



How to Keep Ceremonial M1 Garand Rifles Functioning Flawlessly and Safely

Jim Johannes*

Wisconsin American Legion Midwinter Conference

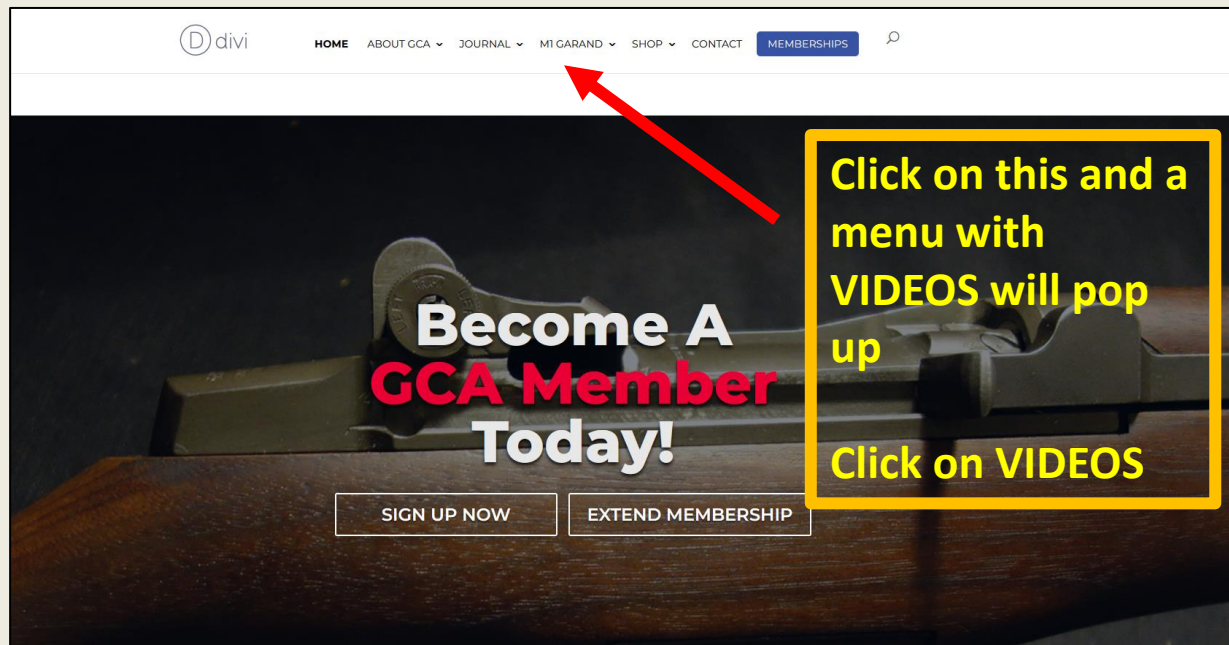


***Contact info at end of powerpoint.**

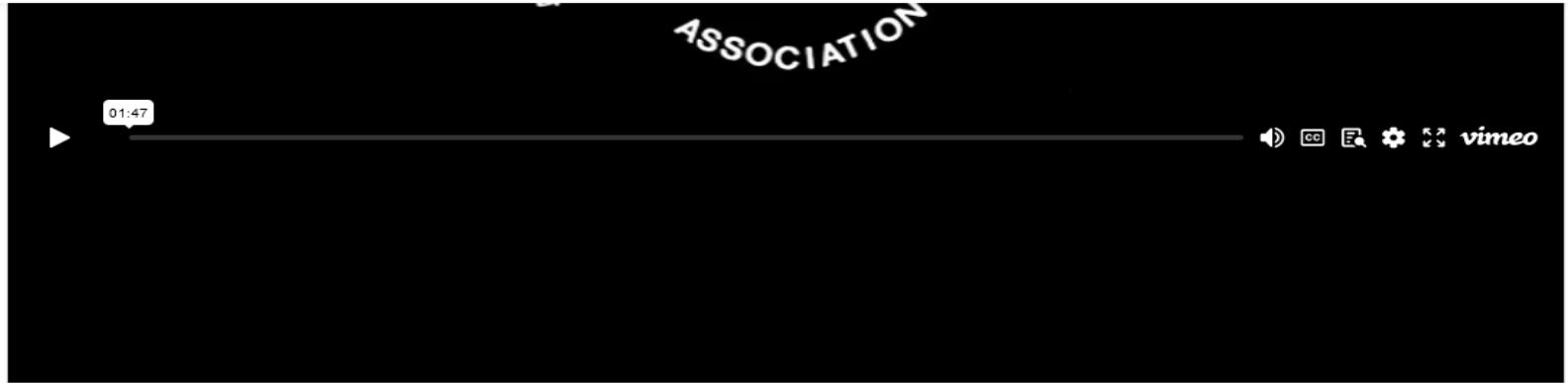
Note: Many slides in this presentation were taken from internet sites including the CMP site. I thank all those who posted these images on internet sites to help illustrate the workings of the M1 Garand.

Two Places to Get a Video on Proper Maintenance of Ceremonial M1

1. Garand
Collectors
Association



2. YOUTUBE: https://www.youtube.com/watch?v=g80jx1G_qUM



A Tour of CMP South

M1 Garand Ceremonial Rifle - Maintenance:



The 7th Round Stoppage

The CMP and the Philippine Garands

The Camp Perry Games

America's Rifle - The M1 Garand

**My video on
proper
maintenance**

divi

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M1 Garand Ceremonial Rifle - Maintenance:

 **Garand Maintenance**
Garand Collectors Association

M1 Garand

Maintaining and Servicing
Ceremonial M1 Garand Rifles

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The ROTC program
at the University of Wisconsin - Madison



Most common Rifle Failures

Rifle fires the first shot but

- Fired round does not eject. Action closes on the fired round and does not feed the next loaded round
- Ejects fired round but does not load the next round
- Ejects fired round but the next round jams or “stovepipes”



Eight common reasons for these common failures...



This list is not exhaustive. Other things can go wrong but are far less common!

The first two problems that cause these symptoms are simple but often overlooked!

1. Losing Powder!



2. Bad Clip! Bent, worn out



**Only use unfired blanks!
Reading the ammunition**

Fired

4th round

**Unfired not
4th round**

**Cannot trust the crimp! On some
rounds the crimp hardly opens**





**Believe it or not
these have all
been fired!**



Six Other Common Problems That Cause Failure to Feed/Extract in Ceremonial M1's (in order of what to look for)

3. Wrong Size Hole in the Blank Firing Adaptor (BFA)



4. A Bad Operating Rod (Op Rod) Spring



5. Improper Reassembly of the Gas System (Gas Cylinder, BFA and Gas Cylinder Screw)



6. Out of Spec Op Rod Piston (Op Rod Tip)



7. Out of Spec Gas Cylinder



8. Improper lubrication



Problem #3: The Hole in the BFA

Check to see that you have the correct hole in the Blank Firing Adaptor for the Blanks you are using!



Old Blank

New Blank



Old Blank

New Blank

If You are using the new blanks, the hole in the BFA needs to be .172



**.172 hole with the new blanks
I use 11/64 bit or a
#17 drill bit.**

**Drill it out while it is on
the rifle or remove it and drill it out in
vice.**



The hole for the old red blanks was about 9/64 or 5/32

**At this point I assume you
have disassembled the rifle.
There are many good on-line
videos on Disassembly and
Assembly**



**My video on the
Garand Collectors
Association website
or Youtube goes
through disassembly
& assembly.**

M1 Garand

**Maintaining and Servicing
Ceremonial M1 Garand Rifles**

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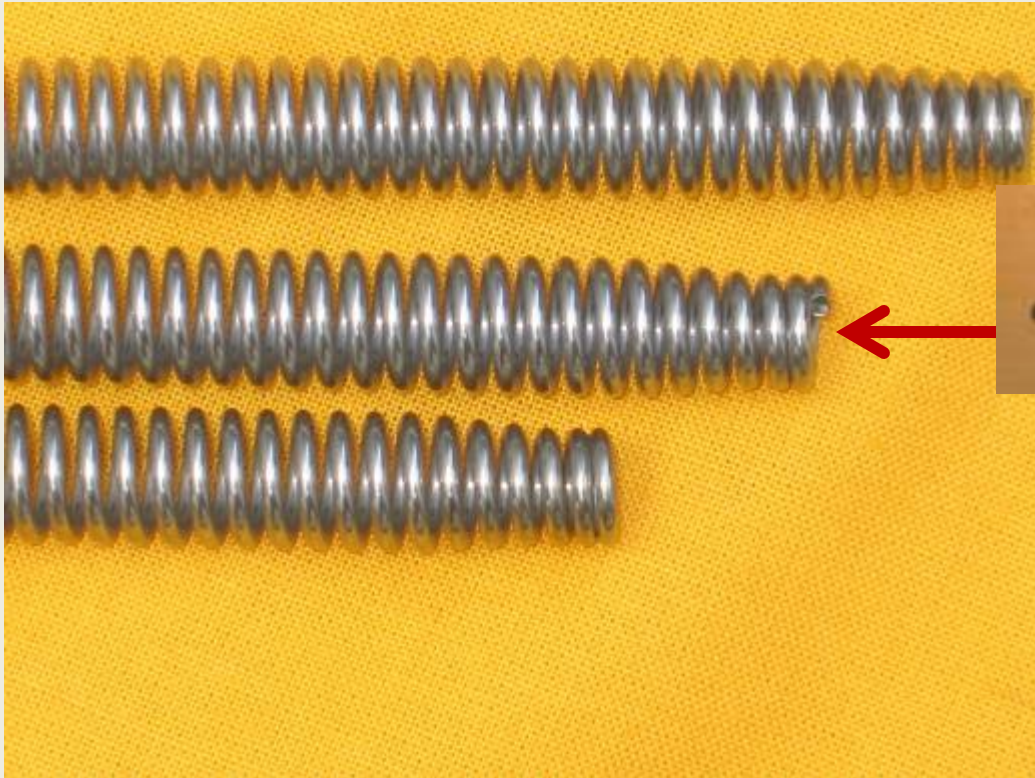
Problem #4: The Op Rod Spring



The spring should be 19" – 20.25" long and not kinked nor heavily worn (indicated by a lot of "silver" areas on the spring)



The follower rod goes into the narrower end of the op
rod spring



Sometimes there is a burr on the
follower rod here . Filing the burr
makes it easy to remove/add springs

You usually have to “twist” the spring on/off the follower
rod.

Problem #5: Incorrect Reassembly

Proper Gas Cylinder Alignment:

VERY IMPORTANT!!!!



An M1 works by sending gas through a hole in the barrel through a hole in the gas cylinder which drives the op rod rearward. Have to have the gas holes lined up!

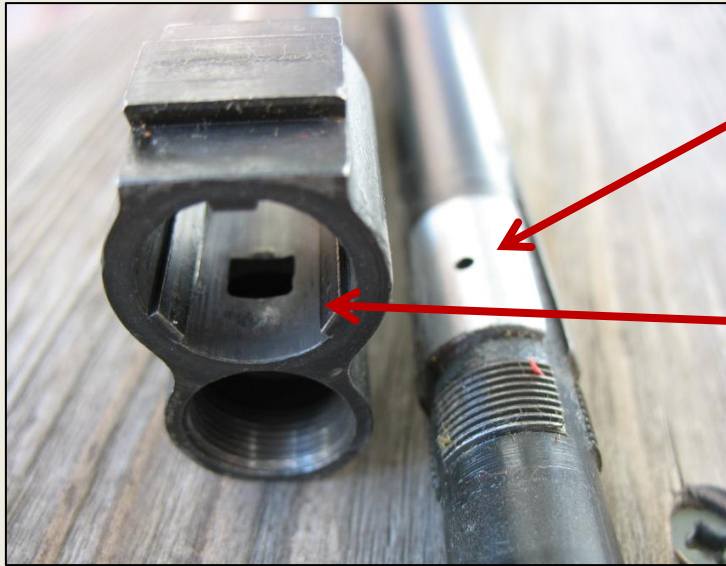


Rectangular cutout in the gas cylinder

Small round hole in the barrel $.079 \pm .0015$

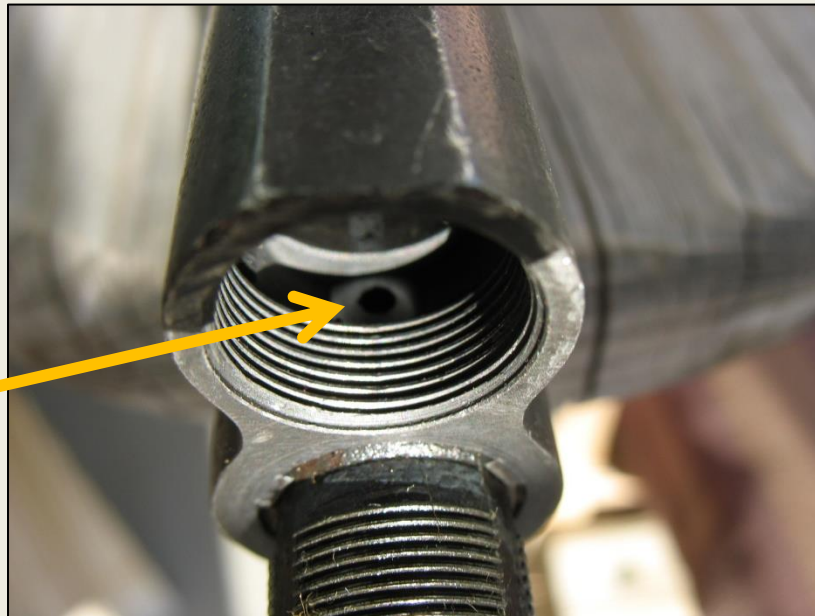
These two holes have to line up!

Hole in Gas Cylinder and Hole in Barrel



This round hole in the barrel must be centered in ...

the rectangular gas port in cylinder

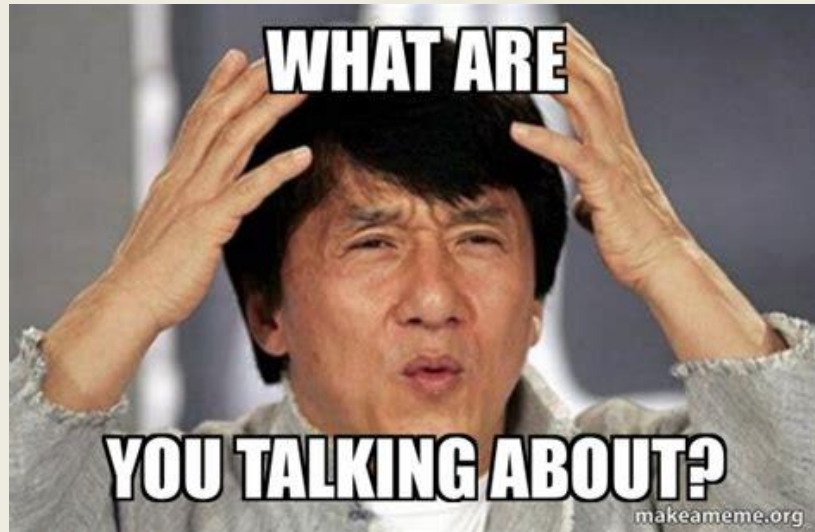


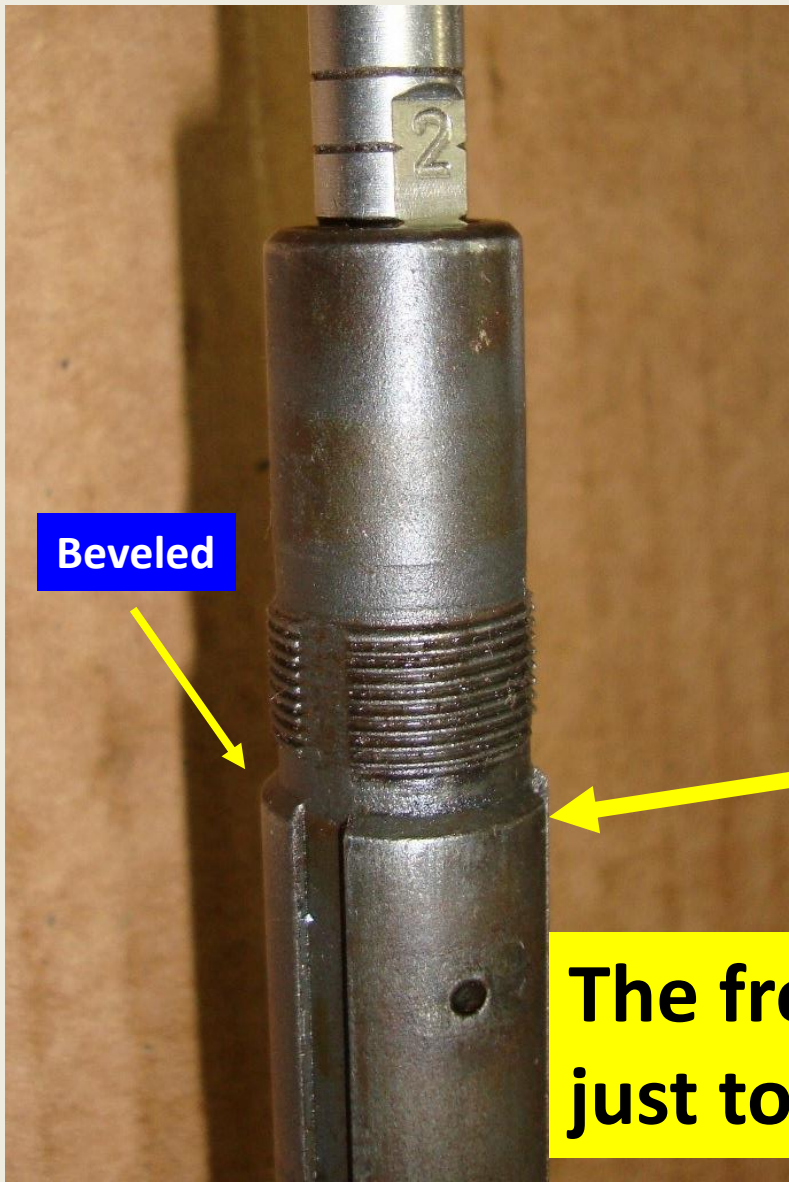
Proper alignment

But it is hard to see those holes!

How do I know things are aligned properly?

Use the bevel on the barrel pad!





Beveled



Post WW2
Chromed Pad

WW2 pad not
chromed

The front of the Gas cylinder goes just to the top edge of the bevel!

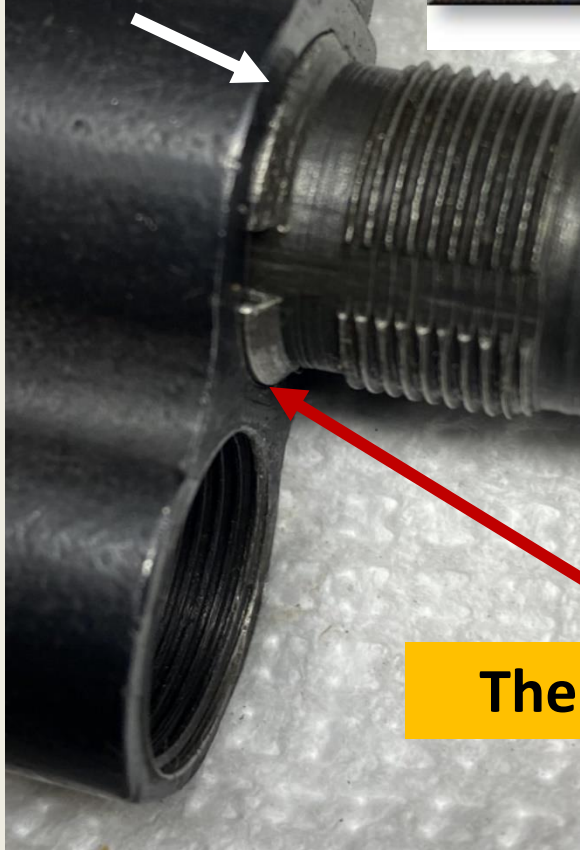
YES



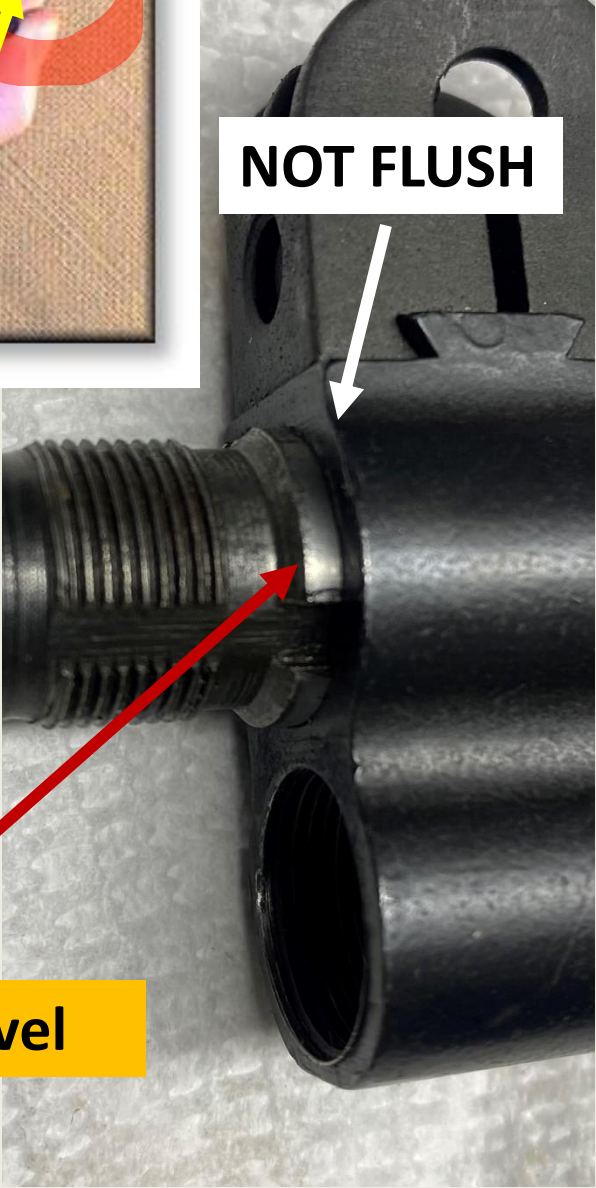
NO

Flush to bevel edge

NOT FLUSH

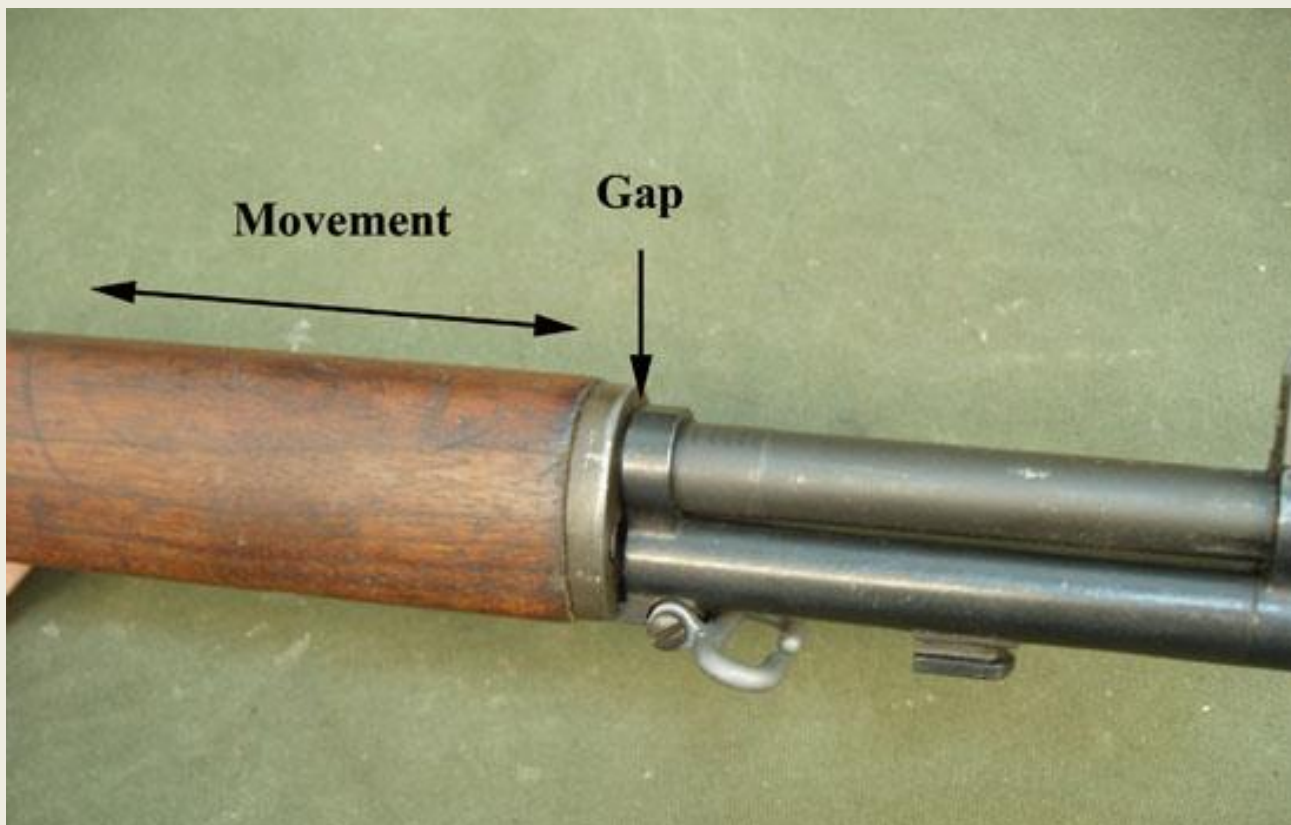


Positioning the Gas Cylinder



The back edge of the bevel

If the gas cylinder and port in the barrel are properly aligned, the front hand guard will (*in most cases*) be “loose”.

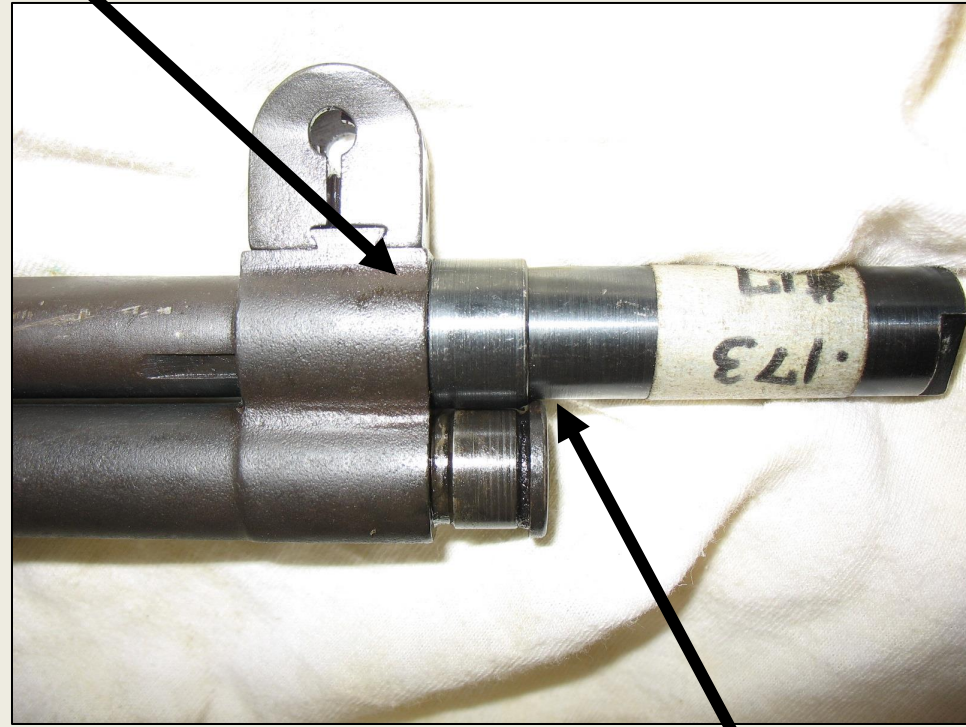


If the front hand guard is tight, there is a good chance that the cylinder is on too tight and the alignment of the hole in the barrel and the gas port on the Cylinder is incorrect.

1. Line up the gas cylinder properly and then screw the BFA on until it touches the gas cylinder. No further.

2. Do not screw it on until it stops! If you do that, you will move the cylinder to the rear and the hole alignment may be off.

3. Then, make sure the rim of the gas cylinder screw overlaps the rim on the BFA to help secure it in place



What if the hole in the BFA is correct, you have a good spring, the rifle is properly lubricated and the gas cylinder is installed correctly, and the rifle still fails to feed/extract properly? Then you probably have...



● Problem #6 - a bad op rod tip

● Problem #7 - a bad gas cylinder

The Op Rod and tab



Micrometer
Or
GI gauge



MAX: 0.5260"
0.5260" - 0.0007"
MIN: 0.5250"

.525 inches minimum
.526 max*



***CMP is experimenting with some larger pistons!!!**

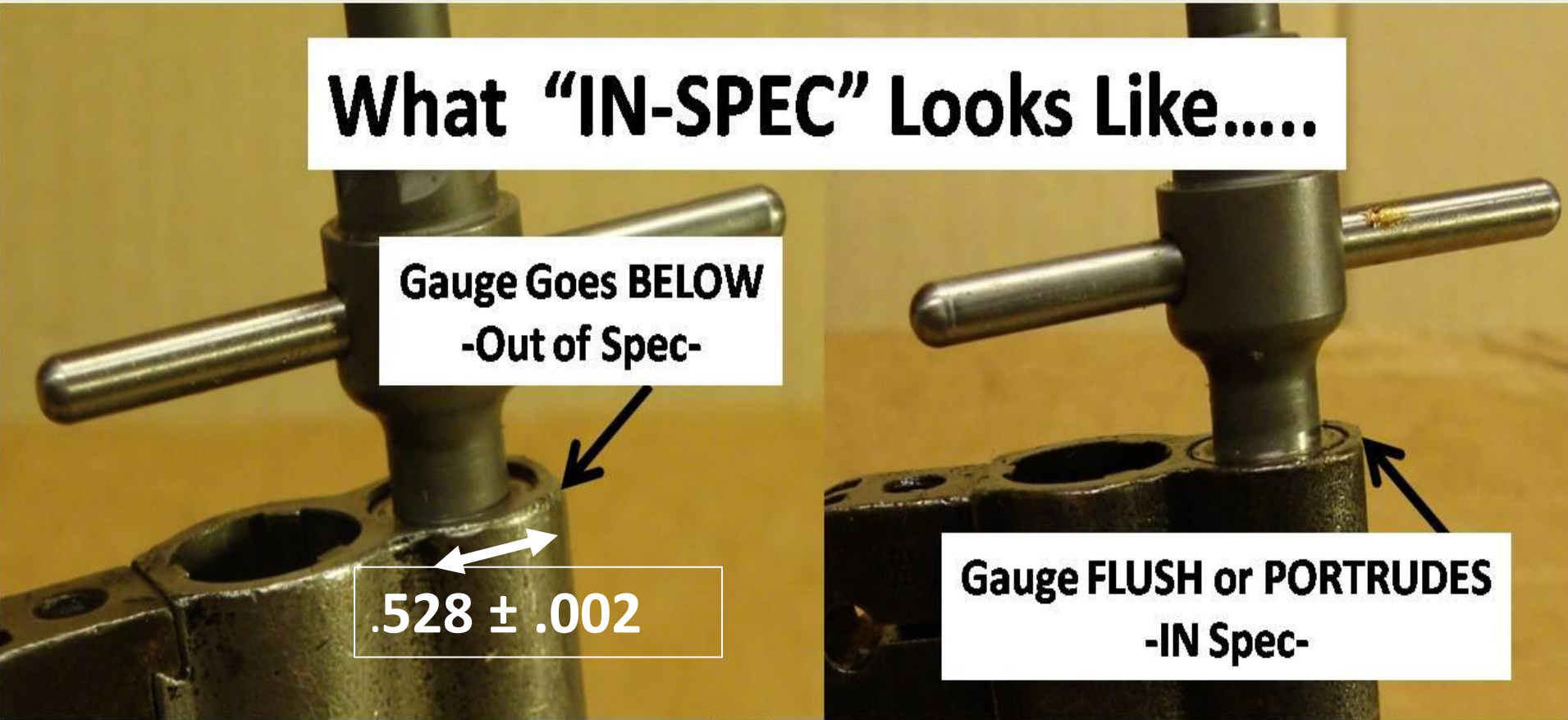
Gas Cylinder Specs: really requires a special gauge to do this right.

What "IN-SPEC" Looks Like.....

**Gauge Goes BELOW
-Out of Spec-**

.528 ± .002

**Gauge FLUSH or PORTRUDES
-IN Spec-**



Problem #8: Proper Lubrication and Cleaning

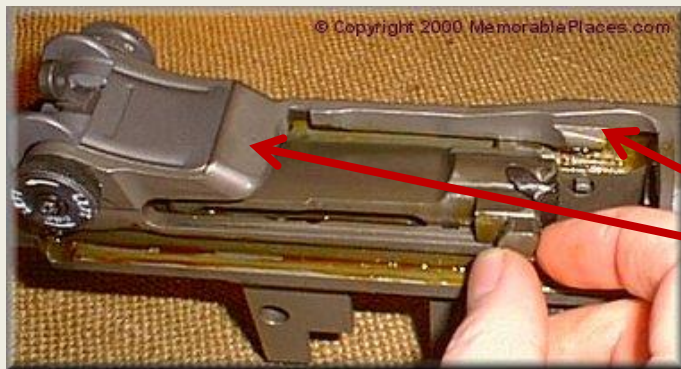
A Garand is not particular! Any decent synthetic grease will work.



Lubrication Points Using Any Decent Grease



**Don't
over do
it!**



Also the channel in the receiver
and maybe lip of the receiver



Very occasionally, other issues like

- a) a leaky gas cylinder screw**
- b) a bent/broken follower rod**
- c) a bad bullet guide**
- d) a bad follower arm or pin, or**
- e) something else Bubba did to the rifle!**

Other important things to consider...primarily for safe function

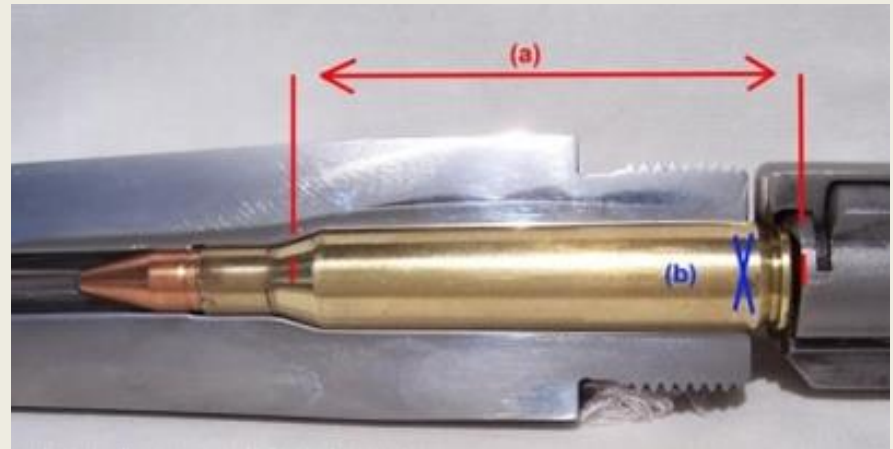




Headspace



- **Don't switch bolts** without someone qualified checking headspace!
- At minimum might cause light primer strike, at worst ...?



DANGER

FIRING RANGE

Weapons Firing in Progress

Don't let the rifle become a grenade launcher! The gas cylinder and BFA can fly off 30-40 yards or more!



Caused by

- **Loose or “buggered” gas cylinder screw**
- **Bad threads on barrel**
- **Bad threads on BFA**

Gas Cylinder Screw is Very Important!

Keep it TIGHT!



TIGHTEN-UP



Two Types of Gas Cylinder Screws (both work fine)

Old Style "Single slot"
before 1944



New Style "Poppet" (Post 1944) Has a plunger to
accommodate a grenade launcher

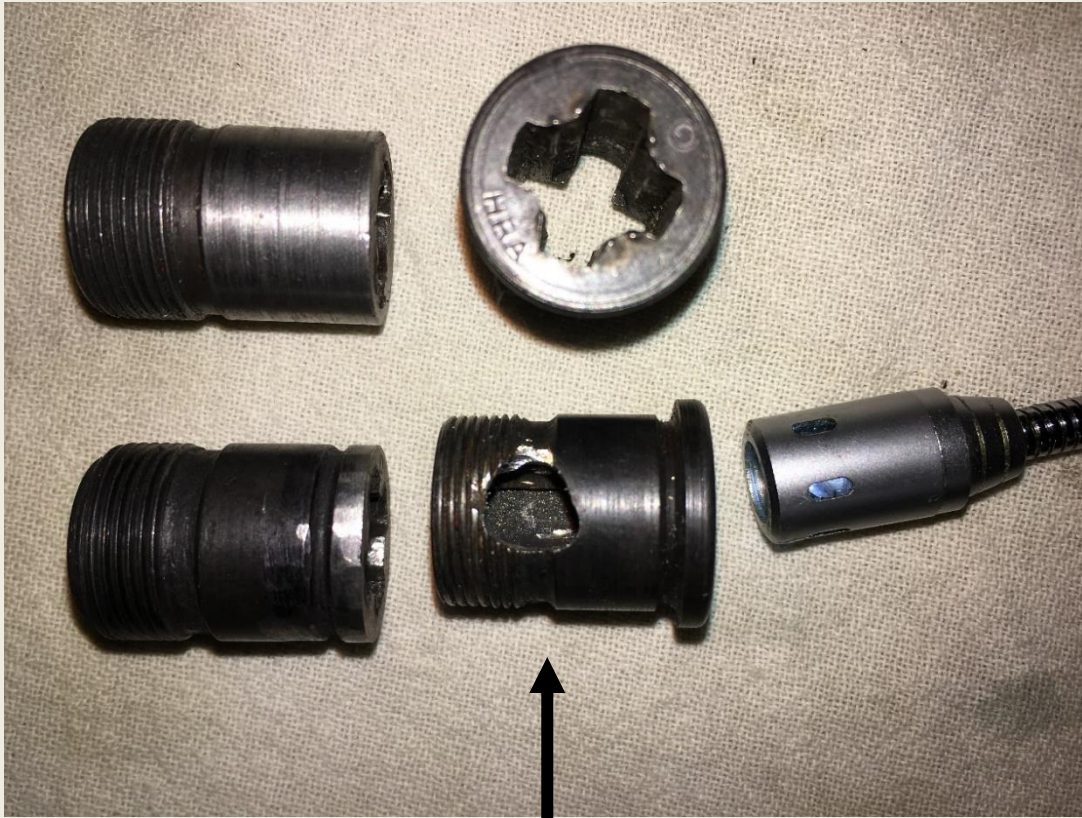


Need this engagement!



**This is the gas screw
lip/BFA engagement
that you want!**

Big Problem: Gas Screw Issues to be avoided!



Note these screws missing the plunger! Rifle will never work as semi-auto !

Note these “ground screws” (common on Wisconsin ceremonial rifles) will not give proper engagement!

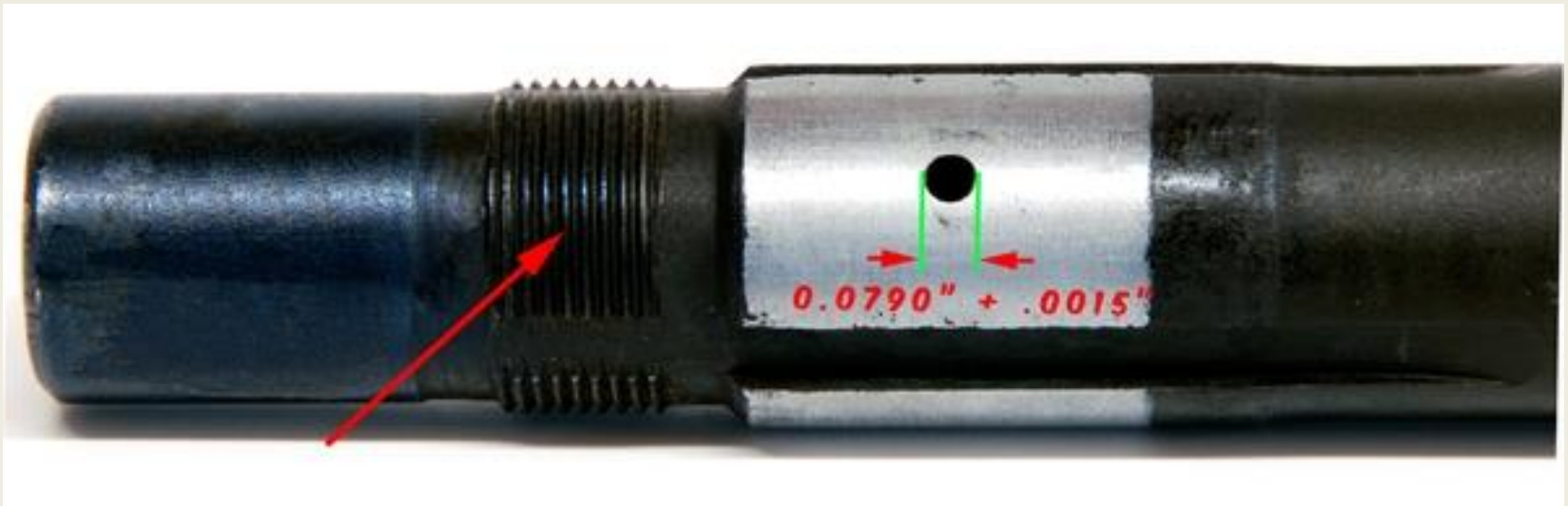


Rust a sign of improper maintenance!



**No engagement to
secure the BFA**

**Make sure threads are in Good shape!
Put some oil on them to control rust.**

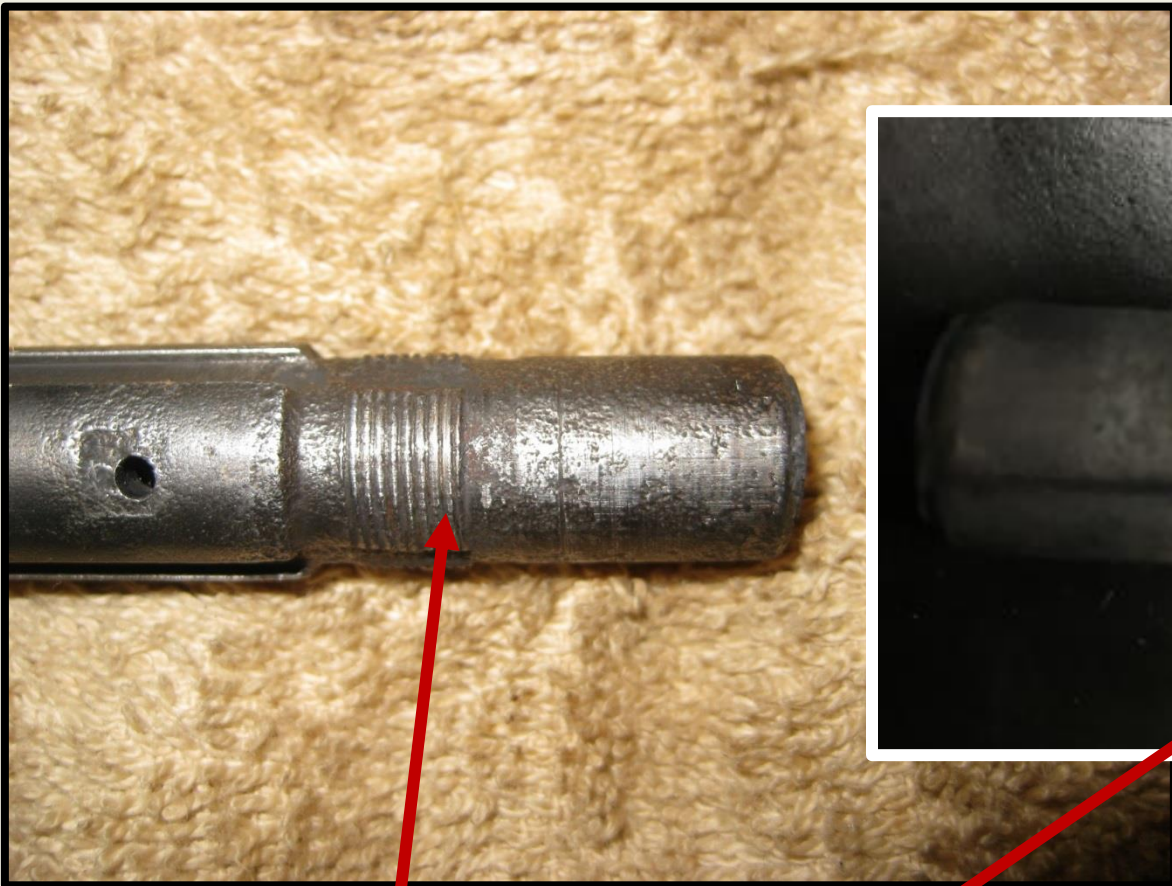


The barrel has 9/16-32NS-2A threads, Major dia. .5554" min., Minor dia. .5242" max

.5554 ± .004 outer diameter of thread

**Just eyeball them, don't get all caught up on measuring unless
you are a machinist**

Damaged Threads: Have to replace the whole barrel



**Threads gone or flat!
Can't chase or recut these.**

Prematurely ejected clip: probably need a new clip, clip latch or clip latch spring ,
or...the op rod is banging on an old weld
under the barrel



Loading the M1 Rifle

Please don't do this
...leads to trouble!



Do this instead...



Some posts make their own dummies out of resized 30-06 brass with no powder, no primer. OK if well-maintained and everyone is paying attention but can be really dangerous!





ONLY USE BLANKS YOU GET FROM THE GOVERNMENT

M1 Garand Operation, Safety, and Maintenance Guide

for
Veteran and Civilian Service Organizations
Law Enforcement, and
National Cemeteries

21 January 2020 – Change 4

Prepared by
Combat Capabilities Development Command Armaments Center
(CCDC-AC) Picatinny Arsenal, NJ 07806-5000



DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

Authorized Ammunition

The current design of the .30 caliber blank cartridge incorporates a rosette crimp mouth closure. The bottle nose wad closure design of the .30 caliber blank cartridge is still approved for use and should be considered serviceable. See figure 86 for authorized ammunition.

WARNING: Make sure you NEVER fire any ammunition other than the supplied blanks in your rifle. Firing unauthorized ammunition may result in severe injury to yourself and others nearby, or damage to the weapon.

If an organization's ammunition source is unknown, that ammunition should be inspected for the presence of the .30 caliber M3 grenade cartridges. The grenade cartridge generates more pressure than the M1909 .30 caliber blank cartridge and is not designed or intended to be fired with a blank firing adapter. The significant physical difference between the grenade cartridge and the blank cartridge is that the blank cartridge has 6 crimps and the grenade cartridge has 5 crimps (See figs 87 and 88).

NOTE: If the rosette crimp of the blank cartridge does not open during normal firing and cycling it should not be considered a malfunction.



Figure 86. Authorized ammunition – rosette crimp (left) bottle nose (right)

**Very nice Guide
but it makes one
big mistake...**

**...says use one of these
but only use 6 crimp
blanks because they are
ceremonial blanks while
5 crimp are grenade
launching blanks and
can blow up you rifle!**

**Unfortunately not
always true!**



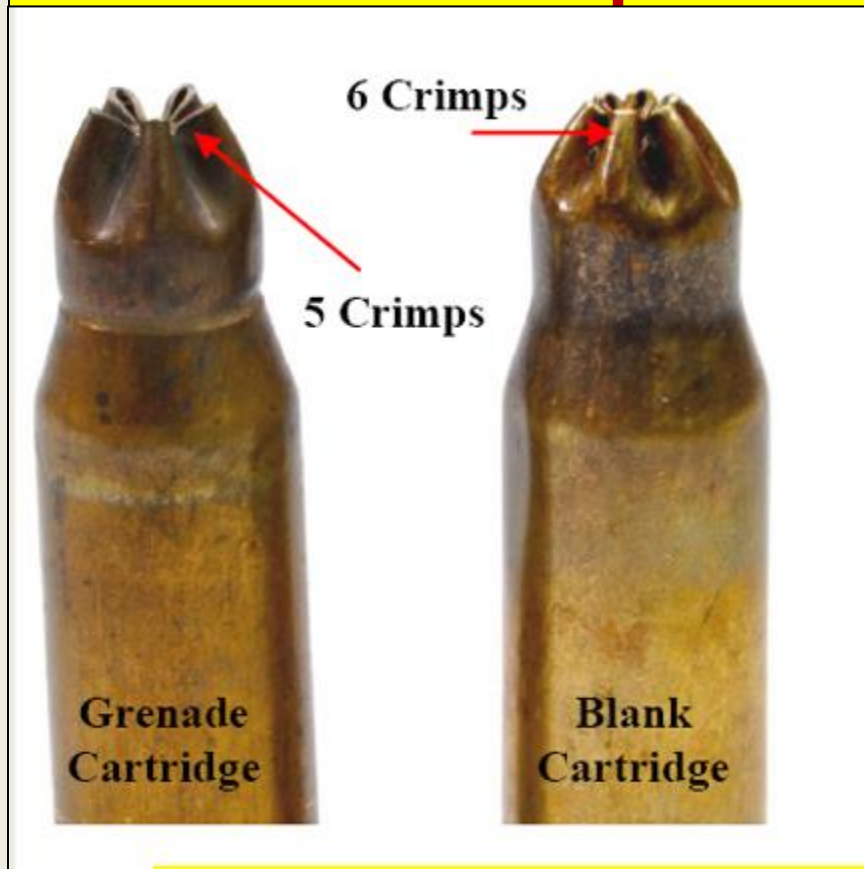
Figure 87. Grenade Cartridge vs. Blank Cartridge



Figure 88. Grenade Cartridge vs. Blank Cartridge

TRUE: Grenade blanks can cause serious injury.

FALSE: All 6 crimp blanks are safe blanks!

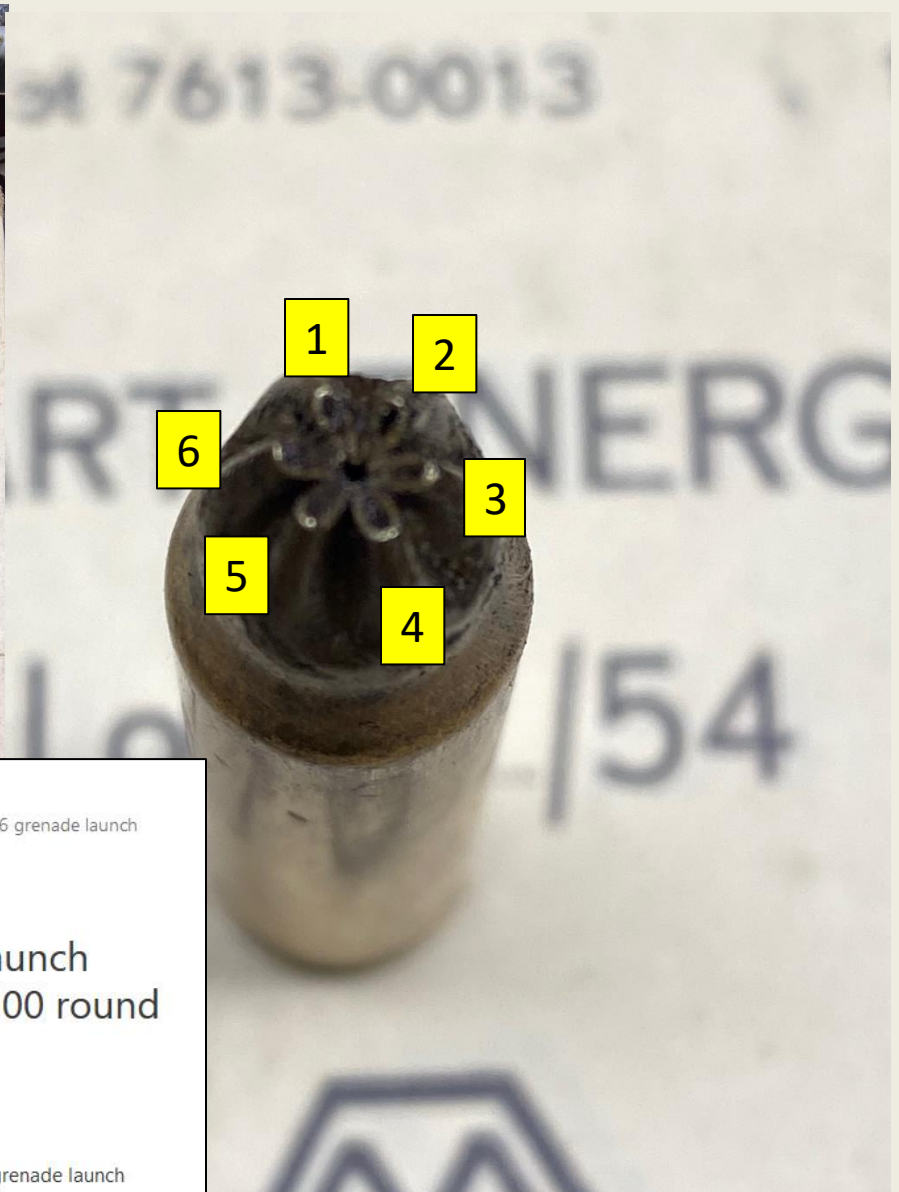
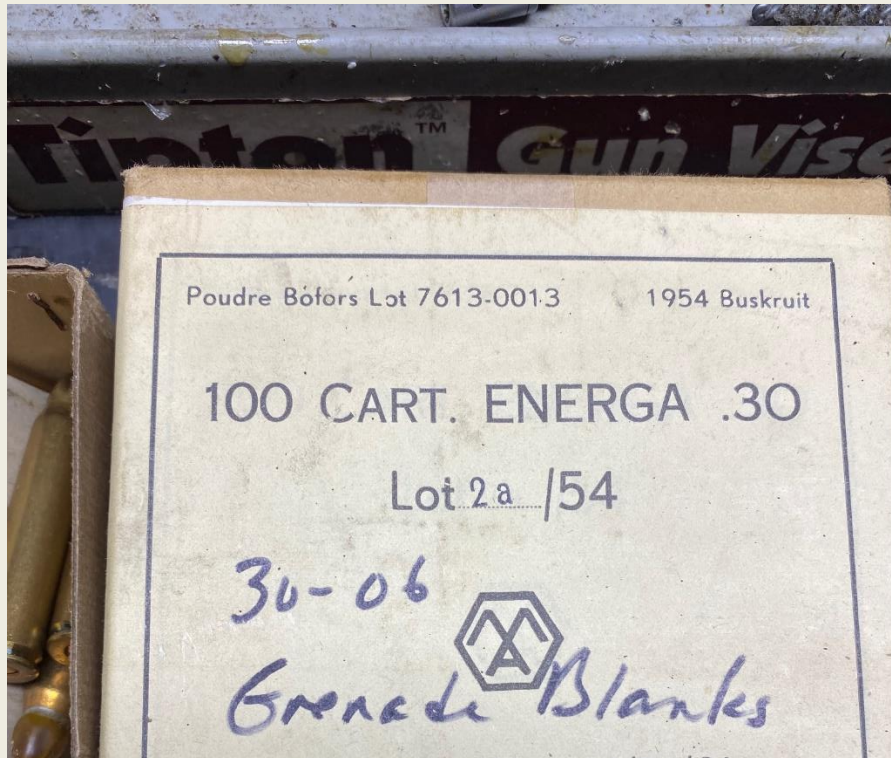


What you read on the internet



The truth...a foreign grenade blank

Contrary to published reports, many foreign grenade blanks have 6 crimps... VERY DANGEROUS!!!!!!



Home / Rifle / 30-06 / Blanks / 30-06 grenade launch blanks. original 100 round box

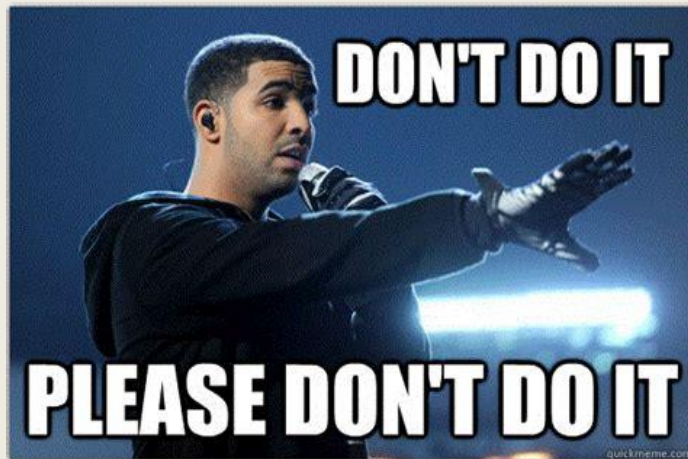
[30-06, Blanks, Rifle](#)

30-06 grenade launch blanks. original 100 round box

\$125.00

100 round original box of 30-06 grenade launch blanks. Boxes marked Poudre Bofors Lot (boxes have different lot numbers) 1954 Buskruit. 100 CART. ENERGA .30 - Cont SAAR/An 24/54/21

Special Note on the Size of the Gas Port in the Barrel



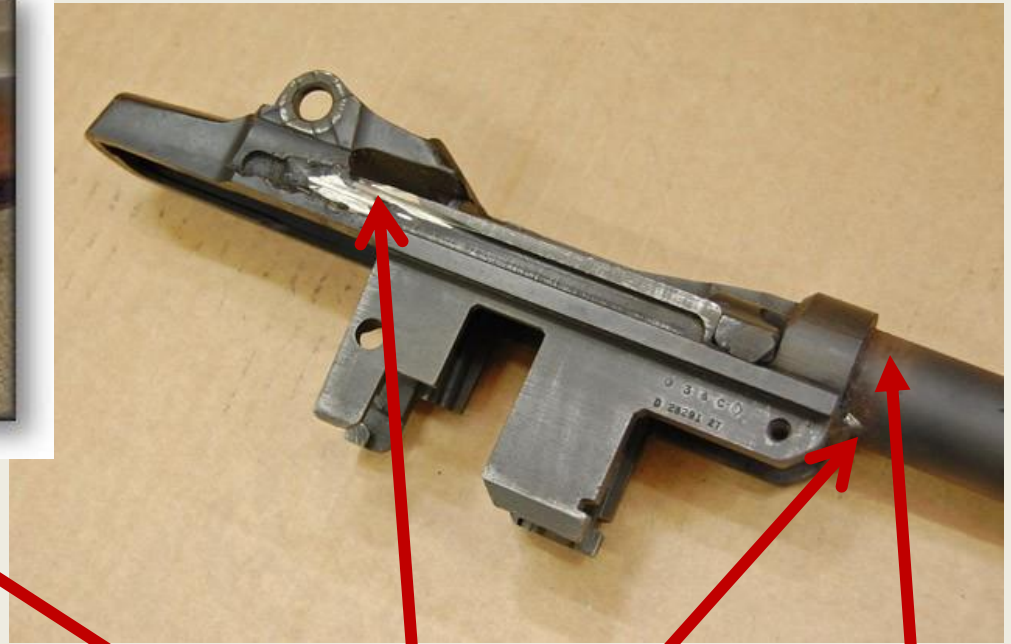
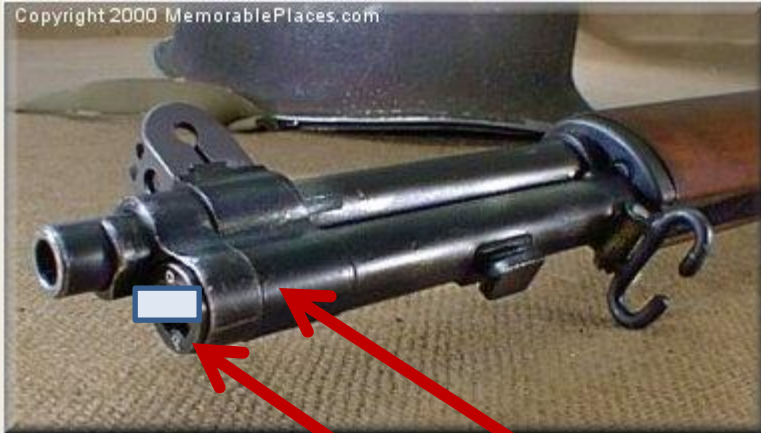
For some reason somebody along the way drilled the gas port hole out to about .25 inches on some rifles which is way too big! Why they did this I do not know but I have found it now at several different posts. I have had success making these rifles work well by drilling out the BFA to a little over .185 inches (#13 drill).

Best to replace the barrel.

**The Op Rod is supposed to be bent!
Do not attempt to straighten it.**



Welded Rifles: Get New Rifles



Might be welded here or here

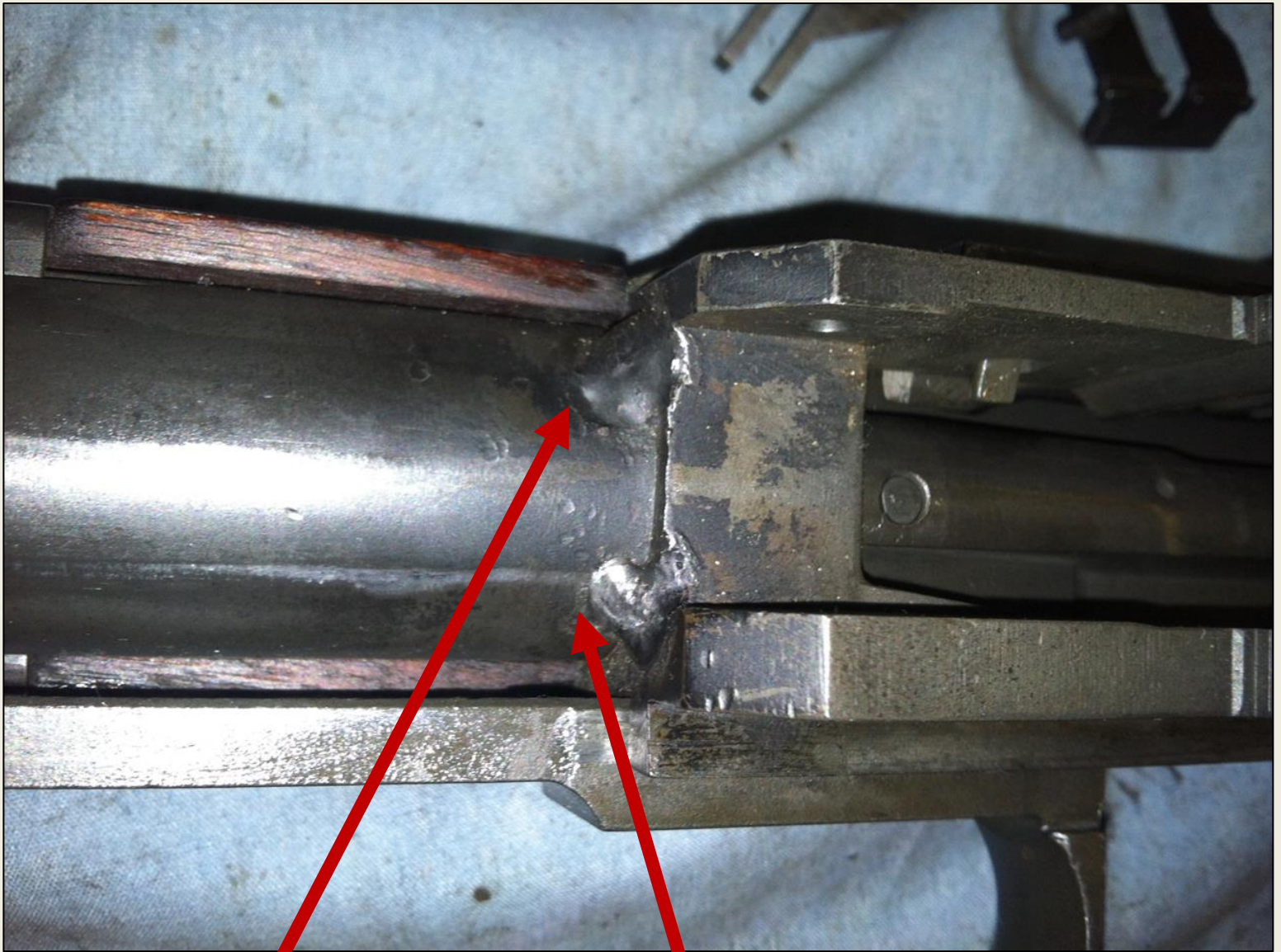
Or here...



Weld



Or
here



Welds

Or “do it yourself” weld...unsafe, unreliable and/or hard, if not impossible, to service!



Get new rifles!

Storage & Maintenance” Take Care of Them



+



=



Your Legal Responsibilities with Government Property

“Triennial Certification of Ceremonial Rifles” and the “Deed of Gift” require you to maintain your weapons and “Certificate of Arms Storage” to have safe, secure storage!

You promise that “These weapons are properly safeguarded, are properly maintained, and are used solely for their intended purpose of performing funeral details and other ceremonies.”

Very bad idea to let individuals keep rifles at home!



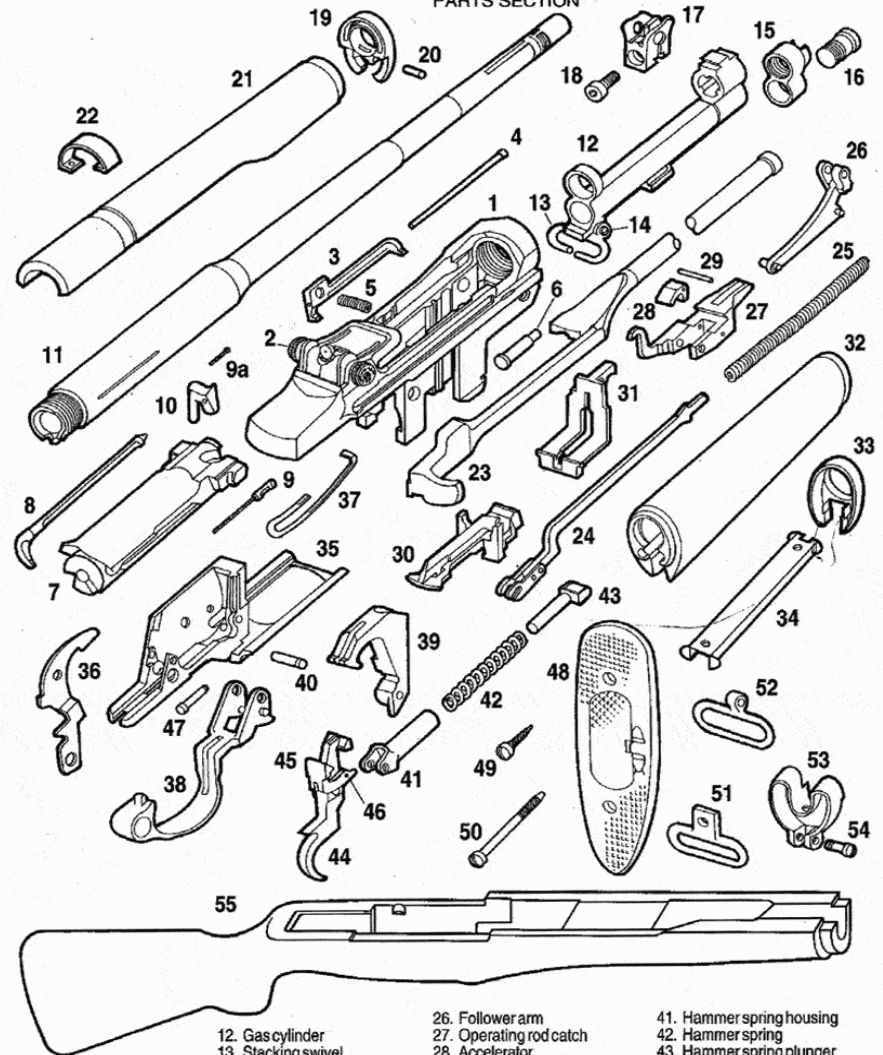
Parts (only 55 on an M1!)

I have most of these from CMP or you can try to get them from CMP yourself

They are not going to send you receivers or stocks or a few other parts. But might send you some parts.

The U.S. Rifle, Cal. .30, M1

PARTS SECTION



- | | | | |
|------------------------------|-----------------------------|--------------------------------|-----------------------------------|
| 1. Receiver | 12. Gas cylinder | 26. Follower arm | 41. Hammer spring housing |
| 2. Rear sight assy. | 13. Stacking swivel | 27. Operating rod catch | 42. Hammer spring |
| 3. Clip latch | 14. Stacking swivel screw | 28. Accelerator | 43. Hammer spring plunger |
| 4. Clip latch pin | 15. Gas cylinder lock | 29. Accelerator pin | 44. Trigger |
| 5. Clip latch spring | 16. Gas cylinder lock screw | 30. Slide/follower assy. | 45. Sear |
| 6. Follower arm pin | 17. Front sight | 31. Bullet guide | 46. Sear pin |
| 7. Bolt | 18. Front sight screw | 32. Front handguard | 47. Trigger pin |
| 8. Firing pin | 19. Lower band | 33. Front handguard ferrule | 48. Buttplate assy. |
| 9. Ejector spring/plunger | 20. Lower band pin | 34. Front handguard spacer | 49. Buttplate screw, upper (wood) |
| 9a. Extractor spring/plunger | 21. Rear handguard | 35. Trigger housing | 50. Buttplate screw, lower |
| 10. Extractor | 22. Rear handguard band | 36. Safety lever | 51. Butt swivel |
| 11. Barrel | 23. Operating rod | 37. Clip ejector/safety spring | 52. Stock ferrule swivel |
| | 24. Follower rod | 38. Trigger guard | 53. Stock ferrule |
| | 25. Operating rod spring | 39. Hammer | 54. Stock ferrule/swivel screw |
| | | 40. Hammer pin | 55. Buttstock |

M1 Rifle exploded parts diagram with nomenclature. Also see trigger group, early/late style rear sight, buttplate assy., and bolt assembly exploded parts diagrams on pages 63, 64, 74, and 88.



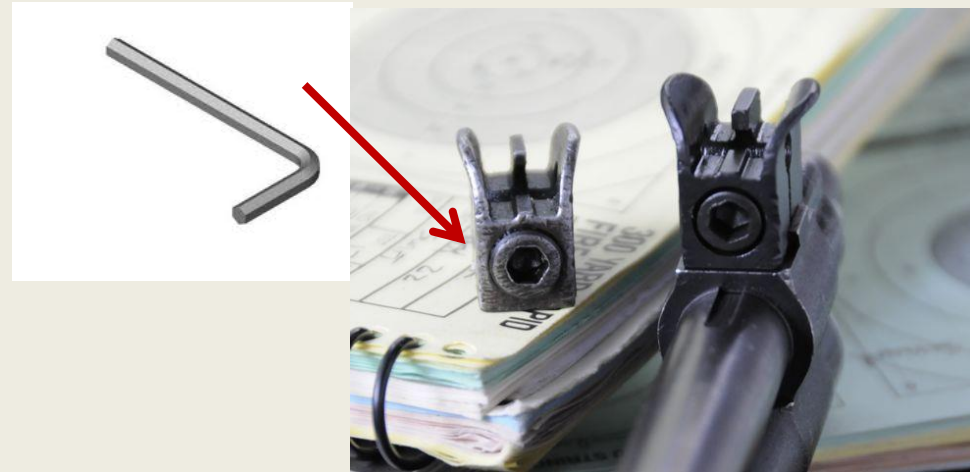
**What You
Typically
Have to
Pay For**

Handy Tools to Have

1. Tool to remove gas cylinder lock screw and clean chamber



2. Allen Wrench (3/16) for front sight screw



3. To remove blank firing adapter 7/16 wrench



4. Lubrication Grease



Tools at Ebay or Fulton Armory

Others

To remove cylinder
if tight



To drill out
BFA

Specialized Tools



Gas Cylinder
Gauge



Op rod
tip gauge

DKHardware



To remove
Old rusted
BFA's &
cylinders



To measure op rod
piston



Bolt
Takedown
Tool



Tap & die
for gas
cylinder &
barrel
threads

TACOM WEBSITE FOR NEW RIFLES

<https://www.tacom.army.mil/ilsc/donations/rifles>

≡ MENU



U.S. ARMY DONATIONS PROGRAM

CEREMONIAL RIFLE PROGRAM

CEREMONIAL RIFLE PROGRAM OVERVIEW



The Ceremonial Rifle Program is conducted by the Army Donations Program Office in the Integrated Logistics Support Center of the U.S. Army Tank-automotive and Armaments Command at Detroit Arsenal, Michigan. The program is conducted in accordance with Title 10 United States Code §7683 as implemented by Army Regulation 700-131.

The types of organizations authorized to receive ceremonial rifles:

- *Law enforcement agencies*
- *Veterans' service organizations*
- *National cemeteries*



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