Test Lab Work Request Form

Date Submitted: 10 March, 2000	**Tracking #: TLW 0010H**
Project #: 241095	**Engineer: J.R.SNEDEKER**

Test Objective:

TLW0010H - Measure Bolt Lift and Bolt Closing Forces:

The force required opening the bolt and closing the bolt will be measured for each sample. Both of these forces will be taken with the chamber empty and then repeated, this time with a new dummy round in the chamber. There is not a specification for these forces and the readings will be taken for information only.

Test Description:

Method:

- After locating the rifle in the trigger pull fixture and securely locking in place, (it may be necessary to clamp the fixture to the bench if not already securely fixed in place), locate the hook of the force gauge at the point on the bolt handle just behind the ball.
- With the chamber empty and using the Chatillion gauge, pull the gauge straight up and perpendicular to the bore, measure the force required to open the bolt.
- Lock the firearm in a horizontal position, using the trigger pull holding fixture, (i.e. shooting position) before taking the measurements.
- Take three readings for each gun in the sample.
- Record all readings.
- Repeat the procedure only this time push the bolt closed.
- Note that it may be necessary to start the bolt closed by hand so the firing pin head is depressed sufficiently out of the notch and can start up the cam surface of the bolt as the firing pin is cocked.
- Repeat the above procedure this time with a new, unused dummy round in the chamber.

Data Required:

- Rifle serial number
- Each of the three readings taken for each of the 4 states for each test sample
- The average of each set of three measurements per state

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: 3-20-00 **Completion Date:** 3-20-00 **Report Date:** 4/29	**Test Assigned To: JESSE ARNOLD & BOB LEE 16 March, 2000**

BARBER - 5.22.06r0001945

PROJECT# 241095									
TLW 0010H									
BOLT LIFT AND CLOSING FORCES									
DATE - 3-20-00									
		OPEN FORCES				CLOSING FORCE			
GUN	SERIAL#	1	2	3	AVERAGE	1	2	3	AVERAGE
A-1	XC 1116	5.9	6.65	6.6	6.38333333	2.3	2.45	2.25	2.33333333
A-2	XC 1117	6.4	6.4	6.1	6.3	3.45	3.2	3.25	3.3
A-3	XC 1118	6.7	6	6.2	6.3	3.15	3.25	3.25	3.21666667
A-4	XC 1119	6	6.45	5.8	6.08333333	2.85	3	2.65	2.83333333
A-5	XC 1120	6.3	6.2	6.2	6.23333333	3.55	3.4	3.6	3.51666667
A-6	XC 1121	6.2	6.25	5.7	6.05	2.95	2.95	3	2.96666667
A-7	XC 1122	6.4	6.05	6.3	6.25	3.15	2.8	2.95	2.96666667
A-8	XC 1123	6.25	6.15	6	6.13333333	3.35	3.2	3.15	3.23333333
A-9	XC 1124	6.45	6.4	6.4	6.41666667	2.95	2.75	2.85	2.85
A-10	XC 1125	6.6	6.05	6.4	6.35	3	2.95	2.8	2.91666667
RD. CHAMBERED		OPEN FORCES			RD. CHAMBERED	CLOSING FORCE			
GUN	SERIAL#	1	2	3	AVERAGE	1	2	3	AVERAGE
A-1	XC 1116	7.65	8.3	7.7	7.88333333	3.35	2.6	3.4	3.11666667
A-2	XC 1117	6.7	6.25	6.75	6.56666667	4.15	4.05	3.7	3.96666667
A-3	XC 1118	6.05	6.4	6	6.15	4.1	4.4	4.2	4.23333333
A-4	XC 1119	6.9	6.35	6.15	6.46666667	2.65	3.5	3.45	3.2
A-5	XC 1120	5.8	6.85	6.35	6.33333333	3.5	3.8	3.05	3.45
A-6	XC 1121	6.05	6.38	6.35	6.26	2.85	2.9	3.25	3
A-7	XC 1122	6.15	6.5	6.4	6.35	4	4.7	4.2	4.3
A-8	XC 1123	6.65	6.55	6.25	6.48333333	3.8	3	3.05	3.28333333
A-9	XC 1124	6.65	6.3	6.55	6.5	2.75	2.55	2.7	2.66666667
A-10	XC 1125	6.4	6.1	6.4	6.3	3.85	3.5	3.45	3.6

Worksheet size: 100000 cells

Descriptive Statistics - PHASE I - OPEN BOLT, CLOSED BOLT- EMPTY CHAMBER, ROUND IN CHAMBER

Variable	N	Mean	Median	TrMean	StDev	SE Mean
OPN BOLT EMPTY	10	6.2500	6.2750	6.2542	0.1257	0.0398
OPN BOLT W/RND	10	6.529	6.408	6.407	0.492	0.156
CL BOLT EMPTY	10	3.013	2.967	3.035	0.327	0.103
CL BOLT W/RND	10	3.482	3.367	3.481	0.541	0.171

Variable	Minimum	Maximum	Q1	Q3
OPN BOLT	6.0500	6.4167	6.1208	6.3583
OPN BOLT	6.150	7.883	6.290	6.517
CL BOLT	2.333	3.517	2.846	3.250
CL BOLT	2.667	4.300	3.087	4.033

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