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RESEARCH & DEVELOPMENT TECHNICAL CENTER  
315 WEST RING ROAD  
ELIZABETHTOWN, KY 42701

**M/710 Trial & Pilot (Test #2) Test Plan Changes**

**Introduction:**

The first iteration of Trial & Pilot testing was started on 11/3/00. The M/710 Trial & Pilot Test Plan, Revision # 4, dated 11/1/00 was followed. The Visual Examination and Packaging Audit was completed on 11/3/00. This was followed by some of the Preliminary Measurements, 10 rd. Safety Function Test w/Lanyard and Bore Sight Check testing. T & P testing was stopped on 11/6/00 due to a number of concerns raised during this first T & P. These were:

1. Headspace: 1 of 30 samples would not close on E-towns Min. Gauge.
2. Trigger location front to back in the trigger guard varied.
3. Trigger location side to side in the trigger guard varied.
4. 2 guns had follow-downs and one of these fired when the bolt was closed.
5. Bolt stop failure: 1 of 30 broke during preliminary measurements.

Guns in question were returned to Mayfield and the above issues were investigated. The Headspace issue was determined to be an E-town Gauging issue and not a gun issue. E-town will use current gauges for now and will update these to current SAAMI specification as soon as possible. Bent triggers caused the variation front to back in the trigger guards. This occurred during recoil in the Mayfield proof test device. This has been corrected. Trigger location side to side was tracked to stock distortion, assembly technique and lack of an agreed to criteria. The stock mold process has been improved which results in less stock distortion and sink. An inspection criteria using a .020" shim has been established between E-town and Mayfield. The follow-downs and fire-on-closing were attributed to improperly adjusted fire controls and an out of specification insert support bracket hole location in the receiver. Mayfield requested a change to the trigger pull specification which will give them more flexibility when adjusting fire controls. With all issues understood and addressed Mayfield

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proceeded to build 200 new guns (with all new parts except for bolt assemblies) for a second Trial & Pilot Test. Guns were received in E-town late in the evening on 11/13/00. T & P evaluation was started on 11/14/00.

The Revision # 4 Test Plan will again be followed for this second T & P test with the following exceptions and/or changes.

- These guns will be labeled as **B** series guns (B-1 to B-30) as opposed to **A** series.
- Visual Examination and Packaging Audit will not be repeated.
- Trigger Pull specification is now 4 to 5.5 lbs.. (Agreed to by Management, Marketing, Manufacturing and R & D)
- A Fire Control Inspection (TLW0300AU) has been added to Preliminary Measurements to check for:
  1. Sear movement: (should be free to move)  
This will be done with the bolt removed and the safe in the Off position. The trigger will be pulled and held and then the sear will be depressed to see if the sear returns freely with no resistance.
  2. Trigger return: Should return to full engagement when no sear load is applied.  
This will be checked when measuring sear engagement and sear lift. A fourth sear engagement measurement will be taken, only this time the trigger will be pushed forward before the measurement is taken. This will push the trigger positively against the engagement screw. The final check will be to pull the trigger to full travel with no sear load applied to the connector and then allow the trigger to return to rest slowly. Any gap between initial and final position of the trigger will be measured.
- A spring scale will be used to measure trigger pull. The Chitillion digital force gauge cannot be used to measure trigger pull due to interference with the stock.
- The Clean & Inspect Checklist form has been modified to include Safe On/Off force measurements. New form is included at the end of this document.
- Sear engagement and sear lift will be checked with the comparator at 20 X magnification. The Test Plan calls out using 50 X for engagement and dial indicators for sear lift. Image clarity is better at 20 X and no difference in measurement accuracy has been seen. E-town has no sear lift gauge for the M/710 and therefore uses the comparator since the gun is already fixtured for the engagement measurement.
- Any other discrepancies between the Test Plan and the actual measurement technique will be noted as they are found.

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Revision # 4

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## Clean & Inspect Checklist

Model: \_\_\_\_\_ 710 \_\_\_\_\_

Project: \_\_\_\_\_ 241095 \_\_\_\_\_

Rifle: \_\_\_\_\_

TLW #: \_\_\_\_\_ TLW0300 \_\_\_\_\_

Date: \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_

Inspector: \_\_\_\_\_

Round Level: \_\_\_\_\_

- ☐ Measure Headspace \_\_\_\_\_
- ☐ Firing Pin Indent    1<sup>st</sup>. \_\_\_\_\_ 2<sup>nd</sup>. \_\_\_\_\_ 3<sup>rd</sup>. \_\_\_\_\_ Ave. \_\_\_\_\_
- ☐ Sear Engagement: \_\_\_\_\_
- ☐ Trigger Pull:        1<sup>st</sup>. \_\_\_\_\_ 2<sup>nd</sup>. \_\_\_\_\_ 3<sup>rd</sup>. \_\_\_\_\_ Ave. \_\_\_\_\_
- ☐ Safe On to Off:        1<sup>st</sup>. \_\_\_\_\_ 2<sup>nd</sup>. \_\_\_\_\_ 3<sup>rd</sup>. \_\_\_\_\_ Ave. \_\_\_\_\_
- ☐ Safe Off to On:        1<sup>st</sup>. \_\_\_\_\_ 2<sup>nd</sup>. \_\_\_\_\_ 3<sup>rd</sup>. \_\_\_\_\_ Ave. \_\_\_\_\_
- ☐ Measure Feed Lip on Mag. Box at front: \_\_\_\_\_ & rear: \_\_\_\_\_.

Check the following areas for signs of unusual wear or breakage:

- ☐ Receiver insert
- ☐ Rear surface of Bolt Lugs
- ☐ Check for "galling" on rear of Bolt Lugs
- ☐ Bolt Plug
- ☐ Bolt Plug Insert "ears" on firing pin assembly
- ☐ Check for loose or missing pins – make note and re-stake if necessary
- ☐ Check plastic inserts for cracks or other damage.

Take digital photographs, if appropriate, to record unusual wear, damage or other noteworthy observations. List the digital file name for reference along with any comments below.