January 1984

DROP TESTS
TEST LAB PROCEDURE
PENDULUM METHOD

The Pendulum Method is recommended due to the repeatability with little or no deviation.

Two impact media's are used:

- Hard Rubber

  Durometer Reading - 50/60 Shore A 1" thick hard rubber mounted onto brick or other masonary material wall.

- Maple Plank

  2" thick maple or other hardwood material mounted onto masonary wall.

Six Drop Positions are utilized:

1. Muzzle
2. Butt
3. Left Side
4. Right Side
5. Top Side - Sight Line
6. Bottom Side - Trigger

The firearm is fastened to plastic coated steel cables at the pistol grip and Barrel areas.

GUIDELINES FOR TESTING

SET-UP

- One cable per fastening location to be used for: Topside, bottomside, left and rightside positions.
- Two cables per fastening location to be used for: Muzzle and Butt positions.
- Cable to be used - 3/16" plastic coated tiller cable.
- Refer to Page 6 & 7 for cable placement and firearm.

Guidelines for Testing - Contd.

Set-up - Contd.

- Adjust firearm placement so that gun is perpendicular and parallel to floor prior to each drop.

MEASUREMENTS:

The following measurements should be taken prior to and at the completion of each drop test:

- Headspace
- Firing Pin Indent
- Trigger pull
- Safe ON/OFF forces
- Trigger pre-play)
- Sear engagement) depending on model tested
- Sear lift)
- Gun weight

Note: If a firing occurs during the test it may be beneficial to conduct the above measurements before continuing to record any change in the parts evaluated.

STOCK/WOOD BREAKAGE:

- Periodically during the drop test the firearm will experience cracks or breakage of the wood due to the severe impact during various positions of drop. When these cracks or breakages occur, the wood should be replaced.

FIRING PIN INDENT DURING TEST:

- It is essential to record firing pin indent during a drop test. Indent is very important when evaluating a firearm with an inertia firing pin design.

Guidelines for Testing - Contd.

DROP TEST PROCEDURE:

SAFETY:

Safety is a prime factor in conducting a test. Watch out for wood splinters and flying parts. Close-off drop area so that no one walks in front of firearm during a drop. The protection of both the people in the area and the people conducting the drop tests is a priority requisite of the test coordinator.

IDENTIFICATION:

It is essential that the technician provide an accurate description of the type of fire control and firearm being tested.

- New design, design change, vendor part.
- Print numbers of changes.
- Change in material or Heat Treat.
- etc.

LUBRICATION:

- Follow the prescribed lubrication procedures explained in this text. Lubricate all fire control assemblies prior to the start of test, including controls.

- Periodically the technician may have to deviate from established lubrication practices to conform with special requests from engineers and supervision.

MEASUREMENTS:

Conduct all measurements as described in Guidelines.

Guidelines for Testing - Contd.

SET-UP:

Refer to guidelines for use of cables, aligning firearm and adjustments.

The drop height is determined by holding the firearm against the impact area and placing a mark on a measuring stick which indicates the centerline of the action. (Receiver) The actual drop height is then marked off using this line as 0 (zero) height.

ACTUAL DROP STANDARDS:

1. The present setup produces drop heights of 0 to 6 feet.
2. Testing should be conducted in one foot intervals starting at one foot.
3. A minimum of three drops per position should be conducted.
4. The Trigger should be pulled and the action cycled after each drop.
5. All tests should be conducted with safety in ON and OFF positions. When the safety is in the ON position, record when inertia of impact moves the safety to the OFF position.
6. Copper crushers should be used throughout complete test to determine jar-off or firing pin movement.
7. If the hammer and/or striker falls or the firing pin contacts the crusher, reduce drop height in 6" intervals until the fire/fall - no fire/fall height is determined.
8. Position the gun parallel to the impact area before releasing it.

USE OF IMPACT MEDIA:

Both impact medias should be used for all drop tests conducted.

The 1" Rubber media would be the primary media for all tests.

The 2" hardwood media would be the extreme test media.

Guidelines for Testing - Contd.

IMPACT MEDIA TEST CRITERIA:

All Remington firearms should pass the following tests:

* - WITH SAFETY SWITCH ON -

  - o Four (4) foot drop onto 1" rubber using all six positions.

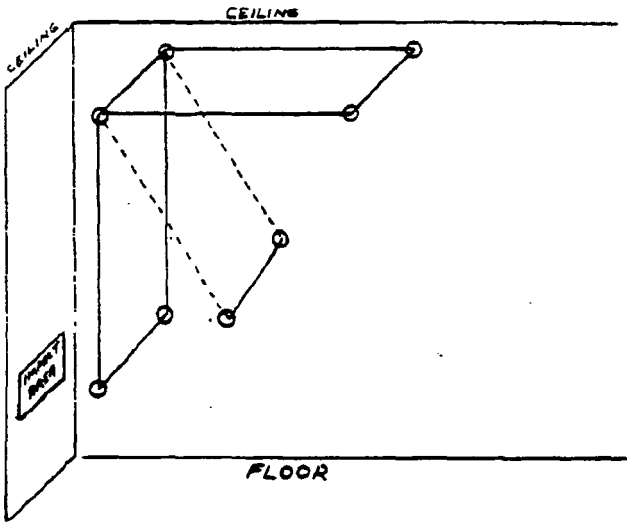
* - WITH SAFETY SWITCH OFF -

  - o One (1) foot drop onto 1" rubber using all six positions.

* Per accepted SAAMI Drop Test Criteria dated February 7, 1983 (attached).

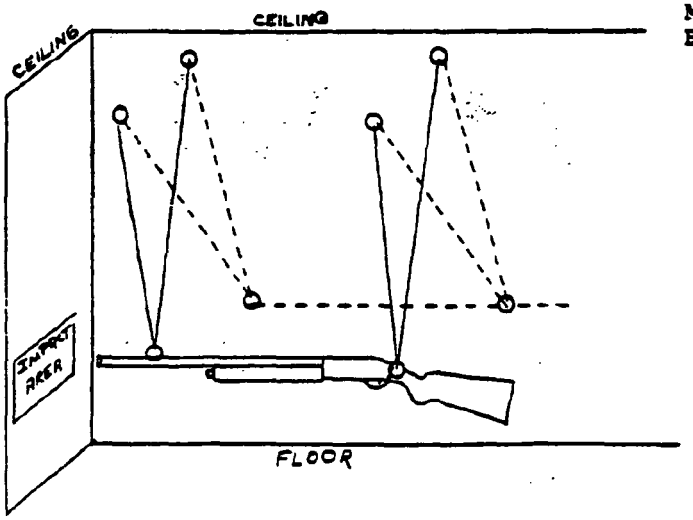
SET-UP ILLUSTRATIONS

A. One cable per fastening location to be used for:



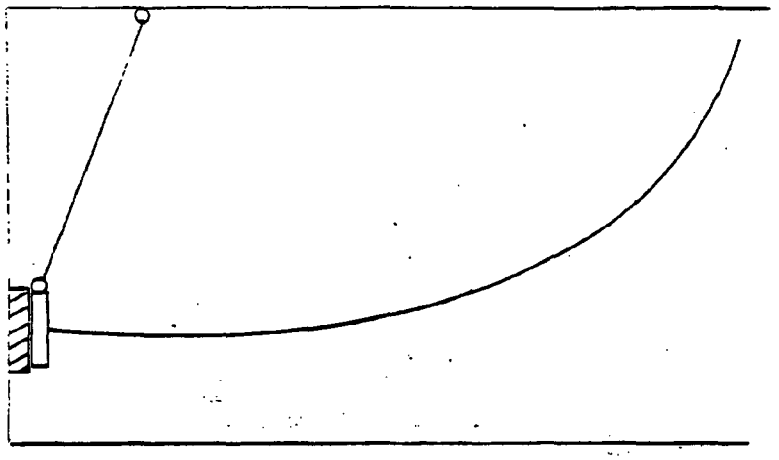
Right Side
Left Side
Top Side
Bottom Side

B. Two cables per fastening location to be used for:



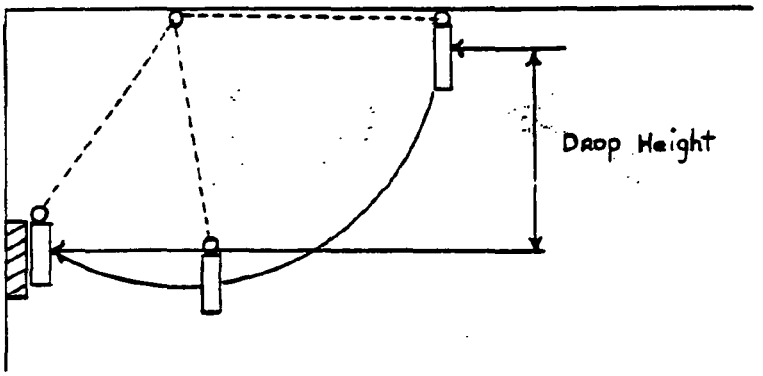
Muzzle
Butt

C. Firearm Placement



Adjust firearm placement so that gun is parallel and square to the impact area. Gun is to be leveled in each position prior to drop.

D. Determining Drop Height



- Drop height is determined from center line of action at rest against impact area
- 0 to 6 foot drops can be conducted with present set-up.