

Test Lab Work Request Form

Date Submitted: 10 March, 2000

Tracking #: TLW 0010AJ

Project #: 241095

Engineer: J.R.SNEDEKER

Test Objective:

TLW0010AJ – Thermal Cycle Test: GUN # B-21 SERIAL # 71001322

This test evaluates the effects of large temperature changes due to expansion and contraction differentials of metallic and non-metallic components used in the Model 710. The sample rifle will be alternately cycled between a temperature of 120°F. and -40°F. for at least 3 complete cycles, brought back to ambient temperature and test fired in the test jacks for 200 rounds to evaluate both function and safety related characteristics.

Test Description:

Method:

- Shoot sample rifle in test jack to determine rifles malfunction characteristics and rate.
- Do not clean rifle
- Place rifle in freezer that is pre-set to -40°F and leave undisturbed for at least 24 hours.
- At completion of 24+ hours, remove rifle and immediately place in the pre-heated test chamber at a temperature as close to the +120°F as can be attained by the equipment. Leave rifle undisturbed for at least 24 hours.
- At completion of at least 24 hours, remove rifle and immediately place in the freezer.
- Repeat this cycle for a minimum of three complete hot and three complete cold cycles.
- At the completion of the final cycle (the heat cycle) remove the rifle from the chamber and allow cooling to ambient temperature – a minimum of six hours.
- Return the rifle to the test jack used at the start of the test and fire another 100 rounds recording malfunction types and rates.
- Remove the action from the stock and examine the rifle for any obvious signs that the thermal cycling has affected the parts with special attention directed at the metallic and non-metallic interfaces. Look for cracked parts and for signs of material creep.

Data Required:

- Rifle serial number 71001322
- Cycle time for each test condition (See report TLW 0010AJ)
- Temperature records throughout each cycle. Use the chart feature on the freezer and a temperature-recording device for the chamber. (See report TLW 0010AJ)
- Malfunctions type and rates both pre- and post thermal cycles. (NO MALFUNCTIONS)

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- Observations made on cracks, creep or other noteworthy items. (EVERYTHING OK)

Resource Usage:

Manpower Requirements -

Facility Requirements -

Test Results Required:

Formal Report: **Data Only: X**

REQUESTED Completion Date:

Required Materials/Parts/Equipment (include quantities):

Test Parts Availability Date:

Start Date: 9/15/00

Completion Date: 9/22/00

Report Date:

Test Assigned To: STEVE WADE & JEFF WADE

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PROJECT # 241095
AMMO REMINGTON 30.06
180 GRAIN R30064

THERMAL CYCLE TEST
GUN # B 21
SERIAL # 71001322

TRACKING # TLW 0010AJ

- STEP # 1 SHOT GUN 100 ROUNDS DOING THE HOT TEST. (NO MALFUCTIONS)
STEP # 2 PLACED GUN IN FREEZER WITH BOLT CLOSED AT -40°F AND LEFT
UNDISTURBED FOR 24 HOURS.
STEP # 3 TOOK GUN OUT OF FREEZER AND PUT IN THE PRE-HEATED TEST CHAMBER
WITH BOLT CLOSED AT 120°F AND LEFT GUN UNDISTURBED FOR 41 HOURS.
STEP # 4 TOOK GUN OUT OF PRE-HEATED TEST CHAMBER AND PUT IN THE FREEZER
WITH BOLT CLOSED AT -40°F AND LEFT UNDISTURBED FOR 24 HOURS.
STEP # 5 TOOK GUN OUT OF FREEZER AND PUT IN THE PRE-HEATED TEST CHAMBER
WITH BOLT CLOSED AT 120°F AND LEFT GUN UNDISTURBED FOR 25 HOURS.
STEP # 6 TOOK GUN OUT OF PRE-HEATED TEST CHAMBER AND PUT IN THE FREEZER
WITH BOLT CLOSED AT -40°F AND LEFT UNDISTURBED FOR 25 HOURS.
STEP # 7 TOOK GUN OUT OF FREEZER AND PUT IN THE PRE-HEATED TEST CHAMBER
WITH BOLT CLOSED AT 120°F AND LEFT GUN UNDISTURBED FOR 23 HOURS.
STEP # 8 AT THE COMPLETION OF THE FINAL CYCLE (THE HEAT CYCLE) REMOVED THE
GUN FROM THE CHAMBER AND ALLOWED COOLING TO AMBIENT TEMPER-
ATURE (A MINIMUM OF SIX HOURS).
STEP # 9 TOOK GUN TO TEST JACK USED AT START OF TEST AND FIRED 100 ROUNDS
OF AMMO (NO MALFUNCTION)
STEP # 10 REMOVED THE ACTION FROM STOCK AND INSPECTED (EVERYTHING OK)

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