

BRP MG42 7.62 NATO Conversion

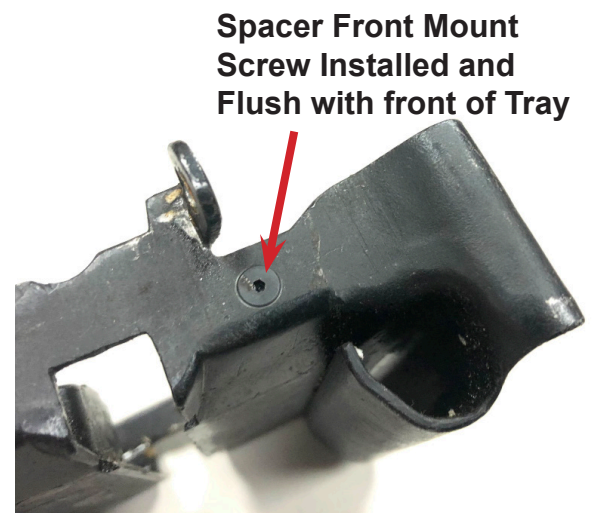
Converting your MG42 or M53 to 7.62 NATO is a valuable option given the waning quality and availability of 8mm Mauser ammo. We developed this spacer setup to mimic the function of the early West German MG1-A1 conversions of WW2 MG42s. All you need is a properly-spaced feed tray, a 7.62 NATO barrel, and enough pressure to cycle the gun (see notes on **MG42 Pressure System** below). Over the years we've found that 7.62 conversions for original 8mm MG42 & M53 using 8mm "long" top covers tend to be more reliable than conversions using MG1-A3 or MG3 "short" top covers and feed trays.

The West Germans welded a spacer to the front of the MG42 8mm feed tray similar to how the Norwegians converted their MG34s to 7.62 NATO in the same era (1950s and 1960s) to compensate for the shorter 7.62 NATO cartridge. The BRP version of this setup uses a similarly designed spacer with the added benefit of being removable by a 4-40 socket flat head mount screw (1/16" hex key). In the BRP setup, the same tray can be used for both 8mm and 7.62 NATO just by installing or removing the spacer.

Switching between 8mm Mauser and 7.62 NATO only requires swapping the feed tray spacer and barrel. The standard 8mm bolt and top cover do not require any modifications to properly function with 7.62 NATO making switching calibers fast and easy.

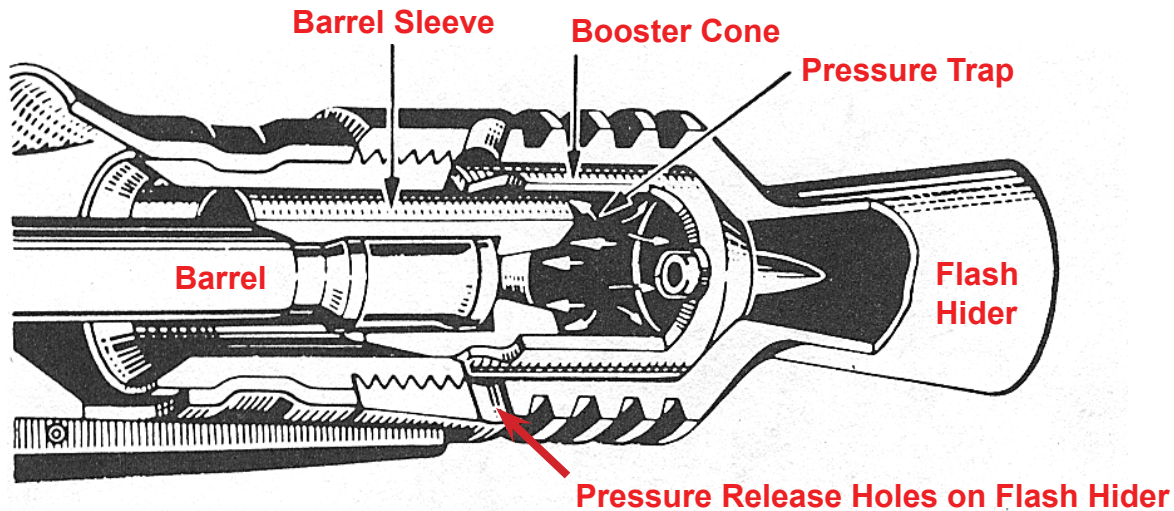
Installation

The BRP 7.62 NATO front spacer is installed by one 4-40 flat head screw at the front of an original 8mm feed tray. A drilled and countersunk (82°) hole must be added to the front the feed tray. BRP can make this modification for \$100. Alternatively, customers can add this mounting hole by the following process: *(instructions below)*



MG42 Pressure System

The MG42 is a Short-Recoil operated gun. When the bullet reaches the muzzle, the recoil and excess propellant gases enter the booster area and drive the barrel rearward against the mainspring and barrel return piston (recuperator). This movement forces the bolt locking rollers against the trunion to unlock the bolt and allow it to reciprocate in the body of the receiver. The 7.62 NATO cartridge is slightly weaker & lighter than the 8mm cartridge and more cycling / booster pressure may be necessary to properly cycle the gun.



MG42, MG3, and M53 Booster Differences

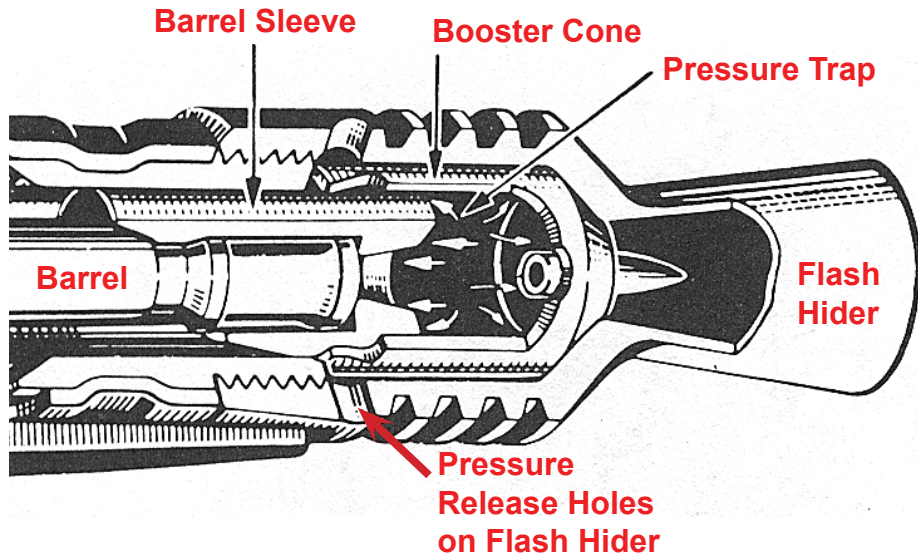
The 7.62 NATO booster sets and German WW2 pattern booster sets are similar in pressure restriction. Both have less internal volume and smaller diameter exit holes for the gases to expand compared to Yugoslav M53 booster sets. These shapes restrict more pressure in the booster assembly compared to M53 booster sets thereby driving the barrel rearward with more force. The M53 barrel sleeve is also shorter than the MG42 and MG3 barrel sleeves which in turn relieves more pressure at the front resulting in a weaker short-recoil stroke and less bolt speed. This is why the WW2 MG42s shoot much faster than M53s even though all the parts are identical except for the booster cone and barrel sleeve. Typically you can just use the M53 booster sets to run both 7.62 NATO and 8mm. Use German MG42 or MG3 booster parts only if necessary to increase cycle pressure.

To determine the amount of booster pressure you'll need to properly cycle your gun, you should fire some single shots with the standard M53 booster set to see if your gun cycles properly. If the gun fails to eject the spent case, more pressure is needed to cycle the action and other booster parts should be substituted to increase pressure.

If the system cycles too hard with the M53 booster set, as can be felt by the shooter and seen in majorly deformed spent cases, the overall pressure in the system can be reduced by loosening the flash hider 3-5 clicks by lifting the spring loaded lever. With some guns, it may be necessary to enlarge the Yugo booster cone beyond the 13mm standard in order to further reduce cycling pressure.

***It's important to note that a gun firing from the closed bolt will have more bolt acceleration at the moment of firing so less pressure / short recoil energy is required to properly cycle the action. To reduce wear and potential breakages, only channel just enough energy back into the system to properly cycle the action.*

MG42 Booster and Barrel Sleeve Variations



The more pressure that is captured in the booster assembly, the harder/faster the gun will cycle. Pictured below are some MG42, MG1, MG3, and M53 booster cone and barrel sleeve variations.

A WW2 MG42 shoots much faster than the Yugo M53 due to the longer barrel sleeve with deep "V" trap and 10mm booster cone.

Booster

Cones:

Smaller diameter exit holes trap more pressure.



Pressure Release Vents on Booster Cone

Barrel Sleeves:

Longer sleeves trap more pressure. Deeper "V" cuts trap more pressure.

With a longer barrel sleeve, the barrel strokes farther rearward under positive pressure before the pressure vents out of the booster cone vents and flash hider pressure release holes.

MG42 WW2 50mm Long with Deep "V" Trap at Top

MG3 49mm long

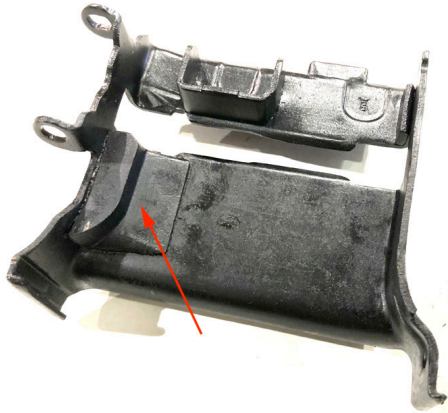
Yugo M53 47mm Long with Shallow "V" Trap at Top



Original MG42 7.62 Cover & Tray Reference



• **MG1-A1 Feed Tray:** This is an original 8mm feed tray with a spacer welded at the front. It works with the original 8mm top cover.



Feed: Pre-1941 “loose” pattern belts or German post war DM-1 belts for 7.62 NATO.



• **MG1-A3 Top Cover and Feed Tray Set:** This is a shortened top cover and feed tray. The 8mm top cover cannot be used with this shortened feed tray.
Feed: Pre-1941 “loose” pattern belts or German post war DM-1 belts for 7.62 NATO.



• **MG3 Top Cover and Feed Tray Set:** This is a shortened top cover and feed tray similar to the MG1-A3. Unlike the MG1-A3, the feed tray is setup to use the HK pattern plastic drums and to top cover has a spring hold up device.
Feed: Pre-1941 “loose” pattern belts, German post war DM-1 7.62 belts, or NATO 7.62 links (aka M60 links)

** A Note on Bolts:

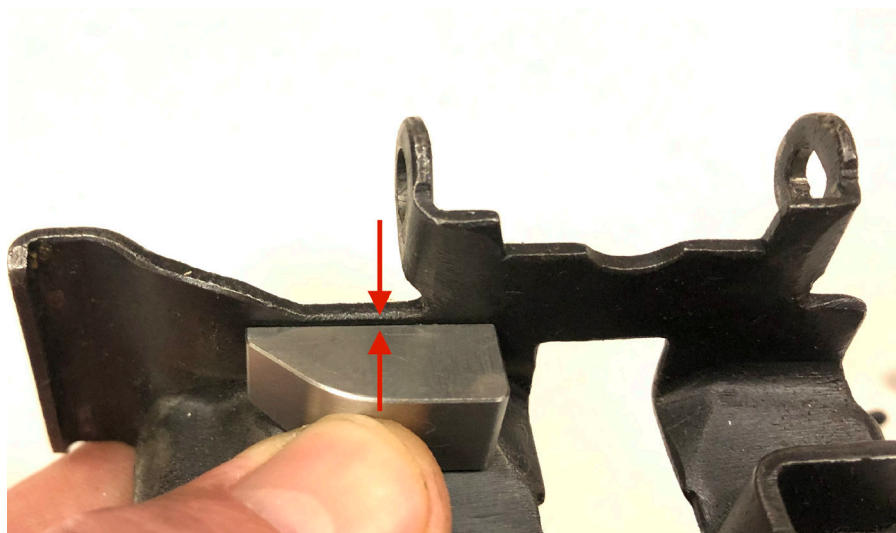
- 7.62 NATO bolt will NOT work with 8mm Mauser ammo.
- Original Yugo or German 8mm Mauser Bolts work with both calibers

MG42 Feed Tray 7.62 NATO Front Spacer Installation

Tools:

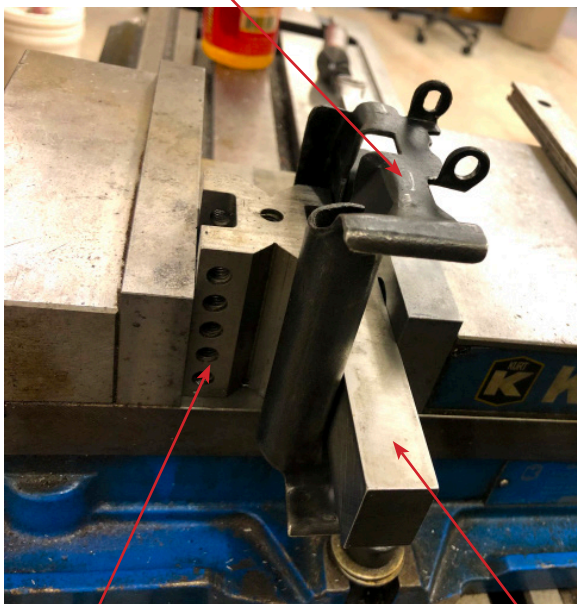
- Mill or precision drill press
- Precision vise
- #33 carbide drill
- 82° carbide countersink

1) Height Location: Align spacer in place and measure from top of this tray surface to the top of the 7.62 spacer. Make sure to press the angles on the tray and spacer together for a tight fit.



2) The Setup

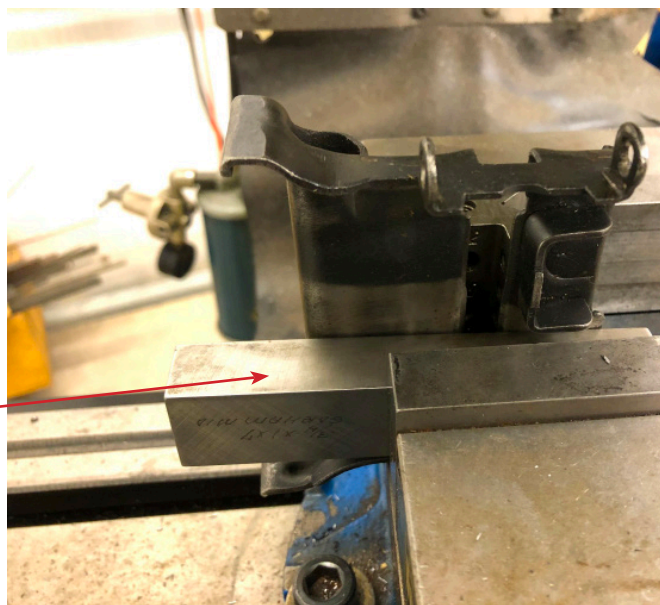
Tray Front



- Align the rear flat of the tray on the bottom of the vise.
- Use blocks to brace the top and bottom tray flat surfaces with the front and rear vise jaws.
- Make sure the rear of the tray stays flat on the vise bottom when tightening.

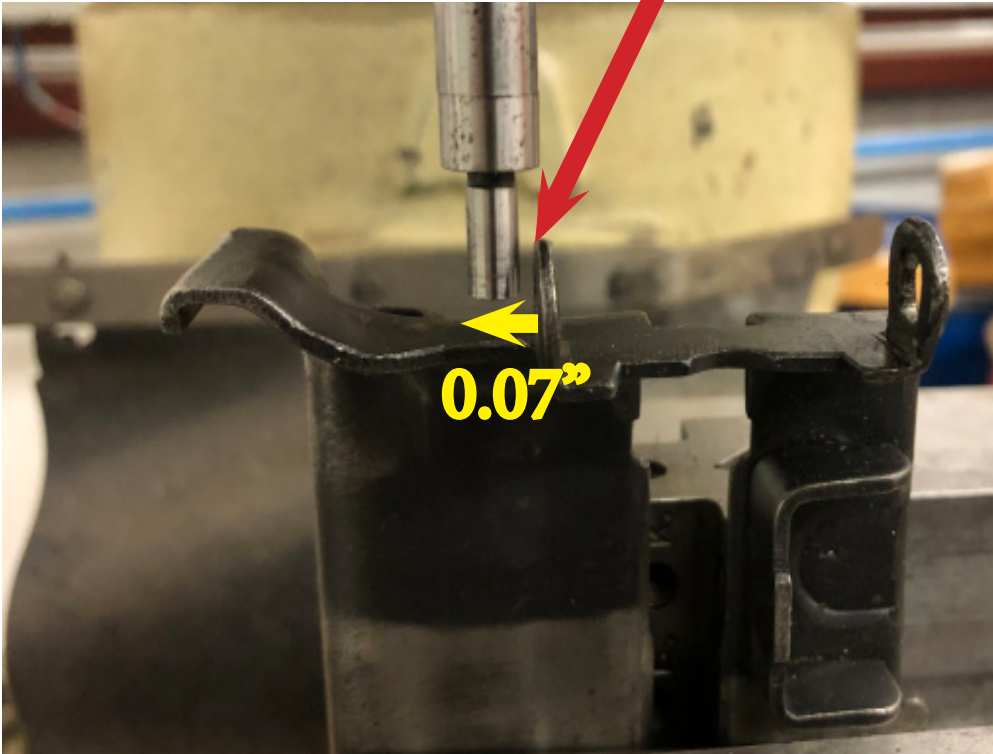
Tray Bottom Bracing
Block on Rear Vise Jaw

Tray Top
Bracing
Block on
Front Vise
Jaw



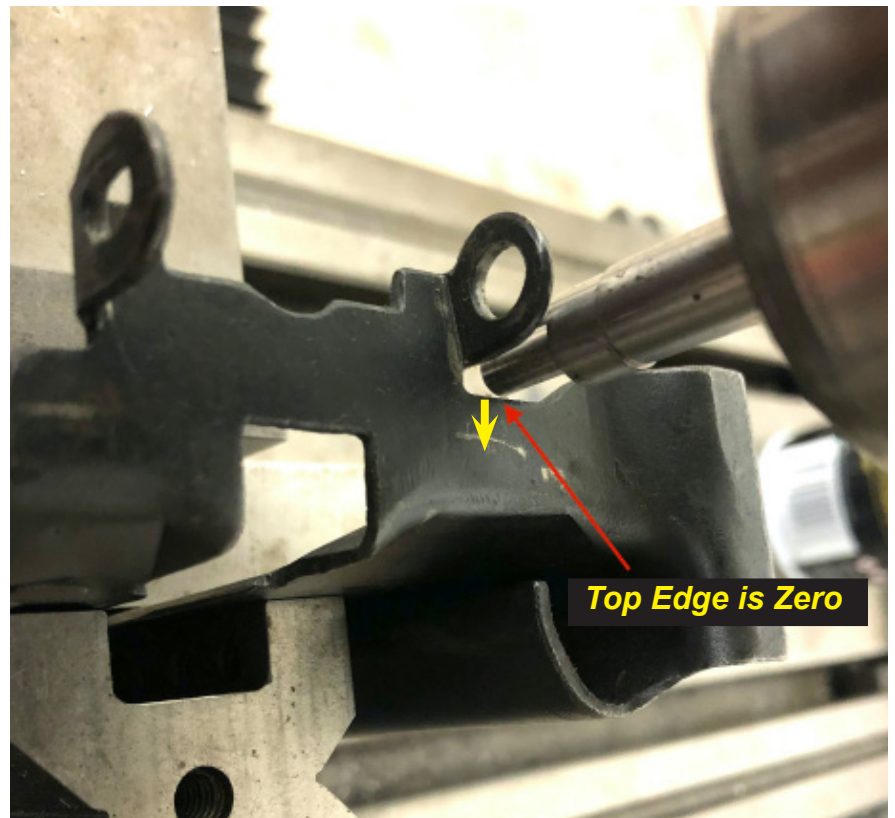
3) Left/Right (X) Location: Using an edge finder as pictured, offset .07 from the left mount tab of tray.

Left Tray Mount Tab
-- *Outside Edge is Zero*



4) In/Out (Y) Location: Using an edge finder, locate the top of the tray. Add the number from **Step 1** to .165" to get the location Y location. This will align the angles on the tray and spacer for a tight fit.

With the X and Y locations from **Steps 3 and 4**, drill the #33 hole through this front tray section.

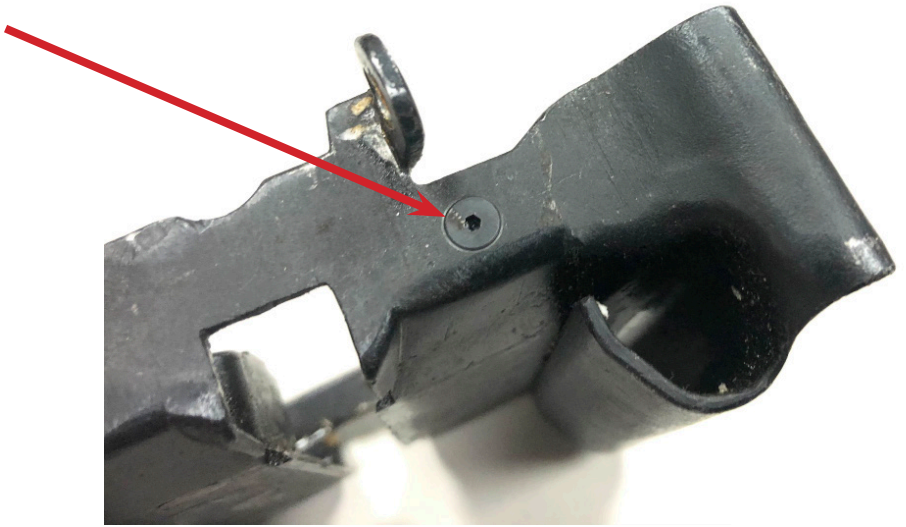


5) Countersink Hole:

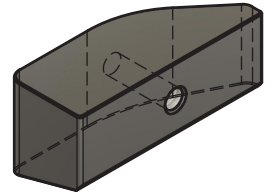
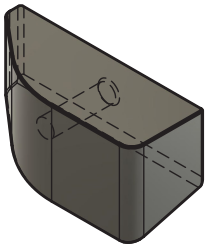
With the 82° countersink in the chuck, set your Z on the digital readout to 0.000 with the countersink tool seated in the #33 hole. Turn the machine on and carefully peck to depth Z:-0.0675. At this depth the head of the 4-40 flat head screw will be flush with the front surface of the feed tray.

Deburr and spot blue the hole.

A 1/16" hex key is used for installing or removing the spacer mount screw.

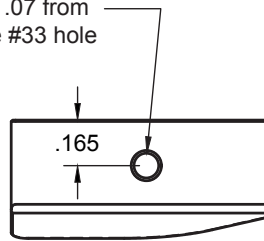


Tools: Mill or precision drill press,
precision vise, #33 carbide drill,
82° carbide countersink

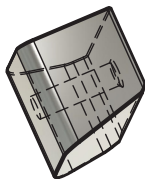


- 1) Height Location: Align spacer in place and measure from top of spacer to tray. Add this number to .165 to get the location height location of the #33 drill hole.

- 2) Left/Right Location: Offset .07 from mount tab of tray and drill the #33 hole



- 3) With the 82° countersink in the chuck, set your Z on the digital readout to 0.000 with the countersink tool seated in the #33 hole. Turn the machine on and carefully peck to depth Z:-0.0675. At this depth the head of the 4-40 flat head screw will be flush with the front surface of the feed tray.



PROJECT			
MG42 Tray Mod			
TITLE			
7.62 Spacer Installation			
SIZE	CODE	DWG NO	REV
A			
SCALE 2:1		WEIGHT	SHEET 1/1