Test Lab Work Request Form

Date Submitted: 08/05/02	Tracking #: TLW 0920 **STRAIN**
Project #: 241230	Engineer: DR Danner

Test Objective: Chamber Strength Audit of Non-Magnum M/710 .3006 caliber

This test will evaluate the chamber strength performance of the M/710 firearm in 30-06 caliber. Recently it was demonstrated that the 300WinMag version would plastically deform during a progressive test employing 300WinMag proof rounds. This test will essentially repeat the work done on the 300WinMag but in 30-06 caliber to demonstrate the issue doesn't exist in the non-magnum M/710. See also Tlr 904.

Test Description:

1. READ AND UNDERSTAND THE ENTIRE PROCEDURE PRIOR TO STARTING THE TEST.
2. **Install Strain>** Obtain and properly prepare a NEW M/710 firearm in .30-06 caliber for a "hoop direction" strain gauge. Locate the strain over the chamber area approximately 0.5 inches behind the cartridge shoulder location. (eg. Position the gauge such that any hoop deformation in the chamber area will be observed).
3. **Headspace Measure>** Before shooting, between every shot, after shooting.
4. **Observer>** Prior to conducting the test locate Franz/Danner to witness the execution of the test.
5. **Location>** Position the firearm in the "blowup" room and setup to fire the firearm via lanyard. At no time shall the firearm be fired with personnel in the blowup room. All firings shall be via lanyard and external to the room.
6. **Strain Data>** Standard strain gauge instrumentation should be employed. It is important that the gauge system NOT be re-zeroed during the test. Any movement off of zero will be an indication of residual hoop stress developing.
7. **Multimeter>** Digital voltmeter paralleled into the amplifier output, record any residual stress in volts.
8. **Shooting>** Proof rounds, repeat the proof/measurement process for 25 rounds (or at the discretion of Danner/Franz more or less rounds as dictated by observed performance).
9. **Data>** Tabulate data in Excel spreadsheet, mark firearm as "multi-proof" and "DO NOT USE FOR FURTHER TESTING".

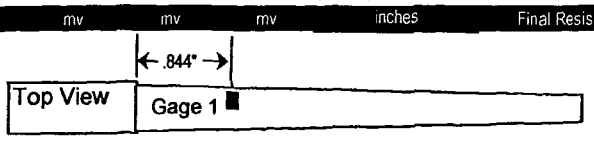
Resource Usage: Manpower Requirements – 1 Tech Facility Requirements –	Test Results Required: Formal Report: NO Data Only: YES REQUESTED Completion Date:08/09/02
Required Materials/Parts/Equipment (include quantities):	M/710 3006 Firearm, Proof Rounds, Headspace Gauges
Test Parts Availability Date: Available now	
Start Date: 7 Aug 02 Completion Date: 9 Aug 02 Report Date: 9 Aug 02	Test Assigned To: Gary Howell 08/05/02

30-06 Strains 710 Brl. 1st Gun # 125

Shoot proof rounds, record headspace / gage / multimeter after each shot.

Tlr 920 — 1st Gun # 125 — See Tlr 896 & 904 — 7-9 Aug 02

Shot:	Scope Gage Hi	Scope Gage Low	Multimeter Before	Multimeter After	Multimeter Sum:	Headspace Go	Headspace No-Go	Notes:	Gage 125BT-120 Scope setup:
Normal:	40	-20	———	———	———	.002	.003	**Resis: 120.5 Ohms**	500mv / 5ms / C1 100mv
Calib:	1000	-20	———	———	———	.002	.003	———	500mv / 5ms / C1 100mv
1	500	-20	2	2	0	.002	.003	Warmer 180g R30064	500mv / 5ms / C1 100mv
2	820	0	2	43	41	.003	.004	Proof **7 Aug**	500mv / 5ms / C1 100mv
3	860	40	40	86	46	.004	.005	Proof	500mv / 5ms / C1 100mv
4	860	80	83	104	21	.004	.005	Proof	500mv / 5ms / C1 100mv
5	No Trig		102	121	19	.004	.005	Proof	500mv / 5ms / C1 100mv
6	940	120	120	137	17	.004	.005	Proof	500mv / 5ms / C1 100mv
7	900	140	134	150	16	.004	.005	Proof	500mv / 5ms / C1 100mv
8	960	140	147	164	17	.004	.005	Proof	500mv / 5ms / C1 100mv
9	980	160	162	176	14	.004	.005	Proof	500mv / 5ms / C1 100mv
10	980	180	174	196	22	.004	.005	Proof	500mv / 5ms / C1 100mv
11	1040	200	194	219	25	.004	.005	Proof	500mv / 5ms / C1 100mv
Morning	240	200	190	Left system with gage connected on overnight, to see if gage returns to zero.					
12	1020	200	192	198	6	.004	.005	Proof **8 Aug**	500mv / 5ms / C1 100mv
13	1020	200	196	208	12	.004	.005	Proof	500mv / 5ms / C1 100mv
14	1080	220	206	226	20	.004	.005	Proof	500mv / 5ms / C1 100mv
15	1020	240	224	238	14	.004	.005	Proof	500mv / 5ms / C1 100mv
16	1060	240	236	245	9	.004	.005	Proof	500mv / 5ms / C1 100mv
17	1020	80	242	251	9	.004	.005	Proof	500mv / 5ms / C1 100mv
18	Spike	260	248	263	15	.004	.005	Proof	500mv / 5ms / C1 100mv
19	1100	280	261	270	9	.004	.005	Proof	500mv / 5ms / C1 100mv
20	1100	280	267	280	13	.004	.005	Proof	500mv / 5ms / C1 100mv
21	Spike	280	277	291	14	.004	.005	Proof	500mv / 5ms / C1 100mv
22	1180	280	288	306	18	.004	.005	Proof	500mv / 5ms / C1 100mv
23	1140	320	303	313	10	.004	.005	Proof	500mv / 5ms / C1 100mv
24	1160	320	310	323	13	.004	.005	Proof	500mv / 5ms / C1 100mv
25	1280	320	320	350	30	.005	.006	Proof	500mv / 5ms / C1 100mv
26	1220	300	346	360	14	.005	.006	Proof	500mv / 5ms / C1 100mv
27	840	Spike	333	338	5	.005	.006	Warmer	500mv / 5ms / C1 100mv
28	840	340	336	340	4	.005	.006	Warmer	500mv / 5ms / C1 100mv
29	820	Spike	339	341	2	.005	.006	Warmer	500mv / 5ms / C1 100mv
30	820	340	340	342	2	.005	.006	Warmer	500mv / 5ms / C1 100mv
31	820	Spike	342	343	1	.005	.006	Warmer	500mv / 5ms / C1 100mv
32	780	360	341	345	4	.005	.006	Warmer	500mv / 5ms / C1 100mv
33	820	360	344	348	4	.005	.006	Warmer	500mv / 5ms / C1 100mv
34	820	Spike	346	349	3	.005	.006	Warmer	500mv / 5ms / C1 100mv
35	860	Spike	347	352	5	.005	.006	Warmer	500mv / 5ms / C1 100mv
36	840	Spike	365	366	1	.005	.006	Warmer Adj Wires	500mv / 5ms / C1 100mv
Max:	**1280**	**Cool:**	**348**	**Sum:**	**458**	**inches**		**Resis: 120.5 Ohms**	**1v = 1000ue**
Start	320	260	———	278	———	.005	.006	**9-Aug**	500mv / 5ms / C1 100mv
Nrmal:	40	0	———	0	———	.005	.006	**Balance / Zero**	500mv / 5ms / C1 100mv
Calib:	1120	0	———	———	———	.005	.006		500mv / 5ms / C1 100mv
1	800	0	0	14	14	———	———	Proof	500mv / 5ms / C1 100mv
2	840	0	13	22	9	———	———	Proof	500mv / 5ms / C1 100mv
3	840	0	22	32	10	———	———	Proof	500mv / 5ms / C1 100mv
4	800	40	31	39	8	———	———	Proof	500mv / 5ms / C1 100mv
5	880	40	38	48	10	.005	.006	Proof	500mv / 5ms / C1 100mv
					Cool				
6	No Trig		35	38	3	———	———	Warmer 180g R30064	500mv / 5ms / C1 100mv
7	560	40	37	41	4	———	———	Warmer	500mv / 5ms / C1 100mv
8	540	40	40	44	4	———	———	Warmer	500mv / 5ms / C1 100mv
9	560	40	44	47	3	———	———	Warmer	500mv / 5ms / C1 100mv
10	520	60	44	49	5	.005	.006	Warmer	500mv / 5ms / C1 100mv
					Cool				
11	840	40	26	36	10	———	———	Proof	500mv / 5ms / C1 100mv
12	860	40	35	42	7	———	———	Proof	500mv / 5ms / C1 100mv
13	840	40	41	49	8	———	———	Proof	500mv / 5ms / C1 100mv
14	880	40	47	53	6	———	———	Proof	500mv / 5ms / C1 100mv
15	820	60	52	58	6	.005	.006	Proof	500mv / 5ms / C1 100mv
	100	40		.034		Cooled 30min			
	60	0		.003		Excitation Off			
	80	20		.035		Excitation On 1 Hr.			
	mv	mv	mv	mv	mv	inches		Final Resis: 120.5 Ohms	1v = 1000ue



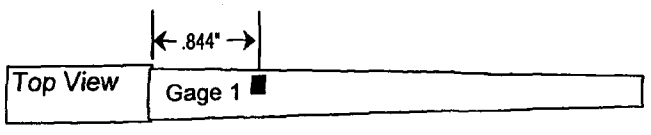
ET28177

30-06 Strains 710 Brl. 2nd Gun # 683

Shoot proof rounds, record headspace / gage / multimeter after each shot.

Tlr 920 | 2nd Gun # 683 | See Tlr 896 & 904 | 9 Aug 02

	Scope Gage		Multimeter			Headspace		Gage 125BT-120	
Shot:	Hi	Low	Before	After	Sum:	Go	No-Go	Notes:	Scope setup:
Normal:	40	-20	----------	----------	----------	.002	.003	----------	500mv / 5ms / C1 100mv
Calib:	1000	-20	----------	----------	----------	.002	.003	----------	500mv / 5ms / C1 100mv
1	780	-320	0	13	13	.002	.003	Proof	500mv / 5ms / C1 100mv
2	820	-20	13	32	19	.002	.003	Proof	500mv / 5ms / C1 100mv
3	820	0	32	46	14	.002	.003	Proof	500mv / 5ms / C1 100mv
4	820	40	47	54	7	.002	.003	Proof	500mv / 5ms / C1 100mv
5	820	40	54	63	9	.003	.004	Proof	500mv / 5ms / C1 100mv
					Cool				
6	800	60	63	69	6	.003	.004	Proof	500mv / 5ms / C1 100mv
7	900	60	68	89	21	.003	.004	Proof	500mv / 5ms / C1 100mv
8	940	80	89	105	16	.003	.004	Proof	500mv / 5ms / C1 100mv
9	920	100	105	121	16	.003	.004	Proof	500mv / 5ms / C1 100mv
10	920	100	121	127	6	.003	.004	Proof	500mv / 5ms / C1 100mv
					Cool				
11	940	120	119	127	8	-------	-------	Proof Ck headspace 5 rds	500mv / 5ms / C1 100mv
12	1000	120	127	139	12	-------	-------	Proof	500mv / 5ms / C1 100mv
13	900	140	137	144	7	-------	-------	Proof	500mv / 5ms / C1 100mv
14	960	140	143	153	10	-------	-------	Proof	500mv / 5ms / C1 100mv
15	960	160	153	160	7	.003	.004	Proof	500mv / 5ms / C1 100mv
					Cool				
16	980	160	157	167	10	-------	-------	Proof	500mv / 5ms / C1 100mv
17	980	180	167	175	8	-------	-------	Proof	500mv / 5ms / C1 100mv
18	940	180	174	180	6	-------	-------	Proof	500mv / 5ms / C1 100mv
19	1000	180	180	186	6	-------	-------	Proof	500mv / 5ms / C1 100mv
20	860	180	186	191	5	.003	.004	Proof	500mv / 5ms / C1 100mv
					Cool				
21	1000	180	186	191	5	-------	-------	Proof	500mv / 5ms / C1 100mv
22	980	200	191	194	3	-------	-------	Proof	500mv / 5ms / C1 100mv
23	980	200	194	197	3	-------	-------	Proof	500mv / 5ms / C1 100mv
24	920	200	197	198	1	-------	-------	Proof	500mv / 5ms / C1 100mv
25	920	200	198	200	2	.003	.004	Proof	500mv / 5ms / C1 100mv
					Cool				
26	1020	180	185	194	9	-------	-------	Proof	500mv / 5ms / C1 100mv
27	980	200	194	196	2	-------	-------	Proof	500mv / 5ms / C1 100mv
28	900	200	196	198	2	-------	-------	Proof	500mv / 5ms / C1 100mv
29	1000	200	198	202	4	-------	-------	Proof	500mv / 5ms / C1 100mv
30	920	200	201	204	3	.004	.005	Proof	500mv / 5ms / C1 100mv
					Cool				
31	1080	200	202	216	14	-------	-------	Proof	500mv / 5ms / C1 100mv
32	1020	220	213	221	8	-------	-------	Proof	500mv / 5ms / C1 100mv
33	1000	220	221	224	3	-------	-------	Proof	500mv / 5ms / C1 100mv
34	1020	240	222	228	6	-------	-------	Proof	500mv / 5ms / C1 100mv
35	1020	240	228	235	7	.004	.005	Proof	500mv / 5ms / C1 100mv
Cooled	280	220	----------	225	----------	-------	-------	1 Hour cooled with excitation on	
Cooled	280	240	----------	231	----------	-------	-------	1.5 Hour cooled with excitation off	
Max:	1080			Sum:	254	inches		1v = 1000ue	
	mv	mv	mv	mv	mv				



At Conn.	Gage / Ohms
Before	120.5
After	120.4
Diff:	.1

ET28178