

## MEASURING FIRING PIN INDENT AND TRIGGER PULL

### INTRODUCTION

Note: Both measurements are explained together because they are measured simultaneously.

### DEFINITIONS

#### Firing Pin Indent

The impression made by the firing pin in the primers of shotshells, centerfires, or the rim of rimfire cartridges. This impression made by the firing pin is measured with the use of copper crushers. The crusher simulates the primers of various ammunition types.

#### Trigger Pull

The amount of force which must be applied to the trigger of a firearm to cause sear or hammer release. It is measured with a pull scale that touches the trigger at the point where the trigger finger would normally rest, with the force applied in an upward angle to the trigger.

### PURPOSE

#### Firing Pin Indent

Firing pin indent is measured to insure against misfires chargeable to the firearm. The measurements must fall within the specified limits for the various firearms.

#### Trigger Pull

Trigger pull is measured to insure that all Remington sporting arms triggers are comfortable in pull for the prospective gun owners.

### LAB REQUIREMENTS

- o All firearms brought to the Test & Measurements Lab must have Firing Pin Indent and Trigger Pull measurements taken before testing.
- o A total of five (5) firing pin indents and five (5) trigger pulls must be taken on each firearm.

# FIRING PIN INDENT AND TRIGGER PULL MEASUREMENTS

## TYPE AND DESCRIPTION

### TYPE (Firing Pin Indent Measurement)

There are two methods of measuring firing pin indent; (Fig. #1)

1. Crusher holder with copper crusher cylinder
2. Rimfire firing pin indent crusher and holder

Fig. No. 1



### 1. CRUSHER HOLDER WITH COPPER CRUSHER CYLINDER

This method is used to measure firing pin indent on these firearms:

- Shotguns (Pumps and Autoloading)
- Centerfires (Pumps, Autoloading, and Bolt Action)

There are crusher holders available in the Test Lab tool crib for every gauge and caliber firearm produced by Remington. They include:

#### Shotgun

12 Ga.	28 Ga.	16 Ga.
20 Ga.	410 Ga.	

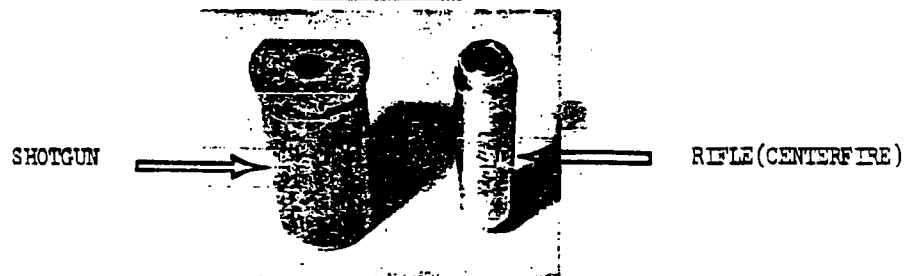
1. Centerfire

17 Cal.	7mm Express Rem. Cal.
222 Cal.	308 Cal.
223 Cal.	30-06 Cal.
22-250 Cal.	25-06 Rem. Cal.
243 Win. Cal.	7mm Rem. Mag. Cal.
6mm Rem. Cal.	300 Win. Mag. Cal.
7mm-08 Rem. Cal.	8mm Rem. Mag. Cal.
270 Win. Cal.	375 H&H Mag. Cal.
	458 Win. Mag. Cal.

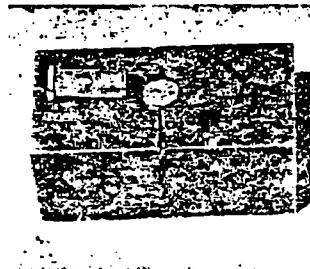
Description

The crusher holder houses the copper crush cylinder in the chamber of the firearm to simulate a live round. When the trigger is pulled the firing pin hits the copper crusher, leaving an indent. The indent is then measured on the copper crusher (explained in detail in Procedures for Measuring Firing Pin Indent).

The physical difference between the shotgun and centerfire crusher holders can be examined in Figure No. 2.

Fig. No. 22. RIMFIRE FIRING PIN INDENT CRUSHER AND HOLDER

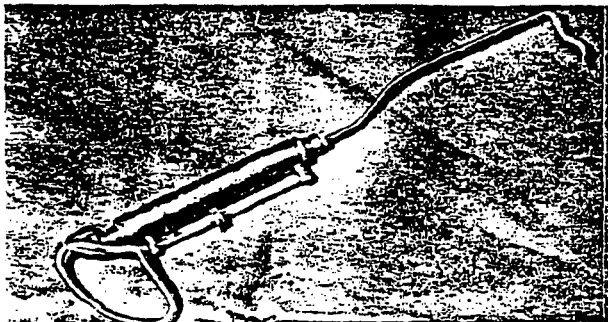
This method is used to measure rimfire rifles only. There is no chambered crusher holder as in shotguns and centerfires. The copper crusher is put directly into the chamber and after the rifle is dry fired the crusher is placed in a crusher holder and measured. (Fig. #3) A detailed explanation is in the Procedure for Measuring Firing Pin Indent.

Fig. No. 3

There is only one method used to measure trigger pull: (Fig. #3)

- Pull Scale (Used on all Firearms)

Fig. No. 3



There are three pull scales located in the Test Lab Tool Crib.

#### Description

When the pull scale is placed at the proper location and angle on the trigger, an even pull on the scale will dry fire the gun. An indicator on the scale will at the amount of pounds force required to pull the trigger, allowing the sear or hammer to release.

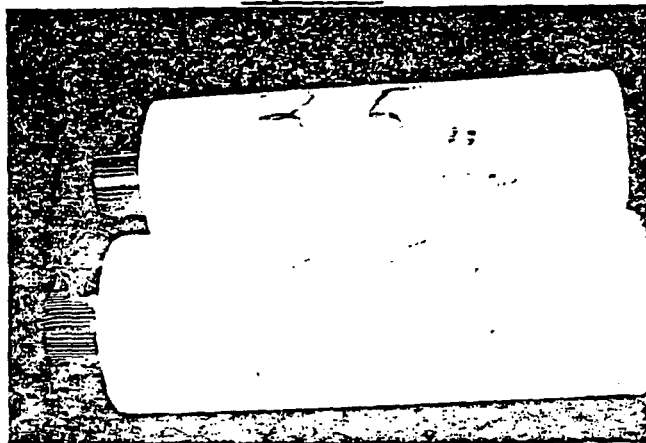
#### Trigger Pull Scale Calibration

Before measuring trigger pull, the pull scale should be checked for calibration. This is done to assure that the scale is not out of adjustment, which would result in an invalid measurement. There are two dead weights in the Test Lab used to check the scales. One is labeled "3.5lbs." and the other "5.0lbs."

Take a pull scale and lift one of the weights. Now look at the red indicator and see what it reads. If you used the 3.5lb. weight, that's what the scale should read. If it doesn't, the scale is out of adjustment; -Take it to Lab Supervision for adjustment, Do NOT do it yourself- The scale should be checked with both weights, to assure that it works on the high and low end.

Fig. #4, shows what the weights look like:

Fig. No. 4



PROCEDURE FOR MEASURING FIRING PIN INDENT AND TRIGGER FULL

ON

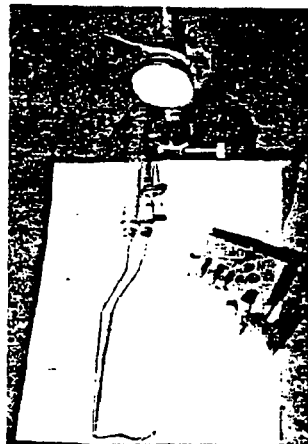
BOLT ACTION RIFLES, CENTERFIRE, AND SHOTGUNS (PUMPS & AUTOLoadERS)

I. METHOD: CRUSHER HOLDER WITH COPPER CRUSHER CYLINDER

A. Equipment Needed (Fig. #1)

- Copper Crusher Cylinders (annealed)
- A pedestal mounted dial indicator, graduated in .005" of an inch.
- Deburring plate
- The crusher holder for the gauge or caliber of the firearm.
- Trigger Pull Scale
- Test Procedure Sheet

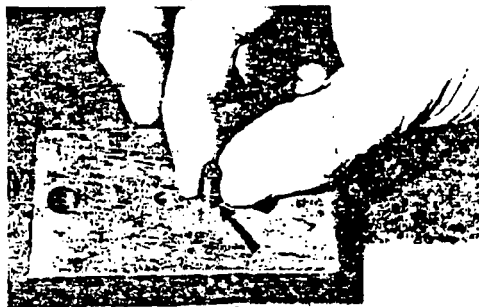
Fig. No. 1



B. Procedure

1. Thoroughly clean the chamber of all residue or lubrication. Use a felt cloth and a cleaning rod to do this.
2. Place the firearm into the gun saddle and put the safety switch to the "on" position. ("S" position for the Bolt Actions)
3. Take a copper crusher and vigorously rub one end on the deburring plate until a bright copper color appears. When this occurs, the crusher is deburred. (Fig. #2)

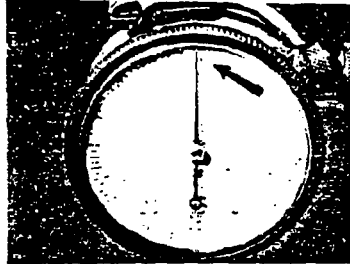
Fig No. 2



B. (CON'T)

4. Place the copper crusher onto the dial indicator platform (deburred end on the platform) and set the stylus down to the center of the crusher. Now adjust the dial on the face plate until it reads "0". (Fig.#3)

Fig. No. 3



5. Now that the indicator has been calibrated to the crusher, remove the crusher and place it into the crusher holder. (deburred end goes in first) (Fig.#4) \*Now insert the assembly into the chamber. Be sure that the chamfer of the holder faces out. (Fig.#5) This assures you that the extractor will not grab the holder on opening.

Fig. No. 4

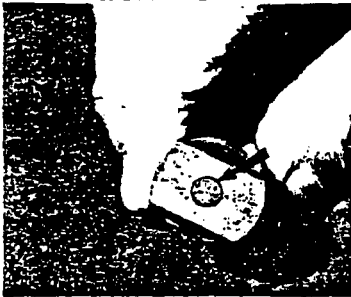
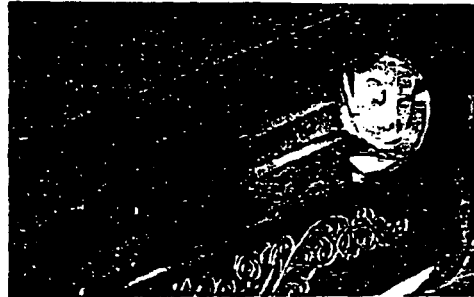


Fig. No. 5



6. Now slowly close the bolt. Be sure that the bolt is fully locked up before the measurements are taken. Full lock up--Bolt Action-bolt handle locked down--Autoloader--the operating handle in its' extreme forward position--Pump--the disconnector in its' down position. (Figs. #6-#7-#8)

Fig. No. 6



Fig. No. 7



Fig. No. 8



\* If the firearm is an autoloader, be sure to hold a thumb securely on the bolt handle to prevent an injury to the fingers if the bolt prematurely closes.

## B. (CON'T)

7. Put the safety switch into the "OFF" position. (Centerfires to the "F" position.)
8. Slide the red indicator to "0" pounds on the trigger pull scale.
9. Place the hook of the scale onto the trigger. Let the trigger rest in the well of the hook. (Fig. #9) Hook the trigger so that the scale runs along side of the left pannel of the stock. (Fig.#10)

Fig. No. 9

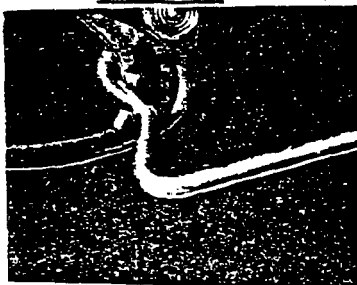
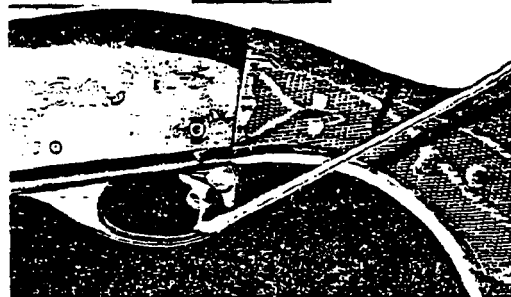
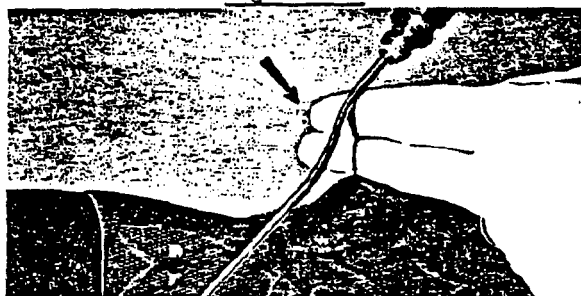


Fig. No. 10



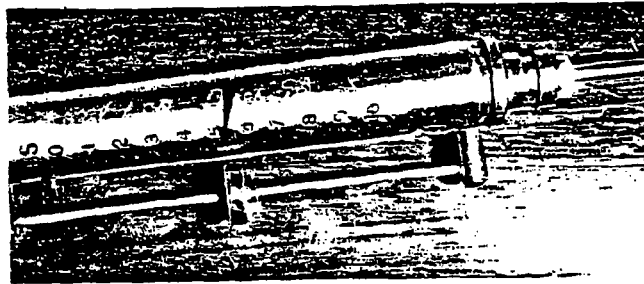
10. Position your index and middle fingers on top of each other and place them on the comb of the stock. Now rest the pull scale over the two fingers. (Fig. #11) This is called "The Two Finger Method Of Measuring Trigger Pull".

Fig. No. 11

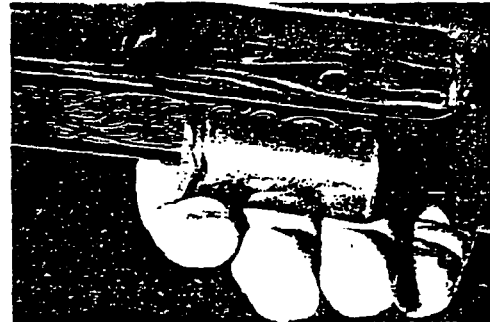


- II. Now grasp the handle of the pull scale and slowly pull it rearward. When you hear the hammer (or striker) fall "STOP" pulling on the scale. Unhook the scale from the trigger. Be careful not to pull on the scale when you remove it from the firearm, this may move the indicator and give you a false reading. Where the flat of the red indicator stops is the measured trigger pull in pounds. The scale is graduated in .250 lbs. In figure #12, the trigger pull is "5.250 lbs". Record this on the Test Procedure Sheet, under Trigger Pull. This is the first of three trigger pulls to be measured.

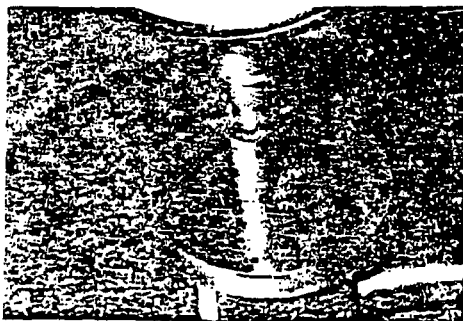
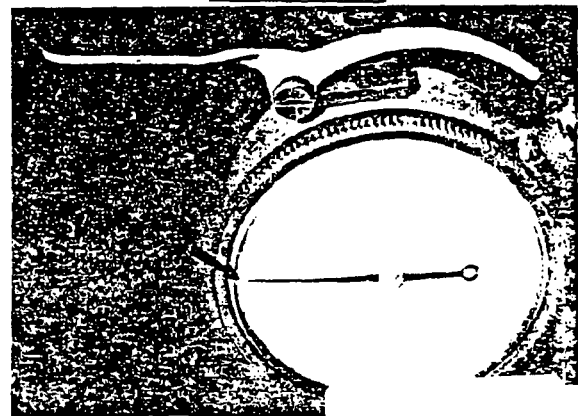
B. (CON'T)

Fig. No. I2

- I2. After you have recorded the trigger pull, open the action and remove the crusher holder. Do this by tipping the gun rearward, while holding the gun on its side with the port facing the palm of your hand. (Fig. #I3) Sometimes the copper crusher falls out of the holder during this process. If this happens, shake the gun on its side until the crusher falls out of the port.

Fig. No. I3

- I3. Place the copper crusher (deburred end down), onto the platform of the dial indicator. Lower the stylus into the firing pin indent. Gently move the crusher around until the stylus point locates the deepest point of the indent. The deepest point of the indent is the highest number that the dial arm stops at. (Figs. #I4 & I5)

Fig. No. I4Fig. No. I5



B. (CON'T)

In Fig. #15, the firing pin indent measures .0125".  
(The dial is graduated in .0005") Put this measurement  
on the Test Procedure Sheet under Firing Pin Indent.  
This is the first of three firing pin indent measurements  
to be measured.

- I4. Repeat steps 3 through I3, two more times. Record  
all data on the Test Procedure Sheet. At the end of  
the third trial, the Test Procedure Sheet should look  
like this: Firing Pin Indent(in.)

1. .0125"
2. .013"
3. .012"

Trigger Pull(lbs.)

1. 5.25
2. 5.00
3. 5.50

- I5. Remington has set standards for trigger pull and firing  
pin indent measurements. If the mean figure of either  
measurement doesn't fall within the standards, note  
this on the Test Procedure Sheet and notify Lab Supervision.  
The standards are;

<u>MODEL</u>	<u>TRIGGER PULL</u>	<u>FIRING PIN INDENT</u>
Mohawk IOC	3.5 - 6.5 lbs.	.014"min. - .016"max.
40XB Sporter	3.0 - 5.0 lbs.(sealed at factory)	.019" min.&max.
40XR	2.0 - 4.0 lbs.	.019" min.&max.
Nylon 66	3.5 - 6.5 lbs.	.014"min. - .016"max.
540XR & Junior	1.0 - 5.0 lbs.	-----
54I-S Custom Spt.	3.0 - 5.0 lbs.	.017"min. - .025"max.
552	3.5 - 6.5 lbs.	.014"min. - .016"max.
572	" " "	.016"min. - .018"max.
580-581-582	" " "	.017"min. - .025"max.
40X C.F.	1.5 - 3.5 lbs.	.018"min. - .026"max.
40XC	2.0 - 4.0 lbs.	" "
XP-100	1.5 - 2.750 lbs.	" "
Mohawk 600	4.0 - 6.0 lbs.	" "
700	3.0 - 5.0 lbs.	" "
700 Custom	" " "	" "
700 Classic	" " "	" "
700 Sniper	3.0 - 3.5lbs(sealed at factory)	" "
700 Varmint	2.0 - 4.0 lbs.	" "
742,7400,Four,		
760,7600,Six	3.5 - 6.5 lbs.	.019"min. - .025"max.

B. (CONT)

STANDARDS CONTINUED

<u>MODEL</u>	<u>TRIGGER PULL</u>	<u>FIRING PIN INDENT</u>
788	3.5 - 6.5 lbs.	.018"min. - .018"max.
870-Field, Mag., Deer & Police	3.5 - 6.5 lbs.	.013"min. - .018"max.
870 Trap-Skeet	3.5 - 5.0 lbs.	.013"min. - .018"max.
1100-Field, Mag., and Deer	3.5 - 6.5 lbs.	" "
1100 Trap-Skeet	3.5 - 5.5 lbs.	" "
3200	3.0 - 5.5 lbs.	" "

This ends the procedure to measure Trigger Pull and Firing

Pin Indent for ;

- Bolt Action Rifles
- Centerfire Rifles (Pumps and Autoloaders)
- Shotguns (Pumps and Autoloaders)

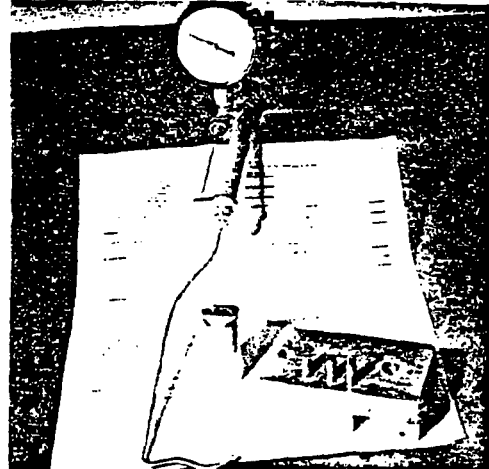
PROCEDURE FOR MEASURING FIRING PIN INDENT AND TRIGGER FULL  
ON  
BREAK OPEN FIREARMS

I. METHOD: CRUSHER HOLDER WITH COPPER CRUSHER CYLINDER

A. Equipment Needed (Fig.#1)

- o Copper Crusher Cylinders (annealed)
- o A pedestal mounted dial indicator, graduated in .005" or an inch.
- o Deburring Plate
- o The crusher holder for the gauge or caliber of the firearm.
- o Trigger Pull Scale
- o Test Procedure Sheet

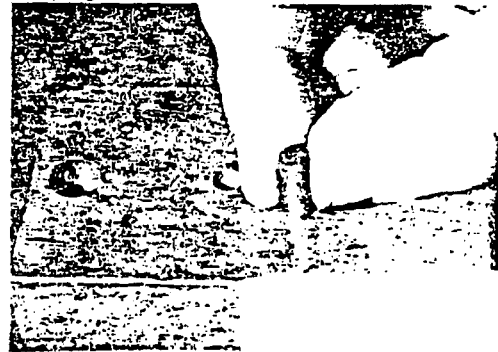
Fig. No. 1



B. Procedure

1. Thoroughly clean the chamber (or chambers if a double barrel), of all residue or lubrication. Use a felt cloth and a cleaning rod to do this.
2. Place the firearm into the gun saddle and put the safety selector to the "S" position.
3. Take a copper crusher and vigorously rub one end on the deburring plate until a bright copper color appears. When this occurs, the crusher is deburred. (Fig.#2)

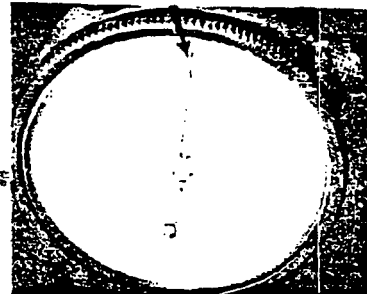
Fig. No. 2



B. (CON'T)

4. Place the copper crusher onto the dial indicator platform and set the stylus down to the center of the crusher. Now adjust the dial on the face plate until it reads "0". (Fig.#3)

Fig. No. 3

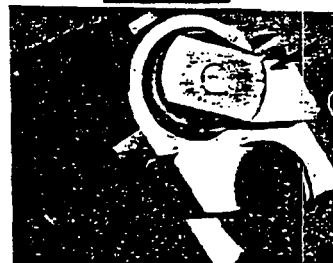


5. Now that the indicator has been calibrated to the crusher, remove the crusher and place it into the crusher holder. (deburred and goes first) (Fig.#4) Now insert the assembly into the chamber. Be sure that the radius of the holder faces the ejector. (Fig.#5) This assures you that the ejector will not eject the holder when the gun is opened.

Fig. No. 4



Fig. No. 5



6. Slowly close the gun. DON'T SLAM IT CLOSED. Be sure that the gun is fully locked up. Full Lock Up-- the operating lever should be in the center position-- (Fig.#6)

Fig. No. 6



B. (CON'T)

7. Put the safety switch to the "OFF" position. (If a double barrel, push the switch to "T" or "B". \*
8. Slide the red indicator to "0" pounds on the trigger pull scale.
9. Place the hook of the scale onto the trigger. Let the trigger rest in the well of the hook. (Fig.#7) Hook the trigger so that the scale runs along side of the left pannel of the stock. (Fig.#8)

Fig. No. 7

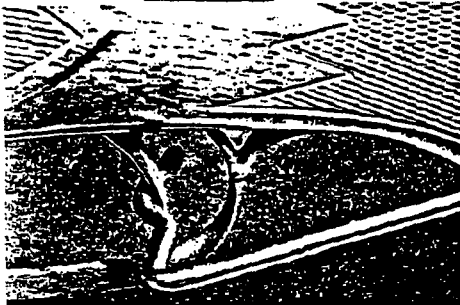
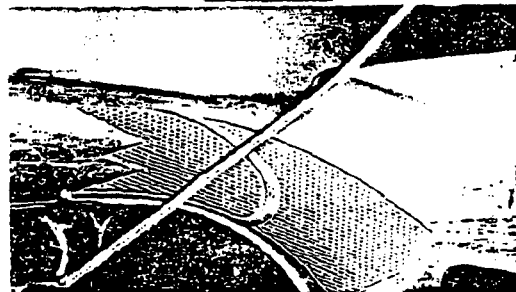
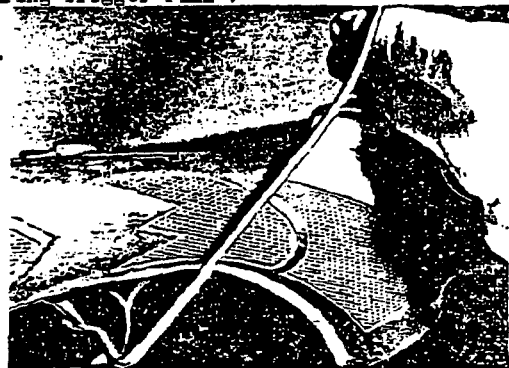


Fig. No. 8



10. Position your index and middle fingers on top of each other and place them on the comb of the stock. Now rest the pull scale over the two fingers. (Fig.#9) This is called "The Two Finger Method Of Measuring Trigger Pull".

Fig. No. 9

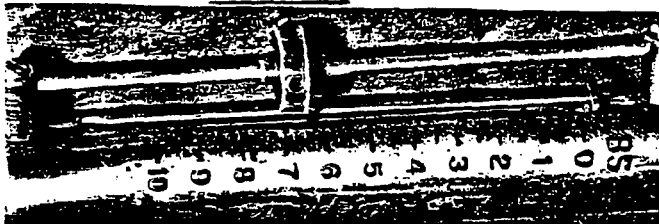


- II. Now grasp the handle of the pull scale and slowly pull it rearward. When you hear the hammer fall, "STOP" pulling on the scale. Unhook the scale from the trigger. Be careful not to pull on the scale when you remove it from the firearm, this may move the indicator and give you a false reading. Where the flat of the red indicator stops, is the measured trigger pull in pounds. The scale is graduated in .250 lbs.. In figure #10, the trigger pull is "6.50 lbs.". Record this on the Test Procedure Sheet, under Trigger Pull. This is the first of three pulls to be measured. (If a double barrel, you need to take three pulls and three indents per barrel.)

\* "T" or "B" denotes top or bottom barrel.

B. (CON'T)

FIG. NO. 10



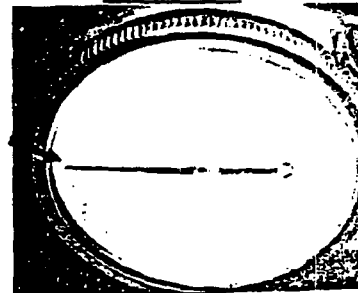
I2. After you have recorded the trigger pull, open the action and remove the crusher holder.

I3. Remove the copper crusher from the holder and place it (deburred end down), onto the platform of the dial indicator. Lower the stylus into the firing pin indent. Gently move the crusher around until the stylus point locates the deepest point of the indent. The deepest point of the indent is the highest number that the dial arm stops at. (Figs. #11 & 12)

Fig. No. 11



Fig. No. 12



In figure #12, the firing pin indent measures .013". (the dial is graduated in .0005") Put this measurement on the Test Procedure Sheet under Firing Pin Indent. This is the first of three firing pin indent measurements to be measured. (If a double barrel, you need to take three firing pin indents and three trigger pulls per barrel)

I4. Repeat steps 3 thru I3. two more times. (If the firearm is a double barrel, after one barrel is measured, repeat the same procedures on the second barrel.). When all of the measuring is completed, the Test Procedure Sheet should look like this:

Firing Pin Indent(in.)

1. .013"  
 2. .0135"  
 3. .013"

Trigger Pull(lbs.)

1. 6.50  
 2. 6.00  
 3. 6.25

E. (CON'T)

I5. The Remington M/3200(break-open), and all other Competitive break-open shotguns must comply with the standards set for trigger pull and firing pin indent. The standards read:

M/3200 - Trigger Pull: 3.0 - 5.5 lbs.

Firing Pin Indent: .013"min. - .018"max.

If the standards aren't met, note this on the Test Procedure Sheet and notify Lab Supervision.

This ends the procedure for measuring Firing Pin Indent and Trigger Pull on Break-open Shotguns.