

Test Lab Request Form Instructions

- The TLW request form can be found on the second worksheet (tabs at bottom of the screen) of this file.
- Please fill in all required fields as noted in red. Please fill in all other fields if applicable / possible. Instructions for each field will appear when you click on the field. The procedure field is an embedded MS Word object which will allow you to use formatting features not possible in Excel (i.e. paragraphs, bullets, numbering, etc).
- If possible, create your desired data table and/or graph formats in the additional worksheets of this file. This is preferred over extensive written procedures.
- If the request is for High Speed Video, specify any desired parameters (i.e. frame rate, resolution, etc.) in the "HSV Setup" tab. If not specified, the videographer will document the parameters that they chose to use.
- Once the form is completed, save this file on your personal computer using the following format:
TLW#### - Brief Description
Try to keep the description as concise as possible. Your name in the filename is no longer necessary.
- Email the file to Phillip Reesor (primary) and Mark Hammond (secondary). Phillip will return your email with the assigned number and the assignee

Test Lab Work Request Form

Engineer: Vince Norton

Project #: 241493

Date Submitted: 8/27/2007

Test Description:

Perform
DAT on 15
Remington
Model 770
bolt action
rifles.

Test Procedure:

Perform DAT per flow chart and instructions.

Test Lab Work Request Form

TLW #:

2355

Requested Completion Date:

9/21/2007

per flow chart and instructions.

TLW Form

<autofile>

Test Lab Work Request Form	
Special Requirements:	
Supplies Availability:	
Results Required:	
*****This section to be completed by Test Lab Manager*****	
Assigned To:	Wade, Jeff Start Date:
Assigned Date:	8/30/2007 Completion Date:
Comments:	

<autofile>

Case	Age	Gender	Weight	Height	Temperature	Pulse	Respiration	Blood Pressure	Diagnosis
1	25	M	70	175	37.5	72	18	120/80	Flu
2	30	F	60	160	38.0	68	16	110/70	Cold
3	45	M	80	180	37.0	75	20	130/90	Heart Disease
4	55	F	70	170	37.5	70	18	125/85	Diabetes
5	60	M	90	190	37.0	78	22	140/100	Hypertension
6	70	F	65	165	37.5	70	18	120/80	Arthritis
7	75	M	85	185	37.0	75	20	135/95	Stroke
8	80	F	75	175	37.5	72	18	125/85	Alzheimer's
9	85	M	95	195	37.0	78	22	145/105	Parkinson's
10	90	F	80	180	37.5	75	20	130/90	Dementia

Case	Age	Gender	Weight	Height	Temperature	Pulse	Respiration	Blood Pressure	Diagnosis
1	25	M	70	175	37.5	72	18	120/80	Flu
2	30	F	60	160	38.0	68	16	110/70	Cold
3	45	M	80	180	37.0	75	20	130/90	Heart Disease
4	55	F	70	170	37.5	70	18	125/85	Diabetes
5	60	M	90	190	37.0	78	22	140/100	Hypertension
6	70	F	65	165	37.5	70	18	120/80	Arthritis
7	75	M	85	185	37.0	75	20	135/95	Stroke
8	80	F	75	175	37.5	72	18	125/85	Alzheimer's
9	85	M	95	195	37.0	78	22	145/105	Parkinson's
10	90	F	80	180	37.5	75	20	130/90	Dementia

Test Lab Work Request Form

Double click to edit.

Cont'd Procedure

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Request Form

<autofill>

Cont'd Procedure

Canon 20D

HIGH SPEED VIDEO SETUP RECORD	
ARCHIVE:	
TLW	

Camera Operator:

File Names:

Convention:

Purpose of Test:

Camera:	APX-RS	1024PCI
		Resolution (WxH, pixels):

Lens:

Equipment Height (in. above or below subject, no entry = in-plane with subject)

Equipment
Camera
L1 1000W
L2 1000W
L3 8-Bulb PAL

Set-up Diagram (w/linear dimensions)

	not to scale.
--	---------------

ALL FILES

REPRESENTATIVE FILE(S)

NO ARCHIVE

File Name:

2355

Date:

Project No.:

TLWNo Description.avi i.e. [TLW2162 Shot 1 18in bbl GB.avi], [TLW2162 Shot 2 18in bbl GB.avi]

1024PCI

Canon 20D

Shutter Speed:

Frame Rate (fps):

Type (C or F):

Focal Length (mm):

f-stop used:

zoom used (mm):

Position	Target	Symbol	Equipment	Position	Target	Symbol
		10				
		14				
		12				
		13				

TLW 2355 - A (Measurements)

Date: September 14, 2007
Technician: Steve Wade
Reference TLW 2370 thru 2374 for critical part inspection data

INITIAL SETUP

Date: October 24, 2007 (A11-A20), November 5, 2007 (A6-A10), November 9, 2007 (A1-A5)
Technician: Jeff Wade/Vince Norton

Gun I.D. #
Gun Serial #
Caliber
Engagement
Trigger Motion on Safe
Overtravel
Trigger Pull
Notes:

TLW 2355 - B (Heaspace/Proof/Headspace)

Date: October 25, 2007 (A11-A20), November 7, 2007 (A6-A10)
Technician: Jeff Wade

Gun I.D. #
Headspace
Proof
Headspace
Notes:

TLW 2355 - C (Measurements of Assemblies)

Date: October 26, 2007 (A11-A20), November 8, 2007 (A6-A10)
Technician: Jeff Wade/Bob Lee

Gun I.D. #
Engagment 1
Engagment 2
Engagment 3
Engagment Avg
Trigger Motion on Safe
Overtravel
Trigger Pull
Safety On Force 1
Safety On Force 2
Safety On Force 3
Safety On Force Avg
Safety Off Force 1
Safety Off Force 2
Safety Off Force 3
Safety Off Force Avg
Safety Function Test

A-1	A-2	A-3	A-4
71378965	71378778	71378875	71378780
243 WIN	243 WIN	243 WIN	243 WIN
0.0255	0.0277	0.0252	0.0263
0.0037	0.0035	0.0054	0.0032
0.022	0.022	0.025	0.022
4.622	5.110	5.027	4.532

1. Bolts with new bolt head and firing pin were difficult to open after firing. Bolt for A-11 Bound up and had to be beat open twice.
Bolt was replaces with a broken in bolt on the third try.

A-1	A-2	A-3	A-4
4	3	4	4
x	x	x	x
4	3	4	4

1. Headspace values are all MIN +

A-1	A-2	A-3	A-4
0.0254	0.0260	0.0301	0.0271
0.0257	0.0257	0.0300	0.0275
0.0255	0.0256	0.0300	0.0271
0.0255	0.0258	0.0300	0.0272
0.0022	0.0054	0.0045	0.0026
0.0238	0.0224	0.0243	0.0243
5.727	5.963	5.984	5.423
5.630	4.610	4.440	6.180
5.550	4.720	4.435	5.600
5.355	4.495	4.530	5.820
5.512	4.608	4.468	5.867
2.675	2.975	2.765	2.870
2.385	2.990	2.835	2.835
2.380	2.690	2.975	2.790
2.480	2.885	2.858	2.832
x	x	x	x

A-5	A-6	A-7	A-8	A-9	A-10	A-11	A-12	A-13	A-14	A-15	A-16	A-17	A-18	A-19
71378750	71401901	71402850	71403009	71403014	71403158	71288216	71388277	71389036	71389063	71392364	71397532	71398288	71398292	71398631
243 WIN	7mm RM	7mm RM	7mm RM	7mm RM	7mm RM	30-06	30-06	30-06	30-06	30-06	30-06	30-06	30-06	30-06
0.0268	0.0251	0.0260	0.0257	0.0268	0.0253	0.0275	0.0279	0.0278	0.0254	0.0277	0.0273	0.0267	0.0270	0.0261
0.0044	0.0040	0.0048	0.0041	0.0026	0.0036	0.0050	0.0023	0.0054	0.0049	0.0026	0.0062	0.0031	0.0067	0.0052
0.021	0.024	0.023	0.026	0.021	0.017	0.019	0.021	0.024	0.024	0.022	0.025	0.025	0.025	0.022
5.055	4.699	4.532	4.464	4.537	4.836	5.201	4.271	3.710	3.761	4.584	4.676	4.670	4.650	4.671

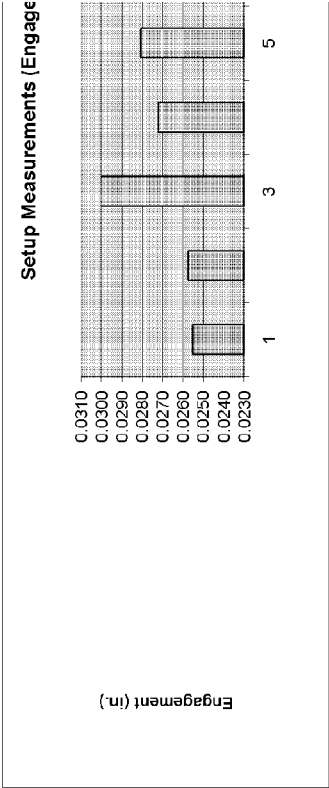
A-5	A-6	A-7	A-8	A-9	A-10	A-11	A-12	A-13	A-14	A-15	A-16	A-17	A-18	A-19
4	4	4	4	4	4	4	5	3	5	5	4	3	3	3
x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
4	5	4	5	4	4	5	5	4	5	6	4	4	3	4

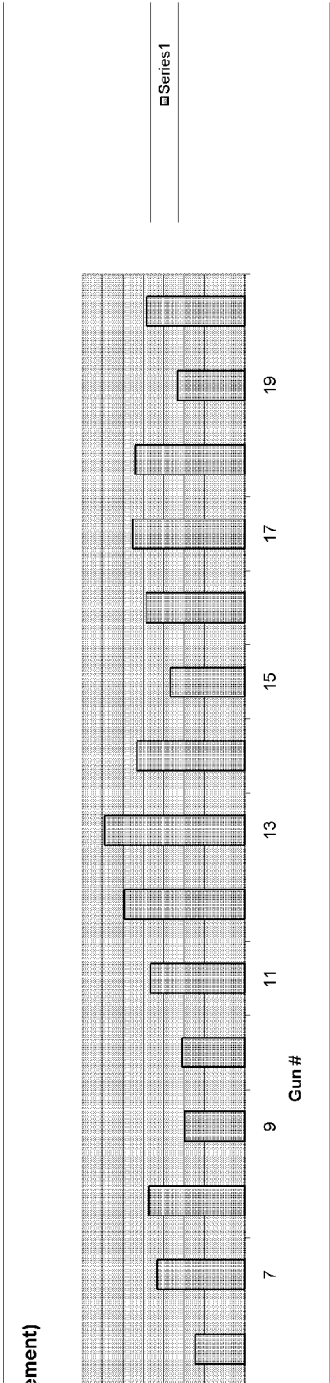
A-5	A-6	A-7	A-8	A-9	A-10	A-11	A-12	A-13	A-14	A-15	A-16	A-17	A-18	A-19
0.0281	0.0256	0.0271	0.0275	0.0259	0.0260	0.0282	0.0289	0.0297	0.0282	0.0268	0.0279	0.0287	0.0282	0.0261
0.0282	0.0253	0.0273	0.0279	0.0260	0.0264	0.0275	0.0288	0.0299	0.0282	0.0267	0.0282	0.0283	0.0286	0.0263
0.028	0.0255	0.0276	0.0278	0.0260	0.0259	0.0273	0.0291	0.0301	0.0286	0.0266	0.0275	0.0286	0.0284	0.0266
0.0281	0.0255	0.0273	0.0277	0.0260	0.0261	0.0277	0.0289	0.0299	0.0283	0.0267	0.0279	0.0285	0.0284	0.0263
0.0026	0.0034	0.0058	0.0053	0.0071	0.0025	0.0048	0.0041	0.0067	0.0066	0.0022	0.0075	0.006	0.0081	0.0073
0.0224	0.0267	0.0221	0.0256	0.0218	0.0173	0.0175	0.0204	0.0225	0.0247	0.0228	0.0245	0.0224	0.018	0.0219
5.817	4.597	4.687	4.682	4.586	4.564	5.377	4.647	5.583	5.253	5.024	5.842	4.568	5.162	5.065
5.775	4.590	4.335	4.900	4.845	4.630	3.135	3.400	3.250	3.590	2.925	3.000	3.275	3.210	2.955
5.190	4.650	4.290	4.990	4.875	4.580	3.135	3.390	3.290	3.655	3.170	3.205	3.250	3.315	2.950
5.840	4.405	4.215	4.980	4.815	4.470	3.145	3.410	3.270	3.540	3.360	3.175	3.285	3.300	2.975
5.602	4.548	4.280	4.957	4.845	4.560	3.138	3.400	3.270	3.595	3.152	3.127	3.270	3.275	2.960
3.085	3.330	3.180	3.380	3.125	2.905	3.630	3.715	4.105	3.615	4.085	4.400	4.970	5.005	3.665
3.130	3.290	3.210	3.665	3.065	2.880	3.620	3.725	4.125	3.625	3.975	4.225	4.995	5.450	3.800
3.145	3.525	3.450	3.360	3.050	2.845	3.635	3.690	4.100	3.555	3.990	4.010	5.015	5.380	3.735
3.120	3.382	3.280	3.468	3.080	2.877	3.628	3.710	4.110	3.598	4.017	4.212	4.993	5.278	3.733
x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

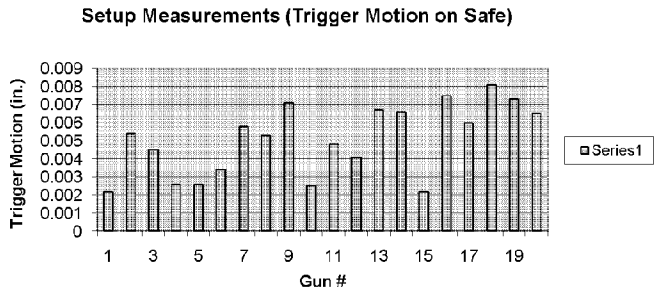
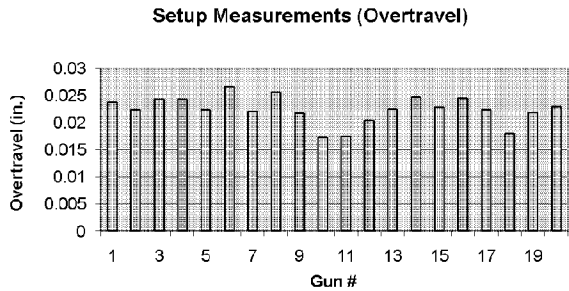
A-20
71398641
30.06
0.0271
0.0061
0.022
4.317

A-20
3
x
4

A-20
0.0281
0.0276
0.0278
0.0278
0.0065
0.0229
5.566
3.135
3.145
3.140
3.140
4.005
4.150
4.110
4.088
x









TLW 2355 - F (Function & Endurance)

Date: 11/13/07

Technician: Jeff Wade & Bob Lee

Gun I.D. #	A-11	A-12	A-13	A-14	A-15	A-16	A-17
Total Round Level	2000	2000	2000	1000	1000	1000	500
Malfunctions	0	2	2	0	0	0	2

NOTES:

All guns - Locking lug hitting tip of round in magazine during ejection

A-12 - 2 Missfires

A-13 - Sear did not fall on two occasions. SLS receiver inserts could "pinch" sear and cause it to not fall.

OD of the receiver insert was sanded to eliminate binding. Problem went away.

A-15 - Engagement went high out of viewing window and had to be reset.

Trigger pull went low out of spec and trigger motion on safe went out of spec.

A-16 - Magazine release lever broke at 720 rounds.

A-17 - 2 Missfires

A-20 - 1 Missfire

A-18	A-19	A-20
500	500	500
0	0	1

TLW 2355 - G (Inspection)

Initial measurements for reference

Gun I.D. #	A-11	A-12	A-13	A-14	A-15	A-16
Round Level	0	0	0	0	0	0
Engagment 1	0.0282	0.0289	0.0297	0.0282	0.0268	0.0279
Engagment 2	0.0275	0.0288	0.0299	0.0282	0.0267	0.0282
Engagment 3	0.0273	0.0291	0.0301	0.0286	0.0266	0.0275
Engagment Avg	0.0277	0.0289	0.0299	0.0283	0.0267	0.0279
Trigger Motion on Safe	0.0048	0.0041	0.0067	0.0066	0.0022	0.0075
Overtravel	0.0175	0.0204	0.0225	0.0247	0.0228	0.0245
Trigger Pull	5.377	4.647	5.583	5.253	5.024	5.842

*Torque takedown screws to 50 in*lbs

Date: 10/31/07

Technician: Bob Lee/Jeff Wade

Gun I.D. #	A-11	A-12	A-13	A-14	A-15	A-16
Round Level	500	500	500	500	500	500
Headspace	0.005	0.005	0.005	0.005	0.006	0.005
Engagement 1	0.0288	0.0290	0.0302	0.0287	0.0290	0.0288
Engagement 2	0.0292	0.0287	0.0301	0.0293	0.0290	0.0284
Engagement 3	0.0288	0.0288	0.0300	0.0287	0.0283	0.0286
Engagement Avg	0.0289	0.0288	0.0301	0.0289	0.0288	0.0286
Trigger Motion on Safe	0.0080	0.0039	0.0082	0.0082	0.0052	0.0081
Overtravel	0.0204	0.0209	0.0227	0.0272	0.0230	0.0267
Trigger Pull	4.512	4.431	5.377	4.840	4.592	4.726

*All headspace dimensions are MIN +

Date: 11/9/07

Technician: Bob Lee/Jeff Wade

Gun I.D. #	A-11	A-12	A-13	A-14	A-15	A-16
Round Level	1000	1000	1000	1000	1000	1000
Headspace	0.005	0.005	0.005	0.005	0.006	0.005
Engagement 1	0.0299	0.0292	0.0304	0.0289	*OW	0.0289
Engagement 2	0.0300	0.0290	0.0302	0.0289	*OW	0.0286
Engagement 3	0.0298	0.0290	0.0304	0.0288	*OW	0.0287
Engagement Avg	0.0299	0.029066667	0.030333333	0.028866667		0.028733333
Trigger Motion on Safe	0.0088	0.0053	0.0060	0.0092	0.0349	0.0106
Overtravel	0.0221	0.0211	0.0237	0.0275	*OS	0.0281
Trigger Pull	4.600	4.190	4.670	4.868	3.802	4.670

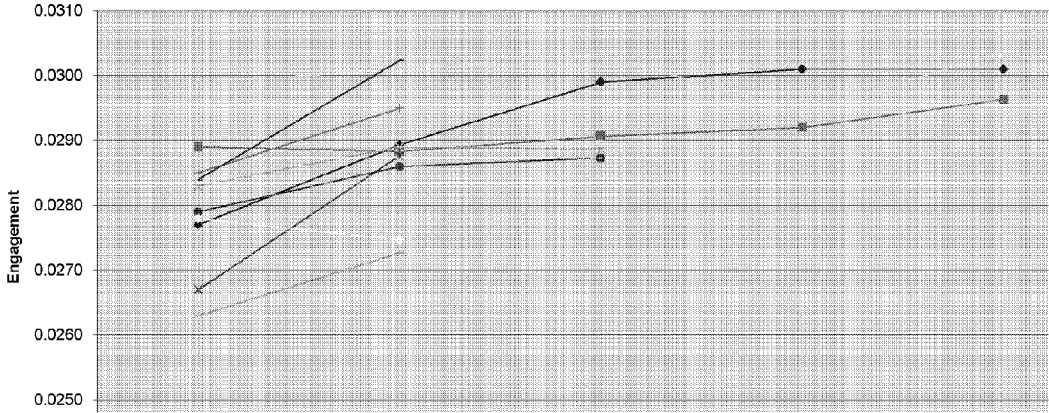
*OW - Out of viewing window

*OS - Off screen

Engagement on A-15 was reset to .0254

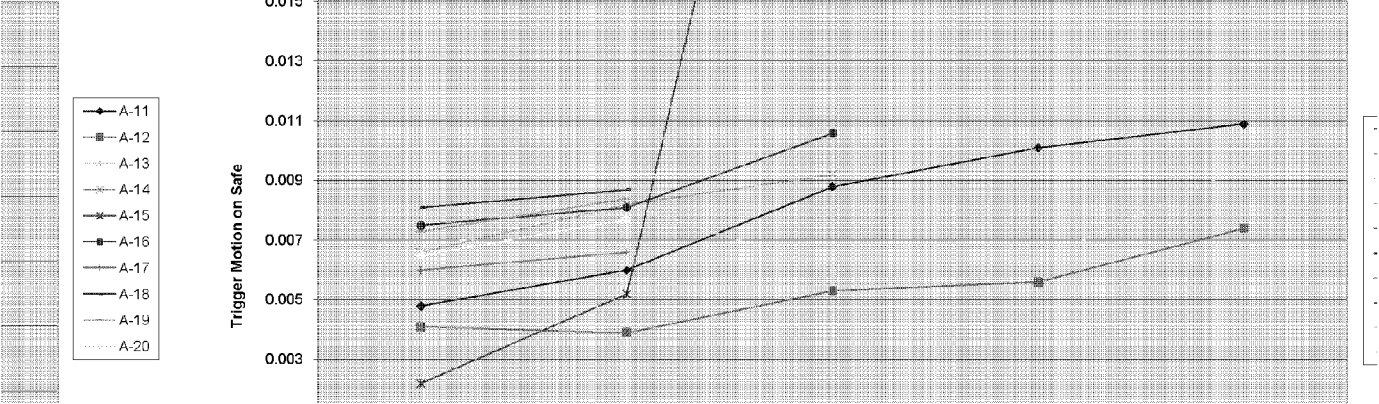
Data Summary														
A-17	A-18	A-19	A-20	Gun I.D. #	Round Level	A-11	A-12	A-13	A-14	A-15	A-16	A-17	A-18	
0	0	0	0	Engagment	0	0.0277	0.0289	0.0299	0.0283	0.0267	0.0279	0.0285	0.0284	
0.0287	0.0282	0.0261	0.0281		500	0.0289	0.0288	0.0301	0.0289	0.0288	0.0286	0.0295	0.0302	
0.0283	0.0286	0.0263	0.0276		1000	0.0299	0.0291	0.0303	0.0289		0.0287			
0.0286	0.0284	0.0266	0.0278		1500	0.0301	0.0292	0.0294						
0.0285	0.0284	0.0263	0.0278		2000	0.0301	0.0296	0.0304						
0.0060	0.0081	0.0073	0.0065	Trigger Motion on Safe	0	0.0048	0.0041	0.0067	0.0066	0.0022	0.0075	0.0060	0.0081	
0.0224	0.018	0.0219	0.0229		500	0.0060	0.0039	0.0082	0.0082	0.0052	0.0081	0.0066	0.0087	
4.568	5.162	5.065	5.566		1000	0.0088	0.0053	0.0060	0.0092	0.0349	0.0106			
					1500	0.0101	0.0056	0.0063						
					2000	0.0109	0.0074	0.0095						
				Overtravel	0	0.0175	0.0204	0.0225	0.0247	0.0228	0.0245	0.0224	0.018	
					500	0.0204	0.0209	0.0227	0.0272	0.0230	0.0267	0.0264	0.0229	
					1000	0.0221	0.0211	0.0237	0.0275		0.0281			
					1500	0.0212	0.0229	0.0245						
A-17	A-18	A-19	A-20		2000	0.022	0.0227	0.0234						
500	500	500	500	Trigger Pull	0	5.377	4.647	5.583	5.253	5.024	5.842	4.568	5.182	
0.006	0.004	0.005	0.004		500	4.512	4.431	5.377	4.840	4.592	4.726	4.422	4.579	
0.0296	0.0309	0.0271	0.0276		1000	4.600	4.190	4.670	4.868	3.802	4.670			
0.0294	0.0301	0.0275	0.0271		1500	4.791	4.726	5.361						
0.0295	0.0297	0.0272	0.0277		2000	4.450	4.346	5.416						
0.0295	0.0302	0.0273	0.0275											
0.0036	0.0087	0.0084	0.0077											
0.0264	0.0229	0.0229	0.0185											
4.422	4.579	4.579	5.001											
Function & Endurance														

Function & Endurance



A-19	A-20
0.0263	0.0278
0.0273	0.0275
0.0073	0.0065
0.0084	0.0077
0.0219	0.0229
0.0229	0.0185
5.065	5.566
4.579	5.001

Function & Endurance



◆	A-11
■	A-12
□	A-13
✱	A-14
✱	A-15
●	A-16
+	A-17
—	A-18
—	A-19
—	A-20

Date: 11/12/07

Technician: Bob Lee/Jeff Wade

Gun I.D. #	A-11	A-12	A-13
Round Level	1500	1500	1500
Headspace	0.006	0.005	0.005
Engagement 1	0.0302	0.0293	0.0293
Engagement 2	0.0301	0.0292	0.0295
Engagement 3	0.0300	0.0291	0.0295
Engagement Avg	0.0301	0.0292	0.029433333
Trigger Motion on Safe	0.0101	0.0056	0.0063
Overtravel	0.0212	0.0229	0.0245
Trigger Pull	4.791	4.726	5.361

Notes: Side plate screw loose on A-12. Retightened

Date: 11/14/07

Technician: Bob Lee/Jeff Wade

Gun I.D. #	A-11	A-12	A-13
Round Level	2000	2000	2000
Headspace	0.006	0.005	0.005
Engagement 1	0.0301	0.0296	0.0303
Engagement 2	0.0302	0.0297	0.0303
Engagement 3	0.0300	0.0296	0.0305
Engagement Avg	0.0301	0.029633333	0.030366667
Trigger Motion on Safe	0.0109	0.0074	0.0095
Overtravel	0.022	0.0227	0.0234
Trigger Pull	4.450	4.346	5.416

RETEST OF A-15

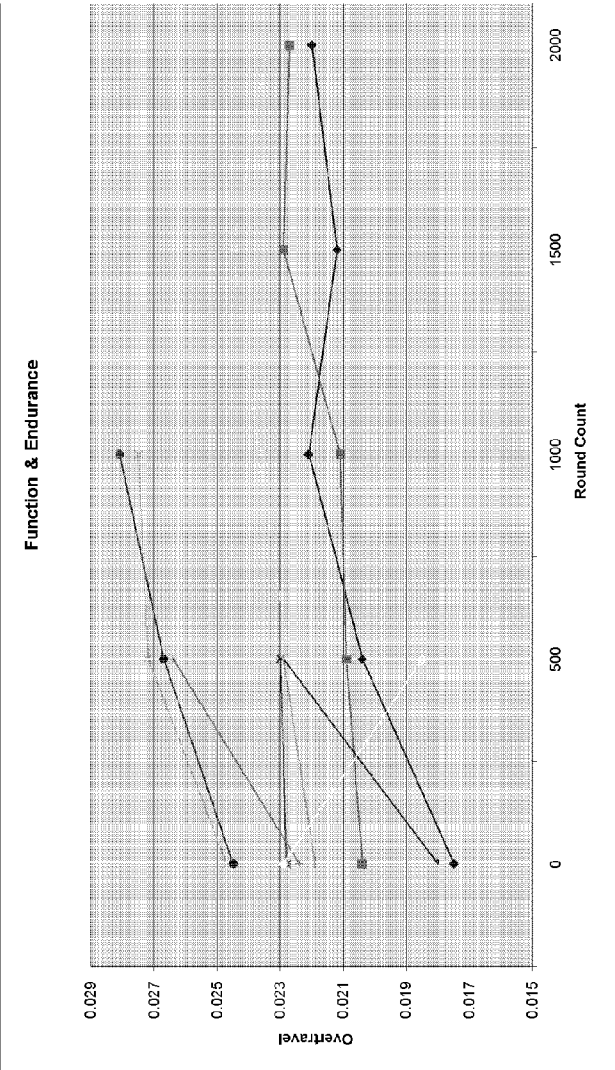
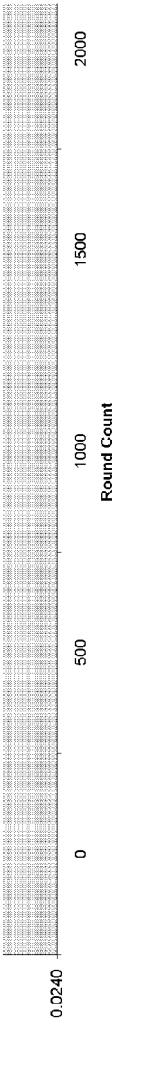
Date: 11/16/07

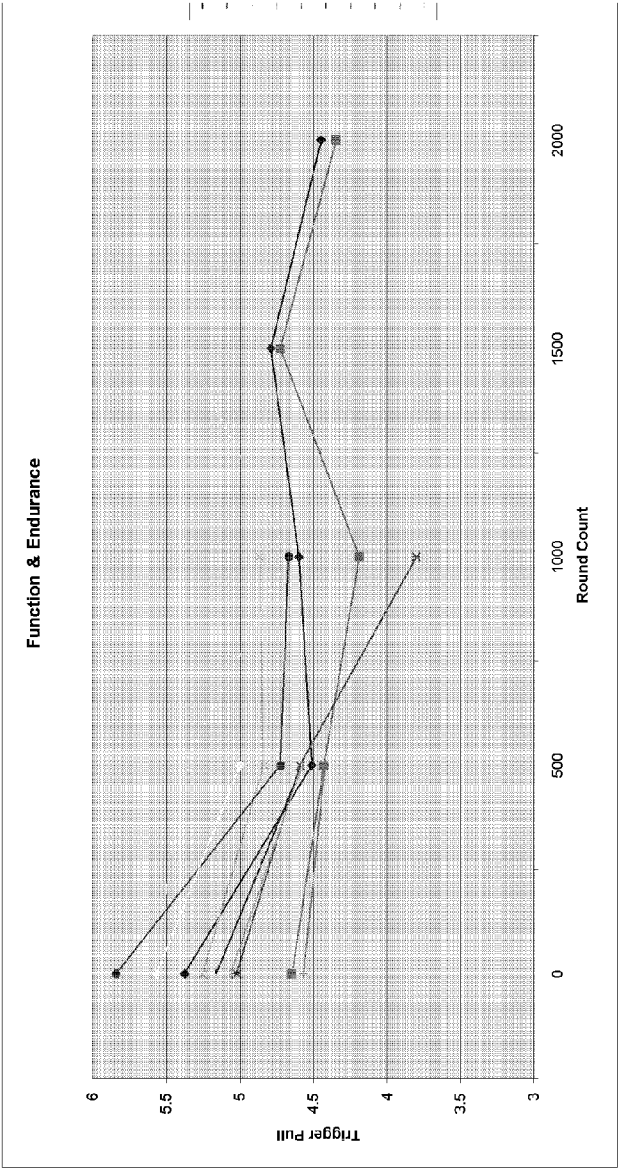
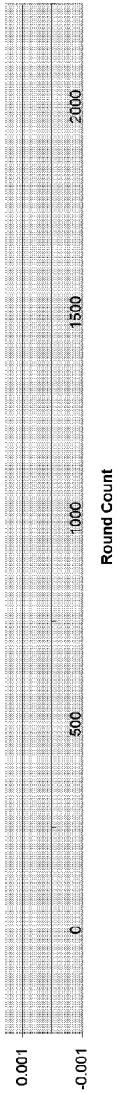
Technician: Jeff Wade

Gun I.D. #	A-15	A-15	A-15	A-15
Round Level	start	1100	reset	1200
Engagement	0.0286	0.0351	0.0273	*OW
Trigger Motion on Safe	0.0078	0.0128	0.0078	N/A
Overtravel	0.0276	0.0253	0.0253	N/A
Trigger Pull	4.548	4.179	4.594	3.601

*OW - Out of viewing window

11/19/07 - fire control was disassembled and inspected. No black max loctite was on the adjustment screws. Lack of black max loctite was the likely contributor to the adjustment screws moving during function & endurance. VBN





- A-11
- A-12
- A-13
- A-14
- A-15
- A-16
- A-17
- A-18
- A-19
- A-20

A-11
A-12
A-13
A-14
A-15
A-16
A-17
A-18
A-19
A-20

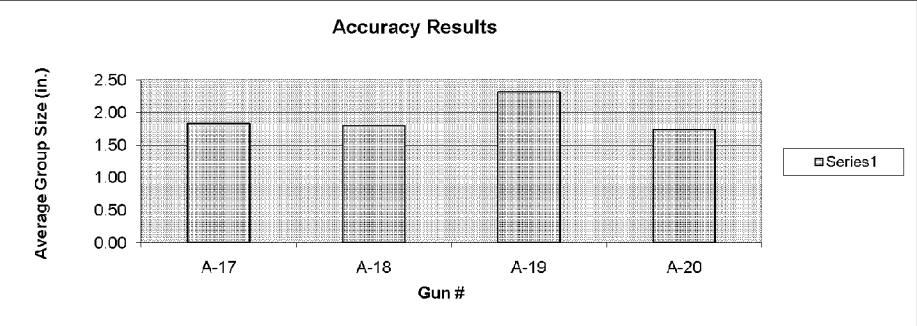
TLW 2355 - E (Accuracy)

Date: 11/15/07

Technician: Jonathan Sims

Gun I.D. #	A-17	A-18	A-19	A-20
Caliber	30-06	30-06	30-06	30-06
Group #1	1.60	1.45	2.45	2.20
Group #2	2.10	1.70	2.10	2.00
Group #3	1.80	2.25	2.40	1.00
Group Average	1.83	1.80	2.32	1.73

Three - Five shot groups per gun
*All guns were shot using Remington Express Core-Lokt, 180 GR R30065
Lot #D29 HB1

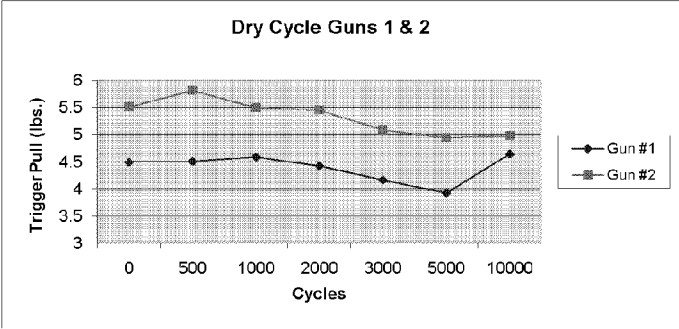
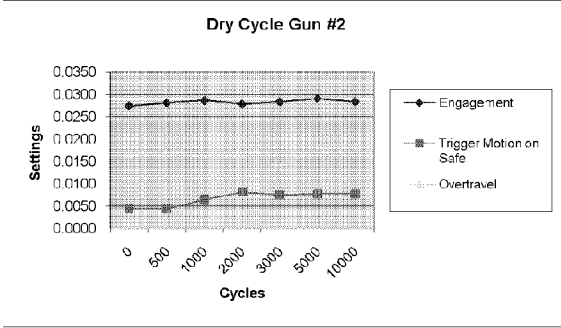
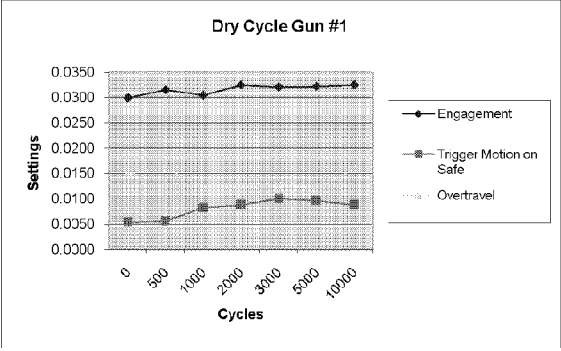


TLW 2355 - Q (Dry Cycle)

Date: October 26, 2007
Technician: Cody Greenwell/Vince Norton

Gun I.D. #	1						
Serial #	71250971						
Cycles	0	500	1000	2000	3000	5000	10000
Engagment	0.0300	0.0315	0.0305	0.0325	0.0321	0.0322	0.0325
Trigger Motion on Safe	0.0054	0.0057	0.0063	0.0089	0.0101	0.0097	0.0089
Overtravel	0.015	0.0161	0.0124	0.0122	0.013	0.012	0.016
Trigger Pull	4.498	4.511	4.589	4.429	4.165	3.929	4.647

Gun I.D. #	2						
Serial #	71250948						
Cycles	0	500	1000	2000	3000	5000	10000
Engagment	0.0275	0.0282	0.0287	0.0279	0.0284	0.0291	0.0284
Trigger Motion on Safe	0.0045	0.0045	0.0066	0.0082	0.0076	0.0078	0.0078
Overtravel	0.0165	0.017	0.016	0.016	0.014	0.018	0.018
Trigger Pull	5.509	5.814	5.499	5.454	5.084	4.943	4.981



TLW 2355 - M (Jar-Off)

Date: November 9, 2007

Technician: Jeff Wade

Gun I.D. #	A-1	A-2	A-3	A-4	A-5	A-6	A-7
Gun Serial #	71378965	71378778	71378875	71378780	71378750	71401901	71402850
Caliber	243 WIN	243 WIN	243 WIN	243 WIN	243 WIN	7mm RM	7mm RM
Engagement at start	0.0255	0.0258	0.0259	0.0259	0.026	0.0255	0.0273
Engagement at end	0.0253	0.0256	0.0256	0.0259	N/A	0.0253	0.0280
Trigger Pull at start	4.552	4.58	4.591	4.582	4.582	4.597	4.584
Trigger Pull at end	4.586	5.289	4.570	4.572	4.16	4.610	3.710
SAAMI Jar-Off (2355-M)	Pass	Pass	Pass	Pass	*Fail	Pass	*Fail

*A-5, A-7 & A-10 - Failed Barrel Horizontal, Bottom of Stock Down because of trigger pull out of spec low
Trigger pull was reset to specification and retested

RETEST

Date: November 9, 2007

Technician: Jeff Wade

Gun I.D. #	A-5	A-7	A-10
Gun Serial #	71378750	71402850	71403158
Caliber	243 WIN	7mm RM	7mm RM
Engagement at start	0.0258	0.0280	0.0287
Engagement at end	0.0256	0.0281	0.0283
Trigger Pull at start	4.589	4.636	4.806
Trigger Pull at end	4.291	4.401	4.645
SAAMI Jar-Off (2355-M)	Pass	Pass	Pass

TLW 2355 - N (Rotation)

Date: November 9, 2007

Technician: Jeff Wade

Gun I.D. #	A-1	A-2	A-3	A-4	A-5	A-6	A-7
Gun Serial #	71378965	71378778	71378875	71378780	71378750	71401901	71402850
Caliber	243 WIN	243 WIN	243 WIN	243 WIN	243 WIN	7mm RM	7mm RM
Engagement at start	0.0253	0.0256	0.0256	0.0259	0.0256	0.0253	0.0281
Engagement at end	0.0252	0.0253	0.0256	0.0266	0.0255	0.0253	0.0282
Trigger Pull at start	4.586	4.659	4.57	4.572	4.593	4.610	4.748
Trigger Pull at end	4.889	4.558	4.406	4.564	4.805	4.660	4.652
SAAMI Rotation (2355-N)	Pass	Pass	Pass	Pass	Pass	Pass	Pass

TLW 2355 - O (Drop)

Date: November 9, 2007

Technician: Jeff Wade

Gun I.D. #	A-1	A-2	A-3	A-4	A-5	A-6	A-7
Gun Serial #	71378965	71378778	71378875	71378780	71378750	71401901	71402850
Caliber	243 WIN	243 WIN	243 WIN	243 WIN	243 WIN	7mm RM	7mm RM
Engagement at start	0.0252	0.0253	0.0256	0.0255	0.0255	0.0253	0.0282
Engagement at end	0.0253	0.0252	0.0259	0.0256	0.0257	N/A	0.0281

A-8	A-9	A-10
71403009	71403014	71403158
7mm RM	7mm RM	7mm RM
0.0277	0.0260	0.0261
0.0280	0.0263	0.0287
4.682	4.586	4.564
4.609	4.557	3.086
Pass	Pass	*Fail

A-8	A-9	A-10
71403009	71403014	71403158
7mm RM	7mm RM	7mm RM
0.026	0.0263	0.0283
0.0281	0.0263	0.0277
4.609	4.557	4.645
4.691	4.615	4.973
Pass	Pass	Pass

A-8	A-9	A-10
71403009	71403014	71403158
7mm RM	7mm RM	7mm RM
0.0281	0.0263	0.0277
0.0280	0.0262	N/A

Trigger Pull at start	4.571	4.558	4.553	4.564	4.605	4.660	4.652
Trigger Pull at end	5.172	3.794	4.404	4.255	4.803	4.660	4.807
SAAMI Drop Test (2355-O)	Pass	Pass	Pass	*Fail	Pass	*Fail	Pass

*A-4, A-6 & A-10 - Failed Barrel Horizontal, Bottom of Stock Up because of broken insert
Broken inserts were replaced and retested

RETEST

Date: November 9, 2007
Technician: Jeff Wade

Gun I.D. #	A-4	A-6	A-10
Gun Serial #	71378780	71401901	71403158
Caliber	243 WIN	7mm RM	7mm RM
Engagement at start	0.0251	0.0259	0.0254
Engagement at end	0.025	0.0282	0.0255
Trigger Pull at start	4.616	4.575	4.563
Trigger Pull at end	5.338	4.608	4.714
SAAMI Drop Test (2355-O)	Pass	Pass	Pass

4.691	4.615	4.579
4.208	4.408	4.621
Pass	Pass	*Fail

TLW 2355 - P (SAAMI Safety Operation Test - 40 lb. Trigger Pull Test)

Date: 11/15/07

Technician: Jeff Wade

Gun I.D. #	A-11	A-12	A-13
Gun Serial #	71288216	71388277	71389036
Caliber	30-06	30-06	30-06
40 lb. Trigger Pull Test	Pass	Pass	Pass

TLW 2355 - H (Dynamic Sand and Dust Test)

Date: 11/15/07

Technician: Jeff Wade

Gun I.D. #	A-14	A-16
Dust/Debris Test	Pass	Pass

500 ml, 75 PSI

15 live rounds per gun, 3 magazines

1 in chamber & 4 in magazine

TLW 2355 - I (Hot Test)

Date: 11/16/07

Technician: Bob Lee

Gun I.D. #	A-17	A-18
Hot Test	Pass	Pass

TLW 2355 - J (Cold Test)

Date: 11/16/07

Technician: Bob Lee

Gun I.D. #	A-19	A-20
Cold Test	Pass	Pass

TLW 2355 - K (Salt Fog Test)

Date: 11/26/07

Technician: Jeff Wade

Gun I.D. #	A-17	A-18
Salt Fog Test	Complete	Complete
Hours in Chamber	22	24
Condition in Chamber	Bolt Open	Bolt Closed



TLW 2355 - L (Metallurgical Check of Triggers)

Date: 12/2/07

Engineer: Jim Urbon

Gun I.D. #	A-15
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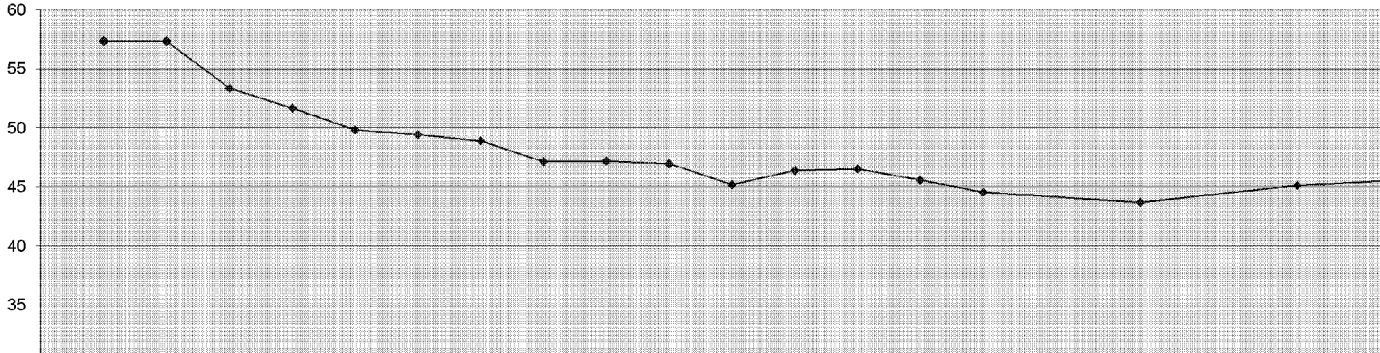
Microhardness	
Sample Prep	
Distance from surface, inches	
0.002	
0.004	
0.006	
0.008	
0.010	
0.012	
0.014	
0.016	
0.018	
0.020	
0.022	
0.024	
0.026	
0.028	
0.030	
0.035	
0.040	
0.045	
0.050	

Hardness, HRC

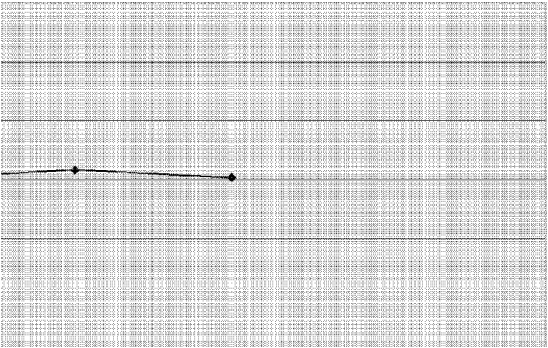
The trigger from gun A15 was sectioned, mounted, and polished for case depth analysis. The sear engagement end of the trigger was sectioned off and mounted laying on its side. This section was then ground to mid plane. A series for microhardness indents were ran from the top of the trigger 0.050" back from the front corner of the trigger.

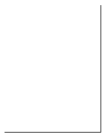
Hardness, HV

640
640
566
539
511
505
497
473
474
471
448
463
465
453
441
431
448
456
449



Hardness,
HRC
57.36136246
57.3546524
53.38171005
51.69266129
49.85006332
49.45893097
48.93291092
47.17050552
47.21231842
46.96577454
45.20535278
46.40042114
46.54471207
45.59615326
44.56656647
43.7048912
45.14130402
45.8584404
45.23184967





Observations



The HRc 50 case depth is about 0.010" at the location measured.
The core hardness at a depth of 0.050" is about HRc 45.
The vendor clames that the triggers were made from low carbon steel.
Remington had the triggers carburized.
I checked the hardness on the side of the trigger. The hardness was HRc 48.1 and HR15n 89.3.
The high core hardness is more like that of a medium carbon alloy steel like AISI 4140.

