

Report# 920431

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Work Order# 481167

MODEL 700 STAINLESS STEEL, DESIGN ACCEPTANCE

PROCEDURE:(cont.)

MEASUREMENTS:(cont.)

**BOLT OPENING FORCE:** The Hunter L-20 spring scale was used with a six inch extension, a hook tip, and a special adapter that fits over the bolt handle. The adapter is slipped over the bolt handle and the spring scale is pulled upward in a direction perpendicular to the bore. Care was taken to pull evenly and not jerk the scale, so that the readings would not be influenced by inertia. The scale is observed as the bolt is cammed open and the highest reading is taken as the bolt opening force. An average of three readings was taken for each rifle.

FUNCTION/ENDURANCE:

The function/endurance testing was conducted in the Research shooting room, located in building 52-1-A. The rifle was loaded, one round in the chamber and four rounds in the magazine (three for magnum caliber rifles). The rifle was then fired, the bolt cycled, etc. until the rifle was empty. Any malfunctions or observations were recorded. This procedure was then repeated. The rifles were air cooled every twenty rounds and cleaned as needed, about every 1000 rounds.

ACCURACY:

All accuracy testing was shot at 100 yards in the Research range, located below building 52-1.

All accuracy testing was done from the seated bench rest position.

Three, five shot groups were shot at 0, 2000, and 4000 rounds with two rifles of each caliber.

The rifles were air cooled and the bores were cleaned after each group.

The targets were analyzed for group size using the HP 9000 computer and digitizing tablet.

STRENGTH:

Four bullets were lodged in the bore of each rifle to be tested.

A high pressure round was developed using the reloading and P&V facilities.

The high pressure round was fired in the "Iron Lung" in the measurement lab.

Data and results concerning the strength testing can be found in Appendix D.