACTIONS.

18. ASSEMBLE THE FIRE CONTROL TO AN ACTION AND STOCK TO BE USED FOR DROP TESTING. COMPLETE THE ASSEMBLY CHECKS TO INSURE PROPER CLEARANCES.

19. PERFORM ANSI/SAAMI DROP TEST, JAR OFF AND ROTATION TESTS PER TEST SPECIFICATIONS. RECORD RESULTS ON FORM PROVIDED

20. REMOVE FIRE CONTROL FROM DROP TEST ACTION AND STOCK AND RE-ASSEMBLE TO AN ACTION TO BE USED FOR DRY CYCLE. PRIOR TO RE-ASSEMBLY VISUALLY CHECK THE FIRE CONTROL FOR ANY SIGNS OF DAMAGE THAT MIGHT BE DUE THE DROP, JAR OFF OR ROTATION TEST. COMPLETE ASSEMBLY CHECKS TO ASSURE PROPER CLEARANCES.

21. START THE DRY CYCLE OPERATION AND CONTINUE UNTIL THE FIRST 10,000 CYCLE INSPECTION LEVEL.

AT THE COMPLETION OF 10,000 CYCLES IN THE DRY CYCLE MACHINE:

22. REMOVE DRY CYCLE ACTION FROM DRY CYCLE MACHINE.

23. REMOVE THE FIRECONTROL FROM THE DRY CYCLE ACTION.

24. ASSEMBLE THE FIRECONTROL INTO ONE OF THE MASTER ACTIONS.

25. PUT THE MASTER ACTION INTO THE SWS STOCK. PERFORM THE ASSEMBLY CHECKS TO ASSURE PROPER CLEARANCES.

26. PUT SWS / MASTER ACTION / FIRECONTROL INTO SWS TRIGGER PULL DEVICE. RECORD THE RESULTS OF EACH OF 3 TRIALS FOR TRIGGER PULL AS MEASURED BY THE DEVICE.

27. WHILE STILL IN THE SWS STOCK MEASURE SAFE-ON TO SAFE-OFF FORCES. RECORD THE RESULTS OF EACH OF 3 TRIALS USING THE HAND-HELD CHATILLION FORCE GAGE.

28. MEASURE SAFE-OFF TO SAFE-ON FORCES. RECORD THE RESULTS OF EACH OF 3 TRIALS USING THE HAND-

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HELD CHATILLION GAGE.

29. MEASURE THE SEAR LIFT WITH GAGE #D-44581 AND RECORD THE MEASUREMENT ON THE INSPECTION FORM.

30. REMOVE MASTER ACTION AND THE ATTACHED FIRECONTROL FROM THE SWS STOCK.

31. USE AN AIR HOSE TO CLEAN OFF THE TRIGGER/SEAR ENGAGEMENT SURFACES BY BLOWING COMPRESSED AIR THROUGH THE INSPECTION HOLE SO THAT MEASUREMENTS CAN BE ACCURATELY MADE ON THE COMPARATOR SCREEN. DO NOT USE THE COMPRESSED AIR TO CLEAN ANY OF THE REST OF THE FIRECONTROL. DO NOT CLEAN THE FIRECONTROL IN ANY SOLVENTS OR USE ANY OTHER CLEANING METHODS.

32. PLACE MASTER ACTION WITH ATTACHED FIRECONTROL IN THE OPTICAL COMPARATOR FIXTURE LOCATED IN PURCHASE PARTS INSPECTION AND MEASURE THE SEAR ENGAGEMENT AND TRIGGER PRE-PLAY. PUT THE SAFETY LEVER IN THE ON-SAFE POSITION. PLACE A LABEL ON THE SCREEN WITH A PIECE TAPE AND A PIECE OF PAPER WITH THE FIRECONTROL ID AND INSPECTION LEVEL WRITTEN ON IT AND TAKE A PHOTOGRAPH WITH THE EDGE OF THE SEAR ENGAGEMENT SURFACE, THE EDGE OF THE TRIGGER AND THE LABEL IN THE FIELD OF VIEW.

33. REMOVE THE FIRE CONTROL FROM THE MASTER ACTION

34. ASSEMBLE THE FIRE CONTROL TO THE SPECIAL ACTION PROVIDED FOR THE SAFETY LEVER FUNCTION TEST.

35. PERFORM THE SAFETY LEVER FUNCTION TEST PER THE PROCEDURE PROVIDED.

36. REMOVE FIRE CONTROL FROM THE SPECIAL ACTION USED FOR THE SAFETY LEVER FUNCTION TEST.

37. ASSEMBLE THE FIRE CONTROL TO AN ACTION AND STOCK TO BE USED FOR DROP TESTING. COMPLETE THE ASSEMBLY CHECKS TO INSURE PROPER CLEARANCES.

38. PERFORM ANSI/SAAMI DROP TEST, JAR OFF AND ROTATION TESTS PER TEST SPECIFICATIONS. RECORD

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RESULTS ON FORM PROVIDED

39. REMOVE ACTION AND FIRECONTROL FROM THE DROP TEST STOCK. REMOVE THE FIRECONTROL FROM THE DROP TEST ACTION.

40. LUBRICATE THE FIRECONTROL PER THE M/700 OWNERS MANUAL AND ASSEMBLE TO A MASTER ACTION. PRIOR TO RE-ASSEMBLY VISUALLY CHECK THE FIRE CONTROL FOR ANY SIGNS OF DAMAGE THAT MIGHT BE DUE THE DROP, JAR OFF OR ROTATION TEST. AFTER RE-ASSEMBLY TO THE ACTION AND THE APPLICATION OF THE LUBRICANT PER THE OWNERS MANUAL INSTRUCTIONS, CYCLE THE ACTION A MINIMUM OF 5 TIMES, COCKING THE ACTION EACH TIME, PULLING THE TRIGGER AND PUSHING THE SAFE OFF AND THEN ON EACH TIME THE ACTION IS CYCLED TO DISTRIBUTE THE LUBRICATION OVER THE TRIGGER / SEAR ENGAGEMENT SURFACES.

41. ASSEMBLE MASTER ACTION / FIRECONTROL TO THE SWS STOCK. PERFORM ASSEMBLY CHECKS TO ASSURE PROPER CLEARANCES ARE MAINTAINED.

42. PUT SWS / MASTER ACTION / FIRECONTROL INTO SWS TRIGGER PULL DEVICE. RECORD THE RESULTS OF EACH OF 3 TRIALS FOR TRIGGER PULL AS MEASURED BY THE DEVICE. RECORD THE RESULTS OF THIS TRIGGER PULL TEST IN THE COLUMN LABELED "A.LUBE" ON THE DATA COLLECTION FORM.

43. REMOVE MASTER ACTION AND FIRE CONTROL FROM SWS STOCK AND RE-ASSEMBLE TO AN ACTION TO BE USED FOR DRY CYCLE. .

44. START THE DRY CYCLE OPERATION AND CONTINUE UNTIL THE 20,000 CYCLE INSPECTION LEVEL.

45. REPEAT STEPS 22 THROUGH 45 AGAIN UNTIL ALL CHECKS AND MEASUREMENTS AND TESTS ARE COMPLETED AFTER THE 50,000 CYCLES.

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MEASUREMENTS:

DEFINITIONS:

SEAR LIFT:
THIS MEASUREMENT IS MADE TO DETERMINE THE AMOUNT OF "LIFT" THAT IS APPLIED TO THE SEAR WHEN THE SAFE IS IN THE "SAFE-ON" POSITION. THIS IS MEASURED WITH A SPECIAL GAGE THAT FITS INTO THE RECEIVER. GAGE #D-44581 IS USED TO MEASURE THIS SPECIFICATION. THE SPECIFICATION THAT HAS BEEN ESTABLISHED FOR THIS CHARACTERISTIC ON THE NEW FIRECONTROL IS .006" - .018"

SEAR ENGAGEMENT:
THIS IS A MEASUREMENT OF THE AMOUNT OF "OVERLAP" BETWEEN THE TOP EDGE OF THE TRIGGER (OR CONNECTOR IN THE CASE OF THE STANDARD FIRE CONTROL) AND THE UNDERSIDE EDGE OF THE SEAR SAFETY CAM. THIS CHARACTERISTIC IS MEASURED ON AN OPTICAL COMPARATOR. THE SPECIFICATION THAT HAS BEEN ESTABLISHED FOR THIS CHARACTERISTIC IS .018" - .022"

TRIGGER PULL:
THE AMOUNT OF FORCE REQUIRED TO MOVE THE TRIGGER TO THE POINT WHERE THE SEAR IS RELEASED WHEN THE ACTION IS IN THE SAFETY-OFF, COCKED AND READY TO FIRE CONDITION AS MEASURED ON THE SWS TRIGGER PULL MEASUREMENT DEVICE. THE SWS TRIGGER PULL MEASURING MACHINE WILL BE USED FOR MEASURING THIS CHARACTERISTIC. THE SPECIFICATION THAT HAS BEEN ESTABLISHED FOR THIS CHARACTERISTIC IS 3 LB. - 5 LB.

TRIGGER PRE-PLAY:
THE AMOUNT OF TRIGGER TRAVEL BEFORE THE TRIGGER STOPS ON THE TRIGGER BLOCK PLUNGER. THE SPECIFICATION ESTABLISHED FOR THIS CHARACTERISTIC IS .004" - .010"

TOTAL TRIGGER TRAVEL:
THE SUM OF THE SEAR ENGAGEMENT AND THE FORWARD TRAVEL OF THE TRIGGER AFTER THE RIFLE IS "FIRED" (SEE PROCEDURE BELOW.) NO SPECIFICATIONS ARE ESTABLISHED FOR THIS CHARACTERISTIC. RECORD TOTAL TRIGGER TRAVEL IN THE SPACE PROVIDED ON THE DATA COLLECTION FORM FOR INFORMATION ONLY.

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MEASUREMENTS PROCEDURE:

SEAR LIFT:

THIS IS MEASURED WITH A SPECIAL GAGE THAT FITS INTO THE RECEIVER. USE GAGE# D-44581.

SEAR ENGAGEMENT:

THIS MEASUREMENT WILL BE MADE ON THE 30" COMPARATOR LOCATED IN PURCHASED PARTS. WITH THE SAFE IN THE "OFF" POSITION, ZERO THE DIGITAL READOUT WITH THE CROSS HAIRS ON THE CORNER OF THE SEAR SAFETY CAM. THEN MOVE THE CROSS HAIRS TO THE REAR TOP CORNER OF THE TRIGGER AND NOTE THE READING FROM THE DIGITAL READOUT. RECORD THE READING ON THE DATA COLLECTION FORM.

TRIGGER PRE-PLAY:

THIS MEASUREMENT WILL BE MADE ON THE 30" COMPARATOR LOCATED IN PURCHASED PARTS. WITH THE SAFE IN THE "ON" POSITION, ZERO THE DIGITAL READOUT WITH THE CROSS HAIRS ON THE TOP REAR CORNER OF THE TRIBBER. PULL AND HOLD THE TRIGGER AND MOVE THE CROSS HAIRS TO THE NEW LOCATION OF THE TOP CORNER OF THE TRIGGER AND RECORD THE READING FROM THE DIGITAL DISPLAY.

TRIGGER PULL:

THE TRIGGER PULL WILL BE MEASURED USING THE SWS TRIGGER PULL TESTING MACHINE. A "MEASUREMENT STANDARD" ACTION AND SWS STOCK (SO THE ACTION WILL FIT IN THE SWS TRIGGER PULL MEASURING DEVICE) WILL BE USED TO ELIMINATE ANY EFFECTS ON VARIABILITY OF TRIGGER PULL DUE TO DIFFERENCES IN STOCKS OR ACTIONS. THE PARTICULAR "MEASUREMENT STANDARD" ACTION STOCK ID WILL BE RECORDED ON THE MEASUREMENT SHEET.

FOLLOW THE STANDARD OPERATING PROCEDURE ESTABLISHED FOR THE USE OF THE SWS TRIGGER PULL DEVICE. RECORD THE RESULTS OF THREE TRIALS ON THE DATA COLLECTION FORM.

TRIGGER PULLS WILL BE CHECKED AT THE START OF THE TEST, IMMEDIATELY AFTER REMOVAL FROM THE DRY CYCLE MACHINE AT EACH 10,000 CYCLE INSPECTION POINT. THE TRIGGER PULL WILL FIRST BE MEASURED WITHOUT ADDING ANY LUBRICATION TO THE TRIGGER/SEAR ENGAGEMENT SURFACE. THE RESULTS OF EACH OF THREE PULLS WILL BE RECORDED ON THE INSPECTION SHEET. AFTER OTHER MEASUREMENTS AND INSPECTIONS THEN LUBRICATION WILL BE APPLIED PER THE M/700 OWNER'S MANUAL. THREE MORE

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MEASUREMENTS OF TRIGGER PULL WILL BE MADE AND RECORDED.

TOTAL TRIGGER TRAVEL:

WITH THE RIFLE ACTION (AND WITH THE BOLT CLOSED) MOUNTED IN THE COMPARATOR WITH THE SAFETY IN THE "FIRE" OR OFF-SAFE POSITION, ZERO THE DIGITAL READOUT WHEN THE CROSS HAIRS ARE ON THE REAR TOP CORNER OF THE TRIGGER. PULL THE TRIGGER TO "FIRE" THE RIFLE. OPEN THE ACTION. PULL THE TRIGGER UNTIL IT STOPS MOVING FORWARD. MOVE CROSSHAIRS TO THE NEW LOCATION OF TOP CORNER OF TRIGGER AND NOTE READING FROM DIGITAL SCALE.

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FUNCTION TESTS:

DRY CYCLE TEST PROCEDURE:

1. ASSEMBLE THE FIRECONTROL TO THE DRY CYCLE ACTION AND STOCK. ASSEMBLY BOLT. LUBRICATE THE COCKING CAM SURFACES WITH "NEVER SEIZE". LUBRICATE THE LOCKING LUGS. PERFORM ASSEMBLY CHECKS TO ASSURE THAT CLEARANCES ARE MAINTAINED.

2. PLACE RIFLE IN THE DRY CYCLE MACHINE AND CONNECT CLAMPS FOR THE BOLT HANDLE AND THE SAFETY LEVER. CHECK PLACEMENT OF TRIGGER FIRING PLUNGER. CHECK OPERATION OF DRY CYCLE MACHINE TO DETERMINE IF COCK, DRY FIRE, SAFETY FUNCTION OPERATIONS ARE BEING PROPERLY CYCLED. MAKE SURE ACTION IS FULLY COCKED FOR EACH CYCLE.

3. MAKE SURE COUNTER IS ZEROED PRIOR TO START TO DRY CYCLE TESTING.

4. PERIODICALLY CHECK MACHINE DURING DRY CYCLING AND MAKE REPAIRS OR ADJUSTMENTS AS REQUIRED. LOG ON RECORD ANY ADJUSTMENTS OR REPAIRS MADE DURING THE TESTING.

5. AT THE COMPLETION OF THE SPECIFIED CYCLE LEVEL REMOVE THE RIFLE FROM THE DEVICE, AND FOLLOW THE TEST PROCEDURE AS OUTLINED ABOVE.

SAFETY FUNCTION TEST PROCEDURE:

1. PLACE FIRECONTROL / ACTION IN SAFETY FUNCTION TEST STOCK.

2. HANG RIFLE VERTICALLY WITH THE MUZZLE UP.

3. MOVE THE SAFE LEVER TO THE OFF-SAFE POSITION

4. GENTLY PLACE A 10 LB. DEAD WEIGHT ON THE TRIGGER. THE RIFLE MUST "FIRE".

5. LEAVING THE 10 LB. WEIGHT IN PLACE ON THE TRIGGER, CAREFULLY OPEN THE ACTION.

6. ATTEMPT TO PLACE THE SAFE LEVER IN THE ON-SAFE POSITION USING A 25 LB. DEAD WEIGHT CAREFULLY AND GENTLY PLACED SO AS TO HANG ON THE SAFETY LEVER. THE SAFETY LEVER CANNOT MOVE TO THE ON-SAFE POSITION WITH THE ACTION OPEN AND THE TRIGGER PULLED (THAT IS, WITH THE 10 LB. DEAD WEIGHT ATTACHED.)

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ANSI/SAAMI Z299.5-1990 - a.k.a. the "SAAMI DROP TEST" PROCEDURE

DROP TEST: (AS QUOTED DIRECTLY FROM THE ANSI/SAAMI STANDARD)

1. WITH THE FIREARM IN THE "SAFE CARRYING" CONDITION, THE FIREARM SHALL BE CAPABLE OF PASSING THE BELOW TEST CRITERIA FOR DROP TESTING FROM A HEIGHT OF FOUR FEET (1.22 m) ONTO A 85±5 DUROMETER (SHORE A) RUBBER MAT, ONE INCH THICK (2.54 cm), BACKED BY CONCRETE. THE MAT AND CONCRETE SHALL BE LARGE ENOUGH SO THAT WHEN THE GUN IS DROPPED IT WILL FALL AND COME TO REST WITHOUT INTERFERENCE WITHIN THE PERIMETER OF THE MAT. THE DROP HEIGHT SHALL BE MEASURED FROM THE SURFACE OF THE RUBBER MAT TO THE CENTER OF GRAVITY OF THE FIREARM. THE CENTER OF GRAVITY SHALL BE DETERMINED TO AN ACCURACY OF ± ONE INCH BY ANY RECOGNIZED METHOD FOR FINDING THE CENTER OF GRAVITY OF AN IRREGULAR SHAPED OBJECT. THE FIREARM SHALL BE RECOCKED AND RESET IN THE "SAFE CARRYING" CONDITION AFTER EACH DROP OR A SEPARATE FIREARM MAY BE USED FOR EACH DROP. AS AN ALTERNATIVE TO FREE DROPPING, OTHER METHODS MAY BE SUBSTITUTED IF THEY PROVIDE EQUIVALENT IMPACT CHARACTERISTICS.

2. CRITERION - THE FIREARM SHALL NOT FIRE A CHAMBERED EMPTY PRIMED CASE OF ITS DESIGNATED CARTRIDGE WHEN TESTED IN ACCORDANCE WITH THIS PROCEDURE. IN A MULTI-CHAMBERED GUN THE PRIMED CASE(S) SHALL BE INSERTED IN THE CHAMBER(S) DIRECTLY IN FRONT OF THE FIRING PIN(S). PARTS BREAKAGE OR OTHER DAMAGE RESULTING FROM DROP TESTING DOES NOT CONSTITUTE FAILURE AS LONG AS THE EMPTY PRIMED CASE DOES NOT FIRE AND THE FIREARM CAN BE UNLOADED SAFELY AFTER EACH DROP.

3. TEST PROCEDURE - THE FIREARM OR FIREARMS SHALL BE DROPPED IN SUCH A WAY AS TO CAUSE THEM TO STRIKE THE RUBBER MAT SURFACE IN EACH OF THE FOLLOWING ATTITUDES:

A. BARREL VERTICAL, MUZZLE DOWN.
B. BARREL VERTICAL, MUZZLE UP.
C. BARREL HORIZONTAL, BOTTOM UP.
D. BARREL HORIZONTAL, BOTTOM DOWN.
E. BARREL HORIZONTAL, LEFT SIDE UP.
F. BARREL HORIZONTAL, RIGHT SIDE UP.

4. THE TEST SHALL BE CONDUCTED WITH THE TRIGGER PULL FORCE SET AT THE MINIMUM FORCE SPECIFIED BY THE MANUFACTURER.

5. THE TEST SHALL BE CONDUCTED WITH THE MAGAZINE, CUP OR REMAINING REVOLVER CYLINDER CHAMBERS FULLY LOADED WITH DUMMY CARTRIDGES AND LOCKED IN PLACE.

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6. THE TEST SHALL BE CONDUCTED WITH FIREARMS OF MINIMUM AND MAXIMUM WEIGHT CONFIGURATIONS OF A GIVEN MODEL, INCLUDING WEIGHT VARIATIONS INTRODUCED BY ACCESSORIES CATALOGUED BY THE MANUFACTURER.

JAR OFF TEST:

1. THIS TEST SIMULATES THE ABUSIVE IMPACTING (BUMPING) OF THE FIREARM AGAINST A HARD SURFACE WITH THE FIREARM IN A CONDITION OF MAXIMUM READINESS.

2. WITH THE FIREARM COCKED AND IN THE READY-TO-FIRE CONDITION (SAFETY "OFF") THE FIREARM SHALL BE CAPABLE OF PASSING A JAR-OFF SHOCK EQUIVALENT TO BEING DROPPED FROM A HEIGHT OF TWELVE INCHES (0.305 m) ONTO A 85±5 DUROMETER (SHORE A) RUBBER MAT, ONE INCH (2.54 cm) THICK, BACKED BY CONCRETE. THE MAT AND CONCRETE SHALL BE LARGE ENOUGH SO THAT WHEN THE GUN IS DROPPED IT WILL FALL COMPLETELY WITHIN THE PERIMETER OF THE MAT. THE DROP HEIGHT SHALL BE MEASURED FROM THE SURFACE OF THE RUBBER MAT TO THE LOWEST POINT ON THE FIREARM. THE GUN SHALL BE CAUGHT AFTER ITS FIRST BOUNCE FROM THE MAT SO THAT IT STRIKES THE MAT ONLY ONE TIME. THE FIREARM SHALL BE RECOCKED AND RESET IN THE READY-TO-FIRE CONDITION AFTER EACH DROP OR A SEPARATE FIREARM MAY BE USED FOR EACH DROP. AS AN ALTERNATIVE TO FREE DROPPING, OTHER METHODS MAY BE SUBSTITUTED IF THEY PROVIDE EQUIVALENT IMPACT CHARACTERISTICS.

3. CRITERION - THE FIREARM SHALL NOT FIRE A CHAMBERED EMPTY PRIMED CASE OF ITS DESIGNATED CARTRIDGE WHEN TESTED IN ACCORDANCE WITH THIS PROCEDURE. IN THE CASE OF A MULTI-CHAMBERED GUN, THE PRIMED CASE (S) SHALL BE IN THE CHAMBER (S) DIRECTLY IN FRONT OF THE FIRING PIN (S). PARTS BREAKAGE OR OTHER DAMAGE RESULTING FROM DROP TESTING DOES NOT CONSTITUTE FAILURE AS LONG AS THE EMPTY PRIMED CASE DOES NOT FIRE AND THE FIREARM CAN BE UNLOADED SAFELY AFTER EACH DROP.

4. TEST PROCEDURE - THE FIREARM OR FIREARMS SHALL BE DROPPED IN SUCH A WAY AS TO CAUSE THEM TO STRIKE THE RUBBER MAT SURFACE ONE TIME ONLY IN EACH OF THE FOLLOWING ATTITUDES.

A. BARREL VERTICAL, MUZZLE DOWN.
B. BARREL VERTICAL, MUZZLE UP.
C. BARREL HORIZONTAL, BOTTOM UP.
D. BARREL HORIZONTAL, BOTTOM DOWN.
E. BARREL HORIZONTAL, LEFT SIDE UP.
F. BARREL HORIZONTAL, RIGHT SIDE UP.

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5. THE TEST SHALL BE CONDUCTED WITH THE TRIGGER PULL FORCE SET AT THE MINIMUM FORCE SPECIFIED BY THE MANUFACTURER.

6. THE TEST SHALL BE CONDUCTED WITH THE MAGAZINE, CLIP OR REMAINING REVOLVER CYLINDER CHAMBERS FULLY LOADED WITH DUMMY CARTRIDGES AND LOCKED IN PLACE.

7. THE TEST SHALL BE CONDUCTED WITH FIREARMS OF MINIMUM AND MAXIMUM WEIGHT CONFIGURATIONS OF A GIVEN MODEL, INCLUDING WEIGHT VARIATIONS INTRODUCED BY ACCESSORIES CATALOGUED BY THE MANUFACTURER.

ROTATION TEST:

1. THIS TEST SIMULATES THE ABUSIVE FALL OF A FIREARM WHEN LEFT LEANING AGAINST A VERTICAL SURFACE.

2. WITH THE RIFLE OR SHOTGUN IN THE "SAFE CARRYING" CONDITION, THE FIREARM SHALL BE CAPABLE OF PASSING THE BELOW TEST CRITERIA WHEN ALLOWED TO FALL FREELY FROM AN UPRIGHT POSITION WITH ITS BUTT RESTING ON THE SURFACE OF A 85±5 DUROMETER (SHORE A) RUBBER MAT, ONE INCH (2.54 cm) THICK, BACKED BY CONCRETE. THE MAT AND CONCRETE SHALL BE LARGE ENOUGH SO THAT WHEN THE GUN IS DROPPED IT WILL FALL AND COME TO REST WITHOUT INTERFERENCE WITHIN THE PERIMETER OF THE MAT. THE FIREARM SHALL BE RECOCKED AND RESET TO THE "SAFE CARRYING" CONDITION AFTER EACH DROP OR A SEPARATE FIREARM MAY BE USED FOR EACH DROP.

3. CRITERION - THE FIREARM SHALL NOT FIRE A CHAMBERED EMPTY PRIMED CASE OF ITS DESIGNATED CARTRIDGE WHEN TESTED IN ACCORDANCE WITH THIS PROCEDURE. IN A MULTI-CHAMBERED GUN THE PRIMED CASE (S) SHALL BE INSERTED IN THE CHAMBER (S) DIRECTLY IN FRONT OF THE FIRING-PIN (S). PARTS BREAKAGE OR OTHER DAMAGE RESULTING FROM DROP TESTING DOES NOT CONSTITUTE FAILURE AS LONG AS THE EMPTY PRIMED CASE DOES NOT FIRE AND THE FIREARM CAN BE UNLOADED SAFELY AFTER EACH DROP.

4. TEST PROCEDURE - THE FIREARM SHALL BE TESTED SO AS TO FALL ONCE ON ITS RIGHT SIDE AND ONCE ON ITS LEFT SIDE.

5. THE TEST SHALL BE CONDUCTED WITH THE TRIGGER PULL SET AT THE MINIMUM FORCE SPECIFIED BY THE MANUFACTURER.

6. THE TEST SHALL BE CONDUCTED WITH THE MAGAZINE OR CLIP FULLY LOADED WITH DUMMY CARTRIDGES AND LOCKED IN PLACE.

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7. THE TEST SHALL BE CONDUCTED WITH FIREARMS OF MINIMUM AND MAXIMUM WEIGHT CONFIGURATIONS OF A GIVEN MODEL, INCLUDING WEIGHT VARIATIONS INTRODUCED BY ACCESSORIES CATALOGUED BY THE MANUFACTURER.

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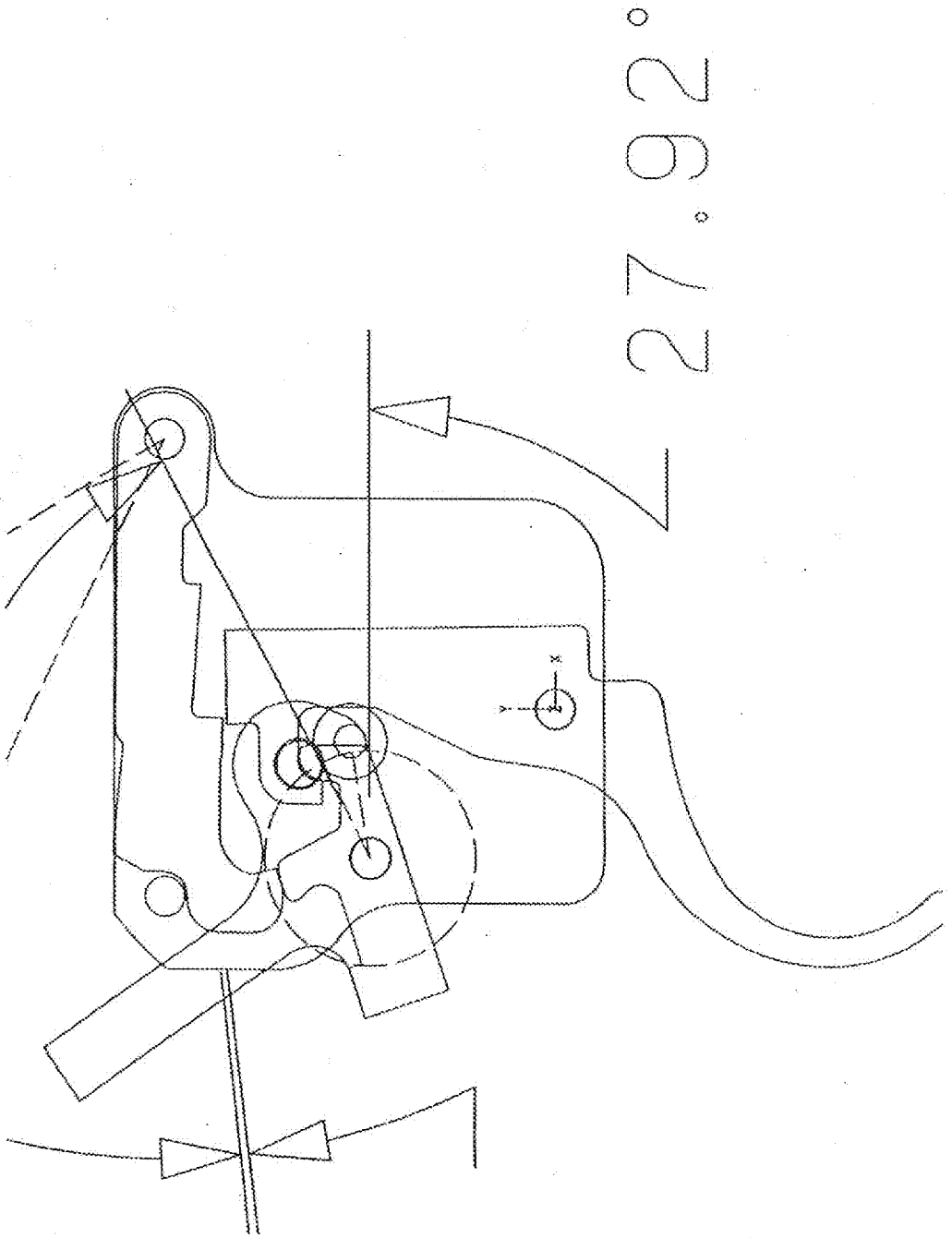

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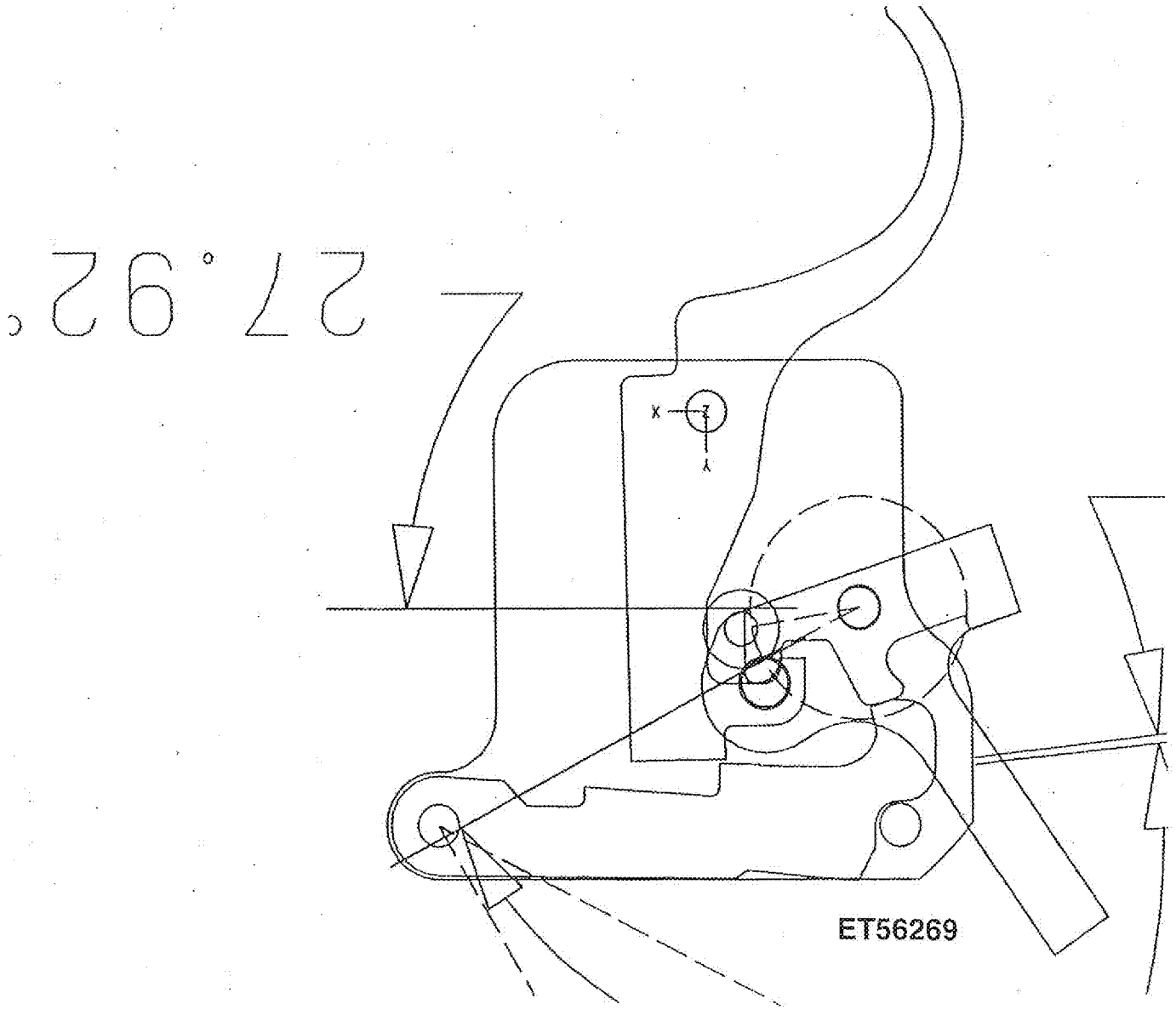

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FIRE CONT NUMBER	ROUND LEVEL	SEAR ENGAG	AVE TRIG PULL B LUBE	AVE TRIG PULL A LUBE	AVE SAFETY ON FORCE	AVE SAFETY OFF FORCE	TRIG PRE PLAY	SAFETY FUNCT TEST (P or F)	DROP TEST COMP (P or F)
A1	0	0.0176	4.81		6.93	5.97	0.0053	P	P
	10K	0.0164	4.43	3.67	5.43	3.67	0.0048	P	P
	20K	0.0207	3.96	4.87	4.4	3.83	0.0051	P	
A2	0K	0.0186	4.22		6.43	7.33	0.005	P	P
	10K	0.0203	6.32	5.19	8.6	5.87	0.0068	P	P
	20K		6.71		4.73	3.83			
A3	0K	0.0194	5.23		7.47	8.27	0.0079	P	P
	10K	0.0193	7.31	6.12	6.23	4.9	0.008	P	P
	20K	0.02	5.31	6.67	5.93	7.43	0.0088	P	
A4	0K	0.0195	4.19		6.83	5.37	0.0087	P	P
	10K	0.0198	10	6.26	7.5	4.4	0.0091	P	P
	20K	0.0199	5.56	5.03	4.4	3.5	0.0078	P	P
A5	OK	0.0195	4.19		6.83	5.37	0.0087	P	P
	10K	0.0198	10	6.26	7.5	4.4	0.0091	P	P
	20K	0.0199	5.56	5.03	4.4	3.5	0.0078	P	P
A6	OK	0.0187	5.35		6.4	7.8	0.005	P	P
	10K	0.0189	5.21	5.32	3.83	2	0.0045	P	P
	20K								
A7	OK	0.0189	4.12		6.77	8.23	0.0057	P	P
	10K	0.0192	4.45	5.26	7.53	6.9	0.0062	P	P
	20K								

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A8	0K	0.0189	4.12		6.77	8.23	0.0057	P	P
	10K	0.0192	4.45	5.26	7.53	6.9	0.0062	P	P
	20K								
A9	0K	0.0195	4.65		7.4	7.9	0.0054	P	P
	10K	0.0175	6.41	5.53	10.33	16.23	0.0056	P	P
	20K								
A10	0K	0.0191	6.18		7.63	8.77	0.008	P	P
	10K	0.0198	6.88	6.1	5.83	4.27	0.0062	P	P
	20K								
A11	0K	0.0191	4.86		6.03	7.1	0.0076	P	P
	10K	0.0198	6.79	6.61	6.23	4.7	0.0078	P	P
	20K								
A13	0K	0.0184	4.92		3.67	5.4	0.0042	P	P
	10K	0.0197	4.09	5.09	7.83	7.27	0.0049	P	P
	20K								
A14	0K	0.0181	4.47		5.67	5.93	0.0057	P	P
	10K	0.0194	5.43	4.03	6.9	4.8	0.005	P	P
	20K								
A16	0K	0.0185	4.68		4.93	5.87	0.0052	P	P
	10K								
	20K								
A51	0K	0.0212	6.22		2.93	6.3			P
	10K								
	20K								

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BARBER-2.4.13000681

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A52	0K	0.0185	6.06		2.4	4.67			P
	10K								
	20K								
A53	0K	0.0173	4.64		1.93	4.9			P
	10K								
	20K								
A54	0K	0.0172	4.46		1.87	3.93			P
	10K								
	20K								
A55	0K	0.019	4.92		2.27	4.19			P
	10K								
	20K								
A56	0K	0.0155	6.04		2.03	4.97			P
	10K								
	20K								
A57	0K	0.0191	5.75		2.4	3.83			P
	10K								
	20K								
A58	0K	0.0187	5.77		2.33	4.03			P
	10K								
	20K								
A59	0K	0.0177	6.09		10.33	6.3			P
	10K								
	20K								
A60	0K	0.0198	6.07		9.17	5.6			P

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BARBER - 2.4.13000682

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Sheet1

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March 17, 1995

Dear Dale,

On Thursday March 16, 1995, I was in a meeting to discuss the revised parts for the new fire control. The meeting was to review the design and make suggestions on what we can hold for part tolerances. The meeting contained Gary Barnes, Frank Ogrodnik, Dave Findlay (E town) and myself.

Today March 17, 1995, I contacted the tooling vendors to see what time frame will be required to complete the tooling for the trigger, front spacer, sear safety cam and the rear spacer.

Trigger (TRT) (P-20 prototype mold)

The mold for the trigger could be completed in 3 weeks from the time they are released to continue. They would require an IGIS file of the trigger so they can create the cutter paths to cut the electrodes.

Front Spacer (TRT) (P-20 prototype mold)

The mold for the front spacer would also be completed during the same time frame the trigger is being done.

Sear Safety Cam (Powder Metal tooling)

The vendor that was to do these Powder Metal tooling, gave me a time frame of about 7 weeks to fabricate both sets of tools. I am looking at a couple of different vendors I have used before to see if I can get these tools made in less time. I will have this information when we have the meeting next Wednesday, March 22, 1995.

Rear Spacer (Powder Metal tooling)

I will have to look at the vendors to have these tools fabricated. If the dimension are identical to the existing spacer, the time to get tools fabricated to revised areas would be around 4 weeks.

ET56274

Bill Rathbun, Eng.
Remington Arms
MIM Division

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Trig.right

		Trigger Assembly - Right Hand				
DWG. No.	Part Name:	Material	Labor			
E-107390	Trigger Assem. - Right Hand		1.00			
C-107345	Bolt Stop Release	0.13				
C-107380	Safety Assembly		0.18			
D-99255	Safety (blk. 99254)	0.35				
C-91852	Safety button	0.12				
B-107415	Safety Clip (blk. 99248)	0.08				
B-23220	Safety Detent Ball	0.02				
C-107320	Safety Detent Spring	0.18				
B-107300	Safety Pivot Pin (blk.99246)	0.32				
D-99261	Sear Safety Cam (blk.99260)	0.85				
A-17047	Sear Spring	0.10				
B-99235	Tamper Cap	0.06				
D-107370	Trigger (blk. E-99249)	1.80				
C-107335	Trigger Block Plunger	0.33				
A-107275	Trigger Block Plunger Spring	0.05				
B-99271	Trigger Screw - Rear (blk. 99270)	0.20				
C-107360	Trigger Housing Assembly		0.32			
B-14632	Trigger Housing Rivet (4)	0.04				
C-99247	Trigger Housing Spacer - Front	0.41				
B-99245	Trigger Housing Spacer - Rear	0.41				
C-107405	Side Plate Assembly - RH		0.08			
D-99250	Trigger Side Plate - Right	0.28				
B-99269	Safety Hold Down Rivet	0.05				
D-99251	Trigger Side Plate - Left	0.19				
B-107290	Trigger Pivot Pin (blk. 107285)	0.25				
B-107315	Trigger Plate Bushing (2) (blk. 107310)	0.28				
B-99273	Trigger Screw - Front (blk. 99272)	0.20				
A-99268	Trigger Spring	0.10				
	Total Parts	6.80				
	Total Labor		1.58			
	Total		8.38			
	Bold=Parts change/addition from low prunger design					

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Fire control outsource (low plunger design)

Part Number	Description	Moore Ind. (100,000/yr)		Axlen Group(100,000/yr)		KDI (200,000/yr)	
		Parts	Labor	Parts	Labor	Parts	Labor
107195	Final trigger assembly		$0.75		$0.89		
99216	Bolt stop release	$0.13		$0.29			
99210	Safety assembly		$0.08		$0.21		
99190	Safety	$0.28		$0.29			
91852	Safety button	$0.12		$0.99			
23222	Safety detent ball	$0.02		$0.06			
15368	Safety detent spring	$0.18		$0.37			
17043	Safety pivot pin	$0.32		$0.79			
17044	Safety snap washer	$0.08		$0.29			
99191	Sear safety cam	$0.85		$1.45			
17047	Sear spring	$0.10		$0.04			
99173	Trigger	$1.70		On Consignment			
99178	Trigger block plunger	$0.28		$0.63			
93647	Trigger block plunger spring	$0.05		$0.04			
107200	Trigger housing assembly				$0.32		
14632	Trigger housing rivet (4)	$0.04		$0.64			
99189	Trigger housing spacer (front)	$0.31		$0.47			
14632	Trigger housing spacer (rear)	$0.31		$0.10			
99184	Trigger plate bushing (2)	$0.26		$0.76			
99186	Trigger side plate (right)	$0.28		$0.37			
99188	Trigger side plate (left)	$0.19		$0.37			
24477	Trigger pin	$0.05		$0.33			
93656	Trigger spring	$0.10		$0.04			
	Sub-total parts	$5.67		$8.22			
	Sub-total labor		$0.83		$1.42		
	Total parts and labor	$6.50	*	$9.64		$8.11	**

*price for 200,000 would decrease by 5-8%

** Total cost including tooling, estimate +/- 25%

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BARBER - 2.4.13000687

Fire control outsource (low plunger design)

Part Number	Description	Moore Ind. (100,000/yr)		Axion Group(100,000/yr)		KDI (200,000/yr)	
		Parts	Labor	Parts	Labor	Parts	Labor
107195	Final trigger assembly		$0.75		$0.89		
99216	Bolt stop release	$0.13		$0.29			
99210	Safety assembly		$0.08		$0.21		
99190	Safety	$0.28		$0.29			
91852	Safety button	$0.12		$0.99			
23222	Safety detent ball	$0.02		$0.06			
15368	Safety detent spring	$0.18		$0.37			
17043	Safety pivot pin	$0.32		$0.79			
17044	Safety snap washer	$0.08		$0.29			
99191	Sear safety cam	$0.85		$1.45			
17047	Sear spring	$0.10		$0.04			
99173	Trigger	$1.70		On Consignment			
99178	Trigger block plunger	$0.28		$0.53			
93647	Trigger block plunger spring	$0.05		$0.04			
107200	Trigger housing assembly				$0.32		
14632	Trigger housing rivet (4)	$0.04		$0.64			
99189	Trigger housing spacer (front)	$0.31		$0.47			
14632	Trigger housing spacer (rear)	$0.31		$0.10			
99184	Trigger plate bushing (2)	$0.28		$0.76			
99186	Trigger side plate (right)	$0.28		$0.37			
99188	Trigger side plate (left)	$0.19		$0.37			
24477	Trigger pin	$0.05		$0.33			
93656	Trigger spring	$0.10		$0.04			
	Sub-total parts	$5.67		$8.22			
	Sub-total labor		$0.83		$1.42		
	Total parts and labor	$6.50 *		$9.64		$8.11 **	

*price for 200,000 would decrease by 5-8%

** Total cost including tooling, estimate +/- 25%

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Williams v. Remmington

To: Dave Findlay

From: Harold Davidson
Scott Franz

Date: 9-1-95

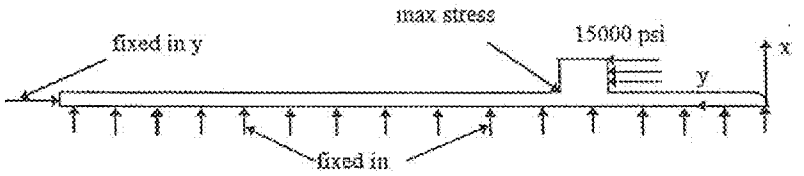
Subject:

Finite element analysis of standard, hourglass, and hollow firing pins for M700 Improvement project using Stresslab.

Loading and constraint conditions:

A 15000 lbf. pressure load was applied to the shoulder of the firing pin for the three two-dimensional models using axisymmetric elements and for the single three-dimensional model of the hourglass design. The end of the firing pin plug was constrained from movement in the direction of the axis of the firing pin. The axis of the firing pin was constrained from movement in a radial direction from its axis.

Schematic:



Results:

Results are to be used only on a comparative basis, since analysis results are for static load cases only.

	Max stress (psi)	Average stress along firing pin body (psi)
standard	21100	18000
hourglass	33400	26700
hollow	32400	27800

As a confirmation of the two-dimensional models, a three-dimensional model of the hourglass design was completed and an average stress of 30000 psi occurred along the length of the firing pin body.

Recommendations:

A strain gage analysis of the three firing pins should be performed to verify the relative stress levels given here and to better understand the stresses induced under realistic loading conditions.

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M/700 AE IMPROVEMENTS

Process Enhancements to Improve Accuracy

- ☐ Improved Receiver locking surface perpendicularlity
- ☐ Improved Receiver face / Barrel hub perpendicularlity
- ☐ Improved Bolt lug perpendicularlity to bolt body
- ☐ Improved Bolt face perpendicularlity to bolt lugs
- ☐ Improved Barrel groove tolerance and reduced dimensionally especially at muzzle end
- ☐ Improved Barrel crowning
- ☐ Improved Barrel chamber concentricity
- ☐ Broach bolt hole versus the current drill operation
- ☐ Barrel hub/receiver conterbore design

Design Enhancements to Improve Accuracy

- ☐ Reduce Lock Time (firing pin lighter/spring heavier)
- ☐ Bedding of Barrel to stock (recoil lug and 1" of bbl)
- ☐ Muzzle Break (recoil reduction) with noise reduction
- ☐ Firecontrol Improvements?
- ☐ 5r rifling
- ☐ Nasset Vibrational Control

Functional/Ergonomic Improvements

- ☐ Bolt Lock
- ☐ New Stock Design/Recoil Pad Change

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Williams v. Remmington

M/700 AE IMPROVEMENTS

	Initial	Current
Definition Phase		
❒ Specifications Approved	TBD	
❒ Focus Panels	TBD	
❒ Competitive Testing		
Development Phase		
❒ Initial Design	TBD	
❒ Phase I Prototype Testing	TBD	
❒ Re-design	TBD	
❒ Design Acceptance Testing	TBD	
❒ Transmittal	TBD	
Trial and Pilot		
❒ Tool Design	TBD	
❒ Tool Build	TBD	
❒ Trial and Pilot Sample (100) Build	TBD	
❒ Trial and Pilot Testing	TBD	
❒ Warehouse Date	TBD	

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BARBER - 2.4.130000694

5-91128

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DO NOT SCALE THIS DRAWING
UNLESS OTHERWISE NOTED
TOLERANCES ON DECIMAL DIMS
1 PLACE (.1) — TOLERANCE
2 PLACE (.01) — TOLERANCE
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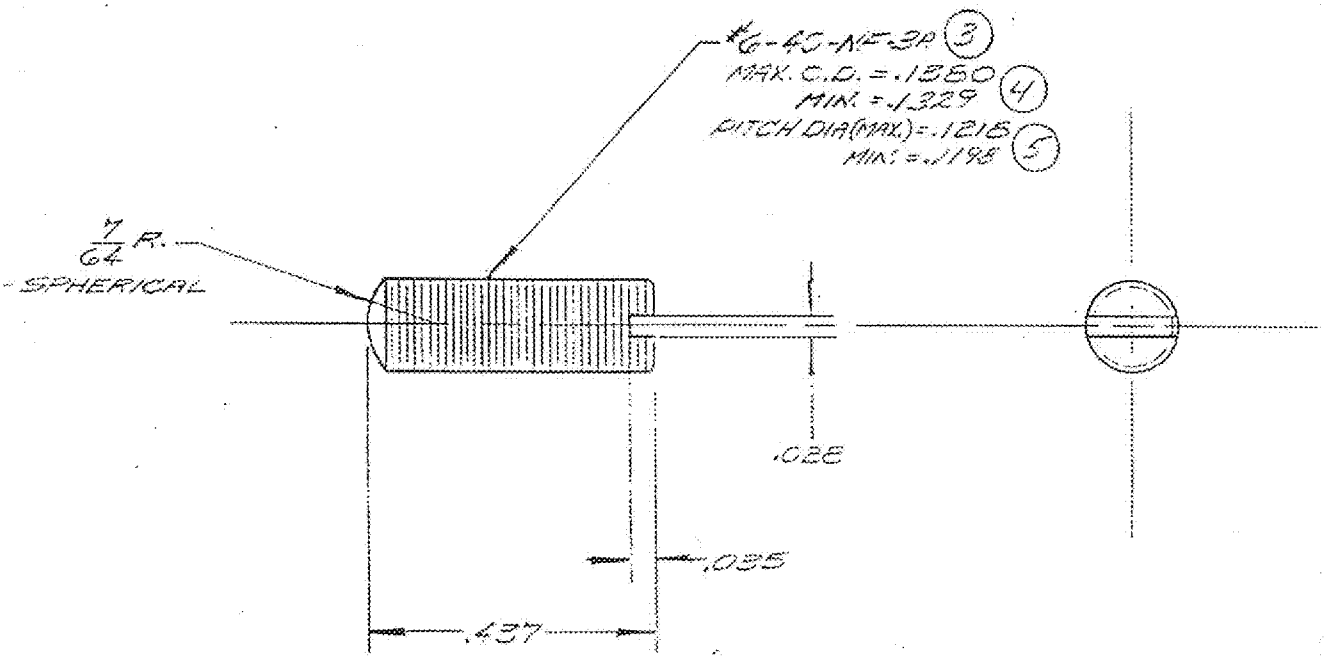
& ON FRACTIONAL DIMENSIONS
& ON ANGULAR DIMENSIONS
FINISHES ARE DESIGNATED BY
SQUARE (R.M.S.) MICRO-INCH
VALUES AND ARE THE MAXIMUM
ACCEPTABLE UNLESS OTHERWISE
FINISH ROUGHNESS TO BE 125



3 4 5

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ET55010

PAGE BREAK

M/700 Performance Enhancements

Status as of 8/04/95

Definition

- ❒ New fire control with the following changes:
  - One piece trigger
  - Smooth trigger bow
  - Trigger Pull of 3.0 lbs. -0 lbs. +"T" lbs.
    - ✓ "T" is the manufacturing tolerance
  - Assembly will be tamper evident
  - Sear, trigger, and housing will be skeletonized to allow:
    - ✓ Flushing with a solvent from the sear downwards towards the trigger bow
    - ✓ Visual inspection to ensure that the mechanism is clean
  - The safety lever arm and knob will be redesigned to be more user friendly.
  - The trigger will be balanced to the extent possible without moving the pivot point. The physical position of the bow may change to allow balancing.
  - The materials used will be those used in the current M/700 stainless steel firearm fire control.
  - The M/700 SS will have an electroless nickel trigger and the M/700 will have a gold plated trigger.
- ❒ Improved Bedding
  - Improve bedding of barreled action in stock.
- ❒ Lock Time Improvements
  - Lighter firing pin and potentially a heavier spring.
- ❒ Ergonomic Improvements
  - Safety button redesigned.

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BARBER - 2.4.130000698

Status

- ❒ Fire Control
  - Right side plates distorted during heat treat. Trigger pivot hole and safety pivot hole out of position. Ordered 30 new right side plates. Due 8/15/95.
  - All triggers out of specification due to the .002 max break specification on top rear corner of trigger and straightness.
  - Safety levers out of specification for position of lever arm with respect to pivot hole.

- ❒ Improved Bedding
  - One barreled action bedded with Loctite Form-A-Thread.
    - ✓ Shot 140 rounds. No failure.
  - Received 5 M/700 7MM Magnum rifles for bedding.
    - ✓ Alterations to stocks to be completed by 8/10/95.
  - Ordered Acraglas, Acra-quick, and Steelbed for comparison testing.
    - ✓ Acraglas currently used in Custom Shop.
  - Received photo sensitive polymers for bedding.
    - ✓ Dupont SOMOS 3100 and 6100.
    - ✓ Waiting on UV curing source.

- ❒ Lock Time Improvements
  - 15 long action, short action, and M/Seven external tapered firing pins on order. Due 08/11/95.
  - 15 long action, short action, and M/Seven tubular firing pins on order. Due 08/11/95.
  - Received 50 long action, short action, and M/Seven firing pin springs.

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Status

- Ergonomic Improvements
  - Three different safety button designs reviewed by management. Selected button C-99301.
  - Ordered 30 prototypes of safety button C-99301. Due 08/15/95.

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Action Items

Description	Status	Responsibility	Date
Need to improve current method of measuring lock time.	Designing fixture to be mounted on receiver using scope mounting holes.	Danner	08/11/95
Build prototypes of fire control.	Right side plates out of specification. Ordered new plates. Due 08/15/95.	Ford	08/15/95
Need prototype firing pins for locktime testing.	Prototype firing pins due 08/15/95.	Ford	08/15/95
Inspect new firing pin springs.	Design a fixture to measure springs.	Lewis	08/09/95
Decide if safety levers are usable or repairable..		Ford, Orf	08/08/95
Need to get all 4 dry cycle machines operational.	Order necessary parts and load cells for all dry cycle machines.	Danner	09/01/95
Repair Triggers and Sear Safety Cams.		Ford	08/18/95

ET55015

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Program Schedule

	Initial	Current
❒ Fire Control		
• Prototype Build	07/28/95	07/28/95
• Heat Treat Prototype Parts	07/28/95	07/28/95
• Inspect Prototype Parts	08/04/95	08/04/95
• Assemble Prototype Parts	08/11/95	08/25/95
• Design Acceptance Testing	09/15/95	09/21/95
• Transmittal & Parts List	09/22/95	09/22/95
• Documentation Package	09/29/95	09/29/95
• Route Transmittal	10/06/95	10/06/95
❒ Improved Bedding		
• Investigate Material for Bedding	08/25/95	08/25/95
❒ Improved Lock Time		
• Prototype Build	08/10/95	08/11/95
• Heat Treat Prototype Parts	08/16/95	08/16/95
• Inspect Prototype Parts	08/25/95	08/25/95
• Assemble Prototype Parts	08/30/95	08/30/95
• Design Acceptance Testing	09/15/95	09/21/95
• Transmittal & Parts List	09/22/95	09/22/95
• Documentation Package	09/29/95	09/29/95
• Route Transmittal	10/06/95	10/06/95

ET55016

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BARBER - 2.4.130000702

Areas of Concern

- Concerned about timing for catalog samples.
- Transmittal date in jeopardy due to parts out of specification.
- Application procedure of Loctite Form-A-Thread to barreled action is tedious.
- M/700 DM magazine box height effected by bedding.

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PAGE BREAK

REMINGTON ARMS COMPANY, INC.
WILMINGTON, DE 19805-1270

July 26,1995

To: Tony Hancock

From: John Balio

Subject: M/700 Safety Button Style

Jay and I reviewed the three samples sent by Bob Orf. We recommend the symmetrical triangular shape button (sample B) for overall feel and looks. Our second choice would be the oval shape (sample C). The feel of the non-symmetrical "bean" shape button (sample A) was uncomfortable when the safety was moved from the "Fire" position to the "On Safe" position.

These guns have been returned to Bob Orf in Ilion.

cc: Jay Bunting
Dave Findaly
Bob Orf

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PAGE BREAK

21 September 1995

DON'T SAY IT - WRITE IT!

To: Dave Findlay

From: Marlin R. Jiranek

RE: Results of Drop Tests for Sensitivity Test M/700 Fire Controls - 4.5 lbs Trigger Pull

All of the fire-controls were drop tested to SAMMI specification and all 10 of the fire controls passed the test. After the drop test, the fire controls were inspected for sear engagement. The results are attached to the drop test data sheets.

In regards to variation of the sear engagement distances:

Fire Control	Sear Engagement Variation
EXP 3	+ 0.0001
EXP 7	- 0.0006
EXP 12	+ 0.0005
EXP 23	- 0.0004
EXP 25	no change
CC1	+ 0.0008
CC2	+ 0.0011
CS1	+ 0.0012
CS2	+ 0.0017
CS3	+ 0.0019

As is shown, the experimental fire controls moved very little during the testing procedure. However, the control group did change, substantially, when compared to the EXP group.

That's all for tonight, the movie was good, John Candy in *Wagons, East!*.

Marlin.

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Williams v. Remmington

16	3.53	3.26	3.53	3.47	3.45	3.58	3.38	3.46	3.47	3.5	3.463	0.089697
17	3.63	3.54	3.67	3.66	2.76	3.48	3.53	3.61	3.67	3.51	3.506	0.271342
18	3.25	3.46	3.24	3.22	3.32	3.29	3.38	3.37	3.42	3.33	3.328	0.079833
19	3.61	3.48	3.5	3.62	3.51	3.05	3.51	3.4	3.59	3.56	3.483	0.166136
20	3.89	3.62	3.43	3.72	3.7	3.86	3.31	3.79	3.84	3.73	3.689	0.188824
21	3.52	3.5	3.52	2.97	3.45	3.35	3.48	3.57	3.4	3.4	3.416	0.170437
22	3.59	3.61	3.54	3.61	3.66	3.62	3.52	3.65	3.62	3.68	3.61	0.050111
23	3.92	3.61	3.72	3.88	3.81	3.38	3.83	3.92	3.95	4	3.802	0.167842
24	3.23	3.02	3.41	3.45	3.3	3.5	3.17	3.43	3.18	3.46	3.315	0.15967
25	3.7	2.85	3.6	3.95	3.85	3.82	3.78	3.76	3.8	3.75	3.686	0.307759
26	3.39	3.18	3.14	3.43	3.25	3.15	3.4	3.11	3.02	3.4	3.247	0.147727
27	3.3	3.11	3.38	3.36	3.4	3.4	3.32	3.42	3.2	3.33	3.322	0.098297
28	4.11	3.93	4.01	3.81	3.78	4.1	4.17	3.98	4.09	4.02	4	0.128841
											3.528231	0.157424

Carbon Average = 3.528231
Std. Dev = .157424

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Williams v. Remington
BARBER - 2.4.130000708

BARBER - 2.4.130000708

4	3.71	3.69	3.68	3.7	3.69	3.76	3.64	3.52	3.52	3.68	3.657	0.078747
5	3.49	2.66	3.71	3.52	3.3	3.35	2.72	3.5	3.32	3.75	3.332	0.370249
6	3.32	3.35	3.28	3.5	3.34	3.64	2.2	3.38	3.53	3.47	3.301	0.402587
7	3.39	3.39	3.44	3.24	3.17	2.89	3.26	3.32	3.38	2.82	3.23	0.214528
10	3.77	3.73	3.66	3.9	3.83	3.94	3.87	4.15	3.67	3.97	3.849	0.150856
12	3.39	3.42	3.44	3.45	3.09	3.43	3.54	3.45	3.4	3.32	3.393	0.120005
13	3.66	3.76	3.69	3.73	3.54	3.57	3.6	3.6	3.36	3.57	3.608	0.113803
14	3.94	3.04	3.93	3.95	3.91	3.79	3.67	3.72	3.68	3.86	3.749	0.271639
15	3.88	3.64	3.92	3.68	3.66	3.42	3.7	3.46	3.64	3.82	3.682	0.16233
16	3.23	3.16	3.38	3.02	3.44	3.39	3.45	3.17	3.54	3.9	3.368	0.246703
17	3.68	3.91	3.51	3.86	3.47	3.77	3.64	3.75	3.72	3.78	3.709	0.139877
18	3.6	3.47	3.64	3.68	3.61	3.64	3.16	3.76	3.66	3.7	3.592	0.169562
24	3.39	3.48	3.42	3.38	3.45	3.36	3	3.43	3.45	3.38	3.374	0.136805
25	3.61	3.54	2.84	3.57	3.64	3.69	3.5	2.72	3.41	3.55	3.407	0.340328
											3.517929	0.208437

Stainless Steel Average = 3.517929 Std. Dev = .208437

BARBER - 2.4.130000709

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Williams v. Remmington

BARBER - 2.4.130000709

1	3.71	3.69	3.68	3.7	3.69	3.76	3.64	3.52	3.52	3.66	3.657	0.078747	
2	3.53	3.26	3.53	3.47	3.45	3.58	3.38	3.46	3.47	3.5	3.463	0.089697	
3	3.63	3.54	3.67	3.66	2.76	3.48	3.53	3.61	3.67	3.51	3.506	0.271342	
4	3.25	3.46	3.24	3.22	3.32	3.29	3.38	3.37	3.42	3.33	3.328	0.079833	
5	3.49	2.66	3.71	3.52	3.3	3.35	2.72	3.5	3.32	3.75	3.332	0.370249	
6	3.32	3.35	3.28	3.5	3.34	3.64	2.2	3.38	3.53	3.47	3.301	0.402587	0.118216
7	3.39	3.39	3.44	3.24	3.17	2.89	3.26	3.32	3.38	2.82	3.23	0.214528	
8	3.61	3.48	3.5	3.62	3.51	3.05	3.51	3.4	3.59	3.56	3.483	0.166136	
9	3.89	3.62	3.43	3.72	3.7	3.86	3.31	3.79	3.64	3.73	3.689	0.188824	
10	3.77	3.73	3.66	3.9	3.83	3.94	3.87	4.15	3.67	3.97	3.849	0.150956	
11	3.52	3.5	3.52	2.97	3.45	3.35	3.48	3.57	3.4	3.4	3.416	0.170437	
12	3.39	3.42	3.44	3.45	3.09	3.43	3.54	3.45	3.4	3.32	3.393	0.120005	
13	3.66	3.76	3.69	3.73	3.54	3.57	3.8	3.6	3.36	3.57	3.608	0.113803	
14	3.94	3.04	3.93	3.95	3.91	3.79	3.67	3.72	3.68	3.86	3.749	0.271639	
15	3.88	3.64	3.92	3.68	3.66	3.42	3.7	3.46	3.64	3.82	3.682	0.16233	
16	3.23	3.16	3.38	3.02	3.44	3.39	3.45	3.17	3.54	3.9	3.368	0.246703	
17	3.68	3.91	3.51	3.86	3.47	3.77	3.64	3.75	3.72	3.78	3.709	0.139677	
18	3.6	3.47	3.64	3.88	3.61	3.64	3.16	3.76	3.66	3.7	3.592	0.169562	
19	3.59	3.61	3.54	3.61	3.66	3.62	3.52	3.65	3.62	3.68	3.61	0.050111	
20	3.18	3.29	2.88	3.5	3.43	3.24	3.46	3.35	2.89	3.35	3.257	0.21899	
21	3.92	3.61	3.72	3.88	3.81	3.38	3.83	3.92	3.95	4	3.802	0.187842	
22	3.23	3.02	3.41	3.45	3.3	3.5	3.17	3.43	3.18	3.46	3.315	0.15967	
23	3.7	2.85	3.6	3.95	3.85	3.82	3.78	3.76	3.8	3.75	3.686	0.307759	
24	3.39	3.46	3.42	3.38	3.45	3.36	3	3.43	3.45	3.38	3.374	0.136805	
25	3.39	3.18	3.14	3.43	3.25	3.15	3.4	3.11	3.02	3.4	3.247	0.147727	
26	3.61	3.54	2.84	3.57	3.64	3.69	3.5	2.72	3.41	3.55	3.407	0.340328	
27	3.3	3.11	3.38	3.36	3.4	3.4	3.32	3.42	3.2	3.33	3.322	0.096297	
28	4.11	3.93	4.01	3.81	3.78	4.1	4.17	3.98	4.09	4.02	4	0.128841	
											3.513393	0.185129	

combination of all 28 parts 1/2 black oxide 1/2 E Ni
Average 3.513 Std Dev. .185129

BARBER - 2.4.130000710

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to Protective Order
Williams v. Remmington BARBER - 2.4.130000719

		3.47	3.95	3.85	3.756667	0.253246							
		3.42	3.57	3.49	3.493333	0.075056							
		3.65	3.53	3.17	3.45	0.2498							
		2.82	3.49	3.56	3.29	0.408534							
		3.52	3.6	3.38	3.5	0.111355							
		3.46	3.34	3.35	3.383333	0.066583							
		3.2	3.06	3.51	3.256667	0.23029							
		3.67	3.44	3.61	3.573333	0.119304							
		3.78	3.39	3.54	3.57	0.196723							
		4.02	3.36	3.65	3.676667	0.330807							
		3.69	3.66	3.57	3.64	0.06245							
		3.34	3.18	3.38	3.3	0.10583							
		3.56	3.5	3.72	3.593333	0.113725							
		3.5	2.58	3.28	3.12	0.480416							
		3.61	3.59	3.61	3.603333	0.011547							
		3.54	3.61	3.35	3.5	0.134536							
		3.68	3.66	3.8	3.713333	0.075719							
		3.73	3.63	3.68	3.68	0.05							
		3.12	3.5	3.56	3.393333	0.238607							
		3.43	3.2	3.5	3.376667	0.15695							
		3.69	3.79	3.82	3.766667	0.068069							
		3.49	3.39	3.45	3.443333	0.050332							
		3.84	3.82	3.78	3.813333	0.030551							
		3.08	3.4	3.52	3.333333	0.22745							
		3.22	3.42	2.3	2.98	0.597327							
		2.24	3.72	2.27	2.743333	0.845951							
		3.4	3.46	3.22	3.36	0.1249							
		3.86	3.89	3.78	3.843333	0.056862							
					3.469762	0.195461							

First three hits
Ave. 3.469762
Std. Dev. .195461

BARBER - 2.4.13000711

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Williams v. Remington

BARBER - 2.4.13000711

PAGE BREAK

STATUS - NEW FIRE CONTROL TESTING

\FC_STATP.WK4

05/01/96

Fire Control ID	Date:	Cycles Completed	Ck List Step	Sear Lift	Sear Engage.	Cum. Ave Trig. Pull, B. Lube	Cum. ave. Trig. Pull, A. Lube	Cum. Ave. Safe On Force	Cum. Ave. Safe Off Force	Trig. Pre-Play	Safety Func. Test	Drop Test	Total Trig. - Travel	Comments
A1	03/24/95	0	21	0.0075	0.0176	4.61	N/A	6.93	5.97	0.0053	P	P	0.0413	At 4590 cycles safe bound in safe
Experimental	03/26/95	10,000	43	0.0080	0.0164	4.43	3.67	5.43	3.67	0.0048	P	P	0.0346	position - removed and re-assem
	03/27/95	20,000	67	0.0080	0.0207	3.98	4.87	4.40	3.83	0.0051	P	P	0.0344	-bled "c" clip, spring, detent ball
	03/28/95	30,000	90	0.0080	0.0218	4.56	4.83	5.23	3.53	0.0044	P	P	0.0336	etc. and put back into test. 7 FD MALF.
	03/30/95	40,000	113	0.0080	0.0191	5.41	5.85	5.40	4.03	0.0042	P	P	0.0342	DURING 100 ROUND LIVE FIRE TEST
	03/31/95	50,000	136	0.0080	0.0210	5.05	5.67	4.90	3.26	0.0046	P	P	0.0373	Test completed through 1000 round of live fire -Used
														7MM Rem Mag. ammuniton.
A2	03/24/95	0	21	0.0090	0.0186	4.22	N/A	6.43	7.33	0.0050	P	P	0.0336	Test completed through 1000 rounds of live fire-
Experimental	03/26/95	10,000	43	0.0085	0.0203	6.32	5.19	8.60	5.87	0.0068	P	P	0.0312	Used 300 Weatherby ammunition - no malfunctions
	03/27/95	20,000	67	0.0090	0.0179	6.71	7.05	4.73	3.83	0.0058	P	P	0.0430	
	03/29/95	30,000	90	0.0090	0.0177	6.05	4.77	4.57	3.33	0.0053	P	P	0.0433	
	03/30/95	40,000	113	0.0080	0.0198	6.32	6.06	4.58	3.36	0.0057	P	P	0.0436	
	04/03/95	50,000	136	0.0080	0.0195	6.24	6.68	4.33	2.63	0.0053	P	P	0.0434	
A3	03/24/95	0	21	0.0090	0.0194	5.23	N/A	7.47	6.27	0.0079	P	P	0.0404	At 7619 cycles Trig. Pull Extrem. High-
Experimental	03/25/95	10,000	43	0.0090	0.0193	7.31	6.12	6.23	4.90	0.0080	P	P	0.0361	Lubricated per Owner's Manual and
	03/26/95	20,000	67	0.0090	0.0200	5.31	6.67	5.93	7.43	0.0088	P	P	0.0366	put back into test. At 40,000 cycles, spring retaining
	03/29/95	30,000	90	0.0090	0.0196	5.99	7.39	5.30	4.23	0.0083	P	P	0.0361	clip broke during drop test - replaced and test cont'd.
	03/31/95	40,000	113	0.0090	0.0209	8.76	5.94	4.07	5.13	0.0079	P	P	0.0327	At 50,000 cycles replaced missing detent ball.
	03/31/95	50,000	136	0.0090	0.0201	5.04	6.69	6.83	5.90	0.0080	P	P	0.0451	Test completed through 1000 rounds of live fire-
														Used 300 Weatherby - no malfunctions
A5	03/24/95	0	21	0.0090	0.0195	4.19	N/A	6.83	5.37	0.0067	P	P	0.0479	At 10,000+ cycles, Trig. Pull >10 Lbs.
Experimental	03/25/95	10,000	43	0.0080	0.0198	>10.00	6.26	7.50	4.40	0.0091	P	P	0.0452	- 2 FD MALF DURING 100 ROUND LIVE
	03/26/95	20,000	67	0.0090	0.0199	5.56	5.03	4.40	3.50	0.0078	P	P	0.0446	FIRE TEST
	03/27/95	30,000	90	0.0080	0.0195	5.46	3.49	4.13	2.83	0.0080	P	P	0.0567	
	03/28/95	40,000	113	0.0090	0.0197	5.77	5.43	4.50	3.20	0.0076	P	P	0.0554	3/31/95 - 1000 round test of 338 Win. Ammo
	03/29/95	50,000	136	0.0080	0.0195	6.93	6.32	4.70	3.60	0.0072	P	P	0.0555	completed - no malfunctions noted.
A7	03/25/95	0	21	0.0080	0.0187	5.35	N/A	6.40	7.90	0.0050	P	P	0.0376	
Experimental	03/26/95	10,000	43	0.0077	0.0169	5.21	5.32	3.83	2.00	0.0045	P	P	0.0360	At 10,000 cycles "C" clip partially off
	03/27/95	20,000	67	0.0070	0.0196	6.54	5.17	4.40	2.93	0.0046	P	P	0.0471	pin. - Replaced bolt at 12,470 cycles
	03/31/95	30,000	90	0.0080	0.0191	8.73	6.28	4.03	3.30	0.0044	P	P	0.0409	Test completed through 1000 rounds of live fire-
	04/03/95	40,000	113	0.0070	0.0187	5.21	7.23	4.50	2.87	0.0049	P	P	0.0487	Used 7MM Rem Mag. - no malfunctions
	04/04/95	50,000	138	0.0070	0.0188	5.11	4.89	4.16	2.76	0.0050	P	P	0.0484	
A8	03/25/95	0	21	0.0100	0.0189	4.12	N/A	6.77	9.23	0.0057	P	P	0.0386	At 7800 cycles replaced action -binding
Experimental	03/26/95	10,000	43	0.0090	0.0192	4.45	5.26	7.53	6.90	0.0062	P	P	0.0374	Test completed through 1000 rounds of live fire-
	03/28/95	20,000	67	0.0090	0.0177	5.58	6.50	4.63	3.43	0.0062	P	P	0.0366	Used 7MM Rem Mag. - no malfunctions
	04/03/95	30,000	90	0.0090	0.0182	5.28	4.14	4.43	2.60	0.0050	P	P	0.0467	
	04/05/95	40,000	113	0.0090	0.0191	6.72	6.38	2.10	2.66	0.0057	P	P	0.0491	
	04/07/95	50,000	136	0.0090	0.0197	4.54	4.53	7.16	4.10	0.0049	P	P	0.0473	
A9	03/25/95	0	21	0.0100	0.0195	4.65	N/A	7.40	7.90	0.0054	P	P	0.0353	Test completed through 1000 rounds of live fire-
Experimental	03/26/95	10,000	43	0.0100	0.0175	8.41	5.53	10.33	16.23	0.0056	P	P	0.0437	Used 7MM Rem Mag. ammunition, no malfunctions
	03/30/95	20,000	67	0.0100	0.0191	6.87	5.27	5.53	4.27	0.0050	P	P	0.0411	
	04/03/95	30,000	90	0.0090	0.0197	4.31	5.66	5.00	3.33	0.0045	P	P	0.0430	
	04/05/95	40,000	113	0.0090	0.0191	4.46	5.73	5.20	4.10	0.0044	P	P	0.0444	
	04/07/95	50,000	138	0.0090	0.0201	6.11	6.51	5.33	3.43	0.0041	P	P	0.0424	

Confidential - Subject to Protective Order
Williams v. Remmington

ET55024

BARBER - 2.4.13000713

BARBER - 2.4.13000713

Fire Control ID	Date:	Cycles Completed	Ck List Step	Sear Lift	Sear Engag.	Cum. Ave Trig. Pull, B. Lube	Cum. ave. Trig. Pull, A. Lube	Cum. Ave. Safe On Force	Cum. Ave. Safe Off Force	Trig. Pre-Play	Safety Func. Test	Drop Test	Total Trig. - Travel	Comments
A10	03/25/95	0	21	0.0080	0.0191	6.18	N/A	7.63	8.77	0.0080	P	P	0.0460	At 1267 cycles - switched action due to
Experimental	03/26/95	10,000	43	0.0075	0.0186	6.88	6.10	5.83	4.27	0.0062	P	P	0.0454	safety lever arm binding in receiver cut.
	03/28/95	20,000	67	0.0080	0.0190	6.99	6.60	5.17	4.00	0.0067	P	P	0.0443	Lubricated per owner's man.
	03/30/95	30,000	90	0.0080	0.0199	7.18	6.23	5.20	3.60	0.0055	P	P	0.0516	Test completed through 1000 rounds of live fire-
	03/30/95	40,000	113	0.0080	0.0193	7.03	6.71	4.83	2.70	0.0082	P	P	0.0543	Used 7MM Rem Mag. - no malfunctions
	04/04/95	50,000	138	0.0080	0.0191	5.72	5.92	4.70	3.01	0.0066	P	P	0.0543	
A11	03/25/95	0	21	0.0080	0.0191	4.86	N/A	6.03	7.10	0.0076	P	P	0.0400	*Note: Trig.Pre-Play at 30,000 cycles appears to be
Experimental	03/26/95	10,000	43	0.0070	0.0198	6.79	6.61	6.23	4.70	0.0078	P	P	0.0407	incorrectly measured - The Tester may have
	03/28/95	20,000	67	0.0070	0.0195	6.16	6.14	5.53	3.90	0.0076	P	P	0.0498	forgotten to put the safe in the on position to take the
	03/31/95	30,000	90	0.0070	0.0202	6.18	6.23	4.66	4.13	0.0139*	P	P	0.0516	Pre-Play measurement.
	04/03/95	40,000	113	0.0070	0.0189	5.40	5.10	4.90	3.06	0.0068	P	P	0.0484	Test completed throught 1000 rounds of live fire-
	04/05/95	50,000	138	0.0070	0.0186	6.52	6.48	4.13	3.03	0.0063	P	P	0.0503	Used 338 Win Mag. - no malfunctions
A13	03/25/95	0	21	0.0090	0.0184	4.92	N/A	3.67	5.40	0.0042	P	P	0.0377	*Note: Trig.Pre-Play at 20,000 cycles and at 40,000
Experimental	03/26/95	10,000	43	0.0090	0.0197	4.09	5.09	7.83	7.27	0.0049	P	P	0.0380	cycles appears to be incorrectly measured - The
	03/29/95	20,000	67	0.0090	0.0194	7.08	5.65	3.40	2.53	0.0112*	P	P	0.0478	Tester may have forgotten to put the safe in the on
	04/03/95	30,000	90	0.0090	0.0190	4.63	4.60	7.40	5.70	0.0047	P	P	0.0463	position to take the Pre-Play measurement.
	04/06/95	40,000	113	0.0080	0.0196	6.31	4.69	6.73	5.01	0.0101*	P	P		Safety Lever arm was broken by the dry cycle mach-
		50,000												cine when the front edge, with the "shim" jammed in
														the receiver - fire control taken out of test at 40,000 cyc
A14	03/25/95	0	21	0.0090	0.0181	4.47	N/A	5.67	5.93	0.0057	P	P	0.0350	
Experimental	03/26/95	10,000	43	0.0080	0.0194	5.43	4.03	6.90	4.80	0.0050	P	P	0.0350	Test completed throught 1000 rounds of live fire-
	03/30/95	20,000	67	0.0080	0.0191	6.44	4.68	5.00	2.97	0.0051	P	P	0.0350	Used 7MM Rem Mag. - no malfunctions
	03/31/95	30,000	90	0.0080	0.0192	5.19	6.05	4.56	1.93	0.0056	P	P	0.0433	
	04/03/95	40,000	113	0.0090	0.0187	4.85	4.00	8.36	8.66	0.0051	P	P	0.0435	
	04/05/95	50,000	138	0.0080	0.0185	6.22	6.72	6.63	7.23	0.0054	P	P	0.0445	
A16	03/25/95	0	21	0.0100	0.0185	4.68	N/A	4.93	5.87	0.0052	P	P	0.0424	Test completed throught 1000 rounds of live fire-
Experimental	03/26/95	10,000	43	0.0090	0.0172	4.82	7.03	7.83	7.23	0.0054	P	P	0.0412	Used 338 Win Mag. - no malfunctions
	03/29/95	20,000	67	0.0090	0.0193	4.78	4.14	4.36	2.90	0.0046	P	P	0.0499	
	03/31/95	30,000	90	0.0080	0.0210	6.14	6.24	4.27	2.97	0.0046	P	P	0.0440	
	04/03/95	40,000	113	0.0090	0.0191	5.71	6.52	4.27	3.03	0.0052	P	P	0.0526	
	04/04/95	50,000	138	0.0090	0.0188	5.70	6.61	3.77	3.27	0.0091	P	P	0.0524	
A51	03/25/95	0	21	0.0130	0.0212	6.22	N/A	2.93	6.30	N/A	N/A	P	0.0380	Broken safety detent spring noted at 20,000 cycles
Control	03/27/95	10,000	43	0.0130	0.0254	6.32	6.93	6.10	9.50	N/A	N/A	P	0.0461	Broken safety detent spring noted at 40,000 cycles
	04/10/95	20,000	67	0.0130	0.0284	6.28	6.15	5.67	5.27	N/A	N/A	P	0.0474	Thumb pc. broken off at 47,000 cycles; measurements
	04/11/95	30,000	90	0.0120	0.0302	5.91	5.05	4.86	3.77	N/A	N/A	P	0.0480	taken and rifle sent to drop test.
	04/12/95	40,000	113	0.0120	0.0313	6.02	6.26	6.03	7.53	N/A	N/A	P	0.0506	
		50,000	134	0.0120	0.0315	5.55	5.55	N/T	N/T	N/A	N/A	P	0.0498	
A52	03/25/95	0	21	0.0130	0.0185	6.06	N/A	2.40	4.67	N/A	N/A	P	0.0349	Broken safety detent spring noted at 30,000 cycles
Control	03/28/95	10,000	43	0.0130	0.0245	6.57	6.18	5.60	9.30	N/A	N/A	P	0.0426	
	04/07/95	20,000	67	0.0120	0.0250	6.14	6.65	4.50	4.43	N/A	N/A	P	0.0397	
	04/11/95	30,000	90	0.0120	0.0259	6.56	6.23	5.27	7.67	N/A	N/A	P	0.0444	
	04/12/95	40,000	113	0.0120	0.0260	6.53	7.13	4.80	8.10	N/A	N/A	P	0.0465	
	04/17/95	50,000	134	0.0130	0.0290	6.83	6.13	4.33	6.70	N/A	N/A	P	0.0439	
A53	03/25/95	0	21	0.0150	0.0173	4.64	N/A	1.93	4.90	N/A	N/A	P	0.0338	At 8690 cycles lubricated per owner's
Control	03/26/95	10,000	43	0.0140	0.0231	7.11	6.77	5.60	8.90	N/A	N/A	P	0.0415	manual. At 20,000 cycles inspection safety detent
	03/28/95	20,000	67	0.0140	0.0246	5.53	6.04	6.10	5.60	N/A	N/A	P	0.0418	spring was found to be broken when removed from
	04/05/95	30,000	90	0.0140	0.0249	5.71	5.45	6.00	8.53	N/A	N/A	P	0.0409	dry cycle machine. Replace detent spring and put
	04/07/95	40,000	113	0.0120	0.0255	6.41	5.33	5.56	6.60	N/A	N/A	P	0.0483	back into test prior to measurements being taken.
	04/10/95	50,000	133	0.0100	0.0290	5.43	5.81	5.00	5.50	N/A	N/A	F	0.0419	GUN FAILED 12 INCH DROP TEST (BARREL HORZ
														-BOTTOM DOWN) TESTING HALTED ON THIS GUN

Confidential - Subject to Protective Order
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BARBER - 2.4.13000714

BARBER - 2.4.13000714

Fire Control ID	Date:	Cycles Completed	Ck List Step	Sear Lift	Sear Engag.	Cum. Ave Trig. Pull, B. Lube	Cum. ave. Trig. Pull, A. Lube	Cum. Ave. Safe On Force	Cum. Ave. Safe Off Force	Trig. Pre-Play	Safety Func. Test	Drop Test	Total Trig. Travel	Comments
A54	03/25/95	0	21	0.0130	0.0172	4.46	N/A	1.87	3.93	N/A	N/A	P	0.0338	
Control	04/12/95	10,000	30	0.0130	0.0226	12.21	4.42	4.97	2.87	N/A	N/A	P	0.0425	
	04/17/95	20,000	67	0.0130	0.0260	3.47	3.83	5.57	6.20	N/A	N/A	P	0.0442	
	04/20/95	30,000	90	0.0130	0.0284	3.65	3.70	4.77	3.47	N/A	N/A	P	0.0440	
	04/27/95	40,000	112	0.0140	0.0251	4.39	3.97	5.57	3.07	N/A	N/A	P	0.0455	
		50,000												
A55	03/25/95	0	21	0.0120	0.0190	4.92	N/A	2.27	4.13	N/A	N/A	P	0.0352	
Control	03/31/95	10,000	43	0.0120	0.0194	11.40	8.17	10.70	10.50	N/A	N/A	P	0.0381	
	04/04/95	20,000	67	0.0120	0.0246	5.65	5.46	5.16	6.76	N/A	N/A	P	0.0379	
	04/07/95	30,000	90	0.0120	0.0269	7.38	5.69	4.93	7.23	N/A	N/A	P	0.0457	
	04/10/95	40,000	113	0.0120	0.0266	5.54	5.40	4.33	3.63	N/A	N/A	P	0.0395	
	04/11/95	50,000	134	0.0120	0.0268	5.85	5.50	5.43	5.30	N/A	N/A	P	0.0473	
A56	03/25/95	0	21	0.0120	0.0155	6.04	N/A	2.03	4.97	N/A	N/A	P	0.0333	At 9490 cycles replaced safety detent spring
Control	03/29/95	10,000	43	0.0120	0.0211	5.81	6.04	4.90	6.73	N/A	N/A	P	0.0406	At 20,000 cycles replace safety detent spring
	04/11/95	20,000	67	0.0120	0.0220	5.57	5.59	6.33	11.06	N/A	N/A	P	0.0419	
	04/12/95	30,000	90	0.0120	0.0239	6.02	5.35	6.00	9.67	N/A	N/A	P	0.0377	
	04/18/95	40,000	113	0.0120	0.0236	5.43	6.18	5.10	5.17	N/A	N/A	P	0.0368	
	04/28/95	50,000	134	0.0120	0.0234	6.21	6.80	6.17	8.27	N/A	N/A	P	0.0438	
A57	03/25/95	0	21	0.0150	0.0191	5.75	N/A	2.40	3.83	N/A	N/A	P	0.0361	
Control	03/30/95	10,000	43	0.0090	0.0263	11.09	7.03	6.43	8.73	N/A	N/A	P	0.0402	
	04/11/95	20,000	67	0.0120	0.0291	5.68	6.33	4.80	4.47	N/A	N/A	P	0.0432	
	04/17/95	30,000	90	0.0130	0.0296	6.15	6.43	4.90	4.67	N/A	N/A	P	0.0480	
	04/19/95	40,000	113	0.0130	0.0302	6.66	7.14	4.87	2.53	N/A	N/A	P	0.0498	
	04/28/95	50,000	134	0.0150	0.0309	6.24	7.01	5.40	3.43	N/A	N/A	P	0.0517	
A58	03/25/95	0	21	0.0140	0.0187	5.77	N/A	2.33	4.03	N/A	N/A	P	0.0343	
Control	03/30/95	10,000	43	0.0080	0.0220	7.63	6.98	6.97	4.67	N/A	N/A	P	0.0408	
	04/11/95	20,000	67	0.0120	0.0254	5.71	5.80	4.66	3.26	N/A	N/A	P	0.0380	
	04/12/95	30,000	90	0.0130	0.0266	5.85	5.93	6.43	7.77	N/A	N/A	P	0.0387	
	04/17/95	40,000	113	0.0130	0.0312	5.55	7.11	5.20	5.63	N/A	N/A	P	0.0409	
	04/20/95	50,000	134	0.0130	0.0269	7.17	5.24	6.30	5.27	N/A	N/A		0.0432	
A59	03/26/95	0	21	0.0140	0.0177	6.09	N/A	10.33	6.30	N/A	N/A	P	0.0349	Safety detent spring broken at 20,000 cycles Inspect-
Control	03/28/95	10,000	43	0.0140	0.0239	6.88	6.74	6.13	6.03	N/A	N/A	P	0.0432	ion. Replaced detent spring, made measurements
	03/29/95	20,000	67	0.0130	0.0259	6.57	6.61	5.97	6.10	N/A	N/A	P	0.0448	and put back into test.
	04/05/95	30,000	90	0.0130	0.0248	5.71	6.06	5.33	5.30	N/A	N/A	P	0.0409	Safety detent spring broken at 40,000 cycles
	04/07/95	40,000	113	0.0130	0.0260	7.50	6.27	6.33	6.60	N/A	N/A	P	0.0450	
	04/10/95	50,000	134	0.0130	0.0276	8.33	6.69	5.23	5.13	N/A	N/A		0.0460	
A60	03/26/95	0	21	0.0140	0.0198	6.07	N/A	9.17	5.60	N/A	N/A	P	0.0373	Lubricated at 7171 cycles.
Control	03/29/95	10,000	43	0.0130	0.0250	8.51	8.03	5.23	5.03	N/A	N/A	P	0.0486	At 30,000 cycles changed broken detent spring
	04/11/95	20,000	67	0.0130	0.0281	7.17	6.93	5.30	4.60	N/A	N/A	P	0.0497	
	04/12/95	30,000	90	0.0130	0.0319	6.44	7.02	5.70	6.16	N/A	N/A	P	0.0454	
	04/17/95	40,000	113	0.0130	0.0285	7.32	5.74	5.47	4.93	N/A	N/A	P	0.0450	
	04/23/95	50,000	134	0.0130	0.0328	5.45	6.73	5.20	3.60	N/A	N/A	P	0.0529	
A61	03/26/95	0	21	0.0145	0.0191	7.26	N/A	9.23	10.80	N/A	N/A	P	0.0372	At 30,000 cycles the safety detent spring was noted as
Control	03/28/95	10,000	43	0.0120	0.0312	5.39	6.22	9.47	10.00	N/A	N/A	P	0.0474	broken.
	03/29/95	20,000	67	0.0125	0.0330	6.72	7.47	5.20	6.40	N/A	N/A	P	0.0507	
	03/06/95	30,000	90	0.0130	0.0319	5.79	6.41	7.27	13.37	N/A	N/A	P	0.0514	
	04/07/95	40,000	113	0.0120	0.0317	6.07	6.28	5.90	5.53	N/A	N/A	P	0.0522	
	04/23/95	50,000	134	0.0130	0.0336	6.40	5.81	6.03	5.70	N/A	N/A	P	0.0529	

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ET55026
BARBER - 2.4.13000715

BARBER - 2.4.13000715

Fire Control ID	Date:	Cycles Completed	GK Lbf Step	Sear Lift	Sear Engag.	Cum. Ave Trig. Pull. B. Lube	Cum. ave. Trig. Pull. A. Lube	Cum. Ave. Safe On Force	Cum. Ave. Safe Off Force	Trig. Pre-Play	Safety Func. Test	Drop Test	Total Trig. Travel	Comments
A62	03/26/95	0	21	0.0140	0.0180	5.54	N/A	8.03	7.03	N/A	N/A	P	0.0332	Safety detent spring noted as broken at 20,000 cycles
	03/26/95	11,000	43	0.0130	0.0245	5.69	5.91	11.70	4.13	N/A	N/A	P	0.0417	
Control	04/06/95	22,000	67	0.0125	0.0270	5.81	6.75	6.13	6.45	N/A	N/A	P	0.0430	
	04/07/95	30,000	90	0.0120	0.0288	5.17	5.36	6.80	6.86	N/A	N/A	P	0.0441	
	04/11/95	40,000	113	0.0120	0.0307	5.78	5.99	8.13	4.80	N/A	N/A	P	0.0501	
	04/12/95	50,000	134	0.0133	0.0303	5.79	6.00	4.93	5.10	N/A	N/A	P	0.0494	

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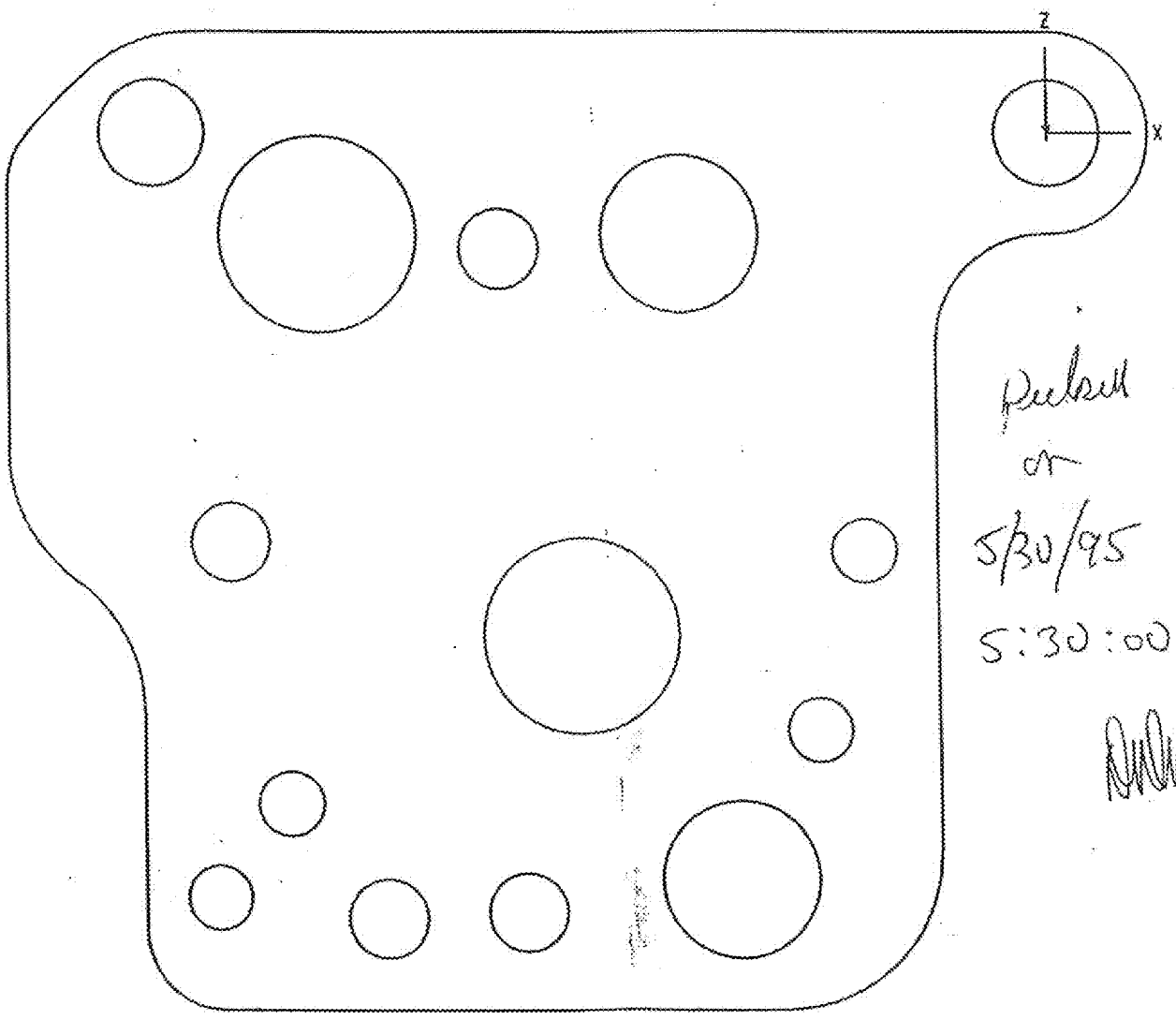

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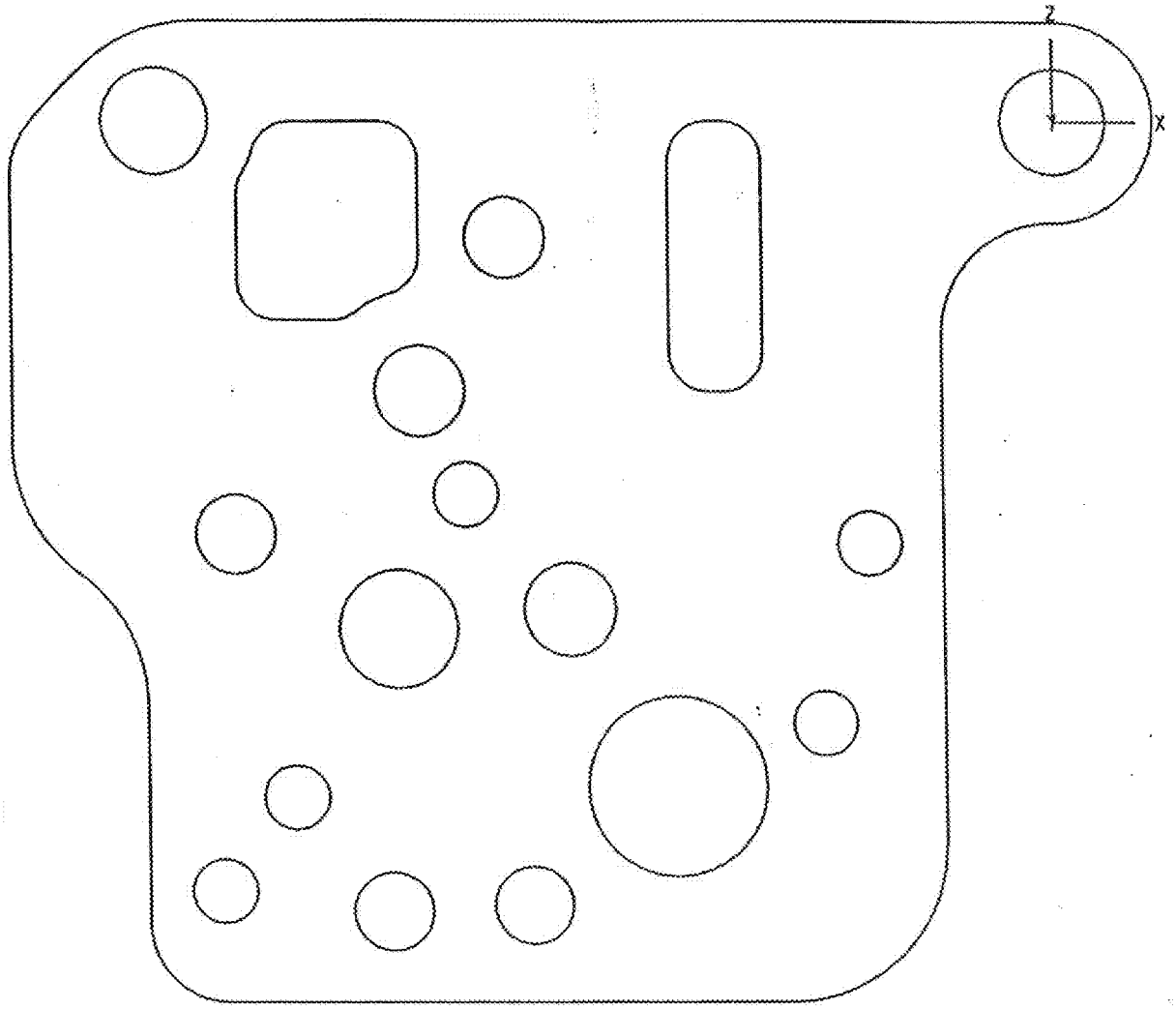
Williams v. Remming
BARBER - 2.4.130000718



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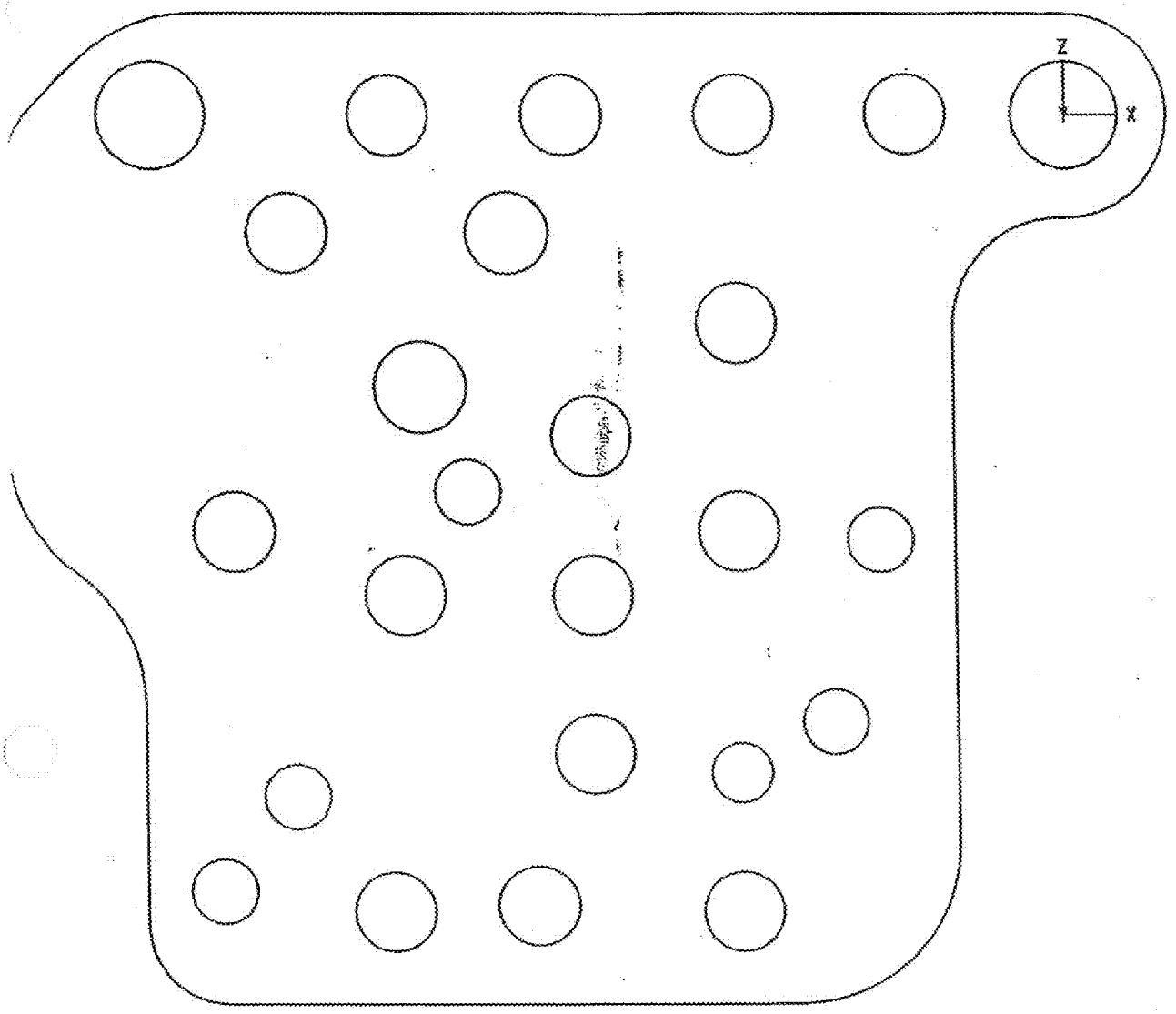

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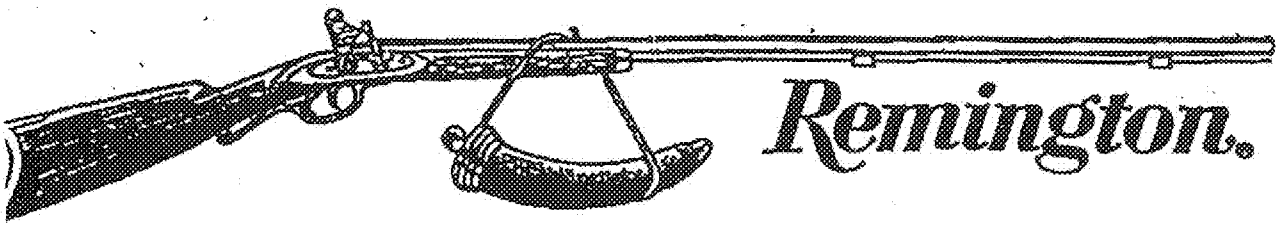
01/17/1995 83:51 3158953670 REMINGTON ARMS CO PAGE 01



Remington.

Remington Arms Company, Inc.
Firearms Technical Division
Ilion, New York – 13357
Fax (315) 895-3670
Tel. (315) 895-3200

DATE: 9-21-95 TIME: 11:17

TO: Dave Findlay, Ed Ford, Ken Spuey

_____ (BLDG./ROOM NO.)

_____ (PHONE)

FROM: Jim Hennings

_____ (BLDG./ROOM NO.)

_____ (PHONE)

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cc: W.H. Coleman, II/File
H.C. Munson
F.H. Smith
File

RESEARCH TEST AND MEASUREMENT REPORT
REPORT# 900081
MARCH 13, 1990

MODEL 700 SYNTHETIC LONG STOCK EVALUATION

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MODEL 700 SYNTHETIC LONG STOCK EVALUATION

ABSTRACT:

The Test and Measurement Laboratory evaluated Model 700 long stocks made of Polypropolene and Noryl. The testing consisted of 100 yard accuracy, proof strength and drop testing.

After 12 hours at 250 degrees Fahrenheit the Noryl stocks deformed so severely that testing was discontinued.

The accuracy of the Polypropolene Stocks was not affected by temperature changes. The Polypropolene Stocks also passed the drop test and the extended proof test.

Prepared by: D.R. Thomas
Date Prepared: March 13, 1990

Proofread and cleared by:

J.R. Snedeker
Staff Engineer _____

F.H. Smith
Designer _____

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BARBER - 2.4.130000724

MODEL 700 SYNTHETIC STOCK EVALUATION

REPORT TEXT:
GENERAL:

The following Model 700 rifles were used throughout the evaluation:

POLYPROPOLENE	C6472861	C6474116	C6473023
	C6474175	C6474123	C6474032
NORYL	C6474033	C6472868	C6474105
	C6474117	C6474109	C6474030

ACCURACY:

Twelve rifles were shot three, five shot groups per rifle.(six of the rifles with Noryl stocks and six with Polypropolene stocks)

Remington 220 grain Soft Point Core-Lokt ammunition (R300WB2 code M08 Y8909) was used throughout the test.

All accuracy testing was done on the Research 100 yard range, located orth of building 52-1-A.

Individual accuracy results are listed in the appendix of this report.

PROOF STRENGTH:

Two Polypropolene stocks were used to test the deformation of the internal bearing surfaces when the rifle was subjected to the loading and firing of 300 Weatherby Magnum ammunition. 25 standard and 75 proof rounds were shot through each rifle. There was no deformation on the bearing surfaces of neither of the stocks tested.

Guns C6473023 and C6474032 were used for this phase of testing.

DROP TEST:

The drop test was conducted, per SAAMI specifications, on three Model 700 rifles with Polypropolene Stocks. Then each rifle was dropped at heights above the SAAMI specifications for additional information. All the rifles tested passed the SAAMI and extended drop tests.

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MODEL 700 SYNTHETIC STOCK EVALUATION

TEST PROCEDURE: (cont.)
DROP TEST:

The drop test was conducted by D.R. Thomas and H.E. Weaver in the R&D drop test area located in building 52-1A.

The following SAAMI specifications were used:

All drops were on an one inch 85 Durometer Shore A rubber mat backed by concrete.

POSITIONS OF DROP:

1. Vertical	- muzzle up	4. Horizontal	- bottom down
2. Vertical	- muzzle down	5. Horizontal	- left side up
3. Horizontal	- bottom up	6. Horizontal	- right side up

JAR OFF:

SAAMI specification - 12 inch drop in all six positions with the safety in the off position.

DROP:

SAAMI specification - 48 inch (from the center of gravity of the firearm) drop in all six positions with safety in the on position.

Extended Test- 48 inches to the lowest point of the firearm for vertical drops and 72 inches to the lowest point for horizontal drops.

The following three Model 700 rifles with Polypropolene Stocks were used in the drop test:

C6474116 C6472861 C6474123

Then, for additional information, each was rifle was dropped at heights above the SAAMI specifications. All the rifles tested passed the SAAMI and extended drop test. The only damage to the stocks during the drop testing was that two Butt Pads broke off during the 48 inch drop.

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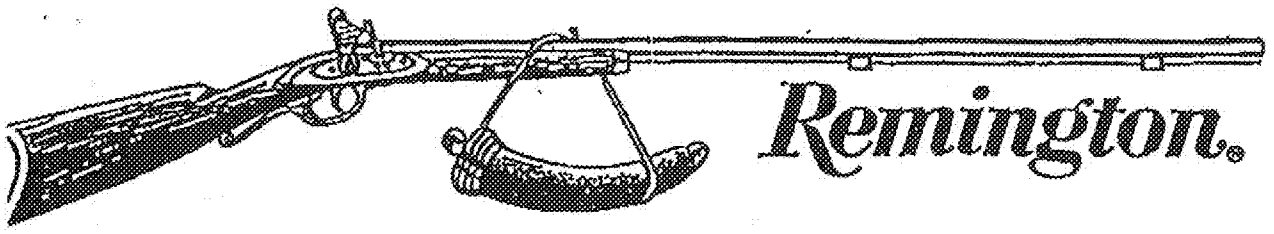

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Firearms Technical Division
Ilion, New York ~ 13357
Fax (315) 895-3670
Tel. (315) 895-3200

DATE: 9-21-95 TIME: ~~11:45~~ 2:20

TO: Dave Findley, Ed Ford, Ken Spucy

_____ (BLDG./ROOM NO.)

_____ (PHONE)

FROM: Jim Hennings

_____ (BLDG./ROOM NO.)

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ET55036

TEST AND MEASUREMENT LAB TEST RESULTS

REQUESTER: F.R. SMITH TESTER: TEST LAB DATE: 12/04/86
REPORT NO.: 862741 WORK ORDER NO.: C-0605
WRITTEN BY: F.L. SUPRY

TEST TYPE: SYNTHETIC STOCKS - ACCURACY @ TEMPERATURE VARIATIONS & DROP TEST

REASON FOR TEST :

To determine the affect of temperature variations on the experimental synthetic stocks, using 100 yard accuracy as a test comparison. Also to check the stocks for breakages from temperature variation and drop testing.

EQUIPMENT REQUIRED :

Three experimental synthetic stocks (1 dark gray BDL, 1 light gray ADL, and 1 rynite BDL), 1 standard wood BDL stock, an oven, a freezer, 30.06 Remington ammunition, an 85 durometer rubber mat, HP 9000 computer and digitizing tablet, and personnel.

TEST PROCEDURE :

Three, 5 shot groups, at 100 yards and at ambient temperature, were shot with each stock. The same action was used in each stock. Each stock, with an action assembled to it, was subject to 16 hours at -40 degrees F. The stocks were allowed to return to ambient temperature and the accuracy procedure was repeated. The stocks, with actions, were then subjected to 24 hours at +250 degrees F. The stocks were allowed to return to ambient temperature and the accuracy procedure was repeated. All the 100 yard targets were digitized and analyzed using the HP 9000 computer. After the accuracy test was completed a drop test was conducted.

TEST RESULTS :

The Butt Plate came off the Rynite stock during the +250 degree F. bake. Also, On the rynite stock, the butt plate came off on the right side drop at 24 inches. This butt plate had been replaced to complete the accuracy test and was protruding 1/4 inch past the edge of the stock.

On the light gray ADL stock, 3 1/2 inches of the right rail broke off the forend section on the left side drop at 48 inches.

On the dark gray BDL stock, a large crack through the grip area, and a small crack at the forend tip (left side) was found after the completion of the drop test.

On the wood stock, the stock cracked 1 1/4 inches on each side of the Trigger Guard, and 1 inch from the checkering to the bolt slot (at the tang behind the safe lever) and a piece behind the bolt slot broke out.

The accuracy results are included in the appendix of this report.

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"JAR OFF TEST"

FIREARM # _____ REPORT # 862741

MODEL 700 DARK GREY - BDL - W.O. #

TRIGGER PULL lbs. + NA SAFE "OFF" POSITION

J.O. = "JAR OFF"	SAAMI SPEC 12" DROP #1	2	3	18" DROP #1	2	3	24" DROP #1	2	3
R. VERT MUZZLE UP	OK	OK	OK	OK	OK	OK	OK	OK	OK
" MUZZLE DOWN	"	"	"	"	"	"	"	"	"
R HORZ. BOTTOM UP	"	"	"	"	"	"	"	"	"
" " BOTTOM DOWN	"	"	"	"	"	"	"	"	"
" " LEFT SIDE UP	"	"	"	"	"	"	"	"	"
" " RIGHT SIDE UP	"	"	"	"	"	"	"	"	"

"DROP TEST" SAFE "ON" POSITION

	SAAMI SPEC. 48" DROP #1	2	3	54" DROP #1	2	3
R. VERT MUZZLE UP	OK	OK	OK	OK	OK	OK
" " MUZZLE DOWN	"	"	"	"	"	"
R HORZ. BOTTOM UP	"	"	"	"	"	"
" " BOTTOM DOWN	"	"	"	"	"	"
" " LEFT SIDE UP	"	"	"	"	"	"
" " RIGHT SIDE UP	"	"	"	"	"	*

* LARGE CRACK AROUND APPROX 270° OF STOCK AT REAR MOUNTING SCREW HOLE NOTICED AT END OF DROP TEST ALSO ¼" CRACK AT LEFT REAR BARREL TIP.

ROTATION TEST SAFE "ON" POSITION

SAAMI SPEC.
ALL DROPS ON 1" RADIUS
DURAMETER (SHORE A) RUBBER
MAT BACKED BY CONCRETE

RIGHT SIDE UP #1	2	3	LEFT SIDE UP #1	2	3
OK	OK	OK	OK	OK	OK

ET55038

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"JAR OFF TEST"

FIREARM # 700 REPORT # 8C2741

MODEL LIGHT GAUGE - ADL. W.O. #

TRIGGER PULL LBS. X NA. SAFE "OFF" POSITION

J.O. = "JAR OFF"

	SAAMI SPEC 12" DROP			18" DROP			24" DROP		
	#1	2	3	#1	2	3	#1	2	3
VERT MUZZLE UP	OK	OK	OK	OK	OK	OK	OK	OK	OK
" MUZZLE DOWN	"	"	"	"	"	"	"	"	"
HORZ. BOTTOM UP	"	"	"	"	"	"	"	"	"
" BOTTOM DOWN	"	"	"	"	"	"	"	"	"
" LEFT SIDE UP	"	"	"	"	"	"	"	"	"
" RIGHT SIDE UP	"	"	"	"	"	"	"	"	"

"DROP TEST" SAFE "ON" POSITION

	SAAMI SPEC. 48" DROP			54" DROP		
	#1	2	3	#1	2	3
VERT MUZZLE UP	OK	OK	OK			
" MUZZLE DOWN	"	"	"			
HORZ BOTTOM UP	"	"	"			
" BOTTOM DOWN	"	"	"			
" LEFT SIDE UP	*	"	"			
" RIGHT SIDE UP	OK	OK	OK			

* APROX 3½" OF RIGHT RAIL BROKE OFF FORE END AT 48" LEFT SIDE UP DROP #1

"ROTATION TEST" SAFE "ON" POSITION

SAAMI SPEC. 4 DROPS ON 1" RADIUS 16 POUNDER (SHORE A) RUBBER BACKED BY CONCRETE

RIGHT SIDE UP			LEFT SIDE UP		
#1	2	3	#1	2	3
OK	OK	OK	OK	OK	OK

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JAR OFF TEST

FIREARM # Report # 862741

Model 700 Rynite Stock - BDL W.O. #

Trigger Pull Lbs. NA Safe "OFF" Position

J.O. = "Jar Off"	SAAMI SPEC 12" DROP				18" DROP				24" DROP		
	#1	2	3		#1	2	3		#1	2	3
Vert Muzzle up	OK	OK	OK		OK	OK	OK		OK	OK	OK
" Muzzle Down	"	"	"		"	"	"		"	"	"
Horz. Bottom up	"	"	"		"	"	"		"	"	"
" Bottom Down	"	"	"		"	"	"		"	"	"
" Left Side up	"	"	"		"	"	"		"	"	"
" Right Side up	"	"	"		"	"	"		*	"	"

* Butt plate came off - see note on back

"Drop Test" Safe "On" Position

	SAAMI SPEC. 48" Drop				54" Drop						
	#1	2	3		#1	2	3				
Vert Muzzle up	OK	OK	OK		OK	OK	OK				
" Muzzle Down	"	"	"		"	"	"				
Horz Bottom up	"	"	"		"	"	"				
" Bottom Down	"	"	"		"	"	"				
" Left Side up	"	"	"		"	"	"				
" Right Side up	"	"	"		"	"	"				

"Rotation Test" Safe "On" Position

AAMI Spec. 6 drops on 1" Pine (Shore A) Rubber backed by concrete

Right Side up				Left Side up			
#1	2	3		#1	2	3	
OK	OK	OK		OK	OK	OK	

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JAR OFF TEST

FIREARM # REPORT # 862741

MODEL 700 Rifle Wood "BDL" W.O. #

TRIGGER PULL LBS. X NA SAFE "OFF" POSITION

J.O. = "JAR OFF"	SAAMI SPEC. 12" DROP			18" DROP			24" DROP		
	#1	2	3	#1	2	3	#1	2	3
VERT MUZZLE UP	OK	OK	OK	OK	OK	OK	OK	OK	OK
" MUZZLE DOWN	"	"	"	"	"	"	"	"	"
HORZ. BOTTOM UP	"	"	"	"	"	"	"	"	"
" BOTTOM DOWN	"	"	"	"	"	"	"	"	"
" LEFT SIDE UP	"	"	"	"	"	"	"	"	"
" RIGHT SIDE UP	"	"	"	"	"	"	"	"	"

"DROP TEST" SAFE "ON" POSITION

	SAAMI SPEC. 48" DROP			54" DROP		
	#1	2	3	#1	2	3
VERT MUZZLE UP	OK	OK	OK	OK	OK	OK
" MUZZLE DOWN	"	"	"	"	"	"
HORZ. BOTTOM UP	"	"	"	"	*	*
" BOTTOM DOWN	"	"	"	"	OK	OK
" LEFT SIDE UP	"	"	"	"	"	"
" RIGHT SIDE UP	"	"	"	"	"	"

* SEE NOTE ON BACK

"ROTATION TEST" SAFE "ON" POSITION

SAAMI SPEC. DROPS ON 1" RADIUS MATER. (SHORE A) RUBBER BACKED BY CONCRETE

	RIGHT SIDE UP			LEFT SIDE UP		
	#1	2	3	#1	2	3
	OK	OK	OK	OK	OK	OK

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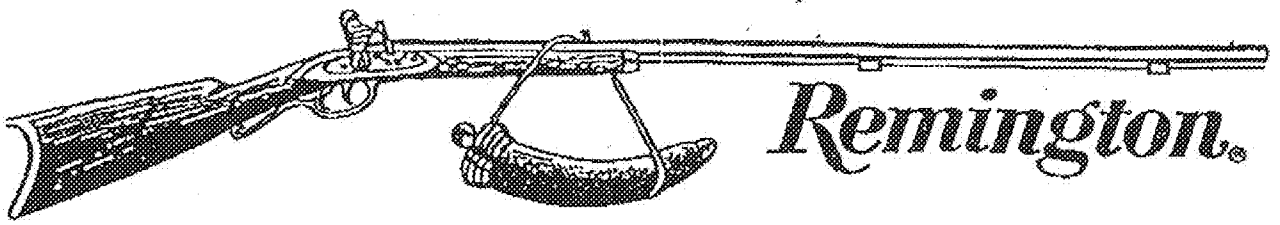

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Firearms Technical Division
Ilion, New York – 13357
Fax (315) 895-3670
Tel. (315) 895-3200

DATE: 9/25/95 TIME: 4:20 PM

TO: DAVE FINDLEY
E TOOL (BLDG./ROOM NO.)
_____ (PHONE)

FROM: Joe Mead
ENGINEERING (BLDG./ROOM NO.)
_____ (PHONE)

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TRIGGER POLE TEST

9. Gun # 6867332 TRIGGER POLE TO HIGH FOR SAFE MACHINE USED SPRING SCALE

16. 7451 WILL NOT RETRACTED ON MACHINE WHEN FIRING

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9-25-95

M1700 TRIGGER PULL TEST

	GUN #	1	2	3	4	5	AVG	
1	E-6867329	6.44	6.17	6.03	5.89	5.81	6.07	.22
2	E-6867397	5.65	6.11	6.39	5.27	5.31	5.75	.44
3	E-6869790	5.52	5.43	5.35	5.28	5.24	5.36	.10
4	E-6867473	5.01	4.95	5.24	5.02	5.08		
5	E-6867456	4.50	4.25	4.29	4.24	4.17		
6	E-6867472	6.32	5.87	6.29	5.96	5.57		
7	E-6867468	6.25	5.90	6.43	6.05	6.32		
8	E-6869777	4.89	4.50	4.60	4.85	4.65		
9	E-6867322	7.5	7.25	7.25	7.75	7.25		
10	E-6867419	5.42	5.66	5.60	5.57	5.54		
11	E-6867466	6.20	6.32	6.50	6.19	6.14		
12	E-6867474	5.52	5.72	5.59	5.50	5.60		
13	E-6869551	6.25	6.34	6.14	6.01	5.89		
14	E-6867459	5.45	5.82	5.40	5.66	5.39		
15	E-6869549	7.06	6.88	6.96	6.95	6.75		
16	E-6867451							
17	E-6867470	5.68	5.24	5.33	5.42	5.36		
18	E-6867453	5.57	5.67	5.60	5.49	6.30		
19	E-6867479	6.23	6.05	6.11	5.82	5.82		
20	E-6869317	4.78	4.77	4.53	4.42	4.52		
21	E-6869102	6.91	6.94	6.94	7.12	6.81		
22	E-6867353	4.13	4.14	3.95	3.92	4.02		
23	E-6867476	5.29	5.32	4.97	4.34	4.68		
24	E-6867429	5.76	6.04	5.68	5.03	5.98		
25	E-6869791	5.39	5.34	5.21	5.11	5.13		
26	E-6868421	6.19	6.18	6.12	6.04	5.98		
27	E-6868438	6.81	6.77	6.83	6.56	6.32		
28	E-6867475	5.69	5.27	5.00	5.28	4.94		
29	E-6869571	6.32	6.63	6.85	6.49	6.40		
30	E-6869187	6.70	6.62	6.56	6.57	6.46		
31								
32								
33								

MUD HOLD AIR PULL

ET55044

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M/700

SEAR SMOOTH CHIL OUT TRIGGER ENGAGEMENT

Gun #	Before Trig. Pull	After Trig. Pull
7339	.0194	.0192
7397	.021	.0216
9790	.023	.0239
7473	.0199	.0198
7456	.021	.0217
7472	.0179	.0184
7468	.025	.0236
9777	.0223	.022
7332	.0224	.0222
7419	.0202	.019
7466	.0188	.0189
7474	.0184	.0182
9551	.0217	.020
7459	.015	.0153
9549	.0217	.021
7451	.024	
7490	.0216	.022
7453	.021	.0207
7479	.0224	.023
9317	.022	.0227
9102	.0198	.020
7353	.0201	.0205

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Gun #	Before Trig. Pull	After Trig. Pull
7476	.0231	.024
8429	.0226	.0227
9791	.019	.0195
8421	.0208	.0205
8838	.0201	.0203
7475	.0183	.0189
9571	.0218	.0216
9187	.0211	.0211

$\bar{X}$ .0208

$C = .00199 \approx .002$

$3C = \pm .006$

.0148 → .0268

$\bar{X} = .02106 = .0211$

$C = .0245$

$3C = \pm .0074$

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01/21/1995 08:59 3158953670 REMINGTON ARMS CO PAGE 03

Trigger Pull Forces

F.C. #	1	2	3	4	5	6	7	8	9	10	Average
CC3	4.58	4.58	4.49	4.38	4.23	4.23	4.29	4.18	4.54	4.51	4.395
CS3	4.52	3.44	4.16	4.89	4.35	4.35	4.21	4.05	4.08	4.43	4.198
CS1	4.90	4.69	4.78	4.88	4.66	4.74	4.91	4.78	4.78	4.98	4.810
CS2	4.42	4.10	4.22	4.19	4.09	4.23	4.34	4.14	4.09	4.37	4.219
CC2	4.26	4.31	4.32	4.14	4.06	3.52	3.90	3.92	4.00	3.96	4.039
CC1	3.87	3.82	3.81	3.78	3.75	3.74	3.15	3.83	3.83	3.85	3.803
3	3.40	2.82	3.18	3.22	3.02	3.06	3.26	3.13	2.96	3.11	3.116
7	3.26	4.15	3.58	4.13	4.19	4.28	3.87	4.12	4.07	4.23	3.988
12	4.05	4.19	4.30	4.25	4.19	4.50	4.53	3.82	4.45	4.58	4.286
13	4.58	4.50	4.60	4.58	4.73	4.34	4.65	4.21	4.45	4.48	4.522

Actual Average

Best Single Shot

Best 4 of 10

Best w/1 Fake

Avg. Score

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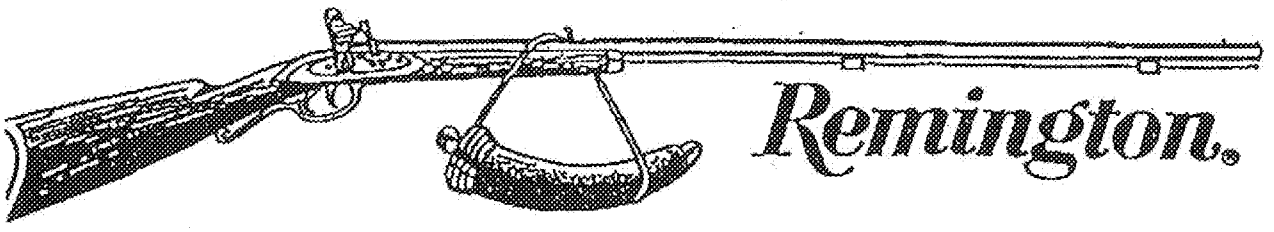

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DATE: 9-12-95 TIME: 2:15

TO: DAVE FINDLAY/ED FORD

_____ (BLDG./ROOM NO.)

_____ (PHONE)

FROM: Jim Hennings

_____ (BLDG./ROOM NO.)

_____ (PHONE)

TOTAL NUMBER OF PAGES, INCLUDING THIS SHEET: 4

RECEIPT VERIFICATION CALL REQUIRED? (YES/NO)

COMMENTS: will ship whats done today

Jim

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FIRE CONTROL - D-23 9-12-95

0 cycles -
lift. - .012"
engagement - .0169"
trig. pull - 5.24 # (3)
100 rds. live fire
Drop test. - fired 1' bottom pos.
10,000 dry cycles - broken disp & spring
lift. - .011"
engagement - .0167"
trig. pull - 3.09 # (3)
after Lube - 5.53 # (3)
Worked on by Joe Mead & Mike Pastella
10 trig pulls - barreled action device

3.68	3.29
3.27	3.41
3.39	3.34
3.42	3.49
3.59	3.44

AVE 3.43

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Fire Control - D-25 9-12-95

0 cycles - before lube.
lift - .011"
engagement - .0148"
trig pull - 3.89# (3)
100 rds. live fire.
Drop test. - fired - 1' bottom pos.
Worked on by Joe Mead & Mike Penketh.
10 - trig pulls - barreled action deoiled.

3.52
4.03
3.87
3.76
3.80
3.94
3.66
3.81
4.01
3.61

AVE 3.80

10 trig pulls - SWS machine - action in stock

4.03	4.76
4.70	4.81
4.46	4.66
4.56	4.39
4.99	4.51

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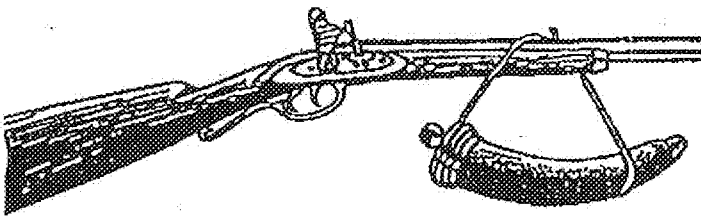
PAGE BREAK

01/09/1995 01:05 3158953670 REMINGTON ARMS CO PAGE 01



Remington.

Remington Arms Company, Inc.
Firearms Technical Division
Ilion, New York – 13357
Fax (315) 895-3670
Tel. (315) 895-3200

DATE: 9-13-95 TIME: 8:30

TO: DAVE FINDLAY - ED FORD

_____ (BLDG./ROOM NO.)

_____ (PHONE)

FROM: Jim Hennings

_____ (BLDG./ROOM NO.)

_____ (PHONE)

TOTAL NUMBER OF PAGES, INCLUDING THIS SHEET: 3

RECEIPT VERIFICATION CALL REQUIRED? ~~(YES/NO)~~

COMMENTS: Here is finish sheet. — I removed wheels & lock stands on stock - sure much. and set it on floor resting on hard rubber pads. Jim.

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3413

BBL Action Sus Mach.

Target Rail Edges

F.E. #	1	2	3	4	5	6	7	8	9	10	Average
CC3	4.58	4.58	4.49	4.38	4.23	4.23	4.29	4.18	4.54	4.51	4.395
CS3	4.52	3.44	4.16	4.39	4.35	4.35	4.21	4.05	4.08	4.43	4.198
CS1	4.40	4.69	4.78	4.88	4.66	4.74	4.91	4.78	4.78	4.88	4.810
CS2	4.42	4.10	4.28	4.19	4.09	4.33	4.34	4.14	4.09	4.37	4.219
CC2	4.26	4.31	4.32	4.14	4.06	3.52	3.90	3.92	4.00	3.96	4.039
CC1	3.87	3.82	3.81	3.78	3.75	3.74	3.75	3.83	3.83	3.85	3.803
3	3.40	2.82	3.18	3.22	3.02	3.06	3.26	3.13	2.96	3.1	3.116
7	3.26	4.15	3.58	4.13	4.19	4.28	3.87	4.12	4.07	4.23	3.988
12	4.05	4.19	4.30	4.25	4.19	4.50	4.53	3.82	4.45	4.58	4.286
13	4.58	4.50	4.60	4.58	4.73	4.34	4.65	4.31	4.45	4.48	4.522
						USING STEEL = ACTION SUS					
CC3	4.21	4.48	4.67	4.47	4.40	4.57	4.58	4.35	4.35	4.32	4.501
CS3	4.41	4.46	4.44	4.33	4.40	4.61	4.42	4.61	4.44	4.41	4.445
CS1	5.12	5.11	5.08	5.32	5.20	5.42	5.35	4.21	5.27	5.09	5.177
CS2	4.49	4.78	3.86	4.12	4.09	4.25	4.63	4.58	4.80	4.89	4.399
CC2	4.23	4.09	4.25	4.17	4.24	4.19	4.20	4.14	4.24	4.10	4.199
CC1	4.24	4.17	4.3	3.89	4.09	4.19	4.07	4.13	3.87	4.18	4.118
3	3.09	3.03	3.05	3.28	3.30	3.30	3.24	3.17	2.96	3.11	3.153
7	4.21	3.78	4.02	4.09	3.96	3.75	4.13	3.97	4.01	4.05	3.998
12	4.14	4.48	4.34	4.48	4.49	4.48	4.46	4.38	4.32	4.32	4.449
13	4.60	4.56	4.46	4.42	4.47	4.46	4.48	4.44	4.42	4.50	4.481

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F.C.*	B&R. Action SWS Machine 10 Trig Pulls Average	Stk. Action SWS machine 10 Trig Pulls Average
CC3	4.395	4.501
CS3	4.198	4.445
CS1	4.810	5.177
CS2	4.219	4.399
CC2	4.039	4.199
CC1	3.803	4.118
3	3.116	3.153
7	3.988	3.998
12	4.286	4.449
13	4.522	4.481

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ET55053

PAGE BREAK

M/700 AE IMPROVEMENTS

Process Enhancements to Improve Accuracy

- ❒ Improved Receiver locking surface perpendicularlity
- ❒ Improved Receiver face / Barrel hub perpendicularlity
- ❒ Improved Bolt lug perpendicularlity to bolt body
- ❒ Improved Bolt face perpendicularlity to bolt lugs
- ❒ Improved Barrel groove tolerance and reduced dimensionally especially at muzzle end
- ❒ Improved Barrel crowning
- ❒ Improved Barrel chamber concentricity
- ❒ Broach bolt hole versus the current drill operation

Design Enhancements to Improve Accuracy

- ❒ Reduce Lock Time (firing pin lighter/spring heavier)
- ❒ Bedding of Barrel to stock (recoil lug and 1" of bbl)
- ❒ Muzzle Break with noise reduction

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M/700 AE IMPROVEMENTS

Potential Design Improvements for 1997

- ❒ New rifling form (5R or some new form)
- ❒ Barrel Hub length lengthened or changed in design by having the barrel align the receiver not the threads (Wayne Cable design)
- ❒ Barrel Configuration change to reduce or stabilize barrel whip
- ❒ Recoil Pad change to reduce recoil (Uncle Mike's "Ultra-Mag")
- ❒ Reduce free bore of chamber
- ❒ Fore End tuning mechanism to control barrel vibration

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BARBER - 2.4.130000751

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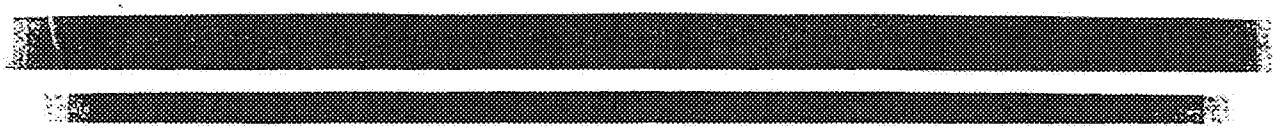

M/700 Performance Enhancements

Status as of 5/17/95

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BARBER - 2.4.130000753

Definition

- ❒ New fire control with the following changes:
  - One piece trigger
  - Smooth trigger bow
  - Trigger Pull of 3.0 lbs. -0 lbs. +"T" lbs.
    - ✓ "T" is the manufacturing tolerance
  - Assembly will be tamper evident
  - Sear, trigger, and housing will be skeletonized to allow:
    - ✓ Flushing with a solvent from the sear downwards towards the trigger bow
    - ✓ Visual inspection to ensure that the mechanism is clean
  - The safety lever arm and knob will be redesigned to be more user friendly.
  - The trigger will be balanced to the extent possible without moving the pivot point. The physical position of the bow may change to allow balancing.
  - The materials used will be those used in the current M/700 stainless steel firearm fire control.
- ❒ New Rifling
  - 5R rifling
- ❒ Lock Time Improvements
  - Titanium Firing Pin
- ❒ Ergonomic Improvements
  - Safety Button redesigned
  - Bolt Release relocated and redesigned
- ❒ Recoil Reduction
  - Muzzle Break

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Status

- ☐ Fire Control
  - 3 sets of skeletonized side plates assembled and routed to Bob Haskin and Sam Rensi for review. (5/19/95)
  - Drawing package complete except for side plate, housing assembly, and final assembly drawings.

- ☐ New Rifling
  - Guns assembled and are awaiting test in Ilion.

- ☐ Lock Time Improvements
  - Ordered titanium firing pins from Brownell 5/19/95.
    - ✓ 5 long action (stock # 840-700-002)
    - ✓ 5 short action (stock # 840-700-001)

- ☐ Ergonomic Improvements
  - Two different safety button designs currently being prototyped with an expected delivery of 6/6/95.

- ☐ Recoil Reduction
  - Ordered a Gentry "Quiet" brake Model #1 308 caliber (stock # 339-101-308).
  - Designed and detailed a muzzle break integral with barrel (C-EXP2878).
  - Designed a muzzle break to reduce recoil as well as noise which is threaded on to barrel.

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Action Items

Description	Status	Responsibility	Date
Need decision on skeletonized side plates.		Rensi, Haskin	5/30/95
Need to develop recoil measuring device.		Danner	6/30/95
Need to purchase sound measuring equipment.		Danner	6/09/95
Build prototypes of fire control.		Ford	8/04/95
Test 5R rifling.		Snedeker	6/16/95
Complete prototype build of safety buttons.	In progress.	Ford	6/06/95
Need a decision on color of trigger.		Balio, Bunting, Haskin	6/16/95

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[redacted]

Program Schedule

Initial Current

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BARBER - 2.4.130000757

Areas of Concern

- ❒ Need to determine how we are going to measure recoil.
- ❒ Buying a machine

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Elizabethtown Research and Development Technology Center — Parts List #XXX

Date: 05/11/95 2:42 PM

Model 750 Right Hand
Bolt Action
Centerfire Rifle

Sheet 1 of 1

Dotted line (- - -) indicates same part number

DWG. NO.	PART NAME	PART NUMBERS	BDL SHORT	BDL VARMINT	BDL LONG	ADL SHORT	ADL LONG	MTN RIFLE LONG	MTN RIFLE SHORT
E-107390	**Trigger Assembly - Right Hand**	107390	- - -	- - -	- - -	- - -	- - -	- - -	- - -
C-107345	Bolt Stop Release (Blk. 107340)	107345	- - -	- - -	- - -	- - -	- - -	- - -	- - -
C-107380	Safety Assembly	107380	- - -	- - -	- - -	- - -	- - -	- - -	- - -
D-92212	Safety (Blk. 99254)	92212	- - -	- - -	- - -	- - -	- - -	- - -	- - -
C-99301	Safety Button	99301	- - -	- - -	- - -	- - -	- - -	- - -	- - -
B-107415	Safety Clip (Blk. 99248)	107415	- - -	- - -	- - -	- - -	- - -	- - -	- - -
B-~~23220~~/107520	Safety Detent Ball	107520 ~~23222~~	- - -	- - -	- - -	- - -	- - -	- - -	- - -
C-107320	Safety Detent Spring	107320	- - -	- - -	- - -	- - -	- - -	- - -	- - -
B-107300	Safety Pivot Pin (Blk. 99246)	107300	- - -	- - -	- - -	- - -	- - -	- - -	- - -
D-99261	Sear Safety Cam (Blk. 99260)	99261	- - -	- - -	- - -	- - -	- - -	- - -	- - -
A-17047	Sear Spring	17047	- - -	- - -	- - -	- - -	- - -	- - -	- - -
B-99235	Tamper Caps (2)	99235	- - -	- - -	- - -	- - -	- - -	- - -	- - -
D-107370	Trigger (Blk. E-99249)	107370	- - -	- - -	- - -	- - -	- - -	- - -	- - -
C-107360	Trigger Housing Assembly	107360	- - -	- - -	- - -	- - -	- - -	- - -	- - -
B-14632	Trigger Housing Rivet (4)	14632	- - -	- - -	- - -	- - -	- - -	- - -	- - -
C-99248	Trigger Housing Spacer - Front (Blk. 99247)	99248	- - -	- - -	- - -	- - -	- - -	- - -	- - -
B-14631	Trigger Housing Spacer - Rear (Blk. 91924)	14631	- - -	- - -	- - -	- - -	- - -	- - -	- - -
D-99250	Trigger Side Plate - Right (Blk.D-107375)	99250	- - -	- - -	- - -	- - -	- - -	- - -	- - -
D-99251	Trigger Side Plate - Left (Blk. D-107375)	99251	- - -	- - -	- - -	- - -	- - -	- - -	- - -
B-99271	Trigger Engagement Screw (Blk. 99270)	99271	- - -	- - -	- - -	- - -	- - -	- - -	- - -
B-99271	Trigger Overtravel Screw (Blk. 99270)	99271	- - -	- - -	- - -	- - -	- - -	- - -	- - -
B-107290	Trigger Pivot Pin (Blk. 107285)	107290	- - -	- - -	- - -	- - -	- - -	- - -	- - -
B-107315	Trigger Plate Bushings (2) (Blk. 107310)	107315	- - -	- - -	- - -	- - -	- - -	- - -	- - -
B-99273	Trigger Pull Adjustment Screw (Blk 99272)	99273	- - -	- - -	- - -	- - -	- - -	- - -	- - -
A-15400	Trigger Spring	99268	- - -	- - -	- - -	- - -	- - -	- - -	- - -

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BARBER - 2.4.130000760

HITCHINER
MANUFACTURING CO., INC.
MILFORD, NEW HAMPSHIRE 03055

ISO-9001

XC D. Finpan
V. Norton

June 8, 1995

Glen Sietsma
Remington Arms Co., Inc.
R & D Tech Center
P.O. 5016
Elizabethtown, KY 42702

Dear Glen:

We have reviewed your drawing EXP2880 with our Engineering Department and have made the following observations. I will refer to the four points addressed in your letter:

A) Although the wall thickness at the thinnest cross section is .040, we feel that our vacuum assist casting method can be successful in producing that configuration.

B) The core would be formed by a ceramic core. We would have the core produced to "premium" tolerances, however, we could not expect better than a ±.005" tolerance on core dimensions. The threads would be omitted.

C) The .156 Ø holes would not be cast. We could cast "flats" on the O.D. to aid the subsequent machining operation.

D) Surface finish of the crown would be 63 to 125 RMS in the cast condition.

Note that general tolerances are in the order of ±.005" inch per inch. Some relaxation of tolerances and/or addition of machining stock would be necessary to meet your print requirements.

TELEPHONE (603) 673-1100, FAX (603) 673-7960

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Hitchiner Manufacturing Co., Inc.

We have not worked up any cost figures at this time, although I would ballpark a piece price of $8-$10 and tooling at approximately $12,000 for the raw casting. Much of the cost is due to the necessity of a purchase ceramic core.

I hope this information will be useful. Please give me a call if you have any questions.

Very truly yours,

HITCHINER MANUFACTURING CO., INC.

Dave Fossey

Dave Fossey
Estimator

dbm

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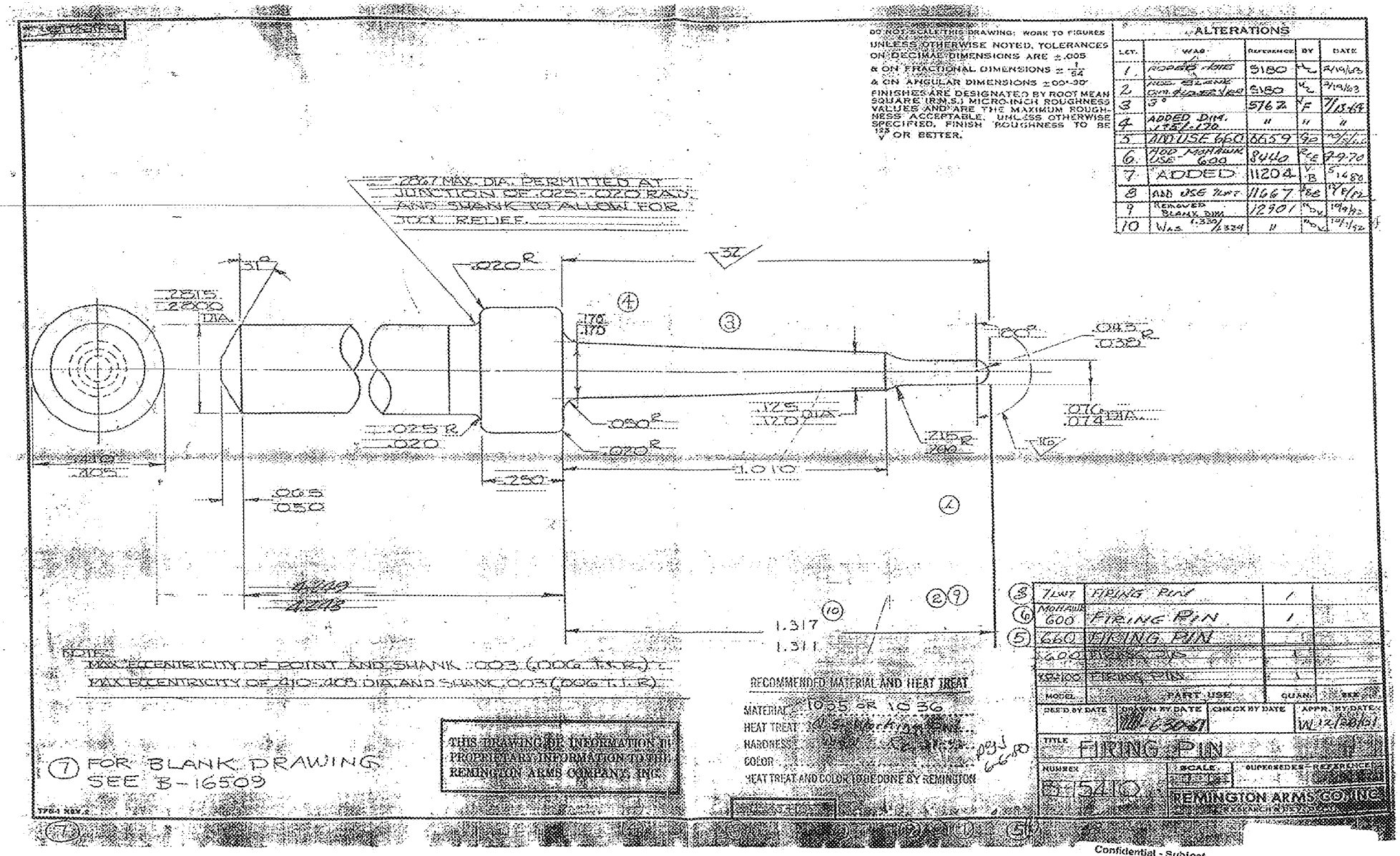

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M/750 FIRECONTROL COMPONENTS

Dwg. #	Description	CADD File Name
D-107390	Trigger Assembly	RIF.750.FIRECONTROL-ASSY.107390
C-107345	Bolt Stop Release (blank 107340)	RIF.750.BOLT-RELEASE.107345
C-107380	Safety Assembly	RIF.750.SAFETY-ASSY.107380
D-92212	Safety	RIF.750.SAFETY.92212
C-99301	Safety Button	RIF.750.SAFETY-BUTTON.99301
B-107415	Safety Clip	RIF.750.SAFETY-CLIP.107415
B-23220	Safety Detent Ball	RIF.700.BALL.23220
C-107320	Safety Detent Spring	RIF.750.SAFETY-DET-SPG.107320
B-107300	Safety Pivot Pin	RIF.750.SAFETY-PIVOT.107300
D-99261	Sear Safety Cam	RIF.750.SEAR.99261
A-17047	Sear Spring	RIF.750.SEAR-SPG.17047
B-99235	Tamper Cap	RIF.750.TAMPER-CAP.99235
B-107315	Trigger Plate Bushing (2) (blank 107310)	RIF.750.TRIG-PLATE-BUSHING.107315
D-107370	Trigger (blank B-99249)	RIF.750.TRIGGER.107370 RIF.750.TRIGGER.107370
B-99271	Trigger Engagement Screw (blank 99270)	RIF.750.TRIG-SCREW.99271
B-99271	Trigger Overtravel Screw (blank 99270)	RIF.750.TRIG-SCREW.99271
B-99273	Trigger Pull Adj. Screw (blank 99272)	RIF.750.TRIG-PULL-SCREW.99273
B-107290	Trigger Pivot Pin (blank 107285)	RIF.750.TRIG-PIVOT.107290
A-15400	Trigger Spring	RIF.750.TRIG-SPG.15400
C-107360	Trigger Housing Assembly	RIF.750.TRIG-HOUSING-ASSY.107360
B-14632	Trigger Housing Rivet (4)	RIF.750.RIVET.14632
C-99248	Trigger Hous. Front Spacer (blank 99247)	RIF.750.FRONT-SPACER.99248
B-14631	Trigger Housing Rear Spacer (blank 91924)	RIF.750.REAR-SPACER.14631
D-99250	Trigger Side Plate, Right Trig. Side Plate (blank 107375)	RIF.750.SIDE-PLATE.107375 RIF.750.SIDE-PLATE.107375
D-99251	Trigger Side Plate, Left Trig. Side Plate (blank 107375)	RIF.750.SIDE-PLATE.107375 RIF.750.SIDE-PLATE.107375

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BARBER - 2.4.130000766

LEFT HAND

C-107380	Safety Assembly	RIF.750.SAFETY-ASSY.107380
D-99257	Safety	RIF.750.SAFETY.99257
C-107355	Bolt Release (blank 107350)	RIF.750.BOLT-RELEASE.107345
D-99253	Rt. Side Plate	RIF.750.SIDE-PLATE.107375
D-99252	Lt. Side Plate	RIF.750.SIDE-PLATE.107375
C-107325	Safety Detent Spring	RIF.750.SAFETY-DET-SPG.107320

MODEL 7

C-107380	Safety Assembly	RIF.7.SAFETY-ASSY.107380
D-99259	Safety	RIF.7.SAFETY.99259
C-107305	Bolt Release	RIF.7.BOLT-STOP-RELEASE.107305

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BARBER - 2.4.130000767

PAGE BREAK

BARBER - 2.4.130000768

8 June, 1995

x.c. D.R. Danner

To: D. Findlay

From: G.D. Sietsema

RE: Chemical Analysis of *Speedlock Systems* High-Performance Titanium Alloy Firing Pins.

The body of the *Speedlock* Titanium firing pins is made from a Titanium - Aluminum alloy, and the firing pin tip is made of a stainless steel alloy.

OBJECTIVE:
To determine the chemical composition of the *Speedlock* M700 long and short action firing pin body and firing pin tip.

PROCEDURE:
All testing was done at Metallurgical Services of Louisville, KY. A small piece of material was sectioned form each firing pin body and firing pin tip. The sections were analyzed using a EDX analysis system. The results were presented in Weight % of Element using a standardless analysis system.

RESULTS:
The results are summarized below. See the attached EDX output with the labels beginning with "95fi-1".

		Wt. %							
		Al	Ti	Cr	Mn	Fe	Ni	Cu	Alloy Family
Long Action Body		6.55	93.45						Ti, 6%Al, 4%V
Long Action Tip			3.22	15.00	0.58	73.41	4.23	3.56	17-4/17-5 PH
Short Action Body		4.51	95.49						Ti, 6%Al, 4%V
Short Action Tip			2.18	15.37	0.65	75.10	3.32	3.38	17-4/17-5 PH

The alloy families are estimates form the EDX analysis. The EDX analysis is *qualitative*, not quantitative, and can not accurately detect light elements including Carbon. The Cu in the tips is consistent with a "17" series precipitation hardening stainless steel. The 4.5 - 6.5 % Al is consistent with a Ti, 6%Al, 4%V Titanium alloy, which is a very common commercial Ti alloy.

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BARBER - 2.4.130000769

FUTURE ANALYSIS:
The samples should be destructively analyzed to determine the method of joining the firing pin body and tip. A half diameter section of the destructive sample should be kept so a microstructural analysis can be performed on the sample. This would determine the condition and hardness of the firing pin tip. Also an HRb or HRc hardness should be performed on the samples to determine the hardness of the firing pin body.

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BARBER - 2.4.130000770

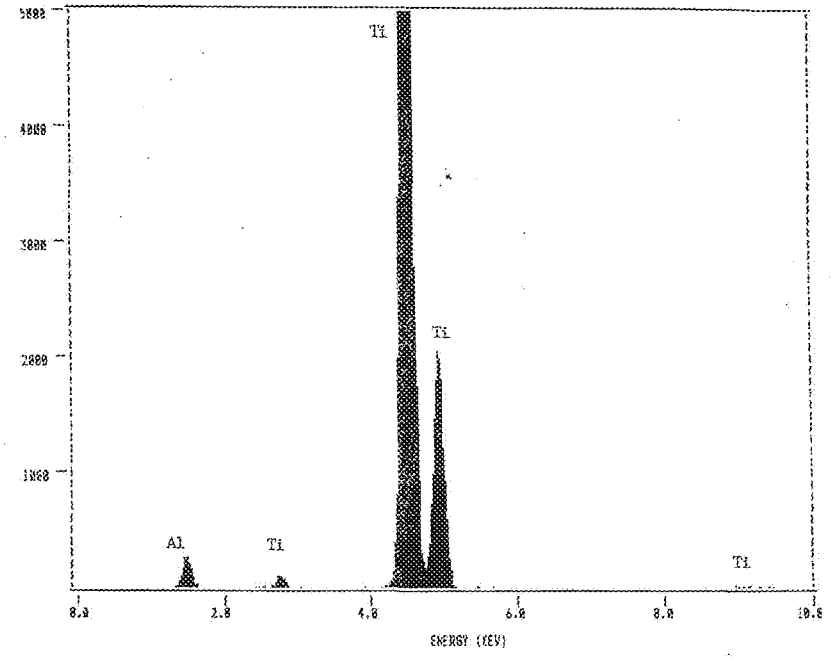
95F1-1 LONG ROD BIG END

SPECTRUM LABEL

95F1-1 LONG ROD BIG END

SPECTRUM FILE NAME

1892



XPGIT1

HOSID: STANDARDLESS ANALYSIS OF BULK SAMPLE
SPECTRUM: 1892 95F1-1 LONG ROD BIG END

ELEMENT	RELATIVE K	WT %
AL	0.0387	6.55
TI	0.9239	93.45
TOTAL		100.00

2M-95 13:17:07

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BARBER - 2.4.130000771

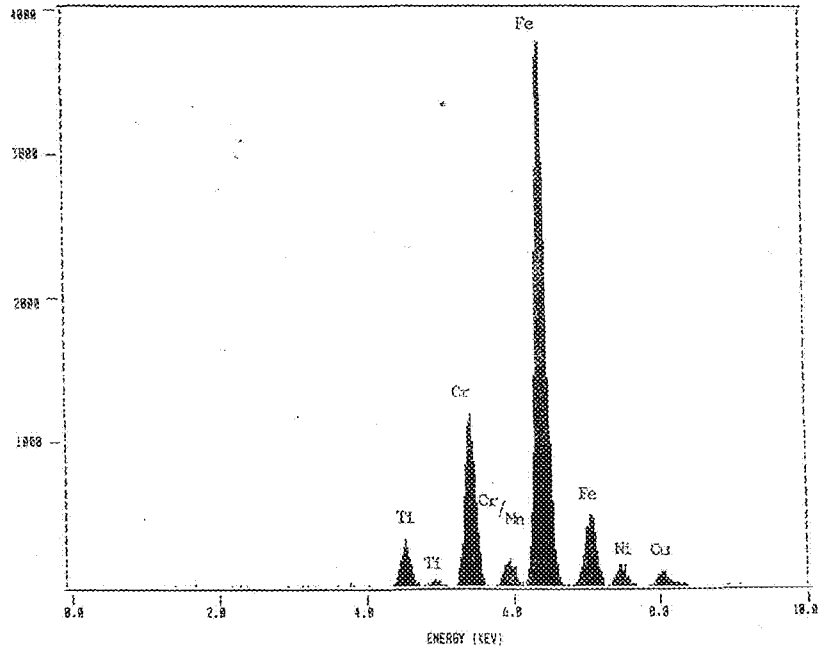
95F1-1 LONG ROD SMALL END

SPECTRUM LABEL

95F1-1 LONG ROD SMALL END

SPECTRUM FILE NAME

1893



TYPICAL

NOSTD: STANDARDLESS ANALYSIS OF BULK SAMPLE
SPECTRUM: 1893 95F1-1 LONG ROD SMALL END

ELEMENT	RELATIVE K	WT %
TI	0.0347	3.22
CR	0.1736	15.08
MN	0.0057	0.50
FE	0.7111	73.41
NI	0.0365	4.23
CU	0.0386	3.56
TOTAL		100.00

4-95 13:32:59

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Williams v. Remington

BARBER - 2.4.130000772

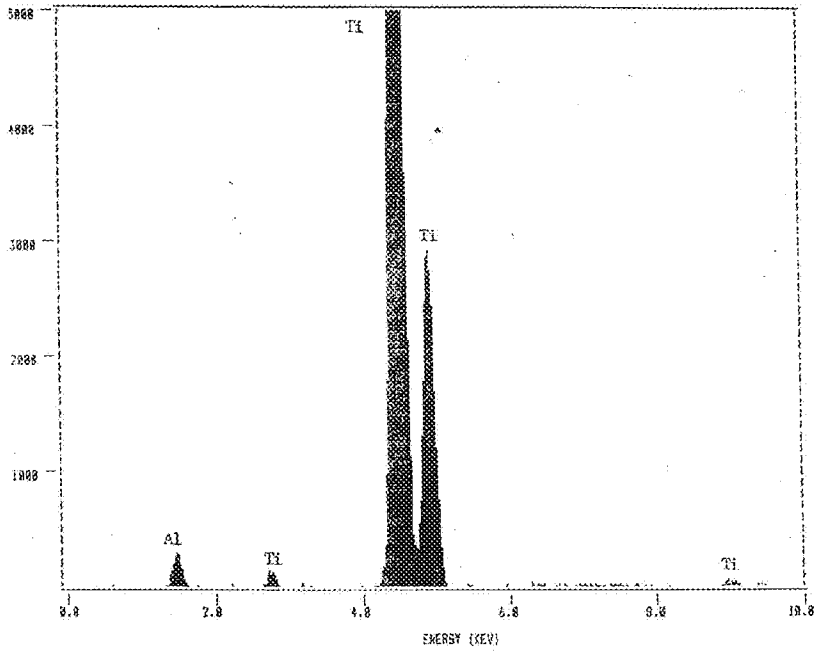
95F1-1 SHORT ROD BIG END

SPECTRUM LABEL

95F1-1 SHORT ROD BIG END

SPECTRUM FILE NAME

1898



QUANT1

NOSTD: STANDARDLESS ANALYSIS OF BULK SAMPLE
SPECTRUM: 1898 95F1-1 SHORT ROD BIG END

ELEMENT	RELATIVE K	WT %
Al	0.0289	4.51
Ti	0.9484	95.49
TOTAL		100.00

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BARBER - 2.4.130000773

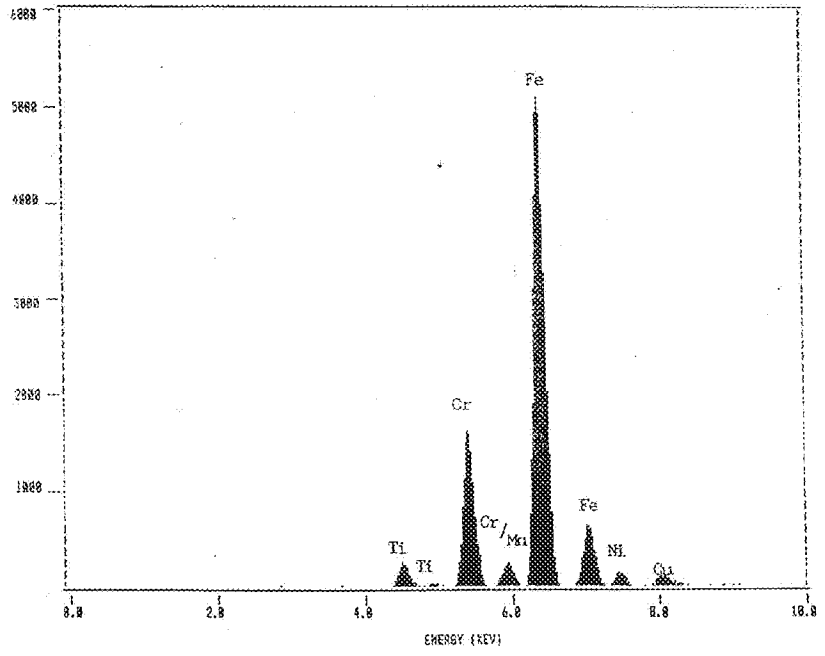
95F1-1 SHORT ROD SMALL END

SPECTRUM LABEL

95F1-1 SHORT ROD SMALL END

SPECTRUM FILE NAME

1091



XPGIT

NOSID: STANDARDLESS ANALYSIS OF BULK SAMPLE
SPECTRUM: 1091 95F1-1 SHORT ROD SMALL END

ELEMENT	RELATIVE %	WT %
TI	0.0235	2.18
CR	0.1795	15.37
MN	0.0063	0.65
FE	0.7273	75.18
NI	0.0284	3.32
CU	0.0298	3.30
TOTAL		100.00

JH-95 11:49:48

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PAGE BREAK

- Accuracy

Process	Dim	Requirements
MP	—	Bolt Lug Centrality
MP	—	Bolt Lug Perpendicularity
MP	—	Rec Lug/Face "
MP	—	Bolt Face " "
MP	—	Recive Chamber Concentricity D/A
MP	—	Bore & Groove Dim
		Groove .3075 US .309
MP	—	Lap Polishing of Rec Bottom
MW	—	Epoxy Bedding
		1st inch of Bbl/Trunk/Recv Ext
MW	—	Lock Time
MW	—	Bbl Hub Length (Ref 706)
MW	—	Bbl Configuration
		Ultrasonic Control
MW	—	Mill Rifling Forces
MW	—	Free Bore
MW	—	Bbl Hub Thread
		Gage
MW	—	Recvr Pad Chg
MW	—	Fire Ctrl Trunk
		Mechanism
MP	—	Bbl Hub Gage
		.005 x 45° Chamfer Muzzle

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BARBER - 2.4.130000776