



How to Keep Ceremonial M1 Garand Rifles Functioning Flawlessly

Jim Johannes*

Wisconsin American Legion Midwinter Conference



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

Note: I take no credit for the images on these slides. Most 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.

Garand Collectors Association Video



GARAND COLLECTORS ASSOCIATION

[Home](#) [Membership](#) [GCA Journal](#) [Resources](#) [Events](#) [About the GCA](#) [Contact Us](#)

- Financial Aid
- History of the M1 Garand Rifle
- The GCA Store
- CMP
- Evolution of National Match Rifles – Springfield Armory Production
- Glossary of Collector Terms
- Ceremonial Rifle Maintenance
- M1 Garand Data Sheet

**America's Rifle
THE M1 GARAND**

**SPECIAL COLLECTOR'S
EDITION**

Americas Rifle-M1 Garand
Video on DVD - \$9.95



<https://media.exed.wisc.edu/m1/m1garand-ceremonial-maintenance/m1garand-ceremonial-maintenance.html>

Top Eight Things That Cause Failure to Feed/Extract in Ceremonial M1's

Symptoms of all eight problems are:

Rifle fires the first shot but

- Does not properly eject the fired round**
- Action closes on the fired round and does not feed the next loaded round**
- Causes the next round to “stovepipe”**

Some Failure to Feed Problems Are Simple to Fix - Always Check These Two First!

Losing Powder!



Bad Clip! Bent, worn out



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



Fired

4th round

**Unfired not
4th round**



Crimp hardly opens

Six Other Common Problems That Cause Failure to Feed/Extract in Ceremonial M1's

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



2. A Bad Operating Rod (Op Rod) Spring



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



4. Improper Lubrication



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



6. Out of Spec Gas Cylinder



Problem #1: The Hole in the BFA

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



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 9/64 or 5/32

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



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

**[http://media.exed.wisc.edu/m1/m1garand-
ceremonial-maintenance/m1garand-ceremonial-
maintenance.html](http://media.exed.wisc.edu/m1/m1garand-ceremonial-maintenance/m1garand-ceremonial-maintenance.html)**

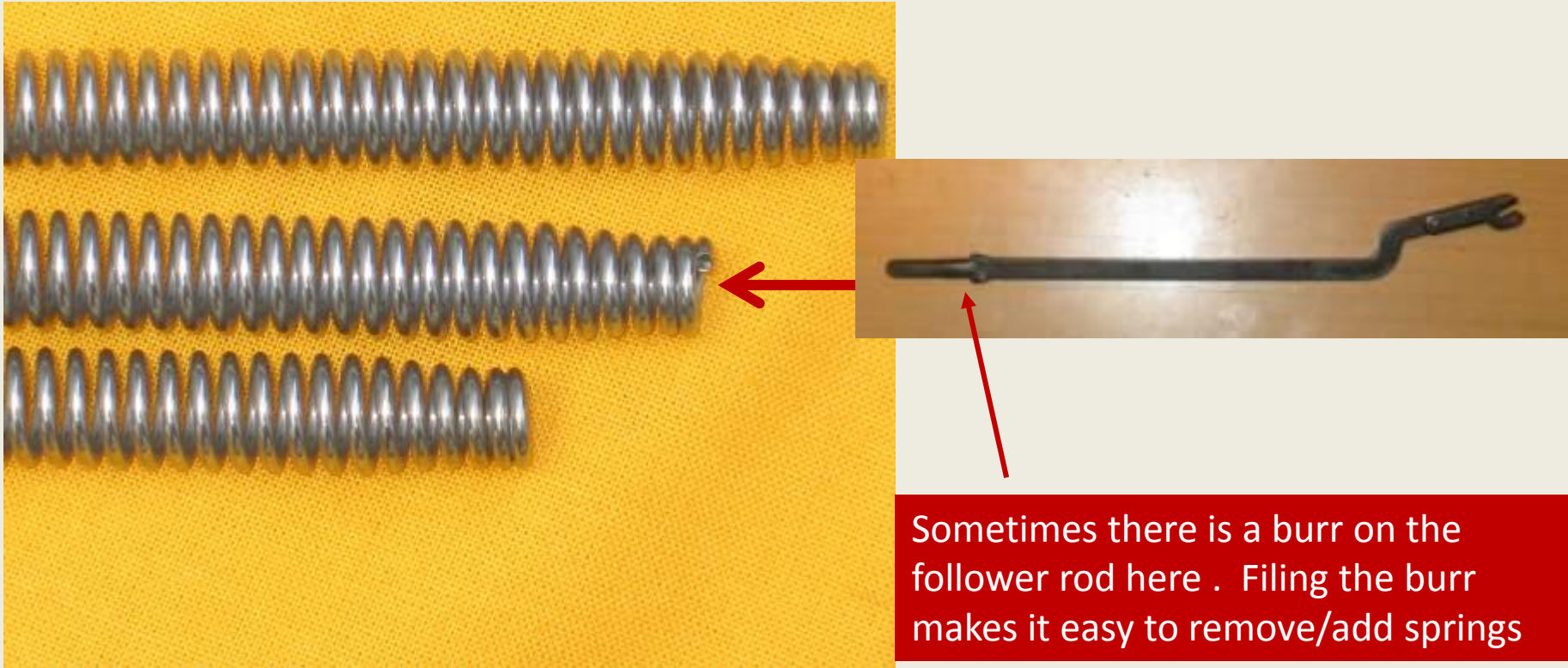
Problem #2: The Op Rod Spring



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 does into the narrower end of the op
rod spring



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

Problem 3: Incorrect Reassembly

Before reassembly,

1. clean the barrel and chamber



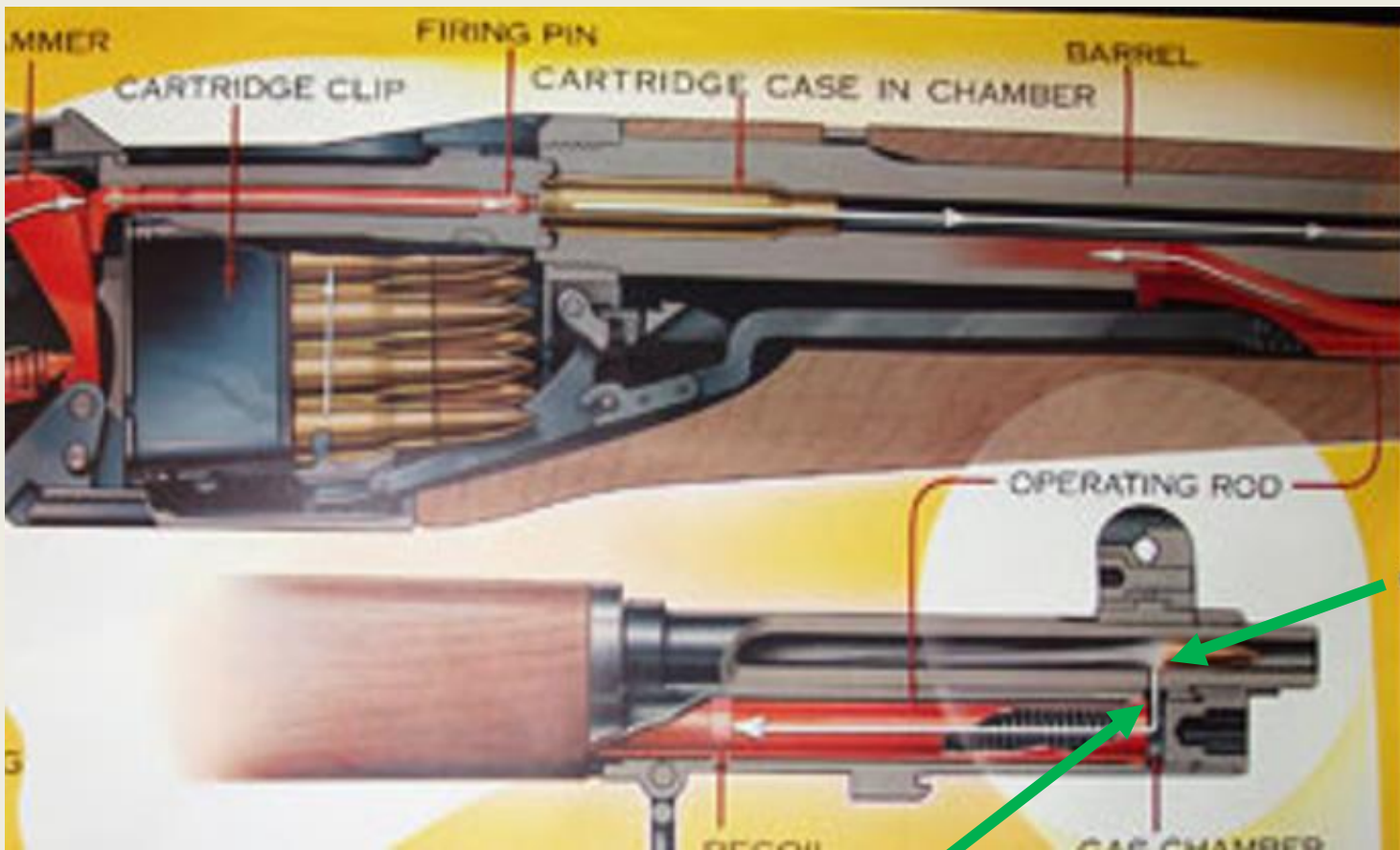
2. LUBRICATE THE RIFLE (more on this later).

GI brush not
cheap
knockoff on
ebay



Proper Gas Cylinder Alignment:
VERY IMPORTANT!!!!



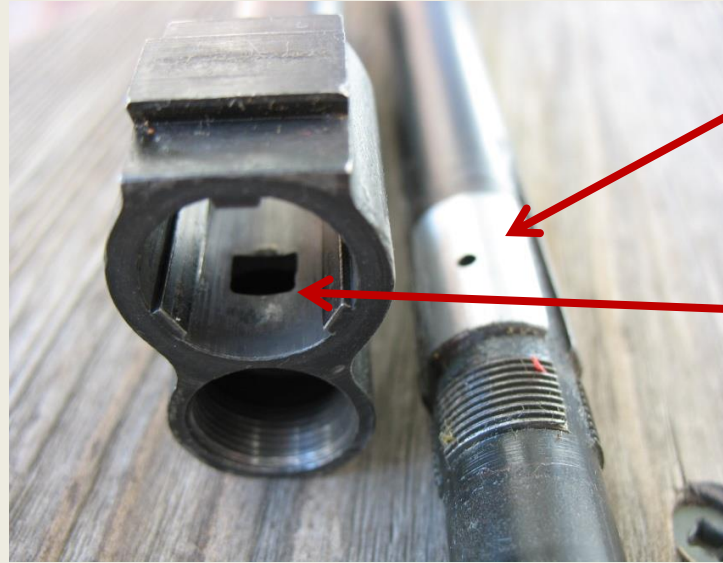


Small round
.079 +/- .0015
hole in barrel

Rectangular hole in
gas cylinder

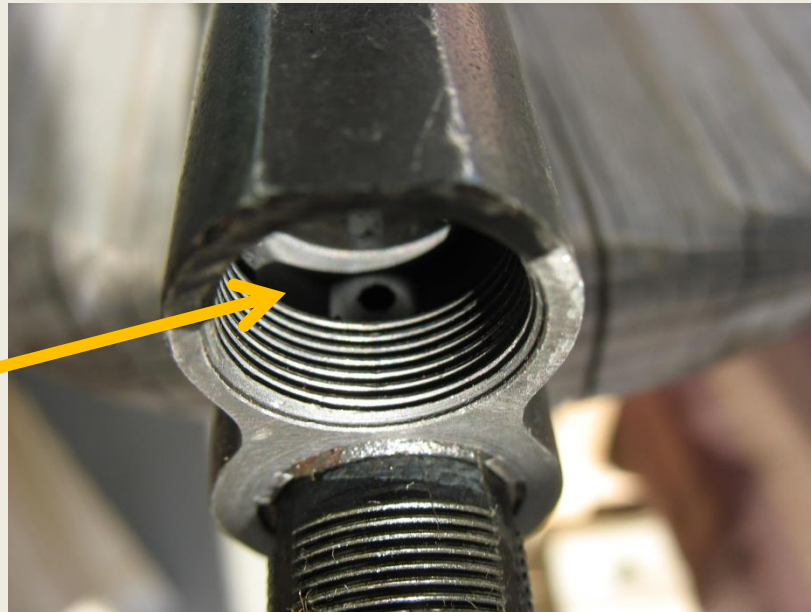
These two
holes have
to line up!

Hole in Gas Cylinder and Hole in Barrel

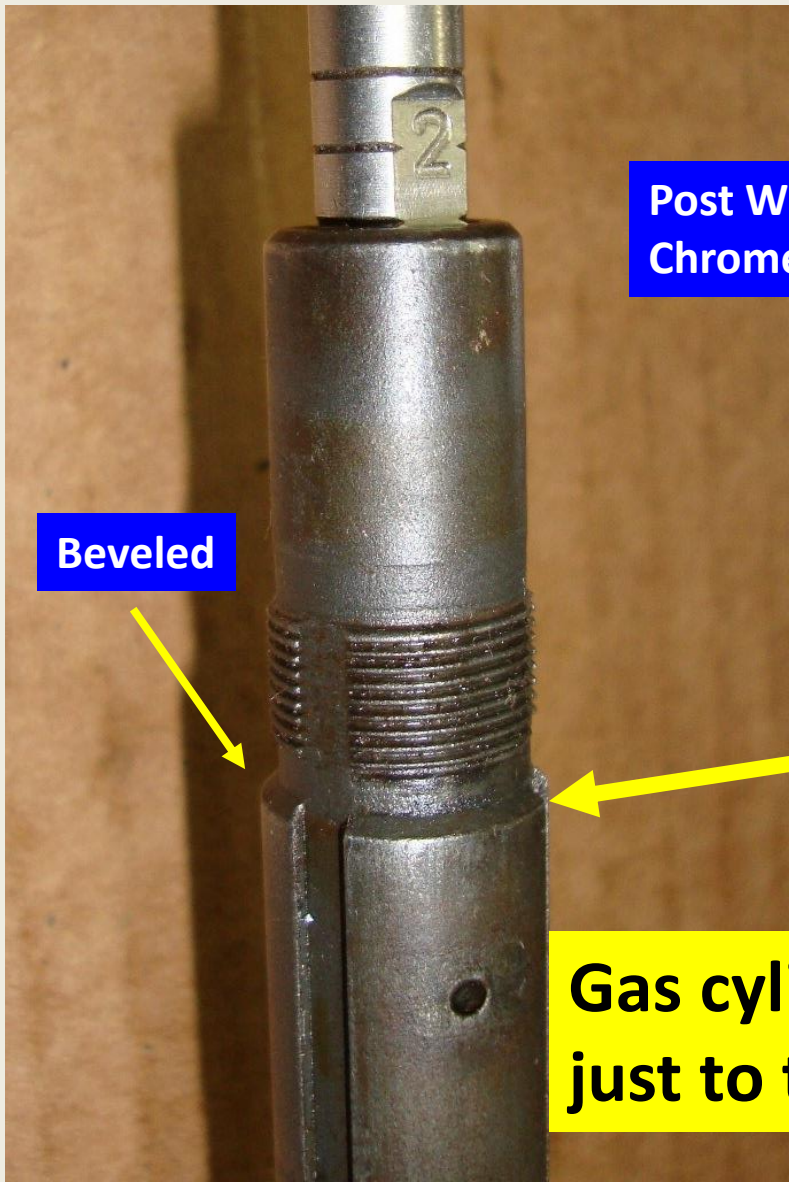


This round hole must be centered in

the rectangular gas port in cylinder



Proper alignment



Beveled

Post WW2
Chromed Pad



WW2 pad not
chromed

Gas cylinder goes
just to this edge

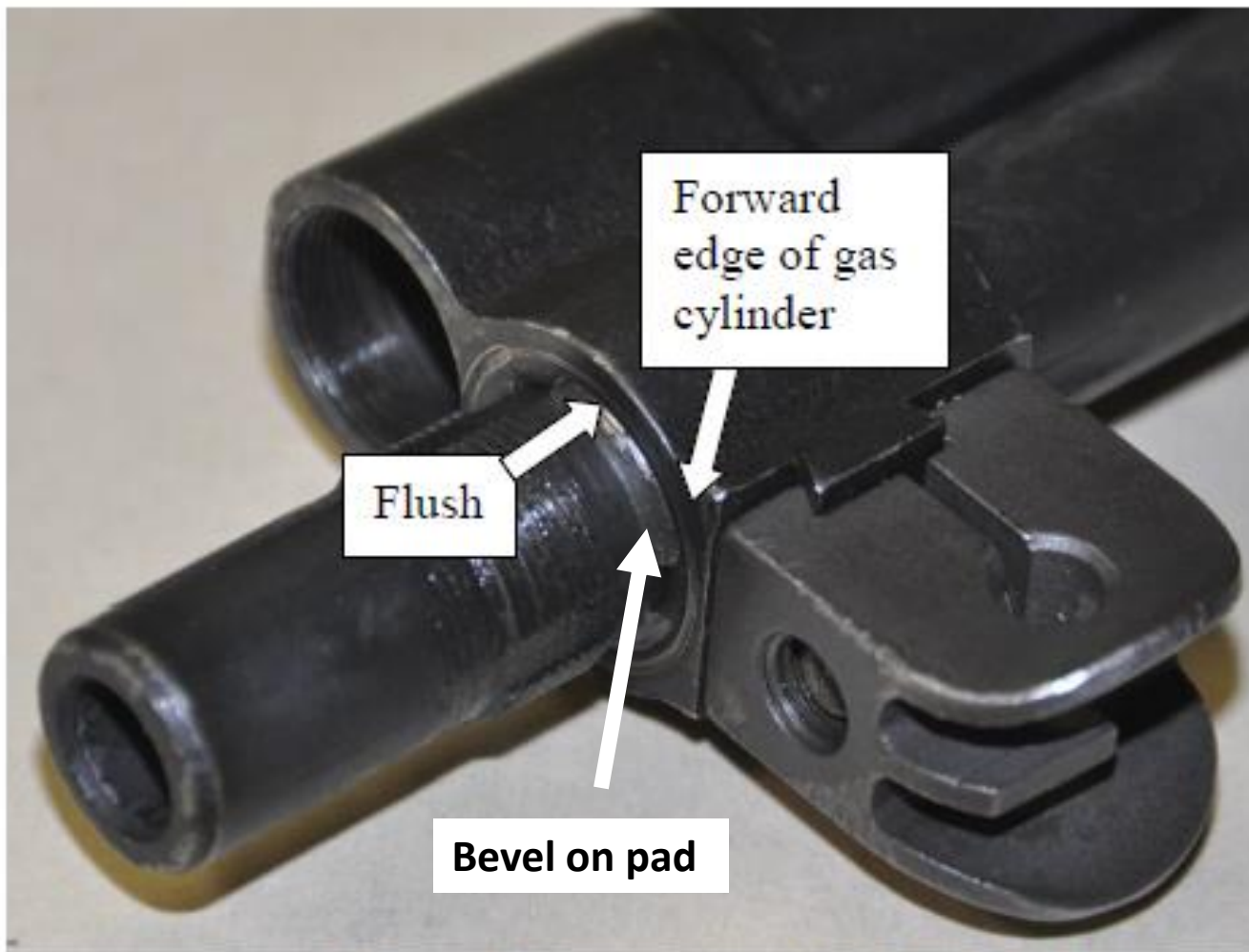


Figure 32. Gas cylinder positioned CORRECTLY

Pictures from:

**M1 Garand Operation and Maintenance Guide
for Veteran and Civilian Service Organizations,
Law Enforcement, and National Cemeteries**

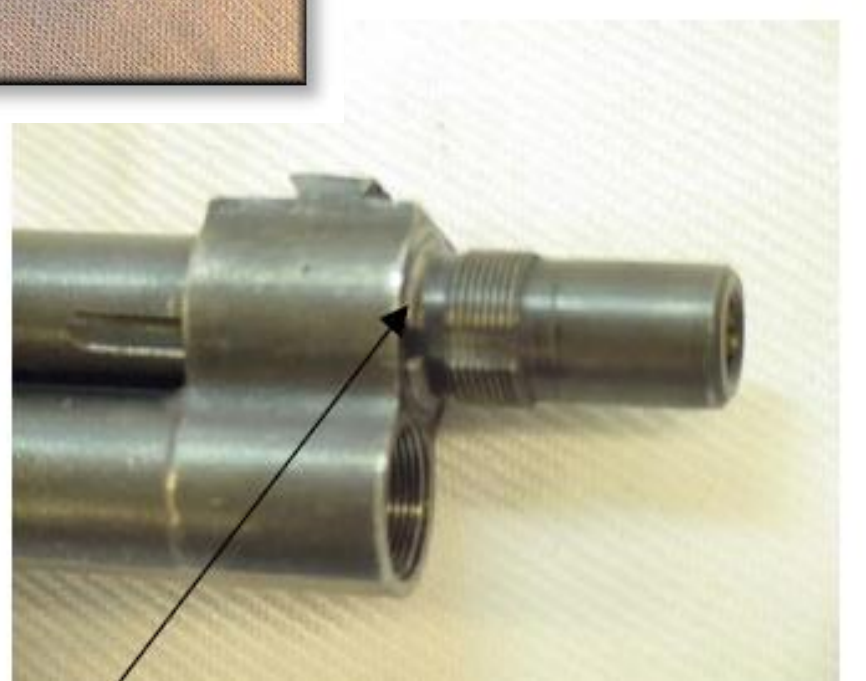
1 June 2013-Change 1

Prepared by Armament Research, Development, and Engineering Center
(ARDEC) Picatinny Arsenal, NJ 07806

Positioning the Gas Cylinder

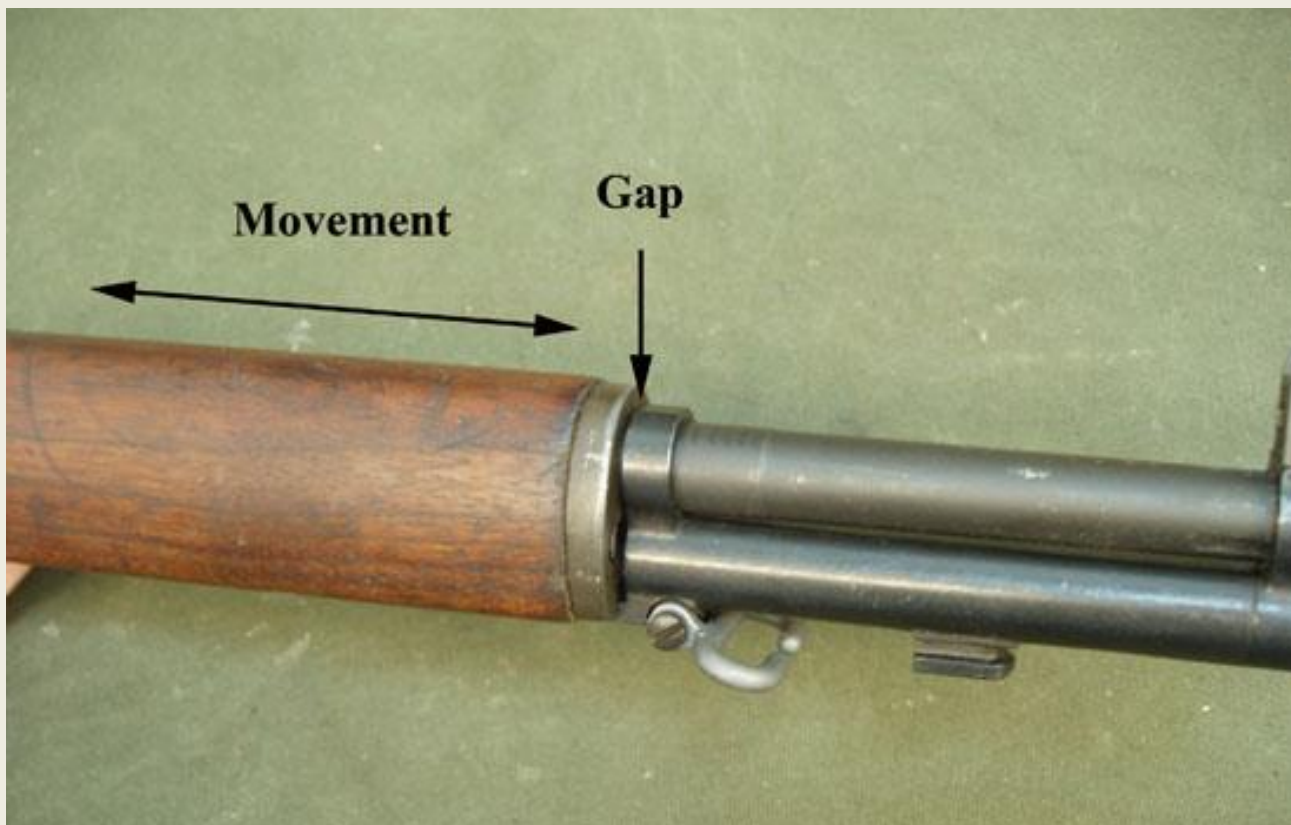


Too far back!



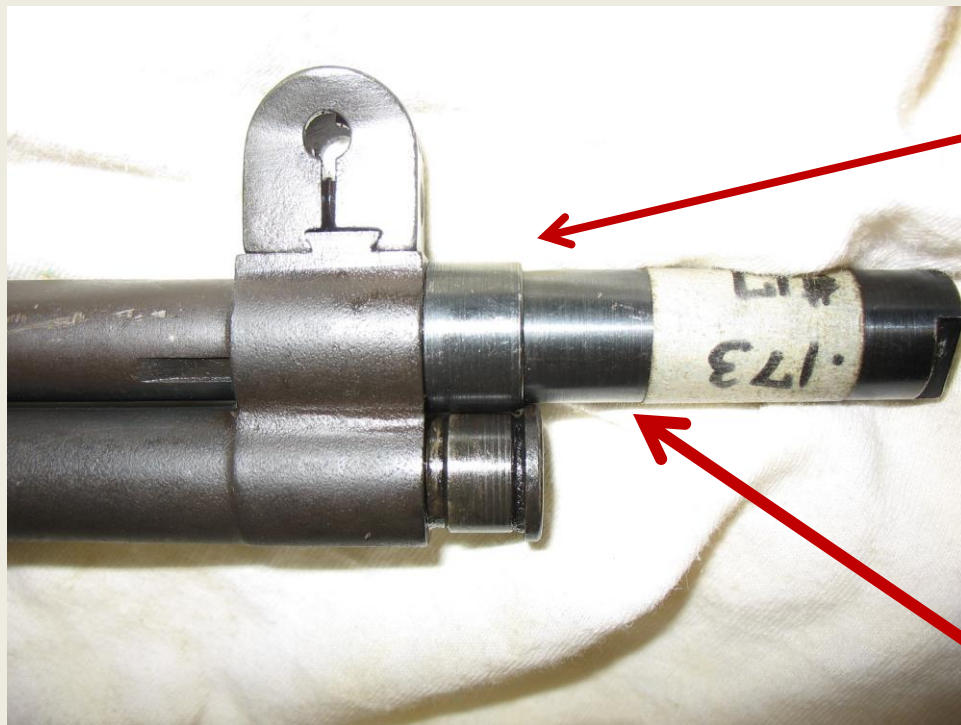
This is correct.

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 handguard 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.

When you replace the BFA, only screw it on until it touches the front of the (properly aligned) gas cylinder. Do not screw it on until it stops! If you do that, you will move the cylinder to the rear and the alignment will be off. Then, make sure the rim of the gas cylinder crews overlaps the rim on the BFA to help secure it in place



Only screw the BFA on until it touches the properly aligned gas cylinder. No further.

Proper contact of rim of BFA and Rim of gas cylinder screw

Problem #4: Proper Lubrication and Cleaning

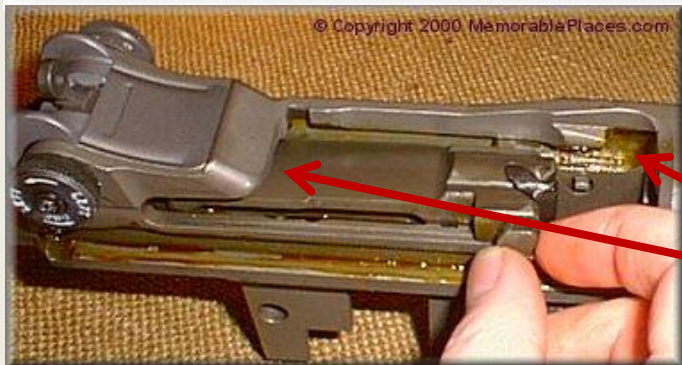
It's not a fancy computer! Any decent synthetic grease will work.



Lubrication Points Using Plastilube or Other Rifle Grease



Don't over do it!



Also the channel in the receiver and lip of the receiver

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 correctly?



Then you probably have

- Problem #5 - a bad op rod tip,
- Problem #6 - a bad gas cylinder

The Op Rod and tab

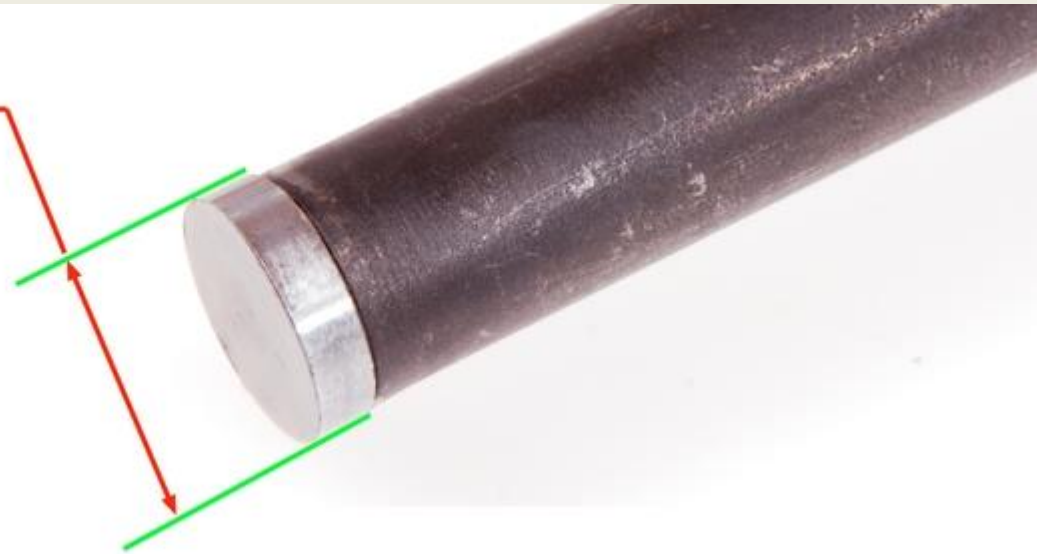


Measuring tip
With
micrometer



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

525 inches minimum
.526 max



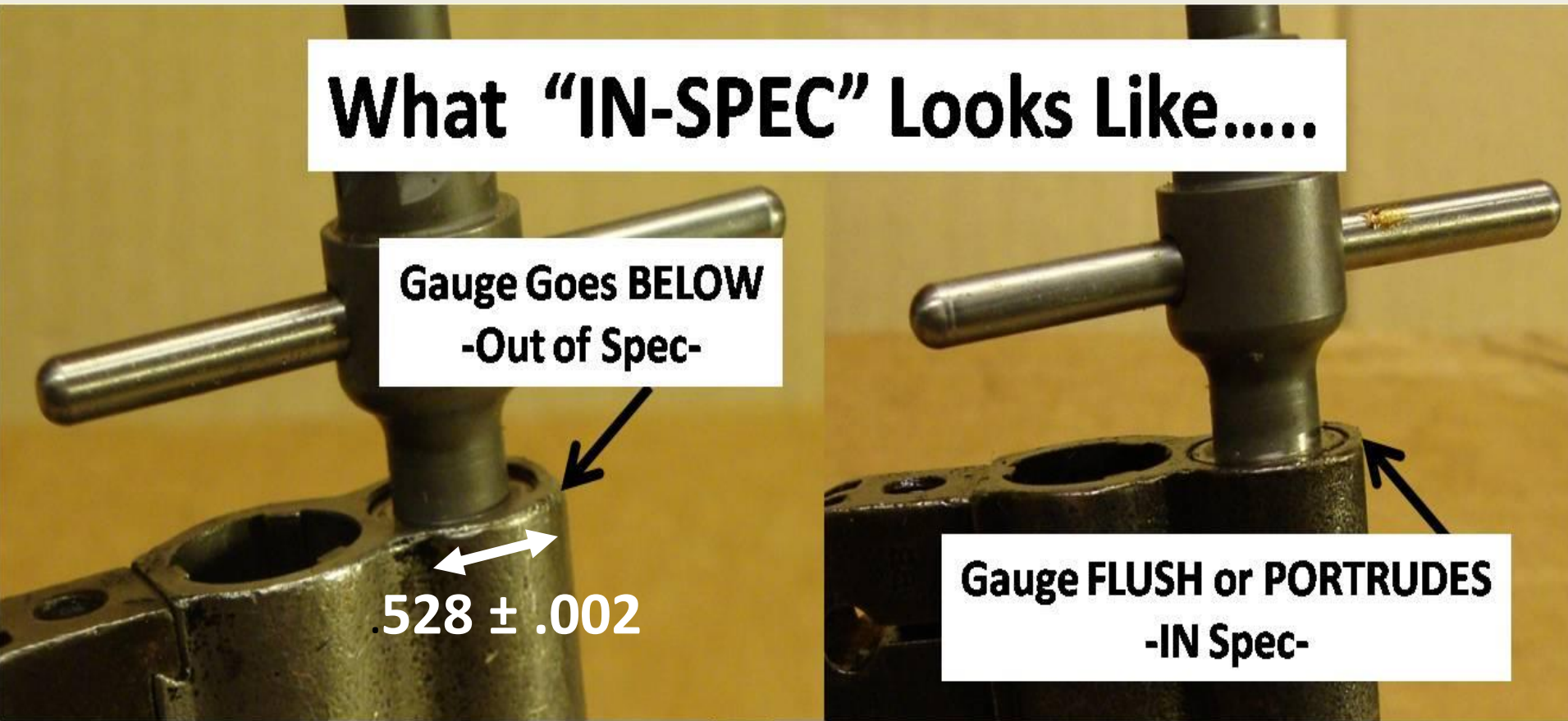
Gas Cylinder Specs: really requires a special gauge to do this right.

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

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

.528 ± .002

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





Or, very occasionally, other issues like

- a) a leaky gas cylinder screw**
- b) bent op rod**
- c) bent/broken follower rod**
- d) bad bullet guide**
- e) bad follower arm pin, etc.**

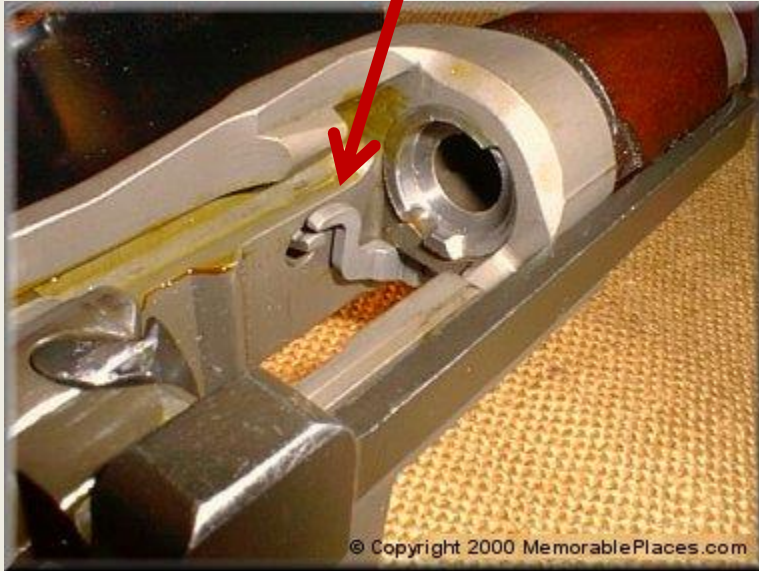
Reassembly Tips

Oil Exterior Metal Surfaces



Wipe them dry if you wear white gloves!

How the parts go back together: Good picture of how the clip latch arm needs to engage the part of the clip latch (clip ejector) that extends into the receiver



Proper positioning of bullet guide

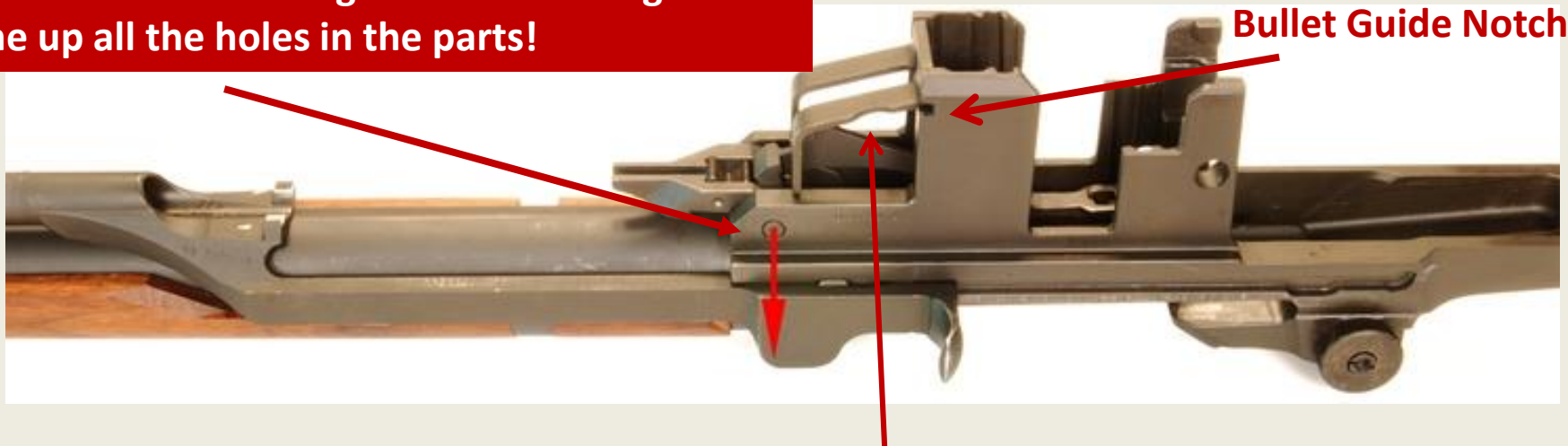


The follower arm

Note how the follower rod is installed



**Pin that holds it all together! Never forget it.
Line up all the holes in the parts!**



Bullet guide may or may not have this notch on it (the notch is on a post WWII bullet guide)

Other Important Things to Consider

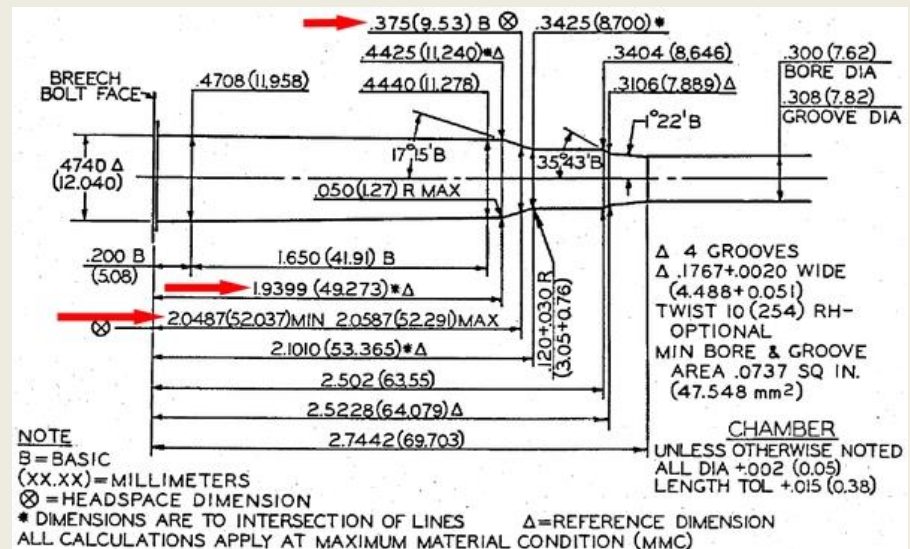




Headspace



- *Don't switch bolts* without a qualified gunsmith 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 front end 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!



Two Types of Gas Cylinder Screws (both work fine)

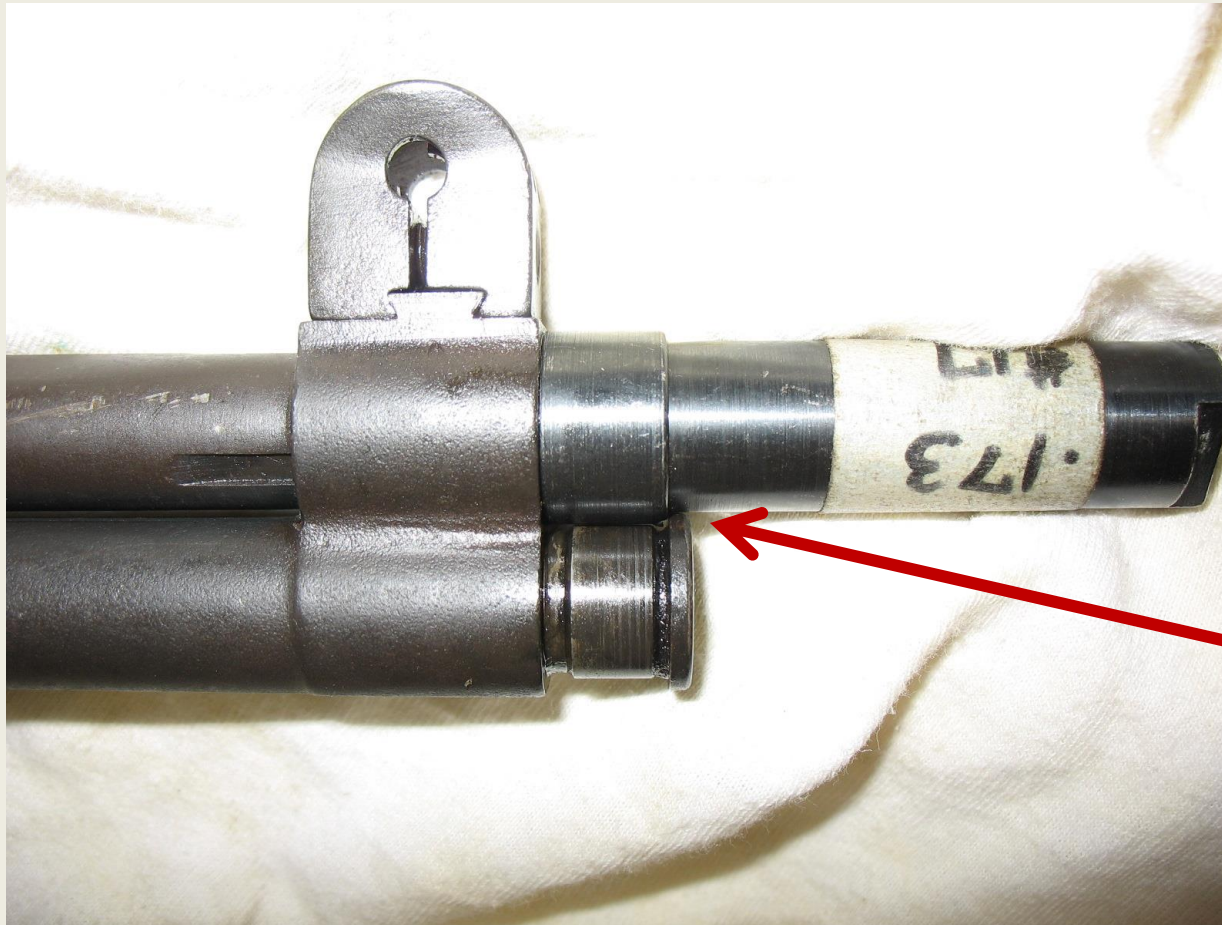
Old Style before 1944



New Style (Post 1944) Has a plunger



Huge Problem: Ground Gas Cylinders Screws



This is the
“lip/BFA lock”
you want!

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

Gas Screw Issues to be avoided!

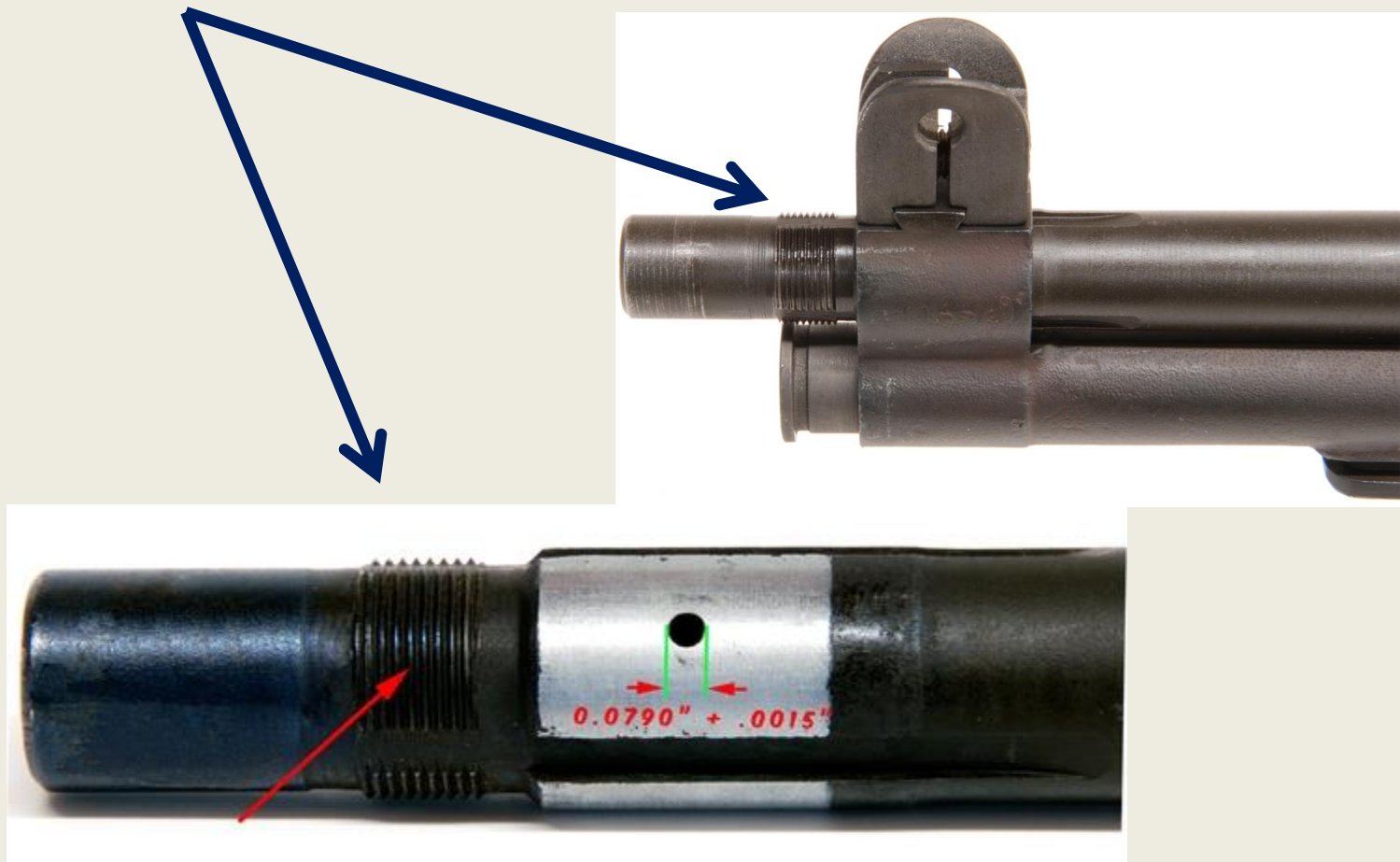


Note these screws missing the plunger! Rifle will never work as semi-auto !

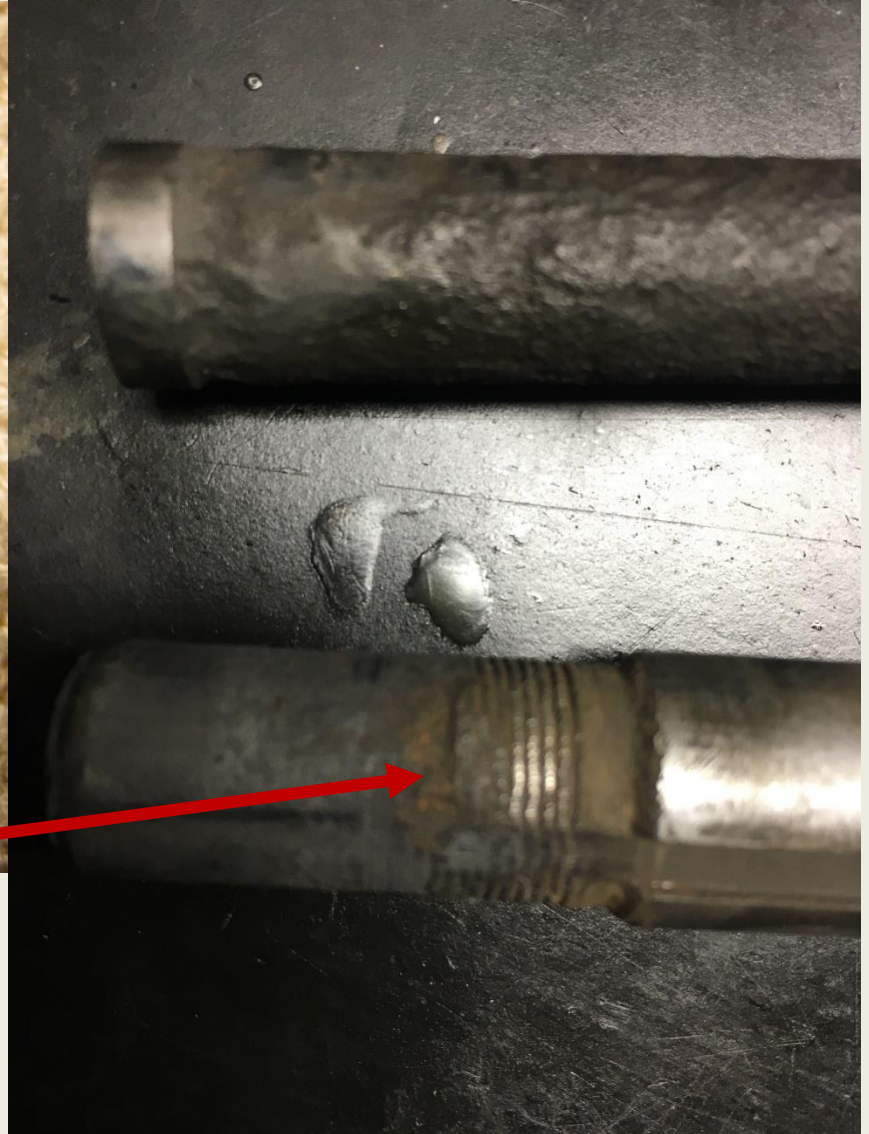


Rust a sign of improper maintenance!

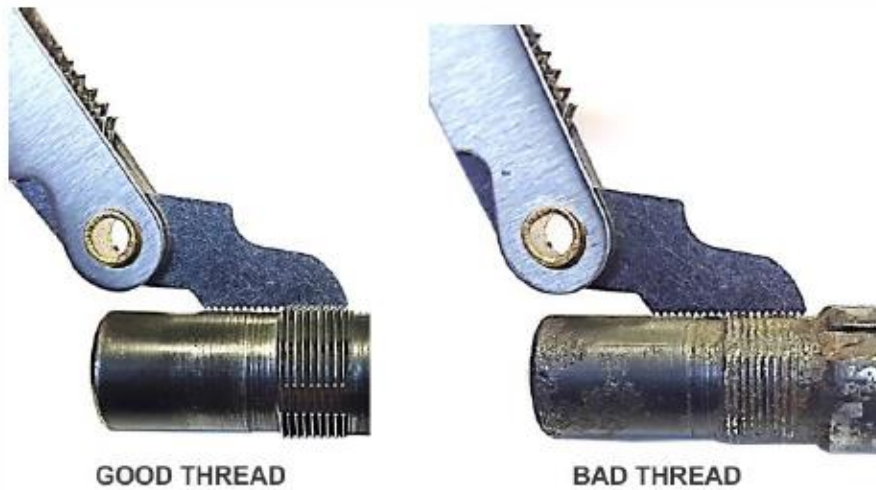
**Make sure threads are in Good shape!
Put some oil on them to control rust.**



Damaged Threads



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



GOOD THREAD

BAD THREAD

Figure 83: Thread Profile Inspection

Barrel Threads 9/16-32NS-2A

If the thread profile is acceptable, the thread diameter of the barrel should be inspected. The diameter of the barrel threads should be $0.5614 - 0.0060/+0.0000$ inches. A standard dial caliper (Figure 75) or electronic caliper (Figure 76) with an accuracy of ± 0.001 " will be needed for this inspection.



CORRECT ORIENTATION

INCORRECT ORIENTATION

Figure 84: Barrel/ Caliper Orientation

Still more things to ponder

- Partially ejected or prematurely ejected clip...need a new clip or clip latch or clip latch spring!



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 but can be dangerous!



Download from
Dreamstime.com

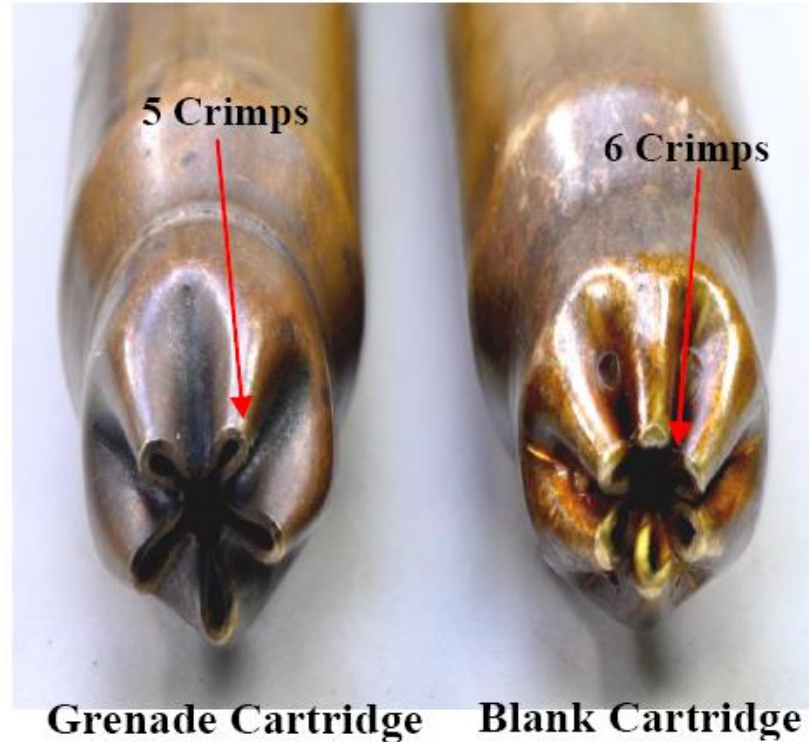
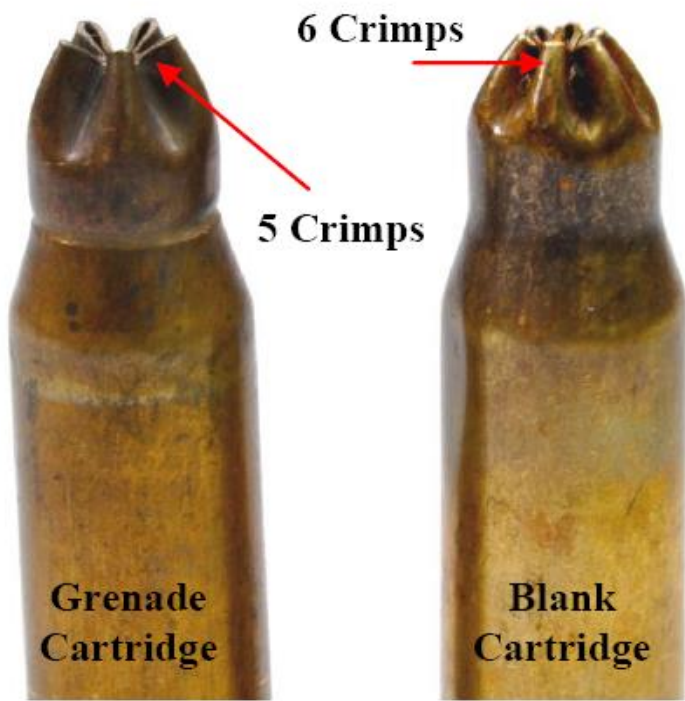
This watermarked comp image is for previewing purposes only.



ID 83141841

© Lkeskinen0 | Dreamstime.com

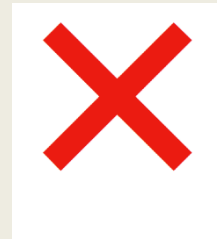
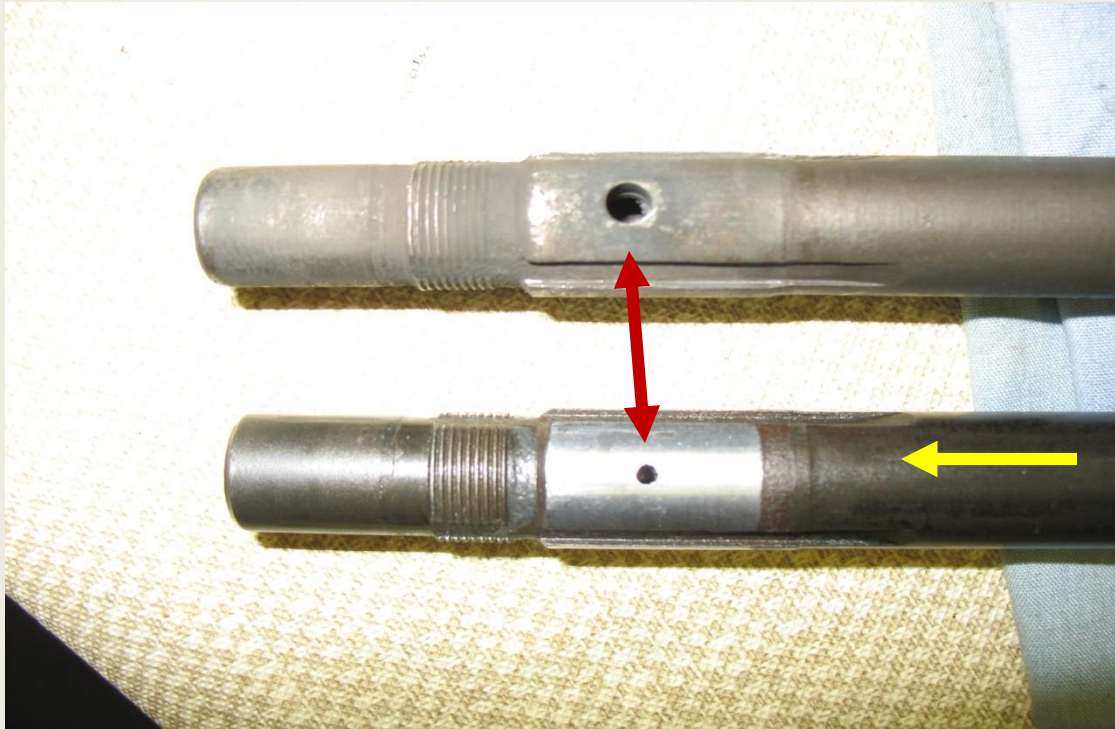
**DO NOT USE GRENADE LAUNCHING CARTRIDGES
OR BLANKS YOU DID NOT GET FROM THE GOVERNMENT**



WARNING

**Contrary to published reports, some grenade blanks have
6 crimps... VERY DANGEROUS!!!!!!**

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



This is correct
.079+-.0015

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 two different posts. I have had success making these rifles work well by drilling out the BFA to a little over .185 inches (#13 drill).

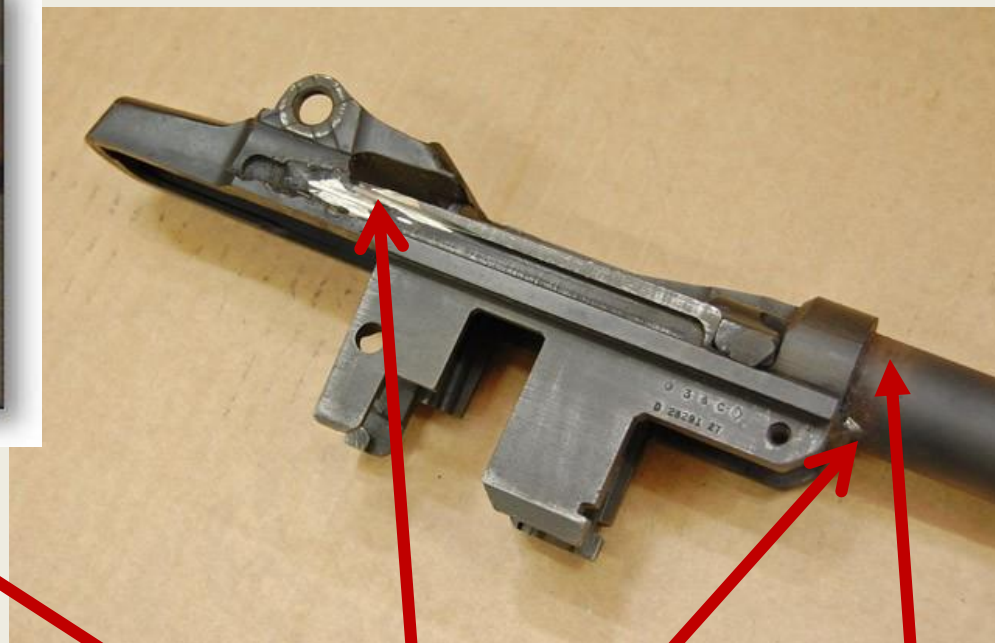
Best to replace the barrel.



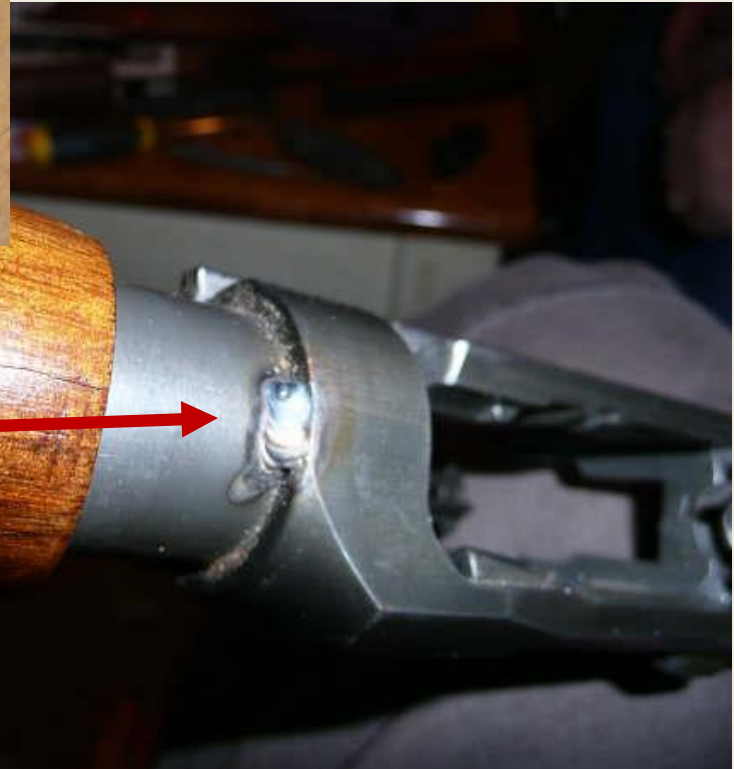
**The Op Rod is supposed to be bent!
Do not attempt to straighten it.**



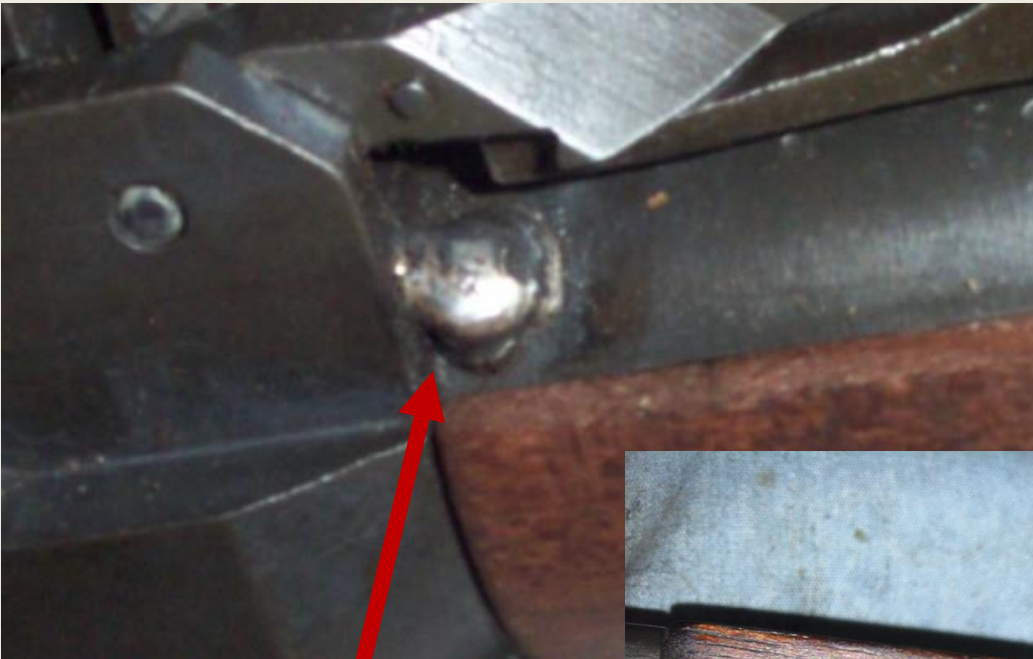
Welded Rifles: Get New Rifles



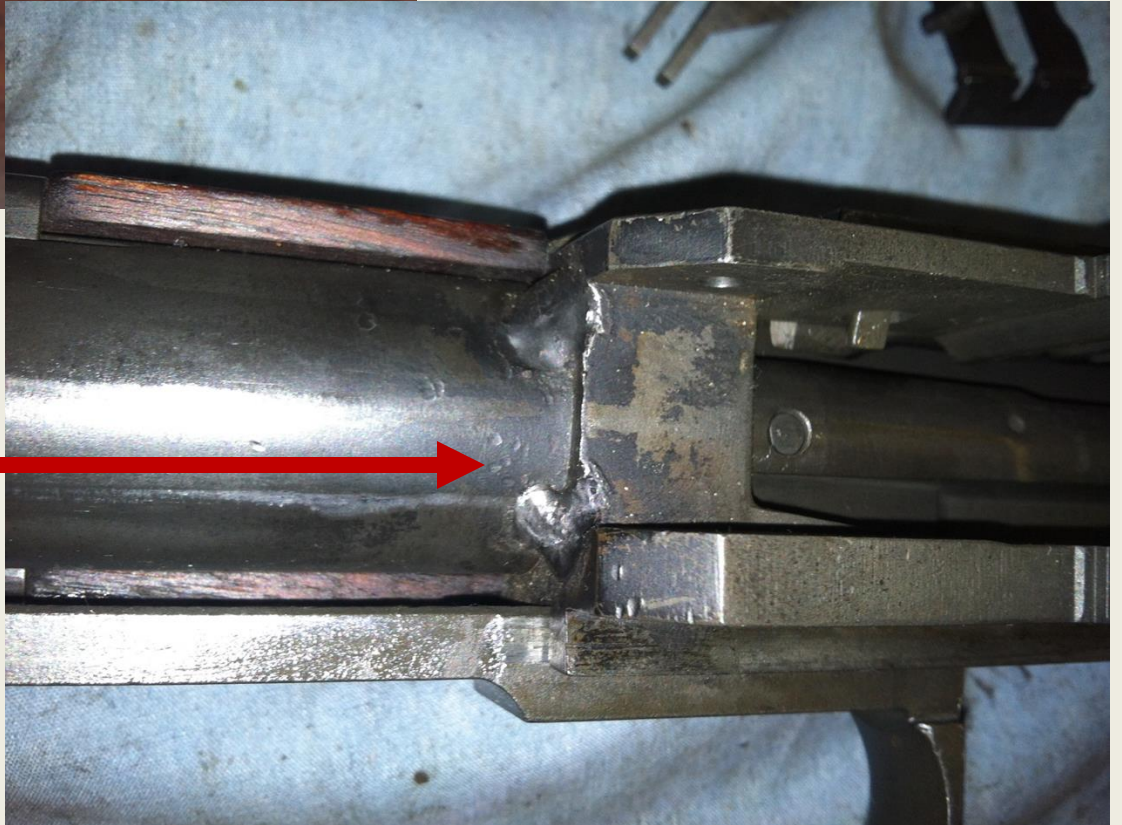
Might be welded here or here



Weld



Weld



**Typical “do it yourself” weld...unsafe and hard,
if not impossible, to service!**



**A post removed the
original weld from
government armory
– can ruin cylinder**

Storage & Maintenance



+



=



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!

*“These weapons are properly safeguarded, are properly maintained, and are used solely for their intended purpose of performing funeral details and other ceremonies. **Conditional Deed of Gift.** This Deed outlines your responsibilities for the retention, the maintenance, and the conditions to retain the weapons.”



SurefireGunSafes.com



What You Typically Have to Pay For



© AIM, Inc. All rights reserved

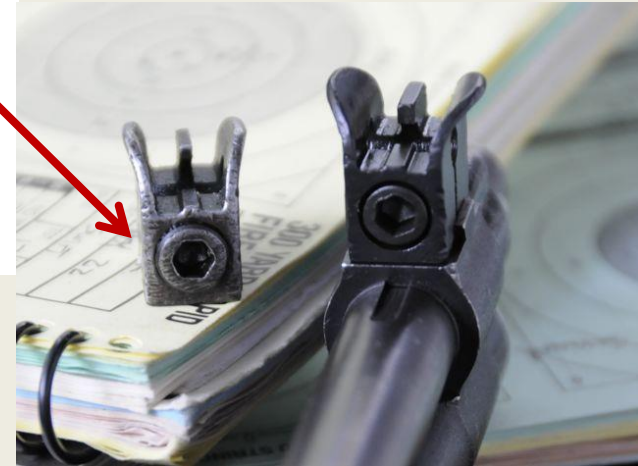
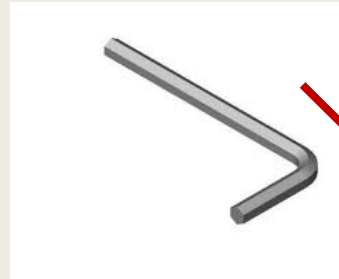


Handy Tools to Have

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



Private sale on ebay usually

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

Parts



StandardParts LLC

GUN PARTS - ACCESSORIES - COLLECTIBLES

Military & Commercial



info@standardpartsllc.com



TACOM WEBSITE FOR NEW RIFLES

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



Home

TACOM ILSC Public Website Donations Page Visitor 10141

ARMY DONATIONS PROGRAM



Ceremonial Rifle Program



Questions

Search FAQ

Static Display Program



Current Program Status

IMPORTANT NOTE:

The Army Donations Program is conducting a mandatory record reconciliation and asset inventory; all customers should expect response delays.



ARMY DONATIONS PROGRAM

Examples

CEREMONIAL RIFLE PROGRAM

The Ceremonial Rifle Program is conducted by the Army Donations Program Office in the Integrated Logistics Support Center of the US Army TACOM Life Cycle Management Command located in Warren, Michigan. This program is conducted in accordance with Title 10 United States Code §4683 as implemented by Army Regulation 700-131.

Below are the types of organizations authorized by law to qualify and conditionally receive Army rifles for ceremonial purposes:

- Law Enforcement Agency
- Veterans' Service Organization with a National Headquarters
- Veterans' Service Organization without a National Headquarters
- National Cemetery

The mailing address for the Army Donations Program Office is:

US Army TACOM Life Cycle Management Command
ATTN: Army Donations Program, M/S: 419D
6501 East 11 Mile Road
Warren, MI 48397-5000

The active military, National Guard, and/or Reserve are not authorized to participate in the Army Ceremonial Rifle Program. See Army Regulation 71-32 for additional information.

Individuals are not authorized to participate in this program.

The Army does NOT sell rifles

FORMS

Completed Form Examples

- Ceremonial Rifle Inventory
- Privacy Act
- Ceremonial Rifle and Static Display Questionnaire
- Conditional Deed of Gift Ceremonial Rifles

Forms

- Ceremonial Rifle Inventory
- Cert of Assurance of Compliance
- Certificate of Arms Storage
- Certificate of Compliance
- Non-Recognized Veterans Organization
- Law Enforcement
- Recognized Veterans Organization
- National Cemetery Checklist
- Privacy Act Notice

Important Info

Other Rifle Information

- Veterans' Ammo Requests
- Law Enforcement Ammo Requests
- Definition of law enforcement agency
- Rifle Program Information
- M1 Garand Operation and Maintenance Guide for Non Military Organizations

Points of Contact

Donations Team Email Address:

[✉ usarmy.detroit.tacom.mbx.ilsc-donations@mail.mil](mailto:usarmy.detroit.tacom.mbx.ilsc-donations@mail.mil)

Donations Team Commercial Line:

[☎ \(586\)-282-9861](tel:(586)282-9861)



WISCONSIN
SCHOOL OF BUSINESS

UNIVERSITY OF WISCONSIN-MADISON

TOGETHER
FORWARD®

Jim Johannes

James.Johannes@wisc.edu

(608) 265-2323