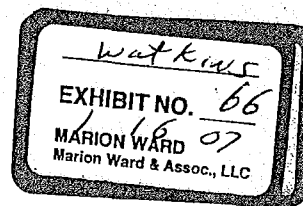


Fire Control

Design Review

3/28/95

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ET56533

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Agenda

- 07:30 - 07:50 Review Design Criteria --- DDD
- 07:50 - 09:00 Existing Designs Overview --- DDD
- 09:00 - 09:15 Review Hi-Plunger Test Data --- EF
- 09:15 - 09:45 Design Results & Issues --- EF
- ET56534 □ 09:45 - 10:00 Break
- 10:00 - 10:45 Manufacturing Issues --- DT
- 10:45 - 11:00 Recommendation/Decision --- Team
- 11:00 - 12:00 Schedule
- 12:00 - Snacks served

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Fire Control Requirements

- ☐ Prevent fire on safety release
- ☐ Retrofitable design
- ☐ Placement of safety lever in "safe" position ensures engagement
- ☐ Manufacturability
- ☐ Tamper evident design
- ☐ Trigger pull 3.0 - 5.0 lbs.
- ☐ Equivalent feel and performance to M700
- ☐ Pass all SAAMI drop and jar off tests
- ☐ Pass all functional tests

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Fire Control "Nice to have"

- ☐ Will not fire if trigger is pulled and held rearward as safety is moved from safe to fire position
- ☐ Skeletonized side plates
- ☐ Cost reduction
- ☐ Part reduction
- ☐ Balanced trigger
- ☐ Ambidextrous design

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Low Plunger Design

Required:	
1. Prevent fire on safety release.	Yes.
2. Retrofittable design	Yes
3. Placement of safety lever in "safe" position ensures engagement.	Yes.
4. Trigger assembly must be manufacturable	Probably Not. Trigger assembly highly tolerance sensitive.
5. Tamper evident design	Yes. Assuming safety retaining clip redesign works
6. Trigger pull 3.0 - 5.0 lbs.	Yes . Would probably require trigger pull adjustment
7. Equivalent feel and performance	Probably.
8. Pass all SAAMI drop and jar off tests	Probably
9. Fire control must pass all functional testing	Probably not. No reason to assume would pass slam test.
Nice to Have:	
1. Will not fire if trigger is pulled and held rearward as safety is moved from safe to fire position	Not consistently
2. Skeletonized side plates	Yes.
3. Cost reduction	Unknown.
4. Part reduction	No
5. Balanced Trigger	Yes
6. Ambidextrous design	Yes

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Trigger Bow Pin Design

Required:	
1. Prevent fire on safety release.	Yes.
2. Retrofittable design	Yes
3. Placement of safety lever in "safe" position ensures engagement.	Yes
4. Trigger assembly must be manufacturable	Probably. Have only produced four prototypes
5. Tamper evident design	Yes. Assuming safety retaining clip and "locktite" work
6. Trigger pull 3.0 - 5.0 lbs.	Yes. Trigger pull adjustment added
7. Equivalent feel and performance	Probably
8. Pass all SAAMI drop and jar off tests	Probably
9. Fire control must pass all functional testing	Probably
Nice to Have:	
1. Will not fire if trigger is pulled and held rearward as safety is moved from safe to fire position	No
2. Skeletonized side plates	No
3. Cost reduction	Unknown
4. Part reduction	No
5. Balanced Trigger	Yes
6. Ambidextrous design	Yes

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High Plunger Design

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Required:	
1. Prevent fire on safety release.	Yes
2. Retrofittable design	No. Is not retrofittable to Model 7, will require receiver cut
3. Placement of safety lever in "safe" position ensures engagement.	Yes
4. Trigger assembly must be manufacturable	Yes
5. Tamper evident design	Yes. Assuming safety retaining clip and "locktite" work
6. Trigger pull 3.0 - 5.0 lbs.	Yes. Adding adjustment
7. Equivalent feel and performance	Probably.
8. Pass all SAAMI drop and jar off tests	Yes. To date all triggers have passed SAAMI drop tests
9. Fire control must pass all functional testing	No. 2 out of 4 assemblies tested followed down in slam test.
Nice to Have:	
1. Will not fire if trigger is pulled and held rearward as safety is moved from safe to fire position	Not consistently
2. Skeletonized side plates	No
3. Cost reduction	Unknown
4. Part reduction	No
5. Balanced Trigger	Yes
6. Ambidextrous design	Yes

General Test Procedure

- ☐ Measurements
 - ✓ Trigger pull, safety "on" / "off" forces, sear engagement, sear lift, trigger preplay, total trigger travel
- ☐ Safety function test
- ☐ Live fire 100 rounds
- ☐ SAAMI drop, jar off, and rotation tests
- ☐ Dry Cycle for 10,000 cycles operating the safety lever
- ☐ Repeat measurements and safety function test
- ☐ Lubricate per M/700 owners manual
- ☐ Repeat trigger pull measurement
- ☐ Repeat SAAMI drop, jar off, and rotation tests
- ☐ Repeat till 50,000 cycles

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SAAMI Drop Test

☐ Jar Off Test - 12 inch Drop - Safe Off

- ✓ Barrel Vertical, Muzzle Up
- ✓ Barrel Vertical, Muzzle Down
- ✓ Barrel Horizontal, Bottom Down
- ✓ Barrel Horizontal, Bottom Up
- ✓ Barrel Horizontal, Left Side Up
- ✓ Barrel Horizontal, Right Side Up

☐ Drop Test - 48 inch Drop - Safe On

- ✓ Barrel Vertical, Muzzle Up
- ✓ Barrel Vertical, Muzzle Down
- ✓ Barrel Horizontal, Bottom Down
- ✓ Barrel Horizontal, Bottom Up
- ✓ Barrel Horizontal, Left Side Up
- ✓ Barrel Horizontal, Right Side Up

☐ Rotation Test - Safe On

- ✓ Left Side Up
- ✓ Right Side Up

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Test Data Summary

Sample size: 12 each high plunger and M700

Description	Mean	STD	Min	Max	Range
HP - Pull	4.81	.582	4.12	6.18	2.06
M700 Pull	5.73	.770	4.46	7.26	2.80
HP Safe On	6.35	1.15	3.67	7.63	3.96
M700 Safe On	4.65	3.54	1.87	10.33	8.46
HP Safe Off	7.0	1.23	5.37	8.77	3.40
M700 Safe Off	5.55	1.96	3.83	10.80	6.97

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High Plunger Design Issues

Issue	Status
Model 7 retrofit	Drawings must be modified to add receiver cut and plan implemented to modify existing receivers
Slam Test Failure	Firing pin follow down in gallery after bolt slammed shut. Believe problem is fixed engagement step
Tamper evident safety clip	Samples in this week.
Modify safety detent spring	Material and grain direction spec changed
Trigger pull adjustment	Adjustment will be done through the front spacer
Safety strength strap	Stock clearance causing some difficulties. Proposed design uses rivet and slotted safety

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Fire Control Requirements

- ☐ Solve FSR
- ☐ Forced engagement
- ☐ Retrofitability
- ☐ Tamper evident design
- ☐ Trigger pull 3.0 - 5.0 lbs.
- ☐ Must pass functional tests and SAAMI drop and jar off tests
- ☐ Manufacturability
- ☐ Feel and performance commensurate with current M700 trigger

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