700

900011 Dry Cycle Bolt Handle
900081 Synthetic Stock Evaluation
900301 Shear# Endurance Sight Screw
900671 17cal. 4-Hit CFM
892831 Web Thickness Sight Holes

Report No. 900011

RESEARCH TEST & MEASUREMENT LAB WORK REQUEST

	AREA OF TESTING	
____ Developmental	____ Safety Related	____ Litigation
____ Design Acceptance	____ Competitive Evaluation	____ Warehouse Audit
____ Pre-Pilot	____ New Design	X Cost Reduction
____ Pilot	____ Design Change	Stake ____
X Production Acceptance	____ Plant Assistance	____ Other

FIREARM STAT'S.	REPORT REQ'D.	
MODEL: 700	FORMAL ____	DATE REQUESTED: JAN. 1 1990
CAL. or GAGE: N.A.	TEST RESULTS ONLY ✓	DATE NEEDED BY: ____
BARREL TYPE: "		REQUESTED BY: R. HATFIELD
PROOFED: YES ____ NO ____		WORK ORDER NO: 481152

TEST TYPE

____ Strength Test	____ Ammunition Test	X Dry Cycle Test	____ Photo/Video
____ Function Test	____ Environmental Test	____ Measurements	____ Other ____
____ Accuracy Test	____ Customer Complaint	____ Endurance Test	____

EXPLAIN IN DETAIL THE REASON FOR THIS TEST:

TO DETERMINE IF UNQUENCHED "AFTER BRAZE" M/700 BOLT HANDLES ARE AS GOOD AS OR BETTER THAN QUENCHED.

FIVE ASSEMBLIES OF EACH FURNISHED

RUN EACH SAMPLE TO 50,000 CYCLES OF OPEN + CLOSE CYCLE.

CHECK BOLT HANDLE CAM SURFACE + BRAZED JOINTS.

GUNS REQUIRED:

2 - TEST LAB M/700

NOTE: NO firearms or parts will be tested in the Labs unless they are accompanied by a Work Request, and both are delivered to the Labs by the designer or engineer. All Work Requests are to be filled out in detail. No Exceptions.

DATE COMPLETED: 2-1-90

TEST COMPLETED BY: R.W. HOWE

REPORT DATE: 2-5-90

TEST AND MEASUREMENT LAB TEST RESULTS

REQUESTER: R. HATFIELD TESTER: R.W. HOWE DATE: 1/15/90
REPORT NO.: 900011 WORK ORDER NO.: 481152
WRITTEN BY: R W HOWE
TEST TYPE: DRY CYCLE

FIREARM STAT'S : MODEL: 700 CAL or GAUGE: ____
BARREL TYPE: ____ PROOFED: YES ___ NO ___

REASON FOR TEST :

TO DETERMINE IF UNQUENCHED "AFTER BRAZE" M700 BOLT HANDLE ASSEMBLIES ARE AS GOOD AS OR BETTER THAN QUENCHED.

EQUIPMENT REQUIRED :

5 EACH - QUENCHED AND UNQUENCHED M700 BOLT ASSM.
2 M700 TEST LAB RIFLES. & DRY CYCLE MACHINES.

TEST PROCEDURE :

1. FIVE OF EACH BOLT ASSM. SAMPLES WERE PLACED IN TEST LAB RIFLES & DRY CYCLE MACHINES AND RAN TO 50,000 CYCLES OF "OPEN AND CLOSE BOLT ONLY" ALL SAMPLES WERE LUBED WITH APROX 10 DROPS OF REM OIL ON CAM SURFACE LOCATION AT START AND APROX EVERY TWO TO THREE THOUSAND CYCLES TO COMPLETION.
2. AT COMPLETION OF DRY CYCLE TESTING BOLT HANDLES OF BOTH TYPES WERE SHEARED OFF TO VISUALLY CHECK QUALITY OF BRAZE JOINTS.

TEST RESULTS :

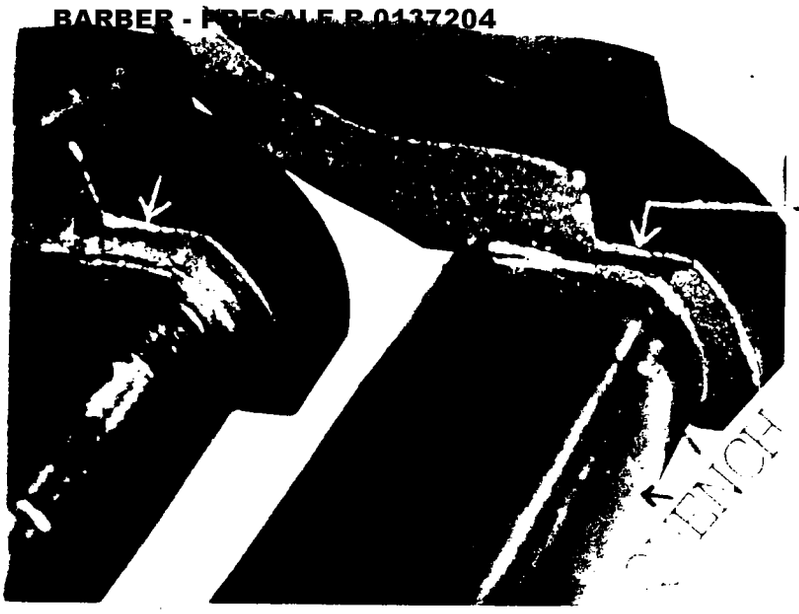
1. NO DISCERNIBLE VISUAL DIFFERENCE WAS NOTED AT THE [redacted] BOLT HANDLE CAM SURFACE LOCATION BETWEEN THE TWO TEST TYPES AT THE COMPLETION OF 50,000 DRY CYCLE EACH TEST.

(SEE PHOTO ON FOLLOWING PAGE)

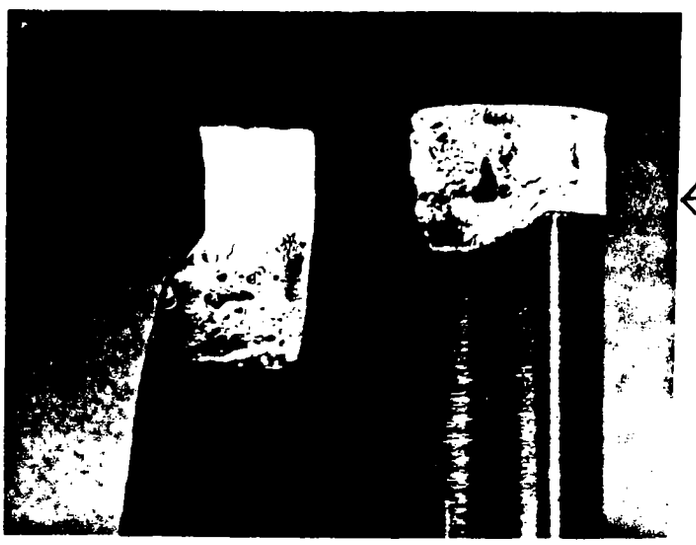
2. AFTER SHEARING OFF BOLT HANDLES OF BOTH TEST TYPES THE "UNQUENCHED" SAMPLES SHOWED MUCH BETTER BRAZE ADHESION THAN THE QUENCHED SAMPLES

(SEE PHOTOS OF FOLLOWING PAGE)

REPORT #900011



ARROWS INDICATE CAM SURFACE



BRAZE QUALITY UNQUENCHED SAMPLE

QUENCHED SAMPLE

xc: 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

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

J.R. Snedeker 16 April 90

F.H. Smith
Designer

F.H. Smith 4/16/90

W.H. Coleman, II
Technical Manager

W.H. Coleman, II 4/16/90

RP# 900081 Page 3 WO# 481152

MODEL 700 SYNTHETIC LONG STOCK EVALUATION

To: J.R. Snedeker
From: D.R. Thomas

INTRODUCTION:

A request was received from F.H. Smith on January 8, 1990 to evaluate Polypropolene and Noryl synthetic long stocks assembled on the Model 700, 300 Weatherby Mag. caliber rifles. The testing consisted of 100 yard accuracy, proof strength and drop testing.

SCOPE OF TEST:

To determine if the Model 700 rifles assembled in the experimental stocks would meet the Remington specifications of 3.5 inches for 100 yard accuracy and SAAMI drop testing. Also, to compare the affects of extreme heat and cold on 100 yard accuracy and to compare the strength of the internal bearing surfaces of each stock material.

TEST RESULTS:

The Noryl stocks were severely deformed during the 250 degree Fahrenheit phase of the test and could not be tested further. All of the Polypropolene stocked rifles tested were within Remington specifications of 3.5 inches for the 100 yard accuracy in each phase of the accuracy test. The following average group sizes were established:

	ACCURACY RESULTS		
STOCK TYPE	AMBIENT (in.)	+250 degrees F. (in.)	-40 degrees F. (in.)
Noryl	2.03	***	***
Polypropolene	2.27	2.03	2.32
* RYNITE	1.77	2.23	2.00
* Arylon	2.38	2.03	1.98
* FIBERGLAS	1.98	1.83	2.22

*** NORYL STOCKS WERE NOT SHOT AFTER EXTREME TEMPERATURE TEST

* RESULTS FROM TEST # 880181

There was no deformation of the internal bearing surfaces on any of the stocks tested.

All of the rifles tested passed the SAAMI and extended drop tests.

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 north 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.

MODEL 700 SYNTHETIC STOCK EVALUATION

TEST PROCEDURE:

ACCURACY:

The accuracy was shot by C.S. Stephens and J.E. Selan in the R&D 100 yard range located in building 52-1.

Standard long action Leupold bases and Leupold rings were used, in conjunction with a 20X All-American scope.

Three, five shot groups, were shot for each rifle at ambient temperature. The rifles were cooled and cleaned after each group, and one fouling shot was fired before the next group was shot. The procedure was repeated for the Polypropolene stocks after the rifles were placed in an industrial oven at 250 degrees Fahrenheit for 12 hours and then allowed to return to room temperature. The procedure was repeated a third time for the Polypropolene stocks after the rifles were placed in an industrial freezer at -40 degrees Fahrenheit for 24 hours and then allowed to return to room temperature. The testing was discontinued on the Noryl Stocks after they were severely deformed by the 250 degree Fahrenheit temperature.

The targets were analyzed for group size, using the HP 9000 computer and digitizing tablet.

PROOF STRENGTH:

The proof strength test was conducted by C.J. Stephens in the R&D shooting room located in building 52-1A.

Two Model 700 rifles with Polypropolene stocks were randomly selected for the proof strength test. Each rifle was placed in a shooting jack and 25 standard factory rounds were fired through them. Then, using a lanyard and the portable shield, 75 hand loaded proof rounds were fired. Finally, the actions were removed and the internal bearing surfaces examined.

The proof handloads were loaded with a 220 gn. bullet and 70 gns. of 4320 to yield an average pressure of 72,000 psi.

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.

MODEL 700 SYNTHETIC STOCK EVALUATION

APPENDIX

MODEL 700 SYNTHETIC LONG STOCK EVALUATION
INDIVIDUAL RIFLE ACCURACY RESULTS

SERIAL NUMBER	TYPE OF STOCK	TEMP. (°F)	GROUP 1 (in.)	GROUP 2 (in.)	GROUP 3 (in.)	AVERAGE (in.)
C6474033	N	A	1.12	1.82	1.81	1.58
C6472868	N	A	2.20	2.04	3.20	2.48
C6474105	N	A	2.48	1.20	2.26	1.97
C6474117	N	A	2.71	1.35	2.61	2.22
C6474109	N	A	1.75	1.18	1.58	1.49
C6474030	N	A	2.89	2.16	2.41	2.47
C6472861	P	A	3.21	1.50	3.13	2.61
		250	2.86	2.18	1.50	2.18
		-40	1.32	2.36	2.43	2.04
C6474116	P	A	2.02	2.18	1.73	2.02
		250	2.40	2.18	2.32	2.30
		-40	2.11	2.59	1.88	2.19
C6473023	P	A	2.24	2.05	3.05	2.24
		250	1.51	1.38	1.77	1.55
		-40	2.33	1.23	1.78	1.78
C6474175	P	A	2.06	1.46	2.38	2.06
		250	2.76	1.95	1.86	2.19
		-40	2.21	2.72	2.30	2.41
C6474123	P	A	3.73	2.40	2.52	2.89
		250	1.62	1.77	2.49	1.96
		-40	2.31	2.06	2.58	2.32
C6474032	P	A	1.88	1.72	1.69	1.77
		250	1.93	1.82	2.35	2.03
		-40	4.42	2.59	2.52	3.18

STOCK TYPES N NORYL
P POLYPROPOLENE

Report No. 900301

RESEARCH TEST & MEASUREMENT LAB WORK REQUEST

	AREA OF TESTING		
X Developmental	____ Safety Related	____ Litigation	
____ Design Acceptance	____ Competitive Evaluation	____ Warehouse Audit	
____ Pre-Pilot	____ New Design	____ Cost Reduction	
____ Pilot	X Design Change	Stake ____	
____ Production Acceptance	____ Plant Assistance	____ Other	

FIREARM STAT'S.	REPORT REQ'D.	
MODEL: CF RIFLE M/700	FORMAL ____	DATE REQUESTED: 1-30-90
CAL or GAGE: .338 OR .300	TEST RESULTS ONLY X	DATE NEEDED BY: 2-9
BARREL TYPE: ____		REQUESTED BY: TPOWERS
PROOFED: YES X NO ____		WORK ORDER NO: 481158

TEST TYPE

____ Strength Test	____ Ammunition Test	____ Dry Cycle Test	____ Photo/Video
____ Function Test	____ Environmental Test	X Measurements	____ Other ____
____ Accuracy Test	____ Customer Complaint	X Endurance Test	____

EXPLAIN IN DETAIL THE REASON FOR THIS TEST:

TO DETERMINE IF WE CAN SHORTEN THE SIGHT BASE SCREW (B-28505) BY ONE THREAD WITHOUT CAUSING A LOSS IN HOLDING STRENGTH. PERFORM TWO TYPES OF TESTS: SHEAR AND ENDURANCE. USE ALTERED POWDERED METAL BASES PROVIDED FOR SHEAR TEST. USE STD MIM BASE FOR ENDURANCE. USE A CONTROL GROUP FOR BOTH TESTS.

GUNS REQUIRED: (SEE BASIC)

TEST 8 SCREWS (4 SIGHT BASES) FOR SHEAR
TEST 12 " (6 SIGHT BASES) FOR ENDURANCE 3ea. {.338 WIN / .300 WIN MAG}

NOTE: NO firearms or parts will be tested in the Labs unless they are accompanied by a Work Request, and both are delivered to the Labs by the designer or engineer. All Work Requests are to be filled out in detail. No Exceptions.

DATE COMPLETED: 2-20 90
TEST COMPLETED BY: R. W HOWE
REPORT DATE: ____

TEST AND MEASUREMENT LAB TEST RESULTS

REQUESTER: T Powers TESTER: R.W.Howe DATE: 2/20/90
REPORT NO.: 900301 WORK ORDER NO.: 481158
WRITTEN BY: RW Howe
TEST TYPE: STRENGTH

FIREARM STAT'S : MODEL: 700 CAL or GAUGE: ____
BARREL TYPE: ____ PROOFED: YES ___ NO ___

REASON FOR TEST :

To determine the shear force required to remove M/700 rear sight base B-28505 screw shortened one thread as compared to the standard length B-28505 screw

EQUIPMENT REQUIRED :

Eight altered powdered metal sight bases
" " B 28505 screws
Eight standard prod. B 28505 screws
Eight short sections of m/700 bbl.
"Dillon" 10,000 pound capacity dynamometer & fixtures

TEST PROCEDURE :

Four each of altered and unaltered sight base assm. were placed in dynamometer fixture and stressed to breaking point.

All base screws were torqued to 80 in. lbs.

TEST RESULTS :

SAMPLE NO.	BASE w/ CURRENT SCREW LB. FORCE TO SHEAR	BASE w/ ALTERED SCREW LB. FORCE TO SHEAR
# 1	725 #	650 #
# 2	800 #	825 #
# 3	650 #	750 #
# 4	750 #	700 #
AVERAGE LB. FORCE	731.2 #	731.2 #

TEST AND MEASUREMENT LAB - TEST REPORT

REQUESTER: R. Stafford WRITTEN BY: D. Thomas DATE: 11/26/90
WORK ORDER: 481152 REPORT NO.: 900671

FIREARM STAT'S: MODEL: 700 CAL: 17

REASON FOR TEST:

To verify that the endurance life of the Model 700, 17 caliber barrel is adequate when produced using a four hit G.F.M. process. The previous process called for a three hit G.F.M.

EQUIPMENT REQUIRED:

Four Model 700 BDL rifles in 17 cal.
C6501508 C6501438 C6501483 C6501474
24000 rounds of Remington R17REM
Research shooting room located in building 52-1-A.
Bore Scope

TEST PROCEDURE:

The rifles were all shot from jacks in the shooting room. The rifles were cooled, cleaned and inspected at the following intervals:
20 rounds each rifle was cooled for approximately three minutes using compressed air
100 rounds the bore was cleaned with a phosphor bronze bore brush and Hoppes solvent, then swabbed dry with cotton patches.
1000 rounds the bore was inspected using a bore scope and observations were recorded.

TEST RESULTS:

All four Barrels were endurance tested to 6000 rounds and there were no failures.
There was extreme heat checking as described on attached sheets.

900671

#3 C6501483

Date	Test	Tester
4 23-90	1000 Rds	HEW
" " "	Inspected	DT HEW
4-25-90	2000 Rds	HEW
	INSPECTED	DT
5-1-90	3000 Rds	HEW
	INSPECT	DT
5-1-90	4000 Rds	HEW
	INSPECT	DT
5-3-90	5000 Rds	HEW
"	INSPECT	DT
9-6-90	6000	GG

1000 Rds - Slight Heat Checking
2000 Rds - Heat Checking Length of BBL
3000 Rds. " " " " "
4000 Rds. " " " " "

Gun #3 looks worse than Gun #2

#4 C6501474

Date	Test	Tester
4-23-90	1000 Rds	HEW
" " "	INSPECTED	DT HEW
4-25-90	2000 Rds.	HEW
	INSPECTED	DT
4-30-90	3000 Rds	HEW
	INSPECTED	DT.
5-1-90	4000 Rds	HEW
	INSPECT	DT.
5-3-90	5000 Rds	HEW
"	INSPECT	DT
9-6-90	6000 Rds	HEW

1000 Rds - Slight Heat Check.
2000 Rds. Heat Check Length of Bbl
3000 Rds. " " " "
4000 Rds " " " "
5000 Rds " " " "

#1 C6501508

Date	Test	Tester
4/3/90	1000 rds	HW
4/3/90	Inspect Bore	DT
4/11/90	2000 RDS.	H.W.
"	INSPECT BORE	J.ES
4/12/90	3000 RDs.	HEW
"	INSPECT BORE	JES
4/17/90	4000 Rds	HEW
4/17/90	Inspect Bore	HW/DT
4/18/90	5000 RDS	HEW
4/18/90	Inspect Bore	HW/DT
9.690	6000 Rds	SS

1000 Some Heat checking full length of Bore

2000 - HEAT CHECKING. FULL LENGTH OF BARREL.

3000 - MORE SEVERE HEAT CHECKING

4000 - Severe checking / Pitting

5000 - Severe checking & Pitting

#2 C6501438

Date	Test	Tester
4/3/90	1000 rds	HW
"	Inspect Bore	DT
4/11/90	2000 RDS	HW
"	INSPECT BORE	J.S.
4-12-90	3000 RDs	HEW
"	INSPECT BORE	JES
4/17/90	4000 Rds	H.W.
4/17/90	Inspect Bore	HW/DT
4/18/90	5000 RDS.	HEW
4/18/90	Inspect Bore	HW/DT

1000 rds - Some Heat Checking full length of Barrel

2000 RDS - HEAT CHECKING. LENGTH OF BARREL.

3000 RDS MORE SEVERE HEAT CHECKING

4000 Rds Severe checking / Pitting

5000 Rds Severe Checking & Pitting

7.14.90 / [illegible]
B. E. [illegible]

Four Hit "Upset" process test
.17 Caliber Model 700
WR 900671 3/7/90

Tests begun April '90, (On April 23-90
1000 rds)

Inspection Report J.E.S. 4.19.90.

(A) 3/8" Corn Cobb Heat Checking of surface on C 650 1474 after 6000 rds, From Muzzle No Heat Checking 16" inch in, 1½" from end of cartridge mouth, hertzian stress marks from surface contact with projectile (bullet)

A - OK no more testing required no "cracks" propagating to O.P.

(B) 3/4" Corn Cobb Heat Checking of surface C 650 1508, 2 5/8" significant circumferential hertzian stress marks, after 6000 rds. From Muzzle, 15" clean bore/rifling. No further Testing Required.

(C) 7/8" Corr Cobb Hat Checking!
C 6501483 .17 Caliber Bore,
3¼" extensive spalling in rifling
Beyond only Hertzeon Stem
marks from interference fit
& projectile (bullet) and I.D.
of barrel. No radial cracks
penetrating. Muzzle examined:
10. ½" from Muzzle no Hertzeon
Stem marks, clean bore no
galling.

A-OK no further
testing required.

10:18 PM

9.19.90

Report No. 892831

RESEARCH TEST & MEASUREMENT LAB WORK REQUEST

	AREA OF TESTING		
____ Developmental	____ Safety Related	____ Litigation	
____ Design Acceptance	____ Competitive Evaluation	____ Warehouse Audit	
____ Pre-Pilot	____ New Design	____ Cost Reduction	
____ Pilot	____ Design Change	Stake ____	
____ Production Acceptance	X Plant Assistance	____ Other	

FIREARM STAT'S.	REPORT REQ'D.	
MODEL: 700 ε 7600	FORMAL ____	DATE REQUESTED: 10-9-89
CAL. or GAGE: 35 WHELEN		DATE NEEDED BY: ____
BARREL TYPE: W/SIGHT HOLES	TEST RESULTS ONLY X	REQUESTED BY: JPOWERS
PROOFED: YES X NO ____		WORK ORDER NO: 481152

TEST TYPE

____ Strength Test	____ Ammunition Test	____ Dry Cycle Test	____ Photo/Video
____ Function Test	____ Environmental Test	X Measurements	____ Other ____
____ Accuracy Test	____ Customer Complaint	____ Endurance Test	____

EXPLAIN IN DETAIL THE REASON FOR THIS TEST:

WE WISH TO VERIFY THE ACCURACY OF THE FINITE ELEMENT MODEL OF THE WEB THICKNESS BETWEEN THE REAR SIGHT HOLES AND THE BORE.

OVER

GUNS REQUIRED:

NOTE: NO firearms or parts will be tested in the Labs unless they are accompanied by a Work Request, and both are delivered to the Labs by the designer or engineer. All Work Requests are to be filled out in detail. No Exceptions.

DATE COMPLETED: ____

TEST COMPLETED BY: ____

REPORT DATE: ____

TEST AND MEASUREMENT LAB TEST RESULTS

REQUESTER: T. Powers TESTER: C. Stephens DATE: 1/2/90
REPORT NO.: 892831 WORK ORDER NO.: 481152
WRITTEN BY: C. Stephens
TEST TYPE:

FIREARM STAT'S : MODEL: 7600 & 700 CAL or GAUGE: .35 Whelen
BARREL TYPE: PROOFED: YES ___ NO X

REASON FOR TEST : To determine the web thickness at the rear sight hole and the pressure required to fail the web.

EQUIPMENT REQUIRED : P&U Range, Handloading Room, Iron Lung, M7600 & M700, Measurement Equipment

TEST PROCEDURE : See attached Sheet.

TEST RESULTS : See attached sheet.

Test Procedure:

Various loadings were tried to obtain maximum downbore pressures. The best results were obtained with IMR 4320 powder, Remington Core and Primer with a 300 gr. Bullet. Loads were developed for 5 grain intervals starting with a 30 gr load and ending with a 60 gr load.

For the two initial guns, ten rounds were loaded for each interval, five being shot to verify pressure and five being shot in the rifle. For the second set of guns, five rounds were loaded for each interval and shot in the rifle.

The remaining rifles were all shot with loads starting at 45 gr and finishing at 60 gr

The sight holes were drilled by the model shop, the web thickness picked were .010, .015, .020 and .025. The first two rifles had a web thickness of .010. After these rifles failed to blow out at the web the next ten were drilled deeper, both rifles blew out the web. The remaining rifles were then drilled out to .010 or less.

After all the rifles had been shot each barrel was cut at the sight hole and the actual web thickness obtained.

	Initials	Date
Prepared By		
Approved By		

45-813 EYE-EASE 45-913 20/20 BUFF

.35 Whelen 892831

Sight Hole.

			1		2		3		4		5		6		7	
	Serial	Web	300gn		350gn		400gn		450gn		500gn		550gn		600gn	
Model	No.	Thickness	Rds	Sight Hole	Rds	Sight Hole	Rds	Sight Hole	Rds	Sight Hole	Rds	Sight Hole	Rds	Sight Hole	Rds	Sight Hole
7600	A8021308	.015	5	OK	5	OK	5	OK	5	OK	5	OK	5	OK	1	OK
7600	A8019513	.0165	5	OK	5	OK	5	OK	5	OK	5	OK	5	OK	1	OK
7600	A8021310	.0055	5	OK	5	OK	5	OK	5	OK	5	Pin Hole				
7600	A8020559	.0092	5	OK	5	OK	5	OK	5	OK	5	OK	5	Hole		
700	C6455412	.008							5	OK	5	OK	5	Hole		
700	C6455387	.003							1	Hole						
700	C6455394	.013							5	OK	5	OK	5	OK	5	OK
700	C6455361	.009							5	OK	5	OK	5	OK	5	OK
700	C6455376	.014							5	OK	5	OK	5	OK	5	OK
700	C6455341	.009							5	OK	5	OK	5	OK	2	OK
	Avg. Chamber Press.		23372		25008		31777		39595		53889		68543		85995	
	Avg Downbore Press		13431		16608		20204		25145		29098		34709		39686	

All loads with 4320 powder and 300gn. Bullet.

Parks

JONES, GILBREATH, JACKSON & MOLL
ATTORNEYS AT LAW
401 NORTH 7TH STREET
POST OFFICE BOX 2023
FORT SMITH, ARKANSAS 72902-2023

ROBERT L. JONES, JR.
E. C. GILBREATH
ROBERT L. JONES, III
RANDOLPH C. JACKSON
KENDALL B. JONES
MARK A. MOLL
CHARLES R. GARNER, JR.
DANIEL W. GILBREATH
LYNN MANNING FLYNN*

AREA CODE 501
FACSIMILE 782-9460
TELEPHONE 782-7203

*ALSO LICENSED IN OKLAHOMA

March 22, 1991

Jim Stickles
Remington Firearms
14 Hoefler Avenue
Ilion, NY 13357

Dear Mr. Stickles:

As I have advised you, Allen Cheek and I represent Evelyn Parks in a lawsuit against Darwin Lundeen.

There was an accidental discharge of a Remington Model 700 300 Winchester Magnum.

I told you the serial number on this rifle was 6871646.

You looked up this serial number and advised me that this rifle was sold to Sportsman Supply, Billings, Montana, and shipped on July 1, 1975.

In opposition to a motion for summary judgment that we filed on liability, the Defendant filed various documents including an affidavit of Robert J. Bauman and a copy of that affidavit with all attachments is attached hereto.

There was a videotape that came with the Robert J. Bauman affidavit and that videotape shows John T. Butters operating a Remington rifle.

I think what the videotape shows is Butters being able to cause the rifle to discharge on the release of the safety from the "safe" to the "fire" position.

The first part of the videotape is animated and shows the trigger mechanism.

What I would like to have, and I will have to hire an artist to make such a drawing if you do not already have such a drawing--I would like to demonstrate what it looks like when you put three rounds in the magazine and you have the rifle loaded with three rounds in the magazine and none in the chamber; and

then what it looks like when you operate the bolt and have two rounds in the magazine and one in the chamber. In other words, this would be a drawing that would show the magazine and show the spring that would keep the ammunition loaded in the magazine pushed up against the bolt.

In other words, this drawing would be to show the jury the meanings of the words: magazine, trigger mechanism, safety, and chamber so that when we are discussing the case it will mean something to the jury when we say that "three rounds were placed in the magazine and none in the chamber." Then with a cutaway drawing the jury would be able to quickly understand how the rifle was loaded.

Also, can you provide me with any information with reference to lawsuits that have been filed concerning alleged malfunction of the Remington 700 rifle? You will note that Bauman makes the statement that there have been many such lawsuits filed.

Also, a fact in our case is that Lundeen, the Defendant, contends that the safety was always in the "on" position.

Have you ever been sued on an alleged malfunction of a Remington 700 rifle wherein the Remington 700 rifle malfunctioned while the safety was on and remained in the "on safe" position?

I have talked to two plaintiffs' attorneys who have pursued lawsuits against Remington and they have advised me, and based upon my own study, no one has ever contended that a Remington 700 rifle malfunctioned or discharged while the safety was on and remained on the "safe" position.

Yours very truly,

JONES, GILBREATH, JACKSON & MOLL

By E C Gilbreath

E. C. Gilbreath

ECG/rh
cc: Allen Cheek

IN THE SUPERIOR COURT FOR THE STATE OF ALASKA

FOURTH JUDICIAL DISTRICT

EVELYN PARKS, individually and the Natural Mother of and Next Friend of JESSICA R. PARKS, AND JESSICA R. PARKS, Plaintiff, vs. DARWIN LUNDEEN, JOHN DOES I - V and XYZ CORPORATIONS VI-XX, Defendants.	)	Case No. 4FA-89-1452 Civil (ABA No. 7410063)

AFFIDAVIT OF ROBERT J. BAUMAN

STATE OF ALASKA)
) ss.
FOURTH JUDICIAL DISTRICT)

ROBERT J. BAUMAN, having been first duly sworn, does hereby depose and state as follows:

1. That I over the age of 18 years of age and am in every way competent to testify in the above entitled matter.

2. That I have personal knowledge of the facts contained herein.

3. That if called to testify in open ccurt, my testimony would be the same as stated herein.

4. That I have been involved in the gunsmith trade for over 35 years.

5. That I own and operate Fairbanks Gun and Repair, located in the Regency Court Mall, 59 College Road, Suite 104, Fairbanks, Alaska.

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ATTORNEYS AT LAW
590 UNIVERSITY AVENUE
SUITE 200
FAIRBANKS ALASKA 99709
TELEPHONE (907) 479-3161

Exhibit E

6. That I am familiar with all Remington bolt action rifles that have been manufactured in 300 Winchester magnum caliber, their operation, and their operational malfunctions.

7. A common malfunction associated with these firearms is a malfunction which is possible because of the design of their safety mechanism.

8. These rifles are manufactured with a sear-blocker type safety mechanism.

9. Because the firing pin/striker is not physically prevented from falling, this type of safety cannot prevent impact/jarring malfunctions which may result in the discharge of the firearm. This can occur without any actual defect in the mechanism. Additionally, this malfunction may occur to any of these firearms without any physical defect being present and without any identifiable change in the mechanism or operation of the firearm either prior to or subsequent to such a malfunction/discharge.

10. Specifically, this malfunction is possible because the safety mechanism, when engaged, merely prevents the sear from falling as opposed to mechanically preventing the firearm's striker/firing pin from falling.

11. The technical evaluation of the failure modes of the trigger mechanism of the Remington bolt action rifle is explained in detail in a failure mode Engineering Evaluation which was done by Engineering Consultants, Inc., signed by John T. Butter, P.E., and attached hereto. This failure mode

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evaluation details how the "trigger connector" of the Remington trigger design, due to its mechanical complexity and sensitivity to environmental influences (dirt, congealed oil, moisture, ice, etc.), may intermittently fail to properly support the sear and allow a discharge malfunction to occur. This report identifies two separate modes or sets of circumstances in which these malfunctions commonly occur. However, in each case it is the failure of the connectors to securely capture the sear which facilitates the weapon's discharge.

12. This type of malfunction has been demonstrated to have occurred when a person barely moves the bolt handle, safety mechanism, or when the rifle has been subjected to impact or jarring. A video tape demonstrating malfunction discharges is also attached which illustrates how the trigger connector's operational failure facilitates such malfunctions.

13. I have been able to demonstrate this malfunction utilizing a Remington bolt action rifle of the design which includes all of the Remington bolt action rifles which were manufactured in 300 Winchester magnum caliber.

14. One can easily appreciate that any dirt or moisture between the two bearing surfaces of these two parts can cause sticking or slippage and facilitate malfunction. Consequently, discharge malfunctions have been reported to have occurred from virtually any amount of movement to the firearm. Old oil/dirt between the trigger housing and sear or trigger also defeats safe operation.

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15. Additionally, vibrations to the firearm would tend to cause the sear/connector/striker engagement to be constantly reduced over the period which the firearm is subject to the vibration until minimum sear/connector/striker clearances occur.

16. The reasoning behind this is that when cocked, the striker is under many pounds of force such that if unrestrained, the striker would move forward towards the chamber of the firearm. Due to the angle of engagement between the striker and the sear and because of all the pressure on the striker mechanism, vibrations and/or moisture and dirt all tend to help the striker attempt to override the sear.

17. I am aware of a number of lawsuits which have been filed against Remington Arms Company, Inc. because of discharge malfunctions, have personally witnessed this type of function, and have had at least 25 persons come into my business reporting this type of malfunction.

18. I have read portions of the deposition testimonies of Evelyn Parks and Darwin Lundeen and I have concluded from their sworn testimony that the firearm in question was a model 700 Remington bolt action rifle in 300 Winchester magnum caliber. That sometime during the day previous to the accident, a round was chambered in this firearm, which necessarily resulted in the firing mechanism being cocked and the sear/connector/striker mechanism becoming engaged. That during the course of this day, the firearm was subjected to rain and may have become muddy. Significantly, this firearm was carried in a

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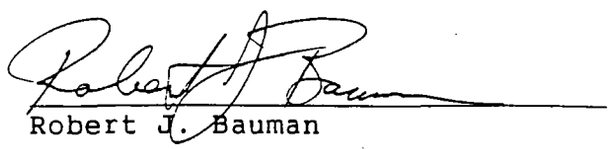
motor boat while cocked which would necessarily have resulted in this firearm being subjected to the harmonic vibrations associated with internal combustion engines.

19. It is my opinion that the vibrations of the boat, coupled with the moisture associated with a wet firearm, would have more likely than not reduced the sear/connector/striker engagements to a minimum. Additional frictions in the trigger housing, due to cold weather, congealed oil, dirt, and/or moisture/ice may also have been present thereby facilitating a discharge malfunction as detailed in the Butter evaluation.

20. When that occurred, this firearm was susceptible to a discharge malfunction from any type of jarring or movement in the firearm, its bolt, or safety mechanism.

21. Consequently, it is my opinion that the Remington bolt action firearm discharge which occurred on September 21, 1987, could have been a discharge malfunction as described in the Butter evaluation. The rain and mud, associated with the gun being subjected to harmonic vibrations, would have increased the likelihood that such a malfunction may have occurred. Additionally, if temperatures had dropped slightly below freezing such that the moisture would have turned to ice, the chances for this phenomena occurring would be greatly increased due to an increased likelihood in a trigger mechanism failure.

FURTHER THIS AFFIANT SAYETH NAUGHT.



Robert J. Bauman

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SUBSCRIBED AND SWORN TO before me this 4th day of March, 1991.

Grace E Trojan
Notary Public in and for Alaska
My Commission Expires: 3/11/91

(SEAL)

LEL:SMO
206

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ENGINEERING EVALUATION

FAILURE MODES OF REMINGTON BOLT ACTION RIFLES

UTILIZING FIRE CONTROL SYSTEMS BUILT UNDER

U.S. PATENT NUMBER 2,514,981

ECI FILE NO. 6477

Engineering Consultants INC
1656 TOWNHURST DRIVE SUITE G • HOUSTON, TEXAS 77043 • (713) 468-7415

September 22, 1988

Re: Failure Modes of Remington Bolt Action Rifles
Utilizing Fire Control Systems Built Under
U.S. Patent Number 2,514,981
ECI File No. 6477

Abstract:

The Remington Model 700 and 600 type triggers built under the Remington/Walker patent have a basic design defect rooted in the susceptibility of their resiliently mounted connector pieces to either marginally engage the sear or to fail to engage it at all. Such a condition may result in inadvertent discharge of a loaded rifle upon closure or upon opening of its bolt or upon placement of its safety lever to the "fire" position. This often intermittent malfunction, especially when coupled with a safety design which forces the user to arm the rifle before unloading the chamber, presents an unreasonable hazard which outweighs the utility of the fire control mechanism in which it is employed. Due to its unusual susceptibility to intermittent and inadvertent release, the Remington

FEB-22-1991 15:59 FROM WOOLSEY FISHER TO 4007207919072742623 P.03/17

M700 and 600 type trigger and fire control system is unsuitable for sale to and use by the general public in a hunting rifle.

Dear Mr. Miller:

In accordance with your request, the following report tabulates and comments upon the various modes of inadvertent discharge that are experienced by Remington bolt action rifles Model 721, 722, 725, 700, Sportsman 78, Seven, 40X, 600, 660, Mohawk 600 and the XP100 bolt action pistol.

All of these firearms utilize a common design of trigger mechanism and safety built under the U.S. patent number 2,514,981 issued to Phillip Haskell & Merle H. Walker on 11 July 1950 and assigned to the Remington Arms Co. The unique feature of this design which distinguishes it from all other commercially available bolt action trigger mechanisms is an independently acting resiliently mounted part called a trigger connector. This part is free to move with respect to the pivoted trigger body and is intended to be suddenly and precipitously moved forward by forces exerted by the main spring on the firing pin assembly and sear when the trigger is pulled to fire the gun. This motion of the connector releases the sear piece so that the sear no longer obstructs the forward motion of the firing pin which is then free to travel forward and forcefully strike and ignite the primer of a chambered cartridge. The connector is an intermediate part which

provides a mechanical "avalanche" effect which in a properly regulated and adjusted Remington/Walker patent trigger yields an advantageously crisp trigger action.

The disadvantages of the Remington/Walker patent design are mechanical complexity and sensitivity to environmental influences and conditions of adjustment and maintenance. These conditions affect the moveable and resiliently mounted connector piece so that it may intermittently fail to properly support the sear. The design concept also forces adherence to rigorous standards of manufacturing dimensional quality control which are impossible to maintain with zero defects in actual practice. The necessity of enclosing the moving parts of the fire control mechanism in a structure with minimal clearances between moving and fixed parts likewise invites undesirable and critical interferences arising from the presence of minute amounts of debris and deteriorated lubricants and cleaning compounds.

All of the inadvertent discharge modes of the subject series of Remington bolt action rifles have their basis in the failure of the connector to securely capture the sear. The susceptibility of this small yet crucial member to critical displacement creates a condition which in my opinion renders trigger mechanisms using it unsuitable for use in hunting rifles sold for use by the general public. If, in addition, the safety mechanism forces the user to unload the rifle with

the safety in the "fire" mode, an additional measure of hazard by exposure to inadvertent discharge is created.

Adequate information concerning care, cleaning and adjustment of trigger mechanisms are vital to safe use of the firearms which employ them. Unless gunsmiths and firearms owners are in possession of sufficient data to enable them to fully understand the hazards presented by this particular design they are in no position to identify and avoid dangers contingent upon a mechanism malfunction.

With the foregoing provided as background data, the following modes of arriving at the failure of the connector to securely capture or engage the sear are offered:

Mode 1

Connector fails to engage the sear with adequate overlap creating a condition of marginal engagement between the sear and the trigger connector.

Cause(s)

1. Connector or trigger body held forward by field dirt, congealed lubricant, firing residues, or manufacturing debris.

2. Retarded trigger body return motion caused by interference between moving parts and fixed parts of the trigger assembly due to dimensional defects.

3. Inadequate trigger return action caused by improper preloading of trigger pull spring due to incorrect adjustment

of trigger pull adjustment screw or deterioration of trigger spring action.

4. Interference between the tip of the trigger over-travel screw and the hole in the front face of the connector resulting in the failure of the connector to return to a position of full engagement beneath the sear.

5. Improper adjustment of the sear engagement screw.

6. Displacement of trigger and connector with the safety in a mid position resulting in less sear lift than that necessary to allow the free return of the connector so that the connector fails to properly reengage the sear. This maneuver is called "tricking" by Remington.

Result(s)

The rifle fires upon bolt closure, initial bolt lift, impact, or rarely upon safety release. Firing on safety release is in Remington's terminology an "FSR". Firing upon bolt closure, or a "hard follow/down" is in Remington's terminology a "slam-fire". Firing upon mechanical impact is in Remington's terminology a "jar-off". All of these conditions result from marginal connector and sear engagement.

Mode 2

Connector fails to engage sear at all and is trapped or remains forward of sear engagement surface.

Cause(s)

1. Connector or trigger body held forward by field dirt, congealed lubricant, firing residues or manufacturing debris.

2. Retarded trigger body motion caused by interference between moving parts and fixed parts of the trigger assembly due to dimensional defects.

3. Inadequate trigger return action caused by improper preloading of trigger pull spring due to incorrect adjustment of trigger pull adjustment screw or deterioration of trigger spring action.

4. Interference between the tip of the trigger over-travel screw and the hole in the front face of the connector resulting in the failure of the connector to return to a position of full engagement beneath the sear.

5. Displacement of trigger and connector with the safety in a mid position resulting in less sear lift than that necessary to allow the free return of the connector so that the connector fails to properly reengage the sear. This maneuver is called "tricking" by Remington.

6. Dimensional mismatch caused by manufacturing defects allowing a vertical float on the trigger body of the connector in excess of the sear lift provided by the safety mechanism creating a condition enabling entrapment of the connector in the fire notch of sear. This condition is detectable without disassembly using the test Remington calls the "screwdriver test" in which the trigger is pulled with the safety in the

"safe" position and then released while maintaining an upward force on the lower limb of the connector which is visible through the trigger guard. The upward force is removed and if the firing pin then falls upon release of the safety to the "fire" position, a critical dimensional mismatch is shown to be present in the mechanism.

Result(s)

If the entrapment of the connector occurs with the safety in the "fire" position and the bolt open, a "soft" follow/down will occur as the bolt is closed and an inadvertent discharge is unlikely.

If the entrapment of the connector occurs with the rifle cocked and the bolt closed on a loaded chamber with the safety engaged, the only thing preventing release of the sear and the forward fall of the firing pin is the safety lug on the safety lever engaging the safety cam on the sear. When this support for the sear is removed by placing the safety to the "fire" position, as it must be to unload a rifle fitted with a bolt lock or to fire the rifle, the rifle will suffer an inadvertent discharge. This condition is called an "FSR" or a "trick" by Remington depending upon the events leading up to improper connector and sear engagement. All of these conditions result from the failure of the connector to engage the sear at all.

It is obvious that whatever name is given to the occurrence, the inadvertent discharge of the firearm involved results from an improper engagement of the trigger connector with the sear, a condition avoidable by the elimination of this design-induced susceptibility to malfunction.

Reference to the text of U.S. Patent number 2,514,981 indicates that the applicants for the patent were aware of the possibilities for malfunction of triggers built using those design features described in the patent. Column 1, lines 22 through 28 read:

"The value of any safety is proportional to the positiveness of its action. To this end we have found it to be essential that an inadvertent operation of the trigger while the safety is in "safe" will not condition the arm to fire upon release of the safety." Such a failure of the safety occurs during the maneuver called by Remington "tricking".

Lines 33 through 41 of Column 1 read:

"It is an object of our invention to provide a fire control having a safety which operates by positively moving the firing pin rearwardly out of contact with the sear and thereby releasably retaining it. In this way should the trigger be operated while the safety is engaged, the trigger and sear springs will immediately reposition the mechanism to catch the firing pin upon release of the safety." The failure

meet this claim occurs whenever and for whatever reason that the connector does not fully engage the sear.

In Column 4, the relationship of the trigger, connector and sear during the firing cycle are described and the results of their interaction are characterized in lines 50 through 62:

"This allows a clean crisp let-off closely approaching the target shooter's ideal without requiring any additional trigger movement after release is first instigated. These advantages of freedom from creep or slap with the short light trigger pull, crisp let-off and short lock time characteristic of negative angle sears have been achieved in a construction which is absolutely safe in the hands of the hunter or target shooter and rugged enough to remain so in spite of the abuse and neglect which are often heaped upon sporting arms."

Anticipation of adjustment and maintenance problems arising from conditions known to exist during field use of firearms is clearly enunciated.

These statements clearly show that the patent applicants appreciated not only the effect of care, maintenance and environmental influences upon the subject design of fire control but were aware that malfunction of critical members of the assembly could create a significant hazard. Subsequent data from the field in the form of gun examination reports, gunsmith interviews by Remington representatives and internal

data from final assembly and gallery proof testing provides strong indications that no matter what claims were made in the patent as issued, its realization was falling short of its intent and that Remington had hard data to support a rigorous and effective remedial program of action.

Remington through sworn statements of its corporate representatives denies the existence of a basic design defect involving the use of its unique trigger connector based design, although large amounts of engineering data clearly indicate that that feature is involved in virtually all inadvertent discharges of Remington firearms using triggers built under the Remington/Walker patent. Failure to identify and correct the basic defects of design resulting in inadvertent discharge of the subject Remington firearms are unexplainable from a technical standpoint and are failures of quality control at the engineering design level.

Very truly yours,

ENGINEERING CONSULTANTS, INC.

John T. Butters, P.E.

JTB/jh

Exhibit 3

MINUTE #1 - 1979

LIMITED DISTRIBUTION

PRODUCT SAFETY SUBCOMMITTEE MEETING
JANUARY 2, 1979

PRESENT:

SUBCOMMITTEE	OTHER
E. F. BARRETT, CHAIRMAN	R. B. SPERLING, ACTING SECRETARY
J. G. WILLIAMS	
E. HOOTON, JR.	
R. A. PARTNOY	

SAFE GUN HANDLING

It was reported to the Committee that in 1975, due to what we learned from a quality audit on the Mohawk 600, Remington instituted new inspection procedures for all center ~~fire bolt~~ action rifles which were designed to catch a gun capable of being "tricked" into firing when the safety lever is released from the "safe" position. "Tricked" in this context means, safety lever placed in between "safe" and "fire" positions, trigger is then pulled, and the safety lever is subsequently moved to the "fire" position and the gun discharges. The inspection procedures involve the following:

(1) A visual check for adequate clearance between the sear and the connector.

(2) Measurement of this clearance by use of a .005 shim.

(3) Attempting to trick the gun--three times in assembly, three times in gallery and three times at final inspection.

In addition to the above inspection procedures, Remington also changed the trigger assembly for the Model 600 family of guns by adopting Model 700 design features. Changes to the 600 included:

1. Going from a folded housing to an assembly consisting of side plates held together by rivets and spacer block.
2. Providing more lift to the sear.

No such changes were made in the design of the Model 700 because it already had those features.

Remington is confident because of the checks instituted in 1975, that bolt action rifles made during and after 1975 will not trick. Since June 1978, 500 post-1975 Model 700's have been returned to Ilion for repair for various reasons. Starting in June, Remington conducted a quality audit on these returned guns and none could be tricked.

During this same period (June 1978 to the present), two hundred pre-1975 Model 700's were returned to Ilion for repair, and it was found that two could be tricked (one because of insufficient clearance between sear and connector, and one because of a warped connector). Based on this sample, about 1% of the pre-1975 Model 700's in the field may be subject to tricking. There are about 2,000,000 pre-1975 Remington guns in the field with the Model 700 trigger assembly. (By comparison, it is noted that the 1975 quality audit indicated about 50% of the Model 600 family of guns in the field were susceptible to

tricking.)

In addition to the above sample of 700's, 19 Model 700's have been returned to Ilion in response to the Model 600 recall with the complaint that the gun will fire when the safety lever is moved to the "fire" position. Remington found that only one of those guns could be tricked, the cause being insufficient clearance. Three other guns did fire with the safety being moved, but for reasons associated with owner alteration of the product. In one instance, an owner was about to return a gun for accidental discharge upon release of the safety; but just before sending the gun, the owner discovered that he was inadvertently pulling the trigger as he released the safety. It is suspected that this was also the case with the remaining 15 guns, since they were found to be in proper operating condition.

Remington has run quality audits on competitor bolt action rifles and has found that a large percentage of competitor models can be tricked. This includes some famous guns, such as the "Springfield" 30 caliber rifle, which was used in quantity in both World Wars.

The Subcommittee discussed the issue of tricking, as well as other causes of accidental discharge. It was decided that tricking, along with problems such as owner adjustment of the trigger engagement screw or the trigger adjustment screw, finger on the trigger when the safety is released, and trigger assembly alterations, are really problems more associated with abnormal use or misuse of the product rather than indication of a defective

product. Consequently, a notice warning or a series of warnings against abnormal use or misuse, and highlighting safe gun handling procedures, is the most direct solution to the problem of accidental discharge.

The Subcommittee considered the possibility of recalling all pre-1975 Remington center fire bolt action rifles, many of which have been in the hands of the public well over several decades.

The Subcommittee decided against a recall for the following reasons:

1. Based on Remington's sample, only 1% of the pre-1975 Model 700 family of guns out in the field which number about 2,000,000 can be tricked. That would mean the recall would have to gather 2,000,000 guns just to find 20,000 that are susceptible to this condition.
2. An attempt to recall all bolt action rifles would undercut the message we plan to communicate to the public concerning proper gun handling. It would indicate that the answer to accidental discharge can be found entirely within the gun, when in reality only proper gun handling can eliminate injuries resulting from such occurrences.

The Subcommittee decided to recommend that an informational warning concerning accidental firing and safe gun handling be prepared and effectively communicated to the gun handling public. The Marketing, Legal and Public Relations Departments were to

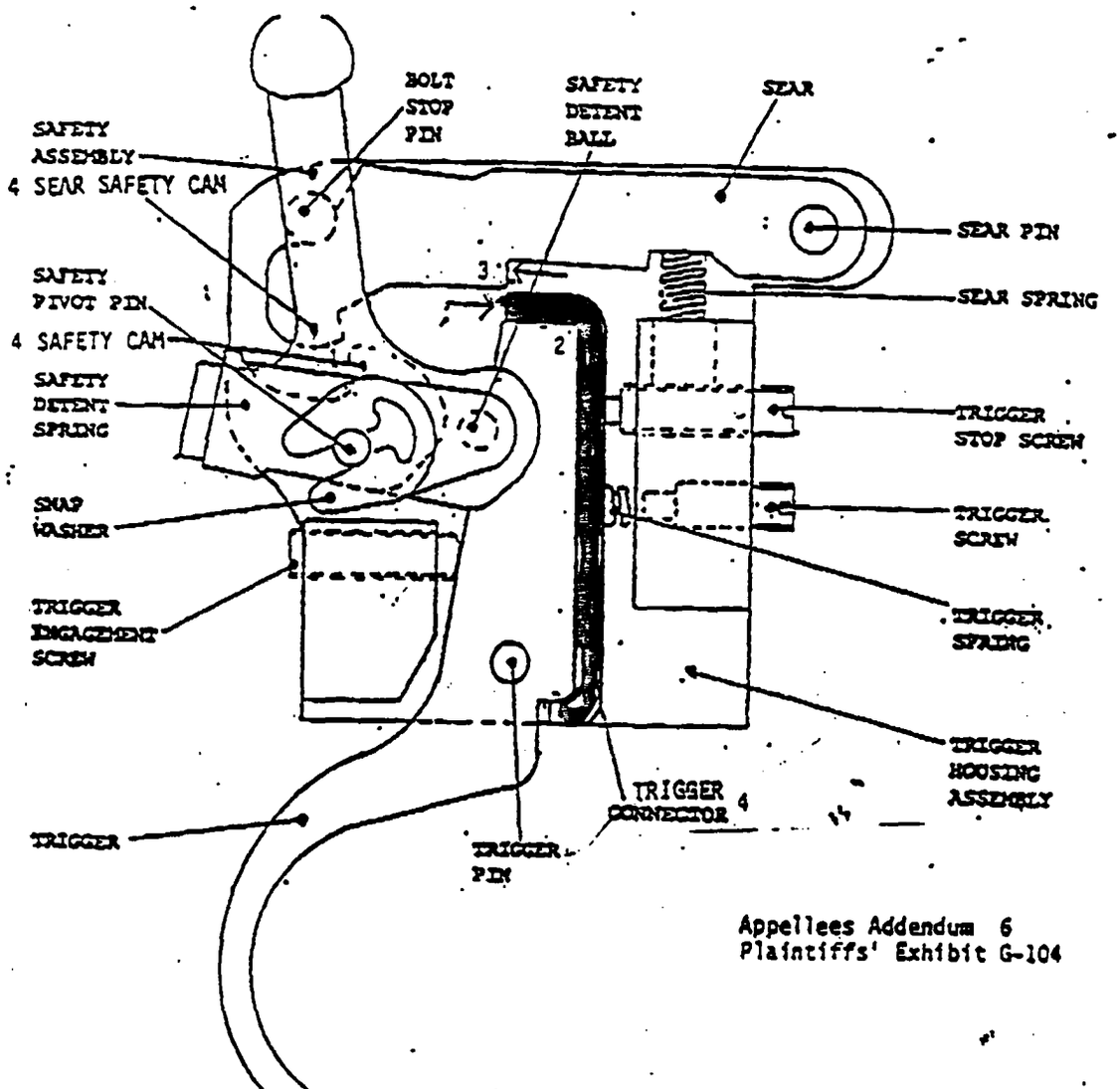
coordinate their efforts, with possible help from outside consultants, in preparing such a notice.

Further meetings would be held to ensure that this informational program was launched effectively and expeditiously.

(Secretary's Note: The President approved these recommendations on January 2, 1979.)

R. B. Sperling
Acting Secretary

Appellees Addendum 6
Plaintiffs Exhibit G-104



Appellees Addendum 6
Plaintiffs' Exhibit G-104

1. The safety cam rotates counterclockwise contacting the sear safety cam and lifting the sear from the trigger connector when the safety lever is moved forward to the on safe position. The sear lift in the Lewy rifle was .007 inches (T. 7/35).
2. This drawing does not show the vertical clearance between the trigger and trigger connector which was .010 inches in the Lewy rifle (T. 7/38).
3. The horizontal interference between the trigger connector and sear which was up to .003 (.010 -.007) inches in the Lewy rifle prevents the trigger connector from returning under the sear to provide support when the safety is moved to the off position (T. 8/52).
4. Appellees have added labels to G-104 in order to pictorially explain the function of the Walker fire control system and FSRs to the Court.

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ATTORNEYS AT LAW
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FORT SMITH, ARKANSAS 72902-2023

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CHARLES R. GARNER, JR.
DANIEL W. GILBREATH
LYNN MANNING FLYNN*

AREA CODE 501
FACSIMILE 782-9460
TELEPHONE 782-7203

*ALSO LICENSED IN OKLAHOMA

March 22, 1991

Jim Stickles
Remington Firearms
14 Hoefler Avenue
Ilion, NY 13357

Dear Mr. Stickles:

As I have advised you, Allen Cheek and I represent Evelyn Parks in a lawsuit against Darwin Lundeen.

There was an accidental discharge of a Remington Model 700 300 Winchester Magnum.

I told you the serial number on this rifle was 6871646.

You looked up this serial number and advised me that this rifle was sold to Sportsman Supply, Billings, Montana, and shipped on July 1, 1975.

In opposition to a motion for summary judgment that we filed on liability, the Defendant filed various documents including an affidavit of Robert J. Bauman and a copy of that affidavit with all attachments is attached hereto.

There was a videotape that came with the Robert J. Bauman affidavit and that videotape shows John T. Butters operating a Remington rifle.

I think what the videotape shows is Butters being able to cause the rifle to discharge on the release of the safety from the "safe" to the "fire" position.

The first part of the videotape is animated and shows the trigger mechanism.

What I would like to have, and I will have to hire an artist to make such a drawing if you do not already have such a drawing--I would like to demonstrate what it looks like when you put three rounds in the magazine and you have the rifle loaded with three rounds in the magazine and none in the chamber; and

then what it looks like when you operate the bolt and have two rounds in the magazine and one in the chamber. In other words, this would be a drawing that would show the magazine and show the spring that would keep the ammunition loaded in the magazine pushed up against the bolt.

In other words, this drawing would be to show the jury the meanings of the words: magazine, trigger mechanism, safety, and chamber so that when we are discussing the case it will mean something to the jury when we say that "three rounds were placed in the magazine and none in the chamber." Then with a cutaway drawing the jury would be able to quickly understand how the rifle was loaded.

Also, can you provide me with any information with reference to lawsuits that have been filed concerning alleged malfunction of the Remington 700 rifle? You will note that Bauman makes the statement that there have been many such lawsuits filed.

Also, a fact in our case is that Lundeen, the Defendant, contends that the safety was always in the "on" position.

Have you ever been sued on an alleged malfunction of a Remington 700 rifle wherein the Remington 700 rifle malfunctioned while the safety was on and remained in the "on safe" position?

I have talked to two plaintiffs' attorneys who have pursued lawsuits against Remington and they have advised me, and based upon my own study, no one has ever contended that a Remington 700 rifle malfunctioned or discharged while the safety was on and remained on the "safe" position.

Yours very truly,

JONES, GILBREATH, JACKSON & MOLL

By E C Gilbreath

E. C. Gilbreath

ECG/rh
cc: Allen Cheek

IN THE SUPERIOR COURT FOR THE STATE OF ALASKA

FOURTH JUDICIAL DISTRICT

EVELYN PARKS, individually and the Natural Mother of and Next Friend of JESSICA R. PARKS, AND JESSICA R. PARKS, Plaintiff, vs. DARWIN LUNDEEN, JOHN DOES I - V and XYZ CORPORATIONS VI-XX, Defendants.	)	Case No. 4FA-89-1452 Civil (ABA No. 7410063)

AFFIDAVIT OF ROBERT J. BAUMAN

STATE OF ALASKA)
) ss.
FOURTH JUDICIAL DISTRICT)

ROBERT J. BAUMAN, having been first duly sworn, does hereby depose and state as follows:

1. That I over the age of 18 years of age and am in every way competent to testify in the above entitled matter.

2. That I have personal knowledge of the facts contained herein.

3. That if called to testify in open court, my testimony would be the same as stated herein.

4. That I have been involved in the gunsmith trade for over 35 years.

5. That I own and operate Fairbanks Gun and Repair, located in the Regency Court Mall, 59 College Road, Suite 104, Fairbanks, Alaska.

HUGHES THORSNESS
GANTZ POWELL & BRUNDIN
ATTORNEYS AT LAW
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Exhibit E

6. That I am familiar with all Remington bolt action rifles that have been manufactured in 300 Winchester magnum caliber, their operation, and their operational malfunctions.

7. A common malfunction associated with these firearms is a malfunction which is possible because of the design of their safety mechanism.

8. These rifles are manufactured with a sear-blocker type safety mechanism.

9. Because the firing pin/striker is not physically prevented from falling, this type of safety cannot prevent impact/jarring malfunctions which may result in the discharge of the firearm. This can occur without any actual defect in the mechanism. Additionally, this malfunction may occur to any of these firearms without any physical defect being present and without any identifiable change in the mechanism or operation of the firearm either prior to or subsequent to such a malfunction/discharge.

10. Specifically, this malfunction is possible because the safety mechanism, when engaged, merely prevents the sear from falling as opposed to mechanically preventing the firearm's striker/firing pin from falling.

11. The technical evaluation of the failure modes of the trigger mechanism of the Remington bolt action rifle is explained in detail in a failure mode Engineering Evaluation which was done by Engineering Consultants, Inc., signed by John T. Butter, P.E., and attached hereto. This failure mode

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evaluation details how the "trigger connector" of the Remington trigger design, due to its mechanical complexity and sensitivity to environmental influences (dirt, congealed oil, moisture, ice, etc.), may intermittently fail to properly support the sear and allow a discharge malfunction to occur. This report identifies two separate modes or sets of circumstances in which these malfunctions commonly occur. However, in each case it is the failure of the connectors to securely capture the sear which facilitates the weapon's discharge.

12. This type of malfunction has been demonstrated to have occurred when a person barely moves the bolt handle, safety mechanism, or when the rifle has been subjected to impact or jarring. A video tape demonstrating malfunction discharges is also attached which illustrates how the trigger connector's operational failure facilitates such malfunctions.

13. I have been able to demonstrate this malfunction utilizing a Remington bolt action rifle of the design which includes all of the Remington bolt action rifles which were manufactured in 300 Winchester magnum caliber.

14. One can easily appreciate that any dirt or moisture between the two bearing surfaces of these two parts can cause sticking or slippage and facilitate malfunction. Consequently, discharge malfunctions have been reported to have occurred from virtually any amount of movement to the firearm. Old oil/dirt between the trigger housing and sear or trigger also defeats safe operation.

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15. Additionally, vibrations to the firearm would tend to cause the sear/connector/striker engagement to be constantly reduced over the period which the firearm is subject to the vibration until minimum sear/connector/striker clearances occur.

16. The reasoning behind this is that when cocked, the striker is under many pounds of force such that if unrestrained, the striker would move forward towards the chamber of the firearm. Due to the angle of engagement between the striker and the sear and because of all the pressure on the striker mechanism, vibrations and/or moisture and dirt all tend to help the striker attempt to override the sear.

17. I am aware of a number of lawsuits which have been filed against Remington Arms Company, Inc. because of discharge malfunctions, have personally witnessed this type of function, and have had at least 25 persons come into my business reporting this type of malfunction.

18. I have read portions of the deposition testimonies of Evelyn Parks and Darwin Lundeen and I have concluded from their sworn testimony that the firearm in question was a model 700 Remington bolt action rifle in 300 Winchester magnum caliber. That sometime during the day previous to the accident, a round was chambered in this firearm, which necessarily resulted in the firing mechanism being cocked and the sear/connector/striker mechanism becoming engaged. That during the course of this day, the firearm was subjected to rain and may have become muddy. Significantly, this firearm was carried in a

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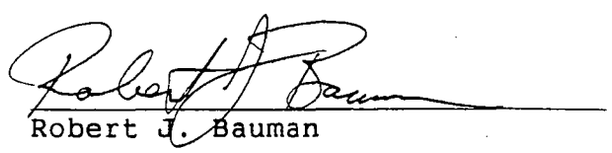
motor boat while cocked which would necessarily have resulted in this firearm being subjected to the harmonic vibrations associated with internal combustion engines.

19. It is my opinion that the vibrations of the boat, coupled with the moisture associated with a wet firearm, would have more likely than not reduced the sear/connector/striker engagements to a minimum. Additional frictions in the trigger housing, due to cold weather, congealed oil, dirt, and/or moisture/ice may also have been present thereby facilitating a discharge malfunction as detailed in the Butter evaluation.

20. When that occurred, this firearm was susceptible to a discharge malfunction from any type of jarring or movement in the firearm, its bolt, or safety mechanism.

21. Consequently, it is my opinion that the Remington bolt action firearm discharge which occurred on September 21, 1987, could have been a discharge malfunction as described in the Butter evaluation. The rain and mud, associated with the gun being subjected to harmonic vibrations, would have increased the likelihood that such a malfunction may have occurred. Additionally, if temperatures had dropped slightly below freezing such that the moisture would have turned to ice, the chances for this phenomena occurring would be greatly increased due to an increased likelihood in a trigger mechanism failure.

FURTHER THIS AFFIANT SAYETH NAUGHT.



Robert J. Bauman

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SUBSCRIBED AND SWORN TO before me this 4th day of March, 1991.

Grace E Lujan

(SEAL)

Notary Public in and for Alaska
My Commission Expires: 3/11/91

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ENGINEERING EVALUATION

FAILURE MODES OF REMINGTON BOLT ACTION RIFLES UTILIZING FIRE CONTROL SYSTEMS BUILT UNDER U.S. PATENT NUMBER 2,514,981

ECI FILE NO. 6477

Engineering Consultants INC
1656 TOWNHURST DRIVE SUITE G • HOUSTON, TEXAS 77043 • (713) 468-7415

September 22, 1988

Re: Failure Modes of Remington Bolt Action Rifles
Utilizing Fire Control Systems Built Under
U.S. Patent Number 2,514,981
ECI File No. 6477

Abstract:

The Remington Model 700 and 600 type triggers built under the Remington/Walker patent have a basic design defect rooted in the susceptibility of their resiliently mounted connector pieces to either marginally engage the sear or to fail to engage it at all. Such a condition may result in inadvertent discharge of a loaded rifle upon closure or upon opening of its bolt or upon placement of its safety lever to the "fire" position. This often intermittent malfunction, especially when coupled with a safety design which forces the user to arm the rifle before unloading the chamber, presents an unreasonable hazard which outweighs the utility of the fire control mechanism in which it is employed. Due to its unusual susceptibility to intermittent and inadvertent release, the Remington

M700 and 600 type trigger and fire control system is unsuitable for sale to and use by the general public in a hunting rifle.

Dear Mr. Miller:

In accordance with your request, the following report tabulates and comments upon the various modes of inadvertent discharge that are experienced by Remington bolt action rifles Model 721, 722, 725, 700, Sportsman 78, Seven, 40X, 600, 660, Mohawk 600 and the XP100 bolt action pistol.

All of these firearms utilize a common design of trigger mechanism and safety built under the U.S. patent number 2,514,981 issued to Phillip Haskell & Merle H. Walker on 11 July 1950 and assigned to the Remington Arms Co. The unique feature of this design which distinguishes it from all other commercially available bolt action trigger mechanisms is an independently acting resiliently mounted part called a trigger connector. This part is free to move with respect to the pivoted trigger body and is intended to be suddenly and precipitously moved forward by forces exerted by the main spring on the firing pin assembly and sear when the trigger is pulled to fire the gun. This motion of the connector releases the sear piece so that the sear no longer obstructs the forward motion of the firing pin which is then free to travel forward and forcefully strike and ignite the primer of a chambered cartridge. The connector is an intermediate part which

provides a mechanical "avalanche" effect which in a properly regulated and adjusted Remington/Walker patent trigger yields an advantageously crisp trigger action.

The disadvantages of the Remington/Walker patent design are mechanical complexity and sensitivity to environmental influences and conditions of adjustment and maintenance. These conditions affect the moveable and resiliently mounted connector piece so that it may intermittently fail to properly support the sear. The design concept also forces adherence to rigorous standards of manufacturing dimensional quality control which are impossible to maintain with zero defects in actual practice. The necessity of enclosing the moving parts of the fire control mechanism in a structure with minimal clearances between moving and fixed parts likewise invites undesirable and critical interferences arising from the presence of minute amounts of debris and deteriorated lubricants and cleaning compounds.

All of the inadvertent discharge modes of the subject series of Remington bolt action rifles have their basis in the failure of the connector to securely capture the sear. The susceptibility of this small yet crucial member to critical displacement creates a condition which in my opinion renders trigger mechanisms using it unsuitable for use in hunting rifles sold for use by the general public. If, in addition, the safety mechanism forces the user to unload the rifle with

the safety in the "fire" mode, an additional measure of hazard by exposure to inadvertent discharge is created.

Adequate information concerning care, cleaning and adjustment of trigger mechanisms are vital to safe use of the firearms which employ them. Unless gunsmiths and firearms owners are in possession of sufficient data to enable them to fully understand the hazards presented by this particular design they are in no position to identify and avoid dangers contingent upon a mechanism malfunction.

With the foregoing provided as background data, the following modes of arriving at the failure of the connector to securely capture or engage the sear are offered:

Mode 1

Connector fails to engage the sear with adequate overlap creating a condition of marginal engagement between the sear and the trigger connector.

Cause(s)

1. Connector or trigger body held forward by field dirt, congealed lubricant, firing residues, or manufacturing debris.

2. Retarded trigger body return motion caused by interference between moving parts and fixed parts of the trigger assembly due to dimensional defects.

3. Inadequate trigger return action caused by improper preloading of trigger pull spring due to incorrect adjustment

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of trigger pull adjustment screw or deterioration of trigger spring action.

4. Interference between the tip of the trigger over-travel screw and the hole in the front face of the connector resulting in the failure of the connector to return to a position of full engagement beneath the sear.

5. Improper adjustment of the sear engagement screw.

6. Displacement of trigger and connector with the safety in a mid position resulting in less sear lift than that necessary to allow the free return of the connector so that the connector fails to properly reengage the sear. This maneuver is called "tricking" by Remington.

Result(s)

The rifle fires upon bolt closure, initial bolt lift, impact, or rarely upon safety release. Firing on safety release is in Remington's terminology an "FSR". Firing upon bolt closure, or a "hard follow/down" is in Remington's terminology a "slam-fire". Firing upon mechanical impact is in Remington's terminology a "jar-off". All of these conditions result from marginal connector and sear engagement.

Mode 2

Connector fails to engage sear at all and is trapped or remains forward of sear engagement surface.

Cause(s)

1. Connector or trigger body held forward by field dirt, congealed lubricant, firing residues or manufacturing debris.

2. Retarded trigger body motion caused by interference between moving parts and fixed parts of the trigger assembly due to dimensional defects.

3. Inadequate trigger return action caused by improper preloading of trigger pull spring due to incorrect adjustment of trigger pull adjustment screw or deterioration of trigger spring action.

4. Interference between the tip of the trigger over-travel screw and the hole in the front face of the connector resulting in the failure of the connector to return to a position of full engagement beneath the sear.

5. Displacement of trigger and connector with the safety in a mid position resulting in less sear lift than that necessary to allow the free return of the connector so that the connector fails to properly reengage the sear. This maneuver is called "tricking" by Remington.

6. Dimensional mismatch caused by manufacturing defects allowing a vertical float on the trigger body of the connector in excess of the sear lift provided by the safety mechanism creating a condition enabling entrapment of the connector in the fire notch of sear. This condition is detectable without disassembly using the test Remington calls the "screwdriver test" in which the trigger is pulled with the safety in the

"safe" position and then released while maintaining an upward force on the lower limb of the connector which is visible through the trigger guard. The upward force is removed and if the firing pin then falls upon release of the safety to the "fire" position, a critical dimensional mismatch is shown to be present in the mechanism.

Result(s)

If the entrapment of the connector occurs with the safety in the "fire" position and the bolt open, a "soft" follow/down will occur as the bolt is closed and an inadvertent discharge is unlikely.

If the entrapment of the connector occurs with the rifle cocked and the bolt closed on a loaded chamber with the safety engaged, the only thing preventing release of the sear and the forward fall of the firing pin is the safety lug on the safety lever engaging the safety cam on the sear. When this support for the sear is removed by placing the safety to the "fire" position, as it must be to unload a rifle fitted with a bolt lock or to fire the rifle, the rifle will suffer an inadvertent discharge. This condition is called an "FSR" or a "trick" by Remington depending upon the events leading up to improper connector and sear engagement. All of these conditions result from the failure of the connector to engage the sear at all.

It is obvious that whatever name is given to the occurrence, the inadvertent discharge of the firearm involved results from an improper engagement of the trigger connector with the sear, a condition avoidable by the elimination of this design-induced susceptibility to malfunction.

Reference to the text of U.S. Patent number 2,514,981 indicates that the applicants for the patent were aware of the possibilities for malfunction of triggers built using those design features described in the patent. Column 1, lines 22 through 28 read:

"The value of any safety is proportional to the positiveness of its action. To this end we have found it to be essential that an inadvertent operation of the trigger while the safety is in "safe" will not condition the arm to fire upon release of the safety." Such a failure of the safety occurs during the maneuver called by Remington "tricking".

Lines 33 through 41 of Column 1 read:

"It is an object of our invention to provide a fire control having a safety which operates by positively moving the firing pin rearwardly out of contact with the sear and thereby releasably retaining it. In this way should the trigger be operated while the safety is engaged, the trigger and sear springs will immediately reposition the mechanism to catch the firing pin upon release of the safety." The failure

meet this claim occurs whenever and for whatever reason that the connector does not fully engage the sear.

In Column 4, the relationship of the trigger, connector and sear during the firing cycle are described and the results of their interaction are characterized in lines 50 through 62:

"This allows a clean crisp let-off closely approaching the target shooter's ideal without requiring any additional trigger movement after release is first instigated. These advantages of freedom from creep or slap with the short light trigger pull, crisp let-off and short lock time characteristic of negative angle sears have been achieved in a construction which is absolutely safe in the hands of the hunter or target shooter and rugged enough to remain so in spite of the abuse and neglect which are often heaped upon sporting arms."

Anticipation of adjustment and maintenance problems arising from conditions known to exist during field use of firearms is clearly enunciated.

These statements clearly show that the patent applicants appreciated not only the effect of care, maintenance and environmental influences upon the subject design of fire control but were aware that malfunction of critical members of the assembly could create a significant hazard. Subsequent data from the field in the form of gun examination reports, gunsmith interviews by Remington representatives and internal

data from final assembly and gallery proof testing provides strong indications that no matter what claims were made in the patent as issued, its realization was falling short of its intent and that Remington had hard data to support a rigorous and effective remedial program of action.

Remington through sworn statements of its corporate representatives denies the existence of a basic design defect involving the use of its unique trigger connector based design, although large amounts of engineering data clearly indicate that that feature is involved in virtually all inadvertent discharges of Remington firearms using triggers built under the Remington/Walker patent. Failure to identify and correct the basic defects of design resulting in inadvertent discharge of the subject Remington firearms are unexplainable from a technical standpoint and are failures of quality control at the engineering design level.

Very truly yours,

ENGINEERING CONSULTANTS, INC.

John T. Butters, P.E.

JTB/jh

Exhibit 3

MINUTE #1 - 1979

LIMITED DISTRIBUTION

PRODUCT SAFETY SUBCOMMITTEE MEETING
JANUARY 2, 1979

PRESENT:

SUBCOMMITTEE	OTHER
E. F. BARRETT, CHAIRMAN	R. B. SPERLING, ACTING SECRETARY
J. G. WILLIAMS	
E. HOOTON, JR.	
R. A. PARTNOY	

SAFE GUN HANDLING

It was reported to the Committee that in 1975, due to what we learned from a quality audit on the Mohawk 600, Remington instituted new inspection procedures for all center ~~fire bolt~~ action rifles which were designed to catch a gun capable of being "tricked" into firing when the safety lever is released from the "safe" position. "Tricked" in this context means, safety lever placed in between "safe" and "fire" positions, trigger is then pulled, and the safety lever is subsequently moved to the "fire" position and the gun discharges. The inspection procedures involve the following:

(1) A visual check for adequate clearance between the sear and the connector.

(2) Measurement of this clearance by use of a .005 shim.

(3) Attempting to trick the gun--three times in assembly, three times in gallery and three times at final inspection.

In addition to the above inspection procedures, Remington also changed the trigger assembly for the Model 600 family of guns by adopting Model 700 design features. Changes to the 600 included:

1. Going from a folded housing to an assembly consisting of side plates held together by rivets and spacer block.
2. Providing more lift to the sear.

No such changes were made in the design of the Model 700 because it already had those features.

Remington is confident because of the checks instituted in 1975, that bolt action rifles made during and after 1975 will not trick. Since June 1978, 500 post-1975 Model 700's have been returned to Ilion for repair for various reasons. Starting in June, Remington conducted a quality audit on these returned guns and none could be tricked.

During this same period (June 1978 to the present), two hundred pre-1975 Model 700's were returned to Ilion for repair, and it was found that two could be tricked (one because of insufficient clearance between sear and connector, and one because of a warped connector). Based on this sample, about 1% of the pre-1975 Model 700's in the field may be subject to tricking. There are about 2,000,000 pre-1975 Remington guns in the field with the Model 700 trigger assembly. (By comparison, it is noted that the 1975 quality audit indicated about 50% of the Model 600 family of guns in the field were susceptible to

tricking.)

In addition to the above sample of 700's, 19 Model 700's have been returned to Ilion in response to the Model 600 recall with the complaint that the gun will fire when the safety lever is moved to the "fire" position. Remington found that only one of those guns could be tricked, the cause being insufficient clearance. Three other guns did fire with the safety being moved, but for reasons associated with owner alteration of the product. In one instance, an owner was about to return a gun for accidental discharge upon release of the safety; but just before sending the gun, the owner discovered that he was inadvertently pulling the trigger as he released the safety. It is suspected that this was also the case with the remaining 15 guns, since they were found to be in proper operating condition.

Remington has run quality audits on competitor ~~bolt action~~ rifles and has found that a large percentage of competitor models can be tricked. This includes some famous guns, such as the "Springfield" 30 caliber rifle, which was used in quantity in both World Wars.

The Subcommittee discussed the issue of tricking, as well as other causes of accidental discharge. It was decided that tricking, along with problems such as owner adjustment of the trigger engagement screw or the trigger adjustment screw, finger on the trigger when the safety is released, and trigger assembly alterations, are really problems more associated with abnormal use or misuse of the product rather than indication of a defective

product. Consequently, a notice warning or a series of warnings against abnormal use or misuse, and highlighting safe gun handling procedures, is the most direct solution to the problem of accidental discharge.

The Subcommittee considered the possibility of recalling all pre-1975 Remington center fire bolt action rifles, many of which have been in the hands of the public well over several decades.

The Subcommittee decided against a recall for the following reasons:

1. Based on Remington's sample, only 1% of the pre-1975 Model 700 family of guns out in the field which number about 2,000,000 can be tricked. That would mean the recall would have to gather 2,000,000 guns just to find 20,000 that are susceptible to this condition.
2. An attempt to recall all bolt action rifles would undercut the message we plan to communicate to the public concerning proper gun handling. It would indicate that the answer to accidental discharge can be found entirely within the gun, when in reality only proper gun handling can eliminate injuries resulting from such occurrences.

The Subcommittee decided to recommend that an informational warning concerning accidental firing and safe gun handling be prepared and effectively communicated to the gun handling public. The Marketing, Legal and Public Relations Departments were to

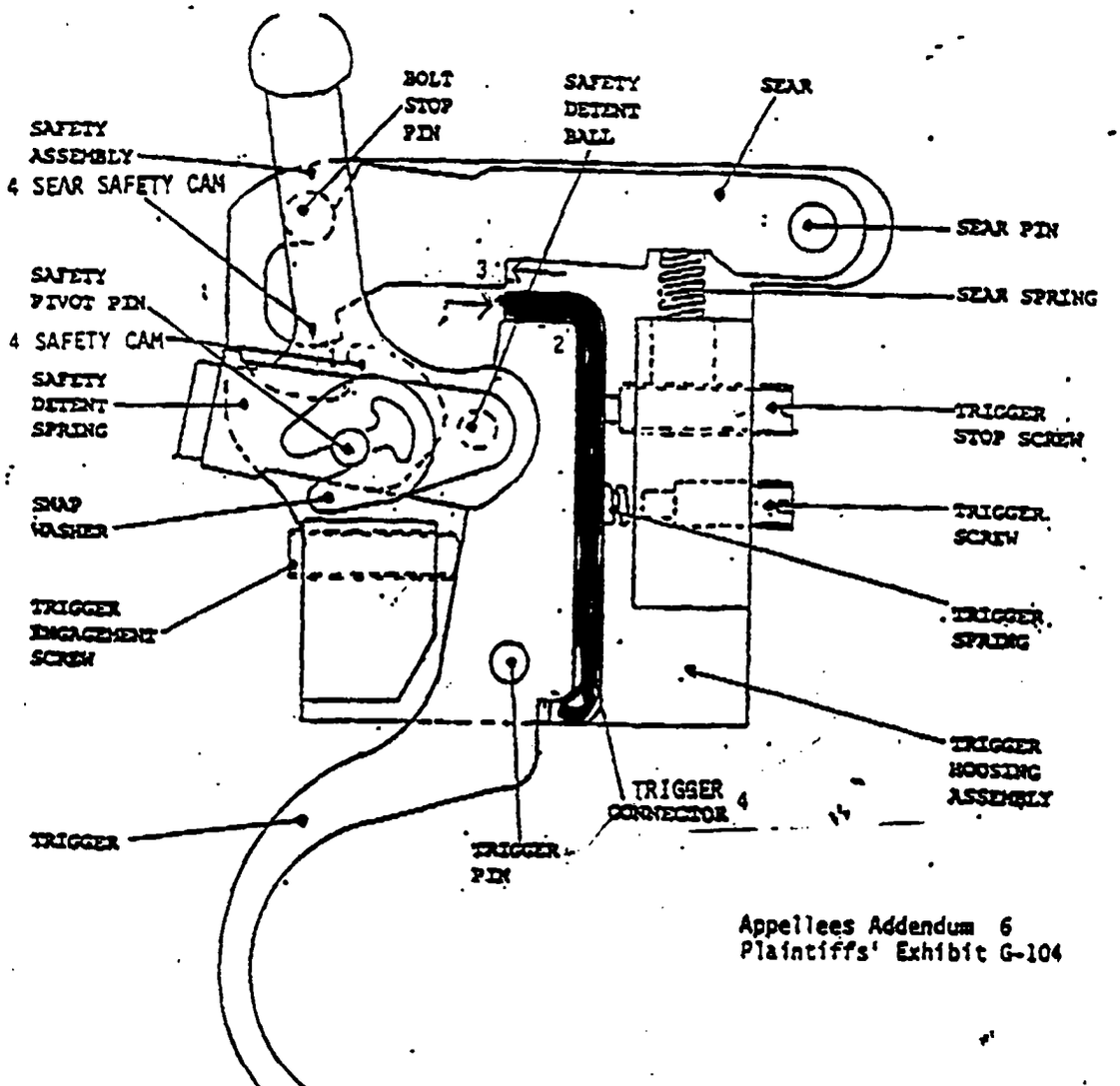
coordinate their efforts, with possible help from outside consultants, in preparing such a notice.

Further meetings would be held to ensure that this informational program was launched effectively and expeditiously.

(Secretary's Note: The President approved these recommendations on January 2, 1979.)

R. B. Sperling
Acting Secretary

Appellees Addendum 6
Plaintiffs Exhibit G-104



Appellees Addendum 6
Plaintiffs' Exhibit G-104

1. The safety cam rotates counterclockwise contacting the sear safety cam and lifting the sear from the trigger connector when the safety lever is moved forward to the on safe position. The sear lift in the Lewy rifle was .007 inches (T. 7/35).
2. This drawing does not show the vertical clearance between the trigger and trigger connector which was .010 inches in the Lewy rifle (T. 7/38).
3. The horizontal interference between the trigger connector and sear which was up to .003 (.010 -.007) inches in the Lewy rifle prevents the trigger connector from returning under the sear to provide support when the safety is moved to the off position (T. 8/52).
4. Appellees have added labels to G-104 in order to pictorially explain the function of the Walker fire control system and FSRs to the Court.