Remington Arms Co., Inc. **Process Record 27410.30**

Model: 710

Part Name: Model 710 30-06 and .270

Operation: Proof and Test

Section: Process Revision

Change #	Reason for Revision	Rev. By	Date
	Initial Process Record	RCM	8/23/00
331	Updated for Process Changes	JJS	11/5/02
332	Update for SDS Check	JJS	11/20/02

Approval	Signature	Date
Process Owner	John Stairs	
Revised by		
Approved by Manufacturing		
Approved by Engineering		

Remington Arms Co., Inc. **Process Record 27410.30**

Model: 710

Part Name: Model 710 30-06 and .270

Operation: Proof and Test

Section: Process Routing

Department	Op. No.	Description	Part No.
	010	Final Assembly Build	
	030	Proof and Test	
	035	Target	
	060	Inspect and Pack	

General Process Safety Notes

Personal Protective Equipment

The minimum Personal Protective Equipment (PPE) required by all employees in any of the manufacturing areas is:

- OSHA approved Safety Glasses with side shields
- OSHA approved steel-toed Safety Shoes

In addition, the following Personal Protective Equipment (PPE) is required for this operation:

- Kevlar Sleeve on Shooting arm
- Leather Glove on shooting hand (Thumb and trigger finger may be cut off at first knuckle)
- OSHA approved hearing protection (Ear plugs and Ear muffs)

Dress & Attire

All employees are required to follow the rules for clothing, jewelry, hair, etc. as stated in the Mayfield Plant Employee Manual.

Chemicals Used in this Operation

- None

Refer to the appropriate MSDS sheet for this substance for proper mixing, handling, and disposal. The MSDS sheets are located at the nearest Right to Know Station or in the master copy kept in the Maintenance Office.

Operation Setup

Parts needed:

Remington Proof Load (30-06 Springfield)	21717
Remington Test & Target (30-06 Springfield 180 grain)	21407
Remington Proof Load (.270 Springfield 150 grain)	21709
Remington Test & Target (.270 Winchester 130 grain)	FX2703

Tools needed:

Hammer
Shooter Stamp
Proof Stamp
Un-Camming Tool – Drawing Number

Procedure:

NOTICE:
NO FOOD OR DRINK ALLOWED IN GALLERY TESTING

DECRIPTION AND SEQUENCE OF PROOF AND FUNCTION TESTING

GALLERY PREP:

1. Turn on the water for the snails. Water tanks are to be inspected at the beginning of each shift before shooting.
2. Unlock the shooting port door.
3. Turn on the exhaust fans.
4. Get appropriate ammunition from ammo room or safe.

NOTICE:
KEEP THE DOOR TO THE AMMO ROOM LOCKED AT ALL TIMES.

PROOF:

5. There should be no more than one caliber per truck load.
6. Move gun truck from gallery entrance to incoming staging area. (See Process Record 27410.20 for directions on safe gun movement.)
7. Check all the guns on the truck according to approved safety procedures. (See Process Record (number) for directions on safe gun handling.)
8. Once safety inspection is complete, move the gun truck from incoming staging area to the proofing jack.
9. Remove a gun from the truck. All assembled guns are to be stored with the action open and the safe in the "S" (SAFE) position.
10. Inspect the chamber and magazine, both must be empty. Caliber is to be verified for shooting safety.
11. Triangular Magnaflux Stamp must be present on shooter's right rear side of barrel. Visually check for Firing Pin Protrusion or foreign material at face of bolt. Firing pin must be retracted in the bolt.
12. Bolt Face and Shroud must be free from any foreign material.
13. Move the Safe to the "F" (FIRE) position. Open and close the bolt forcibly three times. The Firing pin must not follow down.

NOTICE:
Check all the guns on each side of the gun truck for obvious visual defects before and after proof test.

14. Remove stick and with the action open and the safe in the "S" (SAFE) position, place assembled gun in proofing jack with the muzzle end of the barrel sticking through the shooting port.

NOTICE:
The first rifle proofed is to be left off of the truck so there will be an open space between tested and un-tested guns. Place the first gun back on truck when the entire load has been completed.

15. Clamp gun into position by simultaneously pressing the two black buttons on the proof jack control panel.

16. Slip the triggering mechanism (Cable) through the trigger bow and across the front of the trigger.

17. Load one (1) proof round into chamber of barrel and close the bolt.

18. Move safety from "S" (SAFE) position to "F" (FIRE) position.

19. Close the protective steel doors of proofing device then press simultaneously both yellow buttons. This will engage the bar that secures the doors.

20. Simultaneously press the two green buttons on the control panel of the proofing device. These buttons operate the triggering mechanism. The gun should fire.

21. If gun fails to fire, a down time alarm will be initiated. A **RED** warning light will appear signaling that the gun did not fire. Next, a flashing **RED** light will signal indicating that the proof jack's internal mechanism is opening the bolt. When the **RED** light stops flashing the bar that secures the protective doors will disengage. It is now safe to open the protective doors.

22. Remove the shell and inspect it for firing pin indent. If indent appears sufficient to fire round, load another proof round and repeat steps 15-20. If gun fails to fire, repeat step 21.

23. See Section on Interpretation of Proof Test for proper evaluation of testing. If gun fails this evaluation, attach a red reject ticket to gun. (See SOP for proper instructions on writing red tickets)

24. After firing, open doors of proofing device and retrieve fired case.

NOTICE:
IF THE GUN BLOWS APART CONTACT THE SUPERVISOR.

25. Check fired case for:

    - Primer indent. Must be sufficient to fire round.
    - Possible ruptures. Must not be ruptured or swelled.
    - Rings or roughness. Slight rings are permissible, rub fingernail over rings. If rings are large enough pick with nail, reject the gun.

NOTICE:

If the primer blows out of its pocket or is pierced, complete steps (below) and then check receiver of gun for primer or the piece of the pierced primer. If primer or piece of primer can be found, remove it and pass the gun. If primer or piece of primer can't be found, reject the gun, place reject ticket on stick and place the gun back on the truck.

TESTING:

1. With safety in "F" (FIRE) position close bolt crisply on empty chamber.
    - Firing pin must not follow down as bolt cams shut.
    - Must not fire on closing.
    - Repeat this test 3 times.
2. With safety in "S" (SAFE) position and the action closed, raise the bolt. Bolt must raise or open without excess force.
3. Close bolt with safety in "S" (SAFE) position and pull trigger firmly. Rifle must not fire.
4. With finger off trigger, move safety to "F" (FIRE) position. Rifle must not fire.
5. Open and close bolt full stroke to cock firing pin.
6. Move safety to full rear "S" (SAFE) position and then move half way to the "F" or (FIRE) position with thumb.
7. If safety stops at half-way position then pull trigger. Rifle must not fire. Safety must not move to full "F" (FIRE) position.
8. Move safety to "F" (FIRE) position. Rifle must not fire. Repeat 3 times.
9. With the bolt cammed down and the safety placed in the "F" (FIRE) position, try to move the safety arm in between the FIRE and SAFE positions. Move the safety back to the point you feel resistance. Release the safety. The safety should return to the "F" (FIRE) position or fall rearward to the "S" (SAFE) position. If the safety does not return to the "F" or "S" positions, but stays between the two positions then reject the gun.
10. Move Safety to "S" (SAFE) position before removing gun from proofing device.
11. Inspect chamber and magazine for live ammunition before removing the muzzle end of the gun from shooting port.
    - Chamber must be empty.

- Follower must be visible.

12. Remove gun from device and place on stamping fixture.

13. Stamp proof mark (REP), on shooter's right rear side of barrel. PLACE ON ACCEPTABLE PRODUCTS ONLY.

14. Use the prick punch to make a proof mark on the lug of the bolt head that is visible through the ejection port. PLACE ON ACCEPTABLE PRODUCTS ONLY.

INTERPRETATION OF PROOF TESTING:

PASSING GUN:

1. If there is no failure at proof. Gun must be free of defects. (Nit broken, cracked, split, chipped, deformed or show stress marks).

2. If fired case is within visual specifications as outlined in step 25 (above).

3. There are no serious visual defects found on wood or metal surfaces of the gun.

REJECTING GUN:

1. If gun has part breakage or action will not open.

NOTICE:

If gun blows apart or the bolt will not open leave the gun in the shooting jack and **GO GET YOUR SUPERVISOR.**

2. If fired case fails to meet visual specifications.

3. If any serious visual defects are found before or after test.

SAFETY AFTER PROOF AND FUNCTION TEST

1. Move Safe to "S" or "ON" position before removing gun from shooting device.

2. Place the first gun proofed back onto the truck after complete load has been proofed.

INSPECT CHAMBER AND MAGAZINE FOR LIVE AMMUNITION

1. Chamber must be empty.
2. Follower must be visible.
3. Check chamber and follower on all guns upon completion of proof test.

VISUALLY INSPECT FOR MARRING BY DEVICE OR PORT

1. Take first gun from each side of the truck, after proof test, and carefully check gun for possible damage from the jack or port. If any damage is found, stop testing and have the cause of the damage corrected. Resume testing only after the correction has been made.

MOVE ENTIRE LOAD TO THE OPERATION

1. Rejects will stay on the original truck when moved to the next targeting operation.
2. Pick up rifle from truck and inspect for:
    - Live ammo. Inspect chamber and Magazine-both must be empty.
    - Caliber. Verify for shooter's personal safety in selecting ammunition for test.
    - Proof mark on barrel (REP). Must be present, shooter's right rear side of barrel, ahead of Magnaflux stamp.
    - Proof mark on bolt. Prick punch mark must be present on lug of bolt head.
    - Visual Defects. No marring of wood or metal finishes.

TARGETING

1. With action (bolt) open, position rifle in device and clamp
2. Load Magazine (see chart below):

CALIBER	AMMUNITION	SHELLS
30-06	220 grain	4
270 WIN	150 grain SPCL	4
7mm REM MAG	170 grain PSPCL	4
300 WIN MAG	180 grain PSPCL	4

3. Hold cartridges down in magazine, start bolt over cartridge column and close bolt on empty chamber. Bolt must close over full magazine with normal pressure.

4. Open bolt full stroke to rear position.

5. Close guard. (If on accuracy device)

6. Close bolt to feed shell into chamber and lock to start test.

    - Must feed single shell with each operating strike of Bolt.
    - Must not double feed.
    - Shells must not stem chamber or magazine. (Bind inside receiver or barrel.)
    - Bolt must not override shell in magazine.
    - Bolt must feed shell into chamber with normal pressure.
    - Reject any gun which, when using normal force, the bolt fails to close over a live round in the chamber.

7. Move safety to "F" (FIRE) position.

8. If using accuracy device fire rifle by pushing two buttons on device simultaneously. If using shooting jacks, grip rifle in normal manner and pull trigger with finger.

9. For the 10% of standard rifles that are targeted, check each shot with a spotting scope for rifles "seating in" and position of shots on paper. Use a maximum of four "seater" rounds per rifle. Adjust device if it shoots off paper or groups too close to the edge.

10. Operate action full cycle to extract, eject, and feed each shot. Bolt should not pull out of receiver. Case or shell must be retained by extractor until the case is ejected from the receiver. Case must be completely ejected from receiver, it should not catch on the receiver. One shell from each fired rifle must be visually inspected for firing pin indent and any chamber marrs that are reflected on the shell casing. Slight rings are permissible; if rings are large enough to pick with fingernail, reject the rifle. For the Test

procedure, each rifle is to have the first two rounds fired and the remaining rounds cycled through but not fired.

11.

Important!

- Refer to ***Operation Setup & Tooling*** section for detailed instructions on tooling required to set up this operation.
- Refer to ***Standard Operation Procedure*** section for detailed instruction on how to run the equipment used in this operation
- Refer to ***Gaging & Inspection Procedures*** section for detailed instructions on how to gage and inspect the components processed at this operation during setup.

Running Operation

(Brief but detailed description of how to load, run, and unload parts run at this operation [bullet points preferred] – can include pictures, drawings, etc. here)

Important!

- Refer to ***Standard Operation Procedure*** section for detailed instruction on how to run the equipment used in this operation

Inspect Parts

Important!

- Refer to ***Gaging & Inspection Procedures*** section for detailed instructions on how to gage and inspect the components processed at this operation.

Equipment Used	
CNC Program Name/Number **Machining Fixture Used** **Machining Fixture Setup Notes**	

Setup Checklist	
Setup Task to be performed	**Completed**

Tooling Setup Information						
Tool #	**Use**	**Tool Holder**	**Collet**	**Adapter**	**Cutting Tool**	**Tool Life**

Standard Gaging Frequency – Use only when no other Frequency is listed for a given part Feature

Situation	Gaging Frequency	Acceptance Criteria	Corrective Action
Process Setup	Every part for each feature listed below	Five (5) consecutive components are within the tolerances for each feature specified below. If the above criteria are not met, apply Corrective Action.	Adjust process variables until acceptance criteria are met. Once **Process Setup** acceptance criteria is met operator can revert to **Normal Production** gaging
Normal Production	Three (3) consecutive parts out of every 50 for each feature listed below	All features listed below for each of the three (3) parts are within the tolerances specified below. If the above criteria are not met, apply Corrective Action.	For each feature out of tolerance adjust process variables that affect that feature. Repeat until five (5) consecutive parts are within the tolerances for **ALL** features specified below. Once above criteria is met operator can revert to **Normal Production** gaging
Tool Change or Change in Process Settings	Use Gaging Frequency listed in **Process Setup** situation above	Use Acceptance Criteria listed in **Process Setup** situation above	Use Corrective Action listed in **Process Setup** situation above

(Pictures & Drawings can be inserted into this section where applicable for each feature)

Feature #	1 – (Description)
Gage Drawing Number	
Gage Description	
Feature Dimension & Tolerance	
Gaging Frequency	
Description of Inspection	
Corrective Action	

Feature #	1 – (Description)
Gage Drawing Number	
Gage Description	
Feature Dimension & Tolerance	
Gaging Frequency	
Description of Inspection	
Corrective Action	

Feature #	1 – (Description)
Gage Drawing Number	
Gage Description	
Feature Dimension & Tolerance	
Gaging Frequency	
Description of Inspection	
Corrective Action	

Feature #	1 – (Description)
Gage Drawing Number	
Gage Description	
Feature Dimension & Tolerance	
Gaging Frequency	
Description of Inspection	
Corrective Action	

Feature #	1 – (Description)
Gage Drawing Number	
Gage Description	
Feature Dimension & Tolerance	
Gaging Frequency	
Description of Inspection	
Corrective Action	

(Insert Standard Operating Procedure for Operation – this will include the detailed step by step list of tasks required by an operator or tool setter to successfully set up and run this operation. DO NOT include specific tools, gages etc. if they are already listed in a previous section - just reference the applicable section. That will help make this SOP more generic and applicable to numerous operations or parts run on the same equipment)