Remington Arms Company, Inc. Manufacturing Process Document

 Document ID:
 Trig Con 700 7 700SS 7SS
 Effective Date:
 27-Jun-02

 Product Line:
 C/F Rifle
 Origination Date:
 24-Jul-93

General Instructions:

Use the Control Buttons above and below to access the various sections of this process. If your screen is not wide enough to display all the section data; use the arrows at the lower right to pan the desired data into view. Simply click on a tab or a button to move to that section of the document.

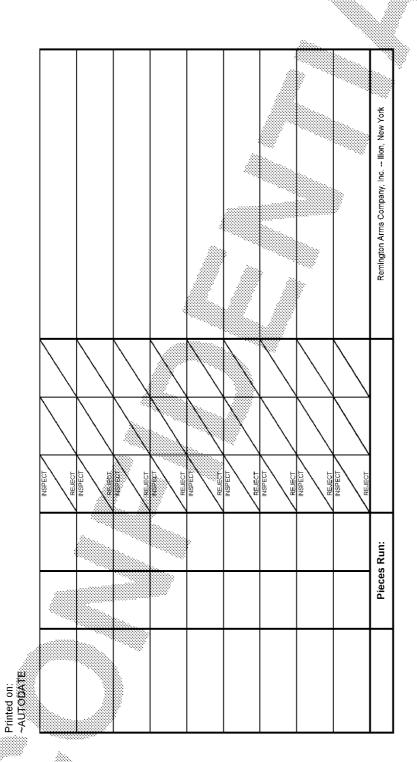
Process Routing Table:

Click on the button below containing the operation number you wish to view.

Micro-Carb harden, Oil Quench, Wash Lindberg Temper (Draw) Inspect For Hardness Sand Tumble Wash, Magnaflux, Inspect 100, Demagnatize Black Oxide For Identification



PROCESS CO				Revision Date:		27-Jun-02		Processed b	y	0 2000
Part No:	Part Name:	Trig Con 700 7	700SS 7SS	SS 7SS C/F Rifle				Date	8/14/2006	
Operation No: (Enter Oper	*#) Operation:	(Enter the Oper	ration Name in thi	s field)			******	Work Center	:	
Prod. Qty:	Prod. Order#:			Operator		Setup inspected by	& Date:			
Gage Description and Characteristic	Gage Number	Gage Frequency	1st Shift	2nd Shift	3rd Shift		Remarks.	, Causes, Acti	on Taken, Etc.	
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			INSPECT REJECT							
			INSPECT							



Subject to Protective Order - Williams v. Remington



35

Micro-Carb harden, Oil Quench, Wash

PROCESS RECORD # HEAT TREAT SPECIFICATION

Operation Step Detail Operation: 35

Step

Operation / Step Description

- 1 Rack Parts in Basket
 - 2 Load Rack on Furnace Base With Shroud
 - 3 Wash Parts If Needed Parts Must Be Clean and Dry
 - 4 Load Work on Furnace Apron
 - 5 Load Work Carburize
 - 6 Oil Quench
 - 7 Unload Work from Furnace
 - 8 Wash Parts Furnace Base and Shroud Parts Must se Clean and Bry

Operation Tool Detail

Operation: 35

Tool Number

Tooling Description

Std MicroCarb Furnace Std Proceco Washer

D-44637 Fixture Microcarb Shroud D-44683 Fixture Microcarb Base

STD Fixture Microcarb Medium Mesh Basket (12"x 21"x 2")

PROCESS RECORD - HEAT TREAT SPECIFICATION

Operation Procedure Notes Operation: 35

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Description

WASH, MICROCARB HARDEN, QUENCH AND WASH

Process

Material: C-1010

Furnace: Micro Carb

Rack: Std.12"x21"x2" medium mesh basket

Maximum Load: 1500 per basket, Layered evenly:

2 baskets max. per load. 3000 pcs per load max.

Wash: If Needed Wash. Parts are to be clean, free of cutting fluid, and dry.

Priceci Washer Cycles

When 2 Minutes with West Search (Wightest For SA/Vol of Sagiv) \$150 - 200 Deg F. Ringe to seconds with Runf Sagivation (Wightest Sagivation of Sagivation 1990) $= 200 \log F$.

Air Blaw Off 1 Minute.

Temperature: 1600 deg. F

Soak Time: 1 hr. at temp.

Carbon %: 0.75%

Quench: Oil Beacon K-9 or equivalent. Temp. 130 - 180 degrees F

Time: 5 minutes minimum.

Wash: Parts are to be clean, free of quench oil, and dry.

Proceco Washer Cycle

Wash 2 Minutes with A ka The Cleaner (Wintech John-Bak/Vol on Equiv) st 160 - 200 Deg F. Ringe (O seconds with Kust Inhibitor (Wintech 187 4-5%/Vol on Equiv)c. 160 - 200 Deg F.

Air Blow Off 1 Minute.

Notes: Parts should be clean for temper operation.

Run Shim Stock with each load for Met Chem Inspection.

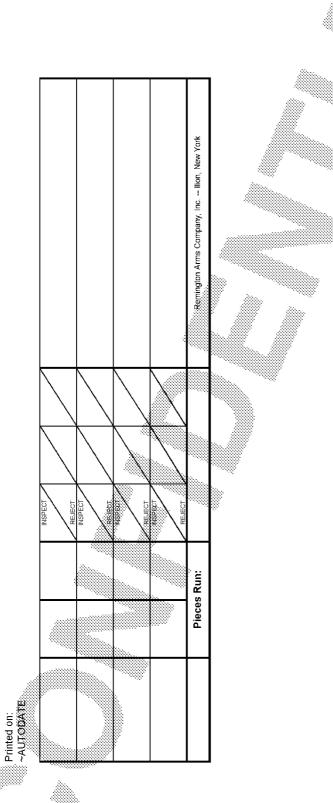
Inspect: File Hardness

Inspection

Appearance of Parts: Clean And Free of Oil

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PROCESS C THIS RECORD MUST	ONTROL INSI STAY WITH THE F TIMES			Revision Date:		27-Jun-02	Processed by:
Part No:	Part Name:	Trig Con 700 7	700SS 7SS	C/F Rifle			Date: 8/14/2006
Operation No: 35	Operation	Micro-Carts har	den, Oil Quench,	Wash			Work Center:
Prod. Qty:	Prod. Order#			Operator		Setup inspected by & Date:	
Gage Description and Characteristic	Gage Number	Gage Frequency	1st Shift	2nd Shift	3rd Shift	Remarks	s, Causes, Action Taken, Etc.
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40

Lindberg Temper (Draw)

Operation Step Detail

Operation: 40

Step

Operation / Step Description

l Load Work in Temper Furnace

2 Temper Parts

3 Unload Work from Furnage

4 Dump parts into work pans.

Operation Tool Detail

Operation: 40

Standard Lindberg Furnace

Process Data

Operation 40

Load Size: 5000 pcs. Max. Temperature: 350 Deg F.

Soak Time: 1 Hour Minimum In Furnace

Carbon %: N/A

Quench: Air - Cool with fan if necessary

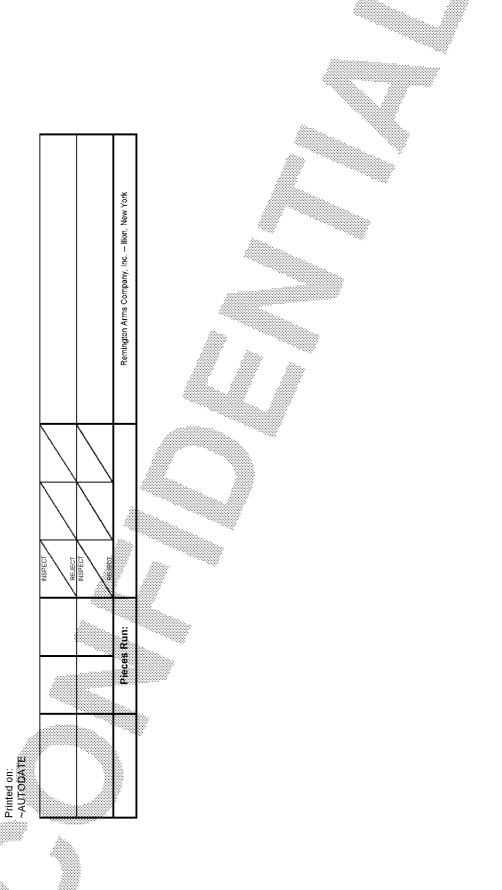
Wash: N/A

Inspect: Clean And Free of Oil.

**NOTE: LEAVE PARTS RACKED UNTIL HEAT TREAT INSPECTION IS APPROVED

I	TROL INSPECTION RECORD AY WITH THE PRODUCTION ORDER AT ALL TIMES	07 1 00	Processed by:
Part No:	Part Name: Trig Con 700 7 700SS 7SS	C/F Rifle	Date: 8/14/2006

Remarks, Causes, Action Taken, Etc. Work Center: Setup inspected by & Date: 3rd Shift 2nd Shift Operator tst Shift Lindberg Temper (Draw) %00 00% Cage Number Plod Order# Gage Description and Characteristic Operation No. 40 Prod. Oty. VISUAL





43 Inspect For Hardness

Operation Step Detail Operation: 43

Step Operation / Step Description

1 Inspect For Hardness

2 Break Test N/A

3 Record Results on Inspection Form

4 Stamp Paper Work

5 Record Results in Log Book

6 If part fails test put hold ticket on load for Met/chem lab to immpect.

Operation Tool Detail Operation: 43

Tool Number Tooling Description

Std ROCKWELL HARDNESS TESTER WITH SMALL PENCIL POST ANVIL

Operation Procedure Notes Operation: 43

Process

Material: ASAI/SAE 1010
Furnace: Microcarb

Notes: Inspect Using Small Pencil Post Anvil

Inspection

Inspection: Hardness

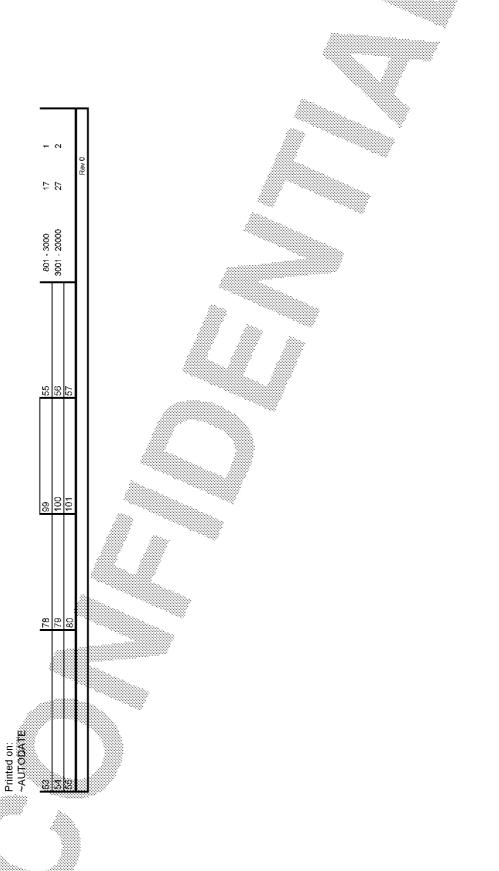
Inspect For: Rockwell Hardness

15N 88-92

Break Test: N/A Tensile Machine Settings: N/A

APPEARANCE OF PARTS: Clean Oiled for Assembly

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	Part Name:	Trig Con 700 7 7	700SS 7SS	C/F Rifle								
Operation No: 43	Operation:	Inspect For Hard	dness			Work Center:		Inspec. Date:	8/14/2006			
Furnace and Load Number	Draw Temp	Furnace Date	Hardness	Specificaton	Hardness 8	pecification	Hardness	specification	Breal	Test		
			HRc	N/A	H15n	88-92	H45n	N/A	N.	'Α		
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45 Sand Tumble

Operation Step Detail Operation: 45

Step Operation / Step Description

SAND TUMBLE

1 Place 1000 parts into barrel

2 Add enough sand to completely cover the parts in the barrel

3 Use a 1 hour cycle time

4 Start cycle

Operation Tool Detail Operation: 45

Tool Number Tooling Description

Std Open Barrel

Std Sand (Aluminum Oxide)

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Part No:	Part Name:	Trig Con 700 7	700SS 7SS	C/F Rifle			Date:	8/14/2006	
Operation No: 45	Operation:	Sand Tumble					Work Center:		
Prod. Qty:	Prod. Order#:			Operator		Setup inspected by & Date:			
Gage Description and Characteristic	Gage Number	Gage Frequency	1st Shift	2nd Shift	3rd Shift	Remarks,	arks, Causes, Action Taken, Etc.		

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50 Wash, Magnaflux, Inspect 100%, Demagnatize

Operation Step Detail

Operation: 50

Step

Operation / Step Description

WASH, MAGNA-FLUX, INSPECT 100%, DEMAGNATIZE

- l Place lift tray onto cart
- 2 Place parts into tub
- 3 Place tub into lift tray
- 4 Hoist lift tray to conveyor rollers
- 5 Push tray into washer and close door
- 6 Set wash timer to 2 minutes
- 7 Set rinse timer to 40 seconds
- 8 Set dry timer to 2 minutes
 - *NOTE: WHEN RINSE CYCLE BEGINS, PLACE MANUAL DOOR SWITCH TO "UP"
 POSITION SO THAT DOOR WILL OPEN IMMEDIATELY AT CYCLE END
- 9 Remove tub

10 Place 2000 piewes in a pan length-wise

II Place pan in coil

12 Spray enough 1500 AMP wet solution to soak all 2000 parts

13 Let pan drain

14 Lay parts on a rag and lest dry

15 Visually inspect parts in booth 100× for cracks

16 Any and all parts with cracks are to be scrapped

17 Run acceptable parts through coil 100-s to demagnatize

Operation Tool Detail Operation: 50

Tool Number Tooling Description

Std Magna-Flux Machine

Operation Procedure Notes Operation: 50

Description

PROCESS RECORD - HEAT TREAT SPECIFICATION

MATERIAL & SPECIFICATION: .08/.20

TEMPERATURE:

MAXIMUM LOAD:

TIME:

QUENCH

REMARKS: Must Be Clean of Oil and Dirt Before Magna-Flux Must Be Demagnetized After Inspection 100% (Good Parts Only)

INSPECT FOR: Cracks Around Hole

HEAT TREAT INSPECTION:

STANDARD PRACTICE NO:

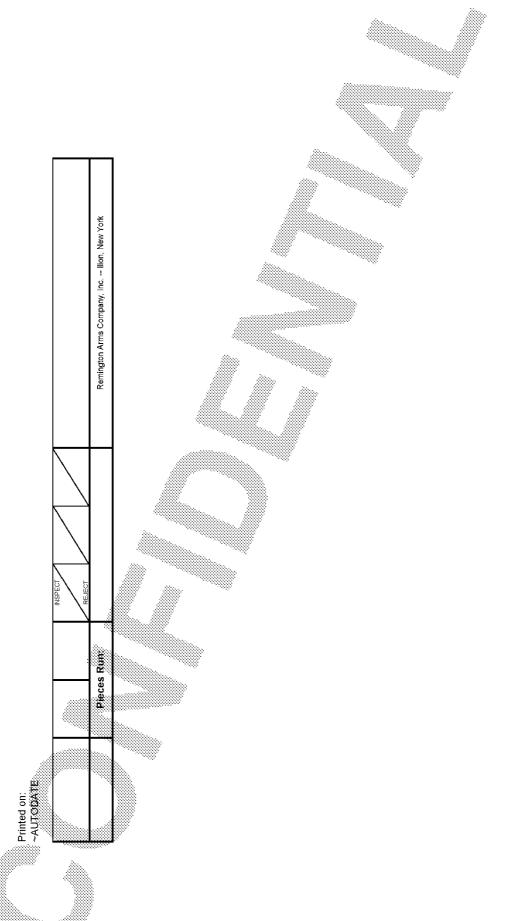
HARDNESS LIMITS:

APPEARANCE OF PARTS:

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Part No:	Part Name: Trig Con 700 7 700SS 7SS	C/F Rifle	Date: 8/14/2006
Operation No: 50	Operation: Wash, Magnaflux, Inspect 100%	o, Demagnatize	Work Center:

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Setup inspected by & Date:	Remarks, Causes, Action Taken, Etc.											
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55

Black Oxide For Identification To MRP Crib #29

Operation Step Detail Ope

Operation: 55

BLACK OXIDE

1 Rack Parts onto standard stacking mesh baskets.

2 Hoist Basket onto Loading Cart

3 Start and Run Complete Cycle

Must put in Acid

Bump Cycle

Dip Parts in Soluble Oil

Unload Parts Carefully - Do Not Mar or Remove Color

Click Here To Display Detail

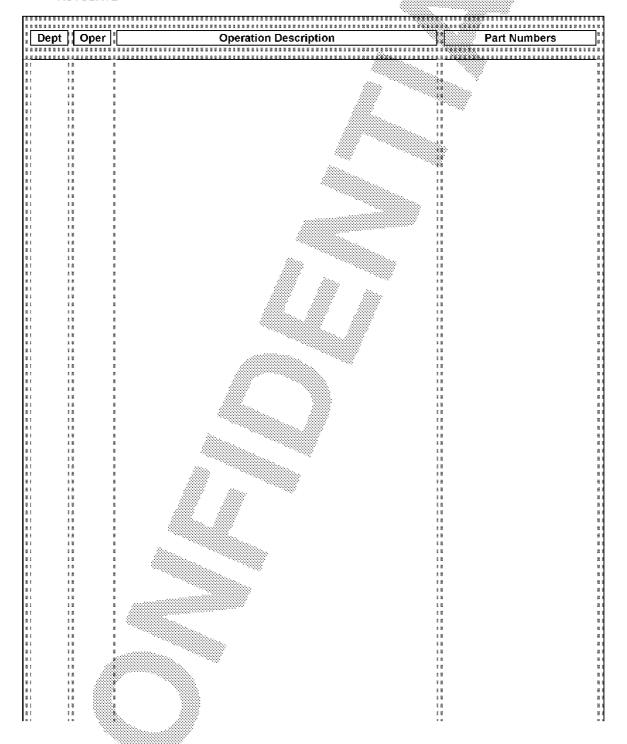
Note: Black Oxide Color for Identification.

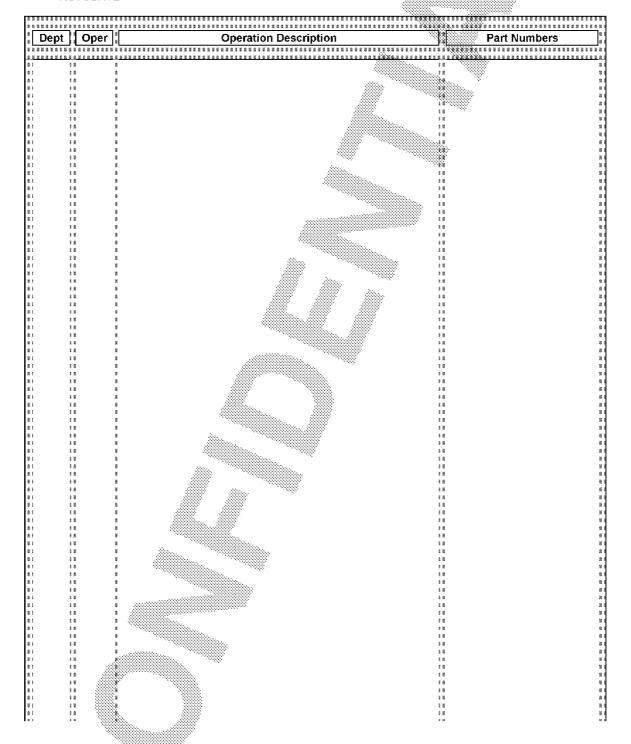
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Operation No: 55	Operation:	Black Oxide For	Identification				Work Center:		
Prod. Qty:	Prod. Order#:			Operator		Setup inspected by & Date:			
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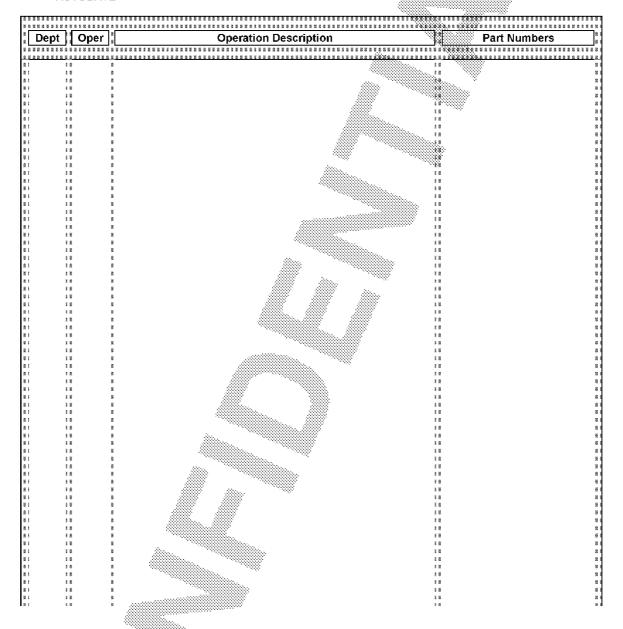
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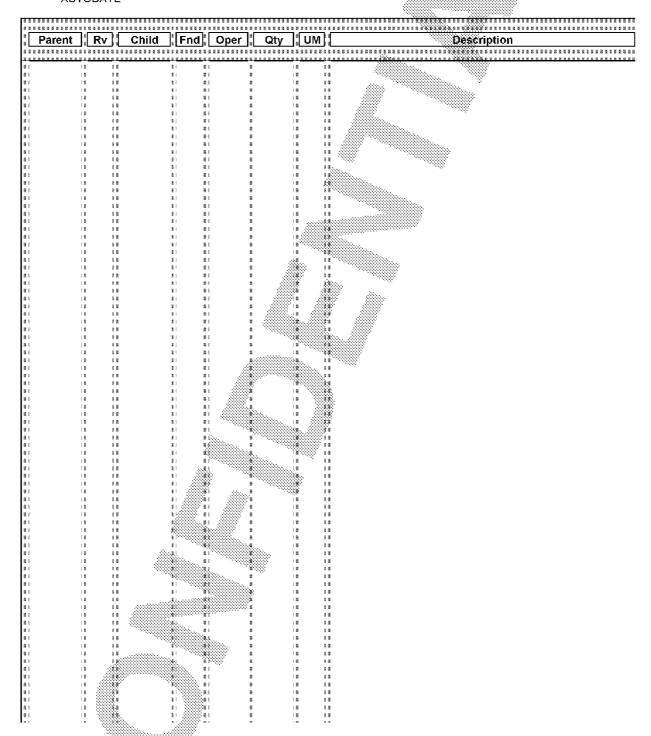


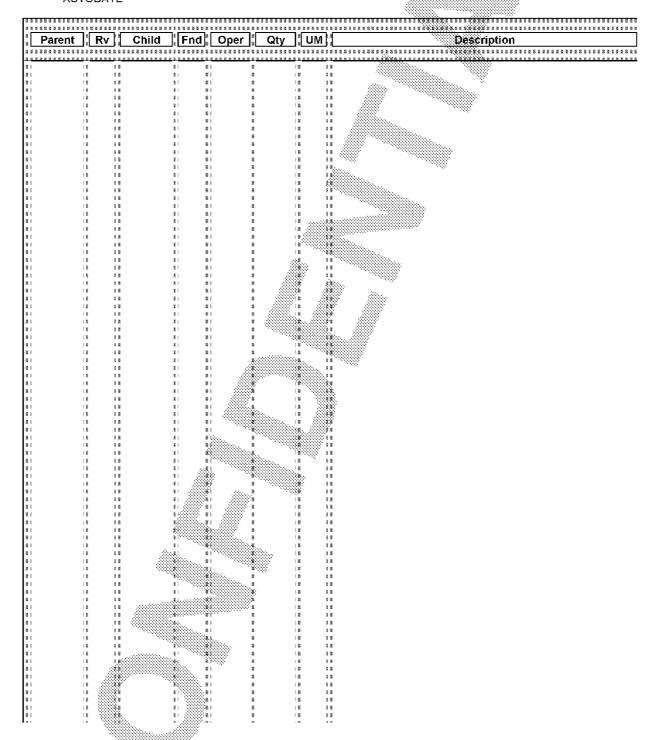


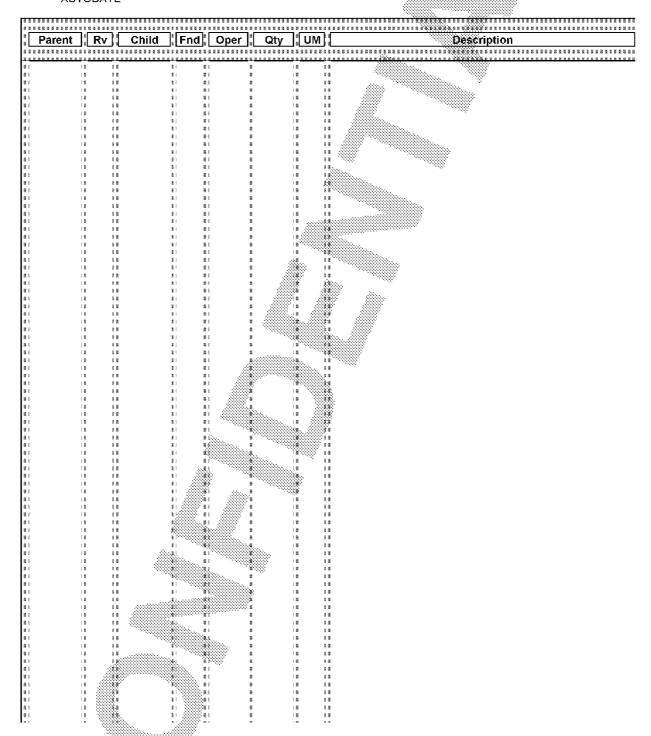


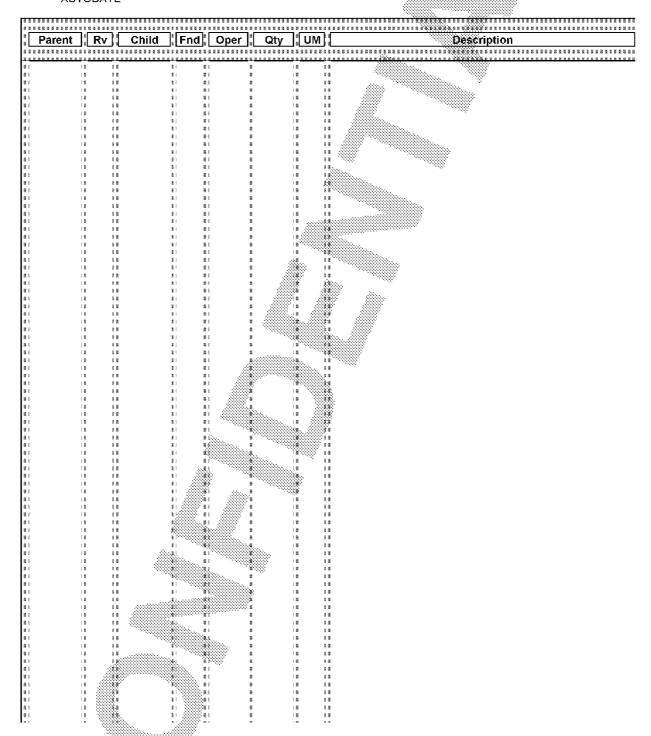
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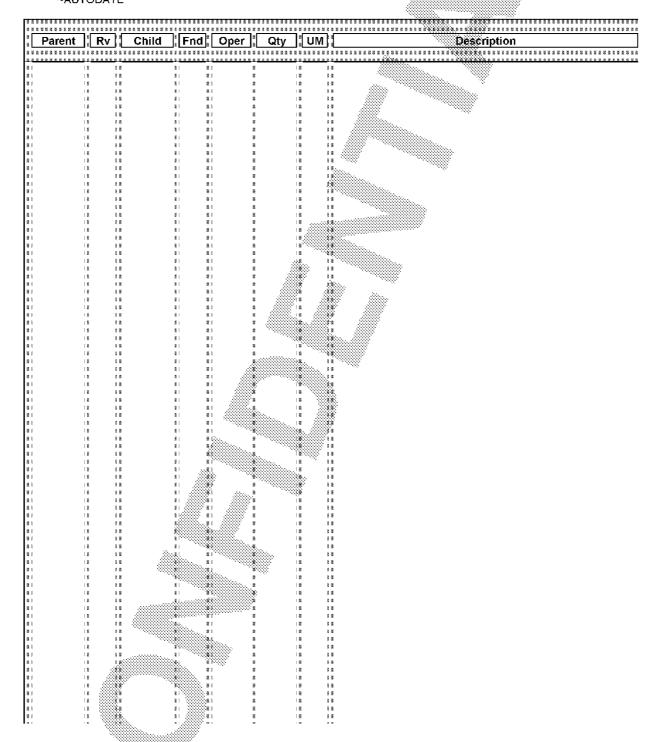
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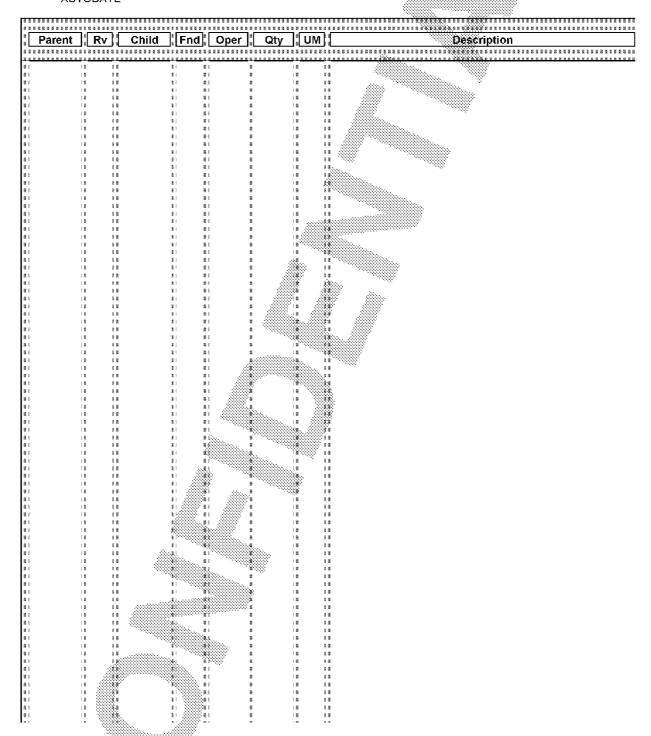


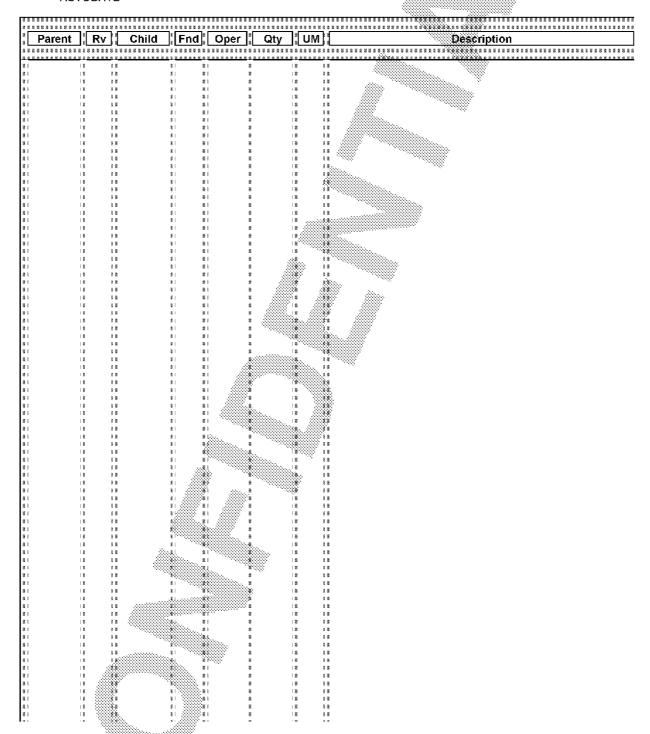


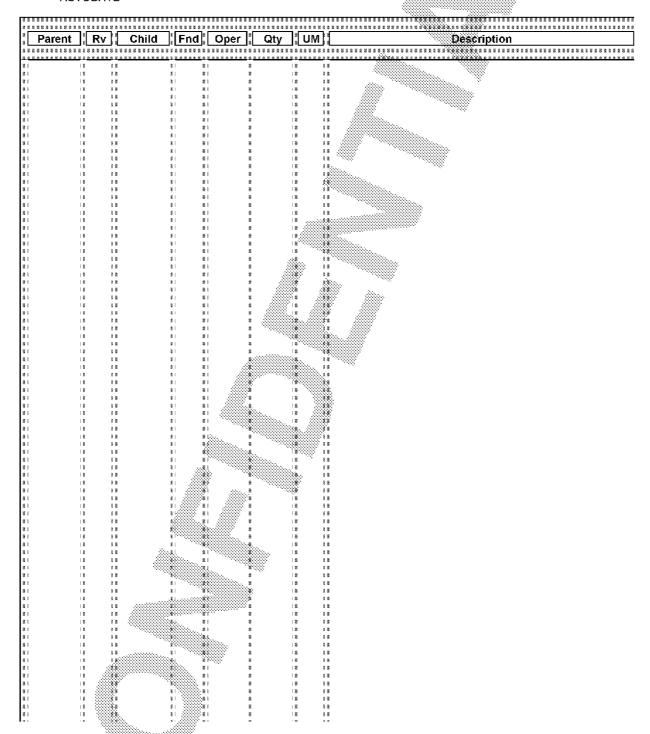


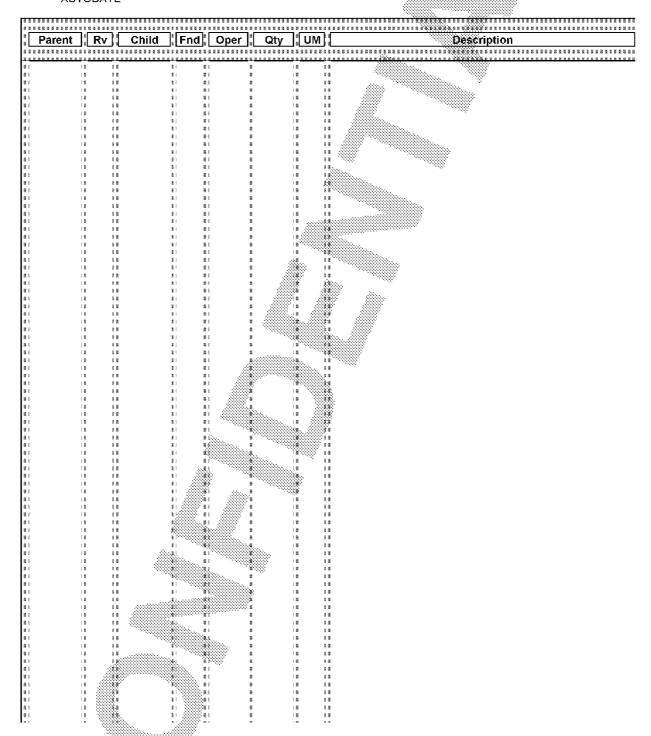


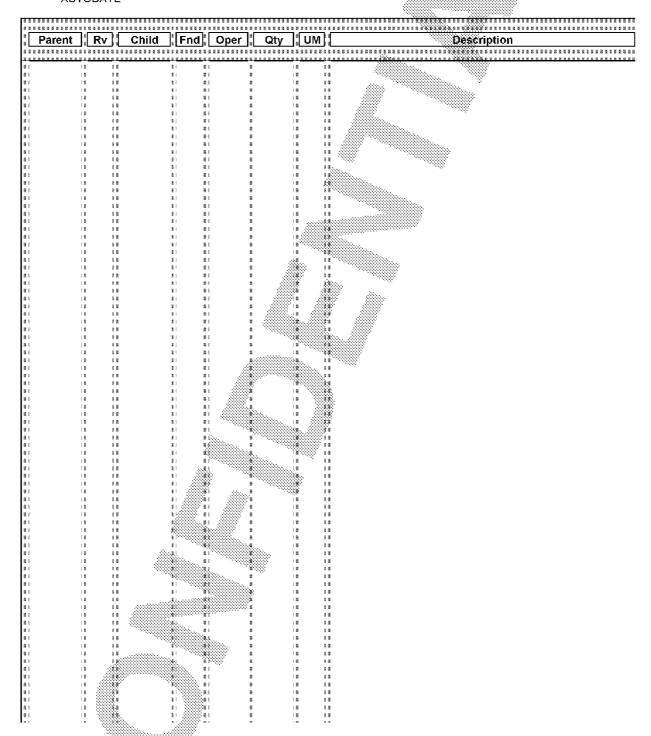


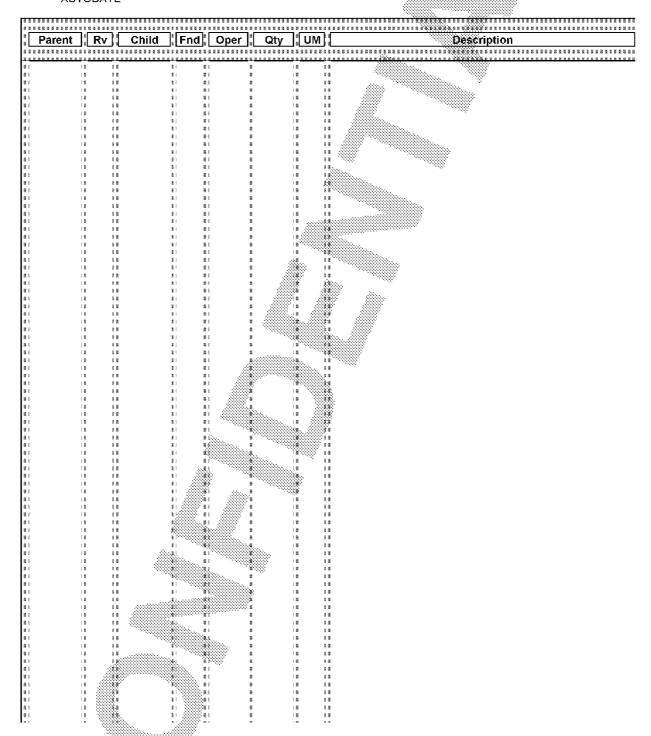


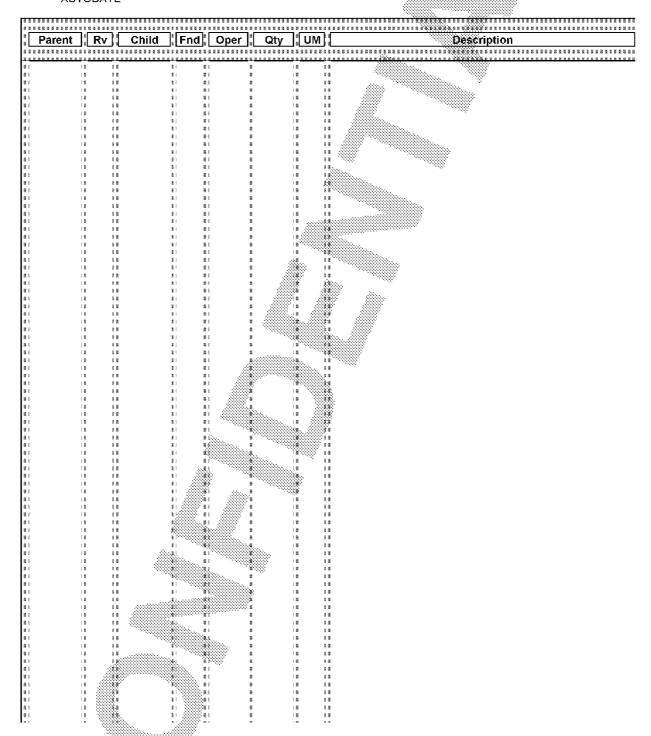


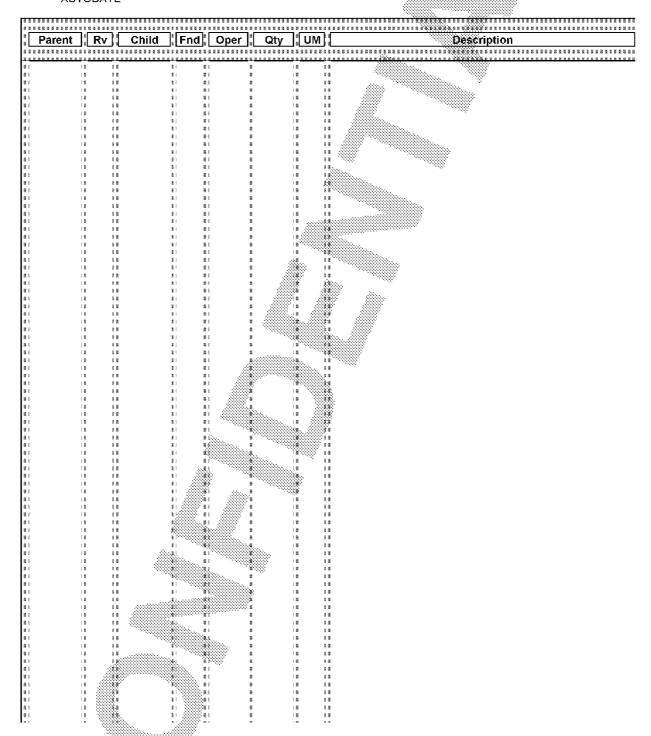


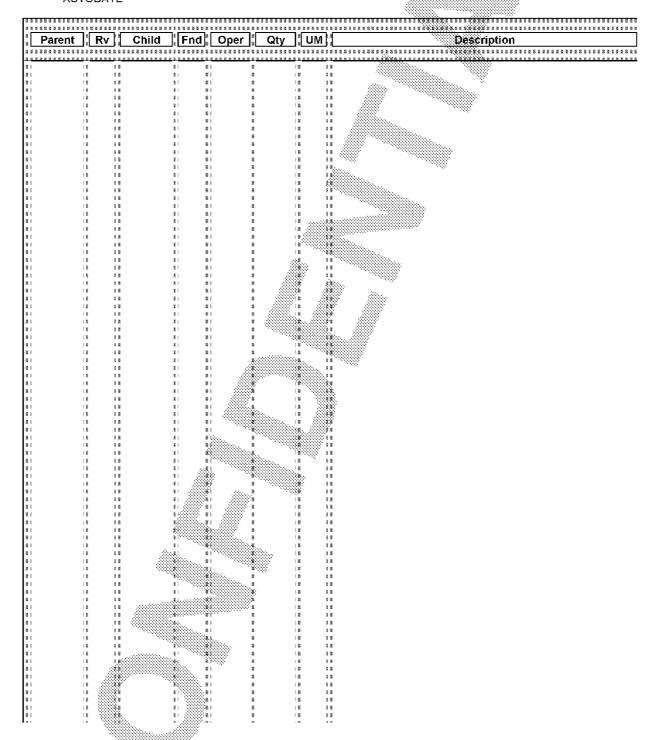


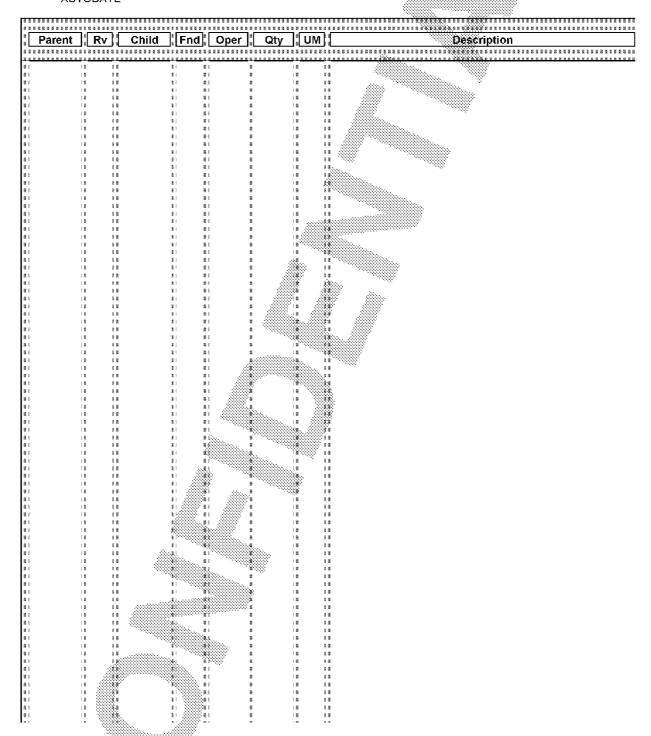


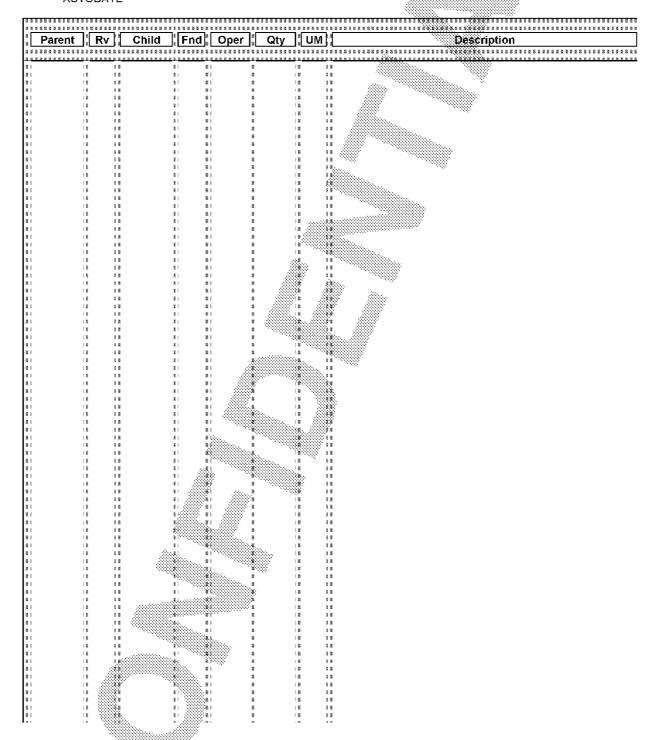


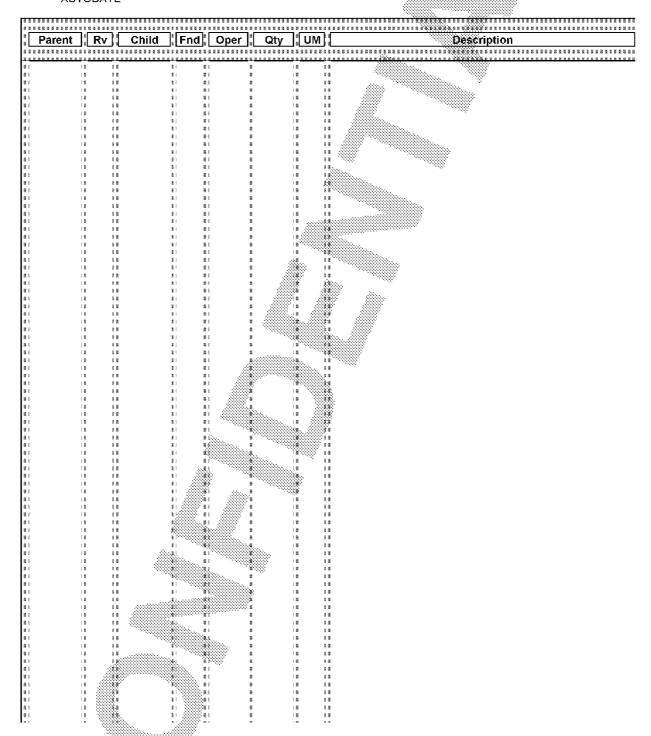


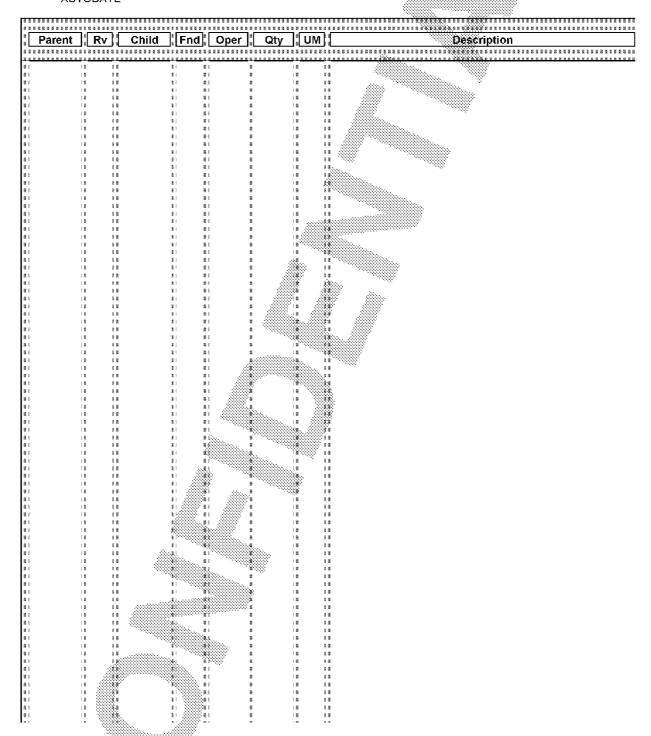


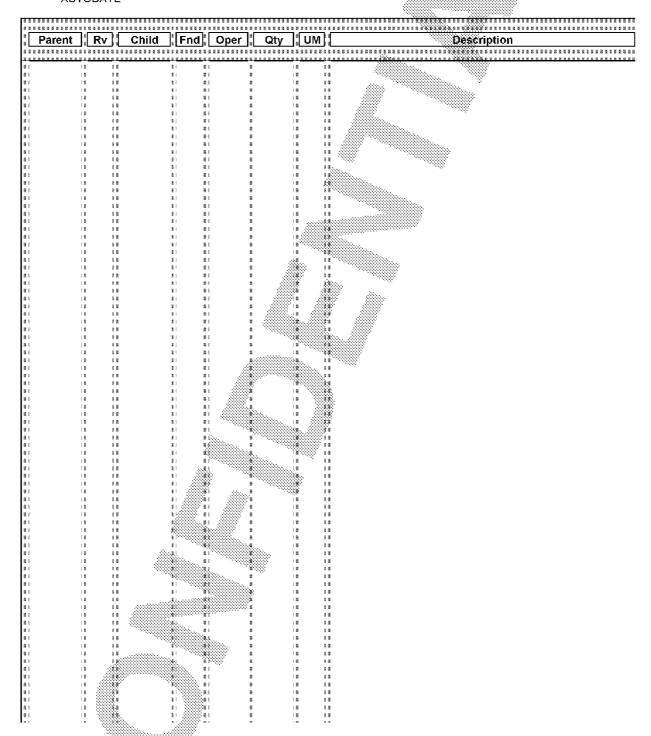


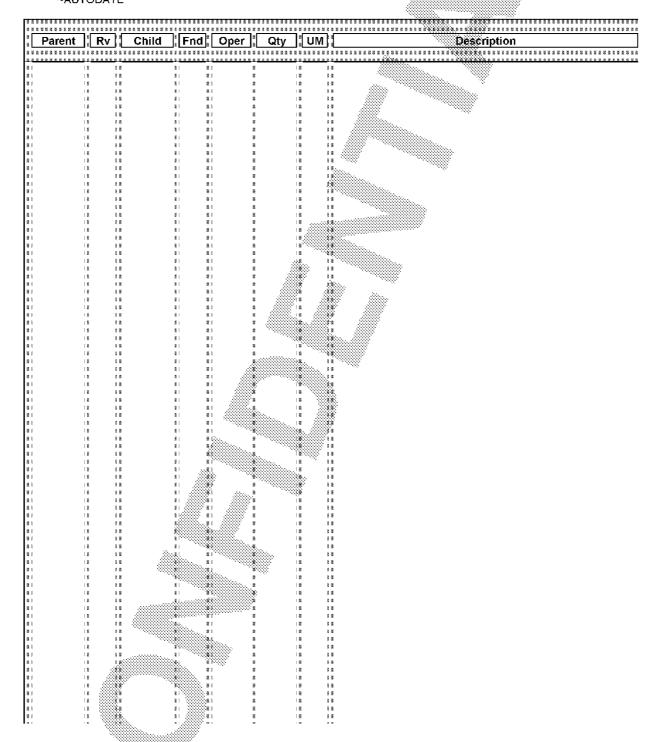


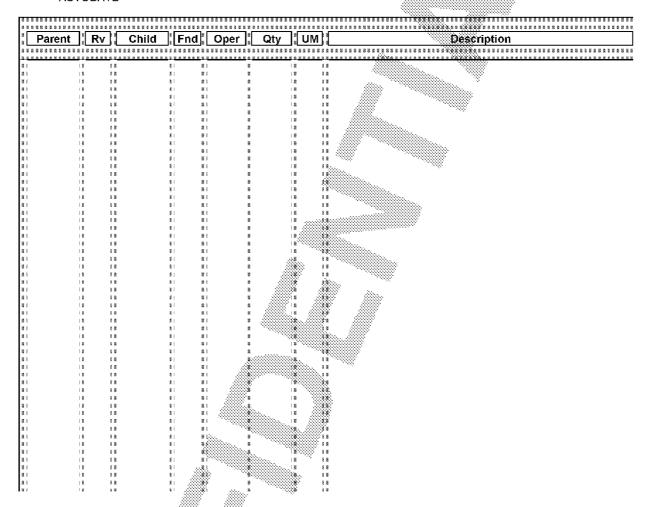




















































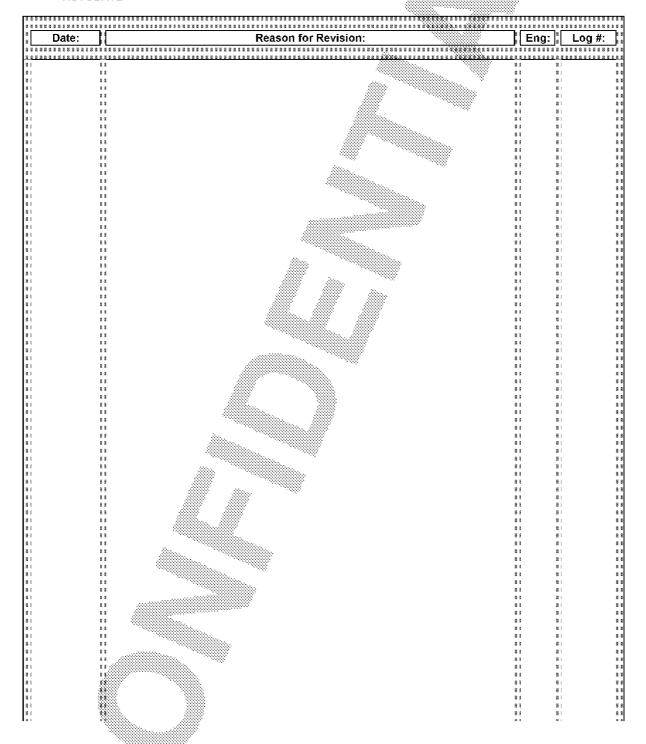




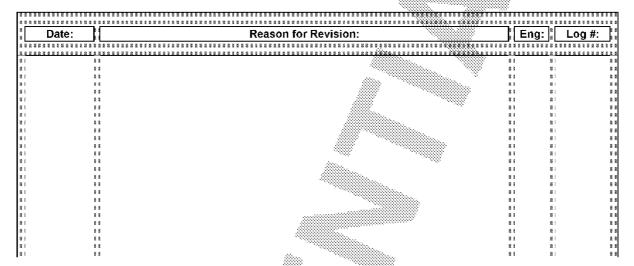
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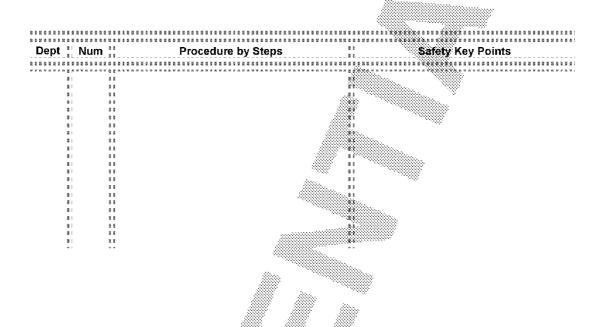
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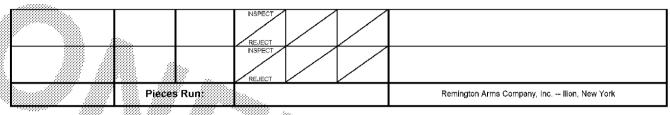


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THIS RECORD MUST STAY WITH THE PRODUCTION ORDER AT ALL TIMES				Revision Date:		27-Jun-02	Processed b	y:	
				C/F Rifle			Date: 8/14/2006		
Operation:No: Part No:	Operation:	Part Name					Work Center:		
Prod. Qty:	Pred; Order:#::			Operator		Setup inspected by & Dat			
Gage Description and Characteristic	Gage Number	Gøge Frequency	1st Shift	2nd Shift	3rd Shift	Rem	arks, Causes, A	ction Taken, Etc.	
VISUAL	VISUAL	100%	INSPECT REJECT						
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Type "Ctrl+h" from the desired destination to insert this form. Execute before the next form below.

PROCESS CONTROL INSPECTION RECORD				Revision Date: 27-Jun-02				Inspected by:													
THIS RECORD MUST RE	MAIN IN HEAT TE YEAR	EAT INPSECTION	ON FOR ONE	Part:No:		Prod. Qty:		Production Order #:													
	Part Name:	Trig Con 700 7 7	700S\$7\$\$	C/F Rifle			880a.														
Operation No: Part No:	Operation:	Part Name:				Week Center		Inspec. Date:	8/14/2006												
Furnace and Load Numbe	r Draw Temp	Furnace Date	Hardness	Specification	Hardness \$	pecification	Hardness	Specification	Breal	Test											
			HRc	INSPECT REJECT	H15n	INSPECT REJECT	H45n	INSPECT RÉJECT	INSPECT	REJECT											
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101 Rev 0 Type "Ctrl+r" from the desired destination to insert this form. Execute after the HTPCIR above. PROCESS RECORD - HEAT TREAT SPECIFICATION Process Material: Purnace: Rack: Maximum Load: Temperature: Soak Time: Carbon %: Quench: Wash: Notes: Inspection Hardness: Break Test: Color Only: Appearance of Parts:





Unassigned Button Clicked

You have clicked a button that is not assigned to a process sheet

Click the button to return to the Header Sheet