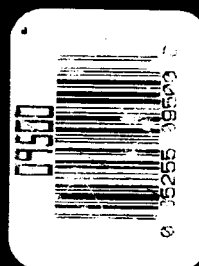
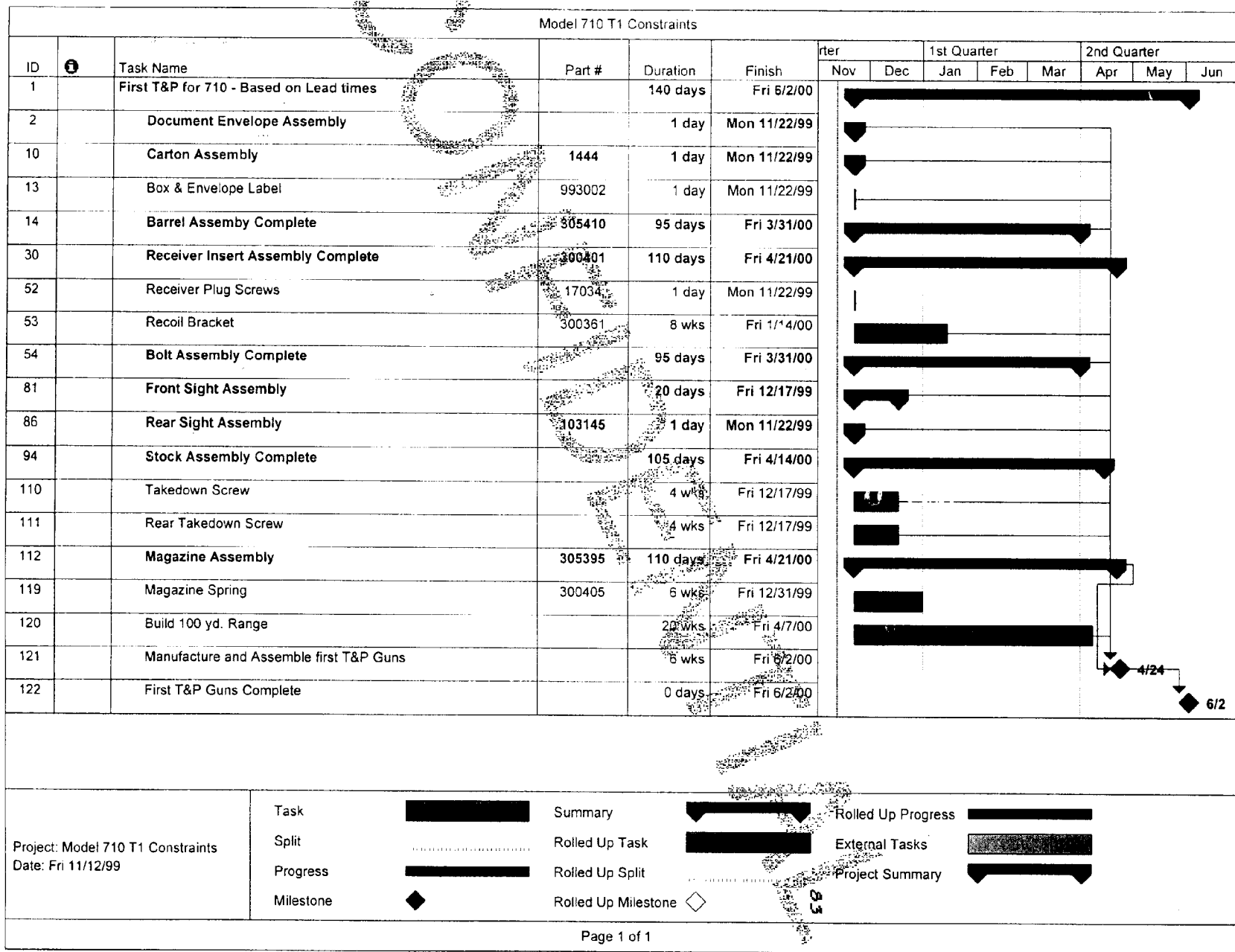


M710 ESTIMATE
DATA



MF0001

ME0002



November 12, 1999

Friday

November 1999

S	M	T	W	T	F	S
1	2	3	4	5	6	
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

December 1999

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

		TaskPad
7 ^{am}		☒ TaskPad
		☐ scrap graph
		☐ pert chart for bunting on product lead ti...
		☐ review quality and delivery with marley ...
		☐ Vendor grading system/review with Kipp
		☐ get electrical comparisons
		☐ Win Mag bolt fixture for mill rails
8 ⁰⁰	☒ staff meeting <i>How Do I Promote Teamwork</i>	<i>ORDER CHAIRS FOR ASSEMBLY</i>
	☒ Shelly Meeting	
9 ⁰⁰		
10 ⁰⁰	☒ Free Markets (conf call)	<i>CONFIDENTIAL 83</i>
11 ⁰⁰		
12 ^{pm}	☒ general tire lunch	Notes
1 ⁰⁰		
2 ⁰⁰		
3 ⁰⁰		
4 ⁰⁰		
5 ⁰⁰		
6 ⁰⁰		

Golemboski, Matt R.

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11/11/99

MF0003

REMINGTON ARMS COMPANY, INC.
FIREARMS - MAYFIELD

10/11/99

C:\data\DC\Mayfield\New Products\M710 estimate rev5.xls\710 capital by operation (2)

	High	Expected	Nov-99	Dec-99	Jan-00	Feb-00	Mar-00	Apr-00	May-00
Carton Assembly	19,000	19,000			6,333		6,333	6,333	
Barrel									
cones	9,960								
Ream Bore		6,080	6,080						
Rifle Bore		15,900	7,950		7,950				
Press Barrel to Receiver		11,000	11,000						
gages & fixtures	73,100	43,600		20,000	21,600	2,000			
baskets	6,900	7,000		7,000					
machine	222,880	189,448	63,149				63,149		63,149
chuck	15,000	15,000				15,000			
machine	75,000	104,500		34,833		34,833	34,833		
machine	166,000	175,000		58,333		58,333	58,333		
machine	12,000	15,000				15,000			
Roll Mark		6,300			6,300				
Straighten		3,500		3,500					
Glass Bead Blast		2,500		2,500					
racks	6,000	6,000		6,000					
Total	586,840	600,828	88,179	132,166	35,850	125,166	156,315		63,149
Bolt Head									
fix & gage	42,500	47,400		20,000	4,100	23,300			
Superabrasive Grind Lugs	43,800	43,800		21,900		21,900			
CNC Machine	174,784	174,800	69,920			104,880			
Total	261,084	266,000	69,920	41,900	4,100	150,080			
Bolt Body									
gage & Fixture	4,500	2,500				2,500			
machine	90,000	98,000		32,667		32,667	32,667		
tanks	9,500	9,500				9,500			
Total	104,000	110,000		32,667		44,667	32,667		
Receiver									
fix & gage	2,500	2,500			2,500				
CMM	45,000	45,000			22,500		22,500		
Comparator & fixtures		12,000		2,000	2,000	8,000			
Ultra Sonic Weld		4,000			4,000				
machine	468,831	436,756	145,585				145,585	145,585	
Total	516,331	500,256	145,585	2,000	31,000	8,000	168,085	145,585	
Final Assembly									
100yd range	265,000	285,000		100,000	140,000	45,000			
snails	30,000	25,000				25,000			
HVAC	25,000								
other	10,000	15,000	15,000						
Total	330,000	325,000	15,000	100,000	140,000	70,000			
Purchased Parts									
Receiver Insert	48,000	48,000			48,000				
Side Plate	10,000	13,000			4,333		4,333	4,333	
Safety Arm	23,880	25,552			12,776			12,776	
Bolt Stop	6,820	6,820			6,820				
Trigger		15,225			7,613			7,613	
Trigger Connector		3,000			1,500		1,500		
Rear Sight Aperture Blank		9,000			4,000	5,000			
Lock Tumbler		35,000		17,500			17,500		
Front Screw Bushing		12,000			4,000		4,000	4,000	
Recoil Bracket	2,225								
Bolt Handle Blank	12,800	12,575	6,288			6,288			
Bolt Plug	38,088	38,088	12,696		12,696	12,696			
Front Sight Assembly Press		4,200				4,200			
Firing pin head	23,000	37,500		12,500		12,500			
Mag Latch	33,480	33,480	11,160		11,160	11,160			
Magazine Box	28,000	46,500	15,500		15,500	15,500			

MF0004

10/11/99

C:\data\DC\Mayfield\New Products\IM710 estimate rev5.xls\710 capital by operation (2)

	High	Expected	Nov-99	Dec-99	Jan-00	Feb-00	Mar-00	Apr-00	May-00
Carton Assembly	19,000	19,000			6,333		6,333	6,333	
Magazine Follower	33,300	78,786	26,262		26,262	26,262			
Magazine Bottom	47,880								
Stock Fixture		2,800					2,800		
Stock	150,300	150,300	50,100		50,100	50,100			
PPI	41,500	54,300		18,700	21,650	2,250	10,200	1,500	
Total	499,273	626,126	122,006	48,700	226,410	145,956	52,833	30,222	-
Installation	61,000	61,000						61,000	
Total Capital	2,377,528	2,508,210	440,690	357,433	443,693	543,869	416,233	243,140	63,149

CONFIDENTIAL 83

ME0006

M/710 Estimate										
PART DESCRIPTION	Proposed Process	Part #	Print #	Rev #	Material \$	Labor \$	Fixed O.H. \$	Var O.H. \$	Total O.H. \$	Estimated Piece Price
Carton Assembly	Purchase	1444	1444							
Corrugated Box	Purchase									
Bed	Purchase									
Document Envelope Assembly	Purchase	???	???							
Document Envelope	Purchase	1649	1649							
Instruction Book	Purchase	???	???							
Product Owners Card	Purchase	1426	1426							
Remington Authorized Gunsmith	Purchase	3413	3413							
Safety Booklet	Purchase	3499	3499							
Remington Museum Flyer	Purchase	3475	3475							
Oval Label	Purchase	3491	3491							
Box and Envelope Label (710)	Purchase	993002	993002							
Barrel Assembly Complete	Assemble	305410	C-305410	No Rev.						
Barrel Assembly	Assemble & Machine	305400	C-305400	No Rev.						
Barrel	Machine	305315	E-305315	5						
Receiver	Purchase	300340	E-300340	6	\$0.000			\$		
Receiver Insert Assembly Complete	Assemble	300401	D-300401	No Rev.						
Receiver Insert Assembly	Ultrasonic Weld	300400	C-300400	No Rev.						
Receiver Insert	Purchase	300327	E-300327-1-2	23						
Threaded Insert	Purchase	300347	A-300347	A	\$0.036					
Side Plate	Purchase & Color	300333	C-300333	No Rev.	\$0.090					
Side Plate Pin (2)	Purchase & Color	300328	A-300328	No Rev.	\$0.160					
Sear Safety Cam	AU M/700	15666	C-15666	24	\$0.760					
Pivot Pin (3)	Purchase & Heat Tre	300351	B-300351	No Rev.	\$0.180					
Sear Spring	AU M/700	17047	A-17047	26	\$0.047					
Trigger	AU M/700	15280	C-15280	31	\$0.738					
Trigger Connector	AU M/700	19461	C-19461	21						
Trigger Screw Front	AU M/700	17053	B-17053	32	\$0.040					
Trigger Engagement Screw	AU M/700	91128	B-91128	7	\$0.043					
Trigger Spring	AU M/700	15400	A-15400	11	\$0.076					
Trigger Stop Screw	AU M/700	15481	B-17053	32	\$0.042					
Safety Arm	Assemble & Heat Tre	300408	D-300408	1	\$0.230					
Safety Detent Spring		300407	C-300407	1	\$0.058					
Lock tumbler	Purchase	??	??	??						
Lock Detent	AU M/7	???	???	???						
Safety Pivot Pin	Purchase & Heat Tre	300352	B-300352	1	\$0.440					
Snap Washer		17044	B-17044	26						
Bolt Stop	PM/Heat Treat/Color	300345	C-300345	2	\$0.219					
Receiver Plug Screws (4)	A/U M/700	17034	B-17034	34						
Recoil Bracket	Purchase & Color	300361	B-300361	No Rev.	\$0.123					
Bolt Assembly Complete		???	???	??						

M/710 Estimate

PART DESCRIPTION	Proposed Process	Part #	Print #	Rev #	Material \$	Labor \$	Fixed O.H. \$	Var O.H. \$	Total O.H. \$	Estimated Piece Price
Bolt Body Assembly	Braze & Finish	300403	D-300403	No Rev.						
Bolt Body	Purchase	300339	D-300339	1	\$2.050			\$ 0.17		
Bolt Handle	Bend to Form	300370	C-300370	No Rev.	\$1.630					
Bolt Handle Blank	Purchase	300360	C-300360	No Rev.						
Bolt Handle Pin	Purchase	300329	A-300329	1	\$0.100					
Bolt Head Assembly	Assemble	305390	B-305390	No Rev.						
Bolt Head	Machined	300338	E-300338	14						
Extractor	A/U M/700	93712	C-93712	2						
Ejector	Purchase & Color	300342	B-300342	1	\$0.110					
Ejector Spring	Purchase	300367	A-300367	No Rev.	\$0.015					
Ejector Pin	A/U M/700	94555	A-94555	1	\$0.040					
Bolt Assembly Pin	Purchase & Color	300330	B-300330	No Rev.	\$0.150					
Firing Pin Assembly	Assemble	300404	B-300404	No Rev.						
Bolt Plug	Purchase	300368	C-300368	1	\$0.215					
Bolt Plug Insert	Purchase	300346	B-300346	No Rev.	\$0.808					
Firing Pin	Purchase & Color	300334	C-300334	No Rev.	\$1.190					
Firing Pin Tip	Purchase & Heat Treat	300335	B-300335	No Rev.	\$0.230					
Firing Pin Head	MIM	300336	C-300336	No Rev.	\$1.753					
Firing Pin Spring	Purchase	300399	A-300399	No Rev.	\$0.101					
Front Sight Assembly										
Front Sight	A/U M/700	94084	C-15373	26						
Front Sight Ramp	A/U M/700	94657	B-28510	33						
Front Sight Ramp Screws (2)	A/U M/700	28505	B-28505	24						
Rear Sight Assembly	A/U M/700	103145	B-103145	11						
Elevation Screw	A/U M/700	90906	A-90906	19	\$0.036					
Rear Sight Aperture	A/U M/700	97681	C-93905	9	\$0.140					
Rear Sight Aperture Blank		93906	C-93906	6						
Rear Sight Base	A/U M/700	103531	C-103530	3	\$0.968					
Rear Sight Slide	A/U M/700	94335	C-93904	7	\$1.200					
Windage Screw	A/U M/700	300026	B-300026	5	\$0.191					
Rear Sight Base Screw (2)	A/U M/700	28505	B-28505	21						
Stock Assembly Complete	Purchase	????	????	??						
Stock Assembly	Purchase	????	????	??						
Stock	Purchase	????	????	??	\$5.388					
Front Screw Bushing	A/U M/700	15161	B-15161	??						
Front Screw Bushing Blank		91915	????	??						
Middle Screw Bushing	Purchase	????	????	??						
Rear Screw Bushing	Purchase	????	????	??						

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ME0007

M/710 Estimate

	Proposed	Part #	Print #	Rev #	Material	Labor	Fixed	Var	Total	Estimated
PART DESCRIPTION	Process				\$	\$	O.H. \$	O.H. \$	O.H. \$	Piece Price
Grip Cap	A/U M/700	97971	C-97971	No Rev.						
Recoil Pad	A/U M/700	97972	D-97973	26						
Backer Plate		97972	E-97972	No Rev.						
Recoil Pad Screw (2)	A/U M/700	98008	A-98008	7	\$0.022					
Magazine Latch	Purchase	300362	C-300362	2	\$0.191					
Magazine Latch Spring	Purchase	300398	B-300398	No Rev.	\$0.026					
Magazine Latch Pin	Purchase & Color	300371	B-300371	No Rev.	\$0.070					
Sling Swivel Stud (2)	Purchase	300096	A-300096	4						
Takedown Screw (2)	Purchase	???	???	???						
Rear Takedown Screw	Purchase	???	???	???						
Magazine Assembly	Assemble	305395	B-305395	No Rev.						
Magazine Box	Purchase & Color	300363	B-300363	5	\$2.790					
Magazine Follower	Purchase	300364	B-300364	1	\$0.093					
Magazine Bottom	Purchase	300365	B-300365	No Rev.	\$0.105					
Magazine Spring	A/U M/700	300405	C-300405	No Rev.						
Value Added Cost of:										
Proof/Gallery/Inspect/Pack					\$0.000	\$ -	\$ -	\$ -	\$ -	\$ -
			Total Cost		\$22.584	\$ -	\$ -	\$ 0.17	\$ -	\$ -

MF0008

ME0009

Quoted Parts										
PART DESCRIPTION	Part #	Print #	Rev #	Price/part \$	Order Qty M	Eng. Charge \$	Vendor Capital \$	Vendor Gages \$	PPI Gages \$	Comments
Carton Assembly	1444	1444	?					\$	-	
								\$	-	
Document Envelope Assembly	????	????	?					\$	-	
Document Envelope	1649	1649	?					\$	-	
Instruction Book	????	????	?					\$	-	
Product Owners Card	1426	1426	?					\$	-	
Remington Authorized Gunsmith	3413	3413	?					\$	-	
Safety Booklet	3499	3499	?					\$	-	
Remington Museum Flyer	3475	3475	?					\$	-	
Oval Label	3491	3491	?					\$	-	
Box and Envelope Label (710)	993002	993002	?					\$	-	
Barrel Assembly Complete	305410	C-305410	No Rev.					\$	-	
Barrel Assembly	305400	C-305400	No Rev.					\$	-	
Barrel	305315	E-305315	5					\$	-	
Receiver	300340	E-300340	6	\$	0			\$	-	Federal Steel--Quot
Receiver Insert Assembly Complete	300401	D-300401	No Rev.					\$	-	
Receiver Insert Assembly	300400	C-300400	No Rev.					\$	-	
Receiver Insert	300327	E-300327-1-2	(1E)-5 (2E)-23					\$	5,650.00	
Threaded Insert	300347	A-300347	A	\$ 0.036	20			\$	200.00	Precision Fasteners
Side Plate	300333	C-300333	No Rev.	\$ 0.090	20			\$	1,500.00	Historical Data
Side Plate Pin (2)	300328	A-300328	No Rev.	\$ 0.160	20	225.00		\$	-	Iseli--Quote:
Sear Safety Cam	15666	C-15666	24	\$ 0.760	20		\$ 11,300.00	\$	3,000.00	Sterling Sintered T
Pivot Pin (3)	300351	B-300351	No Rev.	\$ 0.180	60	450.00		\$	-	Automatic Swiss C
Sear Spring	17047	A-17047	26	\$ 0.047	20			\$	-	Midstate--Quote: 9/
Trigger	15280	C-15280	31	\$ 0.738	20		\$ 19,750.00	\$	3,000.00	Sterling Sintered Te
Trigger Connector	19461	C-19461	21					\$	3,000.00	
Trigger Screw Front	17053	B-17053	32	\$ 0.040	0.10			\$	300.00	Fastenal--Quote: 8/
Trigger Engagement Screw	91128	B-91128	7	\$ 0.043	0.10			\$	300.00	Fastenal--Quote:
Trigger Spring	15400	A-15400	11	\$ 0.076	20			\$	-	Midstate Spring Inc
Trigger Stop Screw	15481	B-17053	32	\$ 0.042	20			\$	300.00	Fastenal--Quote:
Safety Arm	300408	D-300408	1	\$ 0.230	20		\$ 25,552.00	\$	2,400.00	New Hampshire Sta
Safety Detent Spring	300407	C-300407	1	\$ 0.058	20			\$	-	Midstate Spring Inc
Lock tumbler	??	???	??					\$	-	
Lock Detent	???	???	???					\$	-	
Safety Pivot Pin	300352	B-300352	1	\$ 0.140	20	225.00		\$	-	Iseli Company--Qu
Snap Washer	17044	B-17044	26					\$	120.00	
Bolt Stop	300345	C-300345	2	\$ 0.219	20		\$ 6,820.00	\$	1,500.00	Sterling Sintered
	0	0	0					\$	0	
Receiver Plug Screws (4)	17034	B-17034	34					\$	-	
Recoil Bracket	300361	B-300361	No Rev.	\$ 0.123	20	\$ 550.00		\$	-	Square Stamping Q
Bolt Assembly Complete	????	????	??					\$	-	

Quoted Parts

PART DESCRIPTION	Part #	Print #	Rev#	Price/part \$	Order Qty M	Eng. Charge \$	Vendor Capital \$	Vendor Gages \$	PPI Gages \$	Comments
Bolt Body Assembly	300403	D-300403	No Rev.						\$ -	
Bolt Body	300339	D-300339		\$ 2.050	20				\$ -	Ken-Mar Tools--Q
	0	0	0						\$ -	
	0	0	0						\$ -	
Bolt Handle	300370	C-300370	No Rev.	\$ 1.630	20		\$12,575.00		\$ -	Fansteel--Quote: 8/
Bolt Handle Blank	300360	C-300360	No Rev.						\$ 2,500.00	
Bolt Handle Pin	300329	A-300329	1	\$ 0.100	20	\$ 450.00			\$ -	Automatic Swiss Cor
									\$ -	
Bolt Head Assembly	305390	B-305390	No Rev.						\$ -	
Bolt Head	300338	E-300338	14						\$ 120.00	
Extractor	93712	C-93712	2						\$3,300.00	
Ejector	300342	B-300342	1	\$ 0.110	20	\$ 400.00			\$ 3,000.00	Iselis--Quote: 8/25
Ejector Spring	300367	A-300367	No Rev.	\$ 0.015	20				\$ -	Midstate Spring, In
Ejector Pin	94555	A-94555	1	\$ 0.040	20				\$ -	
Bolt Assembly Pin	300330	B-300330	No Rev.	\$ 0.150	20	\$ 450.00			\$ -	Automatic Swiss C
Firing Pin Assembly	300404	B-300404	No Rev.						\$ -	
Bolt Plug	300368	C-300368	1	\$ 0.15	20		\$ 36,000.00		\$ 800.00	Kellems & Coe--Q
Bolt Plug Insert	300346	B-300346	No Rev.	\$ 0.800	60		\$0.00		\$3,000.00	Swiss Precision Ma
Firing Pin	300334	C-300334	No Rev.	\$ 1.190	20	\$ 400.00			\$ 200.00	Iseli--Quote: 8/16/9
Firing Pin Tip	300335	B-300335	No Rev.	\$ 0.230	20	\$ 225.00			\$3,300.00	Iseli--Quote: 8/16/9
Firing Pin Head	300336	C-300336	No Rev.	\$ 1.753	20		\$ 17,500.00		\$ 1,500.00	Megamet Industries
									\$ -	
Firing Pin Spring	300399	A-300399	No Rev.	\$ 0.101	20				\$ -	Midstate Spring--Q
Front Sight Assembly	0	0	0						\$ -	
Front Sight	94084	C-15373	26						\$ -	
Front Sight Ramp	94657	B-28510	33						\$400.00	
Front Sight Ramp Screws (2)	28505	B-28505	21						\$ -	
Rear Sight Assembly	103145	B-103145	11						\$ -	
Elevation Screw	90906	A-90906	19	\$ 0.036	20				\$ -	Fastenal--Quote:
Rear Sight Aperture	97681	C-93905	9	\$ 0.140	20				\$ -	Ilion Quote
Rear Sight Aperture Blank	93906	C-93906	6						\$ -	
Rear Sight Base	103531	C-103530	3	\$ 0.968	80		\$17,500.00		\$ -	Ilion: Quote
Rear Sight Slide	94335	C-93904	7	\$ 1.200	80		\$17,500.00		\$ -	Megamet Industries
Windage Screw	300026	B-300026	5	\$ 0.191	25	\$ 400.00			\$ -	Swiss Precision Ma
Rear Sight Base Screw (2)	28505	B-28505	21						\$ -	
Stock Assembly Complete	???	????	??						\$ -	
Stock Assembly	????	????	??						0	
Stock	????	????	0	\$ 5.380	20		\$19,300.00		\$4,500.00	Per 4 Plastics, Inc.
	0	0	0						\$ -	
Front Screw Bushing	15161	B-15161	??						\$ -	
	91915	????	???						\$ -	
Middle Screw Bushing	????	????	???						\$ -	
Rear Screw Bushing	????	????	??						\$ -	

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ME0010

Confidential - Subject to Protective Order

Williams v. Remington

Williams v. Remington

ME0011

Quoted Parts										
PART DESCRIPTION	Part #	Print #	Rev#	Price/part \$	Order Qty M	Eng. Charge \$	Vendor Capital \$	Vendor Gages \$	PPI Gages \$	Comments
Grip Cap	97971	C-97971	No Rev.						\$ -	
Recoil Pad	97973	D-97973							\$400.00	
Backer Plate	97972	C-97972	No Rev.						\$ -	Fastenal--Quote:
Recoil Pad Screw (2)	98008	A-98008		\$ 0.022	20				\$ -	Kellems & Coe--Q
Magazine Latch	300362	C-300362	2	\$ 0.191	20		\$39,000.00		\$0.00	Industrial Spring--
Magazine Latch Spring	300398	B-300398	No Rev.	\$ 0.026	20				\$ -	Iseli--Quote: 8/25/
Magazine Latch Pin	300371	B-300371	No Rev.	\$ 0.070	20	\$ 225.00			\$ -	
	0	0	0						\$ -	
Sling Swivel Stud (2)	300096	B-300096	4						\$ -	
Takedown Screw (2)	????	???	???						\$200.00	
Rear Takedown Screw	????	???	???						\$200.00	
Magazine Assembly	305395	B-305395	No Rev.						\$ -	
Magazine Box	300363	B-300363	5	\$ 2.790	20				\$ 4,500.00	Historical Data Use
Magazine Follower	300364	B-300364	1	\$ 0.093	20		\$ 78,786.00		\$ 3,000.00	Par 4 Plastics, Inc.-
Magazine Bottom	300365	B-300365	No Rev.	\$ 0.105	20		\$ -		\$ -	Par 4 Plastics, Inc.-
Magazine Spring	300405	C-300405	No Rev.						\$ 3,000.00	
			Total Cost	\$ 22.58	1045.20	\$ 4,000.00	\$ 432,583.00	\$ -	\$ 55,190.00	

In House Processing										
PART DESCRIPTION	Part #	Print #	Rev.	Material \$	Labor (hrs)	Variable Tools \$	Pre-Op Startup \$	Capital \$	Material Handling \$	Comments
Carton Assembly	????	????	0							
Document Envelope Assembly	????	????	0							
Document Envelope	1426	1426	0							
Instruction Book	3413	3413	0							
Product Owners Card	3499	3499	0							
Remington Authorized Gunsmith	3475	3475	0							
Safety Booklet	3491	3491	0							
Remington Museum Flyer	0	0	0							
Oval Label	993002	993002	0							
Box and Envelope Label (710)	305410	C-305410	No Rev.							
	305400	C-305400	No Rev.							
Barrel Assembly Complete	305315	E-305315	5							
Barrel Assembly	300340	E-300340	6							
Barrel	300401	D-300401	No Rev.							
Receiver	300400	C-300400	No Rev.				\$ -	\$ 563,556.90		
Receiver Insert Assembly Comp	300327	E-300327-1-2	(1E)-5 (2E)-23							
Receiver Insert Assembly	300347	A-300347	A							
Receiver Insert	300333	C-300333	No Rev.							
Threaded Insert	300328	A-300328	No Rev.							
Side Plate	15666	C-15666	24							
Side Plate Pin (2)	300351	B-300351	No Rev.							
Sear Safety Cam	17047	A-17047	26							
Pivot Pin (3)	15280	C-15280	31							
Sear Spring	19461	C-19461	21							
Trigger	17053	B-17053	32							
Trigger Connector	91128	B-91128	7							
Trigger Screw Front	15400	A-15400	11							
Trigger Engagement Screw	15481	B-17053	32							
Trigger Spring	300408	D-300408	1							
Trigger Stop Screw	300407	C-300407	1							
Safety Arm	??	???	??							
Safety Detent Spring	???	???	???							
Lock tumbler	300352	B-300352	1							
Lock Detent	17044	B-17044	26							
Safety Pivot Pin	300345	C-300345	2							
Snap Washer	0	0	0							
Bolt Stop	17034	B-17034	34							
	300361	B-300361	No Rev.							
Receiver Plug Screws (4)	????	???	??							
Recoil Bracket	300403	D-300403	No Rev.							

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ME0012

In House Processing										
PART DESCRIPTION	Part #	Print #	Rev	Material \$	Labor (hrs)	Variable Tools \$	Pre-Op Startup \$	Capital \$	Material Handling \$	Comments
Bolt Assembly Complete	300339	D-300339								
Bolt Body Assembly	0	0	0							
Bolt Body	0	0				\$ 79.95	\$ 5,403.50	\$ 4,500.00		
	300370	C-300370	No Rev							
	300360	C-300360	No Rev							
Bolt Handle	300329	A-300329								
Bolt Handle Blank	0	0								
Bolt Handle Pin	305390	B-305390	No Rev							
Bolt Head Assembly	93712	C-93712								
Bolt Head	300342	B-300342	1							
Extractor	300367	A-300367	No Rev							
Ejector	94555	A-94555	1							
Ejector Spring	300330	B-300330	No Rev							
Ejector Pin	300404	B-300404	No Rev							
Bolt Assembly Pin	300368	C-300368	1							
Firing Pin Assembly	300346	B-300346	No Rev							
Bolt Plug	300334	C-300334	No Rev							
Bolt Plug Insert	300335	B-300335	No Rev							
Firing Pin	300336	C-300336	No Rev							
Firing Pin Tip	B-300335	No Rev	0							
Firing Pin Head	300399	A-300399	No Rev							
	0	0	0							
Firing Pin Spring	94084	C-15373	26							
Front Sight Assembly	94657	B-28510	33							
Front Sight	28505	B-28505	21							
Front Sight Ramp	103145	B-103145	11							
Front Sight Ramp Screws (2)	90906	A-90906	19							
Rear Sight Assembly	97681	C-93905	9							
Elevation Screw	93906	C-93906	6							
Rear Sight Aperture	103531	C-103530	3							
Rear Sight Aperture	94335	C-93904	7							
Rear Sight Base	300026	B-300026	5							
Rear Sight Slide	28505	B-28505	21							
Windage Screw	???	???	??							
Rear Sight Base Screw (2)	???	???	??							
Stock Assembly Complete	???	???	0							
Stock Assembly	0	0	0							
Stock	15161	B-15161	??							
	91915	???	???							
Front Screw Bushing	???	???	???							
	???	???	??							
Middle Screw Bushing	97971	C-97971	No Rev							

ME0013

Golemboski, Matt R.

From: Chamblee, Danny
Sent: Saturday, August 28, 1999 10:53 AM
To: Golemboski, Matt R.; Zajk, Joseph J
Subject: M710 estimate rev4.xls

Only a few points

- 1) Capital installation costs added \$60,000 to model
- 2) Capital included 2nd cavity on receiver insert. What is piece price impact
- 3) Press from Ilion what is depreciation
- 4) Detail of 1999 and 2000 start up costs

Thanks
Danny



M710 estimate rev4.xls

CONFIDENTIAL 83

NEED TO ADD TO TIME:

NOT ON ORIGINAL ESTIMATE

trigger grind- 21 sec.	0.00583333
Stamp F+S - 7 sec.	0.00194444
orbital rivet- 28 sec.	0.00777777
assemble safety- 53 sec.	0.01472222

CONFIDENTIAL 83

MF0016

REMINGTON ARMS COMPANY, INC.
FIREARMS - MAYFIELD

10/05/99

C:\windows\TEMP\m710 estimate rev4.xls\m710 est Mayfield run times

		M/710 Estimate 8/30/99					
PART DESCRIPTION	Part #	Material \$	Run Rate (hrs/pc)	Labor \$	Fixed O.H. \$	Var O.H. \$	Total O.H. \$
							Total
Document Envelope Assembly	1721	\$ 0.09		\$ -	\$ -	\$ -	\$ 0.09
Document Envelope	1649	0.08		-	-	-	0.08
Users manual	3391	0.15		-	-	-	0.15
Product Owners Card	1426	0.03		-	-	-	0.03
Remington Authorized Gunsmith	3413	0.07		-	-	-	0.07
Safety Booklet	3499	0.10		-	-	-	0.10
Oval Label	3491	0.01		-	-	-	0.01
Carton Assembly	1444	2.05		-	-	-	2.05
Box and Envelope Label (710)	993002	0.04		-	-	-	0.04
Shelf Talker		0.14		-	-	-	0.14
Barrel Assembly Complete	305410		0.0790	0.71	1.27	2.27	4.25
Barrel Assembly	3305400			-	-	-	-
Barrel	305315	4.80	0.3866	4.09	7.37	13.14	29.40
Receiver	300340	1.76	0.0055	0.06	0.10	0.19	2.11
Receiver Insert Assembly Complete	????		0.0530	0.47	0.85	1.52	2.85
Receiver Insert Assembly	????		0.0050	0.04	0.08	0.14	0.27
Receiver Insert	300327	0.62		-	-	-	0.62
Threaded Insert	300347	0.04		-	-	-	0.04
Side Plate	300333	0.09	0.0010	0.01	0.02	0.03	0.15
Side Plate Pin (2)	300328	0.12	0.0010	0.01	0.02	0.03	0.18
Sear Safety Cam	15666	0.94		-	-	-	0.94
Pivot Pin (3)	300351	0.18		-	-	-	0.18
Sear Spring	17047	0.02		-	-	-	0.02
Trigger	15280	1.53		-	-	-	1.53
Trigger Connector	19461	1.03		-	-	-	1.03
Trigger Screw Front	17053	0.10		-	-	-	0.10
Trigger Engagement Screw	91128	0.03		-	-	-	0.03
Trigger Spring	15400	0.03		-	-	-	0.03
Trigger Stop Screw	15481	0.06		-	-	-	0.06
Safety	300408	0.31		-	-	-	0.31
Safety Pivot Pin	300352	0.06		-	-	-	0.06
Safety Spring	300343	0.05		-	-	-	0.05
Bolt Stop	300345	0.19	0.0010	0.01	0.02	0.03	0.25
Receiver Plug Screws (4)	17034	0.12		-	-	-	0.12
Recoil Bracket	300361	0.19	0.0010	0.01	0.02	0.03	0.25
Bolt Assembly Complete	????			-	-	-	-
Bolt Body Assembly	????		0.0275	0.29	0.53	0.94	1.75
Bolt Body	300339	0.74	0.0032	0.03	0.06	0.11	0.94
Bolt Handle	300370		0.0120	0.13	0.23	0.41	0.76
Bolt Handle Blank	300360	1.63		-	-	-	1.63
Bolt Handle Pin	300329	0.06		-	-	-	0.06
Bolt Head Assembly	305390		0.0580	0.52	0.94	1.67	3.12
Bolt Head	300338	1.75	0.0809	0.86	1.54	2.75	6.90
Extractor	93712	0.77		-	-	-	0.77
Ejector	300342	0.16	0.0010	0.01	0.02	0.03	0.22
Ejector Spring	????	0.03		-	-	-	0.03
Ejector Pin	94555	0.01		-	-	-	0.01

MF0017

REMINGTON ARMS COMPANY, INC.
FIREARMS - MAYFIELD

10/05/99

C:\windows\TEMP\M710 estimate rev4.xls\m710 est Mayfield run times

		M/710 Estimate 8/30/99						
PART DESCRIPTION	Part #	Material \$	Run Rate (hrs/pc)	Labor \$	Fixed O.H. \$	Var O.H. \$	Total O.H. \$	Total
Bolt Assembly Pin	300330	0.10	0.0010	0.01	0.02	0.03	0.05	0.16
Firing Pin Assembly	????		0.0070	0.06	0.11	0.20	0.31	0.38
Bolt Plug	300368	0.25		-	-	-	-	0.25
Bolt Plug Insert	300346	0.29		-	-	-	-	0.29
Firing Pin	300334	0.27	0.0010	0.01	0.02	0.03	0.05	0.33
Firing Pin Tip	300335	1.60	0.0015	0.02	0.03	0.05	0.08	1.70
Firing Pin Head	300336	1.50	0.0020	0.02	0.04	0.07	0.11	1.63
Firing Pin Spring	????	0.14		-	-	-	-	0.14
Front Sight	94084	0.82		-	-	-	-	0.82
Front Sight Ramp	94657	1.13	0.0020	0.02	0.04	0.07	0.11	1.26
Front Sight Ramp Screws (2)	28505	0.09		-	-	-	-	0.09
Rear Sight Assembly	103146			-	-	-	-	-
Elevation Screw	90906	0.02		-	-	-	-	0.02
Rear Sight Aperture	94333	0.14	0.0010	0.01	0.02	0.03	0.05	0.20
Rear Sight Base	103531	0.97	0.0010	0.01	0.02	0.03	0.05	1.03
Rear Sight Slide	94335	0.47	0.0050	0.05	0.10	0.17	0.27	0.79
Windage Screw	90904	0.02		-	-	-	-	0.02
Rear Sight Base Screw (2)	28505	0.09		-	-	-	-	0.09
Stock Assembly Complete	????		0.0160	\$ 0.14	0.26	0.46	0.72	0.86
Stock Assembly	????			-	-	-	-	-
Stock	????	5.38		-	-	-	-	5.38
Front Screw Bushing	15161	0.13		-	-	-	-	0.13
Middle Screw Bushing	????	0.05		-	-	-	-	0.05
Rear Screw Bushing	????	0.05		-	-	-	-	0.05
Grip Cap	97971	0.18		-	-	-	-	0.18
Recoil Pad	97973	1.63		-	-	-	-	1.63
Recoil Pad Screw (2)	98008	0.05		-	-	-	-	0.05
Magazine Latch	300362	0.25		-	-	-	-	0.25
Magazine Latch Spring	????	0.02		-	-	-	-	0.02
Magazine Latch Pin	300371	0.04	0.0010	0.01	0.02	0.03	0.05	0.10
Sling Swivel Stud (2)	300096	0.14		-	-	-	-	0.14
Takedown Screw (2)	????	0.16		-	-	-	-	0.16
Rear Takedown Screw	????	0.08		-	-	-	-	0.08
Magazine Assembly	????		0.0083	0.07	0.13	0.24	0.37	0.45
Magazine Box	300363	2.79	0.0010	0.01	0.02	0.03	0.04	2.84
Magazine Follower	300364	0.26		-	-	-	-	0.26
Magazine Bottom	300365	0.26		-	-	-	-	0.26
Magazine Spring	17028	0.42		-	-	-	-	0.42
Freight on Parts		0.25						0.25
Value Added Cost of:								
Proof/Gallery/Inspect/Pack		1.15	0.1500	1.34	2.42	4.31	6.73	9.22
Total Cost		\$ 41.38	0.9136	\$ 9.05	\$ 16.31	\$ 29.07	\$ 45.38	\$ 95.81

MF0018

Golemboski, Matt R.

From: Chamblee, Danny
Sent: Thursday, September 30, 1999 4:33 PM
To: Bristol, Il Ronald H.
Cc: Golemboski, Matt R.
Subject: M710 estimate rev5

Ron,

Attached is latest version of 710 costs at different plant production levels. The incremental costing includes changes to 597 overhead allocation based on plant overhead rate changes.

Please let me know if you have any questions.

Thanks,
Danny



M710 estimate rev5.xls

CONFIDENTIAL 83

Remington Arms Company
710 Production Model
Mayfield Plant

05-Oct-99

	69,000 597s 0 710s	51,300 597s 20,000 710s	58,400 597s 20,000 710s	58,400 597s 30,000 710s
Total Units Produced to the Warehouse	69,000	71,300	78,400	88,400
Total Standard Hours Earned	71,162	71,359	78,682	87,907
Sales Value of Units Warehoused	\$ 10,065,381	\$ 11,883,392	\$ 12,919,105	\$ 15,119,105

Standard Cost of Goods Warehoused

Direct Material Costs	3,703,154	3,614,297	3,995,346	4,425,888
Direct Labor Costs	697,358	701,387	773,144	864,602
Variable Overhead Costs	2,182,089	2,273,570	2,360,250	2,515,661
Fixed Overhead Costs	948,241	1,251,438	1,278,173	1,321,347
Total Overhead	3,130,330	3,525,008	3,638,423	3,837,008
Total Standard Cost of Production	7,530,842	7,840,693	8,406,914	9,127,498
Standard Cost of Production per Gun	109.14	109.97	107.23	103.25
Standard Mfg. Contribution Margin	\$ 2,534,539	\$ 4,042,699	\$ 4,512,191	\$ 5,991,607
Standard Mfg. Contribution Margin per Gun	\$ 36.73	\$ 56.70	\$ 57.55	\$ 67.78
	25.2%	34.0%	34.9%	39.6%

710 Costing on Mayfield Plant Overhead Rate

Material	N/A	\$ 43.05	\$ 43.05	\$ 43.05
Labor	N/A	9.15	9.15	9.15
Overhead	N/A	45.96	43.04	40.59
Total	N/A	\$ 98.16	\$ 95.24	\$ 92.79

710 Incremental Costs

Material	N/A	\$ 43.05	\$ 43.05	\$ 43.05
Labor	N/A	9.15	9.15	9.15
710 Incremental Overhead	N/A	32.94	32.94	28.58
597 Overhead Increase/(Decrease) due to Changes in production Levels	N/A	13.92	6.41	(1.00)
Total	N/A	\$ 99.06	\$ 91.54	\$ 79.77

710 Overhead Per Gun

Incremental Overhead related to 710	N/A	658,724	658,724	857,308
Per 710 Units	N/A	32.94	32.94	28.58

MF0020

ME0021

	Items		Total Capital	Vendor	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Aug
Carton Assembly		1444												
	Carton Dies	0					0		0	0				
	Insert Dies	0	\$19,000				6,333		6,333	6,333				
Box and Envelope Label (710)		993002												
		0												
Barrel Assembly Complete		305410												
Barrel Assembly		305400	\$0	0										
Barrel	Machine & gages	305315		0										
	Cut to length													
	Gundrill Bore													
	Ream Bore	hyd pump			6,080									
	Rifle Bore		\$15,000		7,950		7,950							
	Stress Relieve	baskets	\$7,000			7,000								
	Turn OD	gages	\$5,000			5,000								
	Face and Chamber	gages	\$31,000			15,000	14,000	2,000						
	Face and Chamber	machine	\$189,448		63,149				63,149					
	Cut off and crown Muzzle	chuck head	\$15,000					15,000						
	Drill and Tap Holes, Mill Slot	fixture&gage	\$7,600				7,600							
	Wash	0	\$0											
	Heat Treat		175,000			58,333		58,333	58,333					
	Acid Wash	0	0											
	Centerless Polish	0	0											
	Eddy Current Test		104,500			34,833		34,833	34,833					
	Press Barrel to Receiver		11,000		11,000									
	Rollmark		6,300				6,300							
	Angularity Straighten		3,500			3,500								
	Centerless Polish		0											
	Glass Bead Blast		2,500			2,500								
	Black Oxide		6,000			6,000								
Receiver	LT15	300340	\$507,201	Federal Steel-Quole	169,067				169,067	169,067				
	CMM		\$0											
	CMM Gage													
	Vibratory Dehurr													
Receiver Insert Assembly Complete	Comparator and fixture	300401	\$12,000	0		2,000	2,000	8,000						
Receiver Insert Assembly	ultrasonic weld fixture	300400	\$4,000	0			4,000							
Receiver Insert	Hanson Mold	300327	\$48,000	0			\$48,000							
	PPI Fixture		\$2,500				2,500							
Side Plate	Stamping Die	300333	\$13,000	Historical Data			4,333		4,333	4,333				
	PPI Fixture		\$1,500					1,500						
Sear Safety Cam		15666	\$0	Reider General Tech. Inc.-Quole 4/14/94										
	PPI Fixture		\$ 3,000.00				1,500			1,500				
Trigger	PM Mold	15280	\$15,225	Quole 1/1/94			7,613			7,613				
	PPI Fixture		\$ 3,000.00				1,500		1,500					
Trigger Connector		19461	\$ 3,000.00	0			1,500		1,500					
Safety Arm	Stamping Die	300408	\$25,552	Quole 1/1/94			\$12,776			12,776				
	PPI Fixture		\$2,400				2,400							
Lock tumbler	MIM Mold	??	\$35,000	0		17,500			17,500					
Safety Snap Washer	Stamping Die	17044	\$0	Ilion Quole SAP										
	PPI Fixture		\$2,400				1,200		1,200					
Bolt Stop	PM Die	300345	\$6,820	Quole 1/1/94			6,820							
	PPI Fixture	0	\$1,500	0					1,500					
Recoil Bracket	Stamping Die	300361	\$0	Quole 1/1/94										
Bolt Assembly Complete		???	\$0	0										
Bolt Body Assembly	Brazing Machine	300403	\$96,000	0		32,667		32,667	32,667					
	Deplate Tanks		\$9,500					9,000						

Williams v. Remington

ME0022

83

Remington Arms Company
710 Production Model
Mayfield Plant

05-Oct-99

		69,000 597s 0 710s	51,300 597s 20,000 710s	58,400 597s 20,000 710s	58,400 597s 30,000 710s
Per Unit Margins Based on Mayfield Plant Overhead Rate					
NSP					
597 (2000 budgeted Mix)		145.88	145.88	145.88	145.88
710		N/A	220.00	220.00	220.00
Material Cost					
597 (2000 budgeted Mix)		53.67	53.67	53.67	53.67
710		N/A	43.05	43.05	43.05
Labor					
597 (2000 budgeted Mix)		10.11	10.11	10.11	10.11
710		N/A	9.15	9.15	9.15
Overhead Rate		448.9%	502.6%	470.6%	443.8%
Overhead Costs					
597		45.37	50.79	47.56	44.85
710		N/A	45.96	43.04	40.59
Total Costs					
597		109.14	114.57	111.34	108.63
710		N/A	98.16	95.24	92.79
Margin					
597		36.73	31.31	34.54	37.25
710		N/A	121.84	124.76	127.21
Other Assumptions					
Capital		N/A	2,358,528	2,358,528	2,358,528
Startup Costs		N/A	417,135	417,135	417,135
Working Capital (excluding A/R)		N/A	326,393	326,393	466,067
Head Count		37.9	38.0	41.9	46.8

MF0023

	69,000 597s 0 710s	51,300 597s 20,000 710s	58,400 597s 20,000 710s	58,400 597s 30,000 710s
Total Units Produced to the Warehouse	69,000	71,300	78,400	88,400
Total Standard Hours Earned	71,162	71,359	78,682	87,907
Sales Value of Units Warehoused	\$ 10,065,381	\$ 11,883,392	\$ 12,919,105	\$ 15,119,105

Standard Cost of Goods Warehoused

Direct Material Costs	3,703,154	3,614,297	3,995,346	4,425,888
Direct Labor Costs	697,358	701,387	773,144	864,602
Variable Overhead Costs	2,182,089	2,273,570	2,360,250	2,515,661
Fixed Overhead Costs	948,241	1,251,438	1,278,173	1,321,347
Total Overhead	3,130,330	3,525,008	3,638,423	3,837,008
Total Standard Cost of Production	7,530,842	7,840,693	8,406,914	9,127,498
Standard Cost of Production per Gun	109.14	109.97	107.23	103.25
Standard Mfg. Contribution Margin	\$ 2,534,539	\$ 4,042,699	\$ 4,512,191	\$ 5,991,607
Standard Mfg. Contribution Margin per Gun	\$ 36.73	\$ 56.70	\$ 57.55	\$ 67.78
	25.2%	34.0%	34.9%	39.6%

710 Costing on Mayfield Plant Overhead Rate

Material	N/A	\$ 43.05	\$ 43.05	\$ 43.05
Labor	N/A	9.15	9.15	9.15
Overhead	N/A	45.96	43.04	40.59
Total	N/A	\$ 98.16	\$ 95.24	\$ 92.79

710 Incremental Costs

Material	N/A	\$ 43.05	\$ 43.05	\$ 43.05
Labor	N/A	9.15	9.15	9.15
710 Incremental Overhead	N/A	32.94	32.94	28.58
597 Overhead Increase/(Decrease) due to Changes in production Levels	N/A	13.92	6.41	(1.00)
Total	N/A	\$ 99.06	\$ 91.54	\$ 79.77

710 Overhead Per Gun

Incremental Overhead related to 710	N/A	658,724	658,724	857,308
Per 710 Units	N/A	32.94	32.94	28.58

		69,000 597s 0 710s	51,300 597s 20,000 710s	58,400 597s 20,000 710s	58,400 597s 30,000 710s
Per Unit Margins Based on Mayfield Plant Overhead Rate					
NSP					
	597 (2000 budgeted Mix)	145.88	145.88	145.88	145.88
	710	N/A	220.00	220.00	220.00
Material Cost					
	597 (2000 budgeted Mix)	53.67	53.67	53.67	53.67
	710	N/A	43.05	43.05	43.05
Labor					
	597 (2000 budgeted Mix)	10.11	10.11	10.11	10.11
	710	N/A	9.15	9.15	9.15
Overhead Rate		448.9%	502.6%	470.6%	443.8%
Overhead Costs					
	597	45.37	50.79	47.56	44.85
	710	N/A	45.96	43.04	40.59
Total Costs					
	597	109.14	114.57	111.34	108.63
	710	N/A	98.16	95.24	92.79
Margin					
	597	36.73	31.31	34.54	37.25
	710	N/A	121.84	124.76	127.21
Other Assumptions					
Capital		N/A	2,358,528	2,358,528	2,358,528
Startup Costs		N/A	417,135	417,135	417,135
Working Capital (excluding A/R)		N/A	326,393	326,393	466,067
Head Count		37.9	38.0	41.9	46.8

MF0025

REMINGTON ARMS COMPANY, INC.
FIREARMS - MAYFIELD

10/05/99

C:\windows\TEMP\m710 estimate rev5.xls\m710 51,300 597 20,000 710

		710 Costing Model 51,300 597s & 20,000 710s						
PART DESCRIPTION	Part #	Material \$	Run Rate (hrs/pc)	Labor \$	Fixed O.H. \$	Var O.H. \$	Total O.H. \$	Total
Document Envelope Assembly	1721	\$ 0.09		\$ -	\$ -	\$ -	\$ -	\$ 0.09
Document Envelope	1649	0.08		-	-	-	-	0.08
Users manual	3391	0.15		-	-	-	-	0.15
Product Owners Card	1426	0.03		-	-	-	-	0.03
Remington Authorized Gunsmith	3413	0.07		-	-	-	-	0.07
Safety Booklet	3499	0.10		-	-	-	-	0.10
Oval Label	3491	0.01		-	-	-	-	0.01
Carton Assembly	1444	2.05		-	-	-	-	2.05
Box and Envelope Label (710)	993002	0.04		-	-	-	-	0.04
Shelf Talker		0.14		-	-	-	-	0.14
Barrel Assembly Complete	305410		0.0790	0.71	1.26	2.29	3.55	4.26
Barrel Assembly	3305400			-	-	-	-	-
Barrel	305315	4.80	0.3866	4.09	7.30	13.26	20.56	29.45
Receiver 6.6" + Rem / 5	300340	2.17	0.00507	0.06	0.10	0.19	0.29	2.11
Receiver Insert Assembly Complete	????		0.0530	0.47	0.85	1.54	2.38	2.86
Receiver Insert Assembly	????		0.0050	0.04	0.08	0.15	0.22	0.27
Receiver Insert	300327	0.62		-	-	-	-	0.62
Threaded Insert	300347	0.04		-	-	-	-	0.04
Side Plate	300333	0.09	0.0010	0.01	0.02	0.03	0.05	0.15
Side Plate Pin (2)	300328	0.16	0.0010	0.01	0.02	0.03	0.05	0.22
Sear Safety Cam	35666	0.94		-	-	-	-	0.94
Pivot Pin (3)	300351	0.27		-	-	-	-	0.27
Sear Spring	17047	0.05		-	-	-	-	0.05
Trigger	15280	1.53		-	-	-	-	1.53
Trigger Connector	19461	1.03		-	-	-	-	1.03
Trigger Screw Front	17053	0.07		-	-	-	-	0.07
Trigger Engagement Screw	91128	0.06		-	-	-	-	0.06
Trigger Spring	15400	0.05		-	-	-	-	0.05
Trigger Stop Screw	15481	0.04		-	-	-	-	0.04
Safety	300408	0.23		-	-	-	-	0.23
Safety Detent Spring	300407	0.06		-	-	-	-	0.06
Safety Pivot Pin	300352	0.14		-	-	-	-	0.14
Safety Spring	300343	0.05		-	-	-	-	0.05
Safety Button		0.41	0.0050	0.05	0.09	0.17	0.27	0.73
Safety Plunger		0.07		-	-	-	-	0.07
Safety Key/Cap/Bushing		0.69		-	-	-	-	0.69
Bolt Stop	300345	0.22	0.0010	0.01	0.02	0.03	0.05	0.28
Receiver Plug Screws (4)	17034	0.12		-	-	-	-	0.12
Recoil Bracket	300361	0.19	0.0010	0.01	0.02	0.03	0.05	0.25
Bolt Assembly Complete	????			-	-	-	-	-
Bolt Body Assembly	????		0.0275	0.29	0.52	0.94	1.46	1.76
Bolt Body (40.24 \$0.285)	300339	0.74	0.00301	0.03	0.06	0.11	0.17	0.94
Bolt Handle	300370		0.0120	0.13	0.23	0.41	0.64	0.77
Bolt Handle Blank	300360	1.63		-	-	-	-	1.63
Bolt Handle Pin	300329	0.10		-	-	-	-	0.10
Bolt Head Assembly	305390		0.0580	0.52	0.93	1.68	2.61	3.13
Bolt Head	300338	1.75	0.0809	0.86	1.53	2.77	4.30	6.91

MF0026

REMINGTON ARMS COMPANY, INC.
FIREARMS - MAYFIELD

10/05/99

C:\windows\TEMP[M710 estimate rev5.xls]m710 51,300 597 20,000 710

		710 Costing Model 51,300 597s & 20,000 710s						
PART DESCRIPTION	Part #	Material \$	Run Rate (hrs/pc)	Labor \$	Fixed O.H. \$	Var O.H. \$	Total O.H. \$	Total
Extractor	93712	0.77	-	-	-	-	-	0.77
Ejector	300342	0.11	0.0010	0.01	0.02	0.03	0.05	0.17
Ejector Spring	????	0.02	-	-	-	-	-	0.02
Ejector Pin	94555	0.04	-	-	-	-	-	0.04
Bolt Assembly Pin	300330	0.15	0.0010	0.01	0.02	0.03	0.05	0.21
Firing Pin Assembly	????	0.25	0.0070	0.06	0.11	0.20	0.31	0.38
Bolt Plug	300368	0.25	-	-	-	-	-	0.25
Bolt Plug Insert	300346	0.80	-	-	-	-	-	0.80
Firing Pin	300334	1.19	0.0010	0.01	0.02	0.03	0.05	1.25
Firing Pin Tip	300335	0.33	0.0015	0.02	0.03	0.05	0.08	0.53
Firing Pin Head	300336	1.50	0.0020	0.02	0.04	0.07	0.11	1.63
Firing Pin Spring	????	0.10	-	-	-	-	-	0.10
Front Sight	94084	0.82	-	-	-	-	-	0.82
Front Sight Ramp	94657	1.13	0.0020	0.02	0.04	0.07	0.11	1.26
Front Sight Ramp Screws (2)	28505	0.09	-	-	-	-	-	0.09
Rear Sight Assembly	103146	3.72	-	-	-	-	-	-
Elevation Screw	90906	0.04	-	-	-	-	-	0.04
Rear Sight Aperture	94333	0.14	0.0030	0.03	0.06	0.10	0.16	0.33
Rear Sight Base	103530	0.97	0.0030	0.03	0.06	0.10	0.16	1.16
Rear Sight Slide	94335	0.47	0.0050	0.05	0.09	0.17	0.27	0.79
Windage Screw	90904	0.02	-	-	-	-	-	0.02
Rear Sight Base Screw (2)	28505	0.09	-	-	-	-	-	0.09
Stock Assembly Complete	????	-	0.0160	0.14	0.26	0.46	0.72	0.86
Stock Assembly	????	-	-	-	-	-	-	-
Stock	????	5.38	-	-	-	-	-	5.38
Front Screw Bushing	15161	0.13	-	-	-	-	-	0.13
Middle Screw Bushing	????	0.05	-	-	-	-	-	0.05
Rear Screw Bushing	????	0.05	-	-	-	-	-	0.05
Gun Cap	97971	0.18	-	-	-	-	-	0.18
Recoil Pad	97973	1.63	-	-	-	-	-	1.63
Recoil Pad Screw (2)	98008	0.02	-	-	-	-	-	0.02
Magazine Latch	300362	0.19	-	-	-	-	-	0.19
Magazine Latch Spring	????	0.03	-	-	-	-	-	0.03
Magazine Latch Pin	300371	0.07	0.0010	0.01	0.02	0.03	0.05	0.13
Sling Swivel Stud (2)	300096	0.14	-	-	-	-	-	0.14
Takedown Screw (2)	????	0.16	-	-	-	-	-	0.16
Rear Takedown Screw	????	0.08	-	-	-	-	-	0.08
Magazine Assembly	????	-	0.0083	0.07	0.13	0.24	0.37	0.45
Magazine Box	300363	2.90	0.0010	0.01	0.02	0.03	0.04	2.95
Magazine Follower	300364	0.26	-	-	-	-	-	0.26
Magazine Bottom	300365	0.26	-	-	-	-	-	0.26
Magazine Spring	47028	0.42	-	-	-	-	-	0.42
Freight on Parts	300405	0.25	-	-	-	-	-	0.25
Value Added Cost of:								
Proof/Gallery/Inspect/Pack		1.15	0.1500	1.34	2.40	4.35	6.75	9.24
Total Cost		\$ 43.05	0.9226	\$ 9.15	\$ 16.32	\$ 29.65	\$ 45.96	\$ 98.16

MF0027

REMINGTON ARMS COMPANY, INC.
FIREARMS - MAYFIELD

10/05/99

C:\windows\TEMP\m710 estimate rev5.xls\m710 58,300 597 30,000 710

		710 Costing Model 58,300 597s & 30,000 710s						
PART DESCRIPTION	Part #	Material \$	Run Rate (hrs/pc)	Labor \$	Fixed O.H. \$	Var O.H. \$	Total O.H. \$	Total
Document Envelope Assembly	1721	\$ 0.09		\$ -	\$ -	\$ -	\$ -	\$ 0.09
Document Envelope	1649	0.08		-	-	-	-	0.08
Users manual	3391	0.15		-	-	-	-	0.15
Product Owners Card	1426	0.03		-	-	-	-	0.03
Remington Authorized Gunsmith	3413	0.07		-	-	-	-	0.07
Safety Booklet	3499	0.10		-	-	-	-	0.10
Oval Label	3491	0.01		-	-	-	-	0.01
Carton Assembly	1444	2.05		-	-	-	-	2.05
Box and Envelope Label (710)	993002	0.04		-	-	-	-	0.04
Shelf Talker		0.14		-	-	-	-	0.14
Barrel Assembly Complete	305410		0.0790	0.71	1.08	2.06	3.14	3.84
Barrel Assembly	3305400			-	-	-	-	-
Barrel	305315	4.80	0.3866	14.09	6.25	11.90	18.15	27.04
Receiver	300340	1.76	0.0055	10.06	0.09	0.17	0.26	2.08
Receiver Insert Assembly Complete	????		0.0530	0.47	0.72	1.38	2.11	2.58
Receiver Insert Assembly	????		0.0250	0.04	0.07	0.13	0.20	0.24
Receiver Insert	300327	0.62		-	-	-	-	0.62
Threaded Insert	300347	0.04		-	-	-	-	0.04
Side Plate	300333	0.09	0.0010	0.01	0.02	0.03	0.05	0.15
Side Plate Pin (2)	300328	0.16	0.0010	0.01	0.02	0.03	0.05	0.22
Sear Safety Cam	15066	0.34		-	-	-	-	0.94
Pivot Pin (3)	300351	0.27		-	-	-	-	0.27
Sear Spring	17047	0.05		-	-	-	-	0.05
Trigger	15280	1.53		-	-	-	-	1.53
Trigger Connector	19461	1.03		-	-	-	-	1.03
Trigger Screw Front	17053	0.07		-	-	-	-	0.07
Trigger Engagement Screw	91128	0.06		-	-	-	-	0.06
Trigger Spring	15400	0.05		-	-	-	-	0.05
Trigger Stop Screw	15481	0.04		-	-	-	-	0.04
Safety	300408	0.23		-	-	-	-	0.23
Safety Detent Spring	300407	0.06		-	-	-	-	0.06
Safety Pivot Pin	300352	0.14		-	-	-	-	0.14
Safety Spring	300343	0.05		-	-	-	-	0.05
Safety Button		0.41	0.0050	0.05	0.08	0.15	0.23	0.70
Safety Plunger		0.07		-	-	-	-	0.07
Safety Key/Cap/Bushing		0.69		-	-	-	-	0.69
Bolt Stop	300345	0.22	0.0010	0.01	0.02	0.03	0.05	0.28
Receiver Plug Screws (4)	17034	0.12		-	-	-	-	0.12
Recoil Bracket	300361	0.19	0.0010	0.01	0.02	0.03	0.05	0.25
Bolt Assembly Complete	????			-	-	-	-	-
Bolt Body Assembly	????		0.0275	0.29	0.45	0.85	1.29	1.58
Bolt Body	300339	0.74	0.0032	0.03	0.05	0.10	0.15	0.92
Bolt Handle	300370		0.0120	0.13	0.19	0.37	0.56	0.69
Bolt Handle Blank	300360	1.63		-	-	-	-	1.63
Bolt Handle Pin	300329	0.10		-	-	-	-	0.10
Bolt Head Assembly	305390		0.0580	0.52	0.79	1.51	2.30	2.82
Bolt Head	300338	1.75	0.0809	0.86	1.31	2.49	3.80	6.40

MF0028

REMINGTON ARMS COMPANY, INC.
FIREARMS - MAYFIELD

10/05/99

C:\windows\TEMP\JM710 estimate rev5.xls\m710 58,300 597 30,000 710

		710 Costing Model 58,300 597s & 30,000 710s						
PART DESCRIPTION	Part #	Material \$	Run Rate (hrs/pc)	Labor \$	Fixed O.H. \$	Var O.H. \$	Total O.H. \$	Total
Extractor	93712	0.77		-	-	-	-	0.77
Ejector	300342	0.11	0.0010	0.01	0.02	0.03	0.05	0.17
Ejector Spring	????	0.02		-	-	-	-	0.02
Ejector Pin	94555	0.04		-	-	-	-	0.04
Bolt Assembly Pin	300330	0.15	0.0010	0.01	0.02	0.03	0.05	0.21
Firing Pin Assembly	????		0.0070	0.06	0.10	0.18	0.28	0.34
Bolt Plug	300368	0.25		-	-	-	-	0.25
Bolt Plug Insert	300346	0.80		-	-	-	-	0.80
Firing Pin	300334	1.19	0.0010	0.01	0.02	0.03	0.05	1.25
Firing Pin Tip	300335	0.33	0.0015	0.02	0.02	0.05	0.07	0.42
Firing Pin Head	300336	1.50	0.0020	0.02	0.03	0.06	0.09	1.62
Firing Pin Spring	????	0.10		-	-	-	-	0.10
Front Sight	94084	0.82		-	-	-	-	0.82
Front Sight Ramp	94657	1.13	0.0020	0.02	0.03	0.06	0.09	1.25
Front Sight Ramp Screws (2)	28505	0.09		-	-	-	-	0.09
Rear Sight Assembly	103146			-	-	-	-	-
Elevation Screw	90906	0.04		-	-	-	-	0.04
Rear Sight Aperture	94333	0.14	0.0030	0.03	0.05	0.09	0.14	0.31
Rear Sight Base	103531	0.97	0.0030	0.03	0.05	0.09	0.14	1.14
Rear Sight Slide	94335	0.47	0.0050	0.05	0.08	0.15	0.23	0.76
Windage Screw	90904	0.02		-	-	-	-	0.02
Rear Sight Base Screw (2)	28505	0.09		-	-	-	-	0.09
Stock Assembly Complete	????		0.0160	0.14	0.22	0.42	0.64	0.78
Stock Assembly	????			-	-	-	-	-
Stock	????	5.38		-	-	-	-	5.38
Front Screw Bushing	15161	0.13		-	-	-	-	0.13
Middle Screw Bushing	????	0.05		-	-	-	-	0.05
Rear Screw Bushing	????	0.05		-	-	-	-	0.05
Strip Cap	97971	0.18		-	-	-	-	0.18
Recoil Pad	97973	1.63		-	-	-	-	1.63
Recoil Pad Screw (2)	98008	0.02		-	-	-	-	0.02
Magazine Latch	300362	0.19		-	-	-	-	0.19
Magazine Latch Spring	????	0.03		-	-	-	-	0.03
Magazine Latch Pin	300371	0.07	0.0010	0.01	0.02	0.03	0.05	0.13
Sling Swivel Stud (2)	300096	0.14		-	-	-	-	0.14
Takedown Screw (2)	????	0.16		-	-	-	-	0.16
Rear Takedown Screw	????	0.08		-	-	-	-	0.08
Magazine Assembly	????		0.0083	0.07	0.11	0.22	0.33	0.40
Magazine Box	300363	2.90	0.0010	0.01	0.01	0.03	0.04	2.95
Magazine Follower	300364	0.26		-	-	-	-	0.26
Magazine Bottom	300365	0.26		-	-	-	-	0.26
Magazine Spring	17028	0.42		-	-	-	-	0.42
Freight on Parts		0.25						0.25
Value Added Cost of:								
Proof/Gallery/Inspect/Pack		1.15	0.1500	1.34	2.05	3.91	5.96	8.45
Total Cost		\$ 43.05	0.9226	\$ 9.15	\$ 13.98	\$ 26.61	\$ 40.59	\$ 92.79

MF0029

REMINGTON ARMS COMPANY, INC.
FIREARMS - MAYFIELD

710 Operating Model: Overhead Summary

	Based on 58,400 597 Before 7,250 710 add on				Based on No 710s Add 10,500 597				Add 710s 20,000 Reduce 597 7,100				Add 710s 20,000 No change to 597				Add 710s 30,000 No change to 597				
	Budgeted	710	597	Total 69,000	710	597	Total 51,300	710	597	Total 58,400	710	597	Total 58,400	710	597	Total 58,400	Assumptions				
Overhead Costs	Overhead	Adj	Adj	597s	Adj	Adj	20,000 710s	Adj	Adj	20,000 710s	Adj	Adj	20,000 710s	Adj	Adj	30,000 710s					
Staffing Costs	484,994			484,994			484,994			484,994			484,994			484,994					
7110500 Salaries - Exempt	257,439			257,439			257,439			257,439			257,439			257,439					
7130002 Indirect Labor	14,678			14,678			14,678			14,678			14,678			14,678					
7130005 Overtime Premium	621,408		52,136	683,544	106,092	(41,519)	865,881	106,092		727,500	159,138		780,648			780,648	58% Wage 25% Salary				
Employee Benefits	14,400			14,400			14,400			14,400			14,400			14,400					
7450501 Training	11,200			11,200			11,200			11,200			11,200			11,200					
7455010 Tuition Refund	8,000			8,000			8,000			8,000			8,000			8,000					
7510500 Employee Recreation Expense	18,090			18,090			18,090			18,090			18,090			18,090					
7550500 Travel Expense	2,010			2,010			2,010			2,010			2,010			2,010					
7580500 Entertainment Expense	1,600			1,600			1,600			1,600			1,600			1,600					
7660500 Subscriptions & Publications	1,630			1,630			1,630			1,630			1,630			1,630					
8880500 Memberships																					
Total Staffing	1,435,450	-	52,136	1,497,586	106,092	(41,519)	1,499,922	106,092	-	1,541,542	159,138	-	1,594,587			1,594,587					
Materials and Supplies																					
7650500 Operating Supplies	24,268		4,405	28,673	8,810	(2,929)	30,149	8,810		33,078	13,215		37,483			37,483	Variable Cost by # guns Produced				
7840500 Safety Costs	6,728			6,728			6,728			6,728			6,728			6,728					
8230150 Prototype Work	18,720			18,720	4,680		23,400	4,680		23,400	7,020		25,740			25,740	25% increase related to 710				
6710502 Variable Tools	17,656			17,656	6,909		24,565	6,909		24,565	10,363		28,019			28,019	Increase proportional to 597				
6710120 Essential Materials	303,826		81,120	384,946	138,000	(36,920)	404,906	138,000		441,826	207,000		510,826			510,826	\$5.20/597 + \$6.90/710				
6710122 Tool/Gauge/Fixtures	10,003			10,003	2,899		12,902	2,899		12,902	4,349		14,352			14,352					
6710505 Vendor Rework	6,835			6,835	1,981		8,816	1,981		8,816	2,972		9,808			9,808	Increase proportional to 597				
7670500 Maintenance Other	53,574			53,574	10,715		64,289	10,715		64,289	10,715		75,004			75,004	Based on 710 Machines 20% increase				
6710550 Maintenance Material Consumption	63,341			63,341	18,360		81,701	18,360		81,701	27,540		109,241			109,241	Proportional increase				
6710560 Maintenance Material Non Inventory	41,102			41,102	11,814		52,916	11,814		52,916	17,871		70,787			70,787	Proportional increase				
Total Materials and Supplies	546,052	-	85,525	631,577	204,268	(39,849)	710,471	204,268	-	750,320	301,044	-	847,092			847,092					
Facilities and Utilities																					
7720500 Contract Services - Not Maint	20,105			20,105	1,000		21,105	1,000		21,105	2,105		23,210			23,210	Unit price for new lease				
7720503 Contract Services - Maint	40,408			40,408	8,082	(8,082)	40,408	8,082		48,490	12,122		60,612			60,612					
7810500 Equipment Rental & Lease	2,520			2,520			2,520			2,520			2,520			2,520					
6710132 Waste Disposal	22,195			22,195	6,124		28,319	6,124		28,319	7,186		35,505			35,505					
Total Facilities and Utilities	85,228	-		85,228	15,206	(8,082)	92,352	15,206	-	100,434	22,609	-	123,043			123,043					
Other																					
7820500 Non Capital Equipment	16,439			16,439	3,208		19,727	3,208		19,727	4,588		24,315			24,315	20% increase due to Machine increase				
8820502 Postage	3,389			3,389			3,389			3,389			3,389			3,389					
8870500 Contributions & Donations	2,198			2,198			2,198			2,198			2,198			2,198					
8840500 Environmental fees	250			250			250			250			250			250					
8980500 Miscellaneous Expenses	3,600			3,600			3,600			3,600			3,600			3,600					
Kreda Credits	(53,694)		(4,285)	(57,979)	(7,317)		(65,296)	(7,317)		(65,296)	(10,975)		(76,271)			(76,271)	4% of total payroll				
Total Other	(28,017)	-	(4,285)	(32,303)	(4,099)		(28,402)	(4,099)		(32,046)	(6,043)	-	(34,061)			(34,061)					
Costs																					
J500 Telephone	21,648			21,648			21,648			21,648			21,648			21,648					
8080500 Water Utilities	7,800			7,800	2,750	(2,000)	8,550	2,750		10,559	4,139		11,939			11,939	Budget \$1,000 increase for 7,250 710.				
8090500 Electrical Utilities	178,433		7,255	185,688	68,698	(21,535)	225,796	68,698		247,331	103,347		281,790			281,790	Rate treated as variable				
8110500 Depreciation	705,905			705,905	259,530		965,435	259,530		965,435	259,530		1,224,965			1,224,965	16% increase in usage and 45% increase in peak treated as variable				
8440501 Property Taxes	27,200			27,200	6,000	(2,290)	30,900	5,000		33,200	13,345		40,545			40,545	Increase Capital to produce 710				
Total Fixed	640,986	-	7,255	648,241	337,187	(26,735)	1,251,438	337,187	-	1,278,173	380,361	-	1,321,347			1,321,347	\$3,000 related to increased fixed assets balance related to increase inventories				
Totals	\$ 12,678,701	\$	\$ 529,830	\$ 13,130,330	\$ 658,724	\$ (113,415)	\$ 13,525,008	\$ 658,724	\$	\$ 3,638,423	\$ 857,308	\$	\$ 3,837,038			\$ 3,837,038					
Direct Labor Payments	\$ 500,227	\$	\$ 107,130	\$ 607,358	\$ 182,017	\$ (71,767)	\$ 701,387	\$ 182,017	\$	\$ 773,144	\$ 274,375	\$	\$ 864,002			\$ 864,002					
Overhead Rates																					
Variable Costs																					
Fixed Costs																					
Total																					
Overhead Increase/Decrease to 597																					
Overhead 710s																					
Net Overhead Based on 2000 Budget																					
Net Impact of 710																					

REMINGTON ARMS COMPANY, INC.
FIREARMS - MAYFIELD

10/05/99

C:\windows\TEMP\{M710 estimate rev5.xls}Start Up Costs

	8/31/99	9/30/99	10/31/99	11/30/99	12/31/99	Total 1999	1/31/00	2/29/00	3/31/00	4/30/00	5/31/00	6/30/00	7/31/00	Total 2000	Project Total
Direct Labor	1,183.96	3,188.64	3,188.64	4,555.20	3,471.92	15,988.36			7,109.76	8,809.92	10,200.96	6,800.64		32,921.28	48,909.64
From Overhead															-
Setters	198.45	-	-	-	-	198.45	3,625.60	8,565.48	5,349.80	1,767.76		3,070.32	3,535.52	25,914.48	26,112.93
Maintenance	-	-	-	-	-	-	2,582.40	5,084.10	5,717.34	4,198.24	3,148.68	4,253.48	2,099.12	27,083.36	27,083.36
EBs	801.79	1,849.41	1,849.41	2,642.02	2,245.71	9,388.35	3,600.64	7,916.76	10,542.60	8,570.03	7,742.79	8,192.18	3,268.09	49,833.09	59,221.44
Other Costs															-
Material for Receiver/Bolt Body		10,500.00	10,500.00	10,500.00	10,500.00	42,000.00									42,000.00
Material for 1,000 Learning															-
Guns (\$43.86/ea)									21,930.00	21,930.00				43,860.00	43,860.00
Material for 60 T&P															-
Guns (\$43.86/ea)										1,315.80	1,315.80			2,631.60	2,631.60
Material for 30 DAT															-
Guns (\$43.86/ea)												1,315.80		1,315.80	1,315.80
15,000 rns of Ammo									600.00	1,200.00	600.00	600.00		3,000.00	3,000.00
Disassembly & Rearrange									6,000.00					6,000.00	6,000.00
Tooling & Inspection		16,250.00	16,250.00	16,250.00	16,250.00	65,000.00									65,000.00
Prototype Parts							8,000.00	8,000.00	8,000.00	8,000.00				32,000.00	32,000.00
Material Handling Purchases											19,333.33	19,333.33	19,333.33	58,000.00	58,000.00
Miscellaneous							286.00	286.00	286.00	286.00	286.00	286.00	286.00	2,000.00	2,000.00
1999 startup Costs	2,184.20	31,788.05	31,788.05	33,947.22	32,867.63	132,575.15	18,094.35	20,852.05	65,535.22	56,077.47	42,627.28	43,851.46	28,521.78	284,559.61	417,134.76

REMINGTON ARMS COMPANY, INC.
FIREARMS - MAYFIELD

10/05/99

C:\windows\TEMP\[M710 estimate rev5.xls]Head Count

	69,000 597s 0 710s	51,300 597s 20,000 710s	58,400 597s 20,000 710s	58,400 597s 30,000 710s
Guns Produced	69,000	71,300	78,400	88,400
Guns Per Day	285	295	324	365
Hours Earned	71,162	71,359	78,682	87,907
Hours Per Head Count (242*8 hrs)	1,936	1,936	1,936	1,936
Head count Required with no time off or OT	36.8	36.9	40.6	45.4
Vacation and Floating Holidays (3/242=1.23%)	0.5	0.5	0.5	0.6
Sick and Other 1.8%	0.7	0.7	0.7	0.8
Add 3% inefficiency	1.1	1.1	1.2	1.4
Less 3% OT	(1.1)	(1.1)	(1.2)	(1.4)
Required Head Count	37.9	38.0	41.9	46.8
Actual Head Count	37.5	37.5	37.5	37.5
Over/(Under) Staffing	(0.4)	(0.5)	(4.4)	(9.3)

MF0032

REMINGTON ARMS COMPANY, INC.
FIREARMS - MAYFIELD

10/05/99

C:\windows\TEMP\{M710 estimate rev5.xls}710 capital by operation

In House Capital

Part Name	Operation	Equipment	Capital Required		Useful Lif	Depreciation
Barrel	Cut off		\$0			
	Drill	cones	\$9,960	Dec-99	10	996
	Ream		\$0		10	-
	Rifle	gages	\$9,800	Feb-00	10	980
	Wash & Stress Relieve	baskets	\$6,900	Feb-00	10	690
	Turn	gages	\$10,100	Feb-00	10	1,010
	Face & Chamber	gages	\$33,300	Apr-00	10	3,330
	Face & Chamber	machine	\$222,880	Mar-00	10	22,288
	Cut off and Crown	chuck	\$15,000	Jan-00	10	1,500
	wash and eddy current test	machine	\$75,000	Mar-00	10	7,500
	Induction Harden	machine	\$166,000	Mar-00	10	16,600
	Inspect Hardness	machine	\$12,000	Mar-00	10	1,200
	Drill and tap sight	fix & gages	\$7,600	Feb-00	10	760
	Roll mark	fix & gages	\$6,300	Apr-00	10	630
	Angularity Straighten	fix & gages	\$3,500	Feb-00	10	350
	Centerless Polish		\$0		10	-
	Glass Bead Blast	fixtures	\$2,500	Jan-00	10	250
	Color	racks	\$6,000	Jan-00	10	600
Bolt Head	Inspect Purchased Part					
	Blank	gage	\$2,500	Feb-00	10	250
	Superabrasive Grind Lugs	fix & gage	\$43,800	Feb-00	10	4,380
	CNC Machine Bolt Face					
	Complete	fix & gage	\$174,784	Mar-00	10	17,478
	CNC Machine Cam Cuts					
	Ejector Retaining Pin Hole	fix & gage	\$15,000	Mar-00	10	1,500
	CNC Machine Bolt Head					
	Retaining Pin Hole	fix & gage	\$15,000	Mar-00	10	1,500
	Punch Form Extractor					
Bolt Body	Rotation Notch	fix & gage	\$10,000	Jan-00	10	1,000
	Veneer Heat Treat		\$0		10	-
	Inspect for Hardness		\$0		10	-
	Black Oxide		\$0		10	-
	Inspect Purchased Part					
	Blank	gage	\$2,000	Jan-00	10	200
	Machine Cam Cuts	machine	\$0	Feb-00	10	-
	Assemble Braze Bolt	machine	\$90,000	Mar-00	10	9,000
	Deplate	tanks	\$9,500	Jan-00	10	950
	Eddy Current Test		\$0		10	-
Receiver	Glass Bead Blast	fix	\$2,500	Jan-00	10	250
	Black Oxide		\$0		10	-
	Inspect Purchased Part					
	Blank	gage	\$2,500	Jan-00	10	250
	Machine A-load	machine & CM	\$513,831	Feb-00	10	51,383
	Machine B-load		\$0	Feb-00	10	-
	Vibratory tumble deburr		\$0		10	-
Barrel Assembly	Press Receiver to Barrel	fixture	\$0	Dec-99	Ilion Equip	10

MF0033

REMINGTON ARMS COMPANY, INC.
FIREARMS - MAYFIELD

10/05/99

C:\windows\TEMP\I[M710 estimate rev5.xls]710 capital by operation

	Inspect for straightness	gage	\$3,500	Dec-99	10	350
Final Assembly	Gallery	100yd range	\$100,000	Dec-99	25	4,000
		snails	\$30,000	Jul-00	25	1,200
		HVAC	\$25,000	Jun-00	10	2,500
		other	\$10,000	Mar-00	25	400
					25	-
			\$100,000	Mar-00	25	4,000
			\$65,000	Jul-00	25	2,600

\$1,801,755

Purchased Parts

Part #	Part Name	Capital	Tool	Vendor		Payments	83
300327 ✓	Receiver Insert	48,000	Mold	Hanson	Jun-99	5	8,600
300333 ✓	Side Plate	710,000	Stamping Die		Dec-99	5	2,000
300334 ✓	Safety Arm	23,880	Stamping Die	NH Stamping	Dec-99	5	4,776
300345	Bolt Stop	6,820	PM	Sterling	Dec-99	5	1,384
300361	Recoil Bracket	2,225	Stamping Die	NH Stamping	Dec-99	5	442
300360	Bolt Handle Blank	12,800	Invest Cast Die	Fansfeel	Dec-99	5	2,560
300366	Bolt H. Braze Shim	0	Use Paste	Lucas Milhaupt	Dec-99	5	-
300368	Bolt Plug	38,088	Mold	Par 4	Dec-99	5	7,618
300336	Firing pin head	23,000	Mold	Megamet	Dec-99	5	4,600
300362	Mag Latch	33,480	Mold	Par 4	Dec-99	5	6,696
300363	Magazine Box	28,000	Mold	Morrissey	Dec-99	5	5,600
300364	Magazine Follower	33,300	Mold	Par 4	Dec-99	5	6,660
300365	Magazine Bottom	47,880	Mold	Par 4	Dec-99	5	9,576
	Stock	150,300	Mold	Par 4	Dec-99	5	30,060
	Styrofoam Bed	0	Die	Tuscorora		5	-
	PPI	38000					Mar-00
		\$495,773					
Total		\$2,297,528					253,430
Installation		\$61,000			10		6,100
		<u>\$2,358,528</u>					<u>259,530</u>

ADD:

TRIGGER → \$ ——— CAPITAL → \$ PART
SAFETY ARM → 0 ——— CAPITAL → \$ PART
MAGAZINE BOX → 0 ——— CAPITAL → \$ PART

FIREARM PARTS FOR \$ 5000
BOLT HANDLE PART FOR \$ 5000
HOLSTER AND CHARGE LEVER \$ 9000
COMPARTMENT \$ 10,000

MF0034

REMINGTON ARMS COMPANY, INC.
FIREARMS - MAYFIELD

10/05/99

C:\windows\TEMP\[M710 estimate rev5.xls]Working Capital

Units of 710	<u>20,000</u>	<u>30,000</u>
Stores		
Theses are primarily specialty Cutters Assume		
3 months in Inventory	34,500	51,750
Raw Material		
597 Raw material approaching 6 turns		
2 months in Inventory	143,514	215,271
Work In Process		
597 WIP approaching 18 turns		
.75 Months in Inventory	111,157	156,654
Finished Goods		
Sale better than 597		
1 Month in Inventory	<u>163,608</u>	<u>231,970</u>
Total Inventory	452,778	655,645
Increase in A/P		
45 Days of Stores & Raw Material	<u>126,385</u>	<u>189,578</u>
Increase in Working Capital	<u>326,393</u>	<u>466,067</u>

MF0035

Golemboski, Matt R.

From: Chamblee, Danny
Sent: Thursday, October 14, 1999 8:53 AM
To: Golemboski, Matt R.
Subject: FW: carton cost

Importance: High

.....
From: Krol, Richard J.
Sent: Thursday, October 14, 1999 8:56 AM
To: Bristol, II Ronald H.
Cc: Chamblee, Danny; Tucker, Peter L.
Subject: FW: carton cost
Importance: High

Ron,
Attached analysis per your request.

.....
From: Tucker, Peter L.
Sent: Wednesday, October 13, 1999 5:52 PM
To: Krol, Richard J.
Subject: carton cost



carton cost 2.xls

Check before you send

CONFIDENTIAL 83

Remington Arms Company, Inc
Carton Costs

10/15/99 11:33

	25287	25791	25568	24720	Ilion SKU
Model	Model	Model	Model	Model	
597	1187	700	870	7	
Overpack	0.16				
Carton	0.49	1.21	1.21	1.21	1.21
Styrofoam Bed	0.90	0.76	0.75	0.76	0.75
Box end Label		0.01	0.01	0.01	0.01
Build to Label		0.01	0.01	0.01	0.01
Assembly Charge*	0.31	*	*	*	*
	1.86	1.99	1.98	1.99	1.98

* included in carton Price

Document Inserts					
Museum/Store card		0.01	0.01	0.01	0.01
Envelope	0.08	0.08	0.08	0.08	0.08
Users Manual	0.15	0.70	0.63	0.68	0.72
Gun Smith List	0.06	0.07	0.07	0.07	0.07
Safety Guide	0.11	0.10	0.10	0.10	0.10
Label	0.01	0.01	0.01	0.01	0.01
Shotgun guide				0.01	
Owners Card	0.03	0.03	0.03	0.03	0.03
Assembly Charge	0.08	0.08	0.08	0.08	0.08
	0.51	1.08	1.01	1.06	1.09
Total Box	2.37	3.07	2.99	3.05	3.07

Note:

Overpack - This item is expensed in Ilion; not used as extensively as in Mayfield

Carton Cost - Need to combine carton cost + assembly charge for comparative purposes; appears that buying practices are different between sites, which accounts for Mayfield's lower piece price, but may be somewhat offset with inventory carrying cost

User Manuals - Ilion's are "trilingual"

MF0037

Golemboski, Matt R.

From: Chamblee, Danny
Sent: Tuesday, October 12, 1999 2:10 PM
To: Bristol, II Ronald H.
Cc: Brueckmann, William R.; Golemboski, Matt R.
Subject: M710 estimate rev5.xls

Ron,

Attached is updated model 710 costing with changes to the startup cost schedule and Revised Capital-Capital Spend out sheet.

If you have any questions or comments, please let me or Matt know.

Thanks,
Danny



M710 estimate rev5

CONFIDENTIAL 83

Golemboski, Matt R.

From: Chamblee, Danny
Sent: Wednesday, October 13, 1999 2:23 PM
To: Golemboski, Matt R.
Subject: FW: Model 710 - Option Y

FYI

From: Brueckmann, William R.
Sent: Wednesday, October 13, 1999 2:21 PM
To: Bristol, II Ronald H.
Cc: Chamblee, Danny
Subject: Model 710 - Option Y

Attached are worksheets showing the results of Mayfield's re-evaluation of the Model 710 economics. In summary, an additional \$159,000 of capital was added from Option X which increased Cost of Manufacturing from \$92.79 to \$93.17 due to the additional depreciation.

ROIC (with startup costs) decreased from 29.9% to 28.0%
ROIC (without startup costs) decreased from 46.6% to 43.9%
IRR decreased from 20.7% to 19.4%
NPV decreased from \$729,000 to \$648,000
Cash Flow Payback Month increased from 49 to 53

I need to point out that these calculations do not consider the effect of the additional overhead that allion products will have to absorb due to the 700 ADL replacement volume.

I am available to review or discuss this with you at your convenience.



M710OPTY.xls



M710 Y Comparison.xls



M710 Assumptions
Option Y.doc

Remington Arms Company, Inc.
Sportsman Model 710 Centerfire Rifle - Option Y
Mayfield Manufactured
Sales Volume and Selling Prices
(Dollars per Gun)

	Sales Volume and Selling Prices			
	2000	2001	2002	2003
Sales Volume (Guns) All SKU's	6,000	30,000	38,000	38,000
Manufacturer's Suggested Retail Price All SKU's	\$ 355.00	\$ 355.00	\$ 355.00	\$ 355.00
Manufacturer's Selling Price All SKU's	\$ 269.00	\$ 269.00	\$ 269.00	\$ 269.00 ⁸³
Net Selling Price All SKU's	\$ 221.11	\$ 217.51	\$ 217.51	\$ 217.51

10/15/99

MF0040

October 13, 1999

Remington Arms Company, Inc.
Sportsman Model 710 Centerfire Rifle
Financial Model Assumptions

Options

Option Y – 6,000 unit volume in 4th quarter, 2000. 30,000 unit volume in 2001 and 38,000 unit volume in 2002 and 2003. 50% replacement volume. 1 Selling price. Mayfield manufactured. Assumed that scope combo would be a pass-through of cost only with no impact on margin

Capital Investment

Provided by plants. Additional \$809,000 required for manufacturing at Mayfield versus Ilion

Sales Volume

Provided by Marketing. See option variations above. Assumed sales begin in October, 2000

Manufacturers Selling Price

Provided by Marketing. Assumed no price increase in each of the next four years for either the Model 710 or the replacement volume. Pricing assumed that all sales would be Wal-Mart in 2000 and then all channels in 2001 – 2003.

Manufacturers Suggested Retail Price

Assumed MSP x 1.32

Net Selling Price

Assumed standard discounts and terms from 2000 Budget calculation for 2001 – 2003. All sales to Wal-Mart in 2000

Standard Cost

Provided by Mayfield. Assumed 1.5% cost increase overall per unit per year

Period Expense and Manufacturing Cost Variances

No manufacturing cost variances included. 3.08% of standard cost included in period expense for scrap and warranty. Startup costs provided by plant and are included in Cash Flow calculation. Startup costs also include \$100,000 of Marketing Expense. An additional \$100,000 of startup costs required for Mayfield options for machinery relocations.

Distribution Expense

Used \$2.25 x Sales Volume

MF0041

Commission Expense

Used 1.0% x Net Sales

Bad Debt

Used 0.7% x Net Sales

Marketing Expense

Used \$1.00 x Sales Volume

Product Related Expense

Used \$2.00 x Sales Volume

Interest Expense

Used 8.0% annual interest rate and applied it to Capital Investment and the Average Annual Working Capital

Depreciation

Provided by Mayfield

Inventory

Raw Material – Assumed 5.3 turns. Based on Cost of Mfg 3rd month in future

Semifinished – Assumed 8.2 turns. Based on Cost of Mfg 2nd month in future

Finished Product – Assumed 12.0 turns. Based on Cost of Mfg 1st month in future

Accounts Receivable

Assumed standard Firearms programs

Cash Flow

Startup Costs are included in the first year. No impact for the positive impact of reducing other products' overhead costs

Cash Flow Measures

Discounted at an assumed 12% Cost of Capital using a five-year stream of cash flows

ROIC Calculation

Assumed 20% of Inventory and Accounts Receivable would be Liabilities and credited to Investment. ROIC calculated with and without the effect of Startup Expense

MF0042

Golemboski, Matt R.

From: Chamblee, Danny
Sent: Tuesday, October 05, 1999 10:26 AM
To: Golemboski, Matt R.
Subject: FW: Model 710 Projection - Option X

FYI

.....
From: Brueckmann, William R.
Sent: Tuesday, October 05, 1999 10:24 AM
To: Bristol, II Ronald H.
Cc: Chamblee, Danny
Subject: Model 710 Projection - Option X

Using the information you provided me from Danny Chamblee last Friday, I have recalculated the Model 710 project returns.

The project assumes 6,000 units will be sold in 4th quarter, 2000 and 30,000 units in 2001 and 38,000 units in 2002 and 2003 with a 50% replacement volume of the Model 700 ADL Synthetic. MSP is \$269

The last iteration of this project was completed on August 5. This version requires an additional \$459,000 of capital and \$194,000 of startup costs. Cost of Manufacturing has increased \$2.12 per unit. Finished Product Turns were decreased to 12.0 from 14.1. IRR is now 20.7% versus 24.5% 2 months ago. NPV is now \$729,000 versus \$937,000 with payback at 49 months versus 36 months. ROIC with startup costs is 29.9% versus 42.6%. ROIC without startup costs is 46.6% versus 54.9%.

Summary files are attached. I'm available to review any of this at your convenience



M710OPTX.xls



M710 X Comparison.xls



M710 Assumptions
Option X.doc

October 5, 1999

Remington Arms Company, Inc.
Sportsman Model 710 Centerfire Rifle
Financial Model Assumptions

Options

Option X – 6,000 unit volume in 4th quarter, 2000. 30,000 unit volume in 2001 and 38,000 unit volume in 2002 and 2003. 50% replacement volume. 1 Selling price. Mayfield manufactured. Assumed that scope combo would be a pass-through of cost only with no impact on margin

Capital Investment

Provided by plants. Additional \$809,000 required for manufacturing at Mayfield versus Ilion

Sales Volume

Provided by Marketing. See option variations above. Assumed sales begin in October, 2000

Manufacturers Selling Price

Provided by Marketing. Assumed no price increase in each of the next four years for either the Model 710 or the replacement volume. Pricing assumed that all sales would be Wal*Mart in 2000 and then all channels in 2001 – 2003.

Manufacturers Suggested Retail Price

Assumed MSP x 1.32

Net Selling Price

Assumed standard discounts and terms from 2000 Budget calculation for 2001 – 2003. All sales to Wal*Mart in 2000.

Standard Cost

Provided by Mayfield. Assumed 1.5% cost increase overall per unit per year

Period Expense and Manufacturing Cost Variances

No manufacturing cost variances included. 3.08% of standard cost included in period expense for scrap and warranty. Startup costs provided by plant and are included in Cash Flow calculation. Startup costs also include \$100,000 of Marketing Expense. An additional \$100,000 of startup costs required for Mayfield options for machinery relocations.

Distribution Expense

Used \$2.25 x Sales Volume

MF0044

Commission Expense
Used $1.0\% \times \text{Net Sales}$

Bad Debt
Used $0.7\% \times \text{Net Sales}$

Marketing Expense
Used $\$1.00 \times \text{Sales Volume}$

Product Related Expense
Used $\$2.00 \times \text{Sales Volume}$

Interest Expense
Used 8.0% annual interest rate and applied it to Capital Investment and the Average Annual Working Capital

Depreciation
Provided by Mayfield

Inventory
Raw Material – Assumed 5.3 turns. Based on Cost of Mfg 3rd month in future
Semifinished – Assumed 8.2 turns. Based on Cost of Mfg 2nd month in future
Finished Product – Assumed 12.0 turns. Based on Cost of Mfg 1st month in future

Accounts Receivable
Assumed standard Firearms programs

Cash Flow
Startup Costs are included in the first year. No impact for the positive impact of reducing other products' overhead costs

Cash Flow Measures
Discounted at an assumed 12% Cost of Capital using a five-year stream of cash flows

ROIC Calculation
Assumed 20% of Inventory and Accounts Receivable would be Liabilities and credited to Investment. ROIC calculated with and without the effect of Startup Expense

MF0045

Chamblee, Danny

From: Zajk, Joseph J
Sent: Saturday, August 28, 1999 1:08 PM
To: Golemboski, Matt R.
Cc: Chamblee, Danny
Subject: Model 710 Variable Tooling Costs

I reviewed the tooling cost of the barrel chamber operation. Based on that review, I made the following changes:

- Reviewed Ilion chamber tooling costs in SAP, using the actual tool dwg. #'s from Vaxcamps process. All of our chamber tooling estimates were very high (my fault; I think I gave Jason some prototype tooling costs by accident). Since our tooling will not differ markedly from Ilion's, and some will be essentially identical, I used the SAP cost for our tooling where applicable.
- Made some other minor corrections, like taking into account that a turning insert will have 4 sides, so tool life would be 4X, etc.

The net result was a reduction in the chamber tooling cost by app. \$1.25. The new variable tooling cost for barrel chamber is about \$2.82. By far the majority of this cost came from applying the Ilion prices to our special chamber tooling.

The receiver #'s look OK.

The bolt body #'s may change. I couldn't find Jason's & Scott's turning center information for the bolt body. The tooling cost will probably be the same, but the pre-op & startup may change due to replacing CV-40 toolholders with the turning center tooling. I'll have to get that stuff Monday morning from them.

J. Z.

Trip Report
M/710 Manufacturing/Assembly Review
Mayfield Facility
August. 12, 1999

Following the July 20 design review, the Mayfield facility received multiple samples of M/710 receiver insert assembly components. Throughout the past month, the assemblers have been working with the components to generate an understanding of the functional aspects as well as assembly times for estimating purposes. All other departments have been developing proposed processes and estimates. This review was scheduled to discuss recent concerns and suggestions for design/cost improvements. The following is a list of the issues discussed during the review.

Trigger Adjustment -- Several assemblies were noted as difficult to adjust.

Side Plate Retention -- Adjustment screws force the side plate to tilt away from the receiver insert. A third rivet may be required to properly retain the side plate.

Stock Design -- Mayfield requested a barrel contact pad at fore end of stock. Based on issues with M/597 barrel free floating, a contact pad will ensure proper barrel/stock margins.

Ejection Port Margins -- Allowable margin between steel receiver and synthetic receiver insert needs to be specified.

Front Sight -- Mayfield suggested using the one piece M/597 sight versus the proposed two piece M/700 front sight. M/597 sight is .100" shorter than M/700, not able to add use.

Barrel Length -- Mayfield would like 22" long action/24" magnum barrel lengths if Marketing must have a 24" magnum barrel. Otherwise make all barrels common length either 20" or 22" based on Marketing direction. They do not want to make 20" long action/22" magnum combination.

Final Inspection -- Minimum inspections required to include trig pull, safety function, seat lift, head space, and firing pin lock.

Receiver Concentricity -- Mayfield requested concentricity specification for receiver, .010 concentricity to be added to drawing.

Bolt Head -- Alter C datum lug specification due to ejector retaining pin hole location.

Other topics discussed during review:

Mayfield will investigate a common carton for the M/710 and M/597.

The DAT rifles will be assembled in Mayfield.

Design change of the Receiver Insert to cover the gap between the safety arm/rec. insert/stock, also include "F" and "S" designations molded into rec. insert.

Discussed/reviewed the M/700 firing pin lock design and incorporating into M/710.

NEW PRODUCT PROPOSAL

PRODUCT DESCRIPTION: Sportsman Model 710 Bolt Action Rifle

This proposal is to develop a low cost, high margin, centerfire bolt action rifle targeted at the economy price market. Development of the Model 710 should be based on:

- Reduced Cost Of Manufacture
- Reduced Manufacturing Lead Time
- Ease Of Use
- Low Development Cost
- Low Capital Investment
- Above Average Gross Profit (45%)

The Model 710 should provide the following features:

- Short, Long And Magnum Calibers
- Standard Barrel Lengths (22" & 24")
- Synthetic And Wood Stock Versions
- Floor Plate Or Magazine Box (Lowest Cost)
- Reasonable Bolt Action Trigger
- Scope Base Mounting Capability
- Optional Iron Sights
- Low Cost Metal Finish
- Right And Left Hand Configurations

Along with the standard configurations, scope combo packages will also be offered. These would include mounting and bore sighting a low cost 3-9 power scope on the rifle.

MARKET OVERVIEW:

Remington is currently the market share leader in the centerfire bolt action market. However, this position has been threatened as a result of aggressive competitive pricing, expanding competitive offerings and a saturation of high-end niche markets.

Significant volume in this market has migrated to the economy segment where Savage and USRAC have carved a niche and gained share. Remington is not positioned with the Model 700 family to compete effectively in this segment which is controlled by the mass merchants. A new introduction in the form of the Sportsman Model 710 will provide the opportunity for Remington to capture a share of this emerging market segment while maintaining a significant presence in the high-end segment with the Model 700.

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MF0048

PROPOSED TIMING: 2000 Catalog

VOLUME:

<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>
40,000	50,000	55,000

Replacement volume detail: 15,000 Replacement of the current M/700 ADL Syn

PRICING:

MSP: \$229

Target Std. Gross Profit: 45%

NSP: \$188

Target Cost: \$103

PROJECT RESPONSIBILITY: E-Town - D. Diaz

PREPARED BY: _____

APPROVED BY: _____

Np89.doc jrb 9/23/97

MF0049

Confidential - Subject to Protective Order
Williams v. Remington

CONFIDENTIAL 83

ESTATE AND
9/10/00 US 100X

MF0050

Description	Items	Part #	Vendor	Lead Time	Total Capital	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Aug
Carton Assembly		1444													
	Carton Dies	0						0		0	0				
	Insert Dies	0			\$19,000			6,333		6,333	6,333				
Box and Envelope Label (710)		993002													
		0													
Barrel Assembly Complete		305410			\$0										
Barrel Assembly		305400			\$0										
Barrel	Machine & gages	305315													
	Cut to length														
	Gundrill Bore														
	Ream Bore	hyd pump			\$5,080	6,080									
	Rifle Bore				\$15,900	7,950		7,950							
	Stress Relieve	baskets			\$7,000		7,000								
	Turn OD	gages			\$5,000		5,000								
	Face and Chamber	gages			\$31,000		15,000	14,000	2,000						
	Face and Chamber	machine			\$189,448	63,149				63,149		63,149			
	Cut off and crown Muzzle	chuck head			\$15,000				15,000						
	Drill and Tap Holes, Mill Slot	fixture & gage			\$7,600			7,600							
	Wash	0			\$0										
	Heat Treat				\$175,000		58,333		58,333	58,333					
	Inspect Hardness				\$15,000				15,000						
	Acid Wash	0			0										
	Centerless Polish	0			0										
	Eddy Current Test				\$14,500		34,833		34,833	34,833					
	Press Barrel to Receiver				\$11,000	11,000									
	Rollmark				6,300			6,300							
	Angularity Straighten				3,500		3,500								
	Centerless Polish				0										
	Glass Bead Blast				2,500		2,500								
	Black Oxide				6,000		6,000								
Receiver	LT15	300340			\$436,756	145,585				145,585	145,585				
	CMM				\$45,000			22,500		22,500					
	CMM Gage														
	Vibratory Deburr														
Receiver Insert Assembly Complete	Comparator and fixture	300401			\$12,000		2,500	2,500	8,000						
Receiver Insert Assembly	ultrasonic weld fixture	300400			\$4,000			4,000							
Receiver Insert	Hanson Mold	300327			\$48,000			\$48,000							
	PPI Fixture				\$2,500			2,500							
Side Plate	Stamping Die	300333			\$13,000			4,333		4,333	4,333				
	PPI Fixture				\$1,500					1,500					
Scar Safety Cam		15666			\$0										
	PPI Fixture				\$ 3,000.00			1,500			1,500				
Trigger	PM Mold	15280			\$15,225			7,613			7,613				
	PPI Fixture				\$ 3,000.00			1,500		1,500					
Trigger Connector		19461			\$ 3,000.00			1,500		1,500					
Safety Arm	Stamping Die	300408			\$25,562			12,776			12,776				
	PPI Fixture				\$2,400			1,200		1,200					
Lock tumbler	MIM Mold	??			\$35,000		17,500			17,500					
Safety Snap Washer	Stamping Die	17044			\$0										
	PPI Fixture				\$2,400			1,200		1,200					
Bolt Stop	PM Die	300345			\$6,820			6,820							
	PPI Fixture	0			\$1,500					1,500					

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ME0051

Description	Items	Part #	Vendor	Leadtime	Total Capital	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Aug
Recoil Bracket	Stamping Die	300361			\$0										
Bolt Assembly Complete		7777			\$0										
Bolt Body Assembly	Brazing Machine	300403			\$98,000		32,667		32,667	32,667					
	Deplate Tanks				\$9,500				9,500						
	glass bead blast				\$2,500				2,500						
Bolt Body	Gages at Machining	300339			\$4,500			1,500		3,000					
Bolt Handle	Machining Fixtures& Gages	300370			\$12,500		6,250	6,250							
Bolt Handle Blank	Investment Cast Mold	300360			\$12,575	6,288			6,288						
	PPI Fixture	0			\$2,500		1,200	1,300							
Bolt Head Assembly	Assy Fixture	305390			\$9,100			4,100							
Bolt Head	Edgetek Grind	43800			\$43,800		21,900		21,900						
	Machining Fixtures	174800			\$174,800	69,920			104,880						
	Machine Ejector Retaining				\$15,000		7,500		7,500						
	Machine Retaining Pin Hole				\$16,000		7,500		7,500						
	Punch Form Ejector				\$10,000		5,000		5,000						
Extractor	PPI Fixture	93712			\$3,800				3,300						
Firing Pin Assembly	Assy Fixture	300404			\$4,500		4,500								
Rolt Plug	Plastic Mold	300368	Pro	22 weeks	\$38,088	12,696		12,696							
Bolt Plug Insert	PPI Fixture	300346			\$1,000			1,500		1,500					
Firing Pin Head	MIM Mold	300336			\$37,500		12,500		12,500	12,500					
	PPI Fixture				\$1,500			1,500							
Front Sight Assembly	Assembly Press				\$4,200				4,200						
Front Sight	PM Mold	94084			\$0										
Front Sight Ramp	PM Mold	94657			\$0										
Rear Sight Assembly		103145			\$0										
Rear Sight Aperture	Machining Fixture	97681			\$9,000			4,000	5,000						
Rear Sight Aperture Blank	MIM Mold	93906			\$0										
Rear Sight Base	MIM Mold	103531			\$0										
Rear Sight Slide	MIM Mold	94335			\$0										
Stock Assy															
Stock Assembly	Fixture	7777			\$2,800					2,800					
Stock	Plastic Mold	7777	Pro	22 weeks	\$150,300	50,100		50,100	50,100						
	PPI Fixture	0			\$4,500		4,500								
Front Screw Bushing	Family plastic mold	15161			\$12,000			4,000		4,000	4,000				
Middle Screw Bushing	see front screw bushing	7777			\$0										
Rear Screw Bushing	see front screw bushing	7777			\$0										
Magazine Latch	Plastic Mold	300362			\$33,480	11,160		11,160	11,160						
	PPI Fixture				\$0										
Magazine Assembly		305395			\$0										
Magazine Box	Stamping Die	300363	Pro	22 weeks	\$46,500	15,500		15,500	15,500						
	PPI fixture				\$4,500		2,250		2,250						
Magazine Follower	tic Mold (family w/ bottom)	300364			\$78,786	26,262		26,262	26,262						
	PPI fixture				\$3,000			3,000							
Magazine Bottom	ic Mold (family w/ follower)	300365			\$0										
	PPI fixture				\$0										
Magazine Spring	Stamping Die	300405	Pro	24 weeks	\$0										
	PPI fixture				\$0										

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ME0052

Description	Items	Part #	Vendor	Lead time	Total Capital	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Aug
Gallery	Design				\$15,000	15,000									
	1st installment				\$100,000		100,000								
	2nd installment				\$140,000			140,000							
	3rd installment				\$45,000				45,000						
	Snails				\$25,000				25,000						
TOTAL					\$2,497,210	440,690	357,433	443,693	543,869	416,235	182,141	63,149	0	0	0

ME0053

Williams v. Remington

ME0055

Model 710 T2 Constraints						1st Quarter		2nd Quarter				
ID	Task Name	Part #	Duration	Finish	1st Quarter		2nd Quarter					
					Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
22	Color Racks		6 wks	Fri 12/31/99								
23	Machining Fixture & Gages - Design & Build		12 wks	Fri 2/11/00								
24	Receiver	300340	95 days	Fri 3/31/00								
25	Receiver Material		7 wks	Fri 1/7/00								
26	LT-15 MY Machine		10 wks	Fri 3/31/00								
27	Cylindrical Grinder		4 wks	Fri 12/17/99								
28	CMM for Receiver, Bolt Body & Bolt Head		6 wks	Fri 12/31/99								
29	Fixtures & Gages		10 wks	Fri 1/28/00								
30	Receiver Insert Assembly Complete	300401	110 days	Fri 4/21/00								
31	Receiver Insert Assembly	300400	20 days	Fri 12/17/99								
32	Receiver Insert	300327	3 wks	Fri 12/10/99								
33	Threaded Insert	300347	4 wks	Fri 12/17/99								
34	Side Plate	300333	1 day	Mon 11/22/99								
35	Side Plate Pin	300328	8 wks	Fri 1/14/00								
36	Sear Safety Cam	15666	1 day	Mon 11/22/99								
37	Pivot Pin	300351	6 wks	Fri 12/31/99								
38	Sear Spring	17047	4 wks	Fri 12/17/99								
39	Trigger	15280	1 day	Mon 11/22/99								
40	Trigger Connector	19461	1 day	Mon 11/22/99								
41	Trigger Screw Front	17053	1 day	Mon 11/22/99								
42	Trigger Engagement Screw	90028	1 day	Mon 11/22/99								

Project: Model 710 T2 Constraints

Date: Fri 11/12/99

Task

Split

Progress

Milestone

Summary

Rolled Up Task

Rolled Up Split

Rolled Up Milestone

Rolled Up Progress

External Tasks

Project Summary

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Williams v. Remington

ME0056

Model 710 T3 Constraints						Quarter		1st Quarter			2nd Quarter		
ID	Task Name	Part #	Duration	Finish	Start	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
43	Trigger Spring	15400	1 day	Mon 11/22/99									
44	Trigger Stop Screw	15481	1 day	Mon 11/22/99									
45	Safety Arm	300408	22 wks	Fri 4/21/00									
46	Safety Detent Spring	300407	4 wks	Fri 12/17/99									
47	Lock Tumbler	300420	1 day	Mon 11/22/99									
48	Lock Detent		1 day	Mon 11/22/99									
49	Safety Pivot Pin	300352	8 wks	Fri 1/14/00									
50	Snap Washer	17044	1 day	Mon 11/22/99									
51	Bolt Stop	300345	22 wks	Fri 4/21/00									
52	Receiver Plug Screws	17034	1 day	Mon 11/22/99									
53	Recoil Bracket	300361	8 wks	Fri 1/14/00									
54	Bolt Assembly Complete		95 days	Fri 3/31/00									
55	Bolt Body Assembly	300403	95 days	Fri 3/31/00									
56	Induction Braze Equipment		10 wks	Fri 1/28/00									
57	Bolt Body	300339	50 days	Fri 1/28/00									
58	Bolt Body Material		7 wks	Fri 1/7/00									
59	LT-15 MY Delivery		10 wks	Fri 1/28/00									
60	Induction Braze		10 wks	Fri 1/28/00									
61	Gages & Fixtures - Design & Build		10 wks	Fri 1/28/00									
62	Bolt Handle	300370	95 days	Fri 3/31/00									
63	Bolt Handle Mold		19 wks	Fri 3/31/00									

Project: Model 710 T3 Constraints

Date: Fri 11/12/99

Task

Split

Progress

Milestone

Summary

Rolled Up Task

Rolled Up Split

Rolled Up Milestone

Rolled Up Progress

External Tasks

Project Summary

Page 3 of 6

On
Lst

On
Lst

30-Aug-99

	69,000 597s 0 710s	51,300 597s 20,000 710s	58,400 597s 20,000 710s	58,400 597s 30,000 710s
Total Units Produced to the Warehouse	69,000	71,300	78,400	88,400
Total Standard Hours Earned	71,162	71,279	78,602	87,787
Sales Value of Units Warehoused	10,065,381	11,883,392	12,919,105	15,119,105
Standard Cost of Goods Warehoused				
Direct Material Costs	3,703,154	3,604,201	3,985,250	4,410,743
Direct Labor Costs	697,358	700,541	772,298	863,333
Variable Overhead Costs	2,182,089	2,265,885	2,351,372	2,499,110
Fixed Overhead Costs	948,241	1,260,535	1,282,228	1,321,584
Total Overhead	3,130,330	3,526,420	3,633,600	3,820,694
Total Standard Cost of Production	7,530,842	7,831,161	8,391,147	9,094,769
Standard Cost of Production per Gun	109.14	109.83	107.03	102.88
Standard Mfg. Contribution Margin	2,534,539	4,052,230	4,527,957	6,024,336
	25.2%	34.1%	35.0%	39.8%
Assumptions				
Head Count	37.9	37.9	41.8	46.7
NSP				
597 (2000 budgeted Mix)	145.88	145.88	145.88	145.88
710	N/A	220.00	220.00	220.00
Material Cost				
597 (2000 budgeted Mix)	53.67	53.67	53.67	53.67
710	N/A	42.55	42.55	42.55
Labor				
597 (2000 budgeted Mix)	10.11	10.11	10.11	10.11
710	N/A	9.10	9.10	9.10
Overhead Rate	448.9%	503.4%	470.5%	442.6%
Overhead Costs				
597	45.37	50.88	47.55	44.73
710	N/A	45.83	42.83	40.29
Total Costs				
597	109.14	114.65	111.33	108.50
710	N/A	97.48	94.48	91.94
Margin				
597	36.73	31.22	34.55	37.37
710	N/A	122.52	125.52	128.06
Capital	N/A	2,358,528	2,358,528	2,358,528
Startup Costs	N/A	-	-	-
Working Capital (excluding A/R)	N/A	323,957	323,957	461,707

MF0060

REMINGTON ARMS COMPANY, INC.
FIREARMS - MAYFIELD

08/30/99

C:\windows\TEMP\{M710 estimate rev4.xls}m710 est Mayfield run times

		M/710 Estimate 8/30/99						
PART DESCRIPTION	Part #	Material \$	Run Rate (hrs/pc)	Labor \$	Fixed O.H. \$	Var O.H. \$	Total O.H. \$	Total
Document Envelope Assembly	1721	\$ 0.09		\$ -	\$ -	\$ -	\$ -	\$ 0.09
Document Envelope	1649	0.08		-	-	-	-	0.08
Users manual	3391	0.15		-	-	-	-	0.15
Product Owners Card	1426	0.03		-	-	-	-	0.03
Remington Authorized Gunsmith	3413	0.07		-	-	-	-	0.07
Safety Booklet	3499	0.10		-	-	-	-	0.10
Oval Label	3491	0.01		-	-	-	-	0.01
Carton Assembly	1444	2.05		-	-	-	-	2.05
Box and Envelope Label (710)	993002	0.04		-	-	-	-	0.04
Shelf Talker		0.14		-	-	-	-	0.14
Barrel Assembly Complete	305410		0.0790	0.71	1.27	2.27	3.55	4.25
Barrel Assembly	3305400			-	-	-	-	-
Barrel	305315	4.80	0.3866	4.09	7.37	13.14	20.51	29.40
Receiver	300340	1.76	0.0055	0.06	0.10	0.19	0.29	2.11
Receiver Insert Assembly Complete	????		0.0530	0.47	0.85	1.52	2.38	2.85
Receiver Insert Assembly	????		0.0050	0.04	0.08	0.14	0.22	0.27
Receiver Insert	300327	0.62		-	-	-	-	0.62
Threaded Insert	300347	0.04		-	-	-	-	0.04
Side Plate	300333	0.09	0.0010	0.01	0.02	0.03	0.05	0.15
Side Plate Pin (2)	300328	0.12	0.0010	0.01	0.02	0.03	0.05	0.18
Sear Safety Cam	15666	0.94		-	-	-	-	0.94
Pivot Pin (3)	300361	0.18		-	-	-	-	0.18
Sear Spring	17047	0.02		-	-	-	-	0.02
Trigger	15280	1.53		-	-	-	-	1.53
Trigger Connector	19461	1.03		-	-	-	-	1.03
Trigger Screw Front	17053	0.10		-	-	-	-	0.10
Trigger Engagement Screw	91128	0.03		-	-	-	-	0.03
Trigger Spring	15400	0.03		-	-	-	-	0.03
Trigger Stop Screw	15481	0.06		-	-	-	-	0.06
Safety	300408	0.31		-	-	-	-	0.31
Safety Pivot Pin	300352	0.06		-	-	-	-	0.06
Safety Spring	300343	0.05		-	-	-	-	0.05
Bolt Stop	300345	0.19	0.0010	0.01	0.02	0.03	0.05	0.25
Receiver Plug Screws (4)	17034	0.12		-	-	-	-	0.12
Recoil Bracket	300361	0.19	0.0010	0.01	0.02	0.03	0.05	0.25
Bolt Assembly Complete	????			-	-	-	-	-
Bolt Body Assembly	????		0.0275	0.29	0.53	0.94	1.46	1.75
Bolt Body	300339	0.74	0.0032	0.03	0.06	0.11	0.17	0.94
Bolt Handle	300370		0.0120	0.13	0.23	0.41	0.64	0.76
Bolt Handle Blank	300360	1.63		-	-	-	-	1.63
Bolt Handle Pin	300329	0.06		-	-	-	-	0.06
Bolt Head Assembly	305390		0.0580	0.52	0.94	1.67	2.60	3.12
Bolt Head	300338	1.75	0.0809	0.86	1.54	2.75	4.29	6.90
Extractor	93712	0.77		-	-	-	-	0.77
Ejector	300342	0.16	0.0010	0.01	0.02	0.03	0.05	0.22
Ejector Spring	????	0.03		-	-	-	-	0.03
Ejector Pin	94555	0.01		-	-	-	-	0.01

MF0061

REMINGTON ARMS COMPANY, INC.
FIREARMS - MAYFIELD

08/30/99

C:\windows\TEMP\j[M710 estimate rev4.xls]m710 est Mayfield run times

		M/710 Estimate 8/30/99						
PART DESCRIPTION	Part #	Material \$	Run Rate (hrs/pc)	Labor \$	Fixed O.H. \$	Var O.H. \$	Total O.H. \$	Total
Bolt Assembly Pin	300330	0.10	0.0010	0.01	0.02	0.03	0.05	0.16
Firing Pin Assembly	????		0.0070	0.06	0.11	0.20	0.31	0.38
Bolt Plug	300368	0.25		-	-	-	-	0.25
Bolt Plug Insert	300346	0.29		-	-	-	-	0.29
Firing Pin	300334	0.27	0.0010	0.01	0.02	0.03	0.05	0.33
Firing Pin Tip	300335	1.60	0.0015	0.02	0.03	0.05	0.08	1.70
Firing Pin Head	300336	1.50	0.0020	0.02	0.04	0.07	0.11	1.63
Firing Pin Spring	????	0.14		-	-	-	-	0.14
Front Sight	94084	0.82		-	-	-	-	0.82
Front Sight Ramp	94657	1.13	0.0020	0.02	0.04	0.07	0.11	1.26
Front Sight Ramp Screws (2)	28505	0.09		-	-	-	-	0.09
Rear Sight Assembly	103146			-	-	-	-	-
Elevation Screw	90906	0.02		-	-	-	-	0.02
Rear Sight Aperture	94333	0.14	0.0010	0.01	0.02	0.03	0.05	0.20
Rear Sight Base	103531	0.97	0.0010	0.01	0.02	0.03	0.05	1.03
Rear Sight Slide	94335	0.47	0.0050	0.05	0.10	0.17	0.27	0.79
Windage Screw	90904	0.02		-	-	-	-	0.02
Rear Sight Base Screw (2)	28505	0.09		-	-	-	-	0.09
Stock Assembly Complete	????		0.0160	\$ 0.14	0.26	0.46	0.72	0.86
Stock Assembly	????			-	-	-	-	-
Stock	????	5.38		-	-	-	-	5.38
Front Screw Bushing	15181	0.13		-	-	-	-	0.13
Middle Screw Bushing	????	0.05		-	-	-	-	0.05
Rear Screw Bushing	????	0.05		-	-	-	-	0.05
Grip Cap	97971	0.18		-	-	-	-	0.18
Recoil Pad	97973	1.63		-	-	-	-	1.63
Recoil Pad Screw (2)	98008	0.05		-	-	-	-	0.05
Magazine Latch	300362	0.25		-	-	-	-	0.25
Magazine Latch Spring	????	0.02		-	-	-	-	0.02
Magazine Latch Pin	300371	0.04	0.0010	0.01	0.02	0.03	0.05	0.10
Sling Swivel Stud (2)	300096	0.14		-	-	-	-	0.14
Takedown Screw (2)	????	0.16		-	-	-	-	0.16
Rear Takedown Screw	????	0.08		-	-	-	-	0.08
Magazine Assembly	????		0.0083	0.07	0.13	0.24	0.37	0.45
Magazine Box	300363	2.79	0.0010	0.01	0.02	0.03	0.04	2.84
Magazine Follower	300364	0.26		-	-	-	-	0.26
Magazine Bottom	300365	0.26		-	-	-	-	0.26
Magazine Spring	17028	0.42		-	-	-	-	0.42
Freight on Parts		0.25						0.25
Value Added Cost of:								
Proof/Gallery/Inspect/Pack		1.15	0.1500	1.34	2.42	4.31	6.73	9.22
Total Cost		\$ 41.38	0.9136	\$ 9.05	\$ 16.31	\$ 29.07	\$ 45.38	\$ 95.81

MF0062

REMINGTON ARMS COMPANY, INC.
FIREARMS - MAYFIELD

2000 Budget Overhead Summary

	Based on 58,400 597 Before 7,250 710 add on	Add 10,600 597	Add 20,000 710s Reduce 597 7100	Add 20,000 710s	Add 30,000 710s	
Overhead Costs	Budgeted Overhead	Adj	Total 69,000 597s	Total 51,300 597 20,000 710s	Total 58,400 597s 20,000 710s	Total 58,400 597s 30,000 710s
Staffing Costs						Assumptions
7110500 Salaries - Exempt	484,994		484,994	484,994	484,994	484,994
7130002 Indirect Labor	257,439		257,439	257,439	257,439	257,439
7130005 Overtime Premium	14,678		14,678	14,678	14,678	14,678
Employee Benefits	621,408	62,136	683,544	63,982	685,390	727,009
7450501 Training	14,400		14,400	14,400	14,400	14,400
7455010 Tuition Refund	11,200		11,200	11,200	11,200	11,200
7510500 Employee Recreation Expense	8,000		8,000	8,000	8,000	8,000
7550500 Travel Expense	18,090		18,090	18,090	18,090	18,090
7580500 Entertainment Expense	2,010		2,010	2,010	2,010	2,010
7660500 Subscriptions & Publications	1,600		1,600	1,600	1,600	1,600
8880500 Memberships	1,630		1,630	1,630	1,630	1,630
Total Staffing	1,435,450	62,136	1,497,585	63,982	1,499,432	1,541,051
Materials and Supplies						
7650500 Operating Supplies	24,268	4,405	28,673	5,881	30,149	8,471
7840500 Safety Costs	6,728		6,728	6,728	6,728	6,728
8230150 Prototype Work	18,720		18,720	4,680	23,400	4,680
8710002 Variable Tools	17,656		17,656	6,909	24,565	6,909
8710120 Essential Materials	303,826	81,120	384,946	100,934	404,760	138,000
8710122 Tool/Gauge/Fixtures	10,003		10,003	2,899	12,902	2,899
8710505 Vendor Rework	6,835		6,835	1,981	8,816	1,981
7670500 Maintenance Other	53,574		53,574	10,715	64,289	10,715
8710550 Maintenance Material Consumption	63,341		63,341	18,360	81,701	18,360
8710560 Maintenance Material Non Inventory	41,102		41,102	11,914	53,016	11,914
Total Materials and Supplies	546,052	85,525	631,577	164,272	710,325	203,924
Facilities and Utilities						
7720500 Contract Services - Not Maint	20,105		20,105	20,105	20,105	20,105
7720503 Contract Services - Maint	40,408		40,408	40,408	40,408	40,408
7810500 Equipment Rental & Lease	2,520		2,520	2,520	2,520	2,520
8710132 Waste Disposal	22,195		22,195	22,195	22,195	22,195
Total Facilities and Utilities	85,229		85,229	85,229	85,229	85,229
Other						
7820500 Non Capital Equipment	16,439		16,439	3,288	19,727	3,288
8820502 Postage	3,389		3,389	3,389	3,389	3,389
8870500 Contributions & Donations	2,198		2,198	2,198	2,198	2,198
8840500 Environmental fees	280		280	250	250	250
8960500 Miscellaneous Expenses	3,600		3,600	3,600	3,600	3,600
Kreda Credits	(58,894)	(4,285)	(63,179)	(4,370)	(58,264)	(7,283)
Total Other	(2,691)	(4,285)	(6,976)	(1,082)	(29,100)	(3,995)
Fixed Costs						
7910500 Telephone	21,648		21,648	21,648	21,648	21,648
8060500 Water Utilities	7,800		7,800	2,759	10,559	2,759
8090500 Electrical Utilities	178,433	7,255	185,688	47,363	225,797	59,057
8130500 Depreciation	705,905		705,905	259,530	965,435	259,530
8440500 Property Taxes	27,200		27,200	9,897	37,097	9,897
Total Fixed	940,986	7,255	948,241	319,549	1,260,535	341,242
Totals	\$ 2,979,700	\$150,630	\$3,130,330	\$ 546,721	\$3,526,420	\$ 653,900
Direct Labor Payments	\$ 590,227	\$107,130	\$ 697,358	\$ 110,313	\$ 700,541	\$ 182,070
Overhead Rates						
Variable Costs			312.9%	323.4%	304.5%	289.5%
Fixed Costs			136.0%	179.9%	166.0%	153.1%
Total			448.9%	503.4%	470.5%	442.6%
Overhead Increase/(Decrease) to 597			N/A	\$ 5.51	\$ 2.18	\$ (0.64)
Overhead 710				916,516	856,627	1,208,633
597 Overhead Based on 2000 Budget			3,130,330	2,327,332	2,649,439	2,649,439
Overhead Impact of 710				282,572	127,535	(37,378)
			3,130,330	3,526,420	3,633,600	3,820,694

MF0063

REMINGTON ARMS COMPANY, INC.
FIREARMS - MAYFIELD

30-Aug-99

2000 Budget Electricity

		50% each											
	Billing	Fixed	Variable		KW Usage	KW	Max Usage	Usage	Misc	Taxes	Total	Average	
	Days	Portion	Portion	KW Usage	Per Day	Charge	Interval	Charge	Charge	9.18%	Charge	Per KW	
December	31	126,450	126,147	252,597	8,148	8,712.27	963.74	8,613.30	37.00	1,593.88	18,956.45	0.075	
January	31	127,800	127,493	255,293	8,203	8,798.64	897.06	7,966.45	37.00	1,542.43	18,344.53	0.072	
February	28	107,100	106,843	213,943	7,641	7,474.19	908.02	8,072.78	37.00	1,430.61	17,014.59	0.080	
March	31	127,800	127,493	255,293	8,235	8,798.64	959.18	8,569.00	37.00	1,597.75	19,002.39	0.074	
April	30	121,500	121,208	242,708	8,090	8,395.55	961.00	8,586.72	37.00	1,562.37	18,581.64	0.077	
May	31	121,050	120,759	241,809	7,800	8,366.76	979.27	8,763.94	37.00	1,575.99	18,743.69	0.078	
June	30	131,850	131,534	263,384	8,779	9,057.78	912.59	8,117.09	37.00	1,580.05	18,791.91	0.071	
July	31	143,100	142,757	285,857	9,221	9,777.59	986.58	8,834.83	37.00	1,712.02	20,361.43	0.071	
August	31	129,150	128,840	257,990	8,322	8,885.02	1,011.24	9,074.07	37.00	1,652.04	19,648.13	0.076	
September	30	121,500	121,208	242,708	8,090	8,395.55	966.48	8,639.89	37.00	1,567.25	18,639.68	0.077	
October	31	114,750	114,475	229,225	7,394	7,963.66	956.43	8,542.41	37.00	1,518.65	18,061.73	0.079	
November	30	109,800	109,536	219,336	7,311	7,646.95	868.74	7,691.76	38.00	1,411.58	16,788.29	0.077	
	365	1,481,850	1,478,294	2,960,144	8,110	102,272.60		101,472.24	445.00	18,744.63	222,934.47	0.075	

597 budget

178,433.11

710 usage increase

44,501.36

14% 597 Decline

Confidential - Subject to Protective Order

Williams v. Remington

ME0064

REMINGTON ARMS COMPANY, INC.
 .REARMS - MAYFIELD

08/30/99

C:\windows\TEMP\I[M710 estimate rev4.xls]Start Up Costs

	1/31/00	2/29/00	3/31/00	4/30/00	5/31/00	6/30/00	7/31/00	Total
Direct Labor			7,109.76	8,809.92	10,200.96	6,800.64		32,921.28
From Overhead								
Setters	3,625.60	8,565.48	5,349.80	1,767.76		3,070.32	3,535.52	25,914.48
Maintenance	2,582.40	5,084.10	5,717.34	4,198.24	3,148.68	4,253.48	2,099.12	27,083.36
EBs	3,600.64	7,916.76	10,542.60	8,570.03	7,742.79	8,192.18	3,268.09	49,833.09
Other Costs								
Material for 1,000 Learning								
Guns (\$43.86/ea)			21,930.00	21,930.00				43,860.00
Material for 60 T&P								
Guns (\$43.86/ea)				1,315.80	1,315.80			2,631.60
Material for 30 DAT								
Guns (\$43.86/ea)						1,315.80		1,315.80
15,000 rns of Ammo			600.00	1,200.00	600.00	600.00		3,000.00
Disassembly & Rearrange			6,000.00					6,000.00
Other Costs	14,285.71	14,285.71	14,285.71	14,285.71	14,285.71	14,285.71	14,285.71	100,000.00
	24,094.35	35,852.05	71,535.22	62,077.47	37,293.95	38,518.13	23,188.45	292,559.61
1999 startup Costs								100,000.00
								392,559.61

MF0065

REMINGTON ARMS COMPANY, INC.
FIREARMS - MAYFIELD

08/30/99

C:\windows\TEMP\{M710 estimate rev4.xls}Head Count

	69,000 597s 0 710s	51,300 597s 20,000 710s	58,400 597s 20,000 710s	58,400 597s 30,000 710s
Guns Produced	69,000	71,300	78,400	88,400
Guns Per Day	285	295	324	365
Hours Earned	71,162	71,179	78,502	87,637
Hours Per Head Count (242*8 hrs)	1,936	1,936	1,936	1,936
Head count Required with no time off or OT	36.8	36.8	40.5	45.3
Vacation and Floating Holidays (3/242=1.23%)	0.5	0.5	0.5	0.6
Sick and Other 1.8%	0.7	0.7	0.7	0.8
Add 3% inefficiency	1.1	1.1	1.2	1.4
Less 3% OT	(1.1)	(1.1)	(1.2)	(1.4)
Required Head Count	37.9	37.9	41.8	46.6
Actual Head Count	37.5	38.5	39.5	40.5
Over/(Under) Staffing	(0.4)	0.6	(2.3)	(6.1)

MF0066

REMINGTON ARMS COMPANY, INC.
FIREARMS - MAYFIELD

08/30/99

C:\windows\TEMP\M710 estimate rev4.xls]710 capital by operation

In House Capital

Part Name	Operation	Equipment	Capital Required		Useful Lif	Depreciation
Barrel	Cut off		\$0			
	Drill	cones	\$9,960	Dec-99	10	996
	Ream		\$0		10	-
	Rifle	gages	\$9,800	Feb-00	10	980
	Wash & Stress Relieve	baskets	\$6,900	Feb-00	10	690
	Turn	gages	\$10,100	Feb-00	10	1,010
	Face & Chamber	gages	\$33,300	Apr-00	10	3,330
	Face & Chamber	machine	\$222,880	Mar-00	10	22,288
	Cut off and Crown	chuck	\$15,000	Jan-00	10	1,500
	wash and eddy current test	machine	\$75,000	Mar-00	10	7,500
	Induction Harden	machine	\$166,000	Mar-00	10	16,600
	Inspect Hardness	machine	\$12,000	Mar-00	10	1,200
	Drill and tap sight	fix & gages	\$7,600	Feb-00	10	760
	Roll mark	fix & gages	\$6,300	Apr-00	10	630
	Angularity Straighten	fix & gages	\$3,500	Feb-00	10	350
	Centerless Polish		\$0		10	-
	Glass Bead Blast	fixtures	\$2,500	Jan-00	10	250
	Color	racks	\$6,000	Jan-00	10	600
Bolt Head	Inspect Purchased Part					
	Blank	gage	\$2,500	Feb-00	10	250
	Superabrasive Grind Lugs	fix & gage	\$43,800	Feb-00	10	4,380
	CNC Machine Bolt Face					
	Complete	fix & gage	\$174,784	Mar-00	10	17,478
	CNC Machine Cam Cuts					
	Ejector Retaining Pin Hole	fix & gage	\$15,000	Mar-00	10	1,500
	CNC Machine Bolt Head					
	Retaining Pin Hole	fix & gage	\$15,000	Mar-00	10	1,500
	Punch Form Extractor					
	Rotation Notch	fix & gage	\$10,000	Jan-00	10	1,000
	Vendor Heat Treat		\$0		10	-
Bolt Body	Inspect Purchased Part					
	Blank	gage	\$2,000	Jan-00	10	200
	Machine Cam Cuts	machine	\$0	Feb-00	10	-
	Assemble Braze Bolt	machine	\$90,000	Mar-00	10	9,000
	Deplate	tanks	\$9,500	Jan-00	10	950
	Eddy Current Test		\$0		10	-
	Glass Bead Blast	fix	\$2,500	Jan-00	10	250
	Black Oxide		\$0		10	-
	Inspect Purchased Part					
	Blank	gage	\$2,500	Jan-00	10	250
Receiver	Machine A-load	machine & CM	\$513,831	Feb-00	10	51,383
	Machine B-load		\$0	Feb-00	10	-
	Vibratory tumble deburr		\$0		10	-
Barrel Assembly	Press Receiver to Barrel	fixture	\$0	Dec-99	Ilion Equip	10

MF0067

REMINGTON ARMS COMPANY, INC.
FIREARMS - MAYFIELD

08/30/99

C:\windows\TEMP\M710 estimate rev4.xls]710 capital by operation
Inspect for straightness gage \$3,500

Dec-99

10

350

**Final
Assembly**

Gallery

100yd range
snails
HVAC
other

\$100,000
\$30,000
\$25,000
\$10,000
\$100,000
\$65,000

Dec-99
Jul-00
Jun-00
Mar-00
Mar-00
Jul-00

25
25
10
25
25
25

4,000
1,200
2,500
400
4,000
2,600

\$1,801,755

Purchased Parts

Part #	Part Name	Capital	Tool	Vendor			Payments	83
300327	Receiver Insert	48,000	Mold	Hanson	Jun-99	5	9,600	
300333	Side Plate	10,000	Stamping Die		Dec-99	5	2,000	Mar-00
300334	Safety Arm	23,880	Stamping Die	NH Stamping	Dec-99	5	4,776	Mar-00
300345	Bolt Stop	6,820	PM	Sterling	Dec-99	5	1,384	Mar-00
300361	Recoil Bracket	2,225	Stamping Die	NH Stamping	Dec-99	5	445	Mar-00
300360	Bolt Handle Blank	12,800	Invest Cast Die	Parsteel	Dec-99	5	2,560	Mar-00
300366	Bolt H. Braze Shim	0	Use Paste	Lucas Milhaupt	Dec-99	5	-	Mar-00
300368	Bolt Plug	38,088	Mold	Par 4	Dec-99	5	7,618	Mar-00
300336	Firing pin head	23,000	MIM Mold	Megamet	Dec-99	5	4,600	Mar-00
300362	Mag Latch	33,480	Mold	Par 4	Dec-99	5	6,696	Mar-00
300363	Magazine Box	28,000	Mold	Morrissey	Dec-99	5	5,600	Mar-00
300364	Magazine Follower	33,800	Mold	Par 4	Dec-99	5	6,660	Mar-00
300365	Magazine Bottom	47,800	Mold	Par 4	Dec-99	5	9,576	Mar-00
	Stock	150,300	Mold	Par 4	Dec-99	5	30,060	Mar-00
	Styrofoam Bed	0	Die	Tuscorora		5	-	Mar-00
	PPI	38000						
		\$495,773						
	Total	\$2,297,528					253,430	
	Installation	\$61,000				10	6,100	
		<u>\$2,358,528</u>					<u>259,530</u>	

MF0068

REMINGTON ARMS COMPANY, INC.
FIREARMS - MAYFIELD

08/30/99

C:\windows\TEMP\[M710 estimate rev4.xls]Rev 3 vs 4

PART DESCRIPTION	(Decrease)/Increase	
	Material	Run Time
Carton Assembly	0.21	
Barrel Assembly Complete		(0.0095)
Barrel	(0.12)	0.1395
Receiver	(3.24)	(0.0645)
Receiver Insert Assembly		(0.0048)
Trigger	0.98	
Safety	(0.01)	(0.0015)
Safety Pivot Pin	(0.07)	
Snap Washer	(0.02)	
Bolt Stop	(0.09)	
Recoil Bracket	(0.01)	
Bolt Body	(1.76)	(0.0128)
Bolt Handle Blank	0.13	
Bolt Handle Pin	(0.01)	
Bolt Handle Brazing Shim	(0.05)	
Bolt Head Assembly		0.0428
Bolt Head	0.15	(0.0115)
Bolt Assembly Pin	(0.12)	
Bolt Plug	(0.69)	
Firing Pin Assembly		(0.0086)
Firing Pin	(0.03)	
Firing Pin Tip	0.32	
Firing Pin Head	1.17	
Front Sight	0.51	
Front Sight Ramp	0.28	
Rear Sight Slide		0.0015
Stock	(0.62)	
Middle Screw Bushing	(0.08)	
Rear Screw Bushing	(0.08)	
Magazine Latch	0.05	
Magazine Latch Pin	0.03	
Takedown Screw	0.08	
Rear Takedown Screw	0.04	
Magazine Box Assembly		(0.0026)
Magazine Follower	(0.03)	
Magazine Bottom	(0.03)	
Blank Part	(0.02)	
Black Oxide		0.0103
Final Assembly		0.0050
	(3.13)	0.0833

**Bold = Material change +/- 0.50
&/or time change +/- .005**

MF0069

REMINGTON ARMS COMPANY, INC.
FIREARMS - MAYFIELD

08/30/99

C:\windows\TEMP\[M710 estimate rev4.xls]Working Capital

Units of 710	<u>20,000</u>	<u>30,000</u>
Stores		
Theses are primarily specialty Cutters Assume 3 months in Inventory	37,500	56,250
Raw Material		
597 Raw material approaching 6 turns 2 months in Inventory	137,931	206,897
Work In Process		
597 WIP approaching 18 turns .75 Months in Inventory	108,232	151,410
Finished Goods		
Sale better than 597 1 Month in Inventory	<u>159,682</u>	<u>224,939</u>
Total Inventory	443,346	639,495
Increase in A/P		
45 Days of Raw Material & Cutters	<u>122,198</u>	<u>183,297</u>
Increase in Working Capital	<u>321,147</u>	<u>456,198</u>

MF0070

REMINGTON ARMS COMPANY, INC.
FIREARMS - MAYFIELD

C:\data\DC\Mayfield\New Products\1710 estimate rev4.xls\Start Up Costs

Matt,
Start up Costs + O/H w/lt
new Assumptions.

08/30/99

Tony
Denny

	8/31/99	9/30/99	10/31/99	11/30/99	12/31/99	Total 1999	1/31/00	2/29/00	3/31/00	4/30/00	5/31/00	6/30/00	7/31/00	Total 2000	Project Total
Direct Labor	1,183.96	3,188.64	3,188.64	4,555.20	3,671.92	15,988.36			7,109.76	8,809.92	10,200.96	6,800.64		32,921.28	48,909.64
From Overhead															
Setters	198.45	-	-	-	-	198.45	3,625.60	8,565.48	5,349.80	1,767.76		3,070.32	3,535.52	25,914.48	26,112.93
Maintenance	-	-	-	-	-	-	2,582.40	5,084.10	5,717.34	4,198.24	3,148.68	4,253.48	2,099.12	27,083.36	27,083.36
EBs	801.79	1,849.41	1,849.41	2,642.02	2,245.71	9,388.35	3,600.64	7,916.76	10,542.60	8,570.03	7,742.79	8,192.18	3,268.09	49,833.09	59,221.44
Other Costs															
Material for Receiver/Bolt Body		10,500.00	10,500.00	10,500.00	10,500.00	42,000.00									42,000.00
Material for 1,000 Learning Guns (\$43.86/ea)									21,930.00	21,930.00				43,860.00	43,860.00
Material for 60 T&P Guns (\$43.86/ea)										1,315.80	1,315.80			2,631.60	2,631.60
Material for 30 DAT Guns (\$43.86/ea)												1,315.80		1,315.80	1,315.80
15,000 rns of Ammo									600.00	1,200.00	600.00	600.00		3,000.00	3,000.00
Disassembly & Rearrange									6,000.00					6,000.00	6,000.00
Tooling & Inspection		16,250.00	16,250.00	16,250.00	16,250.00	65,000.00									65,000.00
Prototype Parts							8,000.00	8,000.00	8,000.00	8,000.00				32,000.00	32,000.00
Material Handling Purchases											19,333.33	19,333.33	19,333.33	58,000.00	58,000.00
Miscellaneous							286	286	286	286		286	286	2,000.00	2,000.00
1999 startup Costs	2,184.20	31,788.05	31,788.05	33,947.22	32,867.63	132,575.15	18,094.35	29,852.05	65,535.22	56,077.47	42,627.28	43,851.46	28,521.78	284,559.61	417,134.76

Looks \$50,000
Short

392,600 Budget
29.5

83

ME0071

M/700 Costs - 8/27/99									
PART DESCRIPTION	Part #	Material \$	Run Rate (hrs/pc)	Labor a/o	end or H \$	Var O.H. \$	Total O.H. \$	Piece Price	COMMENTS/ASSUMPTIONS
Document Envelope Assembly	1748	\$ 0.09							M/597 document envelope
Document Envelope	1649	\$ 0.08							and box assembly
Users manual	3391	\$ 0.15							
Product Owners Card	1426	\$ 0.03							
Remington Authorized Gunsmith	3413	\$ 0.07							
Safety Booklet	3499	\$ 0.10							
Remington Museum Flyer	3475	\$ -							
Oval Label	3491	\$ 0.01							
Document Envelope Assembly total									
Carton Assembly Complete	330031	\$ 2.05							Ilion Carton to avoid \$19000 Capital
Carton	1640								
Styrofoam bed	300185								
Box and Envelope Label (710)	993002								
Barrel Assembly Complete	305410		0.0790	a					final assy estimate
Barrel Assembly	305400			o					drawing level
Barrel	305315	\$4.80	0.3866	o					150% of .2577 run time, 8.38lbs/bbl
Receiver	300340	\$1.76	0.0055	o					Assume tubing on LT15 operator of .004 for a 4 min cycle
Receiver Insert Assembly Complete	300401		0.0530	a					150% of estimated 2.13min.
Receiver Insert Assembly	300400		0.0050	a					
Receiver Insert	300327	\$0.62							Ilion quote
Threaded Insert	300347	\$0.04							
Side Plate	300333	\$0.09	0.0010	o					
Side Plate Pin (2)	300328	\$0.12	0.0010	o					
Sear Safety Cam	15666	\$ 0.94							Ilion PMPD, key features on this make it not easily moved.
Pivot Pin (3)	300351	\$ 0.18							
Sear Spring	17047	\$ 0.02							Ilion 700

M/700 Costs - 8/27/99									COMMENTS/ASSUMPTIONS
PART DESCRIPTION	Part #	Material \$	Run Rate (hrs/pc)	Labor a/o	endor H \$	Var O.H. \$	Total O.H. \$	Piece Price	
Trigger	15280	\$ 1.53							Ilion 700, quoting issues
Trigger Connector	19461	\$ 1.03							Ilion 700
Trigger Screw Front	17053	\$ 0.10							Ilion 700
Trigger Engagement Screw	91128	\$ 0.03							Ilion 700
Trigger Spring	15400	\$ 0.03							Ilion 700
Trigger Stop Screw	15481	\$ 0.06							Ilion 700
Safety	300408	\$ 0.31							May increase with additional bend \$0.07
Safety Pivot Pin	300352	\$ 0.06							
Safety Spring	300407	\$ 0.05							new part
Bolt Stop	300345	\$ 0.19	0.0010						Assume outside PMPd base on a similar size parts quoted for the m99 and 597.
Receiver Plug Screws (4)	17034	\$ 0.12							M597
Recoil Bracket	300361	\$ 0.19	0.0010						Square Stamping
Bolt Body Assembly	300403		0.0275						Ilion run times due to experience. High -not grouped.
Bolt Body	300339	\$ 0.74	0.0032						5 min bar change
Bolt Handle	300370		0.0120						load unload time at machining
Bolt Handle Blank	300360	\$ 1.63							Investment cast using the m597 bolt @\$1.80 and bolt handle at \$.80 as a guide.
Bolt Handle Pin	300329	\$ 0.06							
Bolt Head Assembly	305390		0.0580						150% would be .0875
Bolt Head	300338	\$ 1.60	0.0809		\$ 0.15				Assumed Ilion quoted blank cost. Run time assumes full cut time could drop to .034 depending on machine
Extractor	93712	\$ 0.77							
Ejector	300342	\$ 0.16	0.0010						
Ejector Spring	300367	\$ 0.03							597 \$0.02
Ejector Pin	94555	\$ 0.01							
Bolt Assembly Pin	300330	\$ 0.10	0.0010						Second loading raises price from a normal pin.
Firing Pin Assembly	300404		0.0070						Added , not in estimates
Bolt Plug	300368	\$ 0.25							Par 4
Bolt Plug Insert	300346	\$ 0.29							Higher S risk, unquoted part
Firing Pin	300334	\$ 0.27	0.0010						

M/700 Costs - 8/27/99									COMMENTS/ASSUMPTIONS
PART DESCRIPTION	Part #	Material \$	Run Rate (hrs/pc)	Labor a/o	endor H \$	Var O.H. \$	Total O.H. \$	Piece Price	
Firing Pin Tip	300335	\$ 1.50	0.0015	o	\$ 0.10				
Firing Pin Head	300336	\$ 1.45	0.0020	o	\$ 0.05				Parmatech MIM part
Firing Pin Spring	300399	\$ 0.14							Ilion 700 cost
Front Sight	94084	\$ 0.82							Higher due to Ilion part, not outsourced
Front Sight Ramp	94657	\$ 1.13	0.0028	o					Ilion 700 cost
Front Sight Ramp Screws (2)	28505	\$ 0.09		o					m597
Rear Sight Assembly	103146			n/a					level for drawings only
Elevation Screw	90906	\$ 0.02							m597
Rear Sight Aperture	94333	\$ 0.14	0.0010	o					m597
Rear Sight Base	103531	\$ 0.97	0.0010	o					m597
Rear Sight Slide	94335	\$ 0.47	0.0050	o					m597
Windage Screw	90904	\$ 0.02							597
Rear Sight Base Screw (2)	28505	\$ 0.09							597 #
Stock Assembly Complete	????			n/a					level for drawings only
Stock Assembly	????		0.0160	a					Not in any assumptions: This is for assy of butt plate+50%
Stock	????	\$ 5.38							Par 4
Front Screw Bushing	15161	\$ 0.13							
Middle Screw Bushing	????	\$ 0.05							
Rear Screw Bushing	????	\$ 0.05							
Grip Cap	97971	\$ 0.18							
Recoil Pad	97973	\$ 1.63							
Recoil Pad Screw (2)	98008	\$ 0.05							
Magazine Latch	300362	\$ 0.25							Based on similar parts
Magazine Latch Spring	300398	\$ 0.02							
Magazine Latch Pin	300371	\$ 0.04	0.0010	o					
Sling Swivel Stud (2)	300096	\$ 0.14							M/597 Price
Takedown Screw (2)	????	\$ 0.16							
Rear Takedown Screw	????	\$ 0.08							

M/700 Costs - 8/27/99									COMMENTS/ASSUMPTIONS
PART DESCRIPTION	Part #	Material \$	Run Rate (hrs/pc)	Labor a/o	end or H \$	Var O.H. \$	Total O.H. \$	Piece Price	
Magazine Assembly	305395		0.0083	a					30 sec to assemble in house
Magazine Box	300363	\$ 2.79	0.0010	a					Ilion quote;no quotes to date m700 \$2.02
Magazine Follower	300364	\$ 0.26							PAR 4
Magazine Bottom	300365	\$ 0.26							PAR 4
Magazine Spring	300405	\$ 0.42							M/700 spring price;no quotes
Gallery;inspect;pack		1.15	0.1500	a					Estimate of 6 min + 50%,.25 for ammo
Total Cost		\$ 40.65	0.9136		\$ 0.30				
			51.4688						
			\$ 0.30						
			40.6513						
			92.4202						

M/710 Capital

In House Capital

Part Name	Operation	Equipment	Capital Required	
Barrel	Cut off		\$0	
	Drill	cones	\$9,960	Dec-99
	Ream		\$0	
	Rifle	gages	\$9,800	Feb-00
	Wash&Stress Relieve	baskets	\$6,900	Feb-00
	Turn	gages	\$10,100	Feb-00
	Face&Chamber	gages	\$33,300	Apr-00
	Face&Chamber	machine	\$222,880	Mar-00
	Cut off and Crown	chuck	\$15,000	Jan-00
	wash and eddy current test	machine	\$75,000	Mar-00
	Induction Harden	machine	\$166,000	Mar-00
	Inspect Hardness	machine	\$12,000	Mar-00
	Drill and tap sight	fix & gages	\$7,600	Feb-00
	Roll mark	fix & gages	\$6,300	Apr-00
	Angularity Straighten	fix & gages	\$3,500	Feb-00
	Centerless Polish		\$0	
	Glass Bead Blast	fixtures	\$2,500	Jan-00
	Color	racks	\$6,000	Jan-00

Bolt Head	Inspect Purchased Part Blank	gage	\$2,500	Feb-00
	Superabrasive Grind Lugs	fix & gage	\$43,800	Feb-00
	CNC Machine Bolt Face Complete	fix & gage	\$174,784	Mar-00
	CNC Machine Cam Cuts, Ejector Retaining Pin Hole	fix & gage	\$15,000	Mar-00
	CNC Machine Bolt Head Retaining Pin Hole	fix & gage	\$15,000	Mar-00
	Punch Form Extractor Rotation Notch	fix & gage	\$10,000	Jan-00
	Vendor Heat Treat		\$0	
	Inspect for Hardness		\$0	
	Black Oxide		\$0	

Bolt Body	Inspect Purchased Part Blank	gage	\$2,000	Jan-00
	Machine Cam Cuts	machine	\$0	Feb-00
	Assemble Braze Bolt	machine	\$90,000	Mar-00
	Deplate	tanks	\$9,500	Jan-00
	Eddy Current Test		\$0	
	Glass Bead Blast	fix	\$2,500	Jan-00
	Black Oxide		\$0	

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Receiver	Inspect Purchased Part Blank	gage	\$2,500	Jan-00
	Machine A-load	machine&CMM	\$513,831	Feb-00
	Machine B-load		\$0	Feb-00
	Vibratory tumble deburr		\$0	

Barrel Assembly	Press Receiver to Barrel	fixture	\$0	Dec-99	llion Equip
	Inspect for straightness	gage	\$3,500	Dec-99	

Final Assembly	Gallery	100yd range	\$100,000	Dec-99
		snails	\$30,000	Jul-00
		HVAC	\$25,000	Jun-00
		other	\$10,000	Mar-00
			\$100,000	Mar-00
			\$65,000	Jul-00

Purchased Parts						Payments		
Part #	Part Name	Capital	Tool	Vendor				
300327	Receiver Insert	48,000	Mold	Hanson	Jun-99			
300333	Slide Plate	10,000	Stamping Die		Dec-99	Mar-00	Apr-00	
300334	Safety Arm	23,880	Stamping Die	NH Stamping	Dec-99	Mar-00	Apr-00	
300345	Bolt Stop	6,820	PM	Sterling	Dec-99	Mar-00	Apr-00	
300361	Recoil Bracket	2,225	Stamping Die	NH Stamping	Dec-99	Mar-00	Apr-00	
300360	Bolt Handle Blank	12,800	Invest Cast Die	Fansteel	Dec-99	Mar-00	Apr-00	
300366	Bolt H. Braze Shim	0	Use Paste	Lucas Milhaupt	Dec-99	Mar-00	Apr-00	
300368	Bolt Plug	38,088	Mold	Par 4	Dec-99	Mar-00	Apr-00	
300368	Firing pin head	23,000	MIM Mold	Megamet	Dec-99	Mar-00	Apr-00	
300362	Mag Latch	33,480	Mold	Par 4	Dec-99	Mar-00	Apr-00	
300363	Magazine Box	28,000	Mold	Morrissey	Dec-99	Mar-00	Apr-00	
300364	Magazine Follower	33,300	Mold	Par 4	Dec-99	Mar-00	Apr-00	
300365	Magazine Bottom	47,880	Mold	Par 4	Dec-99	Mar-00	Apr-00	
	Stock	150,300	Mold	Par 4	Dec-99	Mar-00	Apr-00	
	Styrofoam Bed	0	Die	Tuscorora		Mar-00		
	PPI	38000						
		\$495,773						
Total		\$2,297,528						

MF0077

Teams	Process	Nov-99	Dec-99	Jan-00	Feb-00	Mar-00	Apr-00	May-00	Jun-00	Jul-00
1	Barrel									
2	Bolt Head									
3	Receiver									
4	Bolt Body									
5	Assembly									

TOTALS	Direct					4	6	6	4	
	Indirect	0.5	2	2.5	4.5	2.5	1		1.5	2
	Maint.	0.5	2	3	4.5	4.5	4	3	3.5	2

 = 0.5 indirect & 0.5 maint.

 = 1 indirect & 1 maint.

 = 2 direct & 1 maint.

New Parts

Part #	Part Name	Material \$	Ilion Quotes or Estimates
300327	Receiver Insert	0.62	
300333	Side Plate		0.09
300334	Safety Arm	0.31	
300345	Bolt Stop	0.19	
300361	Recoil Bracket	0.193	
300360	Bolt Handle Blank	1.63	
300366	Bolt H. Braze Shim	0	
300368	Bolt Plug	0.25	
300336	Firing pin head	1.45	
300362	Mag Latch	0.25	
300363	Magazine Box	2.79	
300364	Magazine Follower	0.259	
300365	Magazine Bottom	0.256	
	Stock	5.38	
300347	Threaded Insert	0.04	
300328	Side Plate Pin (2)	0.12	
300351	Pivot Pins (3)	0.18	
300352	Safety Pivot Pin	0.06	
300407	Safety Spring		0.03
300329	Bolt Handle Pin	0.06	
300342	Ejector		0.16
300330	Bolt Assy Pin	0.1	
300346	Bolt Plug Insert	0.29	
300346	Tumbler	0.41	
	lock plunger	0.05	
	lock spring	0.01	
	key		
300334	Firing Pin	0.27	
300335	Firing Pin Tip	1.5	
	Firing Pin Spring		0.14
	Middle Screw Bushing	0.05	
	Rear Screw Bushing	0.05	
300405	Mag Latch Spring	0.05	
300371	Mag Latch Pin	0.04	
300096	Sling Swivel Stud (2)		0.14
	Take Down Screw R		0.08
	Take Down Screw M		0.08
	Take Down Screw F		0.08
300338	Bolt Head Blank		1.6
	Barrel Blank	4.92	
	Receiver Blank	1.76	
	Bolt Body	0.74	
	Carton Assy (Ilion)	2.05	

Total Material \$ New known to date	22.628
% of Total anticipated	53.73%

Total Material \$ Estimated or from M/700 costing	6.07
% of Total anticipated	14.41%

Total Add Use Parts	13.42
Add Use is	31.86%

% of total material cost know by quote	85.59%
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Add Use from M700

Part #	Part Name	Material \$	Quotes from Mayfield
1444	Carton Assy	2.05	
15666	Sear Safety Cam	0.94	
17047	Sear Spring	0.02	
15280	Trigger	1.53	
19461	Trigger Connector	1.48	
17053	Trigger Front Screw	0.11	0.032
91128	Engagement Screw	0.03	
15400	Trigger Spring	0.03	
15481	Trigger Stop Screw	0.06	0.032
17044	Snap Washer	0.09	
17034	Receiver Plug Screws	0.13	
93712	Extractor	0.78	
94555	Ejector Pin	0.01	
94084	Front sight	0.82	
94657	front Sight Ramp	1.13	
28505	Front Sight Ramp Screws	0.09	
90906	Elevation Screw	0.02	
94333	Rear Sight Aperature	0.14	0.105
103531	Rear Sight Base	0.97	
94335	Rear Sight Slide	0.47	
90904	Windage Screw	0.02	
28505	Rear Sight Base Scre	0.09	
15161	Front Screw Bushing	0.13	
97971	Grip Cap	0.18	
97973	Recoil Pad	1.63	
98008	Recoil Pad Screws	0.05	0.012
17028	Magazine Spring	0.42	
Total Add Use Parts		\$13.42	

Add Use is 31.86% % of total

MF0079

M/710 Capital

In House Capital

Part Name	Operation	Equipment	Capital Required	Material	Ext Process	Run Time	Variable Tools	Pre-Op Start Up	
Barrel	Cut off		\$0	\$4,600			0.008	0	
	Drill	cones	\$9,960				0.111	1,500	Dec-99
	Ream		\$0				0.180	2,492	
	Rifle	gages	\$9,800				0.096	576	Feb-00
	Wash&Stress Relieve	baskets	\$6,900			0.0012	0.000	0	Feb-00
	Turn	gages	\$5,000			0.0277	0.111	5,161	Feb-00
	Face&Chamber	gages	\$33,337			0.0000	0.000	0	Apr-00
	Face&Chamber	machine	\$290,000			0.0585	4.069	9,388	Mar-00
	Cut off and Crown	chuck	\$15,000				0.120	690	Jan-00
	wash and eddy current test	machine	\$75,000				0.000	0	Mar-00
	Induction Harden	machine	\$166,000				0.050	0	Mar-00
	Inspect Hardness	machine	\$12,000				0.000	285	Mar-00
	Drill and tap sight	fix & gages	\$7,600			0.0313	0.161	5,588	Feb-00
	Centerless Polish	gages	\$0				0.186	400	
	Roll mark	fix & gages	\$6,300				0.060	300	Apr-00

Bolt Head	Inspect Purchased Part Blank	gage	\$2,500						Feb-00
	Superabrasive Grind Lugs	fix & gage	\$31,600			0.0189	0.394	315	Feb-00
	CNC Machine Bolt Face Complete	fix & gage	\$154,850			0.0198	0.266	1,782	Mar-00
	CNC Machine Cam Cuts, Ejector Retaining Pin Hole	fix & gage	\$15,000			0.0070	0.036	1,000	Mar-00
	CNC Machine Bolt Head Retaining Pin Hole	fix & gage	\$15,000			0.0172	0.252	1,471	Mar-00
	Punch Form Extractor Rotation Notch	fix & gage	\$10,000			0.0064	0.025	1,500	Jan-00
	Vendor Heat Treat		\$0		\$0.15				
	Inspect for Hardness		\$0						
	Black Oxide		\$0			0.0013		800	

Bolt Body	Inspect Purchased Part	gage	\$2,000	\$0.74					Jan-00
	Blank								
	Machine Cam Cuts	machine	\$425,000		0.0360	0.199	6,761		Feb-00
	Assemble Braze Bolt	machine	\$90,000		0.0083	0.050	3,500		Mar-00
	Deplate	tanks	\$9,500		0.0010	0.000	0		Jan-00
	Eddy Current Test		\$86,000		0.0083	0.000	0		
	Glass Bead Blast	fix	\$2,500						Jan-00
	Black Oxide		\$0		0.0013	0.000	0		

Receiver	Inspect Purchased Part	gage	\$2,500	\$0.76					Jan-00
	Blank								
	Machine A&B load		\$49,725		0.0083	0.941	12,480		Feb-00
									Feb-00
	Vibratory tumble deburr		\$0		0.0050				

Barrel Assembly	Press Receiver to Barrel	fixture	\$7,500		0.0273	0.150	750		Dec-99
	Inspect for straightness	gage	\$9,530		0.0120	0.005	700		Dec-99
	Angularity Straighten	fix & gages	\$1,500		0.0067	0.005	229		Feb-00
	Glass Bead Blast	fixtures	\$2,500			0.000			Jan-00
	Color	racks	\$6,000		0.0013	0.000			Jan-00

Final Assembly	Gallery	100yd range	\$100,000						Dec-99
		snails	\$30,000						Jul-00
		HVAC	\$25,000						Jun-00
		other	\$10,000						Mar-00
			\$100,000						Mar-00
			\$65,000						Jul-00
	Bolt Head				0.0000				
	Bolt Body				0.0566				
	Firing Pin				0.0000				
	Trigger Plate				0.0355				
	Gun Build				0.0355				
	Pack				0.0472				

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MF0081

Purchased Parts

Part #	Part Name	Tool	Capital	Material	Ext Process	Run Time	Variable Tools	Pre-op Start Up	Vendor	Payments
300327	Receiver Insert	Mold	48,000						Hanson	Jun-99
300333	Side Plate	Stamping Di	10,000			0.0010				Dec-99 Mar-00 Apr-00
300334	Safety Arm	Stamping Di	23,880		\$0.03	0.0010			NH Stamping	Dec-99 Mar-00 Apr-00
300345	Bolt Stop	PM	6,820		\$0.03	0.0010			Sterling	Dec-99 Mar-00 Apr-00
300361	Recoil Bracket	Stamping Di	2,225			0.0010			NH Stamping	Dec-99 Mar-00 Apr-00
300360	Bolt Handle Blank	Invest Cast Die	12,800			0.0083			Fansteel	Dec-99 Mar-00 Apr-00
300366	Bolt H. Braze Shim	Use Paste	0			0.0000			Lucas Milhaupt	Dec-99 Mar-00 Apr-00
300368	Bolt Plug	Mold	38,088			0.0000			Par 4	Dec-99 Mar-00 Apr-00
300336	Firing pin head	MIM Mold	23,000		\$0.10	0.0010			Megamet	Dec-99 Mar-00 Apr-00
300362	Mag Latch	Mold	33,480			0.0000			Par 4	Dec-99 Mar-00 Apr-00
	Mag Box Assy	0	0		\$0.00	0.0055				
300363	Magazine Box	Mold	28,000			0.0000			Morrissey	Dec-99 Mar-00 Apr-00
300364	Magazine Follower	Mold	33,300			0.0000			Par 4	Dec-99 Mar-00 Apr-00
300365	Magazine Bottom	Mold	47,880			0.0000			Par 4	Dec-99 Mar-00 Apr-00
	Stock	Mold	150,300			0.0000			Par 4	Dec-99 Mar-00 Apr-00
	Styrofoam Bed	Die	18,200			0.0000			Tuscorora	Mar-00
			\$475,973							
	Total		\$2,360,075	\$7.10	\$0.31	0.4984	\$7.47	\$57,668.00		
300366	Obsolete									

I. Process Summary

A. Barrel

Currently, the barrel is assumed to be 25 inches long. All calculations to date have been based on a 25 inch barrel. Discussions with marketing are continuing in order to change the barrel length and contour. The preferred barrel length from manufacturing would be 20 inches. The maximum length from a manufacturing standpoint with the least interruption to existing processes would be 23 inches. 83

Review of the gundrills, reamers and rifler shows that a 25 inch plus barrel can be accommodated on all of these machines. Current thinking is to run one drill and one reamer on Model 597 and one drill and one reamer on Model 710. The cutoff saw and rifler will be changed over every other day from one model to the other. This will minimize the amount of on-floor inventory and maximize machine output with minimal change overs. Material handling will be a concern at the cutoff operation. A hoist will be required for the larger bar stock. Minimum quantities and lot sizes from the steel vendor are being reviewed to determine the steel storage requirements in steel storage.

The furnace will require new baskets and each basket will hold 170 pieces versus the 400 currently held in a Model 597 basket. The load on the furnace will be increased slightly due to smaller quantities in each load but slightly off set with the Model 597 schedules.

Currently, two Monarch lathes are being used for the Model 597.

MF0083

CONFIDENTIAL
M/710 Process Summary
8/8/99

A current capacity review shows that a single Monarch that is capable of producing all of the 597s leaving one spare for the Model 710. Only additional chucks and tooling will be required to retro fit the machine for Model 710.

Several options are available for the cut off and crown operation. One is to change over the current Okuma lathe from Model 597 to Model 710. Running both models in daily lot sizes. A second option is to buy an additional lathe for crowning and a third option is to crown the barrels on an Okuma LT15 lathe, which will chamber one end while crowning the other. Lay out

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for this operation is not complete. Cost analysis of run time and capital required will be complete by August 20th.

The chamber operation can be done several different ways. The most effective through investigation to this point is to purchase a 4 axis lathe. This lathe could be single spindle for chambering and breech end operations only or a twice spindle for the chamber and crown operations as mentioned above. The single spindle lathe is approximately \$280,000 versus the twin spindle at \$400,000. Regardless of type of machine the tooling and variable tools required have been identified and are complete. 83

The barrels will be heat treated on the first inch on the breech end. This will be done on an induction heat treating machine that Glenn Sietsima has been developing. The only question at Mayfield was the use of nitrogen to provide an atmosphere for the chamber to prevent scaling. The existing nitrogen generator will provide sufficient amounts of nitrogen for the process. We are reviewing the possibility of a nitrogen storage tank to reduce the burden on the generator.

After the barrel is heat treated, the barrel is eddy current tested for cracks. This is new technology to Remington, which has been developed by Ilion. The fall back is transferring a traditional magnaflux booth from Ilion.

Currently the Model 597 front and rear sight holes are drilled and capped on two Okuma MX45 vertical machining centers. With slight fixture modifications, the 710 can be drilled and tapped on the same fixtures leaving only a work scheduling issue through those machines. Another option is to build a special machine to drill and tap only for

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approximately \$30,000 relieving and constraint. The current burden on the Okuma for the sight operation is about 14 hours.

The barrel will be centerless polished. This can be accomplished only with a new profile requested by manufacturing for approval by marketing. The polish will run out approximately .200-.250 inches under the front of the receiver

The barrel will be glass bead blasted in our current blast machine that will require little modification.

B. Bolt Head

Requests for quotes have been sent to 5 screw machine houses. The quotes are due back between August 19th and August 30th. This will determine the blank cost. Each vendor will be quoting three options. This first option is a turned part with the outside profile complete and parted to length. The second option includes some of the internal geometry and the third option is to machine the bolt head complete.

The first operation will be to grind the lugs on the Edgetek. According to current machine burden, there is approximately 13 open hours on the Edgetek per day. Current estimates will burden the Edgetek approximately 4 hours per day.

Next the bolt head will go through one or possibly two CNC machines depending on the level of completion from the vendor. The angles used to cam the bolt will require at least one of the machines to

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have 4th axis capability. Due to the nature of the cuts in the bolt head and additional CMM will be required.

CONFIDENTIAL 83

MF0087

Confidential - Subject to Protective Order
Williams v. Remington

The bolt head requires a press formed ejector. This will be done on a simple press similar to the type used in Ilion.

The bolt will be sent of plant for vendor heat treat at a cost of approximately \$.10 per bolt head. This is the only major component that will be sent off plant for processing. The barrel heat treat machine is being reviewed to see if it can be adapted to the bolt

C. Bolt Body

Requests for quotes have been sent to 5 screw machine houses. The quotes are due back between August 19th and August 30th. This will determine the blank cost. Each vendor will be quoting three options. The first option is a seamless tube with some end geometry provided. The second option includes some of the internal geometry and the third option is to machine the bolt body complete.

The first operation will require a CNC machine with a 4th axis to machine the cam cuts on the bolt body. The same machine will be used for the bolt head and receiver cam cuts.

Once the bolt head is machined and washed, the bolt handle will be brazed on. This will require an induction unit. Once parts are available for development, they will be shipped to two vendors and processed to determine what size of induction transformer is required. Once this is complete, a firm quote can be provided. Estimations based on similar operations resulted in the bolt handle brazing requiring a machine of approximately \$75,000.

MF0088

The parts will be processed through a Deplate. This will require the installation of a new stainless steel tank that will be placed between the passivate and black oxide lines. A new tank conducting will be approximately \$3,500. The Deplate operation is to remove an excess braze that will be cosmetically unacceptable. The part will then be Eddy current (magnaflux) tested to determine if the part cracked during the braze operation. This operation may be dropped at a later date if history proves zero cracks have ever been developed. 83

The bolt body will then be glass bead blasted to match the finish of the barrel and receiver.

C. Receiver

Requests for quotes have been sent to 5 screw machine or machining houses. The quotes are due back between August 19th and August 30th. This will determine the blank cost. Each vendor will be quoting three options. The first option is a seamless tube with some end geometry provided. The second option includes some of the internal geometry and the third option is to machine the receiver complete.

The in house complete option is being evaluated currently, this has the least about of detail today both from an engineering estimate and a production tooling a shop floor layout perspective. This will be an area of concerted effort over the next 2 weeks.

MF0089

M/710 Meeting

Date 8/19/99

Next Meeting 8/20/99

8:00 am

Copied process and Summary

Required Information to complete the project proposal:

Jason/Scott	Tooling Sheets for	
	Receiver	
	Bolt body	
	Updated barrel chamber	
Joe	Completed Process Sheets for	
	Angularity Straighten	
	Assembly of bbl/rec	
	Inspect for straightness	
	Grind to remove scale?	
Maintenance	Carr-Lane pricing	
	Estimate of normal load and peak load	
	Buss utilization/total capacity	
	Estimate for new buss	
	Estimate of total available incoming power	
	Estimate for machine moves per machine or machine type	
	4 th axis options complied	
	Inspection fixture for receiver insert	
Jerry	PPI fixture requirements	
Shelly	Range costs	
	Black oxide racks/runtime/variable costs for the main 3 components	
Production/eng/maint	Test run of 26" barrels	

MF0090

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PAGE LIST / PAGE LIST
PP 00000001

MF0091

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Williams v. Remington

Elizabethtown Research Division

PARTS LIST #YYY

Date: Model 710

Supersedes Previous Model XXX

C8/20/99 Bolt Action

Parts List #AAA

Centerfire Rifle R.H.

Sheet 1 Dotted line (- - -)

of 1 indicates same part number

30-06

270

7mm

300

Rem Mag

Win Mag

DWG. NO.

PART NAME

PART NUMBERS

RAMAC #

DOCUMENT ENVELOPE ASSEMBLY

Document Envelope
Instruction Book
Product Owners Card
Remington Authorized Gunsmith
Safety Booklet
Remington Museum Flyer
Oval Label

XXXX
1649
XXXX
1426
3413
3499
3475
3491

CARTON ASSEMBLY

Box & Envelope Label
(Label To Read "Model 710")

993002

NOTE: THE ABOVE PARTS ARE FOR PACKAGING ONLY

C-305410

BARREL ASSEMBLY COMPLETE

305410

305411

305412

305413

C-305400

BARREL ASSEMBLY

305400

305401

305402

305403

E-305315

BARREL

305315

305316

305317

305318

E-300340

RECEIVER

300340

D-300401

RECEIVER INSERT ASSEMBLY COMPLETE

300401

C-300400

RECEIVER INSERT ASSEMBLY

300400

E-300327

RECEIVER INSERT

300327

A-300347

THREADED INSERT

300347

C-300333

SIDE PLATE

300333

A-300328

SIDE PLATE PIN (2)

300328

C-15666

SEAR SAFETY CAM (Blk. C-91921)

15666

B-300351

PIVOT PIN (3)

300351

A-17047

SEAR SPRING

17047

C-15280

TRIGGER (Blk. C-91912)

15280

C-19461

TRIGGER CONNECTOR (Blk. C-91921)

19461

B-17053

TRIGGER SCREW FRONT (Blk. B-91920)

17053

B-91128

TRIGGER ENGAGEMENT SCREW (Blk. B-91922)

91128

A-15400

TRIGGER SPRING

15400

A-15481

TRIGGER STOP SCREW (Blk. A-91926)

15481

E-300408

SAFETY

300408

B-300352

SAFETY PIVOT PIN

300352

B-300407

SAFETY SPRING

300407

C-300345

BOET STOP

300345

B-17034

RECEIVER PLUG SCREW (4)

17034

B-300361

RECOIL BRACKET

300361

B-300403

BOLT BODY ASSEMBLY

300403

D-300339

BOLT BODY

300339

C-300370

BOLT HANDLE

300370

C-300360

BOLT HANDLE BLANK

300360

A-300329

BOLT HANDLE PIN

300329

B-300366

BOLT HANDLE BRAZING SHIM

300366

B-305390

BOLT HEAD ASSEMBLY

305390

305391

E-300338

BOLT HEAD (30-06, 270)

300338

C-300416

BOLT HEAD (7mm Rem, 300 Win)

300416

EXTRACTOR

C-93712

30-06, 270 (Blk. 93711)

93712

C-97322

7mm Rem, 300 Win (Blk. 97321)

97322

C-27340

EXTRACTOR RIVET

27341

B-300342

EJECTOR

300342

A-300367

EJECTOR SPRING

300367

A-94555

EJECTOR PIN

94555

B-300330

BOLT ASSEMBLY PIN

300330

B-300404

FIRING PIN ASSEMBLY

300404

C-300368

BOLT PLUG

300368

B-300346

BOLT PLUG INSERT

300346

LOCK TUMBLER

LOCK PLUNGER

MF0092

Elizabethtown Research Division

PARTS LIST #YYY

Date: **Model 710**

Supersedes Previous Model XXX

08/20/99 **Bolt Action**

Parts List #AAA

Centerfire Rifle R.H.

Sheet 2 Dotted line (- - -)

of 2 indicates same part number

30-06

270

7mm

Rem Mag

300

Win Mag

DWG. NO.

PART NAME

PART NUMBERS

FIRING PIN ASSY CONTINUED

	LOCK SPRING				
C-300334	FIRING PIN	300334	----	----	----
C-300335	FIRING PIN TIP	300335	----	----	----
C-300336	FIRING PIN HEAD	300336	----	----	----
A-300399	FIRING PIN SPRING	300399	----	----	----
	FRONT SIGHT				
C-15373	30-06, 270 (Blk. C-90393)	94084	----		
B-14659	7mm REM, 300 WIN			94095	----
B-28510	FRONT SIGHT RAMP (Blk. B-16724)	94657	----		----
B-28505	FRONT SIGHT RAMP SCREW (2) (Blk. 90347)	28505	----		----
B-103145	REAR SIGHT ASSEMBLY	103145	----		----
A-90906	ELEVATION SCREW	90906	----		----
C-93905	REAR SIGHT ADJUSTURE (Blk. C-93906)	97681	----		----
C-103530	REAR SIGHT BASE (Blk. 94023)	103530	----		----
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	----		----

STOCK ASSEMBLY COMPLETE

STOCK ASSEMBLY

	STOCK				
B-15161	FRONT SCREW BUSHING (Blk 91915)	15161	----		----
	MIDDLE SCREW BUSHING				
	REAR SCREW BUSHING				
C-97971	GRIP CAP	97971	----		----
D-97973	RECOIL PAD	97973	----		----
C-97972	RECOIL PAD BACKER	97972	----		----
A-98008	RECOIL PAD SCREW (2)	98008	----		----
C-300362	MAGAZINE LATCH	300362	----		----
B-300398	LATCH SPRING	300398	----		----
B-300371	LATCH PIVOT PIN	300371	----		----
B-300096	SLING SWIVEL STUD (2)	300096	----		----
	TAKE DOWN SCREW (2)				
	REAR TAKE DOWN SCREW				

MAGAZINE ASSEMBLY

B-305395	MAGAZINE ASSEMBLY	305395	----		----
E-300363	MAGAZINE BOX	300363	----		----
D-300364	MAGAZINE FOLLOWER	300364	----		----
D-300365	MAGAZINE BOTTOM	300365	----		----
E-300405	MAGAZINE SPRING	300405	----		----

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New Parts

Add Use from M700

Part #	Part Name	Material \$	Ilion Quotes or Estimates
300327	Receiver Insert	0.62	
300333	Side Plate		0.09
300334	Safety Arm	0.31	
300345	Bolt Stop	0.19	
300361	Recoil Bracket	0.193	
300360	Bolt Handle Blank	1.63	
300366	Bolt H. Braze Shim	0	
300368	Bolt Plug	0.25	
300336	Firing pin head	1.45	
300362	Mag Latch	0.25	
300363	Magazine Box		2.79
300364	Magazine Follower	0.259	
300365	Magazine Bottom	0.256	
	Stock	5.38	
300347	Threaded Insert	0.04	
300328	Side Plate Pin (2)	0.12	
300351	Pivot Pins (3)	0.06	
300352	Safety Pivot Pin	0.06	
300407	Safety Spring		0.03
300329	Bolt Handle Pin	0.06	
300342	Ejector		0.16
300330	Bolt Assy Pin	0.1	
300346	Bolt Plug Insert		0.29
300346	Tumbler	0.41	
	lock plunger	0.05	
	lock spring	0.01	
	key		
300334	Firing Pin	0.27	
300335	Firing Pin Tip	1.5	
	Firing Pin Spring		0.14
	Middle Screw Bushing		0.05
	Rear Screw Bushing		0.05
300405	Mag Latch Spring		0.42
300371	Mag Latch Pin	0.06	
300096	Sling Swivel Stud (2)		0.14
	Take Down Screw R		0.08
	Take Down Screw M		0.08
	Take Down Screw F		0.08
300339	Bolt Head Blank		1.6
	Barrel Blank	4.8	
	Receiver Blank	1.76	
	Bolt Body	0.74	
	Carton Assy (Ilion)	2.05	

Part #	Part Name	Material \$	Quotes from Mayfield
1444	Carton Assy	2.05	
15666	Sear Safety Cam	0.94	
17047	Sear Spring	0.02	
15280	Trigger	1.53	
19461	Trigger Connector	1.48	
17053	Trigger Front Screw	0.11	0.032
91128	Engagement Screw	0.03	
15400	Trigger Spring	0.03	
15481	Trigger Stop Screw	0.06	0.032
17044	Snap Washer	0.09	
17034	Receiver Plug Screws	0.13	
93712	Extractor	0.78	
94555	Ejector Pin	0.01	
94084	Front sight	0.82	
94657	front Sight Ramp	1.13	
28505	Front Sight Ramp Screws	0.09	
90906	Elevation Screw	0.02	
94333	Rear Sight Aperature	0.14	0.105
103531	Rear Sight Base	0.97	
94335	Rear Sight Slide	0.47	
90904	Windage Screw	0.02	
28505	Rear Sight Base Scre	0.09	
15161	Front Screw Bushing	0.13	
97971	Grip Cap	0.18	
97973	Recoil Pad	1.63	
98008	Recoil Pad Screws	0.05	0.012
17028	Magazine Spring	0.42	

Total Add Use Parts

\$13.42

Add Use is

32.20% % of total

Total Material \$ New
known to date 22.188

% of Total anticipated 53.24%

Total Material \$
Estimated or from
M700 costing 6.07

% of Total anticipated 14.56%

Total Add Use Parts 13.42

Add Use is 32.20%

% of total material
cost know by quote 85.44%

MF0094

CONFIDENTIAL 83

SOME PAGE QUOTES

MF0095

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Williams v. Remington



MIDSTATE SPRING, INC.
PMB234
280 CONCORD PARKWAY SOUTH
SUITE 120
CONCORD, NC 28027
PHONE: 704-723-6520 FAX: 704-723-6521

QUOTATION Q-2666

CUSTOMER ID REMARM

DATE OF QUOTATION 9/24/99

PAGE # 1

COPY
FYI

QUOTED TO

METTY MORGAN
REMINGTON ARMS COMPANY, INC.
MAYFIELD PLANT
22 RIFLE TRAIL
HICKORY KY 42051

LINE #	DESCRIPTION	QUANTITY	UNIT PRICE	EXTENDED PRICE
1	A-15400 - COMPRESSION SPRING (MS # 1103509)	20,000	0.0761	\$1,522.00
		40,000	0.0620	\$2,480.00
		60,000	0.0573	\$3,438.00
2	A-17047 - COMPRESSION SPRING (MS # 1103510)	20,000	0.0474	\$948.00
		40,000	0.0379	\$1,516.00
		60,000	0.0348	\$2,088.00

Thank you for the opportunity to quote your requirements.

Specifications given without specific tolerances are quoted to commercial tolerances rather than block tolerances.
Quantities quoted are based on a one-lot shipment (F.O.B. Syracuse) unless noted otherwise.
Unless otherwise noted, lead time is standard four weeks. Expedited delivery is available.
Invoice terms are net 30 days pending credit approval.
Prices firm for 30 days from date of quotation.

John Bernet, Sales Manager
jbernet@midstatespring.com
704-723-6520 (Customer Service 800-365-9939x2)

John Bernet Sales Manager



MF0096

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Williams v. Remington

MIDSTATE

FYI
8/20

QUOTATION Q-2569

CUSTOMER ID REMARM

DATE OF QUOTATION 8/20/99

PAGE # 1

MIDSTATE SPRING, INC.
P.O. BOX 850
SYRACUSE, NY 13206-0850
PHONE: 315-437-2623 FAX: 315-437-0796

QUOTED TO

METTY MORGAN
REMINGTON ARMS COMPANY, INC.
MAYFIELD PLANT
22 RIFLE TRAIL
HICKORY KY 42051

Ejector Spring

LINE #	DESCRIPTION	QUANTITY	UNIT PRICE	EXTENDED PRICE
1	A-300367 - COMPRESSION SPRING (MS # 1103436)			83
		20,000	0.0152	\$304.00
		40,000	0.0108	\$432.00
		60,000	0.0093	\$558.00
	SPRING OVERSTRESSES @ L2			
2	A-300399 - COMPRESSION SPRING (MS # 1103437)			
		20,000	0.1008	\$2,016.00
		40,000	0.0870	\$3,480.00
		60,000	0.0824	\$4,944.00
3	A-300398 - TORSION SPRING (MS # 2100584)			
		20,000	0.0279	\$558.00
		40,000	0.0201	\$804.00
		60,000	0.0179	\$1,074.00

Firing Pin

Latch Spring

Thank you for the opportunity to quote your requirements.

Specifications given without specific tolerances are quoted to commercial tolerances rather than block tolerances.

Quantities quoted are based on a one-lot shipment (F.O.B. Syracuse) unless noted otherwise.

Unless otherwise noted, lead time is standard four weeks. Expedited delivery is available.

Invoice terms are Net 30 Days pending credit approval.

Prices firm for 30 days from date of quotation.

Dawn Custer, Customer Service
dcuster@midstatespring.com
800-365-9939x107 or 315-437-2623x107

Dawn M. Custer

Dawn M. Custer Customer Service



SPRING
MANUFACTURERS
INSTITUTE



MF0097

Swiss Precision Machining, Inc.

7550 N. Oak Park Ave., Niles, IL 60714 (847) 647-7111 / FAX (847) 647-7110

COPY
FYI

August 26, 1999

Remington Arms Co.
P.O. Box 99
22 Rifle Trail
Hickory, KY 42051
ATTN: Mett Morgan

Dear Mett:

We are pleased to submit the following quotation for your consideration:

Part #A300328

60,000 @ \$.093 each

120,000 @ \$.086 each

180,000 @ \$.085 each

Non-recurring engineering fee \$275

Part #A300329

20,000 @ \$.122 each

40,000 @ \$.106 each

60,000 @ \$.101 each

Non-recurring engineering fee \$150

Part #B300330

20,000 @ \$.226 each

40,000 @ \$.184 each

60,000 @ \$.177 each

Non-recurring engineering fee \$380

Part #B300342

20,000 @ \$.189 each

40,000 @ \$.153 each

60,000 @ \$.148 each

Non-recurring engineering fee \$325

Part #B300346*

20,000 @ \$.808 each

40,000 @ \$.784 each

60,000 @ \$.767 each

Non-recurring engineering fee \$775

Part #B300351

20,000 @ \$.10 each

40,000 @ \$.075 each

60,000 @ \$.068 each

Non-recurring engineering fee \$150

Part #B300352

20,000 @ \$.206 each

40,000 @ \$.163 each

60,000 @ \$.157 each

Non-recurring engineering fee \$275

Part #B300371

20,000 @ \$.102 each

40,000 @ \$.076 each

60,000 @ \$.071 each

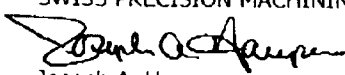
Non-recurring engineering fee \$150

Please note that on Part #B300346* the profile was quoted with a .031 Radii in corners instead of the .020 that is indicated on the print. Please review this information and if you have any questions please don't hesitate to call.

Our current lead time is 6-8 weeks and our terms are Net 30. All parts will be shipped FOB Niles, IL. Thank you very much for the opportunity to quote your business.

Sincerely,

SWISS PRECISION MACHINING, INC.


Joseph A. Haupers
Sales Manager

SPM

TOTAL P.02

MF0098

Swiss Precision Machining, Inc.

7550 N. Oak Park Ave., Niles, IL 60714 (847) 647-7111 / FAX (847) 647-7110

August 30, 1999

FYI
COPY

Remington Arms Co.
P.O. Box 99
22 Rifle Trail
Hickory, KY 42051
ATTN: Mett Morgan

Dear Mett:

We are pleased to submit the following quotation for your consideration:

Part #B-90904

25,000 @ \$.191 each

50,000 @ \$.17 each

100,000 @ \$.149 each

Non-recurring engineering fee \$400

Part #C-300028

25,000 @ \$.519 each

50,000 @ \$.498 each

80,000 @ \$.489 each

Non-recurring engineering fee \$150

Part #B97437

60,000 @ \$.197 each

120,000 @ \$.193 each

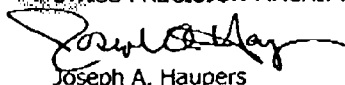
240,000 @ \$.187 each

Non-recurring engineering fee \$635

Please note on Part #B90904 and #C300028 we have quoted a case depth for carburization @ .010-.015. Also, Part #B90904 we have quoted less color as we could not identify the Nitro Black with our outside sources. Our current lead-time is 6-8 weeks and our terms are Net 30. All parts will be shipped FOB Niles, IL. If you have any questions please don't hesitate to call.

Sincerely,

SWISS PRECISION MACHINING, INC.


Joseph A. Haupers
Sales Manager

JAH/pi

SPM

TOTAL P.02

MF0099

COPY
FYI**EBN**

FASTENERS & INDUSTRIAL SUPPLIES
1701 EAST COLUMBIA ST.
EVANSVILLE, IN 47711
PHONE:(812)477-0077 FAX:(812)479-0100

PAGE 1 OF 3

COMPANY NAME: REMINGTON ARMS COMPANY

ATTENTION: METTY MORGAN

FAX NUMBER: 502-856-3233

FROM: KIM WALKER

DATE: 8/19/99

SUBJECT

QUOTE FOR DRAWING #'S

A-15481

A-94555

A-99989

B-17053

A-90906

A-200197

B-91128

A-98008

MF0100

08/19/99 10:48 8124790100

EVILLE.BOLT&NUT

002/002

QUOTATION FROM:

EVANSVILLE BOLT & NUT
FAX#812-479-0100
1701 EAST COLUMBIA STREET
EVANSVILLE IN 47711

Date Quote
08/19/99 55328

ENTERED BY: KIM

TO: 99999

PAGE 002

EVANSVILLE BOLT & NUT
1701 EAST COLUMBIA ST.
EVANSVILLE IN 47711

PHONE : 477-6077
FAX : 812-474-7437

F.O.B. Terms Effective Our Representative

Qty	Part Number/Description	UN	Price	Est Price
11	60000 *A-94555 MEDIUM DUTY *****FACTORY STOCK***** *****F.O.B. SHIPPING POINT***** *****	C	1.12	672.00
12	20000 *A-90906 ***** LEAD TIME 10-12 WEEKS ***** ***** F.O.B. SHIPPING POINT ***** *****	C	1.64	1128.00
13	40000 *A-90906	C	4.95	1980.00
14	60000 *A-90906 ***** LEAD TIME 10-12 WEEKS ***** ***** F.O.B. SHIPPING POINT ***** *****	C	3.96	2376.00
15	20000 *A-92068	C	0.95	170.00
16	20000 *A-95989	C	0.60	120.00
17	20000 *A-200197	C	0.74	148.00

*****FACTORY STOCK*****
*****F.O.B SHIPPING POINT*****
NETTY,

THANK YOU FOR GIVING US THE OPPORTUNITY TO
QUOTE THE ABOVE ITEMS. IF YOU HAVE ANY QUESTIONS,
OR NEED ADDITIONAL PRICING, PLEASE LET ME KNOW.

MF0101

QUOTATION FROM:
EVANSVILLE BOLT & NUT
FAX#812-479-0100
1701 EAST COLUMBIA STREET
EVANSVILLE IN 47711

Date Quote
08/19/99 55328
ENTERED BY: KIM

TO: 99999

EVANSVILLE BOLT & NUT
1701 EAST COLUMBIA ST.
EVANSVILLE IN 47711

PHONE : 477-0077
FAX : 812-474-7437

F.O.B. Terms Effective: Our Representative

Qty	Part Number/Description	UM	Price	Ext Price
1	20000 *A-15481	C	6.72	1344.00
2	40000 *A-15481	C	4.45	1780.00
3	60000 *A-15481	C	3.65	2190.00
***** LEAD TIME 8-10 WEEKS *****				
***** F.O.B. SHIPPING POINT *****				
4	20000 *B-17053	C	6.80	1360.00
5	40000 *B-17053	C	3.78	1512.00
6	60000 *B-17053	C	3.07	1842.00
***** LEAD TIME 8-10 WEEKS *****				
***** F.O.B. SHIPPING POINT *****				
7	20000 *B-9112B	C	6.45	1290.00
8	40000 *B-9112B	C	4.18	1672.00
9	60000 *B-9112B	C	3.32	1992.00
***** LEAD TIME 8-10 WEEKS *****				
***** F.O.B. SHIPPING POINT *****				
20000	*A-94555 MEDIUM BOLT	C	1.35	270.00

CONTINUED

MF0102

B-17044

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

(25)

FOR BLANK ORDER PART #200042

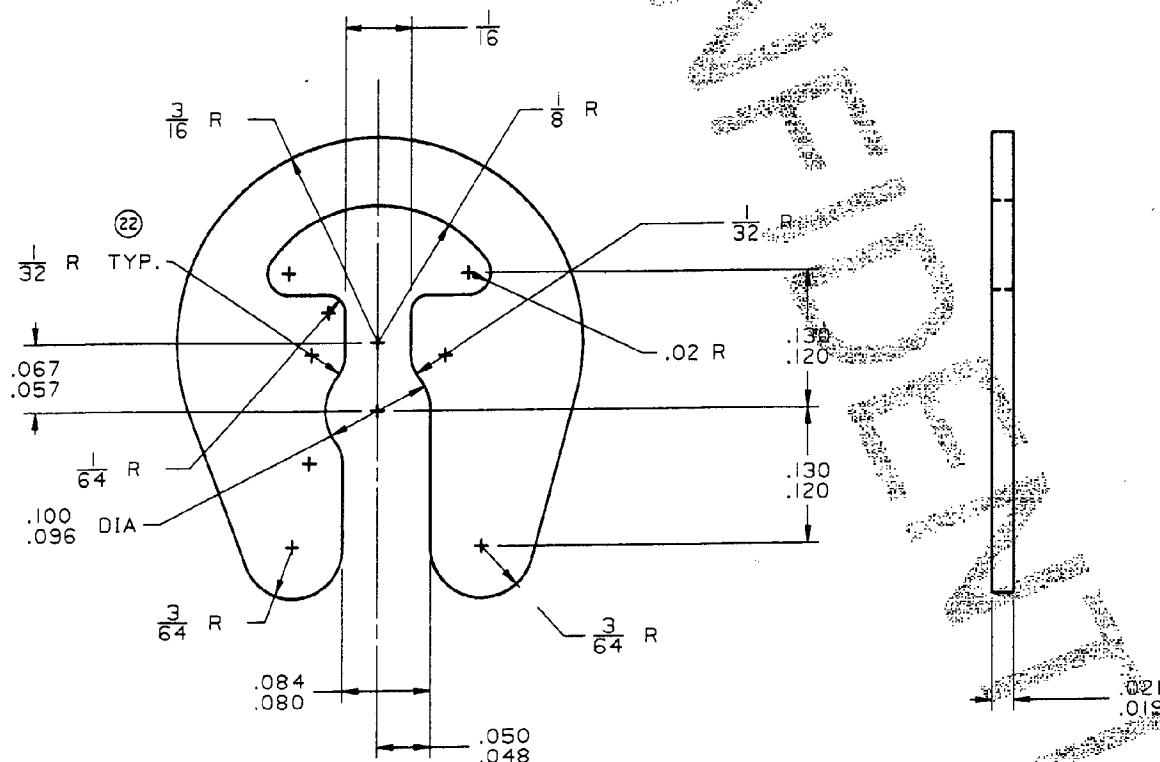
NOT SCALE THIS DRAWING: WORK TO FIGURES
UNLESS OTHERWISE NOTED.
TOLERANCES ON DECIMAL DIMENSIONS ARE:
1 PLACE (.1) - TOLERANCE $\pm .015$
2 PLACE (.01) - TOLERANCE $\pm .010$
3 PLACE (.001) - TOLERANCE $\pm .005$
& ON FRACTIONAL DIMENSIONS $\pm 1/64$
FINISHES ARE DESIGNATED BY ROOT MEAN
SQUARE (R.M.S.) MICRO-INCH ROUGHNESS
VALUES AND ARE THE MAXIMUM ROUGHNESS
ACCEPTABLE, UNLESS OTHERWISE SPECIFIED.
FINISH ROUGHNESS TO BE $\sqrt{V}$ OR BETTER.

RECOMMENDED MATERIAL AND HEAT TREAT

MATERIAL C-1095 C.R. SPRING STEEL
HEAT TREAT NEUTRAL SALT, LOW NITRE QUENCH
HARDNESS R 30 N 66-69
COLOR TEMPER COLOR

(24)

HEAT TREAT & COLOR TO
BE DONE BY REMINGTON



ALTERATIONS

ALT.	WAS	REF.	BY	DATE
21	REDRAWN	12046	TJP	11-11-85
22	ADDED TYP.	13156	JWR	3-29-94
23	WAS H.T.	13760	RAW	7-16-97
24	WAS H.T. AND COLOR TO BE DONE BY VENDOR	13760	RAW	7-16-97
25	ADD BLANK #200042	13760	RAW	7-16-97
26	ADD USE XP-100 R	13770	RAW	8-11-97

(26)	XP-100 R	17044	SAFETY SNAP WASHER
	40X, XB, XCF	17044	SAFETY SNAP WASHER
	40XB IFR	17044	SAFETY SNAP WASHER
	XP 100	17044	SAFETY SNAP WASHER
	7 LWT	17044	SAFETY SNAP WASHER
	700 (ALL)	17044	SAFETY SNAP WASHER
	MODEL	PART NO.	PART USE
	DES. BY DATE	DRN. BY DATE	CHK. BY DATE
		TJP 11-11-85	DSF 11-12-85
			DSF 11-12-85
	TITLE SAFETY SNAP WASHER		
	NUMBER	SCALE	SUPERSEDES
		10:1	A-17044
			RET. 20
			REFERENCE
			DCR #12046
	B-17044		
	REMINGTON ARMS CO. INC.		
	ILION RESEARCH DIV.		

CV FILENAME - RES.700.B17044.SAFETY-CLIP.TJP

REF. A 736 X

25

22

23

24

26

83

ME0103

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Williams v. Remington

NUMBER A-300399		REMINGTON ARMS CO. INC. RESEARCH DIV.	
SCALE	SUPERSEDES	REFERENCE	
TITLE SPRING.FIRING PIN			
DES. BY DATE	DRN. BY DATE MDK 06/08/99	CHK. BY DATE	APP. BY DATE
MODEL 710	PART USE FIRING PIN SPRING		

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

MATERIAL AND HEAT TREAT
 MATERIAL MUSIC WIRE
 HEAT TREAT STRESS RELIEVE
 FINISH OIL

INSPECTION

1. TO WORK FREELY IN A .425 DIA. HOLE
2. TO WORK FREELY ON A .275 DIA. PIN
3. LOAD 20.0 TO LB. AT 3.665 (L1)
LOAD 23.0 TO LB. AT 3.430 (L2)
4. SOLID HEIGHT 2.69 MAX.
5. WIND LEFT HAND
6. FREE LENGTH 5.217 MIN.
7. ENDS CEG
8. CHECK HERE FOR NON-COMMERCIAL TOLERANCES ☐

MANUFACTURE

9. WIRE DIA. .063
10. FREE LENGTH 5.232 +/- .015
11. OUTSIDE DIA. .416
12. COILS: ACTIVE 40.3267
TOTAL 42.3267
13. CHECK HERE FOR SET REMOVAL ☐

DESIGN DATA

14. SPRING RATE 12.766 LB./IN.
15. STATIC STRESS AT SOLID LB./SQ.IN.
16. DYNAMIC STRESS LB./SQ.IN.
17. TOTAL STRESS AT SOLID LB./SQ.IN.
18. SOLID LOAD LBS.
19. SPRING INDEX 5.6032
20. TORSIONAL MODULUS LB./SQ.IN.
21. CURVATURE CORRECTION FACTOR (WAHL)
22. VELOCITY IMPACTING MASS IN./SEC.
23. CRITICAL FREQUENCY HZ.
24. TOTAL STRESS AS % OF TENSILE STRENGTH
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.	WAS	REF.	BY	DATE
ALTERATIONS				

CV FILENAME - PARTS.RIF.710.FIRING-PIN-SPRING-300399

A-300399

ME0104

Confidential - Subject to Protective Order

Williams v. Remington

NUMBER	REMINGTON ARMS CO. INC.		
A-300367	RESEARCH DIV.		
	SCALE	SUPERSEDES	REFERENCE

TITLE
SPRING.EJECTOR

DES. BY DATE	ORN. BY DATE	CHK. BY DATE	APP. BY DATE
	MDK 06/08/99		

MODEL	PART USE
710	EJECTOR SPRING

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

MATERIAL AND HEAT TREAT

MATERIAL MUSIC WIRE
HEAT TREAT STRESS RELIEVE
FINISH OIL

INSPECTION

1. TO WORK FREELY IN A .120 DIA. HOLE
2. TO WORK FREELY ON A .064 DIA. PIN
3. LOAD 3.0 TO LB. AT .526 (L1)
4. LOAD 7.0 TO LB. AT .426 (L2)
5. SOLID HEIGHT .345 MAX. 5. WIND LEFT HAND
6. FREE LENGTH MIN. 7. ENDS CENG
8. CHECK HERE FOR NON-COMMERCIAL TOLERANCES ☐

MANUFACTURE

9. WIRE DIA. .022
10. FREE LENGTH .601
11. OUTSIDE DIA. .110
12. COILS: ACTIVE 12.3535
13. CHECK HERE FOR SET REMOVAL ☐
- TOTAL 14.3535

DESIGN DATA

14. SPRING RATE 40 LB./IN.
15. STATIC STRESS AT SOLID LB./SQ.IN.
16. DYNAMIC STRESS LB./SQ.IN.
17. TOTAL STRESS AT SOLID LB./SQ.IN.
18. SOLID LOAD LBS.
19. SPRING INDEX 4.0
20. TORSIONAL MODULUS LB./SQ.IN.
21. CURVATURE CORRECTION FACTOR (WAHL)
22. VELOCITY IMPACTING MASS IN./SEC.
23. CRITICAL FREQUENCY HZ.
24. TOTAL STRESS AS % OF TENSILE STRENGTH
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.

CV FILENAME - PARTS.RIF.710.EJECTOR-SPRING.300367

A-300367

ALT.	WAS	REF.	BY	DATE
ALTERATIONS				

Current DWG Revision

	Part Number	Drawing Number	Revision Level
Barrel	305315	E-305315	
Receiver	300340	E-300340	
Receiver Insert Assembly Complete	300401	D-300401	A
Receiver Insert Assembly	300400	C-300400	
Receiver Insert	300327	E-300327-1-2	
Threaded Insert	300347	A-300347	
Side Plate	300333	C-300333	
Side Plate Pin (2)	300328	A-300328	
Sear Safety Cam	15666	C-15666	
Pivot Pin (3)	300351	B-300351	
Sear Spring	17047	A-17047	
Trigger	300417	D-300417	E
Trigger Connector	19461	C-19461	
Trigger Screw Front	17053	B-17053	
Trigger Engagement Screw	91128	B-91128	
Trigger Spring	15400	A-15400	
Trigger Stop Screw	300426	A-300426	No Rev.
Safety Arm	300408	D-300408	7
Safety Detent Spring	300407	C-300407	
Lock tumbler	300420	D-300420	A
Lock Detent	???	???	
Safety Pivot Pin	300352	B-300352	
Safety Snap Washer	17044	B-17044	
Bolt Stop	300345	C-300345	
Receiver Plug Screws (4)	17034	B-17034	
Bolt Assembly Complete	???	???	
Bolt Body Assembly	300403	D-300403	
Bolt Body	300339	D-300339	
Bolt Handle Pin	300329	A-300329	2
Bolt Head Assembly	305390	B-305390	
Extractor	93712	C-93712	
Ejector	300342	B-300342	
Ejector Spring	300367	A-300367	
Ejector Pin	94555	A-94555	

MF0106

Bolt Assembly Pin	300330	B-300330	
Firing Pin Assembly	300404	B-300404	A
Bolt Plug	300368	C-300368	4
Bolt Plug Insert	300346	B-300346	
Firing Pin	300334	C-300334	A
Firing Pin Tip	300335	B-300335	2
Firing Pin Head	300336	C-300336	
Firing Pin Spring	300399	A-300399	
Front Sight	94084	C-15373	
Front Sight Ramp	94657	B-28510	
Front Sight Ramp Screws (2)	28505	B-28505	
Rear Sight Assembly	103145	B-103145	
Elevation Screw	90906	A-90906	
Rear Sight Aperture	97681	C-93905	
Rear Sight Aperture Blank	93906	C-93906	
Rear Sight Base	103531	C-103530	
Rear Sight Slide	94335	C-93904	
Windage Screw	300026	B-300026	
Rear Sight Base Screw (2)	28505	B-28505	
Stock Assembly Complete	305455	B-305455	No Rev.
Stock Assembly	???	???	
Stock	???	???	
Front Screw Bushing	104125	C-104125	18
Middle Screw Bushing	104143	C-104125	
Rear Screw Bushing	300425	B-300425	No Rev.
Grip Cap	97971	C-97971	
Recoil Pad	97973	D-97973	
Backer Plate	97972	C-97972	
Recoil Pad Screw (2)	98008	A-98008	
Magazine Latch	300362	C-300362	
Magazine Latch Spring	300398	B-300398	
Magazine Latch Pin	300371	B-300371	
Sling Swivel Stud (2)	300096	B-300096	
Rear Takedown Screw	???	???	
Magazine Assembly	305395	B-305395	
Magazine Box	300363	B-300363	9
Magazine Follower	300364	B-300364	4
Magazine Bottom	300365	B-300365	
Magazine Spring	300405	C-300405	
Value Added Cost of: Proof/Gallery/Inspect/Pack			

MF0107

Current DWG Revision

	Part Number	Drawing Number	Revision Level
Barrel	305315	E-305315	
Receiver	300340	E-300340	
Receiver Insert Assembly Complete	300401	D-300401	A
Receiver Insert Assembly	300400	C-300400	
Receiver Insert	300327	E-300327-1-2	
Threaded Insert	300347	A-300347	
Side Plate	300333	C-300333	
Side Plate Pin (2)	300328	A-300328	
Sear Safety Cam	15666	C-15666	
Pivot Pin (3)	300351	B-300351	
Sear Spring	17047	A-17047	
Trigger	300417	D-300417	E
Trigger Connector	19461	C-19461	
Trigger Screw Front	17053	B-17053	
Trigger Engagement Screw	91128	B-91128	
Trigger Spring	15400	A-15400	
Trigger Stop Screw	300426	A-300426	No Rev.
Safety Arm	300408	D-300408	7
Safety Detent Spring	300407	C-300407	
Lock tumbler	300420	D-300420	
Lock Detent	???	???	
Safety Pivot Pin	300352	B-300352	
Safety Snap Washer	17044	B-17044	
Bolt Stop	300345	C-300345	

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ME0108

Receiver Plug Screws (4)	17034	B-17034	
Bolt Assembly Complete	????	????	
Bolt Body Assembly	300403	D-300403	
Bolt Body	300339	D-300339	
Bolt Handle Pin	300329	A-300329	2
Bolt Head Assembly	305390	B-305390	
Extractor	93712	C-93712	
Ejector	300342	B-300342	
Ejector Spring	300367	A-300367	
Ejector Pin	94555	A-94555	
Bolt Assembly Pin	300330	B-300330	
Firing Pin Assembly	300404	B-300404	A
Bolt Plug	300368	C-300368	4
Bolt Plug Insert	300346	B-300346	
Firing Pin	300334	C-300334	A
Firing Pin Tip	300335	B-300335	2
Firing Pin Head	300336	C-300336	
Firing Pin Spring	300399	A-300399	
Front Sight	94084	C-15373	
Front Sight Ramp	94657	B-28510	

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ME0109

Front Sight Ramp Screws (2)	28505	B-28505	
Rear Sight Assembly	103145	B-103145	
Elevation Screw	90906	A-90906	
Rear Sight Aperture	97681	C-93905	
Rear Sight Aperture Blank	93906	C-93906	
Rear Sight Base	103531	C-103530	
Rear Sight Slide	94335	C-93904	
Windage Screw	300026	B-300026	
Rear Sight Base Screw (2)	28505	B-28505	
Stock Assembly Complete	305455	B-305455	No Rev.
Stock Assembly	????	????	
Stock	????	????	
Front Screw Bushing	104125	C-104125	18
Middle Screw Bushing	104143	C-104125	
Rear Screw Bushing	300425	B-300425	No Rev.
Grip Cap	97971	C-97971	
Recoil Pad	97973	D-97973	
Backer Plate	97972	C-97972	
Recoil Pad Screw (2)	98008	A-98008	
Magazine Latch	300362	C-300362	
Magazine Latch Spring	300398	B-300398	
Magazine Latch Pin	300371	B-300371	
Sling Swivel Stud (2)	300096	B-300096	
Rear Takedown Screw	????	????	
Magazine Assembly	305395	B-305395	

Magazine Box	300363	B-300363	9
Magazine Follower	300364	B-300364	4
Magazine Bottom	300365	B-300365	
Magazine Spring	300405	C-300405	
Value Added Cost of: Proof/Gallery/Inspect/Pack			

EX-12740-2

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ME0111

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Williams v. Remington

Total Labor Hours 0.8341

Total Labor Cost \$ 8.825

Total Material Cost \$ 39.330

Total Variable Tooling \$ 6.362

Total Pre-Op &
Startup Costs

Total In-house
Capital

Total Vendor
Capital

CONFIDENTIAL 83

MF0112

M710 Estimate										
PART DESCRIPTION	Proposed Process	Part #	Print #	Rev #	Material \$	Labor \$	Fixed O.H. \$	Var O.H. \$	Total O.H. \$	Estimated Piece Price
Document Envelope Assembly	Purchase	7777	7777							
Document Envelope	Purchase	1649	1649							
Instruction Book	Purchase	7777	7777							
Product Owners Card	Purchase	1476	1476							
Remington Authorized Gunsmith	Purchase	3413	3413							
Safety Buckle	Purchase	3499	3499							
Remington Museum Flyer	Purchase	3475	3475							
Over Label	Purchase	3491	3491							
Cartridge Assembly	Purchase	1444	1444							
Corrugated Box	Purchase				\$ 0.9524					
Box	Purchase				\$ 0.6900					
Box and Envelope Label (110)	Purchase	933002	933002							
Barrel Assembly Complete	Assemble	305410	C-305410	No Rev.						
Barrel Assembly	Assemble & Machine	165400	C-305400	No Rev.						
Barrel	Machine	303315	E-303315	5	\$ 5.0537					
Receiver	Machine	303401	E-303401	6	\$ 2.1780					
Receiver Insert Assembly Complete	Assemble	300401	D-300401	No Rev.						
Receiver Insert Assembly	Ultrasonic Weld	300400	C-300400	No Rev.						
Receiver Insert	Purchase	300327	E-300327-1-2	(1E) 5 (2E) 21						
Threaded Insert	Purchase	300347	A-300347	A	\$ 0.0366					
Side Plate	Purchase & Color	300332	C-300332	No Rev.	\$ 0.0906					
Side Plate Pin (2)	Purchase & Color	300328	A-300328	No Rev.	\$ 0.1600					
Sear Safety Cam	AIU M700	15666	C-15666	24	\$ 0.7595					
Pivot Pin (3)	Purchase & Heat Treat	300351	B-300351	No Rev.	\$ 0.0278					
Sear Spring	AIU M700	17047	A-17047	26	\$ 0.0228					
Trigger	AIU M700	15280	C-15280	31	\$ 0.5771					
Trigger Connector	AIU M700	19461	C-19461	21	\$ 1.0063					
Trigger Screw Front	AIU M700	17045	B-17045	32	\$ 0.0395					
Trigger Engagement Screw	AIU M700	51128	B-51128	7	\$ 0.0272					
Trigger Spring	AIU M700	15400	A-15400	11	\$ 0.0290					
Trigger Stop Screw	AIU M700	15481	A-15481	32	\$ 0.0415					
Safety Arm	Assemble & Heat Treat	300408	D-300408	1	\$ 0.2300					
Safety Detent Spring	Machine	300407	C-300407	1	\$ 0.0578					
Lock Tumbler	Purchase	300420	D-300420	No Rev.						
Lock Detent	AIU M700	7777	7777	777						
Safety Pivot Pin	Purchase & Heat Treat	300352	B-300352	1	\$ 0.1400					
Strap Washer	Purchase	17044	B-17044	36	\$ 0.0247					
Bolt Stop	PM Heat Treat/Color	300345	C-300345	2	\$ 0.2190					
Receiver Plug Screws (4)	A/U M700	7034	B-17034	34	\$ 0.1582					
Recall Bracket	Purchase & Color	300361	B-300361	No Rev.	\$ 0.1228					
Bolt Assembly Complete	Machine	300403	D-300403	No Rev.						
Bolt Body Assembly	Machine	300339	D-300339	1	\$ 0.7400					
Bolt Body	Machine	300339	D-300339	1	\$ 0.7400					
Bolt Handle	Band to Form	300339	C-300339	No Rev.	\$ 1.6300					
Bolt Handle Blank	Purchase	300329	A-300329	2	\$ 0.1000					
Bolt Handle Pin	Purchase	300330	A-300330	2	\$ 0.1000					
Bolt Head Assembly	Assemble	300330	B-300330	No Rev.	\$ 0.2150					
Bolt Head	Machine	300330	B-300330	14	\$ 0.2150					
Extractor	Machine	300330	B-300330	2	\$ 0.7717					
Ejector	Purchase & Color	300330	B-300330	1	\$ 0.1100					
Ejector Spring	Purchase	300330	B-300330	No Rev.	\$ 0.0152					
Ejector Pin	A/U M700	94558	A-94558	1	\$ 0.0137					
Bolt Assembly Pin	Purchase	300330	B-300330	No Rev.	\$ 0.1500					
Firing Pin Assembly	Machine	300330	B-300330	No Rev.	\$ 0.2150					
Firing Pin	Machine	300330	B-300330	1	\$ 0.2150					
Firing Pin Spring	Machine	300330	B-300330	No Rev.	\$ 0.0300					
Firing Pin Pin	Machine	300330	B-300330	No Rev.	\$ 1.1900					
Firing Pin Pin	Machine	300330	B-300330	No Rev.	\$ 0.2500					
Firing Pin Pin	Machine	300330	B-300330	No Rev.	\$ 1.5000					
Firing Pin Spring	Purchase	300330	B-300330	No Rev.	\$ 0.1008					
Front Sight Assembly	AIU M700	93084	C-15373	20	\$ 0.8068					
Front Sight Ramp	AIU M700	94637	B-28510	33	\$ 1.1877					
Front Sight Ramp Screws (2)	AIU M700	28505	B-28505	21	\$ 0.0795					
Rear Sight Assembly	AIU M700	103145	B-103145	11	\$ 3.2791					
Elevation Screw	AIU M700	90906	A-90906	19	\$ 0.0236					
Rear Sight Aperture	AIU M700	97681	C-97681	9	\$ 0.2847					
Rear Sight Aperture Blank	AIU M700	93086	C-93086	6						
Rear Sight Base	AIU M700	103533	C-103533	3	\$ 1.6170					
Rear Sight Base	AIU M700	94115	C-93084	7	\$ 1.2030					
Windage Screw	AIU M700	300026	B-300026	5	\$ 0.1910					
Rear Sight Base Screw (2)	AIU M700	28365	B-28365	21						
Shock Assembly Complete	Purchase	7777	7777	777						
Shock Assembly	Purchase	7777	7777	777						
Shock	Purchase	7777	7777	777	\$ 5.3800					
Front Screw Bushing	AIU M700	15161	B-15161	9	\$ -					
Front Screw Bushing Blank	AIU M700	51915	7777	777	\$ -					
Middle Screw Bushing	Purchase	7777	7777	777	\$ -					
Rear Screw Bushing	Purchase	7777	7777	777	\$ -					
Gun Cap	AIU M700	97971	C-97971	No Rev.	\$ 0.1800					
Recall Pin	AIU M700	97973	D-97973	20	\$ 0.1103					
Rocker Plate	AIU M700	97972	C-97972	No Rev.	\$ 0.3503					
Recall Pin Screw (2)	AIU M700	98008	A-98008	7	\$ 0.0220					
Magazine Latch	Pin Upvc	300362	C-300362	2	\$ 0.0110					
Magazine Latch Spring	Purchase	300368	B-300368	No Rev.	\$ 0.0257					
Magazine Latch Pin	Purchase & Color	300371	B-300371	No Rev.	\$ 0.0700					
Sling Swivel Stud (2)	Purchase	300396	B-300396	4	\$ 0.2800					
Take-down Screw (2)	Purchase	7777	7777	777	\$ -					
Rear Take-down Screw	Purchase	7777	7777	777	\$ -					
Magazine Assembly	Assemble	300395	B-300395	No Rev.	\$ -					
Magazine Box	Purchase & Color	300363	B-300363	5	\$ 0.8412					
Magazine Follower	Purchase	300364	B-300364	1	\$ 0.0940					
Magazine Bottom	Purchase	300365	B-300365	No Rev.	\$ 0.1050					
Magazine Spring	AIU M700	300405	C-300405	No Rev.	\$ 0.2590					
Value Added Cost of: Proof/Gallery/Inspect/Pack					\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Cost					\$ 39,3304	\$ -	\$ -	\$ -	\$ -	\$ -

Quoted Parts										
PART DESCRIPTION	Part #	Print #	Rev#	Price/part	Order Qty	Eng. Charge	Vendor Capital	Vendor Gages	PPI Gages	Comments
Document Envelope Assembly	7777	7777	7							
Document Envelope	1645	1649	7							
Instruction Book	7777	7777	7							
Product Owners Card	1426	1426	7							
Remington Authorized Gunsmith	3413	3413	7							
Safety Booklet	3490	3490	7							
Remington Museum Flyer	3475	3475	7							
Oval Label	3491	3491	7							
Carton Assembly	1444	1444	7							
Corrugated Box				\$ 0.5024	20					ORPACK-Stone Corporation
Bed				\$ 0.6996	20			\$ 19,000.00		Towerson
Box and Envelope Label (710)	993002	993002	7							
Barrel Assembly Complete	305418	C-305410	No Rev.							
Barrel Assembly	305400	C-305400	No Rev.							
Barrel	305315	E-305315	6							
Receiver	300340	E-300340	6							
Receiver Insert Assembly Complete	300401	D-300401	No Rev.							
Receiver Insert Assembly	300400	C-300400	No Rev.							
Receiver Insert	300321	E-300321-1-2	(1E)-5 (2E)-23							
Threaded Insert	300347	A-300347	A	\$ 0.0368	20				\$ 5,550.00	Precision Fasteners
Side Plate	300335	C-300335	No Rev.	\$ 0.9006	20				\$ 260.00	Historical Data
Side Plate Pin (2)	300328	A-300328	No Rev.	\$ 0.1600	60	\$ 225.00			\$ 1,500.00	Isch-Quote
Rear Safety Cam	15566	C-15566	24	\$ 0.7593	20		\$ 11,300.00		\$ 3,000.00	Sterling Sintered Tech. Inc.-Quote R/
Sweet Pin (1)	300351	B-300351	No Rev.	\$ 0.0270	60	\$ 450.00			\$ -	Automatic Swiss Corporation-Quote
Scare Spring	17947	A-17947	26	\$ 0.0228	20				\$ -	Blum Quote
Trigger	15280	C-15280	31	\$ 0.3771	20		\$ 15,725.00		\$ 3,000.00	Sterling Sintered Tech. Inc.-Quoted 5/0
Trigger Connector	19461	C-19461	21	\$ 1.3063					\$ 3,000.00	Farnal-Quote: 8/19/99
Trigger Screw Front	17053	B-17053	32	\$ 0.0595	20.36				\$ 300.00	Blum Quote SAP
Trigger Engagement Screw	14128	B-14128	7	\$ 0.0272	0.10				\$ -	Blum Quote SAP
Trigger Spring	15490	A-15490	11	\$ 0.0299	20				\$ -	Fastenal-Quote:
Trigger Stop Screw	15481	A-15481	32	\$ 0.0415	20				\$ 300.00	Blum Quote:
Safety Arm	300408	D-300408	1	\$ 0.2860	20		\$ 25,552.00		\$ 2,400.00	North Hampshire Stamping-Quote: 2/25
Safety Detent Spring	300407	C-300407	1	\$ 0.0578	20				\$ -	Midstate Spring Inc.-Quote: 8/9/99
Lock Latches	300420	D-300420	No Rev.							
Lock Detent	7777	7777	77							
Safety Pin Pin	300352	B-300352	1	\$ 0.1400	20	\$ 225.00			\$ -	Isch-Quote: 8/25/99
Safety Snap Washer	70444	B-70444	26	\$ 0.0247					\$ 120.00	Blum Quote SAP
Bolt Stop	300345	C-300345	2	\$ 0.2190	20		\$ 6,820.00		\$ 1,500.00	Sterling Sintered Tech. Inc.-Quote:
Receiver Plug Screws (4)	17034	B-17034	64	\$ 0.1152					\$ -	Blum Quote: SAP
Recoil Bracket	300361	B-300361	No Rev.	\$ 0.1220	20	\$ 95.00			\$ -	Square Stamping Quote Aug. 11/99
Bolt Assembly Complete	7777	7777	77							
Bolt Body Assembly	300403	D-300403	No Rev.							
Bolt Body	300339	D-300339	1							#REF!
Bolt Head	0	0	0							
Bolt Handle	300370	C-300370	No Rev.	\$ 0.1000	20	\$ 112,575.00			\$ -	Farnal-Quote: 8/12/99
Bolt Handle Blank	300360	C-300360	No Rev.	\$ 0.1000	20	\$ 2,900.00			\$ -	Automatic Swiss Corporation-Quote: 8/
Bolt Handle Pin	300320	A-300320	7	\$ 0.1000	20	\$ 450.00			\$ -	
Bolt Head Assembly	300390	B-300390	No Rev.							
Bolt Head	300338	B-300338	14	\$ 0.7717	20				\$ 123.00	Parker & Harter Mfg. Company
Extractor	23712	C-23712	2	\$ 0.1160	20	\$ 400.00			\$ 3,000.00	Blum Quote SAP
Extractor	049627	B-049627	1	\$ 0.0152	20				\$ -	Isch-Quote: 4/25/99
Extractor Spring	300367	C-300367	No Rev.	\$ 0.0152	20				\$ -	Midstate Spring Inc.-Quote: 8/20/99
Extractor Pin	042516	A-042516	1	\$ 0.0152	20				\$ -	Blum Quote SAP
Bolt Assembly Pin	300350	C-300350	No Rev.	\$ 0.1000	20	\$ 450.00			\$ -	Automatic Swiss Corporation-Quote:
Spring Pin Assembly	300404	B-300404	No Rev.							
Bolt Plug	300368	C-300368	7	\$ 0.2150	20		\$ 35,000.00		\$ 800.00	Re Jones & Co.-Quote: 8/12/99
Bolt Plug Insert	300366	B-300366	No Rev.	\$ 0.0800	20	\$ 775.00	\$ 0.00		\$ 1,000.00	Swiss Precision Machining Inc.-Quot
Bolt Plug Pin	300334	C-300334	No Rev.	\$ 1.1900	20	\$ 400.00			\$ 200.00	Isch-Quote: 8/18/99
Bolt Plug Pin	300335	C-300335	No Rev.	\$ 0.2500	20	\$ 225.00			\$ 3,000.00	Isch-Quote: 8/16/99
Spring Head	300336	C-300336	No Rev.	\$ 1.5000	20		\$ 17,500.00		\$ 1,500.00	Megamot Industries-Quote: 9/13/99
Spring Pin	300399	A-300399	No Rev.	\$ 0.1000	20				\$ -	Midstate Spring-Quote: 8/20/99
Front Sight Assembly	0	0	0							
Front Sight	04808	C-15373	26	\$ 0.0068					\$ -	Blum Quote: Std. Avg. 8/6/98, Latest
Front Sight Base	98657	B-28510	33	\$ 1.1873					\$ 400.00	Blum Quote: Latest price change 8/1/99
Front Sight Spring (2)	28505	B-28505	21	\$ 0.0795					\$ -	Mayfield Quote SAP latest change 8/1/99
Rear Sight Assembly	103145	B-103145	11	\$ 3.2793					\$ -	Blum Quote SAP latest change 8/1/99
Elevation Screw	99906	A-99906	19	\$ 0.0236	20				\$ -	Blum Quote SAP
Rear Sight Aperture	97681	C-97681	9	\$ 0.2847	20				\$ -	May SAP Quote: 8/1/99 Latest change
Rear Sight Aperture Blank	91906	C-91906	6						\$ -	
Rear Sight Base	103531	C-103531	1	\$ 1.0170	80		\$ 17,500.00		\$ -	Blum Quote: 8/1/99
Rear Sight Side	04335	C-04335	7	\$ 1.2090	80		\$ 17,500.00		\$ -	Megamot Industries-Quote: 5/13/99
Windage Screw	100076	B-100076	5	\$ 0.1910	25	\$ 400.00			\$ -	Swiss Precision Machining Inc.-Quote:
Rear Sight Base Screw (7)	28505	B-28505	21						\$ -	
Stock Assembly Complete	7777	7777	77							
Stock Assembly	7777	7777	77	\$ 5.3800	20		\$ 150,300.00		\$ 4,500.00	Pat 4 Plastics, Inc. Aug. 15, 1999
Stock	0	0	0							
Front Screw Bushing	15161	D-15161	??						\$ -	
Front Screw Bushing Blank	15115	7777	777						\$ -	
Mobile Screw Bushing	7777	7777	777						\$ -	
Rear Screw Bushing	7777	7777	777						\$ -	
Clip Cap	17971	C-17971	No Rev.	\$ 0.3000					\$ -	Blum Quote SAP: 8/1/99 latest change
Recoil Pad	17973	D-17973	26	\$ 1.0100					\$ 400.00	Blum Quote: SAP latest price change 8/1
Recoil Plate	17972	C-17972	No Rev.	\$ 0.3590					\$ -	Blum Quote SAP
Recoil Pad Screw (2)	98008	A-98008	7	\$ 0.0220	20				\$ -	Farnal-Quote:
Magazine Latch	300362	C-300362	2	\$ 0.1913	20		\$ 33,090.00		\$ 50.00	Kellum & Co.-Quote: 8/17/99
Magazine Latch Spring	300398	D-300398	No Rev.	\$ 0.0257	20				\$ -	Industrial Springs-Quote: 8/21/99
Magazine Latch Pin	300371	B-300371	No Rev.	\$ 0.0500	20	\$ 225.00			\$ -	Isch-Quote: 8/25/99
Sling Swivel Stud (2)	300096	B-300096	4	\$ 0.2400					\$ -	Quote A/U from M597
Takedown Screw (2)	7777	7777	777						\$ 200.00	
Rear Takedown Screw	7777	7777	777						\$ 200.00	
Magazine Assembly	300393	D-300393	No Rev.						\$ -	
Magazine Pin	300363	B-300363	5	\$ 0.8412	20		\$ 89,000.00		\$ 4,500.00	Blum Quote: 10/18/99
Magazine Follow-up	300364	B-300364	1	\$ 0.0930	20		\$ 78,786.00		\$ 3,000.00	Pat 4 Plastics, Inc.-Quote: 8/27/99
Magazine Bottom	300365	B-300365	No Rev.	\$ 0.1090	20				\$ -	Pat 4 Plastics, Inc.-Quote: 8/27/99
Magazine Spring	008405	C-008405	No Rev.	\$ 0.2500			\$ 13,000.00		\$ 3,000.00	North American Spring-Quote: 10/22
Value Added Cost of:										
Prod/Gallery/Inspect/Pack										
Total Cost				\$ 29,608.7	1045.12	\$ 4,775.00	\$ 551,558.00	\$ -	\$ 52,498.00	

In House Processing										
PART DESCRIPTION	Part #	Print #	Rev#	Material \$	Labor (hrs)	Variable Tools \$	Pre-Op Setup \$	Capital \$	Material Handling \$	Comments
Document Envelope Assembly	7777	7777	7							
Document Envelope	1049	1049	1							
Instruction Book	7777	7777	7							
Product Owners Card	1426	1426	7							
Remington Authorized Contractor	3413	3413	7							
Safety Booklet	3499	3499	7							
Remington Museum Flyer	3475	3475	7							
Oval Label	3491	3491	7							
Carton Assembly	1444	1444	7							
Corrugated Box			7		0.0000					
Roll			7		0.0000					
Box and Envelope Label ("10)	933002	933002	7							
Barrel Assembly Complete	305410	C-305410	No Rev.		0.0000					
Barrel Assembly	305409	C-305409	No Rev.		0.0000					
Barrel	305315	E-305315	5	\$ 5.654	0.3585	\$ 4.02	\$ 43,760.62	\$	\$85,535.74	
Receiver	300340	E-300340	6	\$ 2.18	0.0832	\$ 1.00	\$ 12,695.61	\$	\$22,208.72	
Receiver Insert Assembly Complete	300401	D-300401	No Rev.		0.00282					
Receiver Insert Assembly	300400	C-300400	No Rev.		0.00100					
Receiver Insert	300377	E-300377-1	(11)*5 (2E)-23		0.0000					
Thermed Insert	300347	A-300347	A		0.00100					
Sole Plate	300334	C-300333	No Rev.		0.00100					
Sole Plate Pin (2)	300328	A-300328	No Rev.		0.00100					
Sole Safety Cam	1566	C-1566	24							
Pivot Pin (3)	300351	B-300351	No Rev.							
Sear Spring	17047	A-17047	26							
Trigger	15280	C-15280	31		0.0100					
Trigger Connector	15461	C-15461	21							
Trigger Screen Front	17053	B-17053	32							
Trigger Engagement Screw	91128	B-91128	7							
Trigger Spring	15400	A-15400	11							
Trigger Stop Screw	15481	B-17053	32							
Safety Arm	300408	B-300408	1		0.00100					
Safety Detent Spring	300407	C-300407	1		0.00100					
Lock Washer	300420	D-300420	No Rev.							
Lock Detent	7777	7777	777							
Safety Pivot Pin	300352	B-300352	1							
Snag Washer	17044	B-17044	26							
Roll Stop	300345	C-300345	2		0.00100					
Receiver Plug Screws (4)	17034	B-17034	33							
Recoil Bracket	300361	B-300361	No Rev.		-0.0130					
Bolt Assembly Complete	7777	7777	77							
Bolt Body Assembly	300403	D-300403	No Rev.							
Bolt Body	300339	D-300339	1		0.05739	\$ 20.12	\$ 10,000.00		\$109,773.31	
Bolt Handle	300370	C-300370	No Rev.		0.00100					
Bolt Handle Blank	300360	C-300360	No Rev.							
Bolt Handle Pin	300329									

MF0115

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Categorized box

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part #	Print #	REV	Material \$	Quantity	Std. Run Hours	Variable Overhead \$	Prep	Capital	PPI Gages \$	Material Handling	Comments
10	Locking Box						20							ORPACK-Stone Corporation
Totals														

MF0116

Bed

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part #	Print #	REV	Material S	Quantity	Std. Run Hours	Variable Overhead S	Preop	Capital	PFI Gages S	Material Handling	Comments
10	Feeding					0.60	20				19,000.00			Tuscarora
Totals														
						\$ 11.94	20	0	\$	\$	\$ 19,000.00	\$	\$	

CONFIDENTIAL 83

MF0117

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part #	Print #	REP	Material \$	Std. Run Hours	Variable Overhead \$	Preop	Capital	PPI Gages \$	Material Handling	Comments
10	Assemble Sights	Fixture Modifications Tooling											
	Press Receiver Insert Assy Complete into barrel Assy												
20	Complete												
Totals						\$ -		\$ -	\$ -	\$ -		\$ -	

ME0118

#304500 - Barrel Assembly

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part #	Print #	REV	Material \$	Std. Run Hours	Variable Overhead \$	Preop \$	Capital	PPI Gages \$	Material Handling	Comments
		Totals				\$ -	0.000000	\$0.00	\$0.00	\$ -	\$ -	\$0.00	

710 Complete 1

ME0119

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Op. #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part #	Print #	REV	Material	Std. Run Hours	Variable Overhead \$	Preop \$	Capital	PPI Gages \$	Comments
10	Cut to Length					\$ 5.054	0.00000	\$ 0.008	\$ 286.80	\$ -		Operation 010 Detail - Barrel Cut to Length
20	Gundrill Bore					N/A	0.04181	\$ 0.111	\$ 5,733.92	\$ -		Operation 020 Detail - Barrel Gundrill Bore
30	Ream Bore					n/a	0.04565	\$ 0.102	\$ 3,055.20	\$ -		Operation 030 Detail - Barrel Ream Bore
40	Rifle Bore					n/a	0.00000	\$ 0.075	\$ 6,752.00	\$ 6,080.00		Operation 040 Detail - Barrel Rifle Bore
50	Wash & Stress Relieve					n/a	0.00116	\$ -	\$ -	\$ 9,416.00		Operation 050 Detail - Barrel Wash & Stress Relieve
60	Turn O.D. & Inspect for Runout	Gaging				n/a	0.08845	\$ 0.093	\$ 4,986.46	\$ 5,000.00		Operation 060 Detail - Barrel Turn O.D. & Inspect
70	Face, Chamber, Machine Hub End, Drill & Tap Takedown Screw Holes, Mill Recoil Lug Slot & 100% Inspect Chamber Finish	Gaging Okuma LB-300				n/a	0.09169	\$ 3.101	\$ 8,620.00	\$ 33,404.00		Operation 070 Detail - Barrel Machine Chamber & Hub Complete
80	Cut-off & Crown Muzzle End	Clamping Chuck				n/a	0.00000	\$ 0.082	\$ 1,440.56	\$ 15,000.00		Operation 080 Detail - Barrel Cut-Off & Crown Muzzle
90	Drill & Tap Sight Screw Holes	Gaging				n/a	0.02020	\$ 0.062	\$ 3,515.05	\$ 14,515.00		Operation 090 Detail - Barrel Drill & Tap Sight Holes
100	Centerless Polish Barrel					n/a	0.00500	\$ 0.094	\$ 709.43	\$ -		
110	Wash & Magnaflux Barrel	Eddy Current Tester				n/a	0.01500	\$ -	\$ -	\$ 75,766.28		Operation 110 Detail - Barrel Eddy Current Test
120	Proseco Wash Barrels					n/a	0.00047	\$ -	\$ -	\$ -		Operation 120 Detail - Barrel Proseco Wash
130	Induction Heat Treat Hub	Induction Hardening Machine				n/a	0.00600	\$ -	\$ -	\$ 181,566.26		Operation 130 Detail - Barrel Induction Heat Treat Hub
140	Wash & Descale					n/a	0.00261	\$ -	\$ -	\$ -		Operation 140 Detail - Barrel Wash & Descale
150	Press Receiver onto Barrel	Gaging				n/a	0.02337	\$ 0.150	\$ 750.00	\$ 7,500.00		Operation 150 - Press Receiver onto Barrel
160	Inspect for Runout & Straighten if Necessary					n/a	0.00000	\$ 0.005	\$ 700.00	\$ 9,530.00		Operation 160 Detail - Barrel Assembly Inspect for Runout & Straighten as Necessary
170	Roll Mark					n/a	0.00300	\$ 0.127	\$ 3,730.00	\$ 1,240.00		Operation 170 Detail - Barrel Assembly Rollmark
180	Angularity Straighten Muzzle & Inspect Bore					n/a	0.00667	\$ 0.005	\$ 228.60	\$ 1,500.00		Operation 180 Detail - Barrel Assembly Angularity Straighten
185R	Centerless Polish	REPAIR ONLY										
190	Glass Bead					n/a	0.00556	\$ -	\$ 300.00	\$ -		Operation 190 Detail - Barrel Assembly Glass Bead
200	Black Oxide					n/a	0.00417	\$ 0.004	\$ 8,952.00	\$ -		Operation 200 Detail - Barrel Assembly Black Oxide
TOTALS						\$ 5.054	0.35585	\$ 4.017	\$ 49,760.02	\$ 585,535.74	\$ 0.00	

MF0120

Qty	Unit	Material	Quantity Price/M	Engineering Effort	Std. Run Hours	Variable		Prep \$	Capital \$	PFI \$
						Overhead \$				
\$	2.178				0.083721357	\$	1.00	\$12,695.61	\$	\$22,208.72
\$	-				0.4	\$		-		\$0
\$	-				0.4	\$		-		\$0
\$	2.178				0.083721357	\$	1.00	\$12,695.61	\$	\$22,208.72

82

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part #	Rev	Material	Quantity	Price/M	Engng	Sht Run	Variable Overhead	Prop	Capital	PTI	Material Handling	Comments
								Hours							
10	CNC Machine Complete				\$	2.178			0.083721537	\$	1.00	\$11,695.61	\$	\$22,038.72	Operation 10 Detail - Receiver CNC Machine Complete
20	Receiver O.D. Cylindrical Grind				\$	-			0	\$	-	-	\$0		Operation 20 Detail - Receiver O.D. Cylindrical Grind
30	Vibratory Deburr				\$	-			0	\$	-	-	\$0		Operation 30 Detail - Receiver Vibratory Deburr
															Kim-Mat Tools, Inc. - Quote #28599
										1.00	\$	\$12,695.61	\$	\$22,038.72	
										0.083721537	\$				
															Total:

MF0121

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part #	Print #	Rev	Material \$	Std. Run Hours	Variable Overhead \$	Preop \$	Capital \$	PFI Gages \$	Material Handling	Comments
1													
10	Demagnetize Metal Components					\$ -	0.000404	\$ -	\$ -				
20	Assemble - Stage 1	Fixturing				\$ -	0.011383	\$ -	\$ -	\$ 1,500.00			
30	Assemble - Stage 2	Fixturing				\$ -	0.025275	\$ -	\$ -	\$ 1,500.00			
40	Adjust on Comparator	Fixturing				\$ -	0.016929	\$ -	\$ -	\$ 5,000.00			
60	Function Check Complete					\$ -	0.006917	\$ -	\$ -				
70	Stamp Identification					\$ -	0.001908	\$ -	\$ -				
Totals						\$ -	0.06282	\$ -	\$ -	\$ 8,000.00	\$ -	\$ -	

MF0122

#300400 - Receiver Insert Assy

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part#	Print #	Rev	Material \$	Std. Run Hours	Variable Overhead \$	Preop \$	Capital \$	PPI Gages \$	Material Handling	Comments
10	Ultrasonic Weld	Fixturing				\$ -	0.001000	\$ -	\$ -	\$ 2,000.00		\$ -	
		Totals					0.001	\$ -	\$ -	\$ 2,000.00	\$ -	\$ -	

710 Complete 1

ME0123

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OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part#	Print#	Rev	Material \$	Std. Run Hours	Variable Overhead \$	Preop \$	Capital \$	PPI Gages \$	Material Handling	Comments
	Gaging										\$ 5,650.00		Estimated Quote Jerry Helmer
Totals											\$ 5,650.00		

ME0124

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M003947 - Threaded Insert

Print #	Key	Material	Quantity Per OM	Engineering Charge	Std. Run Hours	Variable Overhead	Prep	Capital
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	\$	\$.36	20					
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0.001

6.001000

20

\$ 4.0236

\$

710 Complete 1

10 Complete 1

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#300333 - Side Plate

QTY	PROCESS DESCRIPTION (Blank Material - Stamping (Including Vender and Penetration))	MACHINE DESCRIPTION	Part	Part	Rev	Material Price/M	Quantity	Engineering Charge	Std. Run Hours	Variable Overhead	Prop	Capital	PPT Gases	Material Handling	Comments
10	Blank Oxide Color					\$ 400.00	20						\$ 1,500.00		Historical Data Estimated Quote: Jerry Helmer
Totals															
													\$ 1,500.00		

CONFIDENTIAL 83

710 Complete 1

MF0126

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part#	Print #	Rev	Material \$	Quantity Price/M	Engineering Charge	Std. Run Hours	Variable Overhead \$	Preop \$	Capital \$	PPI Gages \$	Material Handling	Comments
	Blank Material - Screw Machine Gaging (vendor and Remington)					\$ 0.080	60.00	\$ 225.00					\$ -		Iseli-Quote:
10	Black Oxide Color								0.001000	\$ -	\$ -	\$ -	\$ -	\$ -	
Totals						\$ 0.080	60.00	\$ 225.00	0.001000	\$ -	\$ -	\$ -	\$ -	\$ -	

Note: Quoted in C12L14 material
Quoted with .010" max. cornerbreaks unless noted.

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part #	Print #	Rev	Material	Quantity	Engineering Charge	Std Run Hours	Variable Overhead	Prep	Capital	PFT Cages	Material Handling	Comments
	Black Material - PM Part Origins (Vendor and Remington) Tooling						20					\$ 11,300.00	\$ 3,000.00		Seal Safety Tech. Inc. - Quote: \$2499 Item Supplied
Totals															
												\$ 11,300.00	\$ 3,000.00	\$	

Note: Tooling samples will be shipped 12 wks. ARO
Production to follow (not approved by 60 weeks unless customer accepts responsibility
for production, given that it meets the print

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part#	Print #	Rev	Material \$	Quantity Piece/M	Engineering Charge	Std. Run Hours	Variable Overhead \$	Preop \$	Capital \$	FPI Cages \$	Material Handling	Comments
	Black Material - Screw Machine Claging (Vendor and Remington)					\$ 0.009	60.00	\$ 450.00					\$ -		Automatic Swiss Corporation--Quote: 8/20/99 Estimated Quote: Jerry Heimer
		Totals				\$ 0.009	60.00	\$ 450.00		\$ -	\$ -	\$ -	\$ -	\$ -	

Note: Quoted in C12L14 material

MF0129

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#17047 - Sear Spring

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part#	Print #	Rev	Material \$	Quantity M	Engineering Charge	Std. Run Hours	Variable Overhead \$	Preop \$	Capital \$	PPI Gages \$	Material Handling	Comments
	Material-Springs					\$ 0.023	20								Illion Quote
		Totals				\$ 0.023	20						\$ -		

7:10 Complete 1

ME0130

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Williams v. Remington

#15280 - Trigger

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part#	Print #	Rev	Material \$	Quantity M	Engineer's Charge	Std. Run Hours	Variable Overhead \$	Prep \$	Capital \$	FPI Gages \$	Material Handling	Comments
	Material-PM Parts Tooling Gages					\$ 0.377	20					\$ 15,225.00	\$ 3,000.00		Sterling Sintered Tech. Inc. - Quoted:9/03/99 Based on no Serrations on Trigger Estimated Quote: Jerry Helmer
10	Black Oxide Color								0.001000						
Totals						\$ 0.377	20		0.001000			\$ 15,225.00	\$ 3,000.00		

710 Complete 1

ME0131

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Williams v. Remington

#19461 - Trigger Connector

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part#	Print #	Rev	Material \$	Std. Run Hours	Variable Overhead \$	Preop \$	Capital \$	PPI Gages \$	Material Handling	Comments
	Gages					\$ 1.51					\$ 3,000.00		Item Supplied Estimated Quote: Jerry Holmer
Totals						\$ 1.51					\$ 3,000.00		

710 Complete 1

ME0132

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Williams v. Remington

#17053 - Trigger Screw Front

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part#	Print #	Rev	Material \$	Quantity M	Engineering Charge	Std. Run Hours	Variable Overhead \$	Preop \$	Capital \$	PPI Gages \$	Material Handling	Comments
	Material--Fasteners Gages					\$ 0.040	20.0						\$ 300.00		Fastenal--Quote: 8/19/99 Estimated Quote: Jerry Helmer
Totals						\$ 0.040	20.0		0.000000				\$ 300.00		

710 Complete 1

ME0133

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Williams v. Remington

#91128 - Trigger Engage, Screw

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part#	Print #	Rev	Material \$	Quantity M	Engineering Charge	Std. Run Hours	Variable Overhead \$	Preop \$	Capital \$	PPI Gages \$	Material Handling	Comments
	Material-Fasteners Gages						0.10						\$ 300.00		Ibon Quote SAP Estimated Quote: Jerry Helmer
Totals						\$ 0.027	0.10						\$ 300.00		

710 Complete 1

ME0134

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Williams v. Remington

#15400 - Trigger Spring

QTY #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part#	Print #	Ref	Material \$	Quantity M	Engineering Charge	Std. Run Hours	Variable Overhead \$	Preop \$	Capital \$	PFI Gages \$	Material Handling	Comments
	Gages						20							0	Non Quote SAP
Totals															

710 Complete 1

MF0135

#15481 - Trigger Stop Screw

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part#	Print#	Rev	Material \$	Quantity M	Engineering Charge	Std. Run Hours	Variable Overhead \$	Preop \$	Capital \$	PPI Gages \$	Material Handling	Comments
	Material- Screw Gages					\$ 0.042	20						\$ 300.00		Fastenal--Quote: Estimated Quote: Jerry Helmer
Totals						\$ 0.042	20						\$ 300.00		

710 Complete 1

MF0136

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OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part #	Print #	Rev	Material	Overhead	Engineering Charge	Std. Run Time	Variable Overhead	Prop	Capital	YPI Gages	Material Handling	Comments
10	Blank Material Gaging (Vendor and Remington) Tooling Vendor Heat Treat					0.230						\$ 21,552.00	\$ 2,400.00		New Remington Shamping-Quote: 9/28/99 Estimated Quote: Jerry Helmer
20	Blank Order Color					0.230			0.001000			\$ 21,552.00	\$ 2,400.00		
Totals															

Note: Production delivery will take two weeks. 1 week for delivery of first quality acceptance sample.
1 week for delivery of sample approval. 18 weeks total

#300407 - Safety Detent Spring

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part#	Print #	Rev	Material \$	Quantity M	Engineering Charge	Std. Run Hours	Variable Overhead \$	Preup \$	Capital \$	Material Handling	Comments
	Material-Spring					\$ 0.058	20							Midstate Spring Inc. --Quote: 9/23/99
10	Black Oxide								0.001000					
Totals						\$ 0.058	20		0.001000					

710 Complete 1

ME0138

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Williams v. Remington

#300420 - Lock Tumbler

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part#	Print #	Rev	Material \$	Std. Run Hours	Variable Overhead \$	Preop \$	Capital \$	Material Handling	Comments
10	Wash											
20	Black Oxide											
30	Paint											
Totals												

710 Complete 1

ME0139

Confidential - Subject to Protective Order
Williams v. Remington

#xxx - Lock Detent

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part#	Print #	Rev	Material \$	Std. Run Hours	Variable Overhead \$	Preop \$	Capital \$	Material Handling	Comments
Totals												

ME0140

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part #	Print #	Rev	Material \$	Quantity Piece/M	Engineering Charge	Std. Run Hours	Variable Overhead \$	Preop \$	Capital \$	PPI Gages \$	Material Handling	Comments
	Blank Material - Screw Machine Gaging (vendor and Remington)					\$ 0.140	20	\$ 225.00					\$		Iseli Company--Quote: 8/25/99
Total						\$ 0.140	20	\$ 225.00			\$	\$	\$	\$	

Note: Quoted in C12L14 material
Quoted with .10" max. cornerbreaks unless noted.

ME0141

#17044 - Safety Snap Washer

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part#	Print #	Rev	Material \$	Std. Run Hours	Variable Overhead \$	Preop \$	Capital \$	PPI Gages \$	Material Handling	Comments
	GAGES					\$ 0.02					\$ 120.00		Ilion Quote SAP Estimated Quote: Jerry Helmer
Totals						\$ 0.02					\$ 120.00		

710 Complete 1

ME0142

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Williams v. Remington

#300345 - Ball Stop

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part#	Print #	Mat	Material	Quantity	Engineering Charge	Std. Run Hours	Variable Overhead	Prep	Capital	PFI Gages	Material Handling	Comments
10	Blank Material - PMT Tools Gages					\$ 0.219						\$ 6,820.00	\$ 1,500.00		Reaching Standard Tech Inc.-Quote: 872.50 Estimated Quote: Jerry Holmer
20	Blank Oxide Color														
Totals															
						\$ 0.219	20			0.001		\$ 6,820.00	\$ 1,500.00	\$	

Notes:
.000 step instead of .125
.015 flat in the .050 radius

710 Complete 1

MF0143

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part#	Print #	Rev	Material \$	Std. Run Hours	Variable Overhead \$	Preop \$	Capital \$	PPI Gages \$	Material Handling	Comments
	Blank Material - Stamping Gaging (vendor and Remington) Tooling					\$ 0.03							Ilion Quote SAP
Totals						\$ 0.03	0.000000	\$ -	\$ -	\$ -	\$ -	\$ -	

ME0144

#300361 - Recoil Bracket

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part#	Print #	Rev	Material \$	Quantity Piece/M	Engineering Charge	Std. Run Hours	Variable Overhead \$	Preop \$	Capital \$	Material Handling	Comments
	Blank Material - Stamping					0.123	20	\$ 550.00						Square Stamping Quote Aug. 11, 99
10	Black Oxide Color								0.001000	\$ -	\$ -	\$ -	\$ -	
Totals						\$ 0.123	20	\$ 550.00	0.001	\$ -	\$ -	\$ -	\$ -	

Note: Above quote is to be made from C1008 steel, .187" + or - .003 thickness

ME0145

#XXX - Bolt Assy. Complete

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part#	Print #	Rev	Material \$	Std. Run Hours	Variable Overhead \$	Preop \$	Capital \$	Material Handling	Comments
10	Blank Material - Stamping Gaging (Vendor and Remington)										\$ -	
Totals						\$ -	0	\$ -	\$ -	\$ -	\$ -	

710 Complete

ME0146

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Williams v. Remington

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part#	Print #	Rev	Material \$	Std. Run Hours	Variable Overhead \$	Preop \$	Capital \$	Material Handling	Comments
ZERO												
Totals							0.0	\$ -	\$ -	\$ -	\$ -	

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part #	Print #	REV	Material \$	Std. Run Hours	Variable Tool	Preop \$	Capital	Material Handling	Comments
10	Machine Complete from Bar Stock					\$ 0.740	0.032648	\$0.29	\$5,508.76	\$4,579.95		Operation 10 Detail - Bolt Body Machine
20	Wash					\$ -	0.001000		\$0.00	\$0.00		Operation 20 Detail - Bolt Body Wash
30	Assemble & Braze Bolt Handle to Bolt Body					\$ -	0.012500	\$0.01	\$0.00	\$94,693.36		Operation 30 Detail - Bolt Body Assy. & Braze Bolt....
40	Deplate & Wash					\$ -	0.002000	\$0.07	\$660.00	\$10,500.00		Operation 40 Detail - Bolt Body Deplate & Wash
50	Glass Bead Bolt Body					\$ -	0.035556	\$0.00	\$252.00	\$0.00		Operation 60 Detail - Bolt Body Glass Bead
60	Black Oxide					\$ -	0.002084	\$0.00	\$8,568.00	\$0.00		Operation 70 Detail - Bolt Body Black Oxide
		TOTALS				\$ 0.740	0.055787	\$0.37	\$15,048.76	\$109,773.31	0.00	

Note:
Prices are material and labor only

ME0148

#30270 - Bot Handle

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part #	Prod #	Qty	Engng Charges	Std Rtn Hours	Variable Overhead \$	Prop \$	Capital \$	Material Handling	Comments
	Vendor Tooling				20			\$ 12,575.00				Fasten--Quote 8/12/99
10	CNC Machine Bot Handle Complete						2.000000	\$ -	\$ -	\$0		Operation 10 Detail - Bot Handle CNC...
20	Tumble						0	0	0	\$0		Operation 20 Detail - Bot Handle Tumble
TOTALS											\$0.00	

710 Complete 1

MF0149

#300360 - Bolt Handle Blank

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part#	Print #	Rev	Material \$	Std. Run Hours	Variable Overhead \$	Preop \$	Capital \$	PPI Gages	Material Handling	Comments
	Gages										\$ 2,500.00		Estimated Quote: Jerry Helmer
		Total									\$ 2,500.00		

710 Complete 1

ME0150

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Williams v. Remington

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part#	Print #	Rev	Material \$	Quantity M	Engineering Charge	Std. Run Hours	Variable Overhead \$	Preop \$	Capital \$	Material Handling	Comments
	Blank Material - Stamping Cinzing (Vendor and Remington)					\$ 0.100	20	\$ 450.00						Automic Swiss Corporation--Quote: 8/20/99
10	Inspection	Fixture Comparator w/ Screen												
Totals						\$ 0.100	20	\$ 450.00		\$0.00	\$0.00	\$0.00	\$0.00	

ME0151

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Williams v. Remington

Was Bolt Handle Brazing

PROCESS OP # DESCRIPTION	MACHINE DESCRIPTION	Part#	Print #	Rev	Material \$	Std. Run Hours	Variable Overhead \$	Preop \$	Capital \$	Material Handling	Comments
Totals						\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	

710 Complete 1

ME0152

#30593 - Bolt Head Assy

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part#	Rev	Material \$	Std. Run Hours	Variable Overhead \$	Preop \$	Capital \$	Material Handling	Comments
10	Assemble Rivetless Extractor				\$ -	0.00692	\$ -	\$ -	\$ -	\$ -	
20	Assemble Ejector				\$ -	0.0083	\$ -	\$ -	\$ -	\$ -	
Totals					\$0.00	0.01522	\$0.00	\$0.00	\$0.00	\$0.00	

710 Complete 1

ME0153

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part #	Part #	Material Price	Std. Run Time	Variable Overhead	Prep	Capital	PPH Capex	Material Handling	Comments
1	Head Jigging				see op 10							Factor & Harper Mfg. Company Estimated Cost: 100.00
2	CNC Machine Tool Piece Complete				\$1.75	0.01944	0.22763	2.49154	\$12,522.1	\$	120.00	Operation 10 Detail - Bolt Head CNC Machine...
3	Engine Assembly Good Lure					0.0186692	0.392750	\$315	\$39,500			Operation 20 Detail - Bolt Head Suppression...
4	CNC Machine Tool Head Assembly				\$0.00	0.00756248	0.06875	1.08956	\$10,600			Operation 30 Detail - Bolt Head Assembly Pin Hole
5	CNC Machine Gun Cuts Ejector				\$0.00	0.01740	0.12425	1.70078				Operation 40 Detail - Bolt Head Ejector...
6	Knurling Pin Hole, Lower				\$0.00		0.01	100.00	\$10,600			Operation 50 Detail - Bolt Head Punch...
7	Punch Form Extruder Ejector				\$0.00				\$10,600			Operation 60 Detail - Bolt Head Vender...
8	Vender Head Tool & Insert for				\$0.00				\$0			
9	Insert for				\$0.00				\$0			
10	Black Ceria				\$0.00				\$0			
Total											\$12,522.1	

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part#	Print #	Rev	Material \$	Std. Run Hours	Variable Overhead \$	Preop \$	Capital \$	PPI Gages \$	Material Handling	Comments
	Gages					\$ 0.77					\$ 1,300.00		Ilion Quote SAP Estimated Quote: Jerry Helmer
Total						\$ 0.77							

ME0155

CP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Paid #	Print #	Rev	Material \$	Quantity M	Engineering Charge \$	Std. Run Hours	Variable Overhead \$	Prop \$	Capital \$	PPI Cages \$	Materials Handling \$	Comments
	Bulk Material - Screw Machine (Gaging Vendor and Kennigton)					\$ 0.116	20	\$ 480.00					\$ 3,000.00		Inch-Quote: \$25.99 Estimated Quote: Jerry Hahner
							0		0.001099	\$ -	\$ -	\$ -		\$ -	
	Total					\$ 371.0	20	\$ 480.00	0.001	\$ -	\$ -	\$ -	\$ 3,000.00	\$ -	

Note:
Quoted in U12L14 material
Quoted with .010" max corr.

710 Complete 1

#000: Ejector Spring

		Variable										Comments		
OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part#	Print #	Rev	Material \$	Quantity M	Engineering Charge	Std. Run Hours	Overhead \$	Preop \$	Capital \$	Material Handling	
	Blank Material - Screw Machine Gaging (vendor and Remington)					\$ 0.015	20							Midstate Spring, Inc.--Quote: 8/20/99
Totals						\$ 0.015	20			\$ -	\$ -	\$ -	\$ -	

710 Complete 1

ME0157

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Williams v. Remington

#94555 - Ejector Pin

PROCESS OP #	MACHINE DESCRIPTION	Part#	Print #	Rev	Material	Quantity M	Engineering Charge	Std. Run Hours	Variable Overhead \$	Preop \$	Capital \$	Material Handling	Comments
	Blank Material - Screw Machine Gaging (vendor and Remington)				\$ 0.01	20							Ilion Quote SAP
Totals					\$0.01	20		0	\$ -	\$ -	\$ -	\$ -	

710 Complete 1

ME0158

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Williams v. Remington

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part#	Print #	Rev	Material \$	Quantity M	Engineering Charge	Std. Run Hours	Variable Overhead \$	Preop \$	Capital \$	Material Handling	Comments
	Blank Material - Screw Machine Gaging (vendor and Remington)					\$ -	20	\$ 450.00						Automatic Swiss Corporation--Quote: 8/20/99
10	Black Oxide Color								0.000001	\$ -	\$ -	\$ -	\$ -	
Totals						\$ 0.1500	20	\$ 450.00	0.000001	\$0.00	\$0.00	\$0.00	\$0.00	

Note: Quoted in C12L14 material
Quoted with .10" max. cornerbreaks unless noted.

ME0159

#300404 - Firing Pin Assembly

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part#	Print #	Rev	Material \$	Std. Run Hours	Variable Overhead \$	Preop \$	Capital \$	Material Handling	Comments
10	Assemble Firing Pin Tip to Firing Pin					\$ -	0.001109	\$ -	\$ -		\$ -	
20	Assemble Firing Pin Sub Assembly, Main Spring, Bolt Plug & Firing Pin Head					\$ -	0.014515	\$ -	\$ -		\$ -	
Totals						\$0.00	0.0156238	\$0.00	\$0.00	\$0.00	\$0.00	

ME0160

Note: Remington is to supply metal inserts.

	Material	Quantity	Engineer's Charge	S&R Run Hours	Variable Overhead	Frog	Capital	PPI Gages	Material Handling
	\$	M	\$	Hours	\$	\$	\$	\$	
	\$ 0.00	20	\$ 77.00					\$ 3,000.00	
	\$ 9.80	20	\$ 77.00	0	\$ 0.00	\$ 0.00	\$ 0.00	\$ 3,000.00	\$ 0.00

CONFIDENTIAL

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#BX346 - Box Plot Item

T-10 (Page 7)

1. **Complete:**

83

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part#	Print #	Rev	Material \$	Quantity M	Engineering Charges	Std. Run Hours	Variable Overhead \$	Preop \$	Capital \$	PPI Gages \$	Material Handling	Comments
	Blank Material - Screw Machine Gaging (Vendor and Remington)					\$ 1.190	20	\$ 400.00					\$ 200.00		Iseli-Quote: 8/16/99 Estimated Quote: Jerry Helmer
10	Black Oxide Color								0.001000	\$ -	\$ -	\$ -		\$ -	
Totals						\$ 1.190		\$ 400.00	0.001	\$ 0.00	\$ 0.00	\$ 0.00	\$ 200.00	\$ 0.00	

Note:

Note:
 Quote to altered drawing (faxed on 8-10-99 by Matt Golenbeski)
 Quote in C12L14 material
 Quoted with 10-24 reading 8-32.
 Quoted with heat treat and black oxide to be done by Remington
 Quoted with .015" max. cornerbreaks unless noted

MF0163

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part#	Printed	Rev	Material	Quantity	Engineering Charge	Std. Run Hours	Variable Overhead \$	Preop \$	Capital \$	PFI Gages \$	Material Handling	Comments
	Blank Material - Screw Machine (aging (vendor and Remington))						20	\$ 225.00					\$ 3,300.00		Iseli--Quote: 8/16/99 Estimated Quote: Jerry Helmer
10	Heat Treat							\$ 0.00							
20	Black Oxide Color								0.001000	\$ -	\$ -	\$ -		\$ -	
Totals							20	\$ 225.00	0.001	\$0.00	\$0.00	\$0.00	\$3,300.00	\$0.00	

Note: Quoted in altered drawing (faxed 8-10-99 by Matt Golemboski)
 Quoted with 10-24 reading 8-32
 Quoted with .143 +/- .002 diameter reading .141 +/- diameter
 Quoted with heat treat and black oxide to be done by Remington
 Quoted with .015" max. cut-off nib on threaded end.

MF0164

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 Williams v. Remington

#300335 - Firing Pin Head

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part#	Print #	Rev	Material	Quantity	Engineering Charge	Std. Run Hours	Variable Overhead	Prep	Capital	PPH Cores	Material Handling	Comments
	Blank Material - MM					\$ 1,500.00	20						\$ 1,500.00		Meyand Industries Quote: 9/13/99 Estimated Quote: Jerry Heimer
10	MM process part	mold finave setters										\$ 15,000.00		\$ -	
												\$ 2,500.00			
Totals															
												\$ 17,500.00	\$ 1,500.00	\$ 0.00	

710 Comp # 1

MF0165

#300399- Firing Pin Spring

PROCESS OP #	DESCRIPTION	MACHINE DESCRIPTION	Part#	Print #	Rev	Material \$	Quantity M	Engineering Charge	Std. Run Hours	Variable Overhead \$	Preop \$	Capital \$	Material Handling	Comments
	Blank Material - Screw Machine Gaging (vendor and Remington)					\$ 0.1008	20							Midstate Spring--Quote: 8/20/99
10	Black Oxide Color					\$			0.003000	\$ -	\$ -	\$ -	\$ -	
Totals						\$0.1008	20		0.003	\$0.00	\$0.00	\$0.00	\$0.00	

7:10 Complete 1

ME0166

Confidential - Subject to Protective Order
Williams v. Remington

#XXX - Front Sight Assy.

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part #	Print #	Rev	Material \$	Std. Run Hours	Variable Overhead \$	Preop \$	Capital \$	Material Handling	Comments
	Blank Material - Screw Machine Gaging (vndor and Remington)											
10	Assem. Front sight to front sight ramp											
Totals						\$0.00	0	\$0.00	\$0.00	\$0.00	\$0.00	

710 Complete 1

ME0167

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Williams v. Remington

PROCESS OP #	DESCRIPTION	MACHINE DESCRIPTION	Part#	Print #	Rev	Material \$	Set Run Hours	Variable Overhead \$	Preop \$	Capital \$	Material Handling	Comments
	Blank Material - Screw Machine Gaging (vendor and Remington)					0.8068						Ilion-Quote: Std. Avg. .8068, Latest revision: 8/01/99
10	Black Oxide Color					0.0000	0.005000	\$ -	\$ -	\$ -	\$ -	
Totals						\$ 0.8068	0.005	\$0.00	\$0.00	\$0.00	\$0.00	

MF0168

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Williams v. Remington

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part#	Print #	Rev	Material	Std. Run Hours	Variable Overhead \$	Prep \$	Capital \$	PPI Cages \$	Material Handling	Comments
	Blank Material - Snow Machine Gun (Vendor and Remington)					\$ 1.187					\$ 400.00		Ilion SAP Quote - Last date 8/1/99 Estimated Quote: Jerry Helmer
10	Black Oxide Color						0.002000	\$ -	\$ -	\$ -		\$ -	
Totals													
							\$ 1.187	\$ -	\$ 0.00	\$ 0.00	\$ 400.00	\$ 0.00	

#28506 - F. Sight Ramp Screws

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part#	Print #	Rev	Material \$	Std. Run Hours	Variable Overhea \$	Preop \$	Capital \$	Material Handling	Comments
	Blank Material - Screw Machine Gaging (vendor and Remington)					\$ 0.0398						Mayfield Quote SAP latest change 8/1/99
Totals						\$0.0398	0.00	\$0.00	\$0.00	\$0.00	\$0.00	

710 Complete 1

ME0170

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Williams v. Remington

#103146 - Rear Sight Assembly

PROCESS OP #	DESCRIPTION	MACHINE DESCRIPTION	Part#	Print #	Rev	Material \$	Std. Run Hours	Variable Overhead \$	Preop \$	Capital \$	Material Handling	Comments
	Blank Material - Screw Machine Gaging (vendor and Remington)					\$3.28	0	\$0.00	\$0.00	\$0.00	\$0.00	Ilion Quote SAP latest change 8/1/99
	Totals					\$3.28	0	\$0.00	\$0.00	\$0.00	\$0.00	

ME0171

#90906 - Elevation Screw

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part#	Print #	Rev	Material \$	Quantity M	Engineering Charge	Std. Run Hours	Variable Overhead \$	Preop \$	Capital \$	Material Handling	Comments
	Blank Material - Screw Machine Gaging (vendor and Remington)					\$ 0.024	20							Ilion Quote SAP
Totals						\$ 0.024	20		0	\$0.00	\$0.00	\$0.00	\$0.00	

710 Complete 1

ME0172

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Williams v. Remington

#84333 - Rear Sight Aperture

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part#	Print#	Rev	Material \$	Std. Run Hours	Variable Overhead \$	Preop \$	Capital \$	Material Handling	Comments
	Blank Material - Screw Machine Gaging (vendor and Remington)					\$ 0.285						May SAP Quote: 8/1/99 Latest change
10	Black Oxide Color					\$ 0.003000		\$ -	\$ -	\$ -	\$ -	
Totals						\$ 0.288	0.003	\$0.00	\$0.00	\$0.00	\$0.00	

710 Complete 1

ME0173

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Williams v. Remington

#103531 - Rear Sight Base

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part#	Print #	Rev	Material \$	Quantity M	Engineering Charge	Std. Run Hours	Variable Overhead \$	Preop \$	Capital \$	Material Handling	Comments
	Blank Material - Screw Machine Gaging (vendor and Remington) Tools Fixtures 10 Black Oxide Color					\$ 1.017	80		0.003000			\$ 15,000.00 \$ 2,500.00		Ilion SAP Quote 8/1/99
Totals						\$ 1.017	80		0.003	\$0.00	\$0.00	\$17,500.00	\$0.00	

710 Complete 1

ME0174

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Williams v. Remington

#64355 - Rear Sight Slide

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part#	Print #	Rev	Material \$	Quantity	Engineering Charge	Std. Run Hours	Variable Overhead \$	Preop \$	Capital \$	Material Handling	Comments
	Blank Material - Screw Machine					1.200	80							Megamet Industries--Quote: 9/13/99
	Gaging (vendor and Remington)													
	Tools											\$ 15,000.00		
10	Drill and Tap	Fixture										\$ 2,500.00		
20	Black Oxide Color								0.001000					
Totals						\$ 1.200	80		0.001	\$0.00	\$0.00	\$17,500.00	\$0.00	

710 Complete 1

ME0175

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Williams v. Remington

QTY #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part #	Print #	Part #	Material	Quantity	Engineering Charge	Std. Run Hours	Variable Overhead	Freep	Capital	Material Handling	Comments
	Black Maxima - Screw Machine Casing (Vendor and Remington)					\$ 0.191	25	\$ 477.50	0	\$0.00	\$0.00	\$0.00	\$0.00	Screw Precision Maching Inc. -Quote: 8/3/99
Totals						\$ 0.191	25	\$ 477.50	0	\$0.00	\$0.00	\$0.00	\$0.00	

#28506 - Rear Signl Base Screws

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part#	Print #	Rev	Material \$	Std. Run Hours	Variable Overhead \$	Preop \$	Capital \$	Material Handling	Comments
	Blank Material - Screw Machine Gaging (vender and Remington)					\$ 0.04						May SAF Quote 8/1/99 latest change
Totals						\$0.04	0	\$0.00	\$0.00	\$0.00	\$0.00	

ME0177

#xxx - Stock Assy. Complete

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part #	Print #	Rev	Material \$	Std. Run Hours	Variable Overhead \$	Preop \$	Capital \$	Material Handling	Comments
10	Blank Material - Screw Machine Gaging (vendor and Remington) Assemble butt plate to stock						0.016000					
Totals						\$0.00	0.016	\$0.00	\$0.00	\$0.00	\$0.00	

710 Complete 1

ME0178

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Williams v. Remington

#xxx - Stock Assy.

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part#	Print #	Rev	Material \$	Std. Run Hours	Variable Overhead \$	Preop \$	Capital \$	Material Handling	Comments
	Blank Material - Screw Machine Gaging (vendor and Remington)					\$ 0.30						
Totals						\$0.30	0	\$0.00	\$0.00	\$0.00	\$0.00	

710 Complete 1

ME0179

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Williams v. Remington

#xxx - Stock

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part#	Print #	Rev	Material \$	Quantity M	Engineering Charge	Std. Run Hours	Variable Overhead \$	Preop \$	Capital \$	PPI Gages \$	Material Handling	Comments
	Material-Plastic Gaging (vendor and Remington)					\$ 5.38	20						\$ 4,500.00		Par 4 Plastics, Inc. Aug. 19, 1999
10	Cavity Mold	New Tooling										\$ 150,300.00			
Totals						\$5.38	20		0	\$0.00	\$0.00	\$150,300.00	\$4,500.00	\$0.00	

Note: Divider sleeves for the stock have been amortized over the first years production at a cost of \$.006 per sleeve

710 Complete 1

ME0180

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Williams v. Remington

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part #	Rev	Material	Quantity	Engineering Charge	Std Run Hours	Variable Overhead	Prop	Capital	Material Handling	Comments
	Material Place, Gaging (Vendor and Remington)												Blow SAP Quote, 8/7/99 Inval change
10	Cavity Mold	New Tooling											
Totals													
						0.1485		0	\$0.00	\$0.00	\$0.00	\$0.00	

MF0181

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part #	Part #	Qty	Material \$	Engineering Charge	Std. Run Hours	Variable Overhead \$	Prep \$	Capital \$	Material Handling	Comments
10	Cavity Mold	New Tooling											
Totals													
						\$0.00		0	\$0.00	\$0.00	\$0.00	\$0.00	

8001 Rear Screen-Bushing

QTY	PROCESS DESCRIPTION	MATERIAL DESCRIPTION	Part #	Part	Material	Quantity	Engineering Charge	Std. Run Hours	Variable Overhead	Prop.	Capital	Material Handling	Comments
10	Curry Mold	New Tooling			1	10		0	\$3.00	\$3.00	\$0.00	\$0.00	
Total													

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710 Complete 1

MF0183

Material	Quantity	Engineering Charge	Std. Run Price	Variable Overhead	Prep	Capital
\$				\$	\$	\$
\$0.18	20		0	\$0.00	\$0.00	\$0.00

CONFIDENTIAL 83

#01371 - Clip Cap

210 Continued 1

110 Comments 1

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Williams v. Remington

8/19/73 PRC:PAE

DP#	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part #	Part #	Material	Quantity	Engineering	Sold Run	Variable Overhead	Setup	Capital	PPI Cost	Material	Handling	Comments
	Material Blank (Blank (under and Remains))				1.00	1.00	20					\$ 400.00			Item Quoted SAP Item price change \$2.00 Estimated Quoted Item Price
Totals															
					1.00	1.00	20		10.00	10.00	10.00	1400.00		10.00	

8/19/73 PRC:PAE

MF0185

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part#	Print #	Rev	Material \$	Quantity M	Engineering Charge	Std. Run Hours	Variable Overhead \$	Preop \$	Capital \$	PPI Gages \$	Material Handling	Comments
	Material-Plastic Gaging (Vendor and Remington)					\$ 0.39									Ilion Quote SAP Estimated Quote: Jerry Helmer
						\$0.39	0			\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
		Totals				\$0.39	0			\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	

ME0186

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Williams v. Remington

Part #	Rev.	Material \$	Quantity M	Engineering Charge	Std. Rate Hour	Variable Overhead \$
		\$.011	20		0	\$0.00

83

710 Complete 1

1. *et al.* (1991)

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Williams v. Remington

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Parts	Print #	Rev	Material \$	Quantity	Engineering Charge	Std. Run Hours	Variable Overhead \$	Preop \$	Capital \$	Material Handling	Comments
	Material-Plastic Gaging (vendor and Remington)					0.191	20							
10	Cavity Mold	New Tooling										\$ 39,000.00		
Totals						\$ 0.191	20		0	\$0.00	\$0.00	\$39,000.00	\$0.00	

ME0188

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 Williams v. Remington

OT #	PROCESS DESCRIPTION Material-Plastic Gaging (Vendor and Remington)	MACHINE DESCRIPTION	Part #	Print #	Rev	Material \$	Quantity	Engineering Charge	Std. Run Hours	Variable Overhead \$	Prep \$	Capital \$	Material Handling	Comments
						0.0257	20		0	\$0.00	\$0.00	\$0.00	\$0.00	Industrial Spring Quote 8/2/99
Totals														

#300371 - Mag Latch Pivot Pin

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part#	Print #	Rev	Material \$	Quantity M	Engineering Charge	Std. Run Hours	Variable Overhead \$	Preop \$	Capital \$	Material Handling	Comments
	Blank Material - Screw Machine Gaging (vendor and Remington)					\$ 0.070	20	\$ 225.00						Isell--Quote: 8/25/99
10	Black Oxide Color					\$ -			0.001000	\$ -	\$ -	\$ -	\$ -	
Totals						\$ 0.070	20	\$ 225.00	0.001	\$0.00	\$0.00	\$0.00	\$0.00	

Note:
Quoted in C72L14 material
Quoted with .015" max. cornerbreaks unless noted

710 Complete 1

ME0190

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#300096 - Sling Swivel Stud

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part#	Print #	Rev	Material \$	Std. Run Hours	Variable Overhead \$	Preop \$	Capital \$	Material Handling	Comments
	Blank Material - Screw Machine Gaging (vendor and Remington)					\$ 0.14						Quote A/U from M597
						\$0.14	0	\$0.00	\$0.00	\$0.00	\$0.00	
		Totals				\$0.14	0	\$0.00	\$0.00	\$0.00	\$0.00	

710 Complete 1

ME0191

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#xxx- Takedown Screws (2)

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part#	Print #	Rev	Material \$	Run Hours	Variable Overhead \$	Preop \$	Capital \$	PPI Gages \$	Material Handling	Comments
	Blank Material - Screw Machine Gaging (Vendor and Remington)										\$ 200.00		Estimated Quote: Jerry Helmer
	Totals					\$0.00		\$0.00	\$0.00	\$0.00	\$200.00	\$0.00	

ME0192

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#XXX - Rear Takedown Screw

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part#	Print #	Rev	Material	Std. Run Hours	Variable Overhead \$	Preop \$	Capital \$	FPI Gages \$	Material Handling	Comments
	Blank Material - Screw Machine Gaging (vender and Remington)										\$ 200.00		Estimated Quote: Jerry Helmer
Totals						\$0.00	0	\$0.00	\$0.00	\$0.00	\$200.00	\$0.00	

ME0193

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#XXXX -Magazine Assy

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part#	Print #	Rev	Material \$	Std. Run Hours	Variable Overhead \$	Preop \$	Capital \$	Material Handling	Comments
10	Assemble Magazine box					\$ -	0.0083	\$ -	\$ -	\$ -	\$ -	
Totals						\$ -	0.0083	\$ -	\$ -	\$ -	\$ -	

710 Complete 1

ME0194

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part#	Part#	Rev	Material	Quantity	Engineering Charge	Std Run Hours	Variable Overhead	Preop	Capital	PFI Gages	Material Handling	Comments
	Blank Material - Stamping Gauging (Vendor and Remington)						20					\$	\$ 4,500.00		Blank Quote: 10/18/99 Estimated Quote: Jerry Helina
10	Blank Oxide Color								0.001000	\$ -	\$ -	\$ -	\$ -	\$ -	
Totals															

83

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part#	Print#	Rev	Material \$	Quantity M	Engineering Charge	Std. Run Hours	Variable Overhead \$	Preop \$	Capital \$	Material Handling	Comments
	Blank Material - Stamping Gaging (vendor and Remington) Tooling					\$ 0.105	20							Par 4 Plastics, Inc --Quote: 8/27/99
Totals						\$ 0.105	20		0.000000					

ME0197

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#300405 - Magazine Spring

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part#	Print #	Rev	Material \$	Std. Rate Hour	Variable Overhead \$	Preup \$	Capital \$	PPI Gages \$	Material Handling	Comments
	Blank Material - Stamping Gaging (vendor and Remington) Tooling					\$ 0.259				\$ 13,000.00	\$ 3,000.00		North American Spring-Quote: 10/22/99 Estimated Quote: Jerry Helmer
	Totals					\$ 0.259	0.000000	\$ -	\$ -	\$ 13,000.00	\$ 3,000.00	\$ -	

Note:

The dimension tolerances will be difficult to maintain after heat treat. Therefore the part will require an extensive heat treating operation included in the above pricing.
The other concern is that the solid height listed as .210 + or - .010 may not be achievable.

ME0198

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part#	Print #	Rev	Material \$	Std. Run Hours	Variable Overhead \$	Preop \$	Capital \$	Material Handling	Comments
10	Proof Test					\$ 1.25	0.016046	\$ -	\$ -	\$ -	\$ -	
20	Test & Target (10%)	(5x\$.15)*10%				\$ 0.10	0.031759	\$ -	\$ -	\$ -	\$ -	
30	Inspect Heading & Sear Lift					\$ -	0.019630	\$ -	\$ -	\$ -	\$ -	
40	Inspect for Live AMMO					\$ -	0.004270	\$ -	\$ -	\$ -	\$ -	
50	Final Inspection					\$ -	0.022370	\$ -	\$ -	\$ -	\$ -	
60	Assemble Rear Swivel Screw					\$ -	0.004315	\$ -	\$ -	\$ -	\$ -	
65	Laser Engrave						0.000100					
70	Pack					\$ -	0.019043	\$ -	\$ -	\$ -	\$ -	
Totals						\$ 1.35	0.117533	\$0.00	\$0.00	\$ -	\$0.00	

ME0199

CONFIDENTIAL 83

MF0200

#305315 - Barrel

Op. #	Op. #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part #	Print #	REV	Material \$	Std. Run Hours	Variable Overhead \$	Preop \$	Capital	PFI Gages \$	Material Handling	Comments
		Material (Blank 94523)		305315	E-305315	1								
10	10	Cut to Length					\$ 4,800	0.000000	\$0.12	\$4,140.72	\$0.00			
20	20	Gundrill Bore Dies & Rams						0.034670						
30	30	Ream Bore					n/a	0.029946	\$0.39	\$15,118.95	\$5,080.00			
40	40	Rifle Bore						0.000000						
50	50	Wash & Stress Relieve						0.000413	\$0.00	0	\$7,000.00			M710 Barrel Wash and Stress Relief
60	60	Turn O.D. & Inspect for Runout Gaging					\$	0.027713	0.072	\$4,903.00	\$5,000.00			Turn O. D. & Inspect
70	70	Cut-off & Crown Muzzle End	Clamping Chuck					0.000000						
								0.011670	\$0.08	\$1,440.55	\$15,000.00			M710 Cutoff and Crown Operation
80	80	Face, Chamber, Machine Hub End, Drill & Tap Takedown Screw Holes, Mill Recoil Lug Slot & 100% Inspect Chamber Finish Chaping	Okuma LB-300 Chamber operation					0.080145						
											\$222,680.00			M710 Chamber Operation
									\$0.00	\$0.00	\$0.00			
90	90	Wash & Magnaflux Barrel						0.012539						
100	100	Drill & Tap Sight Screw Holes Gaging						0.000000						
110	110	Induction Heat Treat Hub						0.000000						
120	120	Press Receiver onto Barrel Gaging						0.023370						
130	130	Inspect for Runout & Straighten if Necessary						0.000000						
140	140	Roll Mark						0.003000						
150	150	Angularity Straighten Muzzle & Inspect Bore						0.000000						
160	160	Centerless Polish						0.004167						
170	170	Glass Bead						0.005156						
180	180	Black Oxide						0.004167						
		TOTALS					\$ 4,800	0.246983	\$0.59	\$25,599.14	\$255,980.00	\$0.00	0.00	

710 Complete 1

83

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ME0201

$$x = \begin{pmatrix} x_1 \\ x_2 \\ x_3 \end{pmatrix}, \quad y = \begin{pmatrix} y_1 \\ y_2 \\ y_3 \end{pmatrix}, \quad z = \begin{pmatrix} z_1 \\ z_2 \\ z_3 \end{pmatrix}, \quad w = \begin{pmatrix} w_1 \\ w_2 \\ w_3 \end{pmatrix}$$

Operation Name	Grind Barrel O.D.	
Operation Number		

Material	Run Time	External Processing	Variable Overhead	Capital Required	Pre-Op and Start-up
n/a	0.006362	n/a	0.23625	\$85,000	\$ 1,700.00

Assumptions:

Scale is left from Induction H.T. that can't be removed by aggressive cleaning
Machine cycle time A/U from Ilion Estimate dated 6/18
Grinding wheel price based on comparably sized Ilion wheel

Risks/unknowns:

1. Exact equipment price
2. Exact wheel price
3. Will Steady Rest be necessary to keep barrel from deflecting during grinding?
4. Exact wheel life - soft material will tend to gum up wheel and require more frequent dressing

MF0202

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Correl	Op
400	Open

Barrel
305400

Grind Barrel O.D.	

ADD/USE ILION RUN RATE

Inspection Procedure

Part Name	Barrel
Part Number	305400

Operation Name	Grind Barrel O.D.	
Operation Number		

Inspection

Procedure Check Barrel 1.229/1.231 diameter w/ ring gages

[illegible]

Operation Name	Grind Barrel O.D.	
Operation Number		

Tooling

[illegible]

TOTAL PRE-OP DOLLARS	#####
-------------------------	-------

TOTAL COST PER PART	0.2363
---------------------	--------

MF0205

Barrel
305400

Operation Name	Grind Barrel O.D.	
Operation Number		

Capital Required

Machine or Fixture	Dollars		Expected Delivery
Cylindrical O.D. Grinder - Grinds 1.230 dia. Of barrel, located between centers	\$ 70,000.00		8-12 wks
Coolant Filtration System	\$ 15,000.00		8-12 wks
	\$ -		
	\$ -		
	\$ -		
	\$ -		
	\$ -		
	\$ -		
	\$ -		
	\$ -		
	\$ -		
	\$ -		
TOTAL CAPITAL	85,000		

50

RIVER & BOLT BURY

CONFIDENTIAL 83

MF0207

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Part Program: BOLT BODY
Inspector: Administrator

Date/Time: 05/25/2000 10:24:18
CMM: CMM1

REAR DATUM-A DIAMETER

#1

TYPE: O.D.

NAME: DATUM A REAR

	ACTUAL	NOMINAL	+ TOL	- TOL	DEV	OUT-TOL
DI	0.6935	0.6950	0.0020	0.0020	-0.0015	----

DATUM-A DIAMETER AT FRONT OF BOLT BODY

#2

TYPE: O.D.

NAME: DATUM A FRONT

	ACTUAL	NOMINAL	+ TOL	- TOL	DEV	OUT-TOL
DI	0.6941	0.6950	0.0020	0.0020	-0.0009	--

DATUM-C HOLE ON BOTTOM OF BOLT BODY

#3

TYPE: I.D.

NAME: DATUM C BOTTOM

	ACTUAL	NOMINAL	+ TOL	- TOL	DEV	OUT-TOL
X	0.0005	0.0000	0.0040	0.0040	0.0005	+
Y	0.2162	0.2100	0.0040	0.0040	0.0062	0.0022
DI	0.2531	0.2500	0.0020	0.0020	0.0031	0.0011
PS			0.0040		0.0123	0.0043

0.0080

X	0.0005
Y	0.2162
PS	0.0123

DATUM-C HOLE ON TOP OF PART

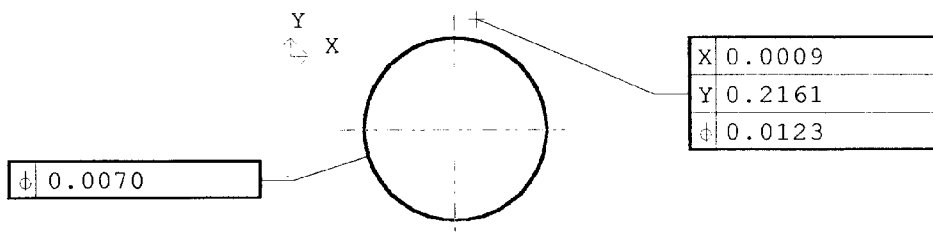
#4

TYPE: I.D.

NAME: DATUM C TOP

	ACTUAL	NOMINAL	+ TOL	- TOL	DEV	OUT-TOL
X	0.0009	0.0000	0.0040	0.0040	0.0009	+
Y	0.2161	0.2100	0.0040	0.0040	0.0061	0.0021
DI	0.2510	0.2500	0.0020	0.0020	0.0010	+++
PS			0.0040		0.0123	0.0052

MF0208



OVERALL LENGTH OF BOLT BODY - ALSO DATUM-D SURFACE

#5

TYPE: PLANE

NAME: PART_LENGTH

	ACTUAL	NOMINAL	+ TOL	- TOL	DEV	OUT-TOL
Y	5.0682	5.0650	0.0050	0.0050	0.0032	+++

STRAIGHT NOTCH SURFACE .094 FROM CENTERLINE

#6

TYPE: PLANE

NAME: RH_NOTCH_SURFACE

	ACTUAL	NOMINAL	+ TOL	- TOL	DEV	OUT-TOL
X	0.0962	0.0940	0.0050	0.0050	0.0022	++

.094 RADIUS AT BOTTOM OF FIRING PIN HEAD CAM NOTCH

#7

TYPE: I.D.

NAME: FIRING_PIN_HEAD_NOTCH_RADIUS

	ACTUAL	NOMINAL	+ TOL	- TOL	DEV	OUT-TOL
X	0.0036	0.0000	0.0050	0.0050	0.0036	+++
RD	0.0960	0.0940	0.0050	0.0050	0.0020	++

MAX DEPTH OF FIRING PIN CAM RADIUS FROM DATUM-D

#8

TYPE: POINT

NAME: RADIUS_MAX_DEPTH

	ACTUAL	NOMINAL	+ TOL	- TOL	DEV	OUT-TOL
Y	-0.2331	-0.2340	0.0050	0.0050	0.0009	+

CAM SURFACE LOCATION @Y-.0933 & Z.2649 (MATHEMATICALLY DERIVED POINT)

#9

TYPE: POINT

NAME: CAM_SURFACE_POINT_1

	ACTUAL	NOMINAL	+ TOL	- TOL	DEV	OUT-TOL
X	-0.1530	-0.1493	0.0050	0.0050	-0.0037	---

CAM SURFACE @Y-.0466 Z.2349 (MATHEMATICALLY DERIVED POINT ON HELIX OF CAM)

#10

TYPE: POINT

NAME: CAM_SURFACE_POINT_2

	ACTUAL	NOMINAL	+ TOL	- TOL	DEV	OUT-TOL
X	-0.1888	-0.1902	0.0050	0.0050	0.0014	++

BOTTOM .125R GROOVE: X-POSITION & RADIUS

MF0209

#11

TYPE: I.D.

NAME: BOTTOM GROOVE

X	0.0018	0.0000	0.0050	0.0050	0.0018	++
RD	0.1241	0.1250	0.0050	0.0050	-0.0009	-

DISTANCE OF BOTTOM GROOVE FROM A-DATUM TO EDGE OF GROOVE RADIUS

#12

TYPE: POINT

NAME: BOTTOM GROOVE Z

	ACTUAL	NOMINAL	+ TOL	- TOL	DEV	OUT-TOL
Z	0.3002	0.3000	0.0050	0.0050	0.0002	+

TOP .125R GROOVE X-POSITION & RADIUS

#13

TYPE: I.D.

NAME: TOP GROOVE

	ACTUAL	NOMINAL	+ TOL	- TOL	DEV	OUT-TOL
X	0.0012	0.0000	0.0050	0.0050	0.0012	83
RD	0.1263	0.1250	0.0050	0.0050	0.0013	+

MAX. DISTANCE BETWEEN TOP & BOTTOM .125R GROOVES

#14

	ACTUAL	NOMINAL	+ TOL	- TOL	DEV	OUT-TOL
DS	0.6006	0.6000	0.0050	0.0050	0.0006	+

REAR INSIDE DIAMETER RELATIVE TO DATUM-A

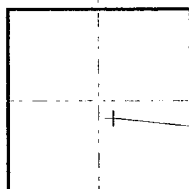
#15

TYPE: I.D.

NAME: ID REAR

	ACTUAL	NOMINAL	+ TOL	- TOL	DEV	OUT-TOL
Z	0.0005	0.0000	0.0035	0.0035	0.0005	+
X	-0.0007	0.0000	0.0035	0.0035	-0.0007	-
DI	0.4990	0.4980	0.0030	0.0030	0.0010	++

X
Z



Z	0.0005
X	-0.0007

ID AT FRONT OF BOLT BODY RELATIVE TO A-DATUM

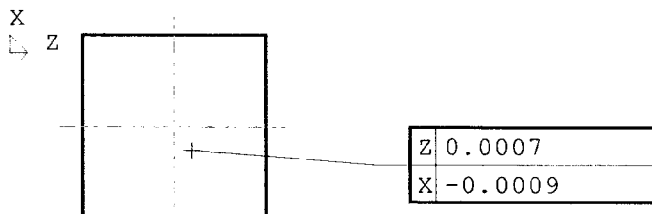
#16

TYPE: I.D.

NAME: ID FRONT

	ACTUAL	NOMINAL	+ TOL	- TOL	DEV	OUT-TOL
Z	0.0007	0.0000	0.0035	0.0035	0.0007	+
X	-0.0009	0.0000	0.0035	0.0035	-0.0009	--
DI	0.4993	0.4980	0.0030	0.0030	0.0013	++

MF0210



ANSI COAXIALITY: To DATUM_A LINE

#17

FEATURE #26

TYPE: LINE

NAME: ID_AXIS

	ACTUAL	NOMINAL
X	-0.0008	0.0000
Y	-2.6778	-2.5771
Z	0.0006	0.0000
I	0.0001	0.0000
J	1.0000	1.0000
K	0.0000	0.0000

#18

	ACTUAL	NOMINAL	+ TOL	- TOL	DEV	OUT-TOL
PS			0.0100		0.0023	+

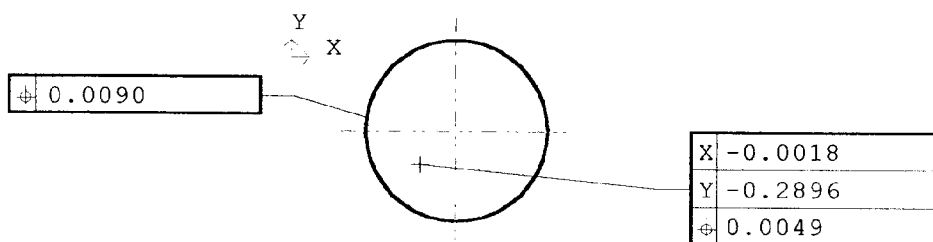
BOLT HANDLE HOLE AT 60 DEGREES FROM DATUMS A, C & FROM DATUM-D

#19

TYPE: I.D.

NAME: BOLT HANDLE HOLE

	ACTUAL	NOMINAL	+ TOL	- TOL	DEV	OUT-TOL
X	-0.0018	0.0000	0.0050	0.0050	-0.0018	--
Y	-0.2896	-0.2880	0.0050	0.0050	-0.0016	--
DI	0.2580	0.2570	0.0020	0.0020	0.0010	+++
PS			0.0060		0.0049	+++



MAX GROOVE DEPTH FROM DATUM-D (.450+.130)
DIAMETER & POSITION OF .600 DIAMETER GROOVE

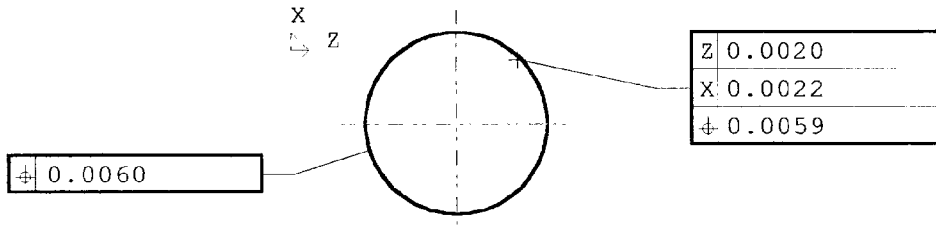
#20

TYPE: CIRCLE

NAME: GROOVE_DIAMETER

MF0211

	ACTUAL	NOMINAL	+ TOL	- TOL	DEV	OUT-TOL
X	0.0022	0.0000	0.0080	0.0080	0.0022	++
Z	0.0020	0.0000	0.0080	0.0080	0.0020	++
DI	0.5913	0.6000	0.0050	0.0050	-0.0087	-0.0037
PS			0.0060		0.0059	++++



.450 DISTANCE OF GROOVE FROM DATUM-D

#21

TYPE: POINT

NAME: 450 DISTANCE

	ACTUAL	NOMINAL	+ TOL	- TOL	DEV	OUT-TOL
Y	-0.4540	-0.4500	0.0050	0.0050	-0.0040	----

.130 GROOVE WIDTH

#22

TYPE: DISTANCE

NAME: 130 GROOVE WIDTH

	ACTUAL	NOMINAL	+ TOL	- TOL	DEV	OUT-TOL
Y	-0.1327	-0.1300	0.0050	0.0050	-0.0027	---

MF0212

#307350 - General

[illegible]¹MM Fixture Based on S97 CMM Fixture for the bolt @4500 and a #6.48 thread gage @225.00

710 Complete 1

MF0213

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4/9/23: 84 833

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part #	Part #	REV	Material	Quantity Piece/M	Engineering Charge	Std. Run Hours	Variable Tool	Prep	Capital	Material Handling	Comments
	Blank Machine-Machining						20							Blank Machine-Machining
	Blank Machine-Machining						20							Blank Machine-Machining
10	Machine Complete from Bar Stock								0.002848		\$5,542.13	\$4,500.00		Blank Machine-Machining
20	Wash								0.001000					Blank Machine-Machining
30	Assemble & Break Down Machine to Bar Body								0.011600					Blank Machine-Machining
40	Disassemble & Wash								0.001000					Blank Machine-Machining
50	Body Current Test								0.006410					Blank Machine-Machining
60	Crack Gas Bar Body								0.005516					Blank Machine-Machining
70	Blue Print								0.002					Blank Machine-Machining
TOTALS														
										\$6.17	\$5,542.13	\$4,500.00	0.00	

Blank Machine-Machining

Blank Machine-Machining

Blank Machine-Machining

Blank Machine-Machining

Blank Machine-Machining

Blank Machine-Machining

Blank Machine-Machining

Blank Machine-Machining

Blank Machine-Machining

Blank Machine-Machining

Blank Machine-Machining

Blank Machine-Machining

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710 Complete 1

MF0214

	Receiver 597	Current Receiver 710	Revised Receiver 710	"Pink" Receiver 710	Current Bolt Body 710	Revised Bolt Body 710	"Pink" Bolt Body 710
Run Time	0.0530	0.0055	0.0058	0.0620	0.0032	0.0033	
Material (includes Powder Coat)	3.40	1.76	2.18	3.70	0.74	0.74	
Labor	0.56	0.06	0.06	0.66	0.03	0.03	
Incremental Overhead							
Employee Benefits 58%	0.32	0.03	0.04	0.38	0.02	0.02	
Tooling Costs	0.30	1.02	1.43	1.41	0.24	0.29	
Depreciation	0.32	1.38	1.38	1.31	0.80	0.80	
Property Taxes (.008 of Fixed Asset Costs)	0.04	0.11	0.11	0.11	0.05	0.05	
Electricity (estimated)	0.02	0.08	0.08	0.08	0.04	0.04	
	4.96	4.44	5.28	7.64	1.93	1.98	

Note: 1) Depreciation for receiver & bolt body based on 58,000 597s and 20,000 710s

2) Depreciation on Revised Receiver & Bolt Body on \$437,000 machine
allocated on Run Time (63% receiver 37% Bolt Body)

3) Depreciation on "Pink" receiver based on \$261,654 machine allocated 100% to receiver

	Receiver 597	Bolt Body 710	Bolt Body 710
Run Time	0.0530	0.0055	0.0032
Material (includes Powder Coat)	3.40	1.76	0.74
Labor	0.56	0.06	0.03
Incremental Overhead			
Employee Benefits 58%	0.32	0.03	0.02
Tooling Costs	0.30	1.02	0.24
Depreciation	0.32	1.58	1.47
Property Taxes (.008 of Fixed Asset Costs)	0.04	0.13	0.12
Electricity			
	4.94	4.58	2.62

Note: 1) Depreciation based on 58,000 597s and 20,000 710s

2) Depreciation on Receiver & Bolt Body on \$500,000 machine
allocated on Run Time (63% receiver 37% Bolt Body)

MF0216

Chamblee, Danny

From: Chamblee, Danny
Sent: Thursday, September 16, 1999 3:08 PM
To: Golemboski, Matt R.
Subject: RE: 710 receiver

Matt,

Receiver cost comparison

	710	597
Run Time	0.0055	0.053
Material	1.76	2.53
Labor	0.06	0.56
Overhead (443% based on 58,000 30,000 710s)	0.27	2.48
Powder Coat	-	0.32
Port City Tool	-	0.25
Total	2.09	6.14

Thanks,
Danny

From: Golemboski, Matt R.
Sent: Thursday, September 16, 1999 9:29 AM
To: Chamblee, Danny
Subject: 710 receiver

Also, list the m710 costs for the receiver by operation.

	Receiver 597	Current Receiver 710	Revised Receiver 710	Current Bolt Body 710	Revised Bolt Body 710
Run Time	0.0530	0.0055	0.0058	0.0032	0.0033
Material (includes Powder Coat)	3.40	1.76	2.18	0.74	0.74
Labor	0.56	0.06	0.06	0.03	0.03
Incremental Overhead					
Employee Benefits 58%	0.32	0.03	0.04	0.02	0.02
Tooling Costs	0.30	1.02	1.43	0.24	0.29
Deprciation	0.32	1.38	1.38	0.80	0.80
Property Taxes (.008 of Fixed Asset Costs)	0.04	0.11	0.11	0.05	0.05
Electricity (estimated)	0.02	0.08	0.08	0.04	0.04
	4.96	4.44	5.28	1.93	1.98

Note: 1) Depreciation based on 58,000 597s and 20,000 710s

2) Depreciation on Receiver & Bolt Body on \$500,000 machine
allocated on Run Time (63% receiver 37% Bolt Body)

MF0218

Model 710 Engineering Trials Report

Summary

Engineering trials were conducted on three components of the Model 710 from October 11, 1999 to October 22, 1999 in order to gain more accurate information of tool lives, cycle time, and various other machining parameters. The machining tests were conducted in Charlotte, NC at the Okuma America Technology Institute, and utilized an Okuma LT-15M Turning Center. Technical assistance was provided by Okuma America and Matthew Machinery out of Louisville, KY.

The components machined on the LT-15 were:

- Model 710 Receiver, Part No. 300340
- Model 710 Bolt Body, Part No. 300339
- Model 710 Barrel, Part No. 305315

As a result of these machining tests important information was gathered on the best methods to manufacture these components and the cost associated with each. This information will be used to update and refine the Model 710 Project Estimate prior to final submission. Additionally, several opportunities to improve the manufacturability of the 710 design have been identified as a result of these machining trials. The results of the trials to date are given below.

Model 710 Receiver

There were numerous difficulties in machining the receiver. The problems encountered were:

- Boring the I.D. of the receiver due to vibration in the boring bar. This was due to the fact that the ratio of the depth of the receiver that needed to be bored vs. the boring bar diameter was excessively large. When that ratio exceeds 6:1 stock tooling begins to become ineffective at damping out vibration caused by cutting forces (the ratio for this operation is about 8:1). Exacerbating this situation was the fact that the tubing being machined was not to the O.D. & I.D. dimensions planned to be used in production. The closest stock size was used for these trials, but the closest stock material required removing app. 0.100 in. of material from the I.D. to get it to size. Several different methods were tried to overcome the chatter but without much success. Additional work needs to be done to determine the best options for creating the I.D. to model drawing dimensions and tolerances.
- Some difficulty in machining the various slots in the receiver body due to tool chatter. The tool chatter problem can be overcome by tooling changes.
- Chip evacuation was a problem. The low carbon steel w/ low hardness tends to produce long, stringy chips that are hard to break up and tend to tangle inside the receiver body. This can be overcome by more aggressive speeds & feed rates, but low carbon steel also tends to weld to cutting tool surfaces. Therefore, TiN, TiCN, or TiAlN coated tools are necessary to ensure long tool life. Indexable insert endmills may be an option for roughing cuts. The inserts tend to have good chip breaking abilities and are coated.

Due to these difficulties it was not possible to run a substantial number of components. It was possible, though, to extrapolate the following information:

- **Machine cycle time:** 6 minutes actual vs. an estimated cycle time (100% efficiency) of 5.023 min.
- **Variable Tooling Cost:** \$1.433 per part vs. an estimated cost of \$0.927, due to having to purchase coated tools and reduced life for slotting endmills

Model 710 Engineering Trials Report**Model 710 Receiver (cont'd)**

- **Labor Run Rate:** .00417 (2 minutes of operator time required per one 8-piece (5 ft.) bar) vs. an estimated run-rate of .00397 (5 minutes of operator time per one 21-piece (12 ft.) bar)
- **Material Cost:** Remnant length app. 6" (same as original estimate). With a 5' long bar, this will result in 8 pcs per bar, and a per piece material cost of \$2.178 vs. an estimated cost of \$1.76. **NOTE:** The initial estimate did not calculate material cost based on DOM material, which will be necessary to use to help eliminate I.D. boring problem. Re-calculating the initial estimate material cost for a 12' bar with 6" remnant at the DOM price of \$3.52 per foot yields a material cost of \$2.028 per part, not \$1.76

More detailed information is given in Appendix A.

There is considerable opportunity to decrease tooling cost by testing indexable insert end mills for roughing the magazine well cut and ejection port cut. This tooling must be tested to see how it performs, though. If it works this style of end mill would replace one end mill completely, with an approximate savings of between \$.30 and \$.40 per part. Its effects on cycle time are not known as of yet.

The machine used for the receiver, the Okuma LT-15M, seems well suited for machining this component complete. The options required to maximize the machines efficiency still require more research and more information from machining results. Some the problems encountered, like the formation of long stringy chips and whether the I.D. has to be bored out, will dictate what kind of bar feeder is purchased and how long the bar stock will be. As thing stand right now, if the I.D. has to be machined, then the bar stock length will be limited to about 5' max, and a magazine bar feeder will need to be utilized. Otherwise the chips formed by boring will become too compacted in a longer tube length and will interfere with machining. According to the bar feeder manufacturer normally used by Okuma, LNS, the smaller magazine bar feed system can be modified to provide through the spindle coolant or an air blast to clear chips out, but those options can't be put on a longer bar feeder.

Chips also present a potential problem for unloading the parts as well. LNS has a vacuum parts unloading system to literally suck the parts out through the back of the spindle, but an excessive amount of chips in the parts may interfere with the operation of the unloader. Okuma's parts catcher option for the LT-15 may end up being the better option for automatically unloading finished parts.

Model 710 Bolt Body

There were few problems encountered in machining the bolt body. The only trouble encountered was with chips packing in the I.D. of the bolt body (same material as the receiver). This caused the insert on the boring bar to fail after approximately 80 pcs. Changing the grooving cycle can reduce chip size. Different types of inserts also need to be explored in order to optimize this tool. Overall, though, the machining went well. Cycle times, run-rates, etc. are given below:

- **Machine cycle time:** 1.933 minutes actual vs. an estimated cycle time (100% efficiency) of 1.959 min.
- **Variable Tooling Cost:** \$0.285 per part vs. an estimated cost of \$0.24, due primarily to decreased life in grooving insert
- **Labor Run Rate:**

TOOLING COST COMPARISON - ESTIMATE VS. RUNOFF

Model 710

Model 710 Component	Operation	Initial Tooling Cost Estimate (per part)	Revised Tooling Cost based on Runoff Data (per part)	Change in \$ [Note: () favorable]	% Change
Receiver	Machine Complete	\$ 0.927	\$ 1.433	\$ 0.506	55%
Barrel	Gundrill	\$ 0.119	\$ 0.176	\$ 0.056	47%
	Ream, Rifle	\$ 0.386	\$ 0.202	\$ (0.184)	-48%
	Turn O.D.	\$ 0.072	\$ 0.091	\$ 0.020	27%
	Chamber Complete	\$ 2.762	\$ 3.039	\$ 0.277	10%
Bolt Body	Machine Complete	\$ 0.240	\$ 0.285	\$ 0.046	19%
Total Change-Variable Tooling				\$ 0.720	

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Summary

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Initial Estimate of Tooling Cost and Life					New Tooling and Costs based on Engineering Runoff Observations				
Operation	Tool Name	Cost per tool	Tool Life (parts/tool)	Cost/Part	Tool Name	Cost per tool	Tool Life (parts/tool)	Cost/Part	Comments
MILL FIRE CONTROL SLOT, FINISH MILL MAGAZINE BOX SLOT	15/64 Carbide Endmill, 3-flute	\$10.05	225	\$0.045	.320 3-flute TiCN coated Carbide Endmill, Garr Tool EDP#12204 (21/64 or .328), Modified std	\$33.01	225	\$0.147	Modified std to get fire control slot to size; assumes design changes will allow magazine well radii to be changed to .160; new price assumed to Garr list price plus 20%
ROUGH MILL MAGAZINE BOX SLOT, MILL RECEIVER TOP TANG RADIUS CUT	3/4 Carbide Endmill	\$72.34	250	\$0.289	3/4 3-flute TiCN Carbide Endmill, Garr Tool EDP#12354, Modified std w/ .125 corner radius and short (1") flute length	\$112.80	250	\$0.451	Tool life lowered based on uncertainty caused by runoff performance of original endmill; new price assumed to Garr list price plus 20%
CENTER DRILL FOR .265 CLEARANCE HOLE, SCOPE SCREW HOLES	3/8 NC Spot Drill	\$13.95	450	\$0.031	#3 TiCN Coated Carbide Center Drill, Stores #306184	\$18.20	600	\$0.030	was 3/8 carbide spot drill; however, performance at run-off resulted in change; tool life based on 597 bbl assy (300 pcs. Per end; double-ended)
DRILL .265 CLEARANCE HOLE	17/64 Carbide Drill	\$17.77	500	\$0.036	17/64 HSS Screw Machine Length Drill, MSC #63804462 (Cleveland Twist)	\$1.66	250	\$0.007	Was 17/64 Carbide 3-flute; change made based on run-off experience
ROUGH MILL EJECTION PORT, FINISH MILL EJECTION PORT, MILL BOLT STOP FLAT	1/2 Carbide Endmill	\$25.59	400	\$0.064	15mm (.595) 3-flute TiCN coated Carbide Endmill, Garr Tool EDP#12334 (5/8 endmill), Modified std w/ .06 corner radius	\$79.64	250	\$0.319	Tool life lowered based on uncertainty caused by runoff performance of original endmill; new price assumed to Garr list price plus 20%
MILL EJECTION PORT MOUTH	Special 3/4 Endmill w/ .625 Spherical Radius	\$133.85	500	\$0.268	Special 3/4" Endmill w/ .625 radius nose (4 flute), Modified standard of Garr EDP#51354. Cost equivalent to 597 hammer endmill, Stores #306633	\$133.85	500	\$0.268	Four flute tended to chatter on entry; need either a 2, 3, or 6+ flutes to eliminate chatter; price based on M/597 hammer endmill as worst case; tool life based on 1/2 of hammer endmill life
MILL BOLT HANDLE CAV/CLEARANCE CUT	3/8 Carbide Endmill	\$15.97	225	\$0.071	3/8 Carbide Endmill, 6-flute, TiCN coated, Garr EDP#51284	\$26.12	225	\$0.116	Based on 597 carbon bolt 1/4" emill at 225 p/t tool
TAP DRILL FOR SCOPE SCREW HOLES	#30 Drill	\$0.66	250	\$0.003	#30 Drill	\$0.66	250	\$0.003	based on 597 barrels job
TAP #6-48 SCOPE SCREW HOLES	#6-48 NS-2 Tap	\$14.25	750	\$0.019	#6-48 NS-2 Tap	\$14.25	750	\$0.019	based on 597 barrel job
DRILL .279 HOLE	7.1mm Drill	\$18.80	500	\$0.038	"K" (.281) HSS Screw Machine Length Drill, MSC #63792105 (Cleveland Twist)	\$2.32	250	\$0.009	Was 7.1mm carbide; change made based on runoff experience
COUNTERBORE 1.227	Insert	\$12.00	500	\$0.024	Insert	\$12.00	500	\$0.024	
CUT-OFF	Insert	\$10.16	250	\$0.041	Insert	\$10.16	250	\$0.041	TL BASED ON 597 CUTOFF AND CROWN OPERATION
TOTAL COST PER PART (ESTIMATE)				\$0.927	TOTAL COST PER PART (REVISED PER RUNOFF RESULTS)				\$1.433

Other recommendations:

- 1). May want to try inserted endmill for roughing 3/4 slot for magazine well. If it works the cost per part would most likely drop to between \$.06 and \$.15 per part (assumes \$15.00/insert and tool life between 100 & 250 pcs per insert)
- 2). May want to add a small face mill to cut tap tang and bolt stop flat. This would create better finish, and allow us to buy an LT-15 w/o the Y-axis option. Looking at a Sandvik Corp. Mill 200 or similar. This uses three round carbide inserts and is commonly used in the mold and die industry for milling contours.

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Receiver Tool Cost Comparison

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Initial Estimate of Tooling Cost and Life					New Tooling and Costs based on Engineering Runoff Observations				
Operation	Tool Name	Cost per tool	Tool Life (parts/tool)	Cost/Part	Tool Name	Cost per tool	Tool Life (parts/tool)	Cost/Part	Comments
SPOT FACE FOR .250 C-DATUM HOLE, FINISH MILL CAM CUT	5/32 ENDMILL	\$7.99	250	\$0.032	3/16 6-flute Endmill, TiCN coated, Garr EDP# 51114	\$11.47	400	\$0.029	Used a 2-flute HSS TiN Coated Endmill for runoff with little wear after app. 130 pcs; carbide will give longer life and better finish
SPOT DRILL .250 C-DATUM HOLE, SPOT DRILL .250 BOLT HANDLE PIN HOLE	3/8 NC Spot Drill	\$13.95	450	\$0.031	#3 TiN Coated Carbide Center Drill, Stores #306184	\$18.20	600	\$0.030	Replaced 3/8 NC Spot Drill with center drill
DRILL .250 C-DATUM HOLE, DRILL .250 BOLT HANDLE PIN HOLE	.250 CARBIDE DRILL	\$16.33	250	\$0.065	1/4 Carbide 2-flute Drill, TiCN coated, Screw Machine Length	\$20.05	400	\$0.050	was 3/8 carbide spot drill; however, performance at run-off resulted in change; tool life based on 597 bbl assy (300 pcs. Per end; double-ended)
MILL .125R SLOTS	3/16 CARBIDE ENDMILL, 4 FLUTE	\$6.82	225	\$0.030	1/4 4-flute Carbide Endmill, Garr Tool EDP# 13150	\$10.20	300	\$0.034	
TURN FIRING PIN HEAD RETAINING GROOVE	KC 720 INSERT	\$10.16	250	\$0.041	KC 720 INSERT	\$10.16	100	\$0.102	Insert Broke at app. 90 pcs due to insufficient chip evacuation inside hole; can be overcome by tooling/coolant options
CUT-OFF	Insert	\$10.16	250	\$0.041	Insert	\$10.16	250	\$0.041	Four flute tended to chatter on entry; need either a 2, 3, or 6+ flutes to eliminate chatter; price based on M597 hammer endmill as worst case; tool life based on 1/2 of hammer endmill life
				TOTAL COST PER PART (ESTIMATE)					TOTAL COST PER PART (REVISED PER RUNOFF RESULTS)
				\$0.240					\$0.285

NOTES:

Tooling Cost for Cut-off & Spot Drill were omitted from original estimate - they are added here

Other recommendations:

Initial Estimate of Tooling Cost and Life					New Tooling and Costs based on Engineering Runoff Observations				
Operation	Tool Name	Cost per tool	Tool Life (parts/tool)	Cost/Part	Tool Name	Cost per tool	Tool Life (parts/tool)	Cost/Part	Comments
Gun Drill	Drills	\$10.02	100	\$0.100	Drills	\$23.50	150	\$0.157	Cost is a composite of new drill cost and regrinds; assumes 1 new drill @ \$90, 5 regrinds @ \$12 ea, 1 re-tip @ \$72, and 5 additional regrinds @ \$12 ea.
Gun Drill	Bushings	\$61.95	10,000	\$0.006	Bushings	\$61.95	10,000	\$0.006	
Gun Drill	Gizmos	\$4.50	1,000	\$0.005	Gizmos	\$4.50	1,000	\$0.005	
cut off	saw blade	\$16.80	2,000	\$0.008	saw blade	\$16.80	2,000	\$0.008	
TOTAL COST PER PART (ESTIMATE)				\$0.119	TOTAL COST PER PART (REVISED PER RUNOFF RESULTS)				\$0.176

NOTES:

Average Regrind Cost Mistakenly placed in tool cost for gundrill

NOTES:

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BBL Gundrill Cost Comparison

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Initial Estimate of Tooling Cost and Life					New Tooling and Costs based on Engineering Runoff Observations				
Operation	Tool Name	Cost per tool	Tool Life (parts/tool)	Cost/Part	Tool Name	Cost per tool	Tool Life (parts/tool)	Cost/Part	Comments
Ream	Reamer	\$97.90	1000	\$0.10	Reamer	\$126.55	1000	\$0.13	
Rifle	Button	\$576.00	2000	\$0.29	Button	\$300.00	4000	\$0.08	
TOTAL COST PER PART (ESTIMATE)				\$0.386	TOTAL COST PER PART (REVISED PER RUNOFF RESULTS)				\$0.202

NOTES:

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BBL Ream, Rifle Cost Comparison

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Initial Estimate of Tooling Cost and Life					New Tooling and Costs based on Engineering Runoff Observations				
Operation	Tool Name	Cost per tool	Tool Life (parts/tool)	Cost/Part	Tool Name	Cost per tool	Tool Life (parts/tool)	Cost/Part	Comments
Rough Turn Barrel	Kennametal CNMS432	\$12	300	\$ 0.039	Kennametal CNMS432	\$9	150	\$ 0.059	Assumes two sides per insert
Finish Turn Barrel	Kennametal DNMG432LF	\$14.63	450	\$ 0.033	Kennametal DNMG432LF	\$14.63	450	\$ 0.033	Assumes four sides per insert
TOTAL COST PER PART (ESTIMATE)				\$0.072	TOTAL COST PER PART (REVISED PER RUNOFF RESULTS)				\$0.091

NOTES:

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BBI Turn Cost Comparison

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Initial Estimate of Tooling Cost and Life					New Tooling and Costs based on Engineering Runoff Observations				
Operation	Tool Name	Cost per tool	Tool Life (parts/tool)	Cost/Part	Tool Name	Cost per tool	Tool Life (parts/tool)	Cost/Part	Comments
Face Breech End of Barrel	Insert	\$10.80	1000	\$0.011	Insert	\$10.80	1000	\$0.011	No Change
Rough C Bore to .833 Depth	PILOTED CARBIDE STEP CORE DRILL	\$184.78	400	\$0.462	5/8 4-flute Endmill w/ .03 corner radius, Garr EDP#80390	\$61.60	200	\$0.308	Tool life approximate and may be low; endmill slipped in collet on last (93rd) part and pulled out. Endmill itself had some BUE but no damage. Most likely a workholding issue (need weldon flat or something similar). May need to switch to coated endmill or an inserted drill
Core Drill Chamber Body	27/64 Carbide 3-flute Drill	N/A	N/A	N/A	27/64 Carbide 3-flute Drill	\$49.77	300	\$0.166	Tool had some BUE on it on 93rd (last) part. Tool life approximate but based on actual machining results. Speed might be slow, or might need to coat tool
Rough Ream Chamber & Cut .025 Chamber Mouth Radius	PILOTED ROUGH CHAMBER REAMER	\$185.20	300	\$0.617	PILOTED ROUGH CHAMBER REAMER	\$168.00	200	\$0.840	Material gummier than expected; life reduced based on expectation of BUE ruining finish sooner than expected. Might need to coat tool (TiCN or TiAlN)
Finish Ream Chamber Complete	PILOTED FINISH CHAMBER REAMER	\$185.20	300	\$0.617	PILOTED FINISH CHAMBER REAMER	\$168.00	200	\$0.840	Material gummier than expected; life reduced based on expectation of BUE ruining finish sooner than expected. Might need to coat tool (TiCN or TiAlN)
Finish Counterbore .7045 dia., .708 Diameter, and 45 degree chamfer	FINISH C'BORE TOOL	\$172.33	400	\$0.431	Piloted Finish Counterbore Tool, Carbide Tipped, 3 flute	\$214.00	400	\$0.535	Counterbore tool worked well; speed might be low, as some BUE evident, but no major wear evident
T-slot cut .925 undercut and .02 x 45 degree chamfer	.625 DIA. FORM T-SLOT CUTTER	\$106.25	200	\$0.531	5/16 H.S. Cobalt T-Slot Cutter, 8 flute (cutting diameter 21/32(.656), shank diameter 23/64(.3594))	\$39.85	200	\$0.199	Standard T-slot cutter worked well but was slow. T-slot showed relatively little wear after 75 pcs.; slight BUE
Rough & Finish Mill Locking Lug Profile	7/32 DIAMETER 4-FLUTE CARBIDE ENDMILL	\$17.00	400	\$0.043	1/4 6-flute TiCN coated Endmill, Garr EDP#51154	\$15.61	400	\$0.039	Used non-coated, 4-flute carbide endmill with good results after 93 pcs; little wear visible. Switching to a 6-flute 1/4 endmill will likely result in decreased cycle time and extended life.
DEBUR LUG PROFILE	CARBIDE BURR	\$12.50	2000	\$0.006	CARBIDE BURR	N/A	N/A	N/A	Removed; added two passes to 1/4 endmill
Spot Drill for Two Takedown Screw Holes	N/A	N/A	N/A	N/A	#3 TiN Coated Carbide Center Drill, Stores #388184	\$18.20	600	\$0.030	Added spot drill to reduce wear on .213 endmill
Endmill two Takedown Scre Holes, Endmill Recoil Lug Slot	.213 DIAMETER SPECIAL END MILL W/ .015 X 45 CHAMFER	\$13.57	500	\$0.027	.213 DIAMETER SPECIAL END MILL W/ .015 X 45 CHAMFER	\$13.57	250	\$0.054	Very little wear visible after 93 pcs.; tool life lowered in anticipation of more wear from slotting operation
Tap 2 Takedown Screw Holes	1/4-28 TAP	\$12.68	750	\$0.017	1/4-28 TAP	\$12.68	750	\$0.017	Little visible sign of wear; tool life should be OK
TOTAL COST PER PART (ESTIMATE)				\$2.762	TOTAL COST PER PART (REVISED PER RUNOFF RESULTS)				\$3.039

Other recommendations:

**FEDERAL STEEL SUPPLY, INC.**

747 Goddard Ave
P.O. Box 840
Chesterfield, MO 63006
636-537-2393-800-325-1584
FAX 636-537-8795

FEDERAL STEEL SUPPLY	69107	PAGE: 1
CUSTOMER #	3	3 Vernon C. Smith
QUANTITY	2	
ITEM / UNIT #	51924	51924
QUOTE DATE	9/08/99	

ATTENTION:

MET MORGAN

YOUR INQUIRY #

FREIGHT INFO:

CUSTOMER P.O.#

COMPANY:

REMINGTON ARMS
14 HOEFLER AVE
ILION, NY 13357

ACCEPTED BY:

QUOTATION

LINE#	DESCRIPTION & PIECE LENGTH	QTY	PRICE	U/M	POUNDS	ITEM TOTAL
THIS IS A REQUOTE ON DOM OVER HF SMLS PLEASE NOTE TOLERANCES ITEMS 1 AND 3 AND MIN ROLLINGS DEL 6/7 WEEKS ITEMS 2 AND 4 6/7 WEEK DEL ALL PRICE DELIVERED						
1	1.3950 OD X 1.049 ID OD TOL: +.005 -.000 IN ORDER TO MEET .010 CONCENTRICITY	1108 FT	3.5200	FT		3,900.16
2	1.3950 OD X 1.049 ID	10000 FT	2.8000	FT		28,000.00
3	.6930 OD X .5010 ID ID TOL: +.000/ -.004 TO MEET .006 CONC.	2500 FT	1.4800	FT		3,700.00
4	.6930 OD X .5010 ID	10000 FT	1.1500	FT		11,500.00
This quotation and all sales resulting from it, are subject to FSSI Standard Terms & Conditions of Sale which are available upon your request.						TAXABLE TOTAL SALES TAX
ALL ITEMS ARE OFFERED SUBJECT TO PRIOR SALE. PRICES IN U.S.\$ ALL PRICES SUBJECT TO FINAL CONFIRMATION TERMS: NET 30 DAYS UPON APPROVAL. Visit our Web site at http://www.fedsteel.com						TOTAL AMOUNT \$ 47,100.16

NET TOTAL

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Model 710 Engineering Trials Report

Summary

Engineering trials were conducted on three components of the Model 710 from October 11, 1999 to October 22, 1999 in order to gain more accurate information of tool lives, cycle time, and various other machining parameters. The machining tests were conducted in Charlotte, NC at the Okuma America Technology Institute, and utilized an Okuma LT-15M Turning Center. Technical assistance was provided by Okuma America and Matthew Machinery out of Louisville, KY.

The components machined on the LT-15 were:

- Model 710 Receiver, Part No. 300340
- Model 710 Bolt Body, Part No. 300339
- Model 710 Barrel, Part No. 305315

As a result of these machining tests important information was gathered on the best methods to manufacture these components and the cost associated with each. This information will be used to update and refine the Model 710 Project Estimate prior to final submission. Additionally, several opportunities to improve the manufacturability of the 710 design have been identified as a result of these machining trials. The results of the trials to date are given below.

Model 710 Receiver

There were numerous difficulties in machining the receiver. All features could be machined, although some were approximations of cuts and not to the model drawing specs, because the LT-15M available did not have a Y-axis option.

The problems encountered were:

- Boring the I.D. of the receiver due to vibration in the boring bar. This was due to the fact that the ratio of the depth of the receiver that needed to be bored vs. the boring bar diameter was excessively large. When that ratio exceeds 6:1 stock tooling begins to become ineffective at damping out vibration caused by cutting forces (the ratio for this operation is about 8:1). Exacerbating this situation was the fact that the tubing being machined was not to the O.D. & I.D. dimensions planned to be used in production. The closest stock size was used for these trials, but the closest stock material required removing app. 0.100 in. of material from the I.D. to get it to size. Several different methods were tried to overcome the chatter but without much success. Additional work needs to be done to determine the best options for creating the I.D. to model drawing dimensions and tolerances.
- Some difficulty in machining the various slots in the receiver body due to tool chatter. The tool chatter problem can be overcome by tooling changes.
- Chip evacuation was a problem. The low carbon steel w/ low hardness tends to produce long, stringy chips that are hard to break up and tend to tangle inside the receiver body. This can be overcome by more aggressive speeds & feed rates, but low carbon steel also tends to weld to cutting tool surfaces. Therefore, TiN, TiCN, or TiAlN coated tools are necessary to ensure long tool life. Indexable insert endmills may be an option for roughing cuts. The inserts tend to have good chip breaking abilities and are coated.

Model 710 Engineering Trials Report**Model 710 Receiver (cont'd)**

Due to these difficulties it was not possible to run a substantial number of components. It was possible, though, to extrapolate the following information:

- **Machine cycle time:** 6 minutes actual vs. an estimated cycle time (100% efficiency) of 5.023 min.
- **Variable Tooling Cost:** \$1.433 per part vs. an estimated cost of \$0.927, due to having to purchase coated tools and reduced life for slotting endmills
- **Labor Run Rate:** .00417 (2 minutes of operator time required per one 8-piece (5 ft.) bar) vs. an estimated run-rate of .00397 (5 minutes of operator time per one 21-piece (12 ft.) bar)
- **Material Cost:** Remnant length app. 6" (same as original estimate). With a 5' long bar, this will result in 8 pcs per bar, and a per piece material cost of \$2.178 vs. an estimated cost of \$1.76. **NOTE:** The initial estimate did not calculate material cost based on DOM material, which will be necessary to use to help eliminate I.D. boring problem. Re-calculating the initial estimate material cost for a 12' bar with 6" remnant at the DOM price of \$3.52 per foot yields a material cost of \$2.028 per part, not \$1.76

More detailed information is given in Appendix A.

The material used was plain low carbon tubing, 1.437" O.D. with a 0.25" thick wall. Since a bar feeder was not available, the tubing was cut into 32" lengths, which yielded 4 pcs per bar.

There is considerable opportunity to decrease tooling cost by testing indexable insert end mills for roughing the magazine well cut and ejection port cut. This tooling must be tested to see how it performs, though. If it works this style of end mill would replace one end mill completely, with an approximate savings of between \$.30 and \$.40 per part. Its effects on cycle time are not known as of yet.

The machine used for the receiver, the Okuma LT-15M, seems well suited for machining this component complete. The options required to maximize the machine's efficiency still require more research and more information from machining results. Some the problems encountered, like the formation of long stringy chips and whether the I.D. has to be bored out, will dictate what kind of bar feeder is purchased and how long the bar stock will be. As thing stand right now, if the I.D. has to be machined, then the bar stock length will be limited to about 5' max, and a magazine bar feeder will need to be utilized. Otherwise the chips formed by boring will become too compacted in a longer tube length and will interfere with machining. According to the bar feeder manufacturer normally used by Okuma, LNS, the smaller magazine bar feed system can be modified to provide through the spindle coolant or an air blast to clear chips out, but those options can't be put on a longer bar feeder.

Chips also present a potential problem for unloading the parts as well. LNS has a vacuum parts unloading system to literally suck the parts out through the back of the spindle, but an excessive amount of chips in the parts may interfere with the operation of the unloader. Okuma's parts catcher option for the LT-15 may end up being the better option for automatically unloading finished parts. The Okuma parts catcher will add approximately 7 seconds to any cycle time.

The material price changes above reflects the use of DOM (drawn over mandrel) seamless tubing with additional processing done to it to lower the O.D./I.D. concentricity to at or below 0.01. This concentricity would eliminate the I.D. boring operation and lower tooling cost. It may allow the use of the 12 foot bars again instead of shorter bars, resulting in a material cost of \$2.028, or a reduction of app. \$.15 per part. The machine cycle time may not be substantially reduced, because the boring is done simultaneously with other operations on back end of the part. As a result the boring time is internal to the process. The concentricity is being reviewed with the tubing vendor to make sure the promised concentricity can be delivered.

Model 710 Engineering Trials Report

Model 710 Bolt Body

There were few problems encountered in machining the bolt body. All features could be machined. The only trouble encountered was with chips packing in the I.D. of the bolt body (same material as the receiver). This caused the insert on the boring bar to fail after approximately 80 pcs. Changing the grooving cycle can reduce chip size. Different types of inserts also need to be explored in order to optimize this tool. Overall, though, the machining went well. The same comments noted about the LT-15M machine and the automation needed for the receiver are equally applicable to the bolt body (i.e., bar stock length, unloading method, etc.). Cycle times, run-rates, etc. are given below:

- **Machine cycle time:** 1.933 minutes actual vs. an estimated cycle time (100% efficiency) of 1.959 min.
- **Variable Tooling Cost:** \$0.285 per part vs. an estimated cost of \$0.24, due primarily to decreased life in grooving insert
- **Labor Run Rate:** .00333 (2 minutes of operator time required per one 10-piece (5 ft.) bar) vs. an estimated run-rate of .00321 (5 minutes of operator time per one 26-piece (12 ft.) bar)
- **Material Cost:** Remnant length app. 4" (same as original estimate). With a 5' long bar, this will result in 10 pcs per bar, and a per piece material cost of \$0.74 vs. an estimated cost of \$0.74.

More detailed information see Appendix A.

The material used was plain low carbon tubing, 0.75" O.D. with a .134" thick wall. Since a bar feeder was not available, the tubing was cut into 32" lengths, which yielded 5 pcs per bar.

Model 710 Barrel

There were few problems in machining the barrel chamber area. The features machined were the chamber, counterbore, bolt head clearance cuts and takedown screw holes. The machine available for use at Okuma did not have a Y-axis option; therefore the recoil lug slot could not be machined. It should be noted here that the machine desired to run the barrel chamber operation is an LB-300 MY lathe. The LT-15M was used to simulate this machine, as Okuma did not have an LB-300 available for use.

The primary difficulty encountered was machining the $\varnothing .925$ X .325 wide undercut. The tooling initially chosen, a grooving boring bar, ended up being too marginal to be used. The bar tended to rub in the counterbore when cutting to full depth. Several modifications to the boring bar head were tried; enough clearance was added for the bar to clear the counterbore, but it made the head too weak and it would break after 5 or so pcs. As a result a 5/16 HS cobalt T-slot cutter was used to cut the undercut groove. This change resulted in an additional minute being added to the cycle time. More research into different boring bars is needed in order to find a standard bar that will suit this operation. None have been found to date.

There was some chatter encountered initially in the cutting of the bolt head relief cuts (the "ears"). Feeds & speeds were modified to eliminate this problem; this resulted in the addition of app. 30 seconds to the cycle time. Different tooling choices will help in speeding up this operation.

The 4140 barrel material used in this runoff is not heat treated at this point in the barrel process, unlike a M700 barrel. Therefore the steel adhered more readily to cutting tools. As a result of this the tool lives for the rough and finish reamers were reduced to ensure the chamber finish remained good enough. This will make sure there aren't any secondary chamber burnishing operations required.

Model 710 Engineering Trials Report

Model 710 Barrel (cont'd)

As previously stated above, the slot could not be cut in the barrel. Based on the experience gained from these trials, it is estimated that the recoil lug slot will add approximately 20 seconds (.33 min) to the cycle time. Load/unload time was approximately 10 seconds (.1667 min.). The cycle times, etc. are given below:

- **Machine cycle time (including estimate of Recoil Lug Slot & load/unload):** 5.57 minutes actual vs. an estimated cycle time (100% efficiency) of 3.69 min., due primarily to the use of the T-cutter and slowing down the bolt head relief cut
- **Variable Tooling Cost:** \$3.039 per part vs. an estimated cost of \$2.762, due primarily to decreased life in the rough and finish reamers
- **Labor Run Rate:** .0928 vs. an estimated run-rate of .06146
- **Material Cost:** Not applicable for this operation

More detailed information see Appendix A.

Conclusions

As a result of these trials, the following conclusions could be formulated:

- The total labor run-rate for the Model 710 project increased by .06 from the original estimate. This does not match the total increase list here (the total increase reported up to this point amounts to an increase of .317). In the process of running barrels up to the point where they were ready for the trials other information on cycle times were gathered. This resulted in no change in run rates for the barrel gundrill, ream, and rifle operations, and an increase of app. .03 to the turn operation. An additional turning pass was added to the turning operation.
- The total variable tooling cost increased by a total of \$0.72 from the original estimate. This does not match the total increase list here (the total increase reported up to this point amounts to an increase of \$0.829). In the process of running barrels up to the point where they were ready for the trials other information on tool lives and cycle times were gathered. This resulted in a tooling cost reduction of \$0.109 for the barrel gundrill, ream, rifle, and turn operations.
- The total material cost for the Model 710 project should increase by app. \$0.44, due primarily to the increase in the receiver cost.
- Pending complete dimensional inspections it seems that the LT-15M turning center (and by inference the LB-300) is capable of running repeatable, consistent parts. This initial conclusion is based on spot checks of critical dimensions of parts. The final conclusions will be based on inspections of the parts and statistical analysis of the data over the next two weeks.
- Due to the trouble encountered with the receiver, it is desired that a return trip to Okuma be planned to follow up with optimizing the receiver process so better definitions on tooling cost and cycle times can be created.

Please note that the above changes are taken in isolation and may be offset by other recent information (quotes, etc.).

Model 710 Engineering Trials Report

Conclusions (cont'd)

In conclusion, Remington now possesses solid, if somewhat un-optimized, machining processes for the chamber and bolt body complete, and it is felt by both Matthew Machinery and Okuma that a solid process is achievable for the receiver with an additional weeks worth of work at Okuma. Beyond that, there are several opportunities and paths forward to decrease the run times and tooling costs from the values stated above, but they may take up to several months to implement and optimize.

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Model 710 Engineering Trials Report

Appendix A:

Tooling Cost Comparison – Estimate vs. Runoff

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Model 710 Component	Operation	Initial Tooling Cost Estimate (per part)	Revised Tooling Cost based on Runoff Data (per part)	Change in \$ [Note: () favorable]	% Change
Receiver	Machine Complete	\$ 0.927	\$ 1.433	\$ 0.506	55%
Barrel	Gundrill	\$ 0.119	\$ 0.176	\$ 0.056	47%
	Ream, Rifle	\$ 0.386	\$ 0.202	\$ (0.184)	-48%
	Turn O.D.	\$ 0.072	\$ 0.091	\$ 0.020	27%
	Chamber Complete	\$ 2.762	\$ 3.039	\$ 0.277	10%
Bolt Body	Machine Complete	\$ 0.240	\$ 0.285	\$ 0.046	19%
Total Change-Variable Tooling				\$ 0.720	

CONFIDENTIAL

Initial Estimate of Tooling Cost and Life					New Tooling and Costs based on Engineering Runoff Observations				
Operation	Tool Name	Cost per tool	Tool Life (parts/tool)	Cost/Part	Tool Name	Cost per tool	Tool Life (parts/tool)	Cost/Part	Comments
MILL FIRE CONTROL SLOT, FINISH MILL MAGAZINE BOX SLOT	15/64 Carbide Endmill, 3-flute	\$10.05	225	\$0.045	.320 3-flute TiCN coated Carbide Endmill, Garr Tool EDP#12204 (21/64 or .328), Modified std	\$33.01	225	\$0.147	Modified std to get fire control slot to size; assumes design changes will allow magazine well radii to be changed to .160; new price assumed to Garr list price plus 20%
ROUGH MILL MAGAZINE BOX SLOT, MILL RECEIVER TOP TANG RADIUS CUT	3/4 Carbide Endmill	\$72.34	250	\$0.289	3/4 3-flute TiCN Carbide Endmill, Garr Tool EDP#12354, Modified std w/ .125 corner radius and short (1") flute length	\$112.80	250	\$0.451	Tool life lowered based on uncertainty caused by runoff performance of original endmill; new price assumed to Garr list price plus 20%
CENTER DRILL FOR .265 CLEARANCE HOLE, SCOPE SCREW HOLES	3/8 NC Spot Drill	\$13.95	450	\$0.031	#3 TiN Coated Carbide Center Drill, Stores #306184	\$18.20	600	\$0.030	was 3/8 carbide spot drill; however, performance at run-off resulted in change; tool life based on 597 bbl assy (300 pcs. Per end; double-ended)
DRILL .265 CLEARANCE HOLE	17/64 Carbide Drill	\$17.77	500	\$0.036	17/64 HSS Screw Machine Length Drill, MSC #63804462 (Cleveland Twist)	\$1.66	250	\$0.007	Was 17/64 Carbide 3-flute; change made based on run-off experience
ROUGH MILL EJECTION PORT, FINISH MILL EJECTION PORT, MILL BOLT STOP FLAT	1/2 Carbide Endmill	\$25.59	400	\$0.064	15mm (.984) 3-flute TiCN coated Carbide Endmill, Garr Tool EDP#12334 (5/8 endmill), Modified std w/ .06 corner radius	\$79.54	250	\$0.319	Tool life lowered based on uncertainty caused by runoff performance of original endmill; new price assumed to Garr list price plus 20%
MILL EJECTION PORT MOUTH	Special 3/4 Endmill w/ .625 Spherical Radius	\$133.85	500	\$0.268	Special 3/4" Endmill w/ .625 radius nose (2 flutes), Modified, standard of Garr EDP#51354. Cost equivalent to 597 hammer endmill, Stores #306633	\$133.85	500	\$0.268	Four flute tended to chatter on entry; need either a 2, 3, or 6+ flutes to eliminate chatter; price based on M597 hammer endmill as worst case; tool life based on 1/2 of hammer endmill life
MILL BOLT HANDLE CAM/CLEARANCE CUT	3/8 Carbide Endmill	\$15.97	225	\$0.071	3/8 Carbide Endmill, 6-flute, TiCN coated, Garr EDP#51234	\$26.12	225	\$0.116	Based on 597 carbon bolt 1/4" emill at 225 pt/tool
TAP DRILL FOR SCOPE SCREW HOLES	#30 Drill	\$0.66	250	\$0.003	#30 Drill	\$0.66	250	\$0.003	based on 597 barrels job
TAP #6-48 SCOPE SCREW HOLES	#6-48 NS-2 Tap	\$14.25	750	\$0.019	#6-48 NS-2 Tap	\$14.25	750	\$0.019	based on 597 barrel job
DRILL .279 HOLE	7.1mm Drill	\$18.80	500	\$0.038	"K" (.281) HSS Screw Machine Length Drill, MSC #63792106 (Cleveland Twist)	\$2.32	250	\$0.009	Was 7.1mm carbide; change made based on runoff experience
COUNTERBORE 1.227	Insert	\$12.00	500	\$0.024	Insert	\$12.00	500	\$0.024	
CUT-OFF	Insert	\$10.16	250	\$0.041	Insert	\$10.16	250	\$0.041	TL BASED ON 597 CUTOFF AND CROWN OPERATION
TOTAL COST PER PART (ESTIMATE)				\$0.927	TOTAL COST PER PART (REVISED PER RUNOFF RESULTS)				\$1.433

Other recommendations:

- 1). May want to try inserted endmill for roughing 3/4 slot for magazine well. If it works the cost per part would most likely drop to between \$.06 and \$.15 per part (assumes \$15.00/insert and tool life between 100 & 250 pcs per insert)
- 2). May want to add a small face mill to cut top tang and bolt stop flat. This would create better finish, and allow us to buy an LT-15 w/o the Y-axis option. Looking at a Sandvik Core Mill 200 or similar. This uses three round carbide inserts and is commonly used in the mold and die industry for milling contours.

Initial Estimate of Tooling Cost and Life					New Tooling and Costs based on Engineering Runoff Observations				
Operation	Tool Name	Cost per tool	Tool Life (parts/tool)	Cost/Part	Tool Name	Cost per tool	Tool Life (parts/tool)	Cost/Part	Comments
SPOT FACE FOR .250 C-DATUM HOLE, FINISH MILL CAM CUT	5/32 ENDMILL	\$7.99	250	\$0.032	3/16 6-Flute Endmill, TiCN coated, Garr EDP# 51114	\$11.47	400	\$0.029	Used a 2-flute HSS TiN Coated Endmill for runoff with little wear after app. 130 pcs; carbide will give longer life and better finish
SPOT DRILL .250 C-DATUM HOLE, SPOT DRILL .250 BOLT HANDLE PIN HOLE	3/8 NC Spot Drill	\$13.95	450	\$0.031	3/8 TiN Coated Carbide Center Drill, Stores #306184	\$18.20	600	\$0.030	Replaced 3/8 NC Spot Drill with center drill
DRILL .250 C-DATUM HOLE, DRILL .250 BOLT HANDLE PIN HOLE	.250 CARBIDE DRILL	\$16.33	250	\$0.065	3/8 Carbide 2-flute Drill, TiCN coated, Screw Machine Length	\$20.05	400	\$0.050	was 3/8 carbide spot drill, however, performance at run-off resulted in change; tool life based on 597 bbl assy (300 pcs. Per end; double-ended)
MILL .125R SLOTS	3/16 CARBIDE ENDMILL, 4 FLUTE	\$6.82	225	\$0.030	1/4 4-Flute Carbide Endmill, Garr Tool EDP# 13156	\$10.20	300	\$0.034	
TURN FIRING PIN HEAD RETAINING GROOVE	KC 720 INSERT	\$10.16	250	\$0.041	KC 720 INSERT	\$10.16	100	\$0.102	Insert Broke at app. 90 pcs due to insufficient chip evacuation inside hole; can be overcome by tooling/coolant options
CUT-OFF	Insert	\$10.16	250	\$0.041	Insert	\$10.16	250	\$0.041	Four flute tended to chatter on entry; need either a 2, 3, or 6+ flutes to eliminate chatter; price based on M/597 hammer endmill as worst case; tool life based on 1/2 of hammer endmill life
TOTAL COST PER PART (ESTIMATE)				\$0.240	TOTAL COST PER PART (REVISED PER RUNOFF RESULTS)				\$0.285

NOTES:

Tooling Cost for Cut-off & Spot Drill were omitted from original estimate - they are added here

Other recommendations:

Initial Estimate of Tooling Cost and Life					New Tooling and Costs based on Engineering Runoff Observations				
Operation	Tool Name	Cost per tool	Tool Life (parts/tool)	Cost/Part	Tool Name	Cost per tool	Tool Life (parts/tool)	Cost/Part	Comments
Gun Drill	Drills	\$10.02	100	\$0.100	Drills	\$23.50	150	\$0.157	Cost is a composite of new drill cost and regrinds; assumes 1 new drill @ \$90, 5 regrinds @ \$12 ea, 1 re-tip @ \$72, and 5 additional regrinds @ \$12 ea.
Gun Drill	Bushings	\$61.95	10,000	\$0.006	Bushings	\$61.95	10,000	\$0.006	
Gun Drill	Gizmos	\$4.50	1,000	\$0.005	Gizmos	\$4.50	1,000	\$0.005	
cut off	saw blade	\$16.80	2,000	\$0.008	saw blade	\$16.80	2,000	\$0.008	
TOTAL COST PER PART (ESTIMATE)				\$0.119	TOTAL COST PER PART (REVISED PER RUNOFF RESULTS)				\$0.176

NOTES:

Average Regrind Cost Mistakenly placed in tool cost for gundrill

NOTES:

10/26/99

BBL Gundrill Cost Comparison

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MF0238

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Initial Estimate of Tooling Cost and Life					New Tooling and Costs based on Engineering Runoff Observations				
Operation	Tool Name	Cost per tool	Tool Life (parts/tool)	Cost/Part	Tool Name	Cost per tool	Tool Life (parts/tool)	Cost/Part	Comments
Ream	Reamer	\$97.90	1000	\$0.10	Reamer	\$126.55	1000	\$0.13	
Rifle	Button	\$576.00	2000	\$0.29	Button	\$300.00	4000	\$0.08	
TOTAL COST PER PART (ESTIMATE)				\$0.386	TOTAL COST PER PART (REVISED PER RUNOFF RESULTS)				\$0.202

NOTES:

NOTES:

10/26/99

BBL Ream, Rifle Cost Comparison

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	Receiver 597	Current Receiver 710	Revised Receiver 710	Current Bolt Body 710	Revised Bolt Body 710
Run Time	0.0530	0.0055	0.0058	0.0032	0.0033
Material (includes Powder Coat)	3.40	1.76	2.18	0.74	0.74
Labor	0.56	0.06	0.06	0.03	0.03
Incremental Overhead					
Employee Benefits 58%	0.32	0.03	0.04	0.02	0.02
Tooling Costs	0.30	1.02	1.43	0.24	0.29
Depreciation	0.32	1.38	1.38	0.80	0.80
Property Taxes (.008 of Fixed Asset Costs)	0.04	0.11	0.11	0.05	0.05
Electricity (estimated)	0.02	0.08	0.08	0.04	0.04
	4.96	4.44	5.28	1.93	1.96

Note: 1) Depreciation based on 58,000 597s and 20,000 710s
2) Depreciation on Receiver & Bolt Body on \$500,000 machine
allocated on Run Time (63% receiver 37% Bolt Body)

MF0240

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Boat Head

83

MF0241

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Golemboski, Matt R.

From: Morgan, Metty E.
Sent: Friday, March 31, 2000 1:57 PM
To: Golemboski, Matt R.
Cc: Zajk, Joseph J
Subject: Megamet

03/31/2000

Matt,

Jim from Megamet informed me this morning that they ran some parts and inspected them only to find that one of the dimensions was off. They are re-cutting one of the plates and should have samples to us by Wed. of next week.

Mett

CONFIDENTIAL 83

Golemboski, Matt R.

From: Morgan, Melty E.
Sent: Tuesday, April 25, 2000 9:53 AM
To: Golemboski, Matt R.
Cc: Helmer, Gerald A.
Subject: Megamet

04/25/2000

Matt / Jerry,

Jim at Megamet said the Firing Pin Heads are in the furnace and the Lock Tumblers are in the press, we should have both by week end. He is sorry for the early on performance and assures me they will perform much better. I told him we were not happy with his initial start up performance and that they must do better to expect anymore future business.

FYI
Mett

CONFIDENTIAL 83

OP #	PROCESS DESCRIPTION	MACHINE DESCRIPTION	Part#	Proj#	Rev	Material	Std. Run Hours	Variable Overhead \$	Preop \$	Capital \$	FFI Gages \$	Material Handling	Comments
	Blank Material Gages					\$ 1.75					\$ 120.00		Parker & Harper Mfg. Company Estimated Quote
1	Superabrasive Grind Lugs					\$0.00	0.01887	\$5625	\$2,040	\$31,500			Superabrasive grind lugs
2	CNC Machine Bolt Face Complete					\$0.00	0.019810	\$ 0.28	\$ 2,141.95	\$154,500			M710 Bolt Head CNC Machine Face
3	CNC Machine Bolt Head Retaining Pin Hole				\$0.00		0.00756	\$ 0.14	\$ 1,267.43	\$15,000			M710 Bolt Head Ejector Retaining Hole
4	CNC Machine Cam Cuts, Ejector Retaining Pin Hole, Deburr				\$0.00		0.017420	\$ 0.08	\$ 1,557.00	\$15,000			M710 Bolt Head Retaining Hole and Cam Cuts
5	Punch Form Extractor Rotation Notch						0.006380						
6	Vendor Heat Treat & inspect for Hardness												
7	Black Oxide				\$0.00		0.001150	\$	\$390.00	\$0			M710 Bolt Head Black Oxide
Totals						\$ 1.75	0.05232	\$ 0.50	\$ 7,891.38	\$ 216,000.00	\$ 120.00	\$ -	

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[illegible]

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ME0245

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COPY

STERLING SINTERED TECHNOLOGIES, INC.

P.O. BOX 1057 • WINSTED, CONNECTICUT 06098
(860) 379-2753 • FAX: (860) 738-0564

Q U O T A T I O N

NUMBER 2935 DATE 8/12/99

TO REMINGTON ARMS CO., INC.
MAYFIELD PLANT
22 RIFLE TRAIL
HICKORY KY 42051

SHIP
TO

PH 502/856-4204 Fax 502/856-3233

NET 30 DAYS		TERMS	SHIP VIA	SALES/PERTON	PAGE
				6	1
QUANTITY	DESCRIPTION	UNIT PRICE	AMOUNT		
	Part # C-91852 Rev 5 BUTTON				
20,000		108.30/M	2,166.00		
10,000		95.80/M	3,832.00		
120,000		85.90/M	10,308.00		
	Misc Charges: TOOLING		4,700.00		
*PLEASE NOTE: QUOTED +/- .003 ON .280 LENGTH					
50% OF TOOLING CHARGE DUE WITH PURCHASE ORDER BALANCE UPON APPROVAL OF TOOLING SAMPLES. TOOLING SAMPLES WILL BE SHIPPED 12 WEEKS ARO PRODUCTION TO FOLLOW TOOL APPROVAL BY 6-8 WEEKS UNLESS CUSTOMER ACCEPTS RESPONSIBILITY FOR PRODUCTION, GIVEN THAT IT MEETS THE PRINT					
THIS QUOTE IS GOOD FOR 30 DAYS FROM THE QUOTE DATE.					
OUR REVISION CONTROL PROCEDURE REQUIRES THAT PRINT REVISION LEVELS ACCOMPANY ALL PURCHASE ORDERS. PLEASE ASSIST US IN OUR CONTINUOUS IMPROVEMENT PROCESS.					
THANK-YOU FOR THE OPPORTUNITY TO QUOTE. ANN DELUTRIE					

P.03

8607380664

AUG-12-99 01:47 PM

MF0246

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But stop

MF0247

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Rec'd. H. H. H.

MF0248

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CONFIDENTIAL

83
Facing the TIP/Name/Case

MF0249

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C-30034

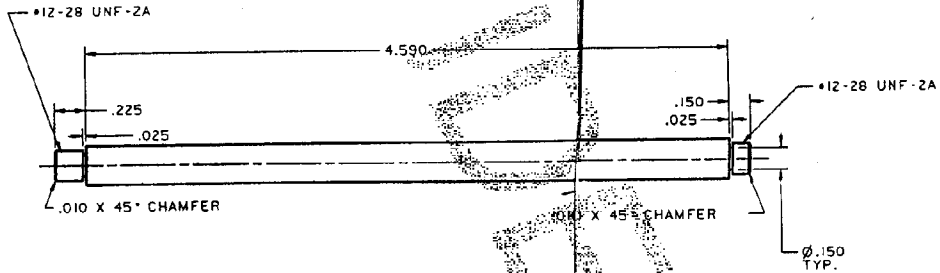
THIS DRAWING OR INFORMATION IS
 PROPRIETARY INFORMATION TO THE
 REMINGTON ARMS COMPANY, INC.

DO NOT SCALE THIS DRAWING: WORK TO DIMENSIONS
UNLESS OTHERWISE NOTED.
DIMENSIONS ON DECIMAL DIMENSIONS ARE:
PLACE .1 IN TOLERANCE $\pm .005$
PLACE .001 IN TOLERANCE $\pm .010$
PLACE .0001 IN TOLERANCE $\pm .005$
FRACTIONAL DIMENSIONS $\pm .1/64$
ANGULAR DIMENSIONS $\pm .00^\circ$
DIMENSIONS MEASURED BY BEST MEAN
ARE IN U.S. DECIMALS. ROOT MEAN
SQUARE AND USE THE MAXIMUM ROUNDNESS
FEASIBLE, UNLESS OTHERWISE SPECIFIED.
FINISH ROUNDNESS TO BE $\sqrt{R}$ OR BETTER.

MATERIAL AND HEAT TREAT

WATERIAL AISI 4145
HEAT TREAT NONE
HARDNESS RB 80 MIN.
COLOR BLACK OXIDE
HEAT TREAT AND COLOR TO BE DONE BY
REXINGTON

ALTERNATIVES

[illegible]

- Ø.275 ± .002



MODEL	PART NO.	PART USE
MILITARY DATE	MILITARY DATE	MILITARY DATE
WIK 09/26/98	JMS 10/02/98	

TITLE	DATE	SUBMITTED	REVIEWED
FIRING PIN	2-1		
C-300334			

**REMINGTON ARMS CO., INC.
HUNTSVILLE, ALA.**

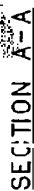
CV FILENAME - PARTS.RIF.710.FIRING-PIN.300334

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ME0251

C-300335

FILE NAME: P1



Technical drawing of a mechanical part, Section A-A. The drawing shows a cross-section of a cylindrical component with a central hole. Key dimensions include a total length of 1.175, a central hole diameter of 0.067 ± 0.001, and a central hole length of 0.300. The part has a .030 R fillet and a .030 x .45 chamfer. The drawing is labeled 'SECTION A-A' and includes a 'B-B' section line.

Dimensions and Tolerances:

- Overall Length: 1.175
- Central Hole Diameter: $\varnothing .067 \pm .001$
- Central Hole Length: .300
- Chamfer: .030 x .45
- Fillet: .030 R
- End Diameter: $\varnothing .143 \pm .002$
- End Tolerance: $\varnothing .004 \text{ A } \textcircled{S}$

Section A-A

DO NOT SCALE THIS DRAWING! WORK TO DIMENSIONS UNLESS OTHERWISE NOTED.
DIMENSIONS ON OTHER DIMENSIONS ARE:
PLACE .111 - TOLERANCE $\pm .010$
PLACE .011 - TOLERANCE $\pm .010$
FRACTION .1001 - TOLERANCE $\pm .005$
4 ANGULAR DIMENSIONS $\pm .15$
4 ANGULAR DIMENSIONS $\pm .005$
DIMENSIONS ARE DESIGNATED BY ROOT MEAN SQUARE OR U.S. MICRO-INCH ROUGHNESS VALUES AND ARE THE MAXIMUM ROUGHNESS ACCEPTABLE, UNLESS OTHERWISE SPECIFIED.
FROM ROUGHNESS TO $\sqrt{V}$ OR BETTER.

MATERIAL AND HEAT TREAT
MATERIAL AISI 4320
HEAT TREAT CARBURIZE 1.70% C POTENTIAL I
HARDNESS R15N 87 MAX CORE, R15N 88-92 CASE
COLOR BLACK OXIDE
HEAT TREAT AND COLOR TO BE DONE BY
REMINGTON

ALTERNATIVES

[illegible][illegible]

CV FILENAME - PARTS.RIF.710.FIRING-PIN-TIP.300336

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C-300335

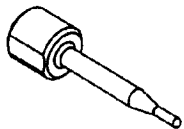
THIS DRAWING OR INFORMATION IS
 PROPRIETARY INFORMATION TO THE
 REMINGTON ARMS COMPANY, INC.

DONOT SCALE THIS DRAWING; WORK TO FIGURES
UNLESS OTHERWISE NOTED.
DIMENSIONS ON DECIMAL DIMENSIONS ARE:
1. LINE L - TOLERANCE ± .010
2. SPACE L(0.01) - TOLERANCE ± .005
3. IN FRACTIONAL DIMENSIONS ± 1/64"
4. IN 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,
FRESH ROUGHNESS TO BE ✓ OR BETTER.

MATERIAL AND HEAT TREAT

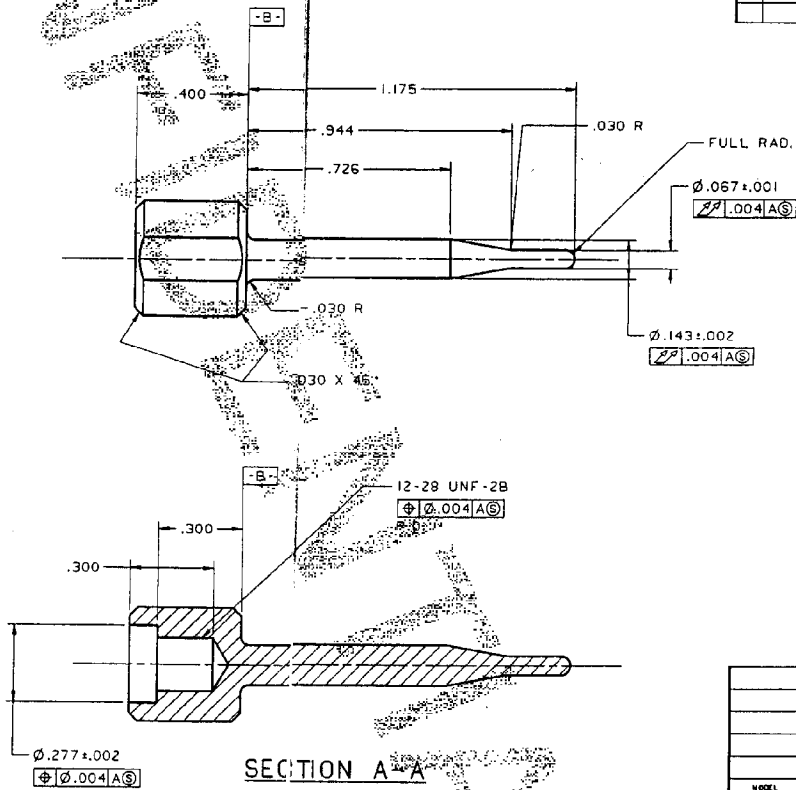
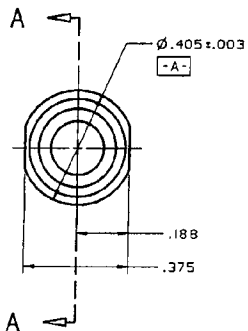
MATERIAL AISI 8620
HEAT TREAT CARBURIZE 1.70% C POTENTIAL
HARDNESS R15N 87 MAX CORE, R15N 88-92 CASE
COLOR BLACK OXIDE
HEAT TREAT AND COLOR TO BE DONE BY
REMINGTON

ALTERATION

[illegible]

ISO VIEW

SCALE 2:1



SECTION A-A

CV FILENAME - PARTS,RIF,710,FIRING-PIN-TIP,300338

MODEL	PART NO.	PART USE	
DEL. BY DATE	MFG. BY DATE	CMP. BY DATE	APP. BY DATE
	MDK 10/05/98		
TITLE FIRING PIN TIP			
DRAWN	SHEET	REVISIONS	REFERENCE
C-300335	4 of		REMINGTON ARMS CO. INC.

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ME0254

0-300335

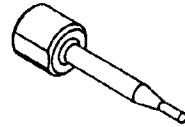
THIS DRAWING OR INFORMATION IS
 PROPRIETARY INFORMATION TO THE
 REMINGTON ARMS COMPANY, INC.

DO NOT SCALE THIS DRAWING: WORK TO FIGURE
 UNLESS OTHERWISE NOTED.
 TOLERANCES OR DECIMAL DIMENSIONS ARE:
 PLACE .11 - TOLERANCE $\pm .015$
 PLACE .1011 - TOLERANCE $\pm .010$
 PLACE .10011 - TOLERANCE $\pm .005$
 4. NO FRACTIONAL DIMENSIONS $\pm 1/16$
 4. NO ANGULAR DIMENSIONS $\pm .0030$
 FINISHES ARE DESIGNATED BY ROOT MEAN
 SQUARE (R.M.S.) MICRO-INCH ROUGHNESS
 VALUES AND ARE THE MAXIMUM ROUGHNESS
 ACCEPTABLE, UNLESS OTHERWISE SPECIFIED.
 FINEST ROUGHNESS TO BE $\sqrt{\text{V}}$ OR BETTER.

MATERIAL AND HEAT TREAT

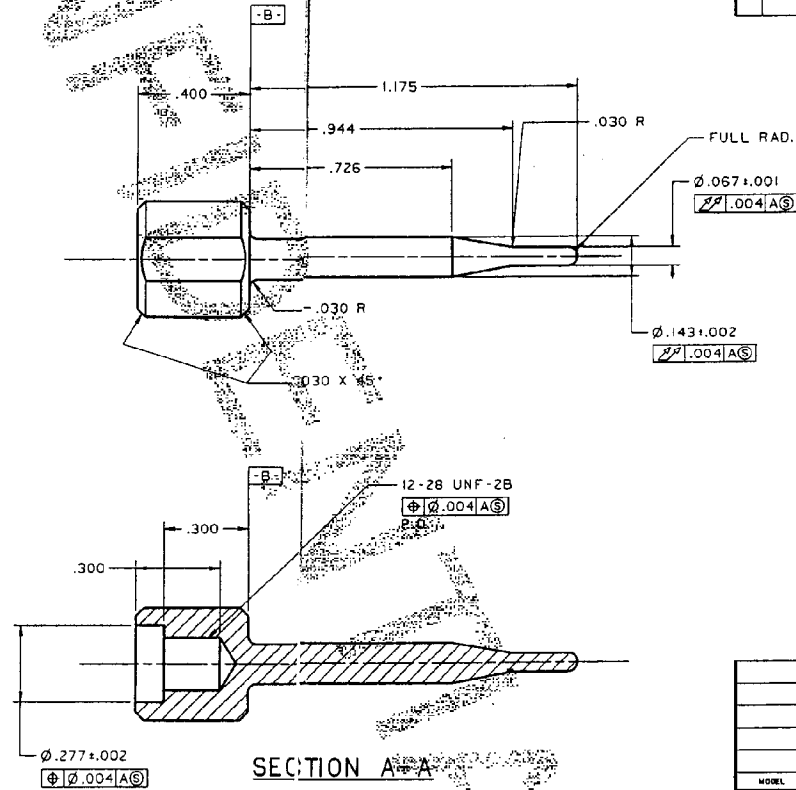
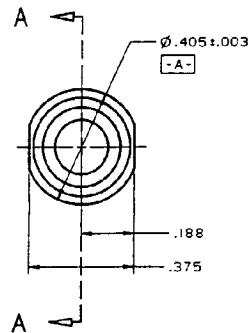
WATERIAL AISI 8620
HEAT TREAT CARBURIZE 1.70% C POTENTIAL
HARDNESS R15N 87 MAX CORE, R15N 88-92 CASE
COLOR BLACK OXIDE
HEAT TREAT AND COLOR TO BE DONE BY
REMINGTON

ALTERATIONS

[illegible]

ISO VIEW

SCALE 2:1



SECTION A-A

MODEL	PART NO.	PART USE
DEL. BY DATE	DIV. BY DATE	CNL. BY DATE
	WDC 10/05/98	APP. BY DATE

TITLE FIRING PIN TIP

SERIALIZED	INDEXED	FILED	RECEIVED
C-300335	43	OCTOBER 6 1998	FBI - MEMPHIS

REMINGTON ARMS CO. INC.
RESEARCH DIV.

CV FILENAME : PARTS.RIF.710.FIRING-PIN-TIP.300335

ME0255

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4EE000-C

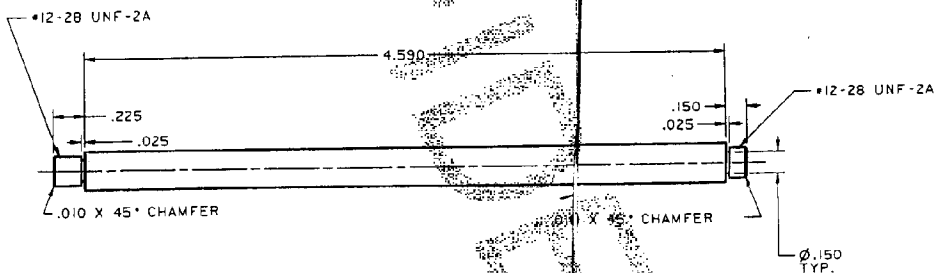
THIS DRAWING OR INFORMATION IS
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 REMINGTON ARMS COMPANY, INC.

DO NOT SCALE THIS DRAWING; WORK TO FIGURES
 UNLESS OTHERWISE NOTED.
 DIMENSIONS OF DECIMAL DIMENSIONS ARE:
 PLACE .131 - TOLERANCE $\pm .005$
 PLACE .131 - TOLERANCE $\pm .005$
 PLACE .131 - TOLERANCE $\pm .005$
 FRACTIONAL DIMENSIONS $\pm .005$
 ANGULAR DIMENSIONS $\pm .00^\circ$
 DIMENSIONS ARE DERIVED BY FOOT MEASUREMENT
 DIMENSIONS ARE THE MAXIMUM DIMENSIONS
 ACCEPTABLE, UNLESS OTHERWISE SPECIFIED.
 FINISH TO BE $\sqrt{10}$ OR BETTER.

MATERIAL AND HEAT TREAT
 MATERIAL: AISI 1115
 HEAT TREAT: NONE
 HARDNESS: RB 80 MIN.
 COLOR: BLACK OXIDE
 HEAT TREAT AND COLOR TO BE DONE BY
 REMINGTON

ALTERATIONS

ALT.	DATE	BY	DATE



MODEL	PART NO.	PART USE
REV. BY DATE	REV. BY DATE	REV. BY DATE
WOK 09/30/98	JMS 10/02/98	
TITLE: FIRING PIN		
NUMBER	SCALE	SUPPLEMENT
C-300334	2:1	
REMINGTON ARMS CO., INC. RESEARCH DIV.		

CV FILENAME - PARTS.RIF.710.FIRING-PIN.300334

83

COPY
FVI

SUPREME

QUOTATION

August 19, 1999

REMINGTON ARMS COMPANY, INC.

22 Rifle Trail

P.O. Box 99

Hickory, KY 42051

ATTN: Metty Morgan

Reference:

QUOTE # 6273

Gentlemen:

We are pleased to submit the following quotation:

Part No.	Quantity	Price	Tooling
C-300334			
Firing Pin	20M/yr.	2.593 ea.	\$1500
	40M/yr.	2.493 ea.	
	60M/yr.	2.443 ea.	
C-300335 Firing			
Pin Tip	20M/yr.	1.270 ea.	\$1000
	40M/yr.	1.165 ea.	
	60M/yr.	1.113 ea.	

DELIVERY: 8 - 10 weeks

NOTE: This preliminary quote is per Supreme's proposed design; see attached drawing showing this proposal.

This form is being used to expedite our reply. Should you have any questions or comments concerning our quotation we will be happy to discuss them with you.

Prices are
F.O.B. Spring Lake, MI

Terms are
1/2% 10 days — Net 30 days

SUPREME MACHINED PRODUCTS CO., INC.
18686 172nd Avenue
Spring Lake, Michigan 49456
Phone: (616) 842-6550
Fax: (616) 842-4481

Very truly yours,

SUPREME MACHINED PRODUCTS CO., INC.

Edd Curry

EDD CURRY

PRECISION SCREW MACHINE PRODUCTS

1000

SUPREME

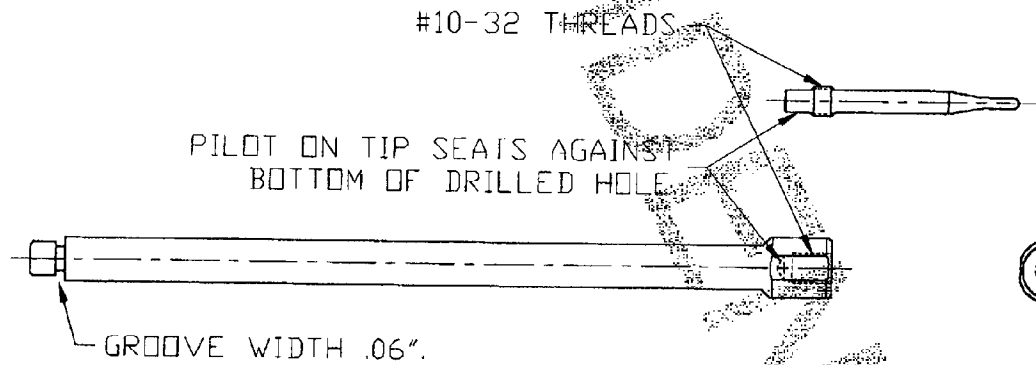
08/19/99 14:01 FAX 616 842 4481

MF0257

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CURRENT DESIGN



PROPOSED DESIGN

PIN MADE FROM 3/8
SQUARE STOCK, THEN
TURNED TO .405Ø.

SP-X	-----	XXX	XX/XX/XX
REV.	DESCRIPTION	BY	DATE

UNLESS OTHERWISE SPECIFIED
THE FOLLOWING TOLERANCES APPLY

+/- .020 ALLOWED ON ONE PLACE DECIMALS
+/- .010 ALLOWED ON TWO PLACE DECIMALS
+/- .005 ALLOWED ON THREE PLACE DECIMALS
+/- 1° ON ANGLES

ALL SURFACE FINISHES TO BE 125 MICRO INCHES
UNLESS OTHERWISE SPECIFIED

GEOMETRIC CHARACTERISTICS AND SYMBOLS
ANSI Y14.5M-1982

□ FLATNESS < ANGULARITY
— STRAIGHTNESS ⊥ PERPENDICULARITY
○ CIRCULARITY // PARALLELISM
⊙ CYLINDRICITY Ⓢ PROFILE OF A SURFACE
⌒ PROFILE OF A LINE Ⓢ TOTAL RUNOUT
Ⓢ MAXIMUM MATERIAL CONDITION
Ⓢ MINIMUM MATERIAL CONDITION
Ⓢ LEAST MATERIAL CONDITION

Ⓢ DATUM TARGET
Ⓢ CONCENTRICITY
Ⓢ CIRCULAR RUNOUT
Ⓢ PROJECTED TOLERANCE ZONE
R RADIUS
() REFERENCE

SUPREME MACHINED PRODUCTS CO., INC.		
CAD FILE NO: BSQ#531		
DRAWER:	EJC	8/16/99
CHECKER:		
PROJECT ENG:		
CUSTOMER: REMINGTON		
CUST. REF. NO: C-300334/5		
CUST. REV:		DATED: -
		SCALE: FULL SIZE A
MATERIAL SPEC: AS NOTED		
NAME: FIRING PIN & TIP		
ITEM NO: -		

Please quote the following options:

Quote #1 - C-300335 as per print

Quote #2 - C-300334 as per print

Quote #3 - C-300334 and C-300335 as a one piece assembly. This eliminates the 12-28 drilled and tapped hole on C-300335 and eliminates the (12-28 by .150 long) threaded end on C-300334. The OAL of this combined part is 6.39 inches.

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MF0259

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COPY FYI

QUOTATION**Megamet
Industries**

Powder Injection Molding

4073 Wedgeway Court • Earth City, MO 63045
314 739-4499 fax: 314 739-5281Quotation Number: 99081303
Date: August 13, 1999
Prepared By: Jim MullineauxTo: Remington Arms Co., Inc.
22 Rifle Trail
P.O. Box 99
Hickory, KY 42051
Attn: Metty MorganPhone: 502-856-4200
Fax: 502-856-3233

RE: RFQ

Quantity	Part Description	Description of Work	Price
3 ea	Molds	Metal injection mold @ \$15,000 each	\$ 45,000.00
3 ea	Furnace Fixtures	Furnace fixtures for all parts quoted @ \$2500	\$ 7,500.00
20K pcs.	C300336 <i>FRONT P.I.S</i>	Metal injection molded Alloy FN02 parts per drawing	\$ 1.50 each
40K pcs.	C300336 <i>HEAD</i>	Metal injection molded Alloy FN02 parts per drawing	\$ 1.45 each ⁸³
60K pcs.	C300336	Metal injection molded Alloy FN02 parts per drawing	\$ 1.35 each
80K pcs.	C103530 <i>REAR SHOT BALL</i>	Metal injection molded Alloy FN02 parts per drawing	\$ 1.65 each
100K pcs.	C103530	Metal injection molded Alloy FN02 parts per drawing	\$ 1.60 each
200K pcs.	C103530	Metal injection molded Alloy FN02 parts per drawing	\$ 1.50 each
80K pcs.	C93907 <i>REAR SHOT SLIDE</i>	Metal injection molded Alloy FN02 parts per drawing	\$ 1.20 each
100K pcs.	C93907	Metal injection molded Alloy FN02 parts per drawing	\$ 1.15 each
200K pcs.	C93907	Metal injection molded Alloy FN02 parts per drawing	\$ 1.10 each

Notes: A DRAWING REVIEW MUST TAKE PLACE BETWEEN ALL PARTIES BEFORE ACCEPTANCE OF A P.O.**DESIGN INFO:** Complete, original, signed and dated print complete and ready for tooling design is required. A 3D solid model database in acceptable format if available is requested. Additional charges will apply if engineering time is required.**TOOLING:** Tooling charges listed above include design and fabrication of said tools. Upon receipt of final tooling payment, customer will obtain ownership of those tools. Tooling charge is based upon maximum capacity stated. Tooling is guaranteed to last at least the lesser of 3 times the order quantity or 36 months unless there is a customer-originated design change.**PARTS:** Parts will be supplied in the heat treated, surface finish, and surface coating conditions specified. Engineering reviews with the customer as well as sample pieces submitted will be used to evaluate acceptable mold design and molding and sintering practices with regard to gate location, shrinkage, appearance, and tooling design.**SAMPLES:** Samples 8 weeks ARO and acceptance of purchase order by Megamet. See below for multiple orders.

MF0260

Quotation

Quotation Number: 99081303
Date: August 13, 1999
Prepared By: Jim Mullineaux

PAGE 2 of 2



Megamet
Industries

4073 Wedgeway Court - Earth City, MO 63045
314 739-4499 fax 314 739-5281

MULTIPLE ORDERS: New part orders placed within a 30 day period of each other will ship samples on the following schedule:

Order #1 - 8 weeks ARO

Order #2 - 14 weeks after receipt of Order #1, 6 weeks from previous order samples.

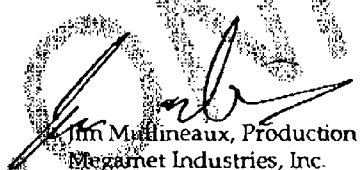
Order #3 - 18 weeks after receipt of Order #1, 4 weeks from previous order samples.

Order #4 and up - additional 2 weeks after shipment of previous Order's samples

DELIVERY: 2.5% of quantity ordered shipped 4 weeks after sample approval, an additional 5% of quantity ordered shipped 8 weeks after sample approval, 10% of quantity ordered per month thereafter until order is complete. Bulk packaging assumed. FOB Megamet, Earth City, MO., plus reasonable delivery charges. Delivery times stated are ARO and after receipt of product design information or sample approval, which ever applies. Delivery terms are contingent on the total number of orders placed by the customer within a 30 day period. If multiple orders are placed within 30 days the customer must establish a priority/sequence for ramp-up/delivery of the parts ordered. An effort will be made to work with the customer's delivery requirements.

TERMS: Tooling: 50% of any tooling and furnace setter charges with purchase order, balance due after sample approval. Molded parts: Net 15 with credit approval, invoiced with each shipment. Please supply credit references, and if applicable a tax exemption form.

CONDITIONS: Offer is subject to acceptance of conditions of sale on reverse (or accompanying). Prices and delivery dates are valid for a period of 30 days from the date of this offer.


Jim Mullineaux, Production Manager
Megamet Industries, Inc.

MF0261

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PUR 300357

MF0262

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B-300351

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TOLERANCES ON DECIMAL DIMENSIONS ARE:

1 PLACE (.1) TOLERANCE	± .015
2 PLACE (.01) TOLERANCE	± .010
3 PLACE (.001) TOLERANCE	± .005

ON FRACTIONAL DIMENSIONS IS: $\pm 1/16$
ON ANGULAR DIMENSIONS: $\pm .00^\circ$ 30'

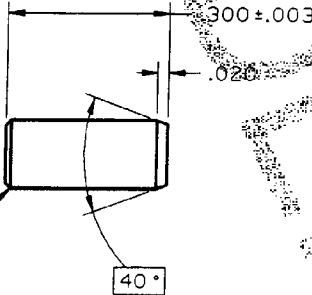
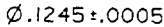
FINISHES ARE DESIGNATED BY ROOT MEAN SQUARE (R.M.S.) MICRO-INCH ROUGHNESS VALUES, AND ARE THE MAXIMUM ROUGHNESS ACCEPTABLE, UNLESS OTHERWISE SPECIFIED.

FINISH ROUGHNESS TO BE $\sqrt{125}$ OR BETTER.

MATERIAL AND HEAT TREAT

MATERIAL ALSI 1018
HEAT TREAT CARBURIZE (70% C POTENTIAL)
HARDNESS R15N 88-92 (1.008 MIN CASE)
COLOR BLACK OXIDE
HEAT TREAT AND COLOR TO BE DONE BY
REMINGTON

ALTERATIONS

[illegible]

CV FILENAME - PARTS.RIF.710.PIVOT-PIN.300351

[illegible]

1991

ME0263

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Williams v. Remington

B-300351

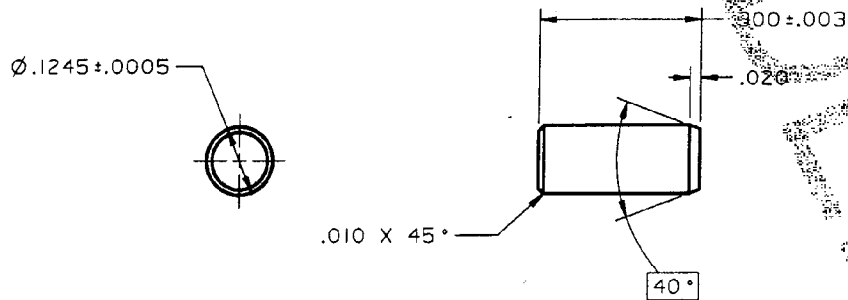
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TOLERANCES ON DECIMAL DIMENSIONS ARE:
1. PLACE (.1) - TOLERANCE $\pm .015$
2. PLACE (.01) - TOLERANCE $\pm .010$
3. PLACE (.001) - TOLERANCE $\pm .005$
4. ON FRACTIONAL DIMENSIONS $\pm 1/64$
5. ON ANGULAR DIMENSIONS $\pm .0030^\circ$
FINISHES ARE DESIGNATED BY ROOT MEAN
SQUARE (R.M.S.) MICRO-INCH ROUGHNESS
VALUES AND ARE THE MAXIMUM ROUGHNESS
ACCEPTABLE UNLESS OTHERWISE SPECIFIED.
FINISH ROUGHNESS TO BE $\sqrt{125}$ OR BETTER.

MATERIAL AND HEAT TREAT

MATERIAL AISI 1018
HEAT TREAT CARBURIZE 1.70% C POTENTIAL
HARDNESS R15N 88-92 (1.008 MIN CASE)
COLOR BLACK OXIDE
HEAT TREAT AND COLOR TO BE DONE BY
REWINGTON

ALTERATIONS

[illegible]

CV FILENAME - PARTS.RIF.710.PIVOT-PIN.300351

M O D E L	P A R T N O.	P A R T U S E	
D ES. BY DATE	O RN. BY DATE MDK 03/01/99	C W E. BY DATE	A PP. BY DATE
T I T L E PIVOT PIN			
R U M B E R	S C A L E 5 : 1	S U P E R S E D E S	R E F E R E N C E
B-300351	REMINGTON ARMS CO. INC. RESEARCH DIV.		

1

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ME0264

March 1968

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MF0265

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4/10/08
JRM/AMM
2008/04

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MF0266

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CONFIDENTIAL ⁸³ *late 1980s*

MF0267

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CONFIDENTIAL

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MF0268

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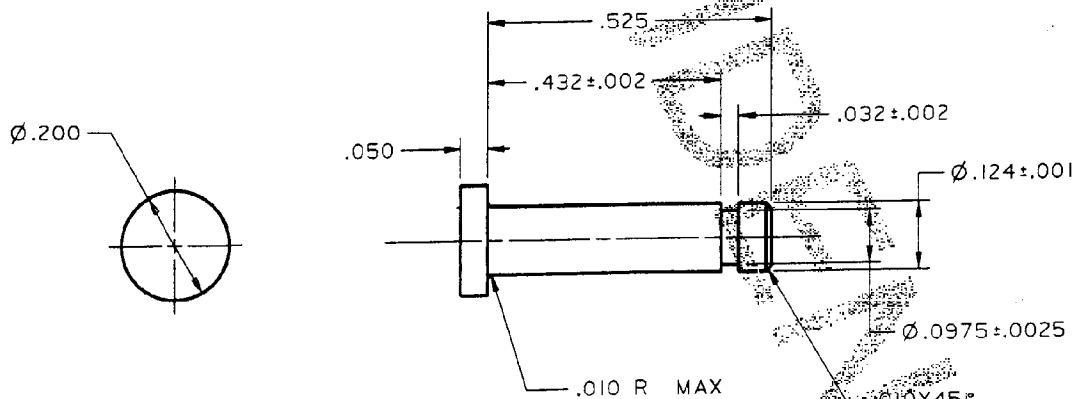
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REMINGTON ARMS COMPANY, INC.

DO NOT SCALE THIS DRAWING: WORK TO FIGURES
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TOLERANCES ON DECIMAL DIMENSIONS ARE:
1 PLACE (3/4) - TOLERANCE $\pm .015$
2 PLACE (1/10) - TOLERANCE $\pm .010$
3 PLACE (1/100) - TOLERANCE $\pm .005$
& ON FRACTIONAL DIMENSIONS $\pm 1/64$
& ON ANGULAR DIMENSIONS $\pm .00^\circ$ - 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 $\sqrt{\text{RMS}}$ OR BETTER.

MATERIAL AND HEAT TREAT
MATERIAL AISI 1018
HEAT TREAT CARBURIZE (.70% C POTENTIAL)
HARDNESS R15N 88-92 LOOB MIN CASEI
COLOR BLACK OXIDE
HEAT TREAT AND COLOR TO BE DONE BY
REMINGTON

ALTERATIONS

ALT.	WAS	REF.	BY	DATE
1	REVISED AND REDRAWN		MDK	05-26-99



MODEL	PART NO.	PART USE	
DES. BY DATE	DRW. BY DATE	CHK. BY DATE	APP. BY DATE
TITLE SAFETY PIVOT PIN			
NUMBER B-300352	SCALE 5:1	SUPERSEDES	REFERENCE
REMINGTON ARMS CO. INC. RESEARCH DIV.			

CV FILENAME - PARTS.RIF.710.SAFETY-PIVOT-PIN.300352

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MF0270

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MF-Box

MF0271

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Brainin

Deer Park Die & Stamping Division

Fairfield

TO: MATT Golemboski Remington Arms	FROM: Rich Lee	Date: 5/23/00 Number of Pages: 2 Phone: (513) 874-9760 Fax: (513) 874-9764
---	--------------------------	---

270-856-3233

Remarks:

83

☐ URGENT ☒ **FOR YOUR REVIEW** ☐ REPLY ASAP ☐ PLEASE COMMENT

Dear Matt,

Please find the latest tool program chart for the mag box. You will notice that we are currently showing a bit behind our earlier one. Based on the % completions, we have initiated some overtime, including Saturdays, in an attempt to better this outlook of 7-14. I realize we will be tight for the 8-1 production target, but I have spoken with Metty about materials to prepare us for the launch accordingly. I will keep you advised of any further changes to this.

Best regards,

Rich Lee

Rich

CONVERSATION ON 5/26 w/ RICH LEE

REV 16 HARD COPY

- DID RECEIVE CAD DATA
- SHOT FOR PPAP OF 7/1/00
-

MF0272



Deer Park Die & Stamping Division

Fairfield

Deer Park Die & Stamping
Tooling Status Report

5-23-2000

Customer: Remington Arms

Part Number: E-300363

Part Name: Magazine Box

Enter Task Completion % Below

Task Name	Duration	Start Date	Finish Date	wk 1	wk 2	wk 3	wk 4	wk 5	wk 6	wk 7	wk 8	wk 9	wk 10	wk 11	wk 12	wk 13	wk 14	wk 15	wk 16
SC# <u>40263</u>				<u>4-28-00</u>	<u>5-5-00</u>	<u>5-12-00</u>	<u>5-19-00</u>	<u>5-26-00</u>	<u>6-2-00</u>	<u>6-9-00</u>	<u>6-16-00</u>	<u>6-23-00</u>	<u>6-30-00</u>	<u>7-7-00</u>	<u>7-14-00</u>				
strip layout	<u>1 week</u>	<u>4-21-00</u>	<u>4-28-00</u>	<u>100%</u>															
cross sections	<u>2 weeks</u>	<u>4-28-00</u>	<u>5-12-00</u>		<u>30%</u>	<u>100%</u>													
design complete	<u>3 weeks</u>	<u>4-28-00</u>	<u>5-19-00</u>		<u>20%</u>	<u>60%</u>	<u>100%</u>												
steels received	<u>3 weeks</u>	<u>5-4-00</u>	<u>6-2-00</u>				<u>40%</u>												
components soft machined	<u>5 weeks</u>	<u>5-12-00</u>	<u>6-16-00</u>				<u>15%</u>												
die set machined received	<u>2 weeks</u>	<u>5-12-00</u>	<u>5-26-00</u>				<u>100%</u>												
complete HT & ground	<u>4 weeks</u>	<u>5-19-00</u>	<u>6-16-00</u>				<u>15%</u>												
tryout mtl received	<u>6 weeks</u>	<u>5-12-00</u>	<u>6-30-00</u>																
wire edm & jig complete	<u>5 weeks</u>	<u>5-19-00</u>	<u>6-27-00</u>				<u>5%</u>												
fitting / assembly	<u>3 weeks</u>	<u>6-16-00</u>	<u>7-7-00</u>																
tryout complete	<u>1 week</u>	<u>7-10-00</u>	<u>7-14-00</u>																
samples made	<u>1 week</u>	<u>7-10-00</u>	<u>7-14-00</u>																
ISR shipped	<u>1 week</u>	<u>7-10-00</u>	<u>7-14-00</u>																

Special Instructions / Notes :

Form # 23-1 Rev. 2 9/27/99

ME0273

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05/23/00 12:49

DEER PARK DIE & STAMPING, INC. - 502 856 3233

NO. 806 P002/002

Brainin

ISC 9001

Deer Park Die & Stamping Division

Fairfield

*Matt
copy
FYI*May 16th, 2000

Remington Arms Co.
22 Rifle Trail P.O. Box 99
Hickory, KY 42051
Attn: Metty Morgan

Subject: E300363 Mag Box Program

Dear Metty,

Thank you for your input on the phone today to discuss the mag box program. We are preparing to order raw materials for the upcoming production die try out scheduled for a PPAP approximately July 1, 2000. In order to accommodate your plans to have production parts available for early August, we will need to commit to raw materials before hand.

As mentioned, our normal coil release is about 5,000# of this strip size, which will make approximately 15,000 parts. You have indicated an 8-10,000 need in the fourth quarter plus another 7,000 for service part inventory. The 5000# coil should work out nicely and you have agreed we should proceed with it. The formal PO release for parts will not take place until the 1st pt samples have been approved. After some experience with the part we can work together on future material planning to keep your needs covered.

Thank your assistance, and we wish to also thank you again for the opportunity to demonstrate our desire to be a quality, capable supplier to Remington Arms.

Brainin-Deer Park Stamping Division

Richard R. Lee

Richard R. Lee
Technical Sales

MF0274

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Miss Fox Forward

MF0275

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**KELLEMS & COE**
TOOL CORPORATIONP.O. Box 754, Jeffersonville, IN 47131-0784
Phone (812) 283-4435 • Fax (812) 282-3863**QUOTATION**

5507

COPY
FYI

To:

Ms. Metty Morgan
Remington Arms Co., Inc.
22 Rifle Trail
PO Box 99
Hickory, KY 42051

Date:

8-17-99

(INQUIRY NO.)

We are pleased to quote the following:

- 1) 4-cavity production mold for the Bolt Plug, P/N 300346
Tooling cost: \$36,000.00
Piece price for 20,000: \$0.245
40,000: \$0.213
60,000: \$0.211
- 2) 4-cavity production mold for the Box Bottom, P/N 300365
Tooling cost: \$41,000.00
Piece price for 20,000: \$0.287
40,000: \$0.282
60,000: \$0.278
- 3) 4-cavity production mold for the Latch, P/N 300362
Tooling cost: \$39,000.00
Piece price for 20,000: \$0.191
40,000: \$0.186
60,000: \$0.182
- 4) 4-cavity production mold for the Follower, P/N 300364
Tooling cost: \$27,500.00
Piece price for 20,000: \$0.247
40,000: \$0.242
60,000: \$0.238

Terms on tooling: 1/3 with PO, 1/3 at tryout, 1/3 N30
Terms on parts: N45Kenny Ulrich EXT. 314
Kenny Ulrich
Account Manager

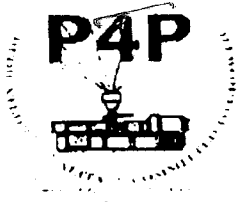
MF0276

CONFIDENTIAL 83

Mr. DeLoach

MF0277

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Williams v. Remington



PAR 4 PLASTICS, INC.

(302) 965-9141
Fax (302) 965-9560

Princeton Road
P.O. Box 385
Marion, KY 42064

August 19, 1999

Ms. Metty Morgan
Remington Arms Company, Inc.
22 Rifle Trail
P. O. Box 99
Hickory, KY. 42051

Dear Metty:

Per your request, we are pleased to quote the following:

Model 710 Box Bottom, # 300365:

Two Cavity Production Mold

Cost = \$ 47,880.00
Lead Time = 15 wks.

Molded Parts Delivered, Annual Volumes

100,000 pcs.
60,000 pcs.
40,000 pcs.
20,000 pcs.

Cost = \$.205 ea.
.226 ea.
.241 ea.
.256 ea.

Model 710 Follower, # D-300364:

Two Cavity Production Mold

Cost = \$ 33,300.00
Lead Time = 14 wks.

Molded Parts Delivered, Annual Volumes

100,000 pcs.
60,000 pcs.
40,000 pcs.
20,000 pcs.

Cost = \$.193 ea.
.207 ea.
.217 ea.
.259 ea.



KELLEMS & COE

TOOL CORPORATION

P.O. Box 754, Jeffersonville, IN 47131-0754
Phone (812) 283-1135 • Fax (812) 282-3863

QUOTATION

5507

COPY
FYI

To:

Ms. Metty Morgan
Remington Arms Co., Inc.
22 Rifle Trail
PO Box 99
Hickory, KY 42051

Date:

8-17-99

(INQUIRY NO.)

We are pleased to quote the following:

- 1) 4-cavity production mold for the Bolt Plug, P/N 300346
Tooling cost: \$36,000.00
Piece price for 20,000: \$0.215
40,000: \$0.213
60,000: \$0.211
- 2) 4-cavity production mold for the Box Bottom, P/N 300365
Tooling cost: \$41,000.00
Piece price for 20,000: \$0.287
40,000: \$0.282
60,000: \$0.278
- 3) 4-cavity production mold for the Latch, P/N 300362
Tooling cost: \$39,000.00
Piece price for 20,000: \$0.191
40,000: \$0.186
60,000: \$0.182
- 4) 4-cavity production mold for the Follower, P/N 300364
Tooling cost: \$27,500.00
Piece price for 20,000: \$0.247
40,000: \$0.242
60,000: \$0.238

Terms on tooling: 1/3 with PO, 1/3 at tryout, 1/3 N30
Terms on parts: N45

Kenny Ulrich EXT. 314
Kenny Ulrich
Account Manager

MF0279

Moore v. Remington

CONFIDENTIAL 83

MF0280

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Williams v. Remington



P.O. Box 784, Jeffersonville, IN 47131-0784
Phone (812) 283-4435 • Fax (812) 282-3863

QUOTATION

5507

COPY
FYI

To:

Ms. Metty Morgan
Remington Arms Co., Inc.
22 Rifle Trail
PO Box 99
Hickory, KY 42051

Date:

8-17-99

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- 2) 4-cavity production mold for the Box Bottom, P/N 300365
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Piece price for 20,000: \$0.287
40,000: \$0.282
60,000: \$0.278
- 3) 4-cavity production mold for the Latch, P/N 300362
Tooling cost: \$39,000.00
Piece price for 20,000: \$0.191
40,000: \$0.186
60,000: \$0.182
- 4) 4-cavity production mold for the Follower, P/N 300364
Tooling cost: \$27,500.00
Piece price for 20,000: \$0.247
40,000: \$0.242
60,000: \$0.238

Terms on tooling: 1/3 with PO, 1/3 at tryout, 1/3 N30
Terms on parts: N45

Kenny Ulrich EXT. 314
Kenny Ulrich
Account Manager

MF0281

SANITARY ALCA

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MF0282

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Williams v. Remington

Golemboski, Matt R.

From: Morgan, Metty E.
Sent: Monday, January 24, 2000 2:28 PM
To: Keeney, Mike
Cc: Golemboski, Matt R.
Subject: 710 Safety Arm

01/24/2000

Mike,

Dan Hart at Square Stamping can be reached at 315-896-2641.

The scenario goes: Square has quoted the best tooling cost by some \$4500.00. vs. the other quoters., however, his piece price is highest. .23 cents vs .88 cents which I have just today gotten him down to .68 cents.

He says he has three issues with the design. 1.) no hole to check the cam surface.

2.) hole size

3.) tighter die clearance. shouldn't be much die break there.
needs to be straight as possible.

He said our 710 safety has a form that is not on the 700 design. He is charging .285 ea. for that to Ilion. I could use some help here. Dan is very familiar with the 700 safety. He is confident that we will have trouble with a new vendor at .23 cents each. He is willing to drop the cost on other 710 parts if necessary, but says as this design is now there is no way he can move further. Please call him and see what you can do.

Thanks Mike,
Mett @ Mayfield

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STOCK ASSEMBLY
COMPLETE

MF0284

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STOCK

MF0285

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Williams v. Remington

Confidential

Remington Arms Co.

Memo

To: Mett Morgan
From: Matt Golemboski
CC: Joe Zajk
Date: 05/16/00
Re: Par4 Information

After the sample run of stocks on 5/3/00, it was noticed that the trigger bow area has some flex to it and a portion of the stock near the grip area is thin enough to disrupt the flow of material. On a short shot this area did not fill. Par 4 was asked to quote the cost of the revisions. Remington received a quote via fax on 5/15/00 to correct the two issues mentioned above. **Total cost of \$3300.** Please forward Par4 a purchase order to cover this cost. Add it as a line item to the original PO if possible to keep record keeping later easier for me. I want to know the total cost of the stock mold after the project is complete.

The solid model design changes are in process at R&D and will be forwarded directly from the designer in Elizabethtown. Please have Par4 contact us when this design work is received by their tool shop.



PAR 4 PLASTICS, INC.

(502) 965-9141
Fax (502) 965-9560

Princeton Road
P.O. Box 385
Marion, KY 42064

May 15, 2000

Ms. Metty Morgan
Remington Arms Co. Inc.
22 Rifle Trail
P.O. Box 99
Hickory, KY. 42051

Dear Metty;

Per the request of Matt Golemboski and Joe Zajk, we are pleased to quote the following:

- #1. Modify the 710 Stock Butt Core as per math data to be supplied by Remington.
- #2. Enlarge Trigger Guard Area on the 710 Stock Mold Core and Cavity Blocks as per new math data to be supplied by Remington.

TOTAL COST = \$ 3300.00

Sincerely

Sam Todd
Dir. Sales and Marketing

MF0287

Model 710 Latch, # C - 300362:

Two Cavity Production Mold

Cost = \$ 33,480.00
Lead Time = 14 wks.

Molded Parts Delivered, Annual Volumes 60,000 pcs.
40,000 pcs.
20,000 pcs.

Cost = \$.212 ea.
.231 ea.
.245 ea.

Model 710 Bolt Plug, # C - 300368:

Two Cavity Production Mold

Cost = \$ 38,088.00
Lead Time = 12 wks.

Molded Parts Delivered, Annual Volumes 60,000 pcs.
40,000 pcs.
20,000 pcs.

Cost = \$.215 ea.
.239 ea.
.249 ea.

Note, Remington to supply metal inserts.

Model 710 Stock:

One Cavity Production Mold

Cost = \$ 150,300.00
Lead Time = 21 wks.

Molded Parts Delivered, Annual Volumes 60,000 pcs.
40,000 pcs.
20,000 pcs.

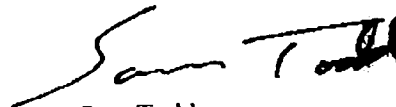
Cost = \$ 5.17 ea
5.27 ea
5.38 ea

Drivder sleeves for the stock have been amortized over the first years production at a cost of \$.006 per sleeve.

Note: Prices are base on current information supplied by Remington Arms. Changes in material, volumes, cycle times, packaging, or part design may result in price changes.

Metty, thanks for the opportunity to quote on your work. If we can be of further assistance please let us know.

Sincerely,
Par 4 Plastics, Inc.



Sam Todd
Dir. of Sales and Marketing

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83
Finalist 8/27/2008

MF0289

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Williams v. Remington

Golemboski, Matt R.

From: Zajk, Joseph J
Sent: Wednesday, June 30, 1999 10:14 AM
To: Golemboski, Matt R.
Subject: FW: 100 Yard Range for Mayfield

Interesting.

-----Original Message-----

From: Douglass, Edwin M.
Sent: Wednesday, June 30, 1999 9:45 AM
To: Zajk, Joseph J
Subject: RE: 100 Yard Range for Mayfield

Joe,

Here are a collection of my thoughts regarding your proposed range:

- Get Osborne to give you an updated cost estimate for the 100 yd/meter range. They gave us an estimate for the first expansion at Mayfield in late 1996, which included an option for a 100 meter range. I will fax you a copy. If you need any help getting an update let me know.
- The actual construction cost for the 100 meter range at E-Town was \$492,212 but did not include the Snail (approx. \$30,000), target rolls, shooter's benches, shooting jacks or any of their electronic instrumentation.
- If you haven't already, take a ride over to E-Town and take a look at that range.
- Provide more space and \$ for noise reduction at the shooter's end of the range than what was provided at E-Town.
- Include \$ for vacuum equipment and personal protective equipment for range cleanup. My preference is to vacuum the range rather than wash down and filter as is done at E-Town.
- Include an earthen berm behind and to the sides of the target house as an additional safety measure if it is above ground.
- Use Kirk safety interlocks (or other similar devices) for range access.
- Tube (concrete pipe) or cattlepass construction would work but is not nearly as flexible for use as a rectangular cross-section and may not be any cheaper if you are planning for multiple firing positions.
- I would recommend a full length rectangular cross-section range which would give you the ability to shoot at intermediate ranges as well as at 100 yds/meters. It also gives you access from inside and is better suited for possible extension to 200 or 300 yds if desired.
- I am not familiar with the Savage IR96 Bullet Trap, but I am assuming that it is their snail design and similar to the one at E-Town. If so, I am not aware of any better design for use in a production range. I believe that they have had good results with the snail at E-Town. We have tried a couple of other designs here at Ilion, but they really aren't suitable for centerfire production use. We have gone back to sand for our two 100 yd ranges and the 200 yd range. As far as the conveyor system goes, I guess that is your call. E-Town chose not to include a conveyor for their range. I believe the additional cost was about \$12,000 three years ago.
- Tad Yager can give you some information on HVAC requirements and Ron Gurtowski can provide information on vacuum and ppe requirements.
- Check with the local codes person. I don't recall that there are any particular restrictions or requirements in Kentucky.
- Include \$ for any cable, wiring and outlets you may need at several points downrange for instrumentation or equipment. You will also need a water line at the target end for makeup in the snail.
- The snail should have a low level/low flow alarm to prevent running dry.
- Include \$ for a hardsurfaced access drive to the target house for service.

If you have questions on any of these items or other issues don't hesitate to call.

Ed

From: Zajk, Joseph J

Sent: Tuesday, June 29, 1999 11:25 AM
To: Douglass, Edwin M.
Subject: 100 Yard Range for Mayfield
Importance: High

Ed;

I need to estimate the cost of building a 100 yard range for Mayfield. This is part of the cost Mayfield would need to incorporate into the Model 710 project proposal. Are there minimum requirements for range construction, either by law or by Remington std.. that I would need to incorporate? I guess the same thing would go for air handling requirements. According to Jim Snedecker at E'town, their range cost between \$500,00 & \$600,000. That's for poured concrete roof, walls, floor, air handling, etc. Will the tube system we have for Mayfield's 25 yard range work if we scaled it up and beefed it up?

The initial caliber that would be made in the 710 would be 30-06, but marketing is supposed to want magnum calibers up through 338 Win Mag included as well. I was planning on using a Savage IR96 Bullet Trap. It will cover an 8' x8' opening. It has an option of a conveyor system to remove bullet material. If you know of something else that might work better, let me know.

Any assistance, general guidance on range construction, etc. that you guys up there can give me would be a great help. Our preliminary estimate for producing the 710 down here needs to be sent to Bristol by 8/30, so there is some urgency.

Thanks,

Joe Z.

P.S.: That other information for the A/C stuff was interesting. Some of the equipment did change for what its worth.

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10/6/97

BOM Item/Operat/Resource				Quantity	UM	Gross value	Ob	Crc	Name
M	MAY	26550		1,000.000	EA	65,998.36	USD	597 .22	LR
#	E	4670 28100	WC2207 MLG2	191	HR	1,560.47	USD		Inspect & Pack; WC2207 All Reporting
#	M	0280 4670 MAY F300045		1,000.000	EA	860.26	USD		BOLT HANDLE
#	F	0010 0010 MAY F300078		1,000.000	EA	20.00	USD		Vendor Heat Treat - For F300045
#	E	0030 28150 WC0005 MLG3		1,000.000	EA	800.00	USD		BOLT HANDLE BLANK
#	G	28100 8990889		1	HR	9.43	USD		Black Oxide
#	G	28100 8990890				21.97	USD		Overhead - Prod'n.
#	G					8.86	USD		Overhead - Prod Var
#	M	0290 4670 MAY F300001		2,000.000	EA	79.48	USD		BOLT GUIDE RAIL
#	E	0005 28150 WC0005 MLG3		2 X 1 = 2	HR	18.86	USD		Black Oxide; Report Production
#	M	0010 0005 MAY F300079		2,000.000	EA	160.00	USD		BOLT GUIDE RAIL BLANK
#	G	28100 8990889				43.94	USD		Overhead - Prod'n.
#	G	28100 8990890				17.72	USD		Overhead - Prod Var
#	M	0300 4670 MAY F300018		2,000.000	EA	47.50	USD		GUIDE RAIL RETAINING SCREW
#	M	0310 4670 MAY F300007		2,000.000	EA	58.90	USD		ACTION SPRING
#	M	0320 4670 MAY F305055		1,000.000	EA	10,775.01	USD		HOUSING ASSEMBLY
#	E	0140 28100 WC2215 MLG2		118	HR	964.06	USD		Ass. Hold Open, H O Sprg, & H O Pin
#	M	0010 0140 MAY F300051		1,000.000	EA	1472.51	USD		HOUSING
#	M	0020 0140 MAY F300041		1,000.000	EA	1,039.92	USD		TRIGGER
#	M	0030 0140 MAY F300020		1,000.000	EA	50.27	USD		EJECTOR
#	F	0010 103386		1,000.000	EA	-10.00	USD		Vendor Heat Treat - For F300020
#	M	0010 0010 MAY F300081		1,000.000	EA	88.59	USD		EJECTOR BLANK
#	E	0040 28150 WC0005 MLG3		1,000.000	EA	9.43	USD		Black Oxide
#	G	28100 8990889				21.97	USD		Overhead - Prod'n.
#	G	28100 8990890				8.86	USD		Overhead - Prod Var
#	M	0040 0140 MAY F300047		1,000.000	EA	1,299.76	USD		SEAR
#	M	0050 0140 MAY F305005		1,000.000	EA	40.00	USD		PIN, LINK SEAR
#	F	0010 103386		1,000.000	EA	10.00	USD		Vendor Heat Treat - For F305005
#	M	0010 0010 MAY F300083		1,000.000	EA	70.00	USD		SEAR, LINK PIN BLANK
#	E	0030 28150 WC0005 MLG3		1,000.000	EA	9.43	USD		Black oxide
#	G	28100 8990889				21.97	USD		Overhead - Prod'n.
#	G	28100 8990890				8.86	USD		Overhead - Prod Var
#	M	0060 0140 MAY F305006		2,000.000	EA	60.00	USD		LINK PIN
#	F	0010 103386		2,000.000	EA	20.00	USD		Vendor Heat Treat - For F305006
#	M	0010 0010 MAY F300084		2,000.000	EA	140.00	USD		LINK PIN BLANK
#	E	0030 28150 WC0005 MLG3		2	HR	18.86	USD		Black oxide
#	G	28100 8990889				43.94	USD		Overhead - Prod'n.
#	G	28100 8990890				17.72	USD		Overhead - Prod Var
#	M	0070 0140 MAY F300008		1,000.000	EA	6.64	USD		SEAR RETURN SPRING
#	M	0080 0140 MAY F300031		1,000.000	EA	421.32	USD		HAMMER
#	E	0003 28100 WC2211 MLG3		8	HR	75.44	USD		Machine Sear Notch & Deburr
#	M	0003 MAY F300048		1,000.000	EA	283.00	USD		HAMMER BLANK
#	F	0005 103386		1,000.000	EA	80.00	USD		Vendor Heat Treat - For F300031
#	F	0060 2532596		1,000.000	EA	240.00	USD		Vendor Plate - For F300031
#	G	28100 8990889				175.78	USD		Overhead - Prod'n.
#	G	28100 8990890				70.91	USD		Overhead - Prod Var
#	M	0090 0140 MAY F300033		1,000.000	EA	72.15	USD		HAMMER SPRING
#	M	0100 0140 MAY F300005		2,000.000	EA	102.76	USD		SPRING BUSHING

Elim Deburr

*Mach
no
Grind*

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Williams V. Remington

ME0292

Gross value ObCrc Name

(10.07/11)
low

ME0293

BOH item/Operat/Resource

Quantity UM

Gross value ObCrc Name

M	0370	4670	MAY	F300012	2,000.000	EA	+64.30	110.30	USD	TAKEDOWN SCREW, Front
M	0390	4670	MAY	F1645	200.000	EA		343.00	USD	CARTON, FIVE PACK
M	0410	4670	MAY	F993002	1,000.000	EA		37.50	USD	BOX AND ENVELOPE LABEL
M	0470	4670	MAY	F300116	200.000	EA		3.89	USD	LABEL, 5-PAK SMALL FORMAT
M	0480	4670	MAY	21238	7,000.000	RND		91.91	USD	TB-22A R 22 LR HV TC SB
M	0490	4670	MAY	21074	7,000.000	RND		100.87	USD	1722 R 22LR YJ TCHP
M	0500	4670	MAY	F330031	1,000.000	EA		2,871.70	USD	Carton Assembly Complete
M	0520	4670	MAY	F300105	1,000.000	EA		130.00	USD	WINCHESTER PROOF LOAD DPSX22LR
M	0540	4670	MAY	F305065	1,000.000	EA		25,914.58	USD	Barrel Assembly Complete; .22LR (CS)
E	0050	28100		WC2216		MLG2				
#	M	0010	0050	MAY	F305040	1,000.000	HR	79	645.43	USD
							EA	+729.59	4,994.10	USD
E	0018	28100		WC2210		MLG3				
#	M	0010	0018	MAY	F300046	1,000.000	HR	53	499.79	USD
							EA	+14.00	2,540.00	USD
F	0020	103402			1,000.000		EA	-150.00	320.00	USD
G	28100			8990889					1,164.51	USD
G	28100			8990890				+647.56	469.80	USD
M	0020	0050	MAY	F17034	1,000.000	EA		114.24	USD	RECEIVER PLUG SCREWS (CS)
M	0030	0050	MAY	F300040	1,000.000	EA		425.39	USD	BARREL CLAMP
M	0040	0050	MAY	F300013	1,000.000	EA		24.40	USD	BARREL CLAMP SCREW
M	0050	0050	MAY	F305000	1,000.000	EA		90.00	USD	BOLT BUFFER
M	0060	0050	MAY	F300035	1,000.000	EA		1,258.52	USD	FRONT SIGHT
M	0070	0050	MAY	F28505	1,000.000	EA		39.77	USD	FRONT SIGHT SCREW
M	0080	0050	MAY	F300042	1,000.000	EA		2,252.10	USD	REAR SIGHT BASE
M	0090	0050	MAY	F300027	1,000.000	EA		125.20	USD	REAR SIGHT BASE SCREW
#	M	0100	0050	MAY	F300034	1,000.000	EA	+300.00	810.26	USD
F	0010	103386			1,000.000	EA		20.00	USD	Vendor Heat Treat - For F300034
#	M	0010	0010	MAY	F300073	1,000.000	EA	+300.00	750.00	USD
E	0030	28150		WC0005		MLG3			9.43	USD
G	28100			8990889					21.97	USD
G	28100			8990890					8.86	USD
M	0110	0050	MAY	F300009	1,000.000	EA		3.95	USD	SAFETY PLUNGER SPRING, ELEVATION SPRING
M	0120	0050	MAY	F300043	1,000.000	EA		90.00	USD	REAR SIGHT CANTILEVER
M	0130	0050	MAY	F300037	1,000.000	EA		019.43	USD	APERTURE
M	0140	0050	MAY	F300026	1,000.000	EA		120.00	USD	SCREW, WINDAGE
#	M	0150	0050	MAY	F305030	1,000.000	EA	+1599.73	1,791.24	USD
E	0015	28100		WC2201		MLG3				
#	M	0020	0015	MAY	F300099	1,875.000	HR	77	726.11	USD
							FE		1,931.63	USD
E	0079	28100		WC2203		MLG3				
#	M	0010	0079	MAY	F305020	1,000.000	HR	98	924.14	USD
							EA	+170.72	2,007.72	USD
E	0010	28100		WC2212		MLG3				
#	M	0010	0010	MAY	F305015	1,000.000	HR	29	273.47	USD
							EA	-10.92	840.00	USD
G	28100			8990889					637.19	USD
G	28100			8990890					257.06	USD
E	0110	28150		WC0005		MLG3				
G	28100			8990889					1,503.85	USD
G	28100			8990890					606.70	USD
#	M	0550	4670	MAY	F305050	1,000.000	EA	-917.06	218.53	USD
E	0030	28100		WC2217		MLG2				
#	M	0010	0030	MAY	F300049	1,000.000	HR	39	318.63	USD
							EA	+458.95	1,280.01	USD

57.32 only
Vand 2 Lines
SB 114.65
any
7/82

Ass. Receiver to Bbl Ass'y; All Reportin
RECEIVER; CS, BLACK

Vibratory Finish; WC2210 Reporting
RECEIVER BLANK; CS, SS, WM
Vendor Powder Coat - FOR F305040
Overhead - Prod'n.
Overhead - Prod Var

RECEIVER PLUG SCREWS (CS)
BARREL CLAMP
BARREL CLAMP SCREW
BOLT BUFFER
FRONT SIGHT
FRONT SIGHT SCREW
REAR SIGHT BASE
REAR SIGHT BASE SCREW
SCREW, ELEVATION FOR REAR SIGHT

Vendor Heat Treat - For F300034
ELEVATION SCREW BLANK
Black Oxide
Overhead - Prod'n.
Overhead - Prod Var

SAFETY PLUNGER SPRING, ELEVATION SPRING
REAR SIGHT CANTILEVER
APERTURE
SCREW, WINDAGE
BARREL ASSEMBLY (CS)

Rifle Bore; WC2201 All Reporting
M 597 BARREL MATERIAL (C.S.)
Roll Mark Caliber; WC2203 Reporting
BARREL EXTENSION (CS)

Machine, Deburr; WC2212 All Reporting
BARREL EXTENSION BLANK (CS)
Overhead - Prod'n.
Overhead - Prod Var

Black Oxide
Overhead - Prod'n.
Overhead - Prod Var

Overhead - Prod'n.
Overhead - Prod Var

Bolt Assembly; .22 LR

Ass. Firing Pin, Spring; All Reporting
BOLT (L.R.)

changed 10/6/97
SB 79
Time

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ME0294

BOM it.../Operat/Resource

Quantity UM

Gross value ObCrc Name

M	0010	0008	MAY	F300050		1,000.000	EA	✓	1,850.00	USD	BOLT BLANK (L.R.)	
E		0010	28100	WC2209	MLG3	53	HR	+141.45	499.79	USD	Machine Bolt Complete	
F		0020	103386			1,000.000	EA	+620.00	720.00	USD	Vendor Heat Treat - For F300049	
E		0032	28100	WC2214	MLG3	36	HR		339.48	USD	Grind Two Rail Slots	
E		0047	28100	WC2209	MLG3	20	HR	-179.17	188.60	USD	Dip in rust Inhibitor; Reporting	
F		0050	2532596			1,000.000	EA		330.00	USD	Vendor Plating - For F300049	
G			28100	8990889				-123.33	394.94	USD	Overhead - Prod'n.	
G			28100	8990890					966.20	USD	Overhead - Prod Var	
#	M	0020	0030	MAY	F300029	1,000.000	EA	-10.00	32.17	USD	SPRING, BOLT HANDLE	
F			0010	103386		1,000.000	EA	-10.00	10.00	USD	Vendor Heat Treat - For F300029	
M		0010	0010	MAY	F330029	1,000.000	EA		22.17	USD	Bolt Handle spring Blank	
#	M	0030	0030	MAY	F300011	1,000.000	EA	-27.80	61.00	USD	RIVET, BOLT SPRING	
#	M	0040	0030	MAY	F305011	1,000.000	EA	79.54	213.29	USD	EXTRACTOR (L.R.; REGULAR)	
F			0005	103371		1,000.000	EA	- .99	0.01	USD	Vendor Heat Treat - for F305011	
M		0010	0005	MAY	F300030	1,000.000	EA		11.95	USD	EXTRACTOR BLANK	
E			0010	28100	WC2214	MLG3	4	HR	+18.86	37.72	USD	Grind Form and Manual Deburr
E			0030	28150	WC0005	MLG3	1	HR		9.43	USD	Black Oxide
G				28100	8990889				109.86	USD	Overhead - Prod'n.	
G				28100	8990890			+109.87	44.32	USD	Overhead - Prod Var	
M		0050	0030	MAY	F97418	1,000.000	EA		7.82	USD	SPRING, HELICAL COMPRESSION	
M		0060	0030	MAY	F97039	1,000.000	EA		42.71	USD	EXTRACTOR PLUNGER	
#	M	0070	0030	MAY	F300028	1,000.000	EA	-20.07	1,156.18	USD	FIRING PIN	
E			0010	28100	WC2208	MLG3	26	HR		245.18	USD	Machine Complete, Deburr; Reporting
M		0010	0010	MAY	F300101	260.000	FT		39.00	USD	M 597 FIRING PIN MATERIAL	
F			0020	103386		1,000.000	EA	+20.00	30.00	USD	Vendor Heat Treat - For F300028	
E			0050	28150	WC0005	MLG3	1	HR	9.43	9.43	USD	Black Oxide
G				28100	8990889			-30.84	593.24	USD	Overhead - Prod'n.	
G				28100	8990890				239.33	USD	Overhead - Prod Var	
M		0080	0030	MAY	F300006	1,000.000	EA	-2.05	10.70	USD	FIRING PIN SPRING	
M		0090	0030	MAY	F300014	1,000.000	EA		45.10	USD	FIRING PIN RETAINING PIN	
G				28100	8990889				742.41	USD	Overhead - Prod'n.	
G				28100	8990890			-1068.63	299.51	USD	Overhead - Prod Var	
G				28100	8990889				3,635.90	USD	Overhead - Prod'n.	
G				28100	8990890				1,466.84	USD	Overhead - Prod Var	

changed 10/6/9

SB 10.00

Eline Tumble

83

MF0295

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Williams v. Remington

BUSS BAR LOADS

OBJECTIVE - TO SEE IF THERE IS ENOUGH CAPACITY LEFT FOR
THE NEW MACHINES NEEDED FOR THE MODEL 710.

BUSS RATING - 800 A

OF BUSS - 2 (NORTH, SOUTH)

MF0296

NORTH BUSS BAR CAPACITY

<u>MACHINE</u>	<u>FUSED @</u>
CHILLER (REAMER)	10A
CHILLER (DRILL)	20A
RIFLER	45A
REAMER	60A
REAMER	60A
GUNDRILL	125A
GREENARD PRESS	20A
LIGHTING PANEL	200A
DUAL HEAD DRILL	10A
OKUMA (RAIL)	40A
O-12	10A
ROLLMARK 575	20A
RECEIVER	40A
RECEIVER	40A
CARBON BOLT	40A
TUNGSTEN	40A
TUNGSTEN	40A
DADSON	40A
OKUMA (B.A.)	40A
OKUMA (B.A.)	40A
MONARCH	80A
MONARCH	80A
CROWN	40A
CHAMBER	40A
TORIT (POLISHER)	10A
ROLLMARK (B.A.)	10A
SURFACE GRINDER	25A
O-18	<u>10A</u>

TOTAL 1235 A

CURRENT LOAD ON BUSS BAR

(1235 A) (30%) = 370.5 A

LOAD 370.5 A

MF0297

SOUTH BUSS BAR CAPACITY

MACHINE

FUSED @

ASSEMBLY PANEL	200A
EDGETEK	100A
CENTRIFUGE	40A
SOUTHBEND LATHE	4A
AMERICAN PACEMAKER	5A
BRIDGEPORT	4A
BRIDGEPORT	4A
SURFACE GRINDER	15A
ROTO FINISH	10A
CITIZEN	30A
SHIPPING PANEL	100A
GUNDRILL	125A
GRAYMILLS PARTS WASHER	30A
A/C UNIT	70A
A/C UNIT	90A
A/C UNIT	60A
WAGNER CUT-OFF	20A

TOTAL 907 A

CURRENT LOAD ON BUSS BAR

(907A) (30%) = 272.1 A

LOAD 272.1 A

MF0298

LICKS

NEW BUSS Equipment and Installed

23,270 ⁰⁰

CONFIDENTIAL 83

MF0299

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Williams v. Remington

BUSS BAR LOADS

OBJECTIVE - TO SEE IF THE BUSS BARS HAVE ENOUGH CAPACITY LEFT FOR THE NEW MACHINES NEEDED FOR THE MODEL 710.

BUSS RATING - 800 A

OF BUSS - 2 (NORTH SOUTH)

NORTH BUSS**MACHINE****FUSED @**

CHILLER (REAMER)	10 A
CHILLER (DRILL)	20 A
RIFLER	45 A
REAMER	60 A
REAMER	60A
GUNDRILL	125 A
GREENARD PRESS	20 A
LIGHTING PANEL	200 A
DUAL HEAD DRILL	10 A
OKUMA (RAIL)	40 A
O-12	10 A
ROLLMARK 575	20 A
RECEIVER	40 A
RECEIVER	40 A
CARBON BOLT	40 A
TUNGSTEN	40 A
TUNGSTEN	40 A
DADSON	40 A
OKUMA (B.A.)	40 A
OKUMA (B.A.)	40 A
MONARCH	80 A
MONARCH	80 A
CROWN	40 A
CHAMBER	40 A
TORIT (POLISHER)	10 A
ROLLMARK (B.A.)	10 A
SURFACE GRINDER	25 A
O-18	10 A

TOTAL	1235 A
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BUSS LOAD - (1235 A) (30%) = LOAD	370.5 A
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46 % OF BUSS IS CURRENTLY BEING USED

SOUTH BUSS

MACHINE

FUSED @

ASSEMBLY PANEL	200 A
EDGETEK	100 A
CENTRIFUGE	40 A
SOUTHBEND LATHE	4 A
AMERICAN PACEMAKER LATHE	5 A
BRIDGEPORT	4 A
BRIDGEPORT	4 A
SURFACE GRINDER	15 A
ROTO FINISH	10 A
CITIZEN	30 A
SHIPPING PANEL	100 A
GUNDRILL	125 A
GRAYMILLS PARTS WASHER	30 A
A/C UNIT	70 A
A/C UNIT	90 A
A/C UNIT	60 A
WAGNER CUT-OFF	20 A

TOTAL 907 A

BUSS LOAD - (907 A) (30%) = LOAD 272.1 A

34 % OF BUSS CURRENTLY BEING USED