

MEMORANDUM TO: Wilson Pritchard and Floyd P. Brown

FROM: Abe Seiderman

DATE:

SUBJECT: G. I. type Tang Firing Pin

It has come to my attention that the free floating firing pin that exists in old military carbines has a definite <sup>relief</sup> dect. I find that it has a tendency to drive itself forward by inertia at the time the Bolt closes. The Tang on this firing pin was so designed to come in contact with the Receiver bridge which supposedly would retract this Firing Pin at time of closing.

- Causes:
1. I find so many variations in tang and bridge dimensions which makes this feature ineffective.
  2. There is a retaining cut of approximately  $\frac{1}{4}$  inch in dimension. The extractor intersects this relief cut which retains the firing pin in the bolt and prevents it from coming out of the bolt. Upon dry firing this relief cut is pined and causes a burr around the firing pin locking the firing pin in a forward position.
  3. The constant closing of this Bolt which causes the firing pin to come in contact with the bridge has a tendency to wear these mating surfaces allowing the firing pin to penetrate deeper into the Bolt.
  4. Upon firing the gun the Hammer is resting on the firing pin and as the bolt rotates this firing pin must climb the mating cut to retract itself causing excessive wear upon the bridge and firing pin.
  5. If these mating surfaces are not lightly oiled there is a metal to metal contact between the firing pin and the bridge producing friction which causes a binding effect on the bolt when opening.

Solution: It would seem to me that by eliminating the tang and inserting a heavy coil spring that this would prohibit the firing pin from moving freely in the Bolt during the loading cycle. This spring also should be designed to withdraw the firing pin on the extracting stroke eliminating the friction that is present with the G. I. tang firing pin. Please submit approximate costs of these modification and length of time for change of tooling. Provide a set of drawings of gauges necessary to maintain proper tolerances.

MISFIRES: Misfires are caused because of the following reasons:

1. A firing pin that is either short or broken.
2. A mainspring that has lost its compression strength.
3. Ammunition that has defective primer, either outdated or too hard to permit penetration of firing pin.
4. The M-1 carbine is so designed <sup>to</sup> to prohibit the firing of a shell that is in the chamber and not completely locked in position for firing. This is a safety feature that is not in all firearms, however, it is incorporated in our gun to prevent the accidental firing of a weapon when it is not completely in battery. This safety feature prevents the discharge of our rifle unless the cartridge is completely locked up. Causes for not chambering properly are:
  - a. Brass case that has not been properly sized to length.
  - b. A bullet that is not properly seated in a brass case.  
The above applies usually to reload ammunition.
  - c. A primer that is too high and has not been properly seated.
5. A chamber that has metal fouling which has accumulated over prolonged shooting which prevents the case from properly seating in the chamber.
6. The shooter when loading the weapon restrains or retards the Bolt from closing with full force which ~~permits~~ the Extractor from coming over the case. The Slide in all cases should be pulled rearward and let go and the force of the springs and weight and inertia should cause the Bolt to go into proper position.