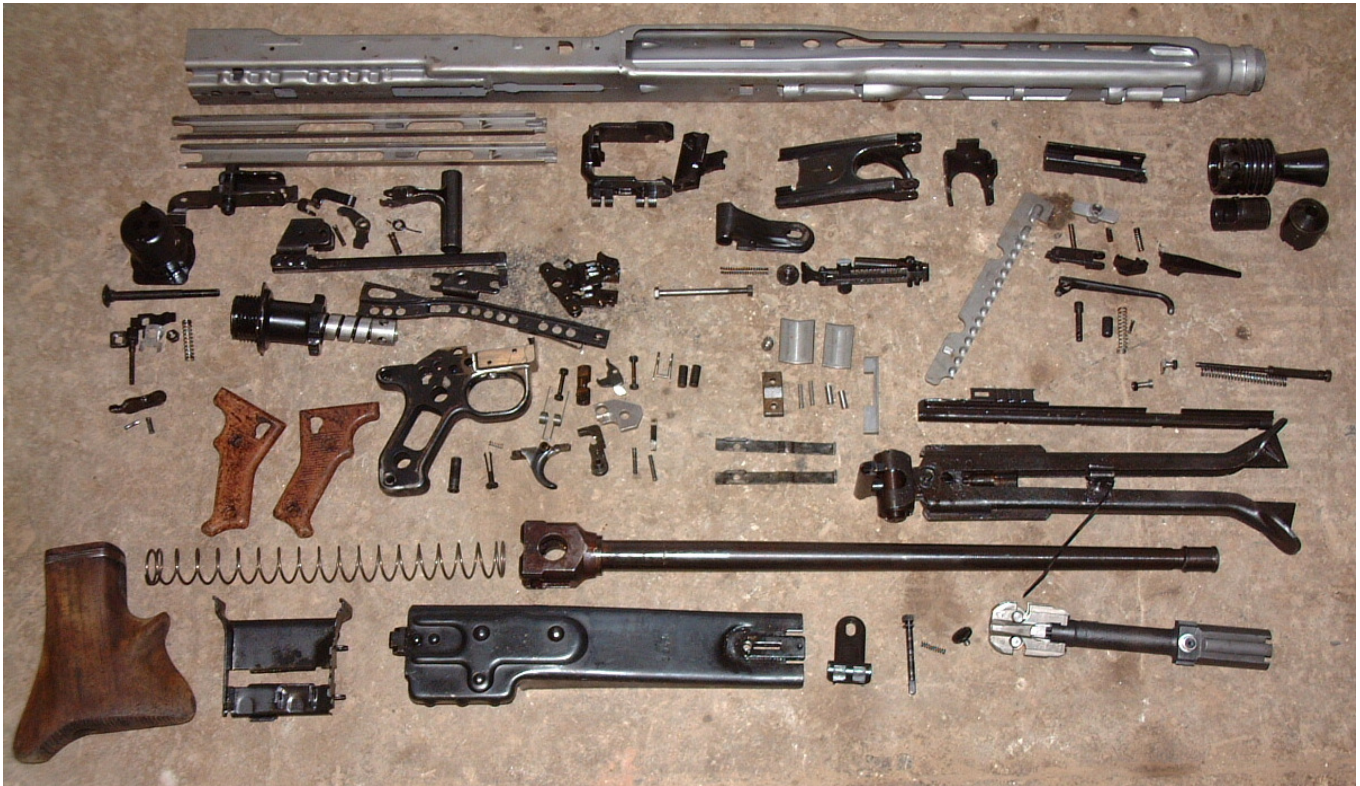


BRP Receiver Build

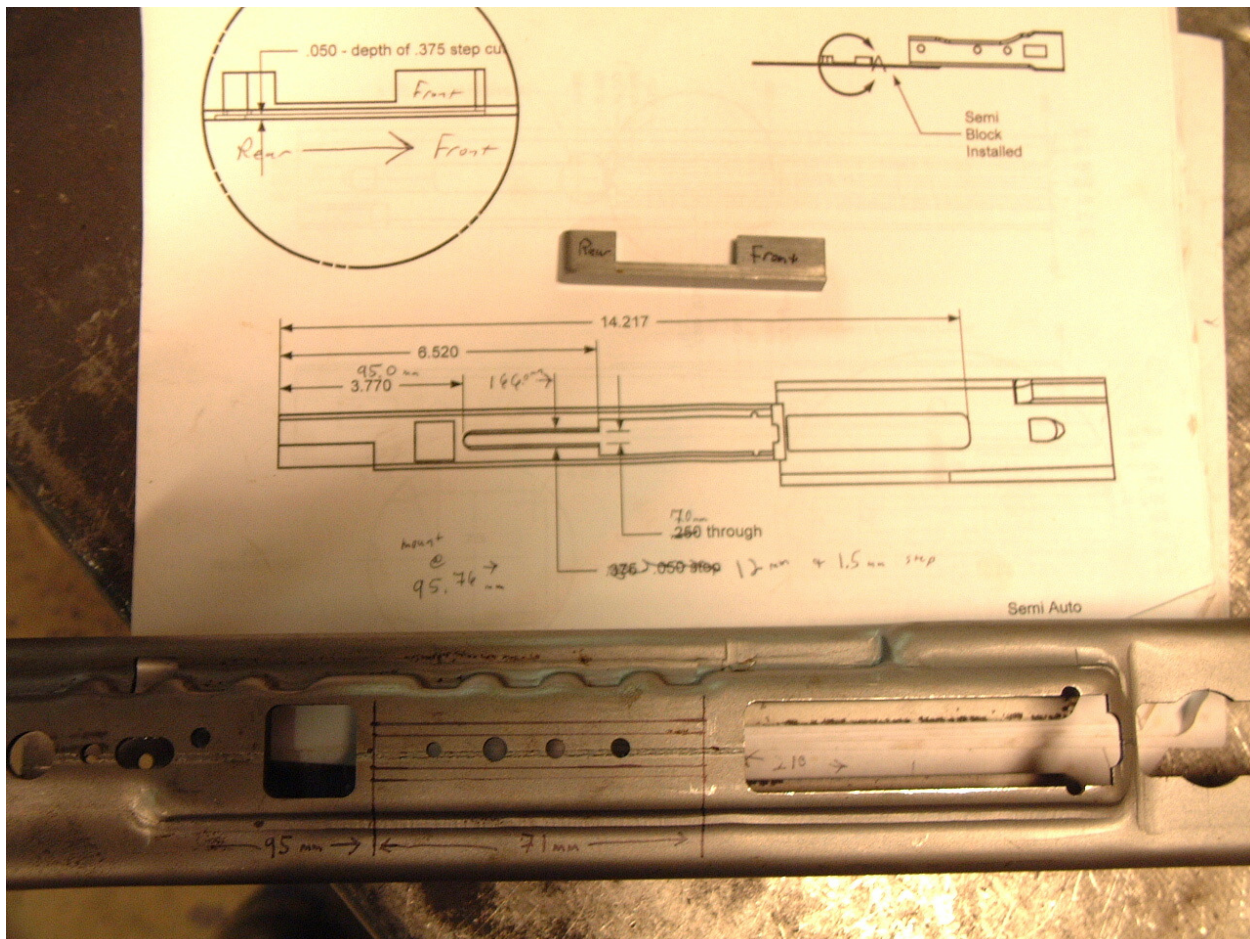


All measure are in millimeters. All tooling is in standard.

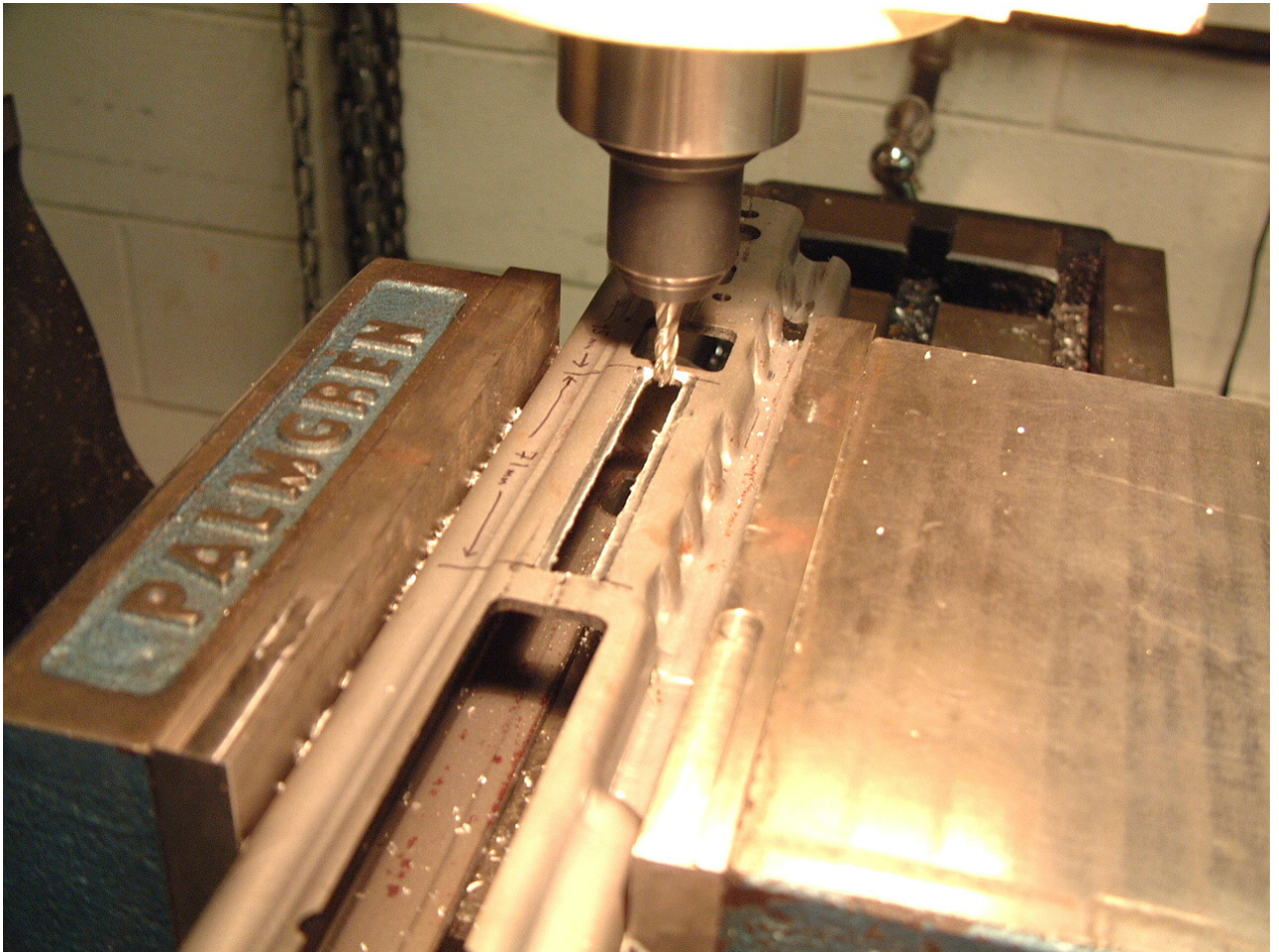
*Some of the pictures were taken out of order and will show future steps already completed.
The example unit was welded and not riveted. It will not show rivets and/or rivet heads at times.*



1- Lay out all your parts. Do not disassemble a preassembled semi-auto trigger assy.



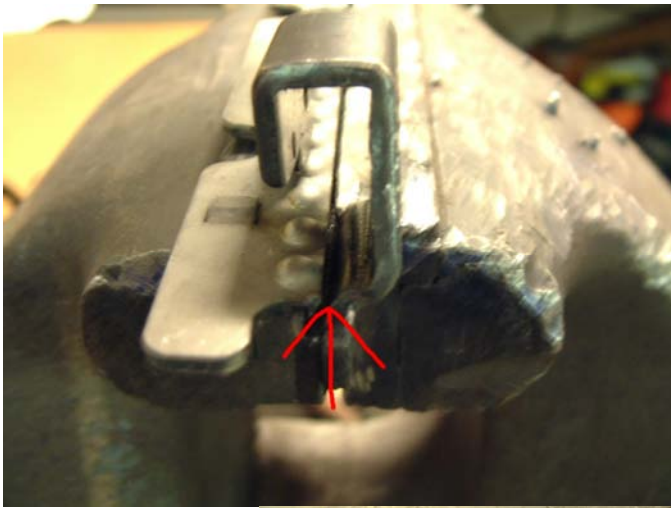
2- Lay out semi auto bolt block location on the bottom of the receiver. Mark the block for the correct installation direction. Slot starts 95mm from the back and is 71mm long.



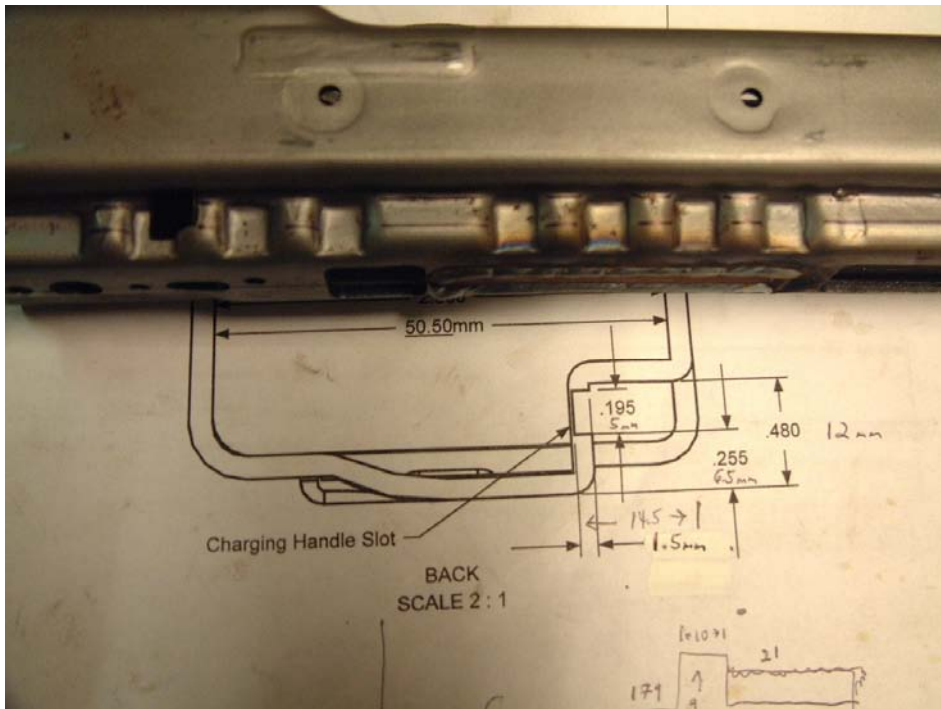
- 3- Mill an opening 71mm long x 7mm wide. Mill a step 1.5mm deep x 3mm wide
- 4- Weld in the semi auto block. Small rounded block towards the rear.
- 5- Grind welds flush.



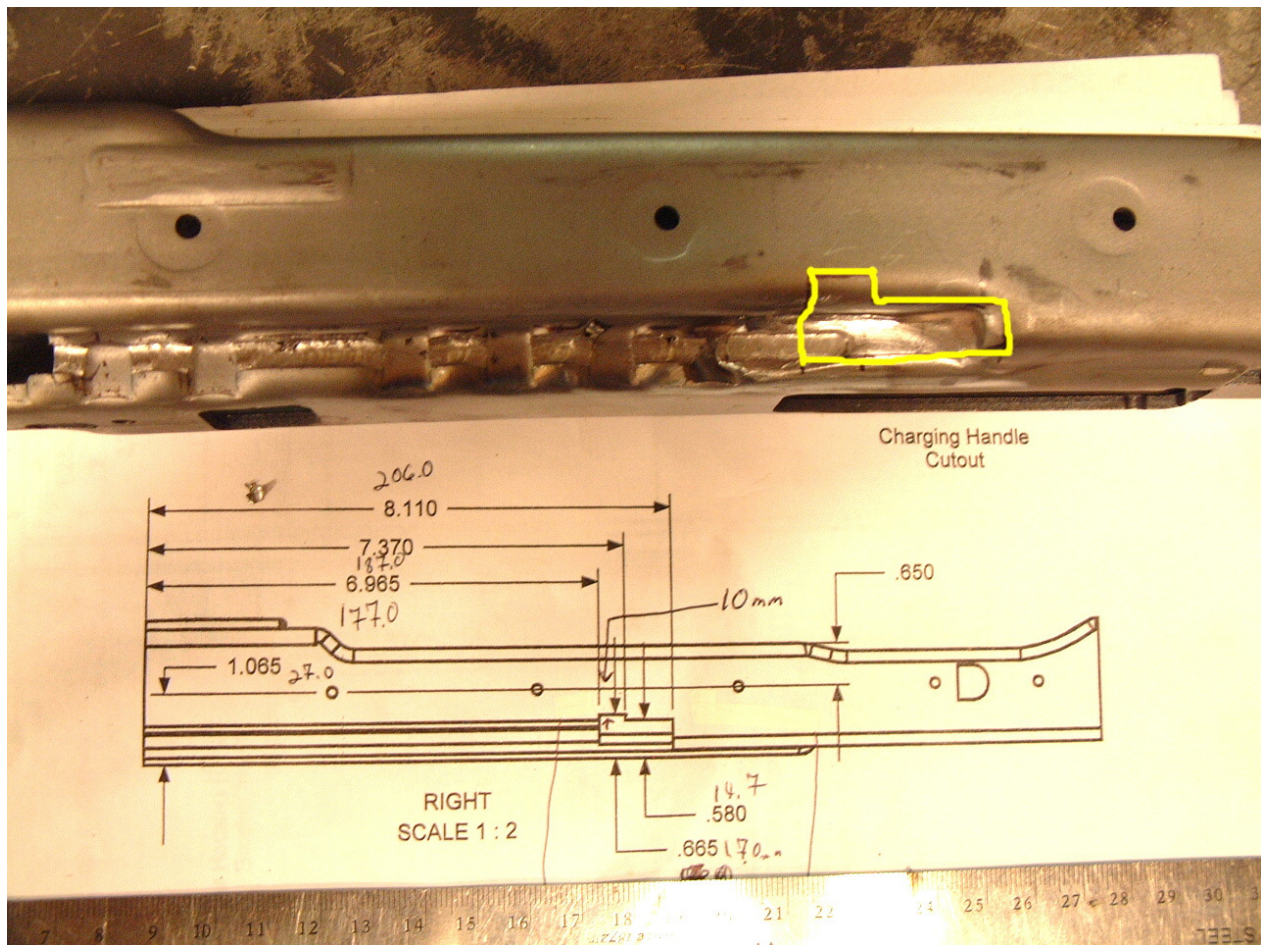
- 6- Mill charging handle groove in ratchet plate. Use a 3/32" keyseat cutter to cut this slot in the middle of the dimples to a depth of 1.5mm



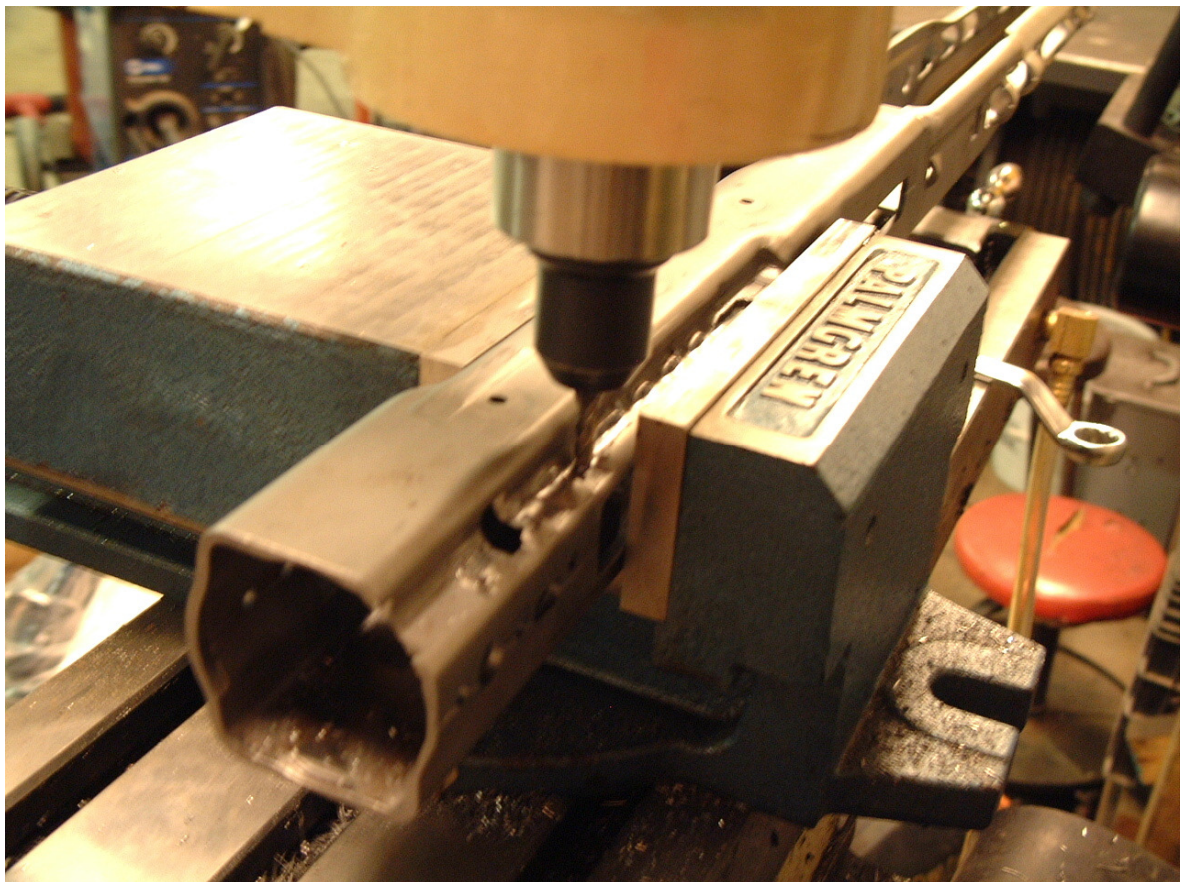
7- Trial fit the charging handle in ratchet plate. The bottom of the ratchet plate will have to be milled for clearance.



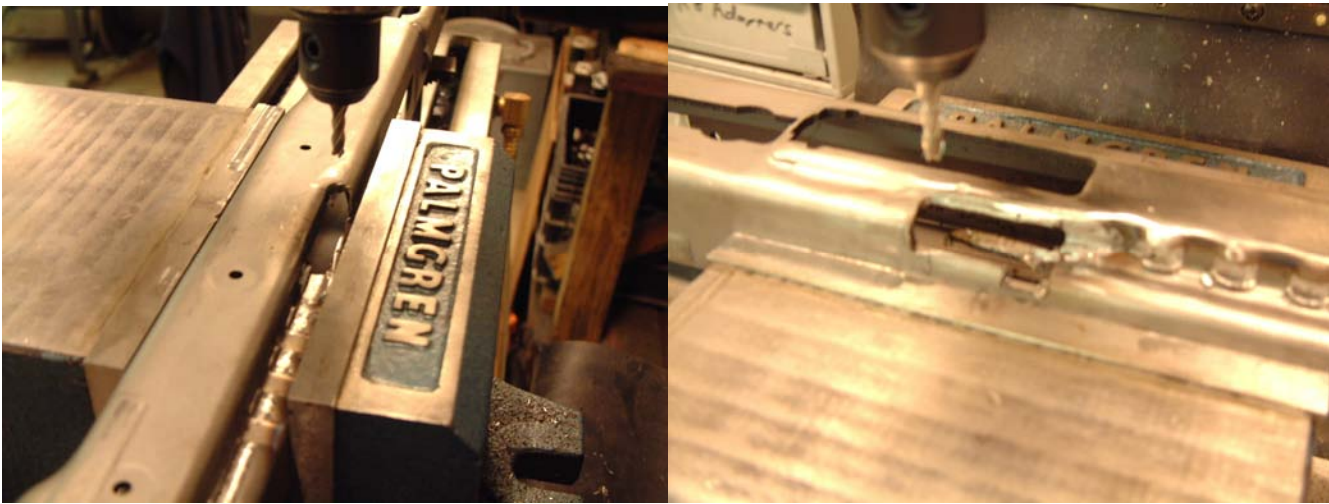
8- Lay out charging handle slot on the receiver.



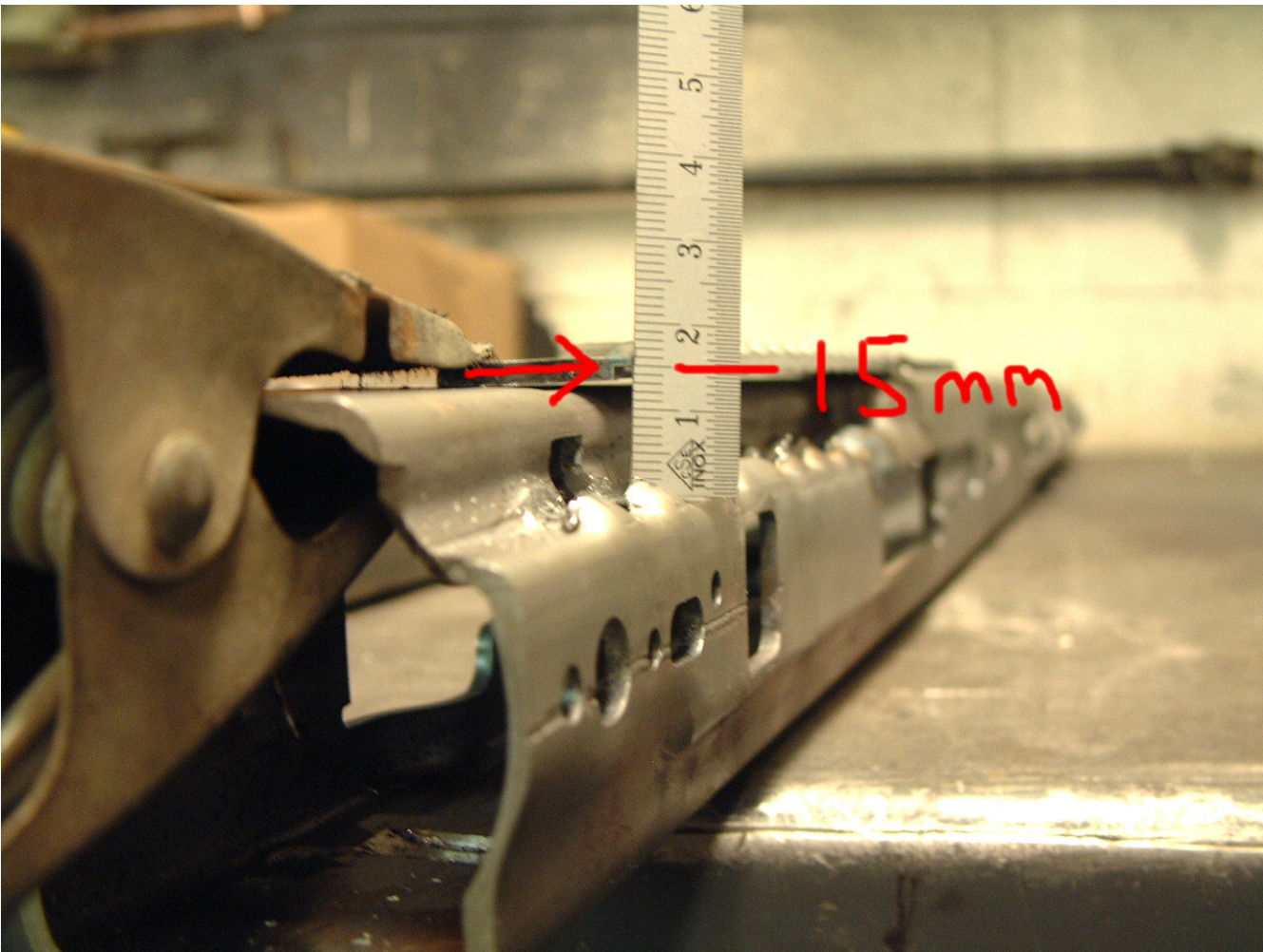
9- Lay out charging handle cut out.



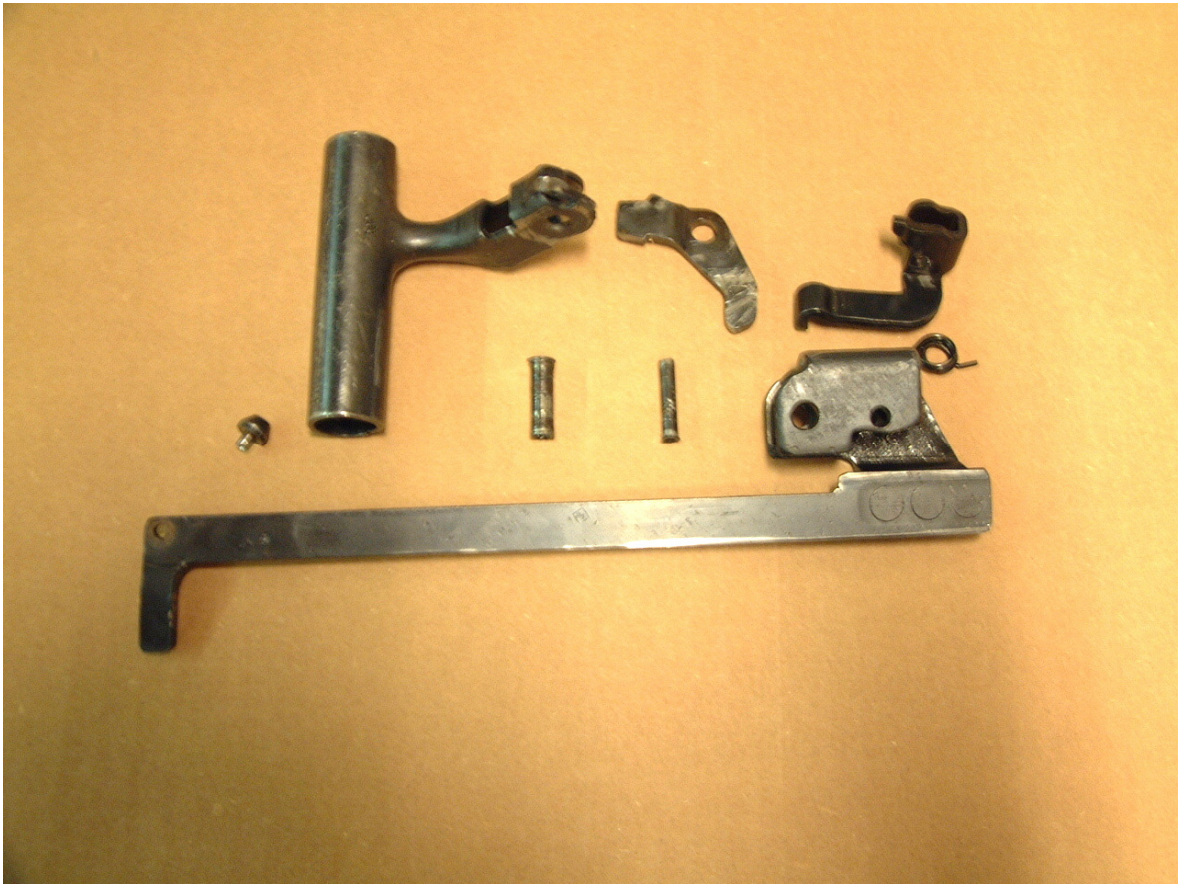
10- Machine the slot in the receiver. MAXIMUM slot depth is 2.5mm



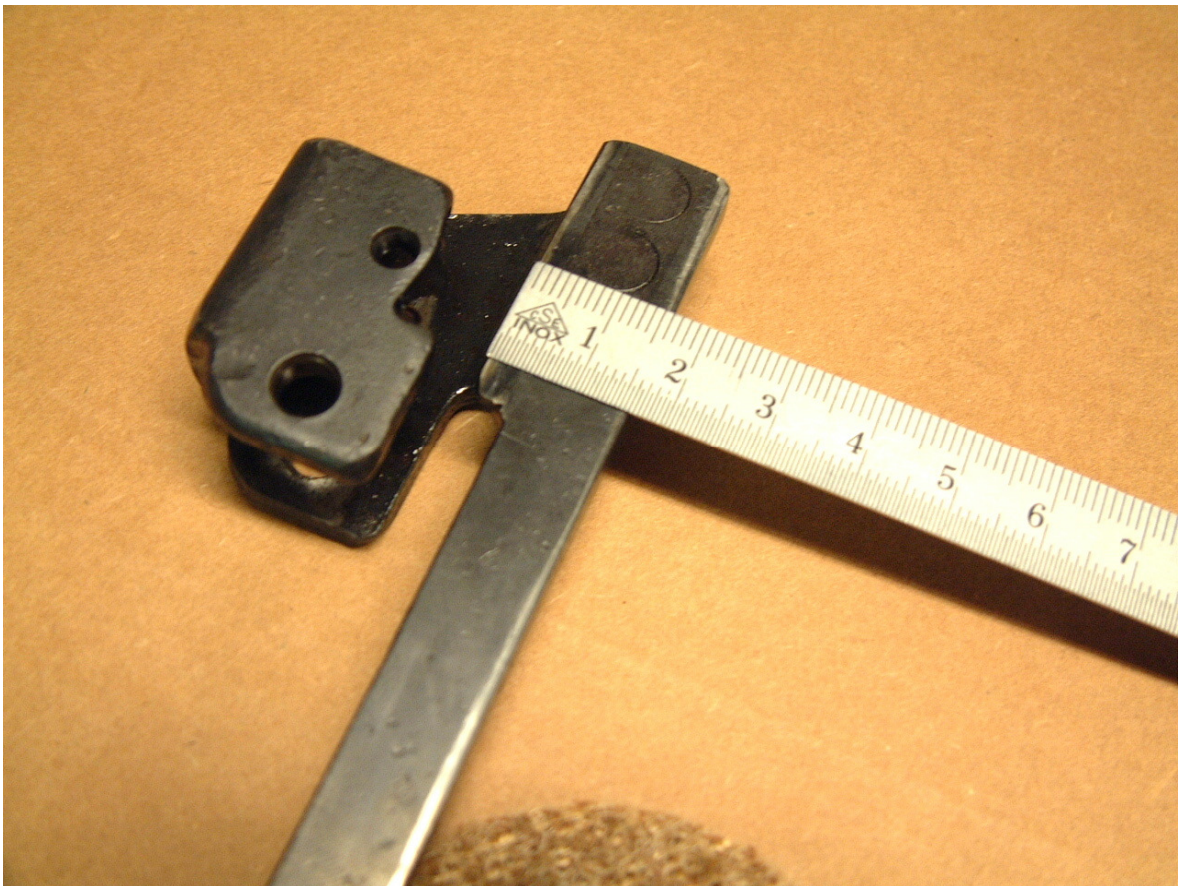
11- Mill charging handle cut out. Rotate the receiver to complete the cut out.



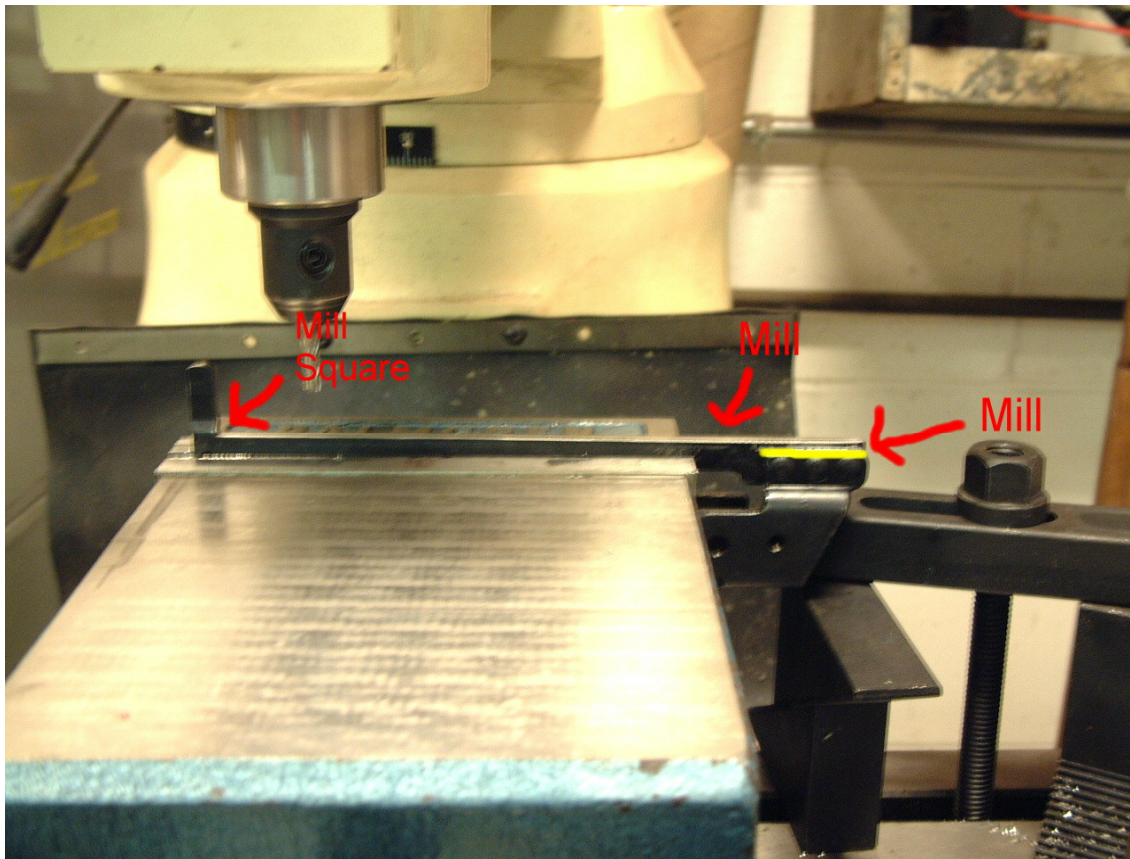
12- Measure the distance between the top of the ratchet plate groove to the bottom of the charging handle slot. Measurement~“12A” *Example is 15mm*



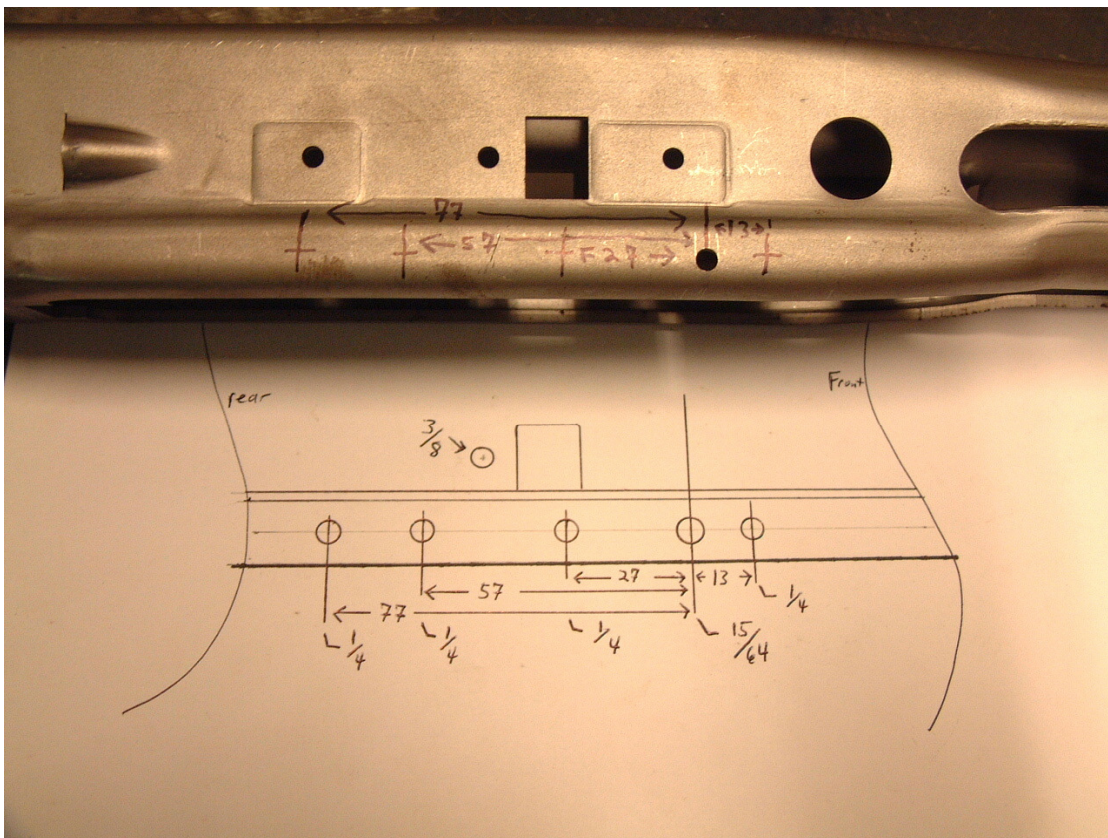
13- Disassemble charging handle. Remove the button on the end to ensure the charging handle will sit square in the mill vise.



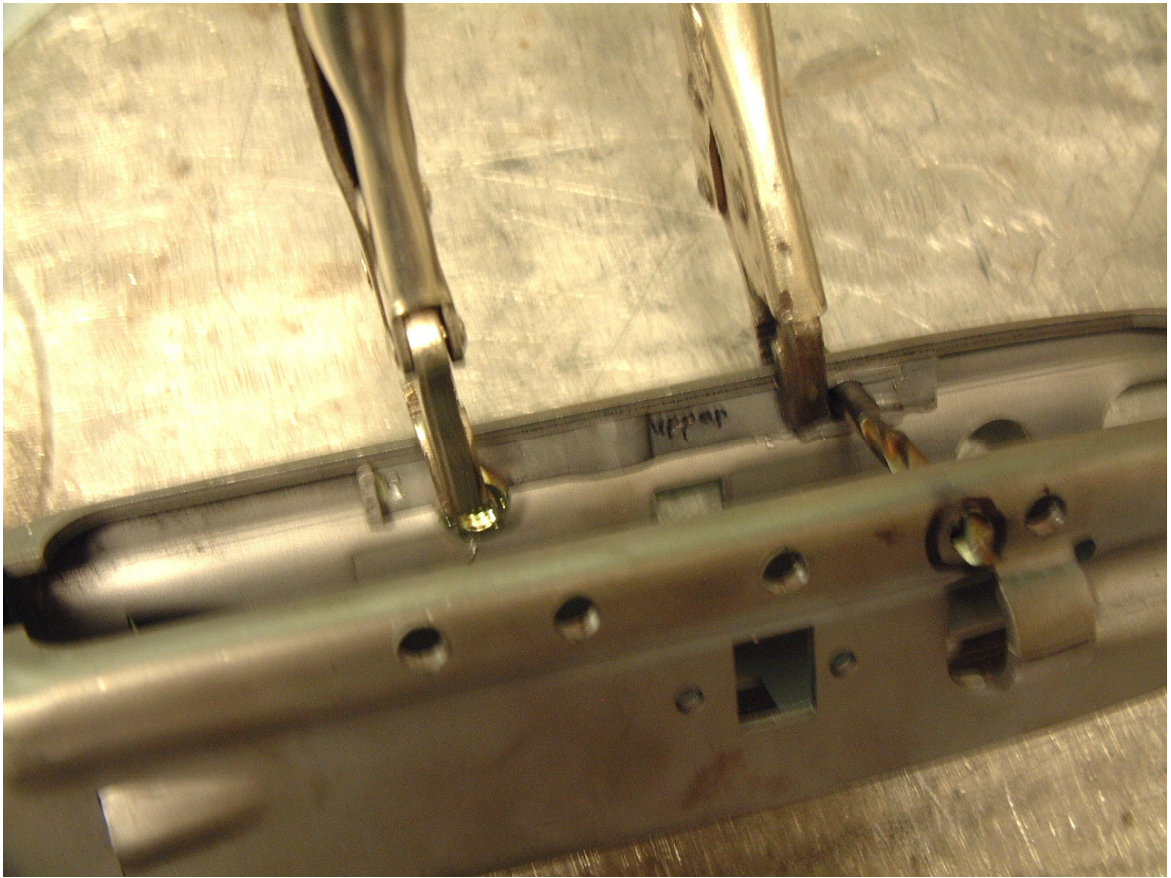
14- Measure charging handle width. Measurement~“14B” *Example is 16.5mm*



15- “14B” – “12A” = Measurement~“15C”. Example is $16.5\text{mm} - 15\text{mm} = 1.5\text{mm}$. Remove “15C” from 2 locations. 1st location the inside length of the charging handle. Squaring the inside bend. 2nd location is the handle assemble riveted to the charging handle.



16- Lay out the holes for the rear barrel guide / barrel door bracket on both sides. Drill the 8 marked holes with a $\frac{1}{4}$ " drill bit. Drill the barrel door rivet holes with a $\frac{15}{64}$ " drill bit. Clean all burrs.



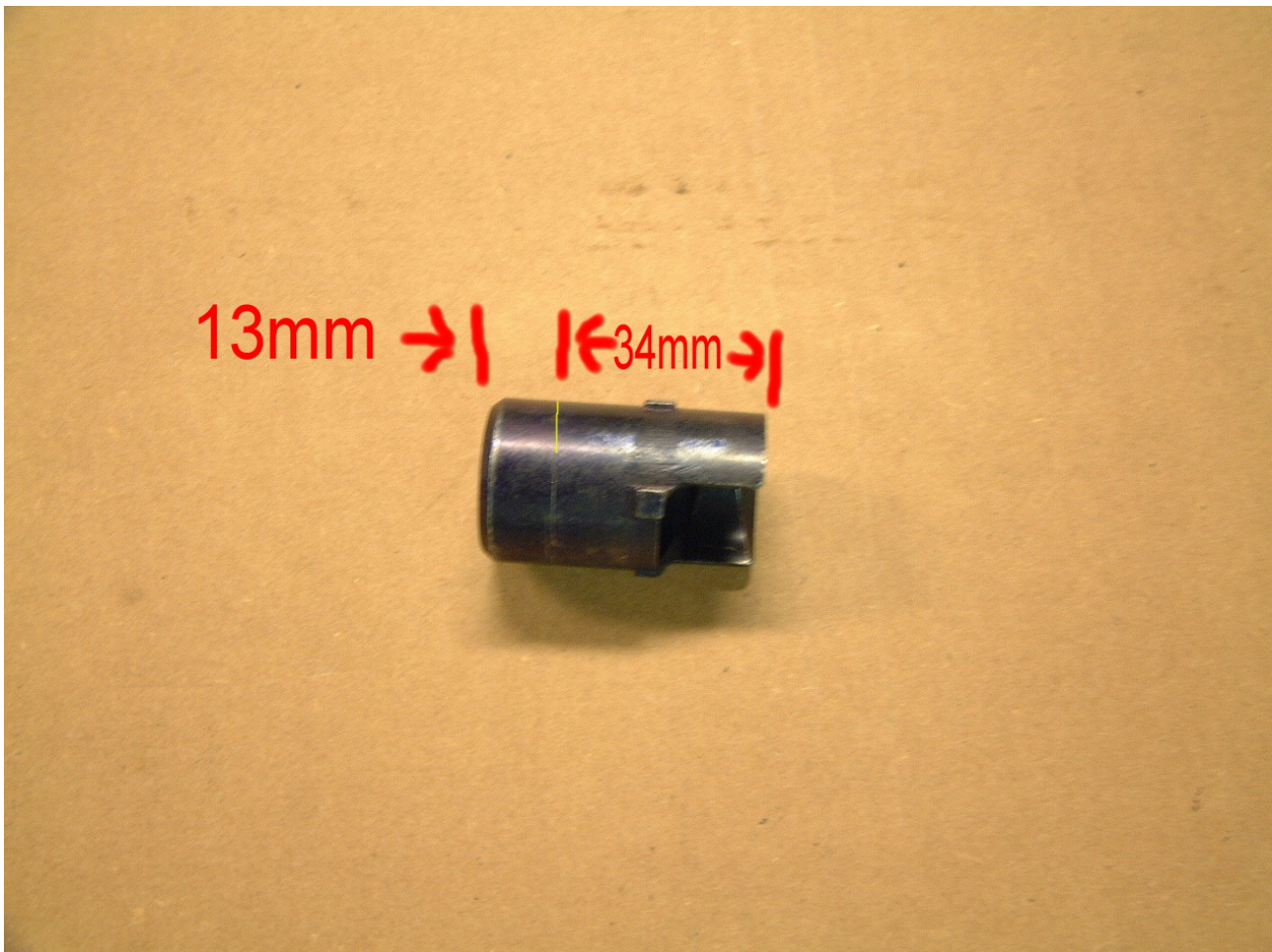
- 17- Clamp in the upper bracket using a $15/64$ " drill bit throw the barrel door rivet holes to align the bracket. The upper and lower brackets are not the same. The barrel door rivet holes are off set to the outside.



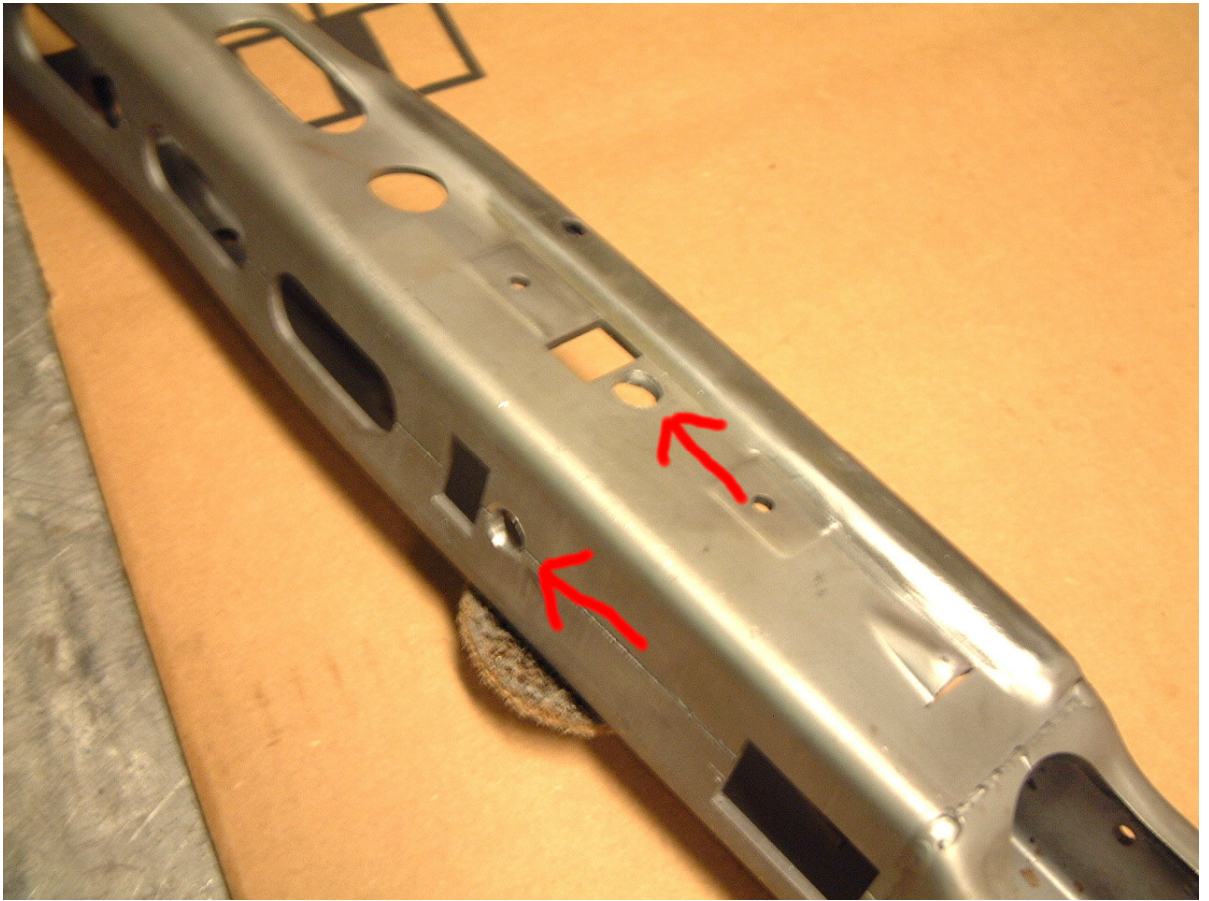
- 18- Weld the bracket to the receiver. Repeat steps 17 and 18 for the lower bracket.



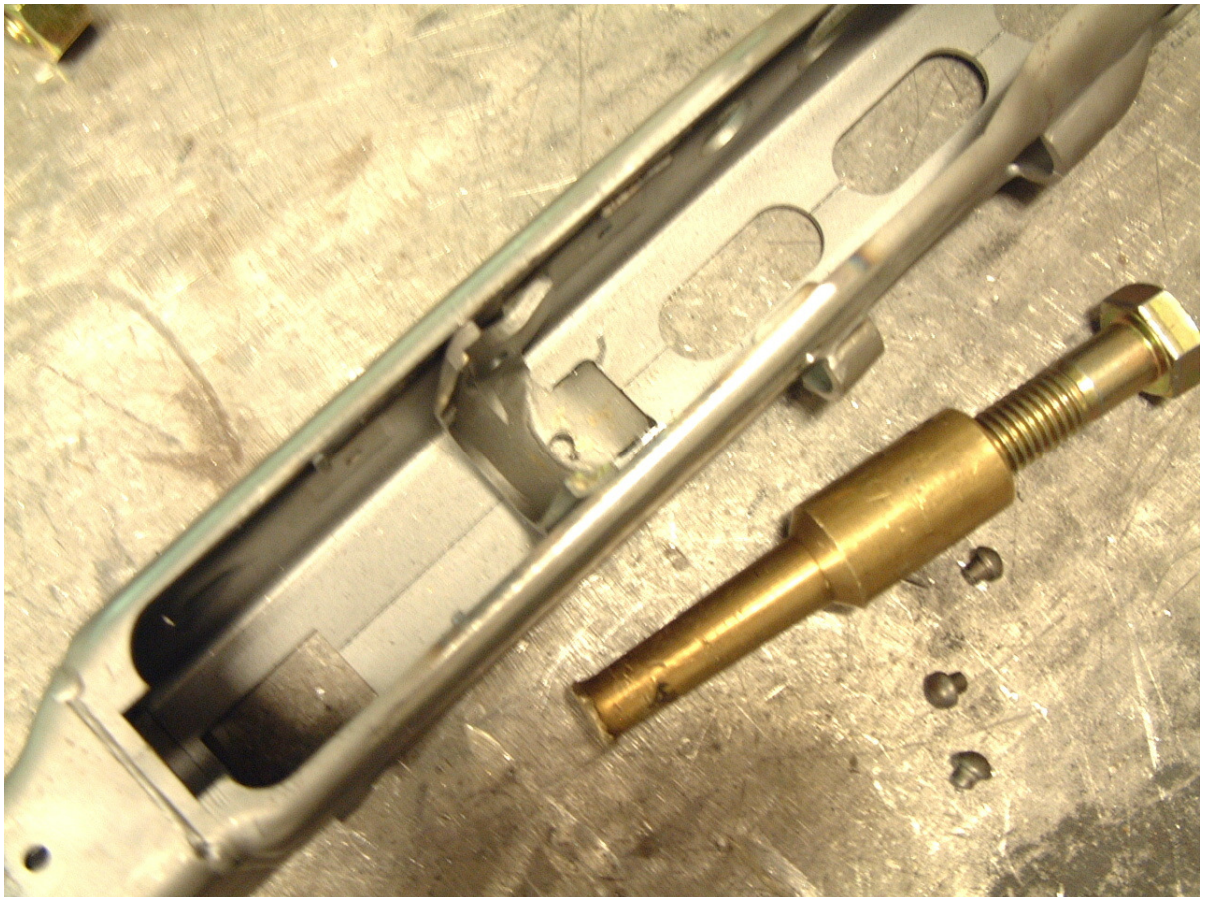
19- Grind welds flush and smooth.



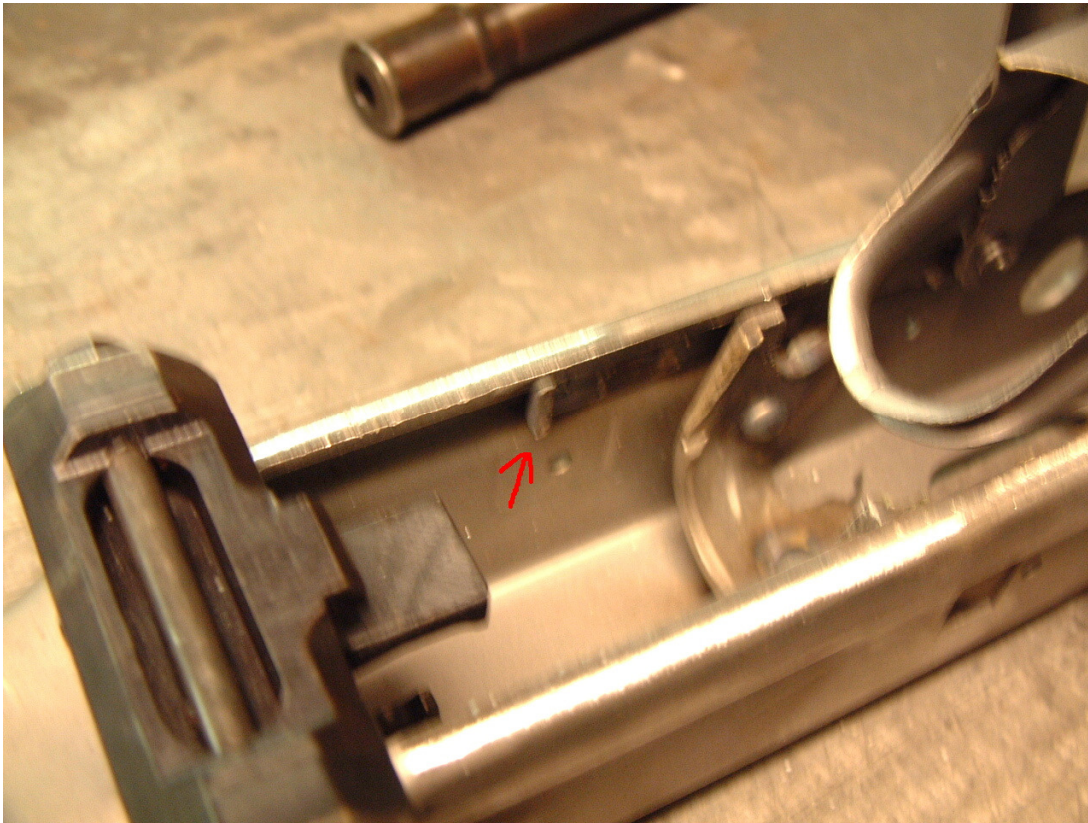
20- Mark a line on the barrel bearing. This is a very important setting for the correct location of the front barrel stop.



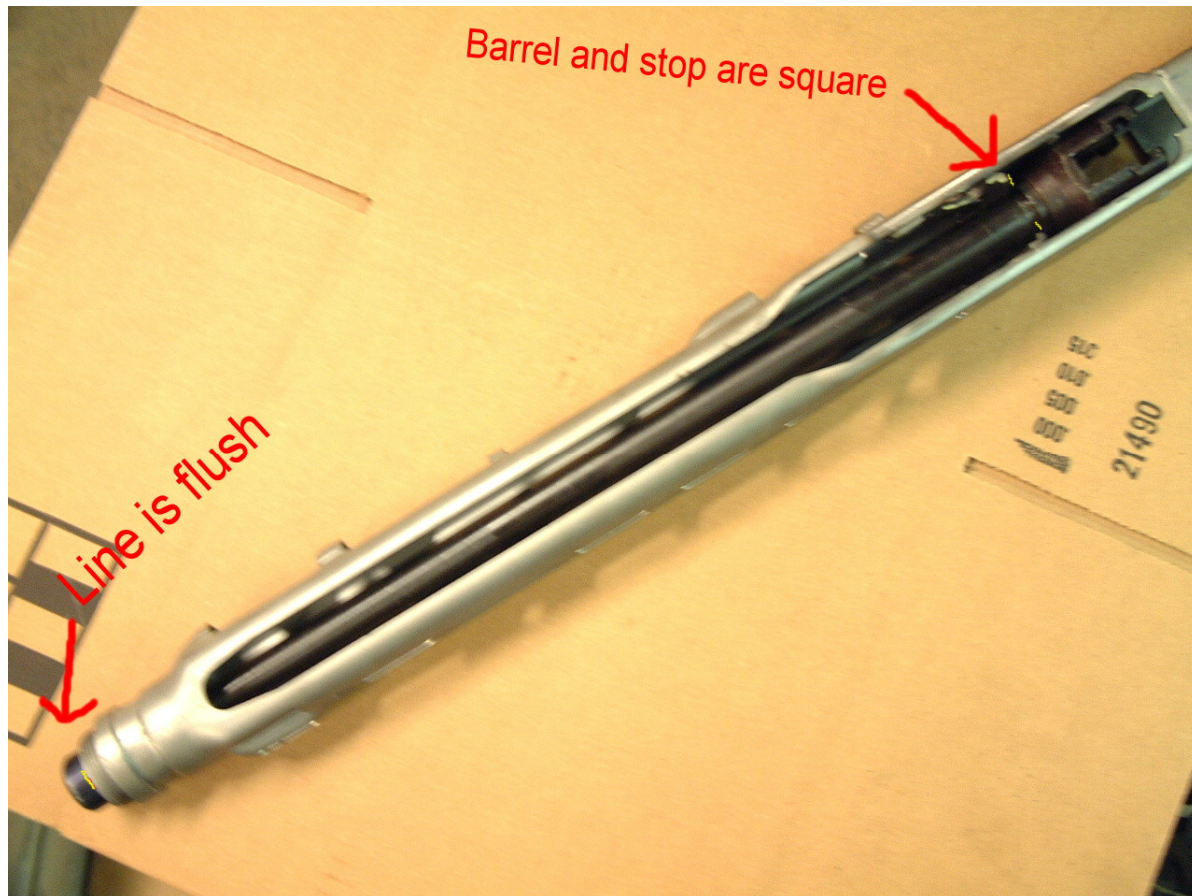
21- Drill out the 3 rivet holes in the receiver for the front barrel stop using a 3/8" drill bit.



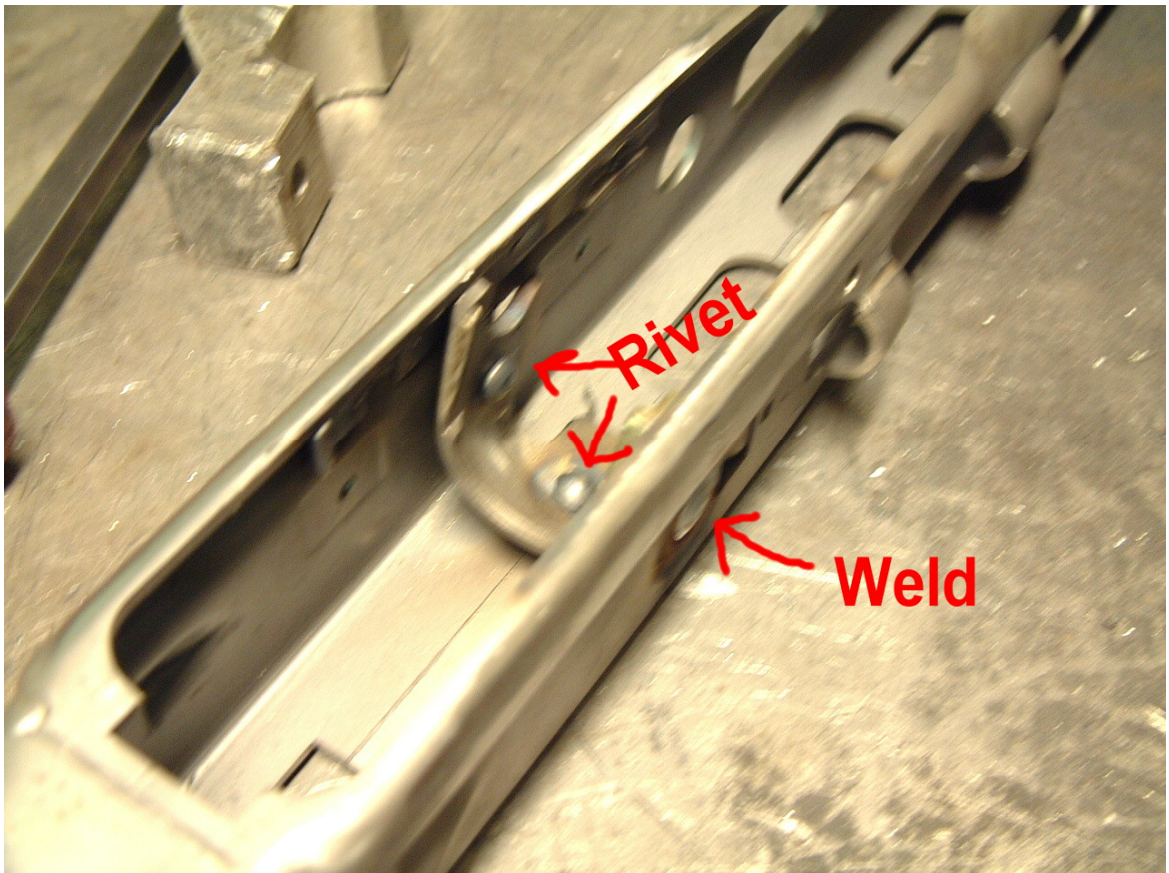
22- Install front barrel stop into the receiver.
When hitting anything use a brass drift with a hammer to prevent damage.



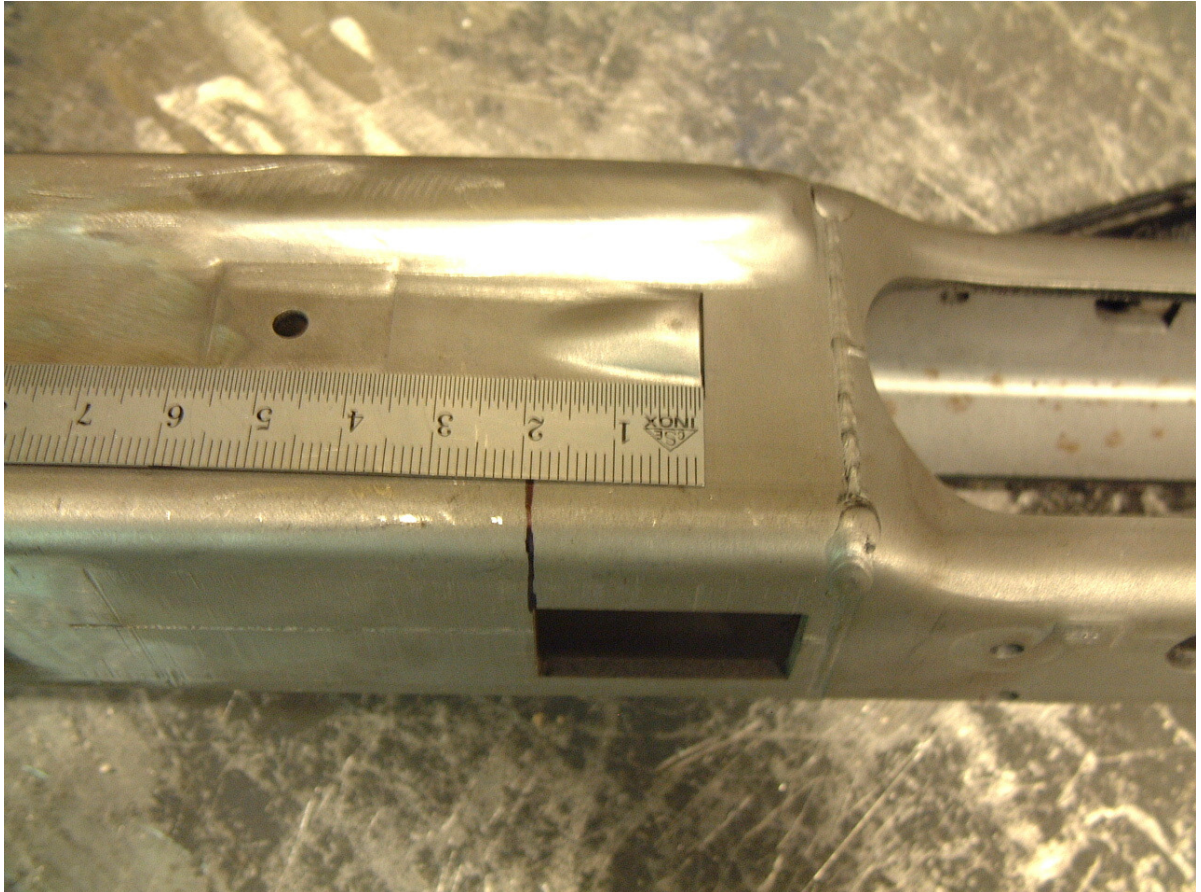
- 23- Install 1 rivet cut flush on the inside bottom hole of the barrel stop. Install the barrel bearing and barrel. Some adjustments to the rear barrel guide tabs might be needed to get the barrel to fit.



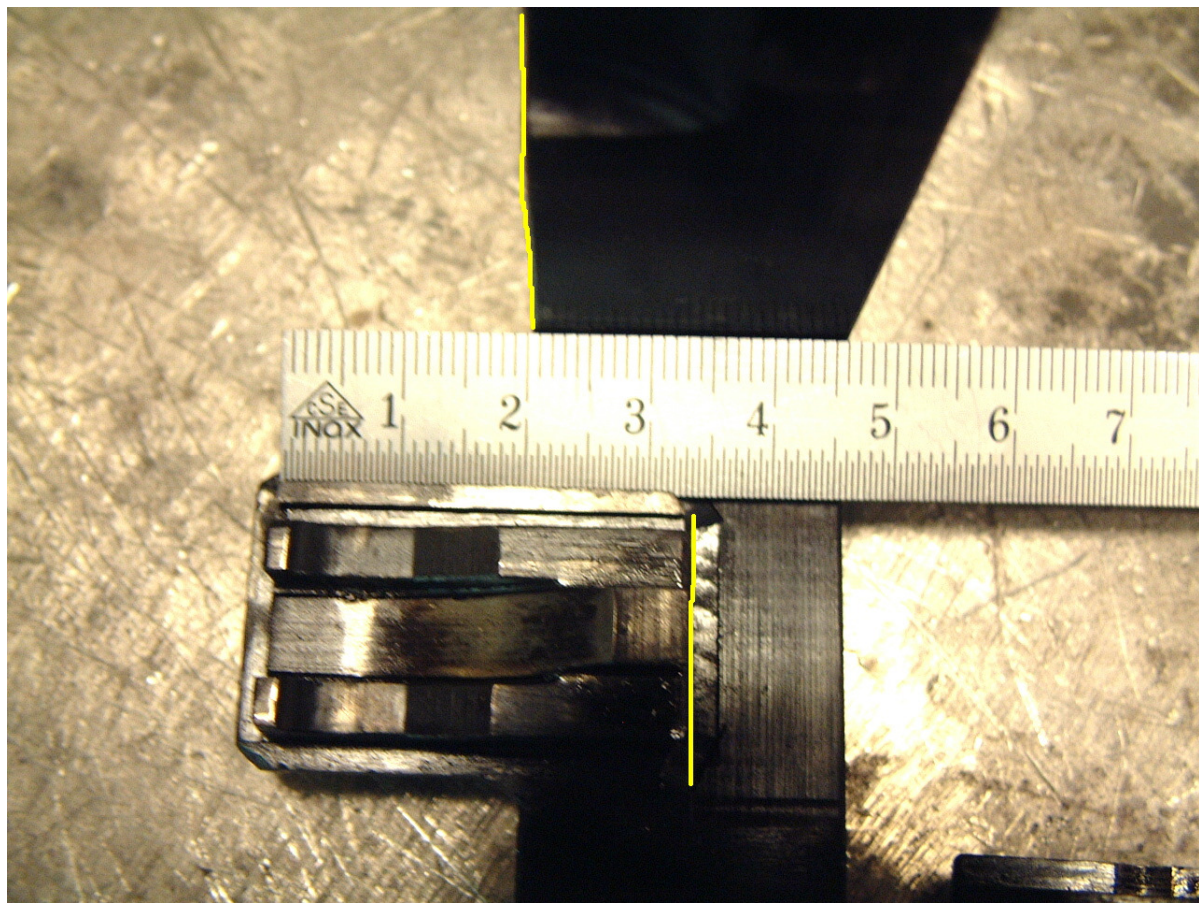
- 24- Move the barrel forward until the line on the barrel bearing can be seen on the outside of the front receiver bushing. The line should be even with the front bushing. The barrel stop should be seated square on the barrel.



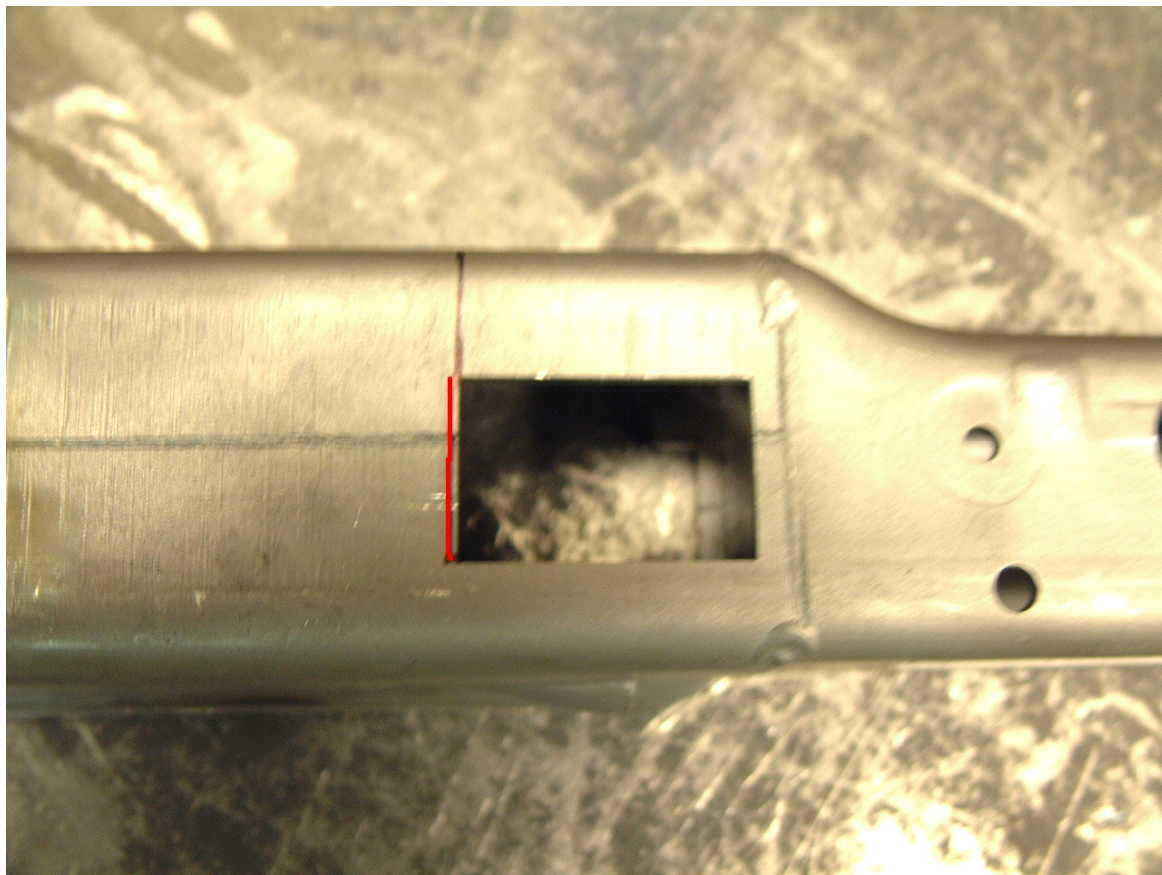
25- Weld the front barrel stop to the receiver and grind the welds down flush and smooth. Re-drill the top and side rivet holes using a 5/32" drill bit. Install and rivet these two holes.



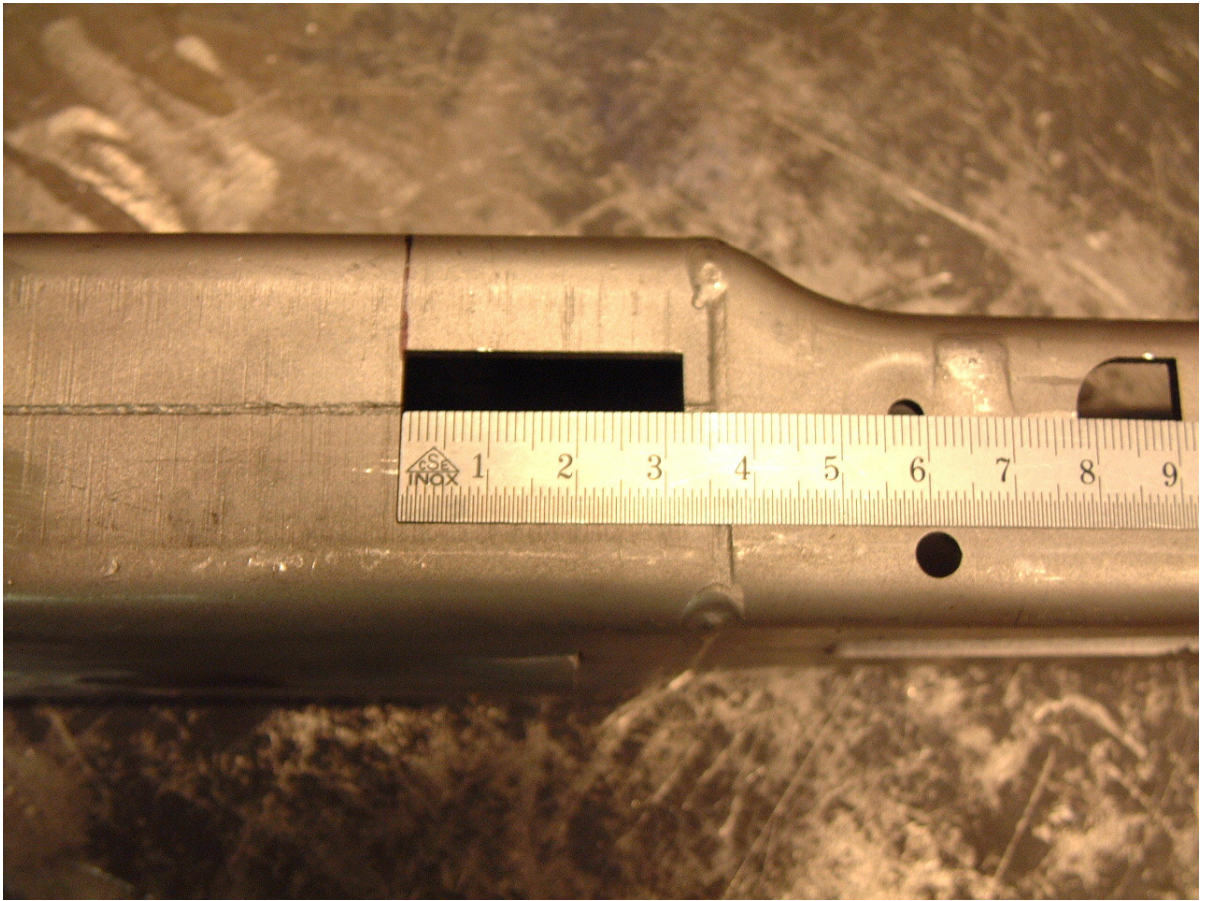
26- Extend a line from the front of the trunnion cut out to the top of the receiver. Measure from this line to the back of the trunnion stop. Measurement~"26D" *Example is 19mm*



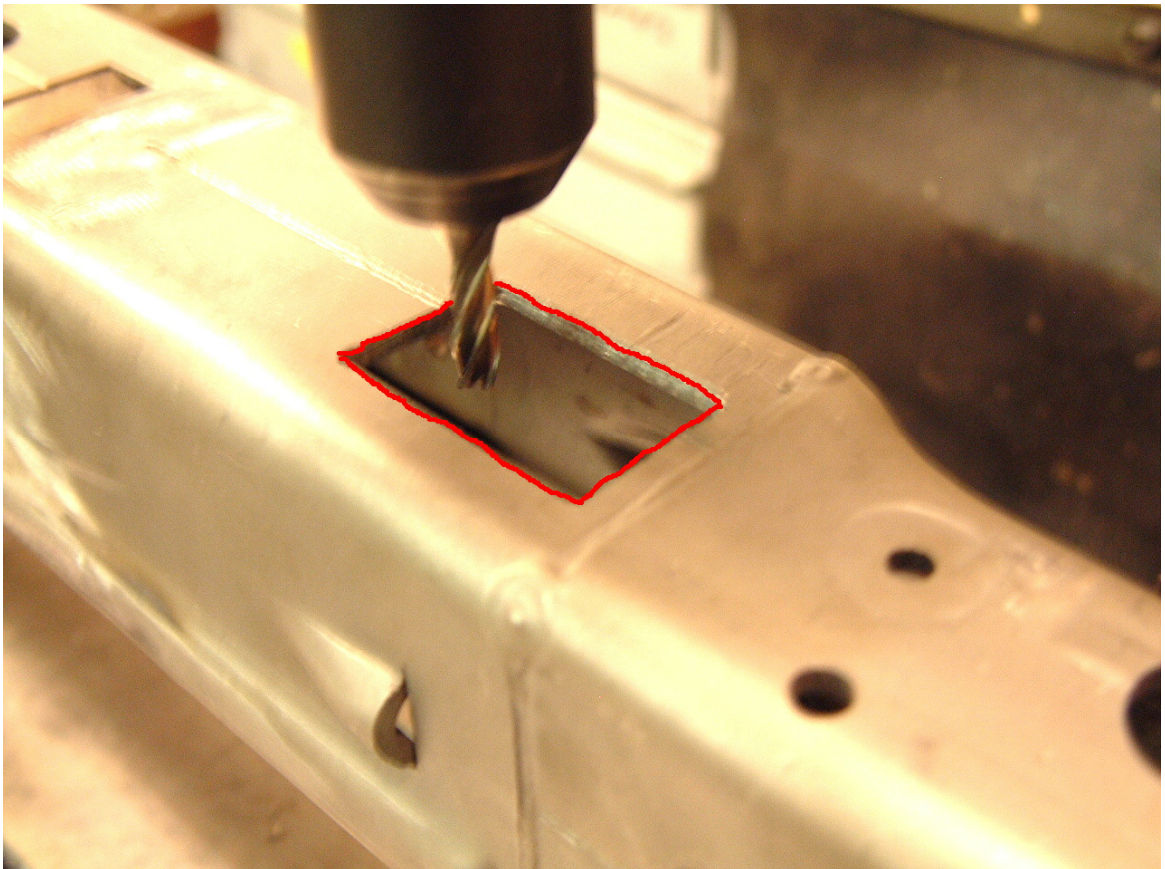
27- Measure from the front of cam to the front of trunnion. Measurement~“27E” *Example is 20mm.*
 Measure trunnion cam size. *Example is 20mm x 33mm*



28- “27E” – “26D” + 0.5mm = Measurement~“28F” Remove “28F” from the front of the trunnion.
Example 20mm – 19mm + 0.5 = 1.5mm. 1.5mm will have to be removed.

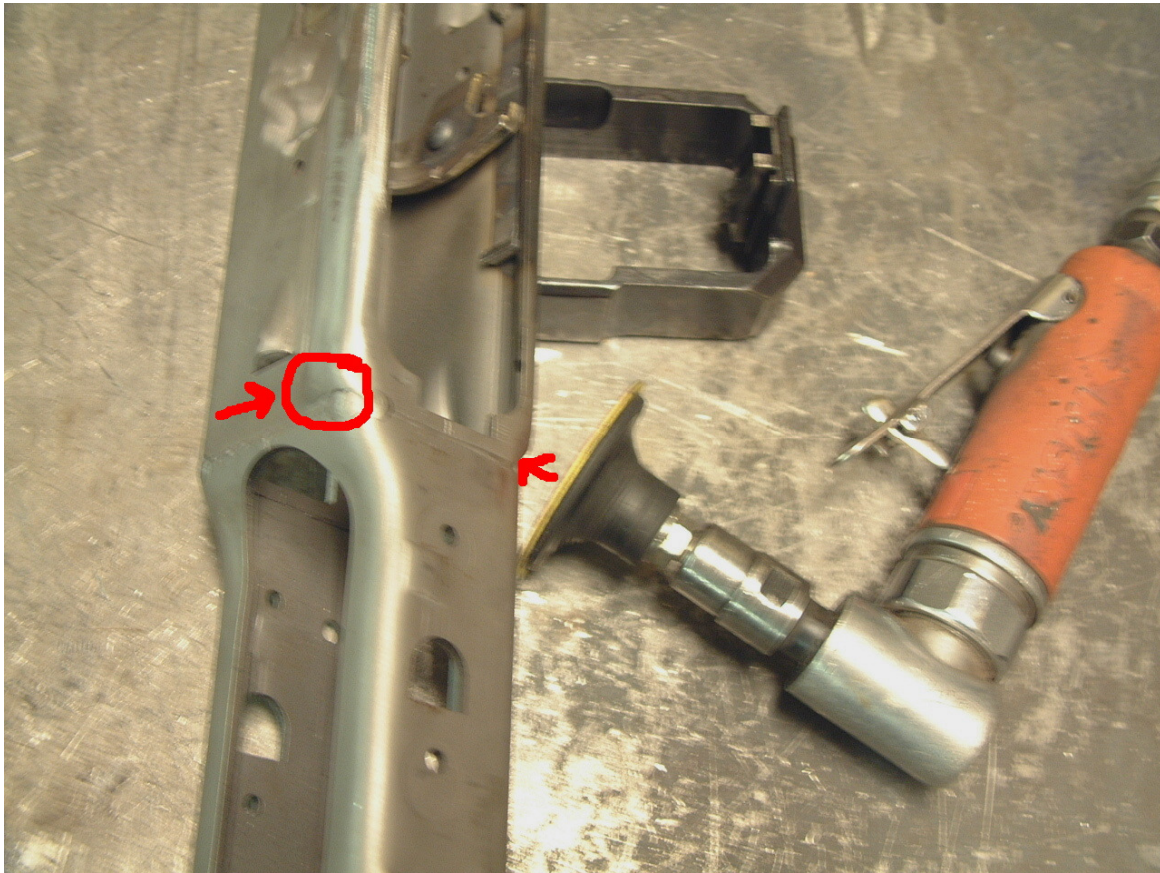


29- Measure trunnion opening on the receiver. *Example is 20mm x 33.5mm.*



30- Machine out you trunnion opening's top, bottom, and rear. Ensure you have .5mm clearance around your cam area.

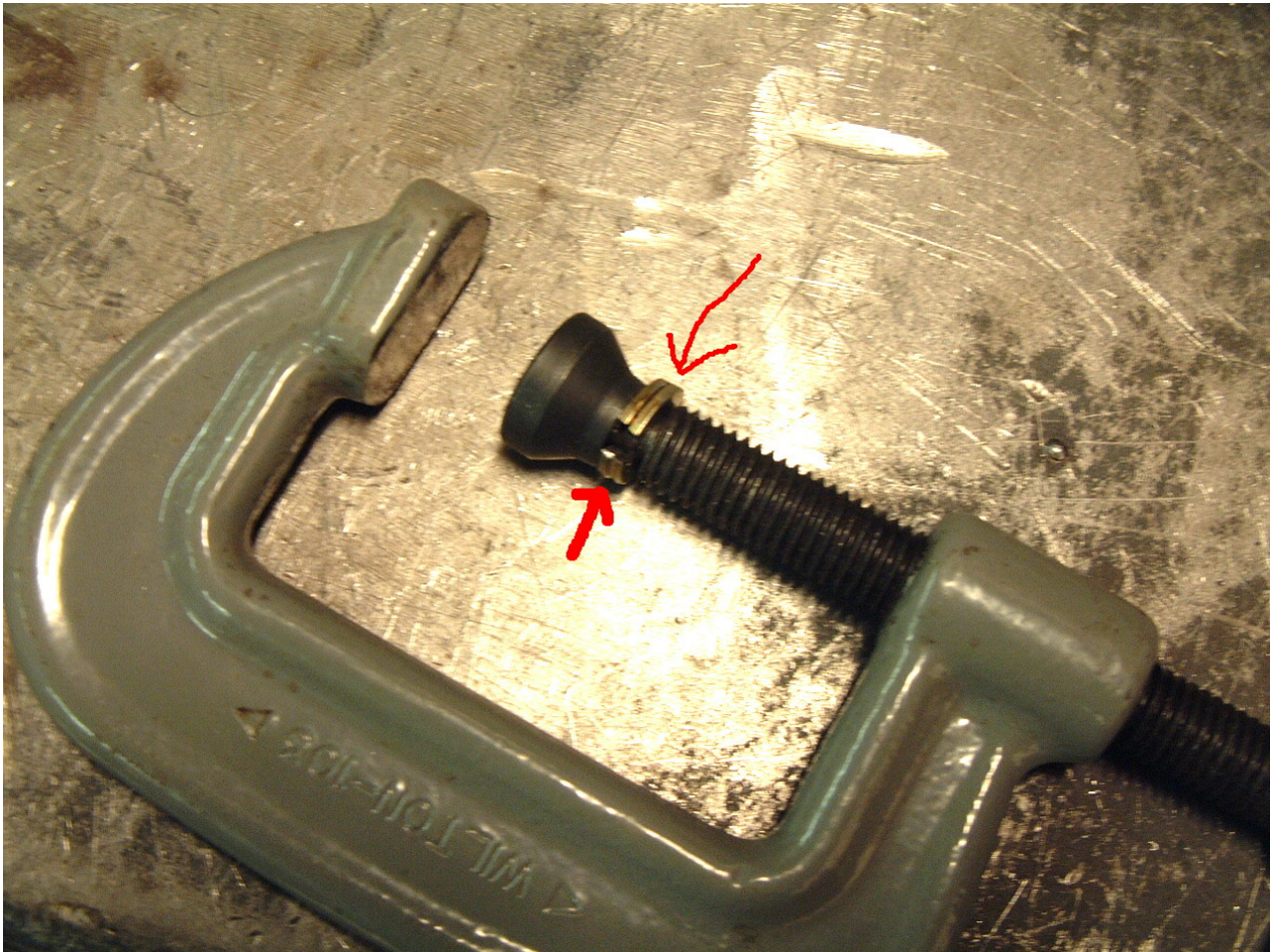
The example trunnion cam is 20mm x 33mm so it will be machined to 21mm x 34mm.



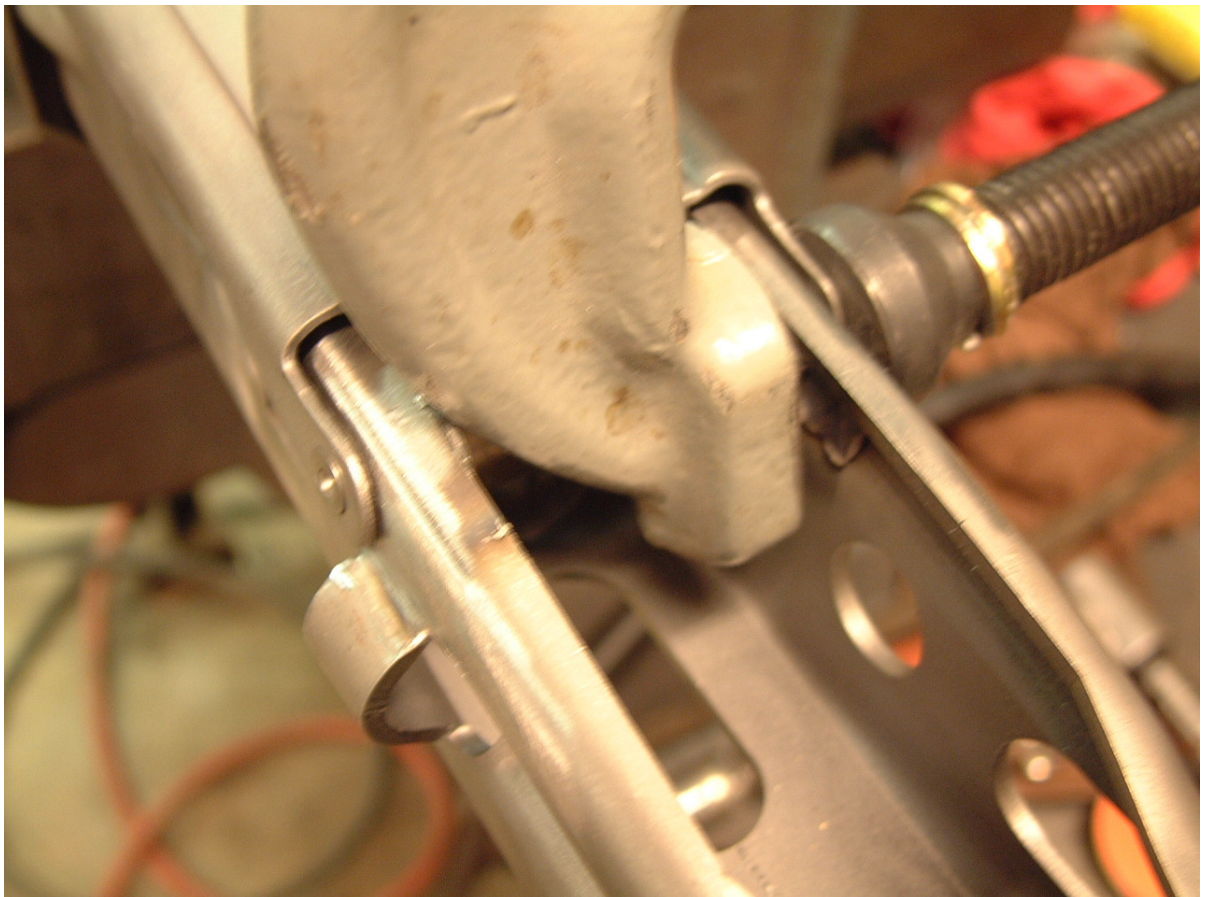
31- Install the trunnion. A small amount material may need to remove of from these two areas.



32- When the trunnion is installed, it should be up against the trunnion stops. Install with a temporarily bolt.



33- To rivet the barrel door use a C-clamp with two cut washers to lock the front foot.



34- Install barrel door and rivet. After riveting; open and close the door a few times to loosen it up.



35- Install barrel door latch.

36- Close the barrel door and ensure it latches.



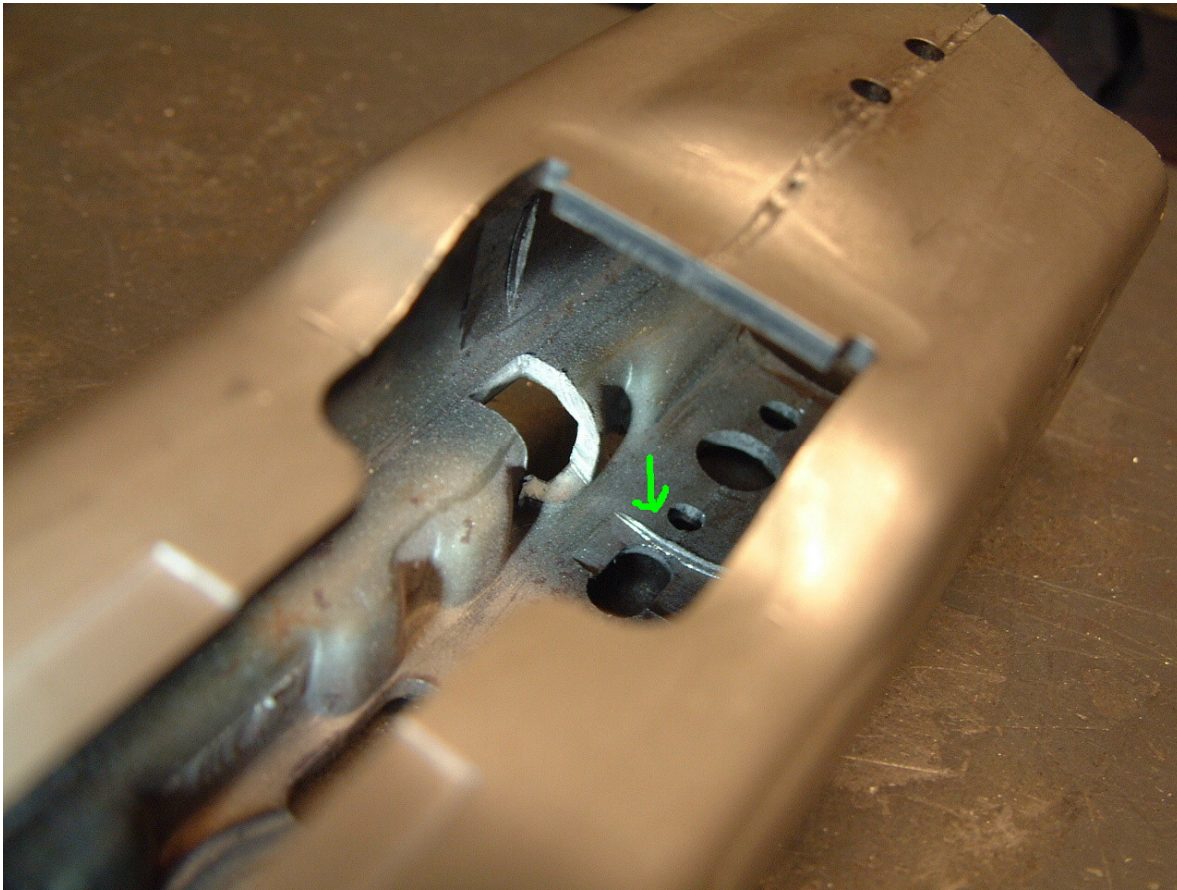
37- Install the barrel bearing and barrel. Ensure both the door latches properly and the barrel moves freely back and forth. Check these areas for interference. If both the door is hard to latch when the barrel is properly seated all the way the far side and the barrel is hard to move back and forth you may need to also remove a small amount of material from the barrel pads on the barrel door latch. The best way to check this is to slightly unlatch the door. If the barrel then moves freely, it is the pads. Be careful not to remove too much!



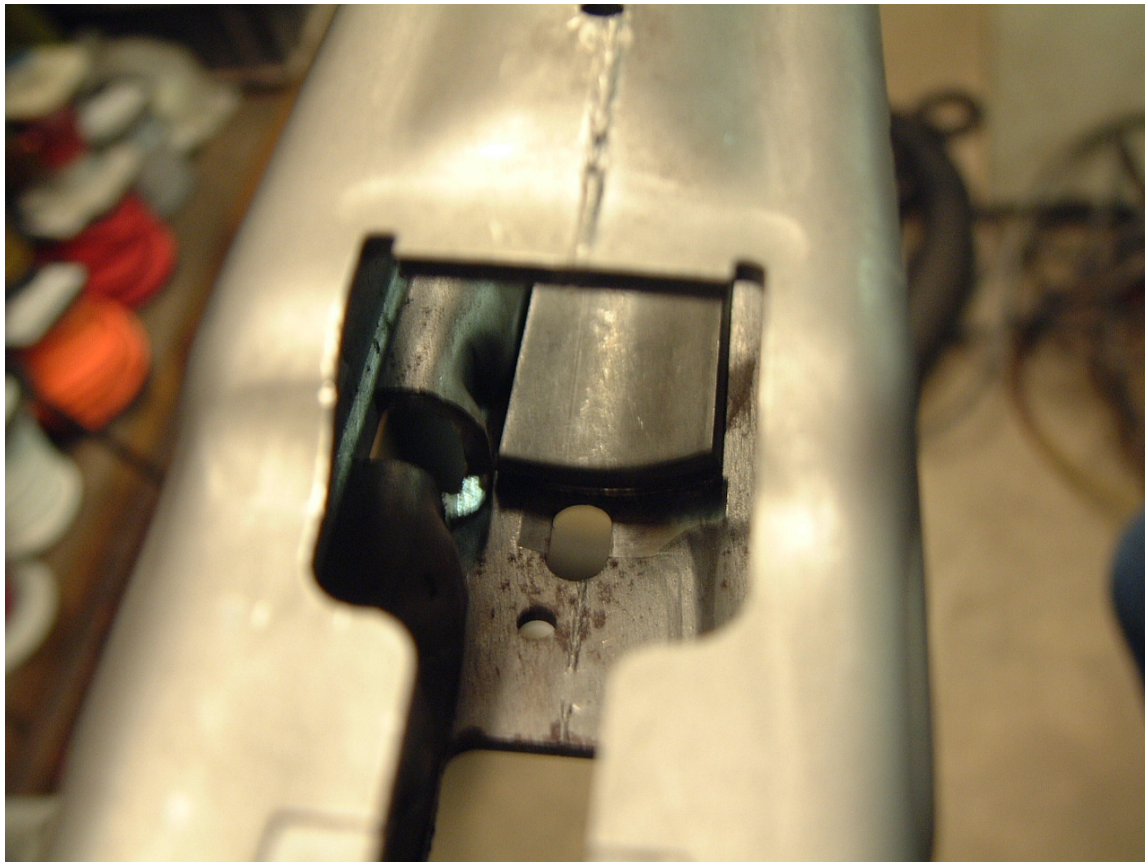
38- Stand the receiver up and measure from the barrel bearing to the front receiver bushing with the barrel in the full back position. You should have around 8mm.



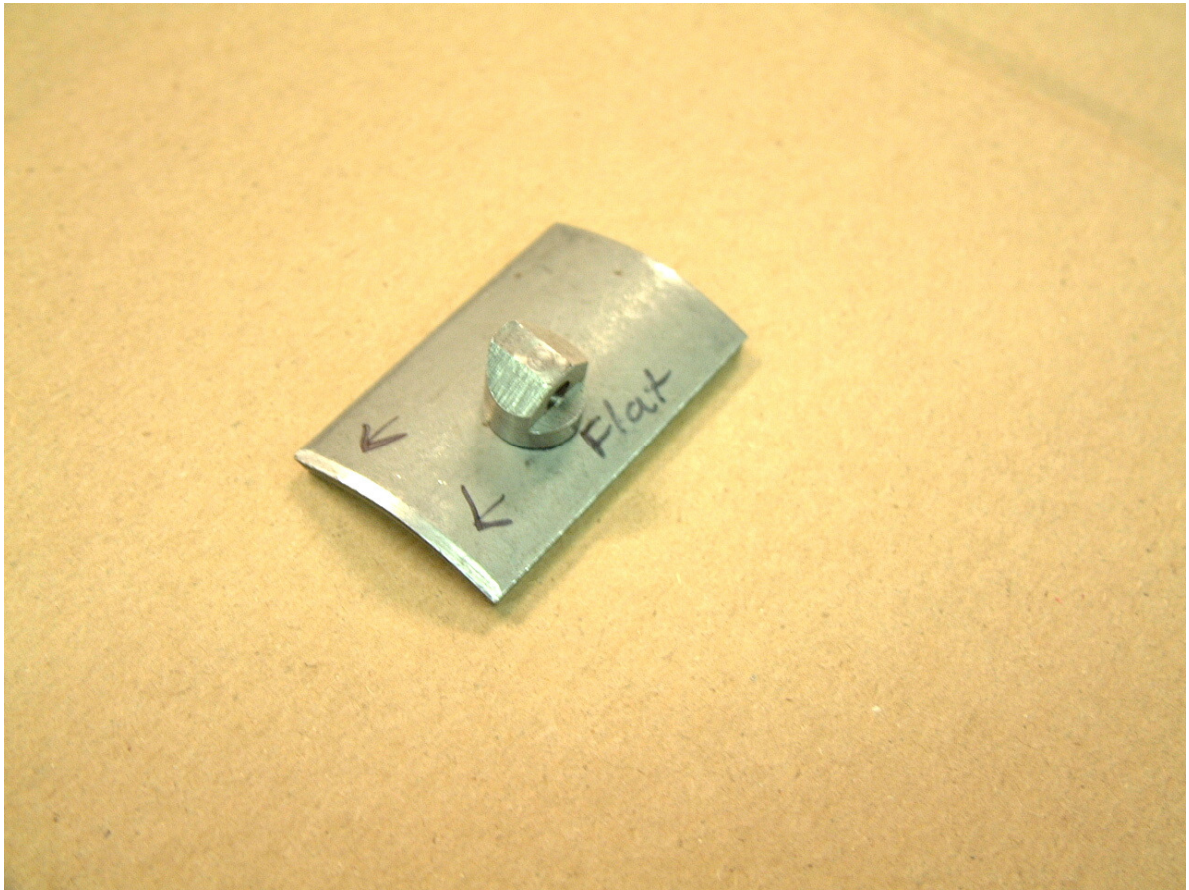
39- The lower buffer tab is smaller than the upper buffer tab.



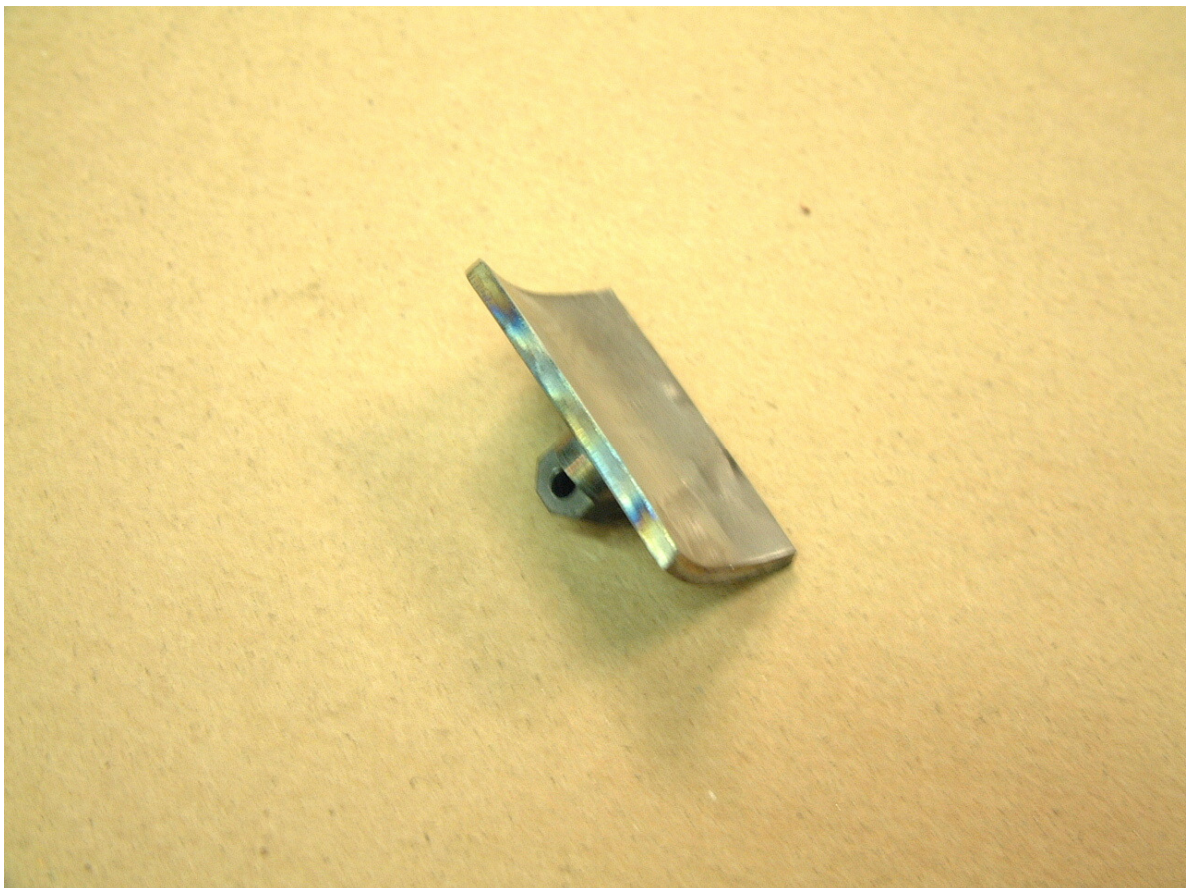
40- The front of the tabs are going to be installed flush with the back of these machined grooves. This is very important!



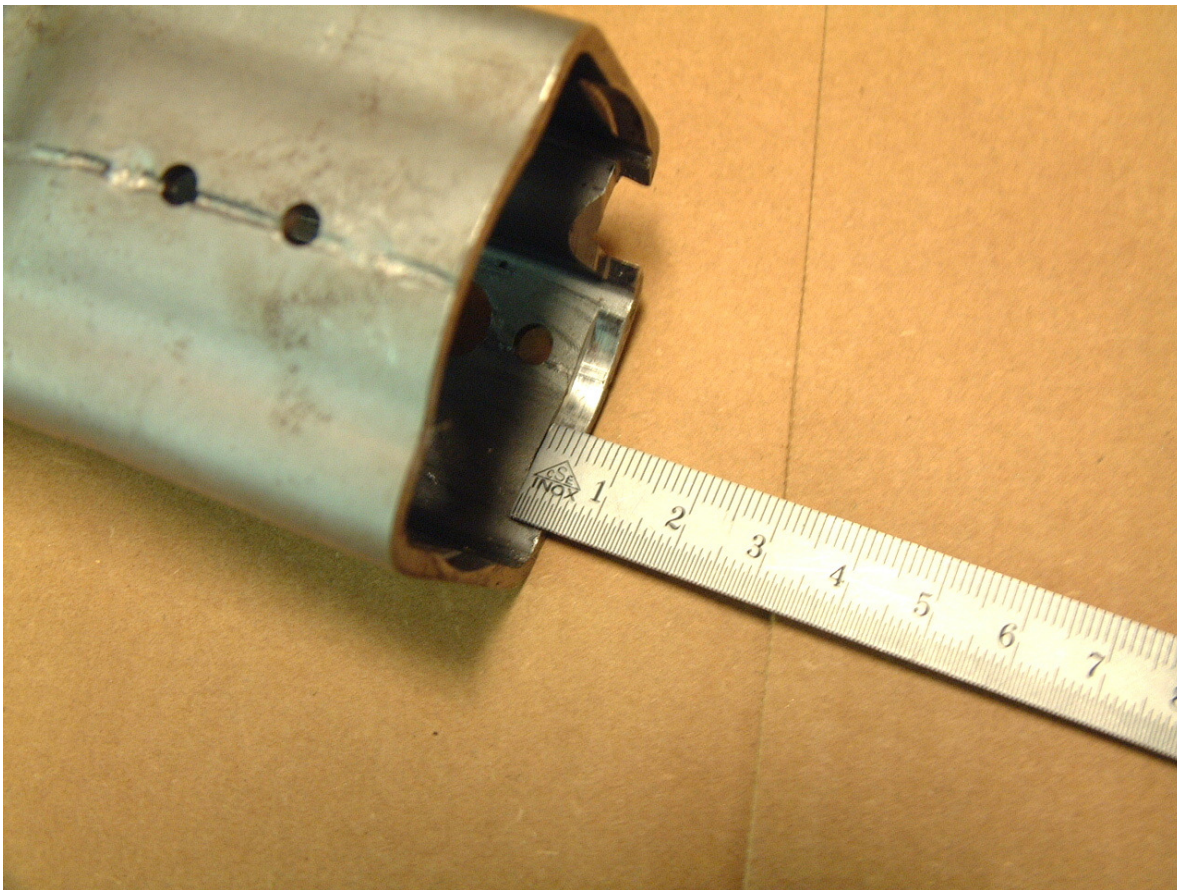
41- Set the lower tab in its correct position and mark the location of the buffer latch stud along with an arrow pointing forward. The tabs will be cut to the correct size after they are welded in.



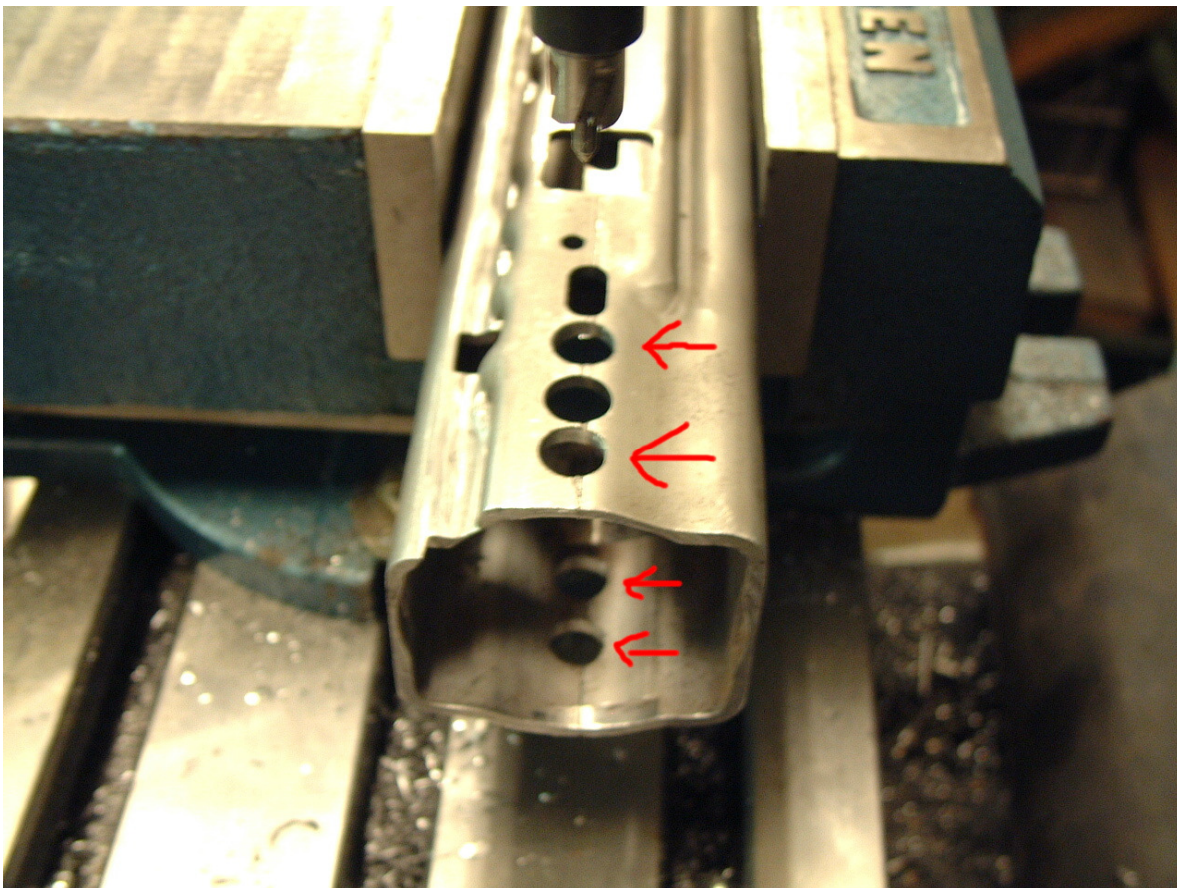
42- Drill a $\frac{1}{4}$ " hole for the latch stud with a $\frac{3}{8}$ " counter bore on the inside for a better weld. Mark the tab to show that the flat side of the stud goes on the right side of the receiver.



43- Weld the stud to the tab and grind the weld flush.



- 44- Measure the distance from the outside of the receiver to the inside rear machined groove.
Measurement~“44G”



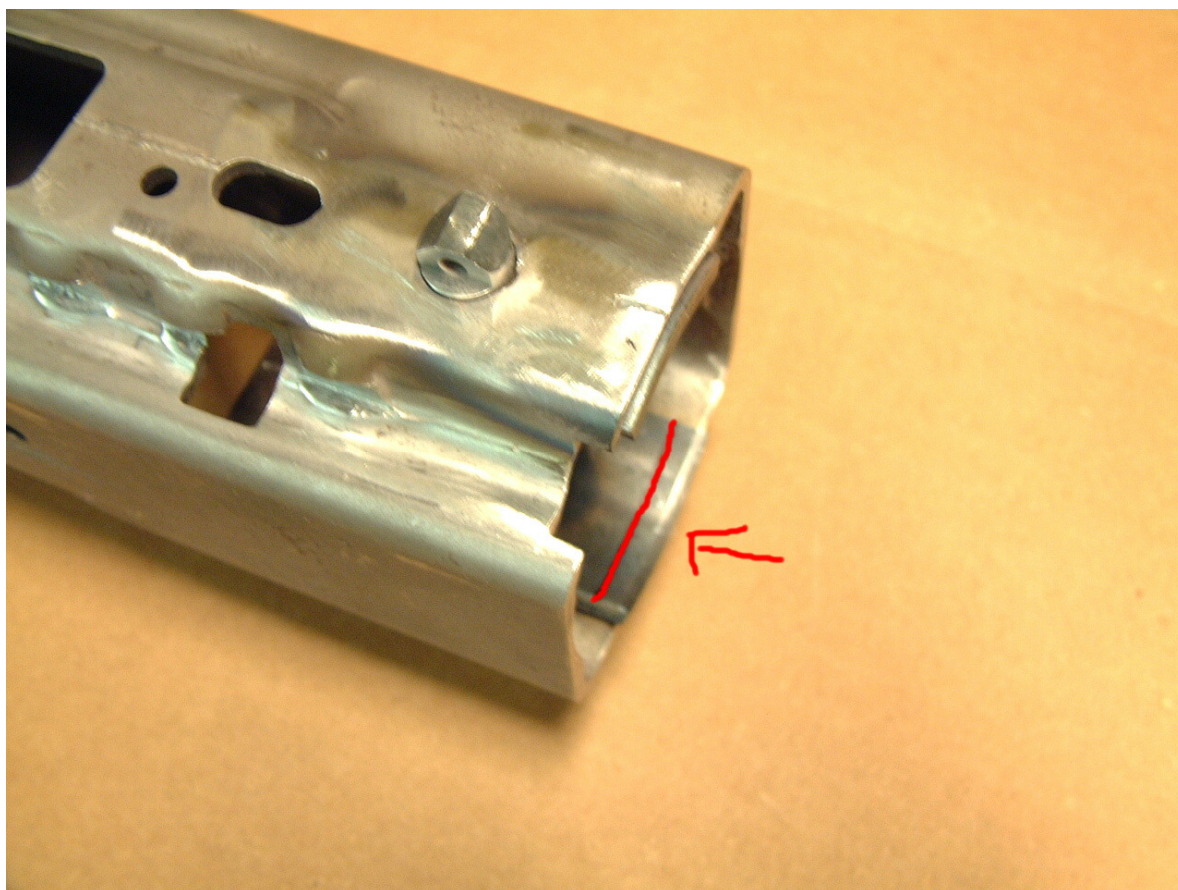
- 45- Drill out the two lower buffer tab rivet holes and the two upper ones also with a 3/8” drill bit.



46- Clamp in the lower tab and weld. **MAKE SURE** you are flush with the machined groove. (step #40)



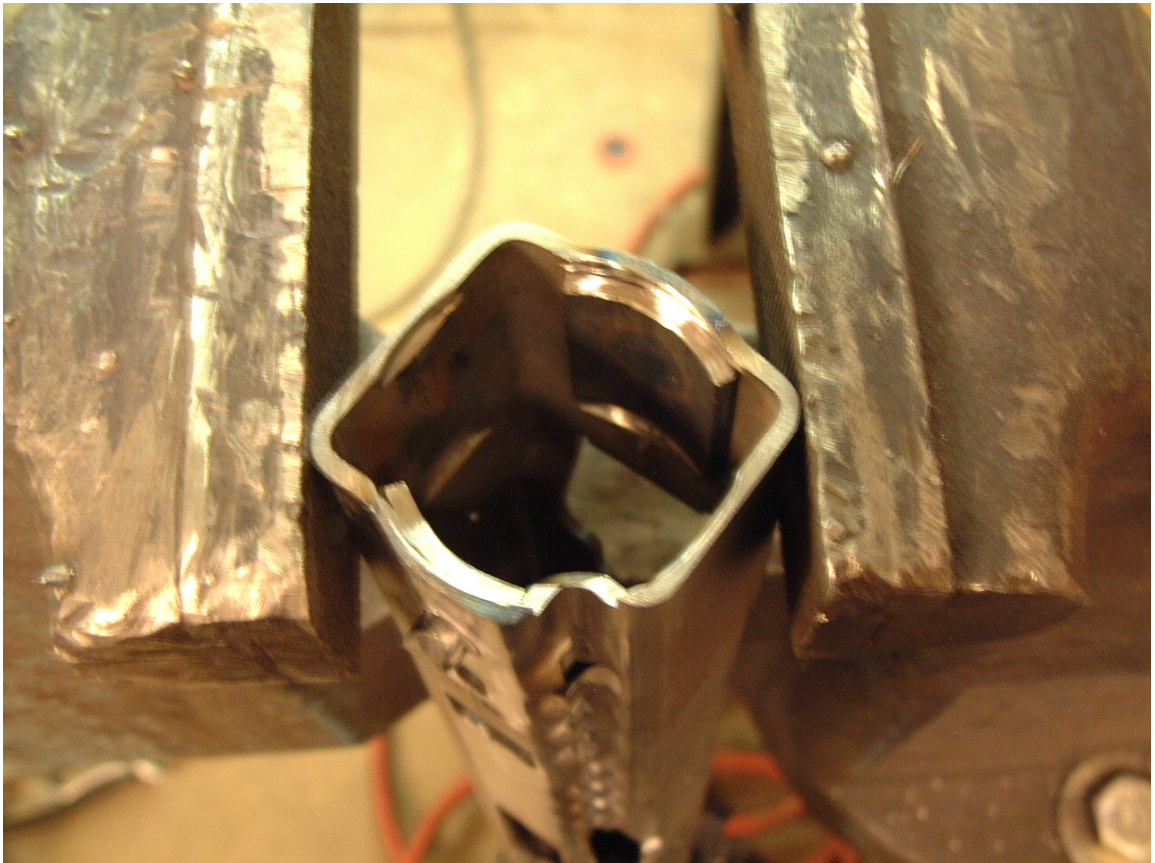
47- Clamp in the upper tab and weld. Again make sure you are flush with the machined groove. Grind all welds flush. Re-drill the 4 rivet holes using a 5/32" drill bit. Install and rivet the holes.



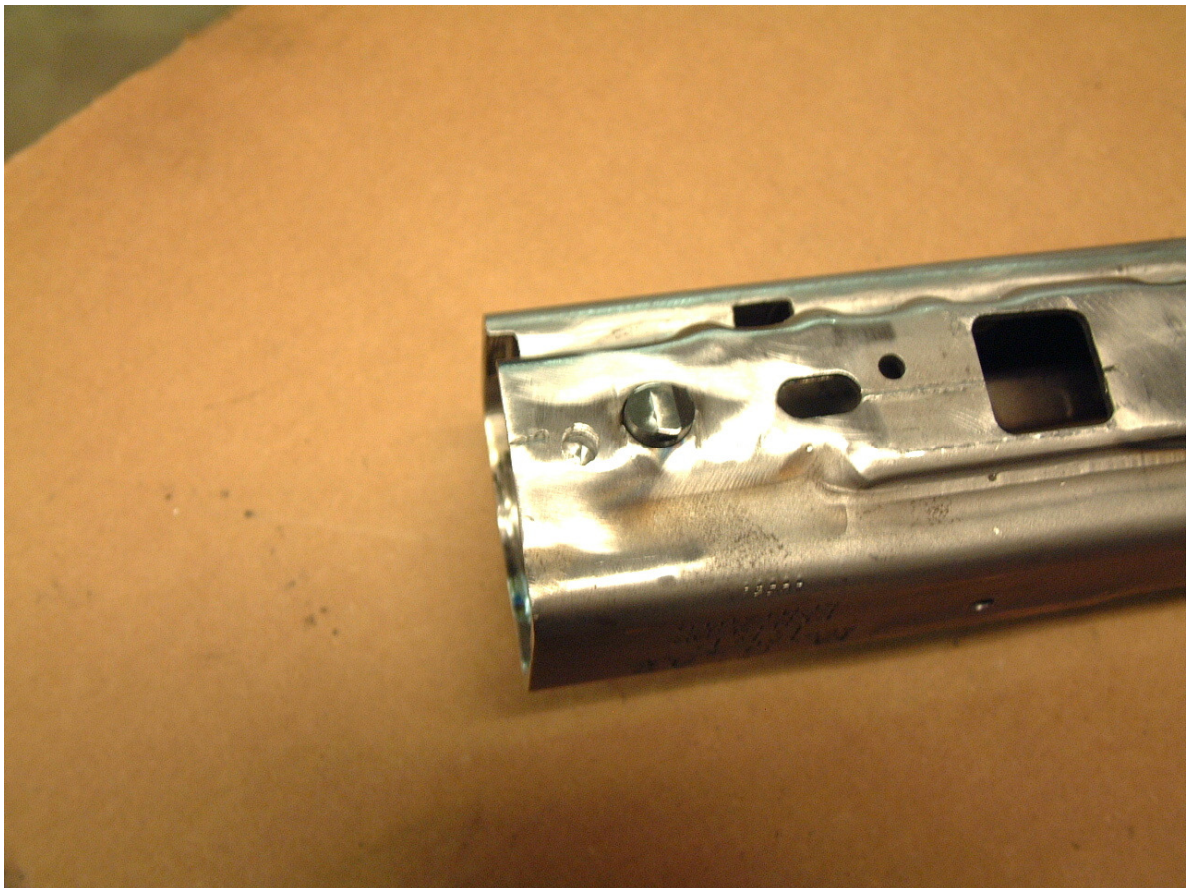
48- Measure in “44G” from the outside of the receiver and mark the tabs to be cut.



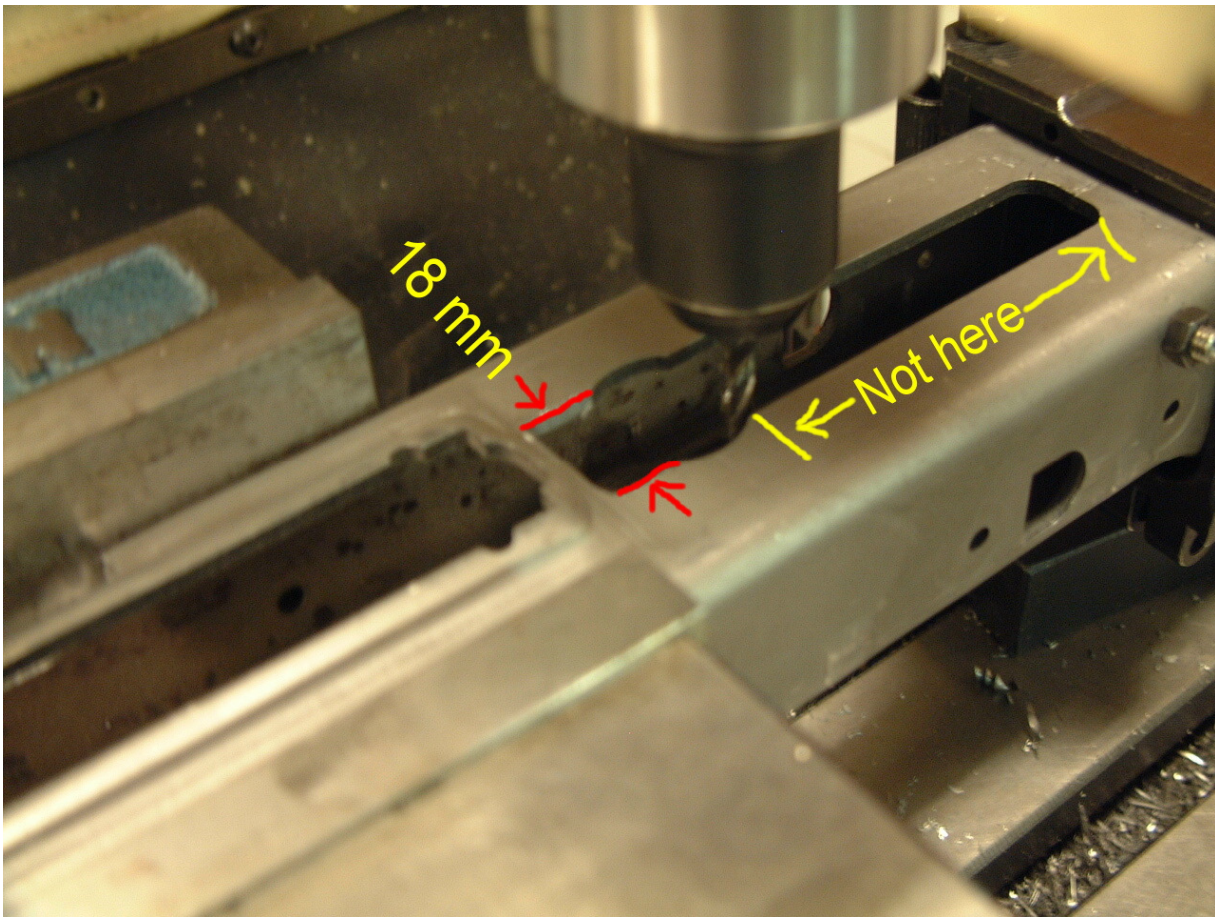
49- Cut tabs with a small cut off wheel.



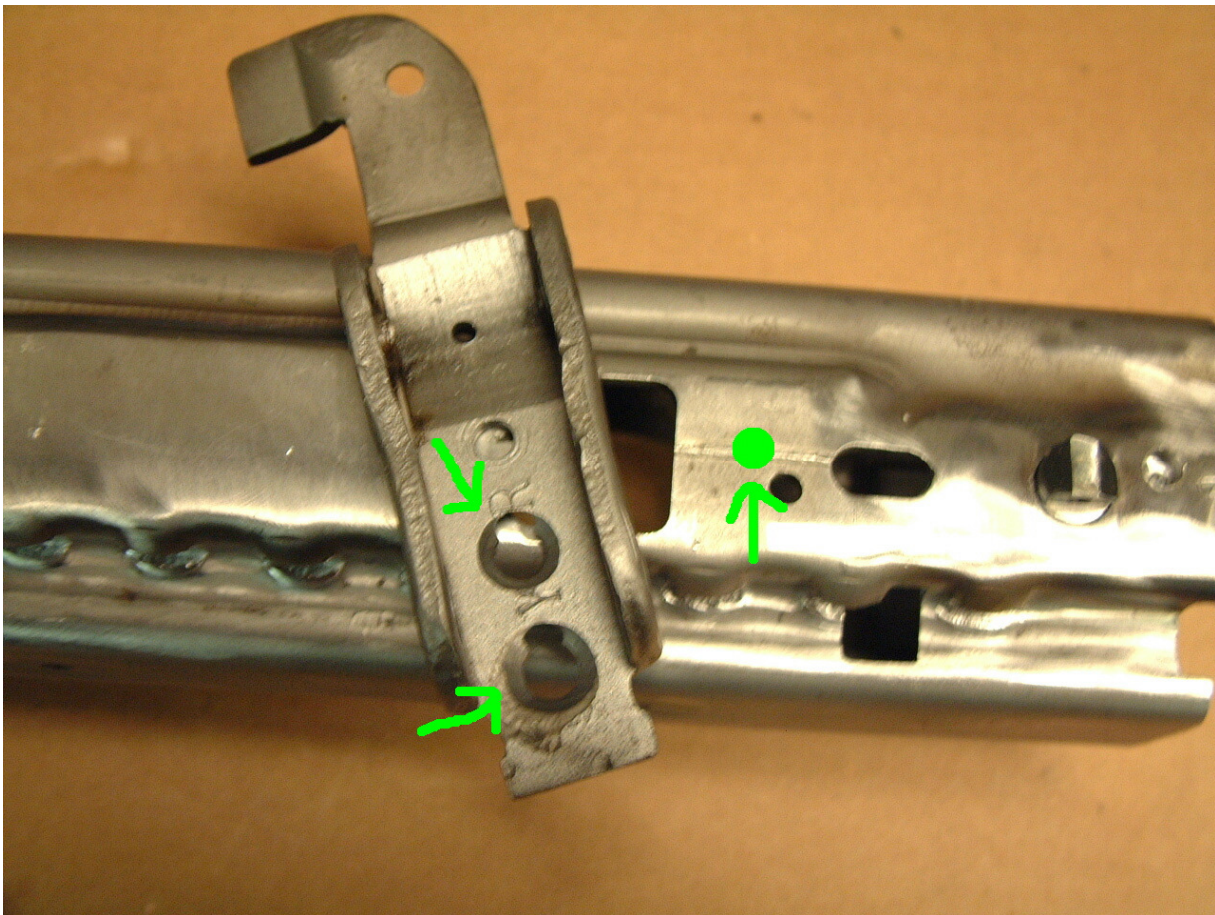
50- Install the buffer assy. If it is hard to slide in, check to see if the walls are square. If not, put receiver into a vice and adjust. The buffer should slide in easily. When turning the buffer and it is hard to turn, check the front of the buffers tabs to ensure they are not too tight on the buffer.



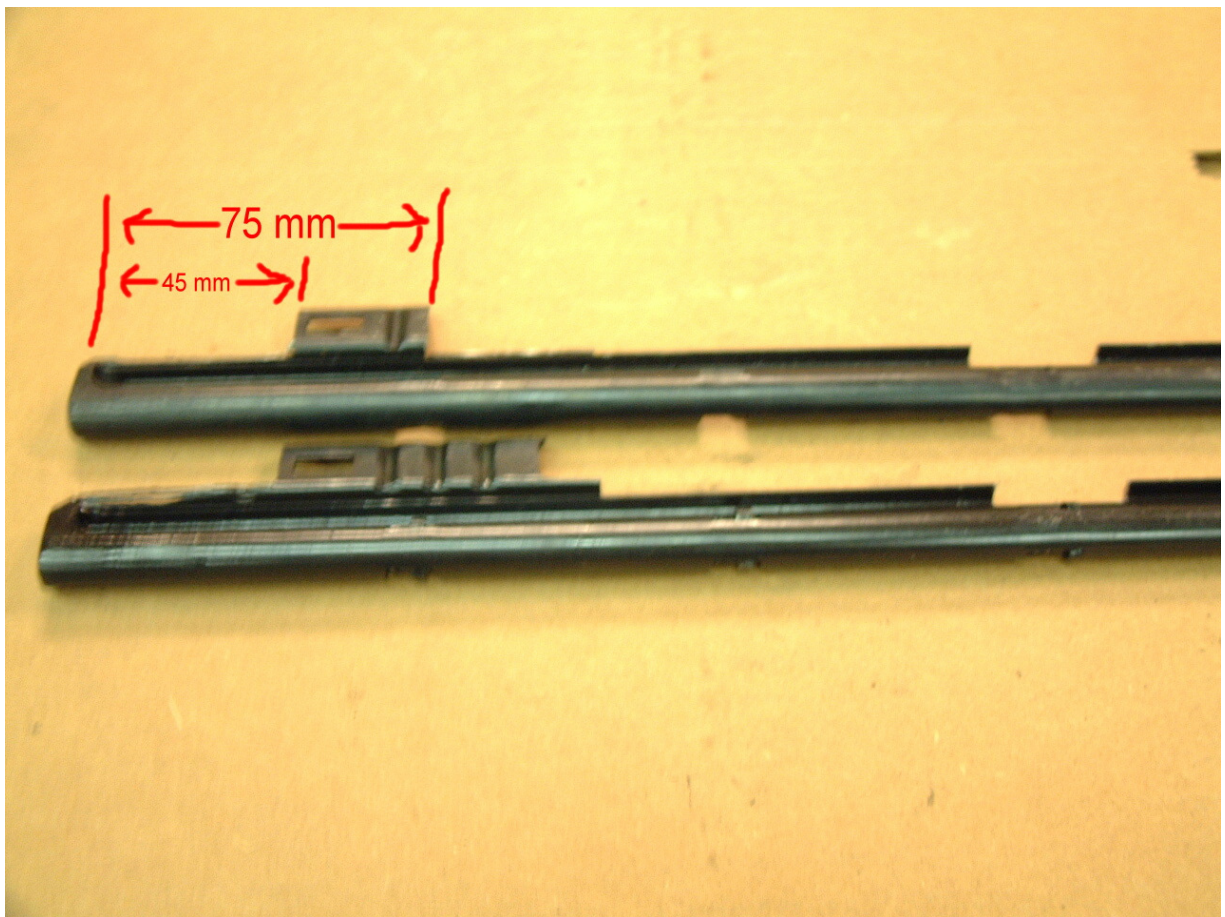
51- Measure 10mm from the back of the receiver. Mill a 3/16" hole 6mm deep for the buffer latch spring.



52- Machine this area only so the opening is 18mm wide for the trigger housing.



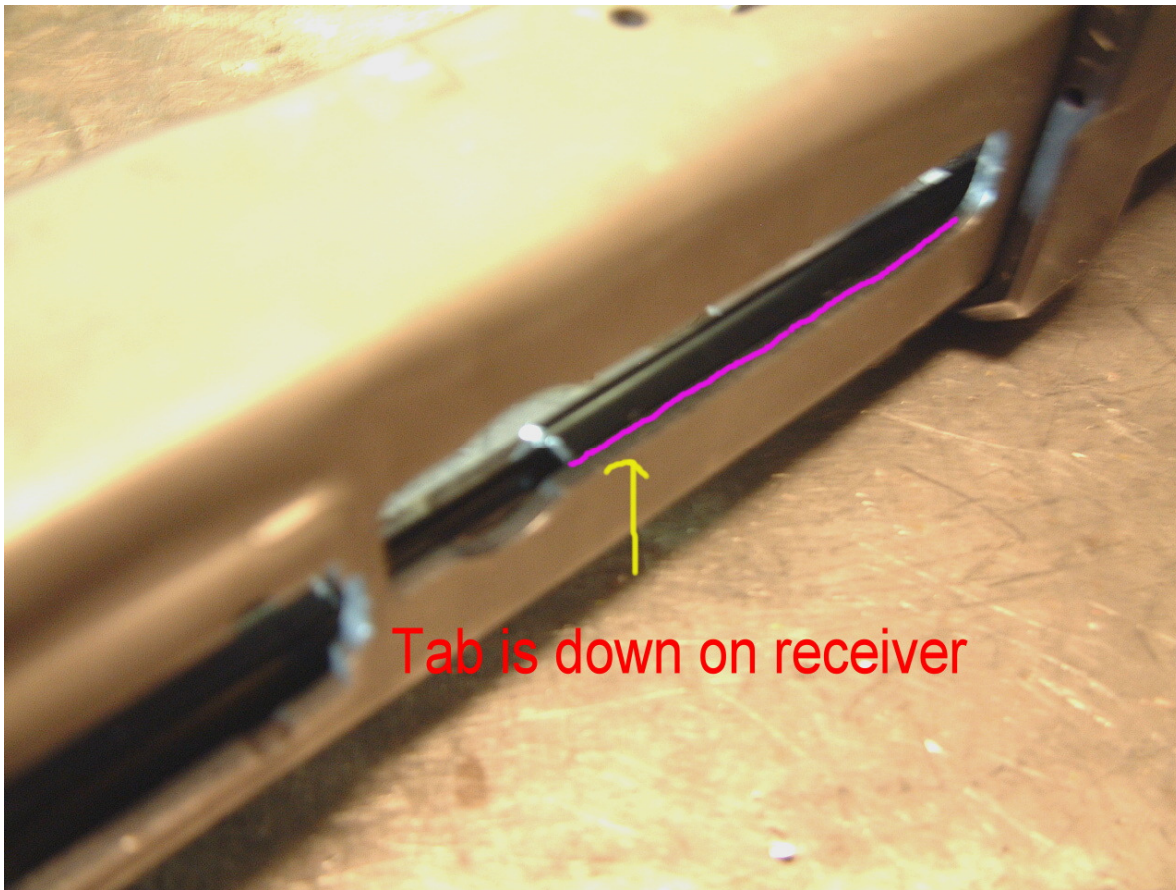
53- Drill 3/8" holes in these three areas.



54- Cut the recoup to match the top one.



55- This is the correct orientation for the front recoup bolt.

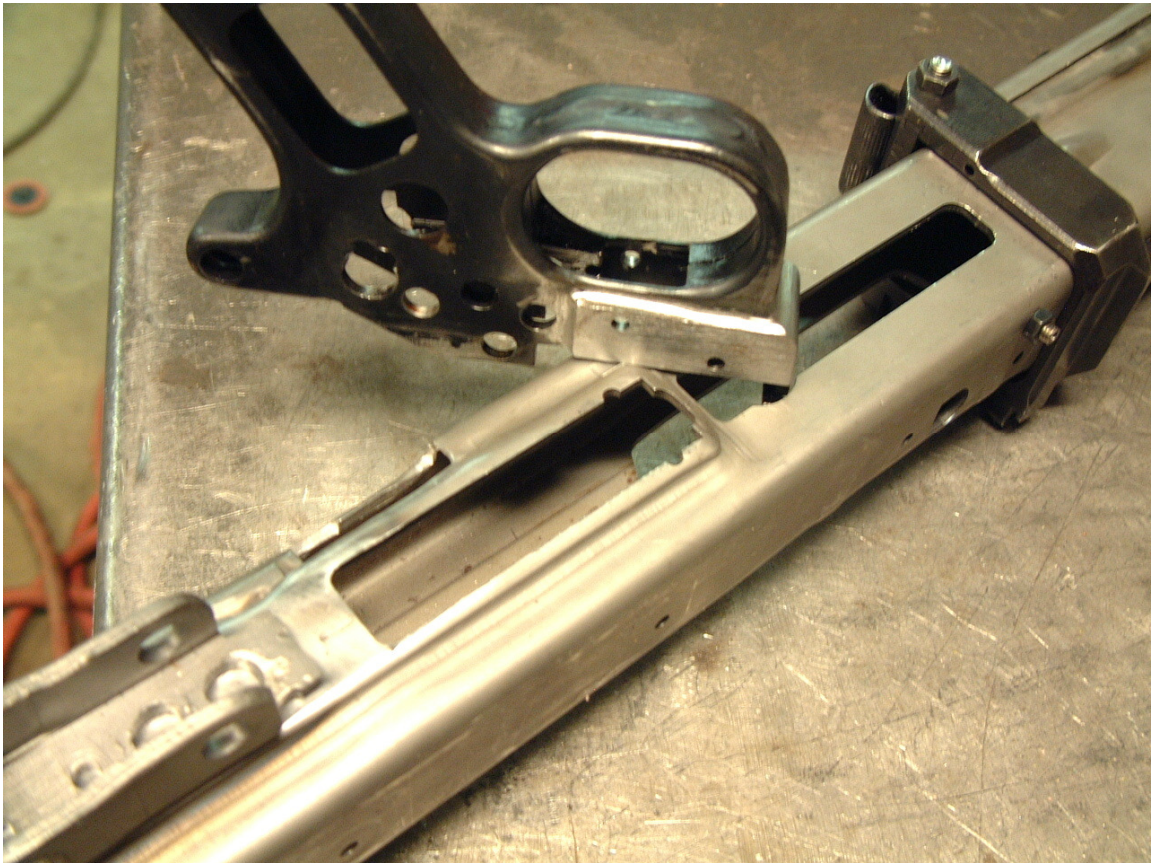


Tab is down on receiver

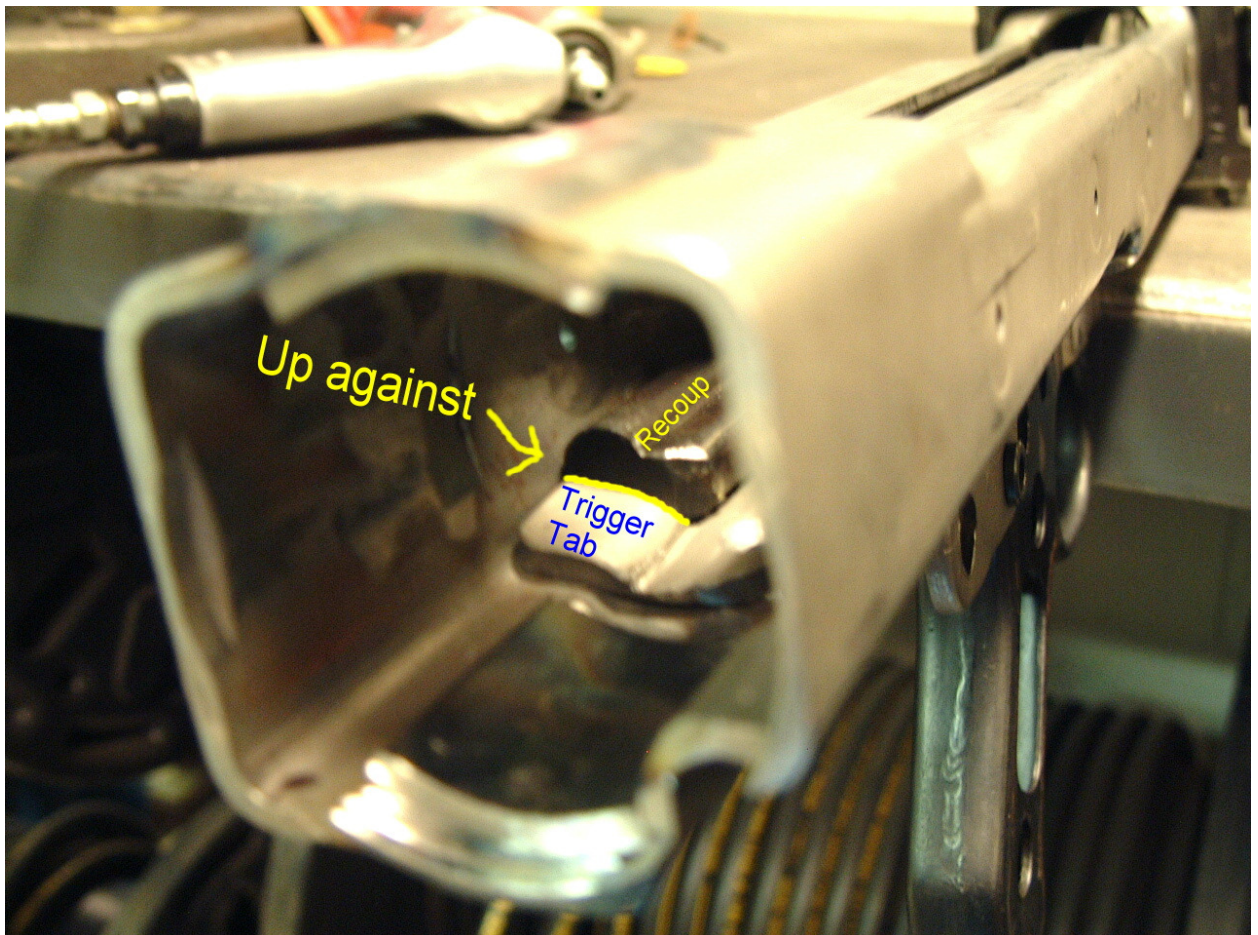
56- Drill out the front recoup hole with a 7/32" drill bit. Install the recoup making sure the recoup is turned down so the tabs are down against the receiver.



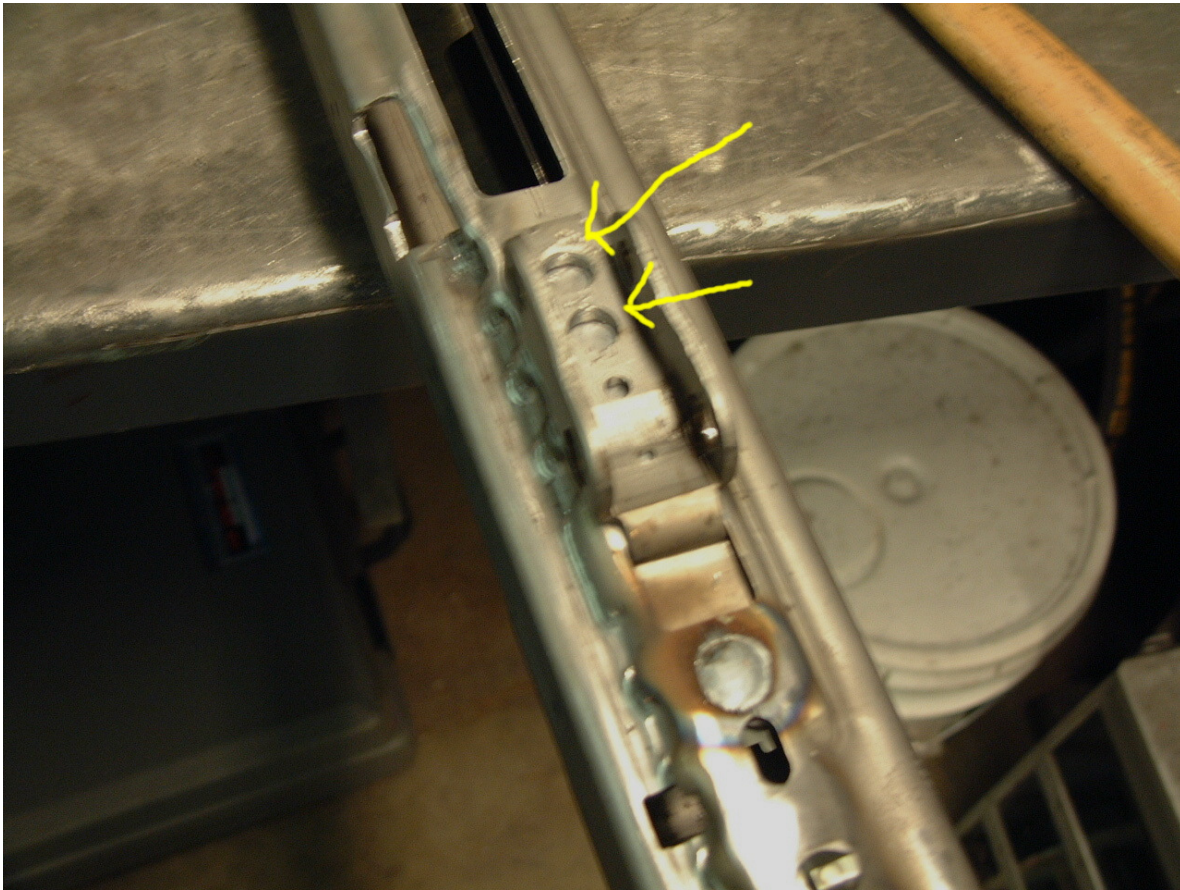
57- Install trigger bracket/recoup stop.



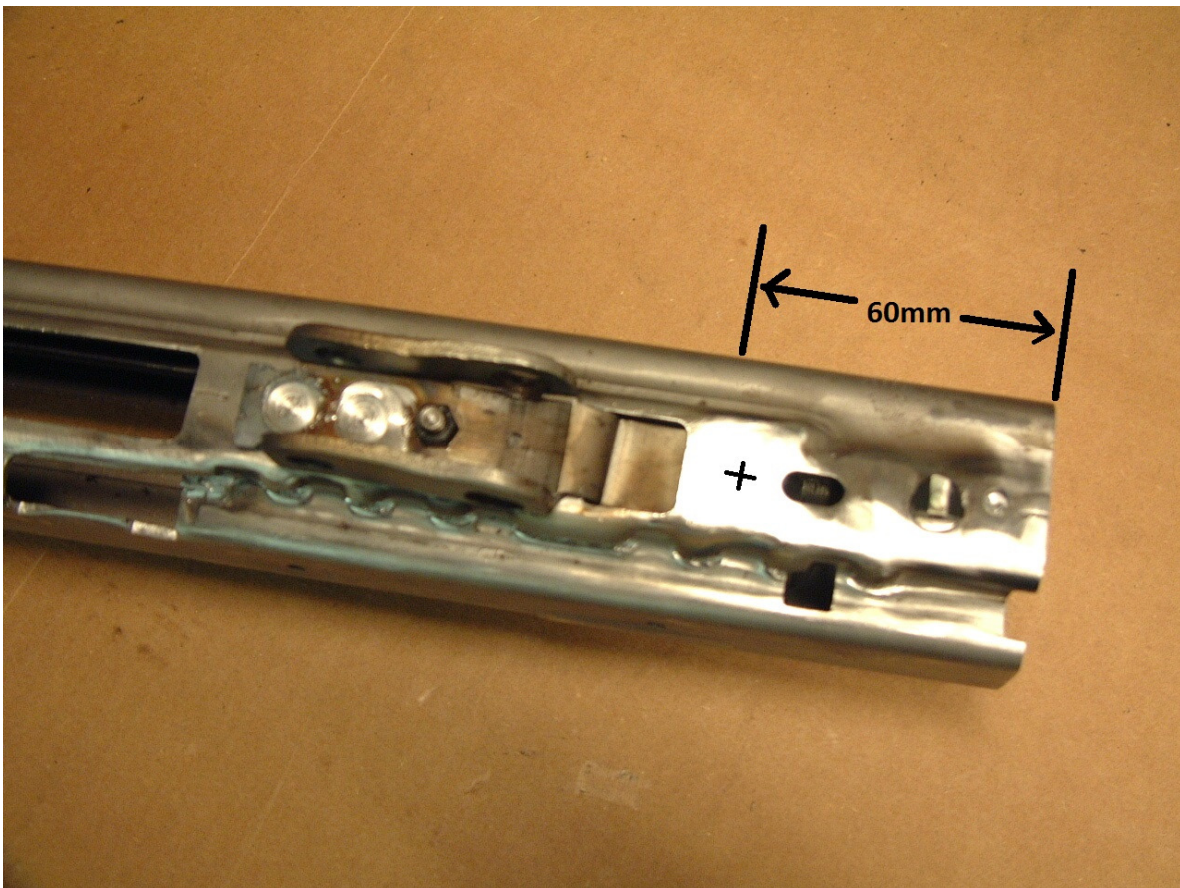
58- Install trigger housing.



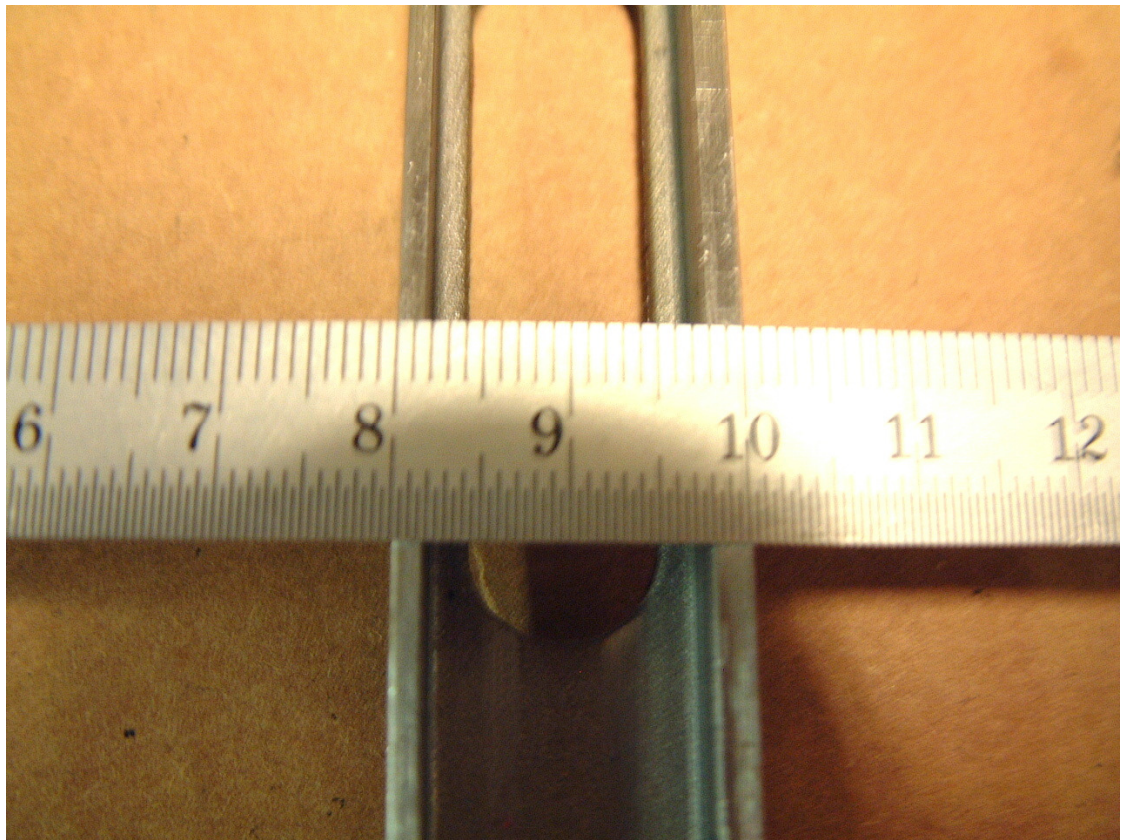
59- Pin the trigger housing to the trigger bracket/recoup stop. Push the trigger housing forward until the trigger bracket/recoup stop is tight against the back of the recoup.



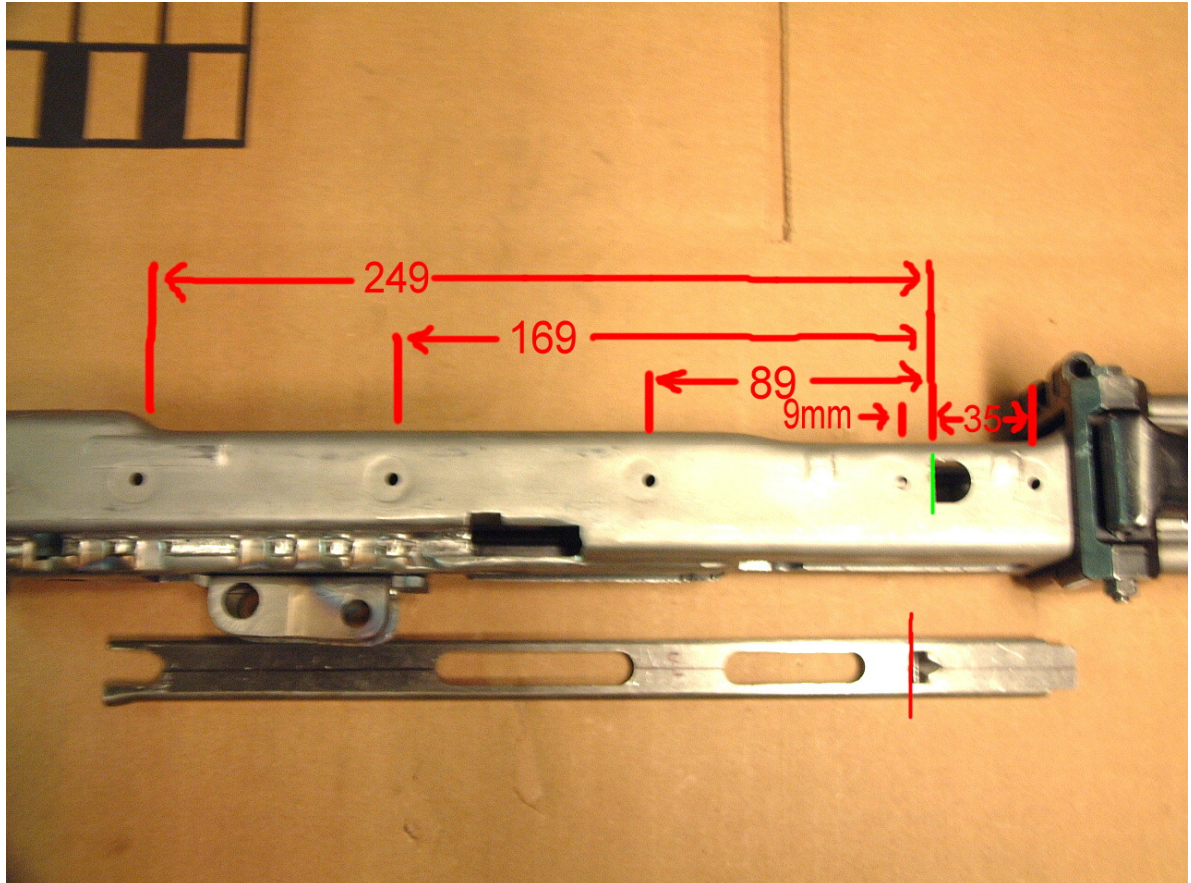
60- Weld the trigger bracket/recoup stop to the receiver using the rear rivet hole. Remove the trigger housing and weld the two remaining holes.



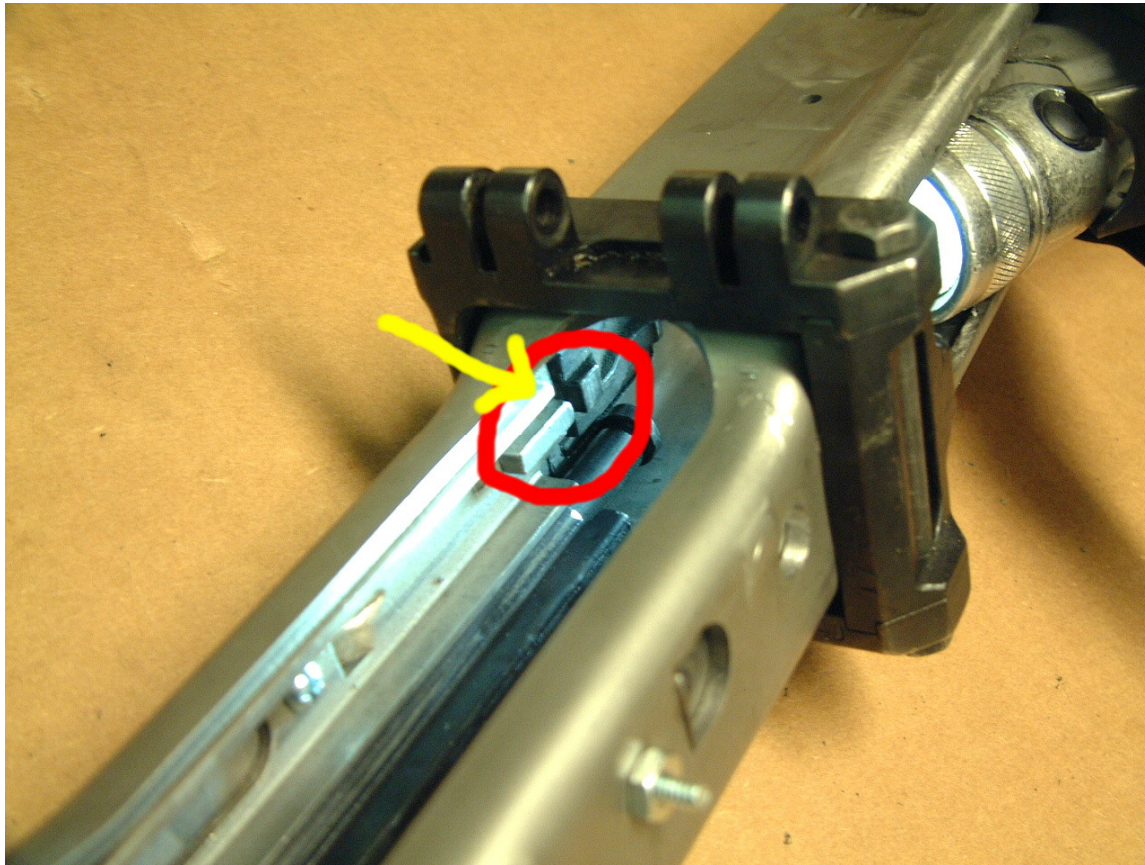
61- Grind down all the weld. Re-drill the rear rivet hole using a $\frac{5}{32}$ " drill bit. Install and rivet. Drill recoup bolt hole with a $\frac{7}{32}$ " drill bit. Install rear recoup bolt and tighten nut.



62- Left and right bolt rails are not the same. The left bolt rail has one thinner rail; the bottom rail is 2mm and the top rail is 3.5mm. The bottom & top rail on right bolt rail are both 3.5mm. 2 left side bolt rails can be used. Mark the bolt rails left and right.



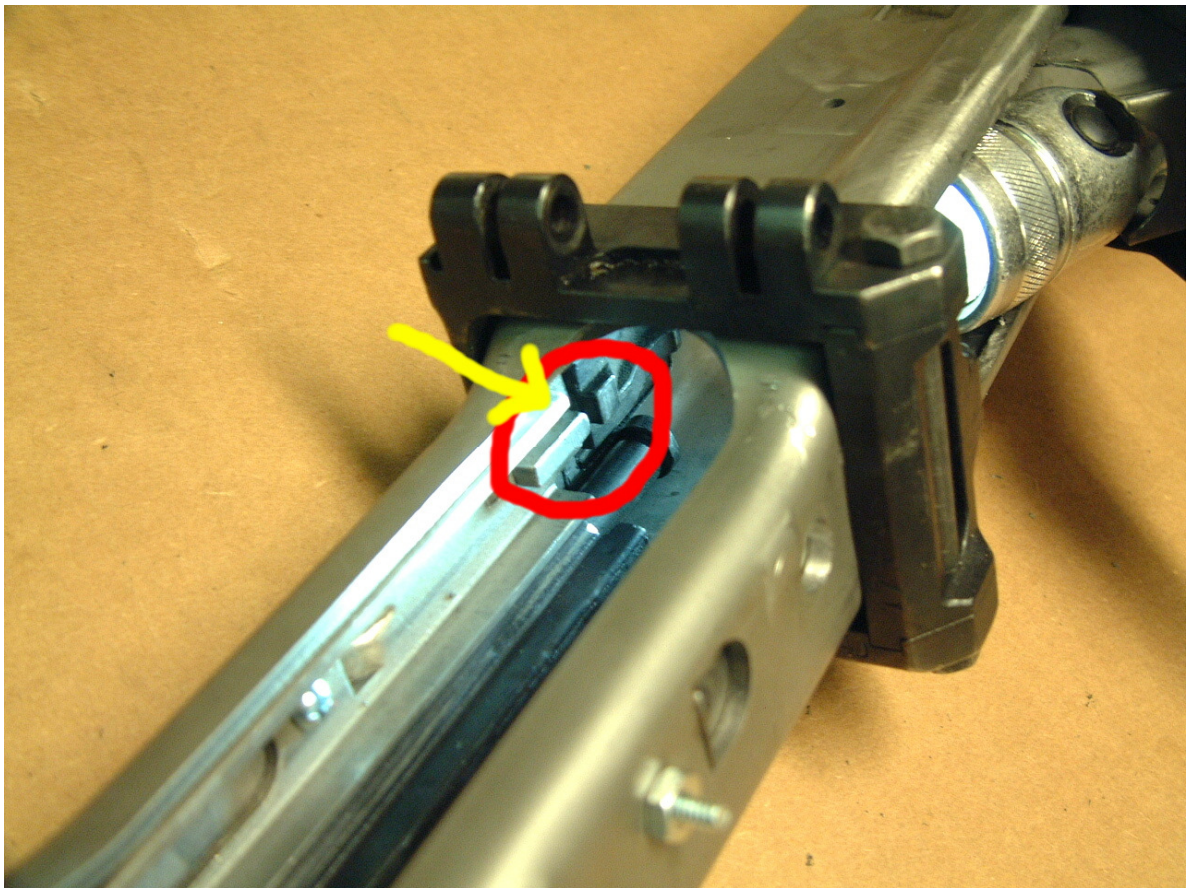
63- Lay out the holes for both bolt rails on the rails center line. When marking out the holes, the bolt rails stops need to be tight against the receiver.



64- Ensure the bolt rails are centered on the trunnion. Drill the holes in the bolt rails using a 5/32" drill bit.



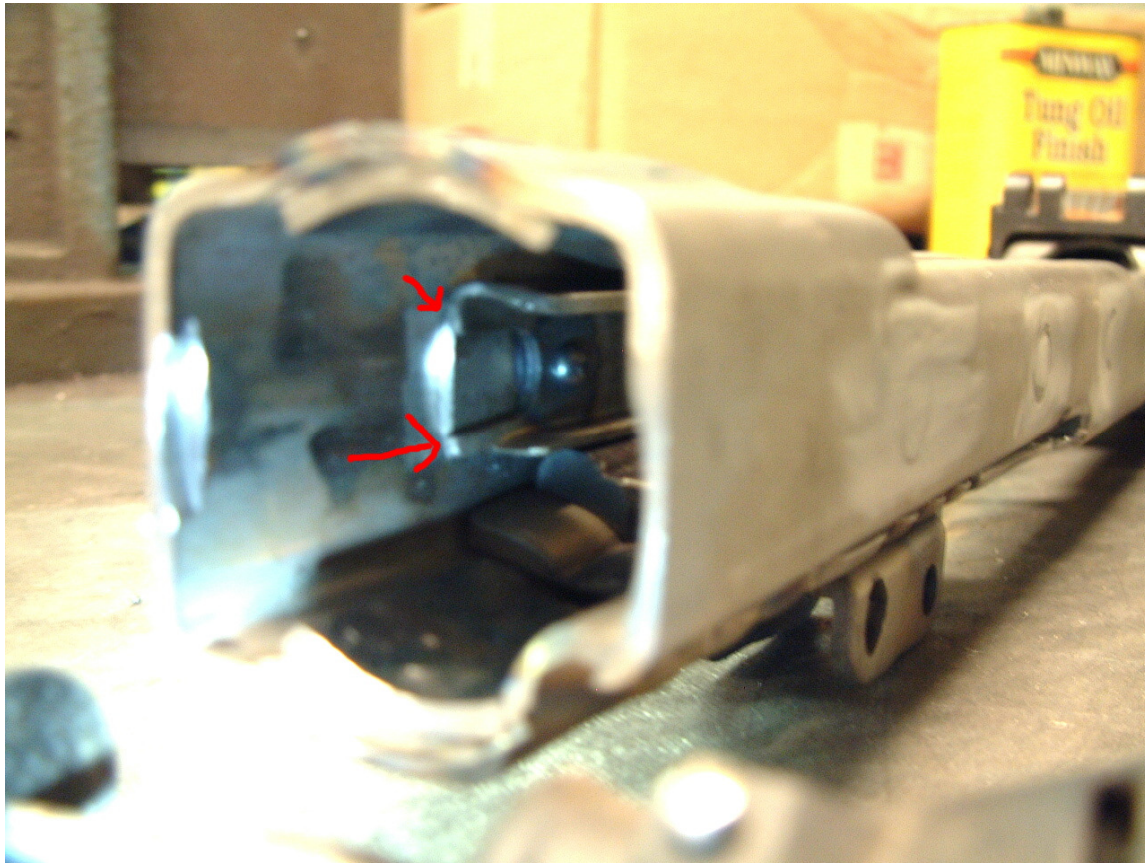
65- A simple way to hold the rivets tight in the bolt rails so they can be properly riveted to the receiver. Used two 3/8-16 x 3/4" bolts, one 3/8-16 nut, and one 3/8-16 coupler nut. Drill a small dimple into the bolt head to hold the rivet. Notch the threaded side for clearance with the middle bolt tabs.



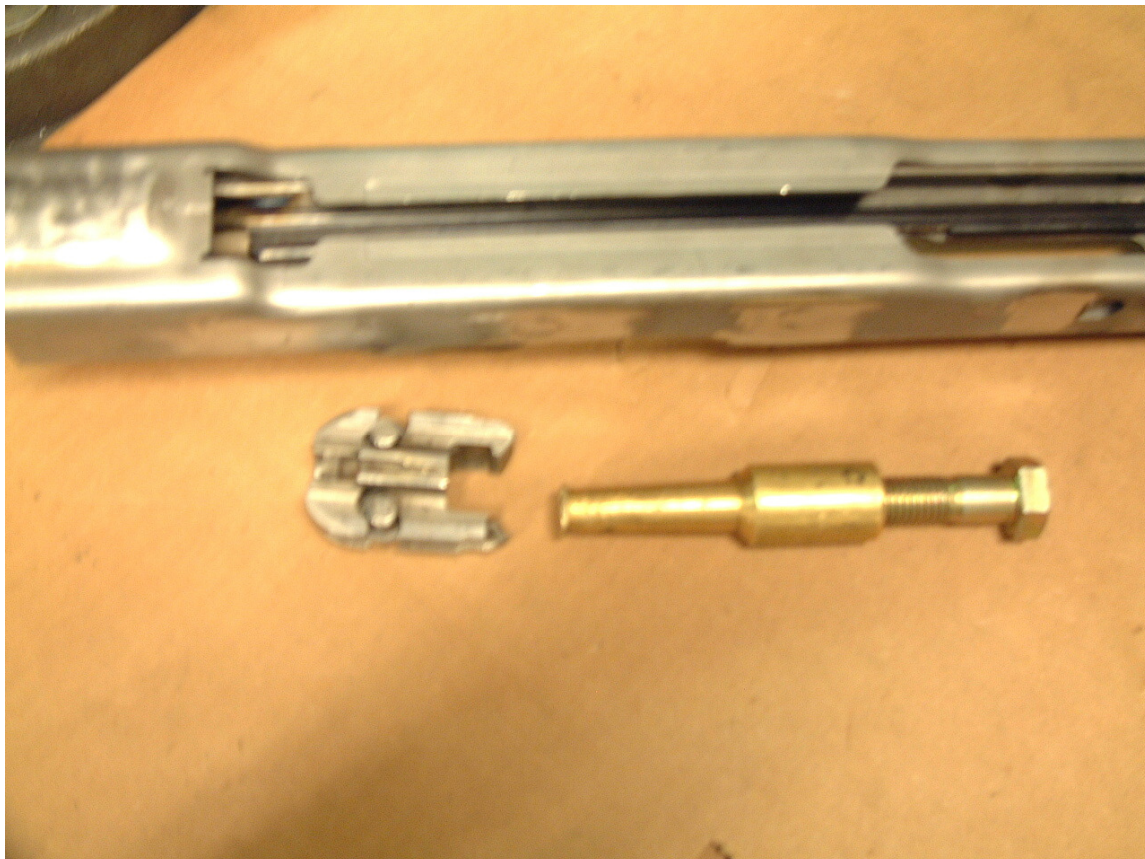
66- Install rails using four 6-32 x 1" bolts with nuts. Again, ensure the rails are centered on the trunnion.



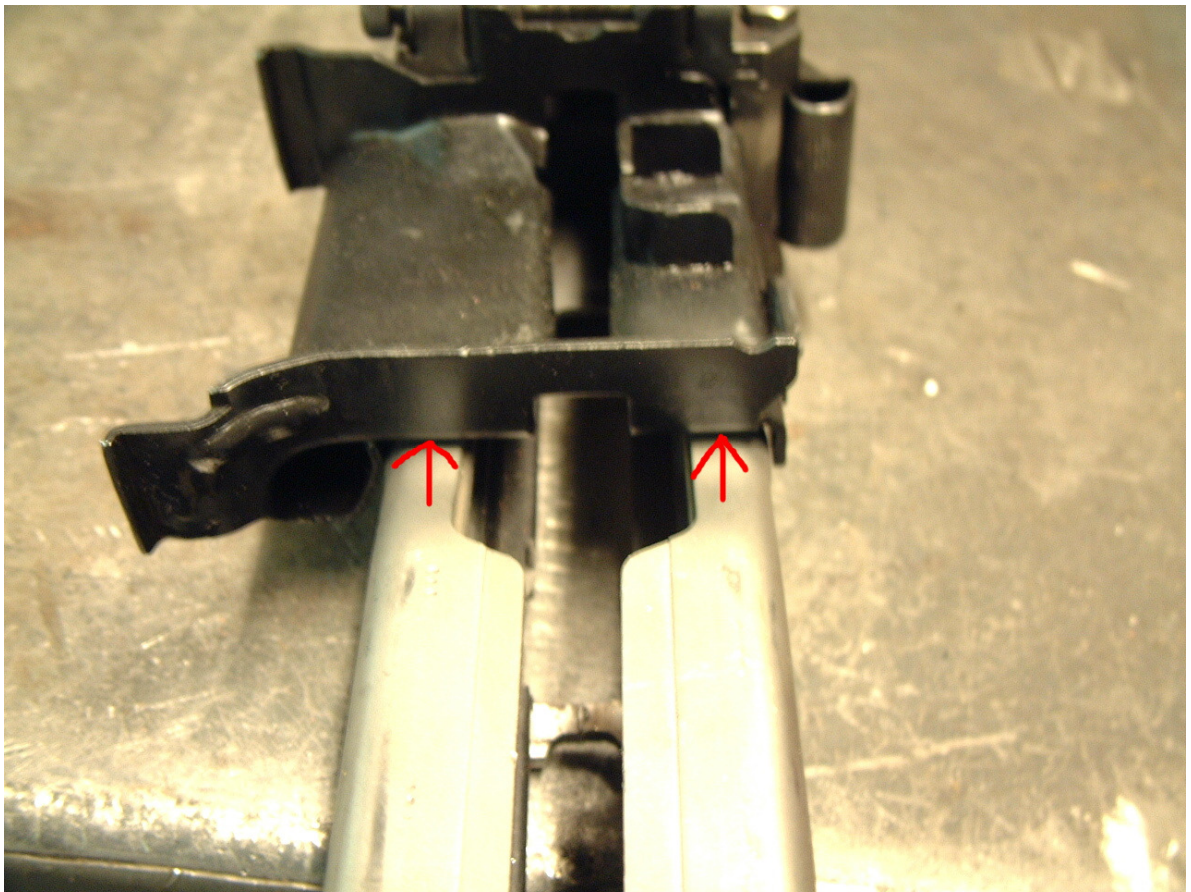
67- Install 1 set of rivets. Use the spreader to push the rivets tight. Do not over tighten the spreader. The receiver can be damaged. Rivet tight & repeat this step for the remaining 4 sets of rivets.



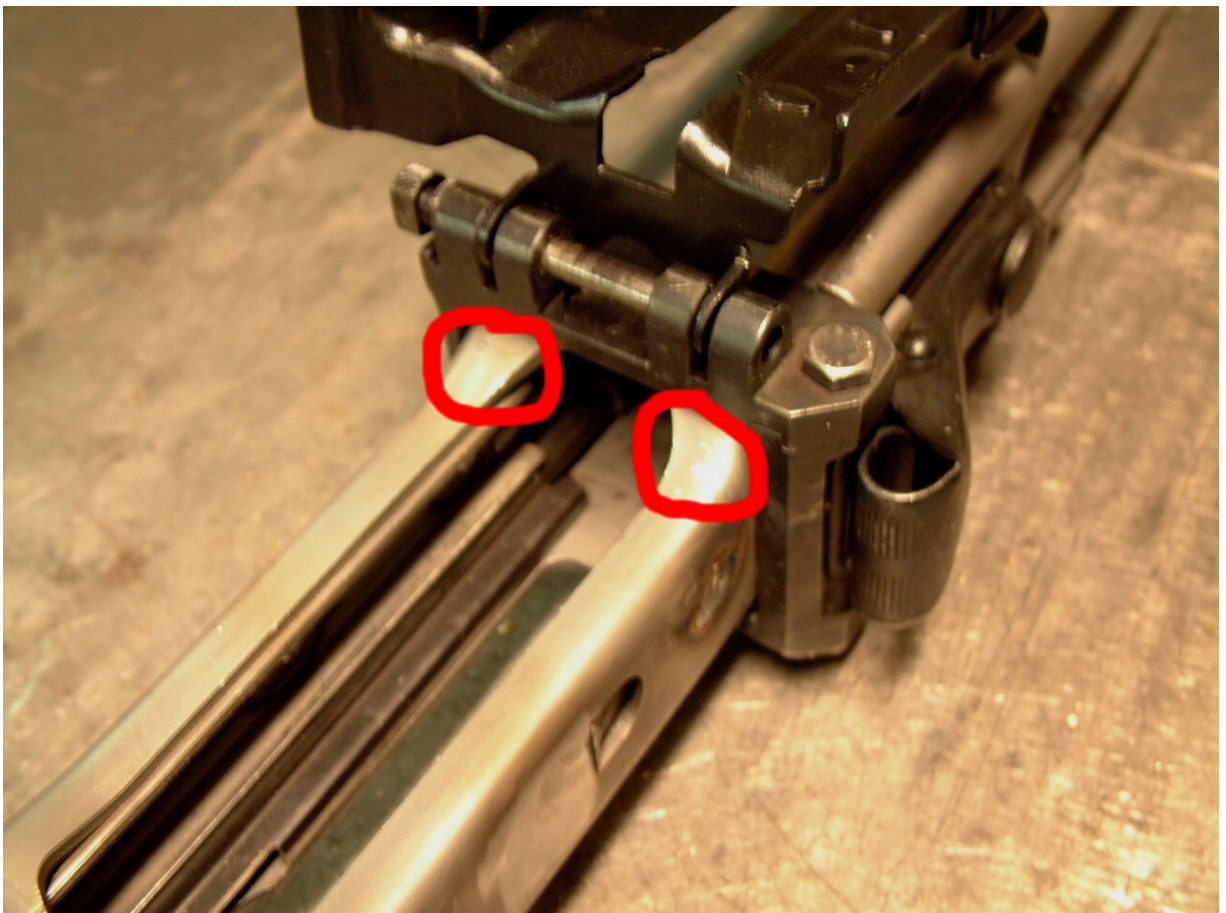
68- Check the rear of both bolt rails to see if they extend into the front of the buffer lock groove. Cut them back out of this area.



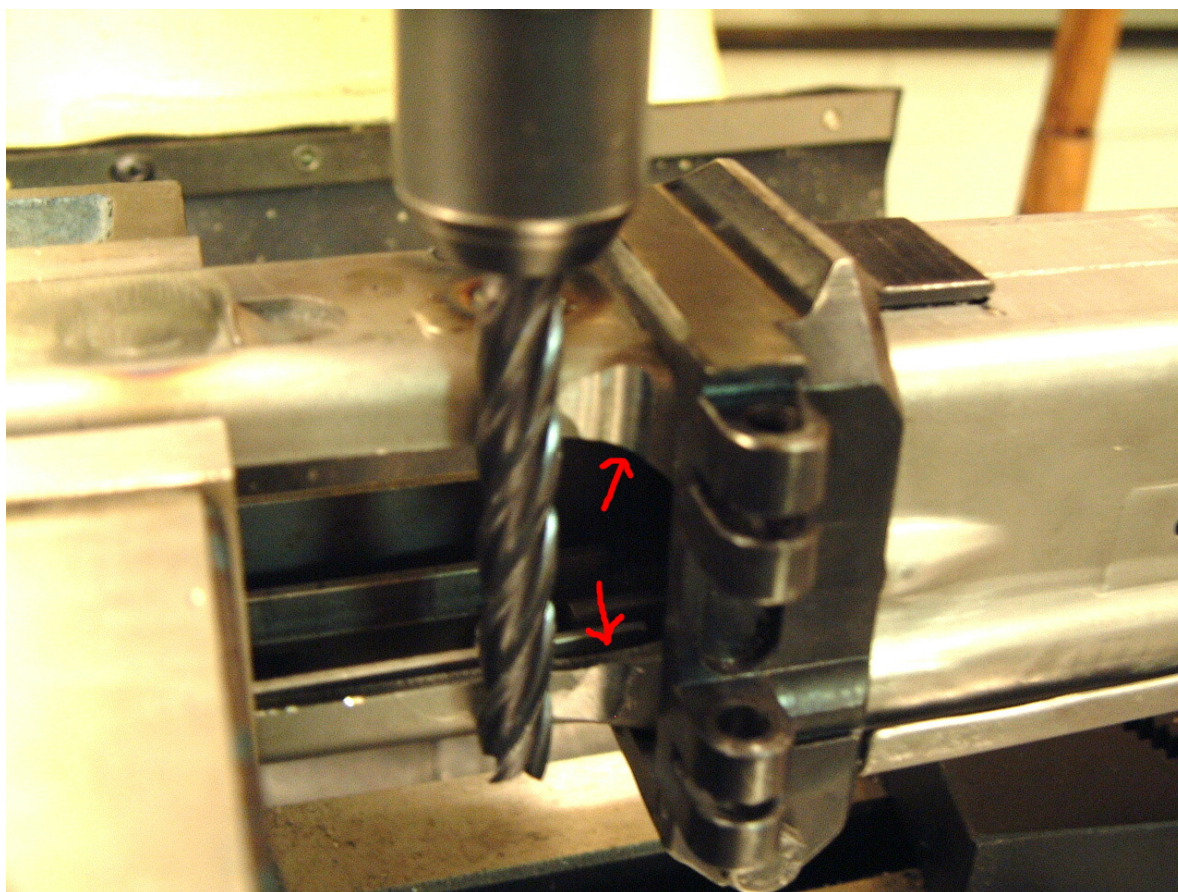
69- Test fit the bolt head in the rails. It should move freely back and forth. If it doesn't, you have to correct the issues. If the right & left rails are too close together, use the rivet spreader from (step #65) to open up the gap. If the rail is too tight, hit the bolt head from the bottom with a brass drift. Not the top.



70- Pin on the feed tray. It has to sit flat on the top of the receiver with no front interference.
If it sits flat skip steps #71 & #72



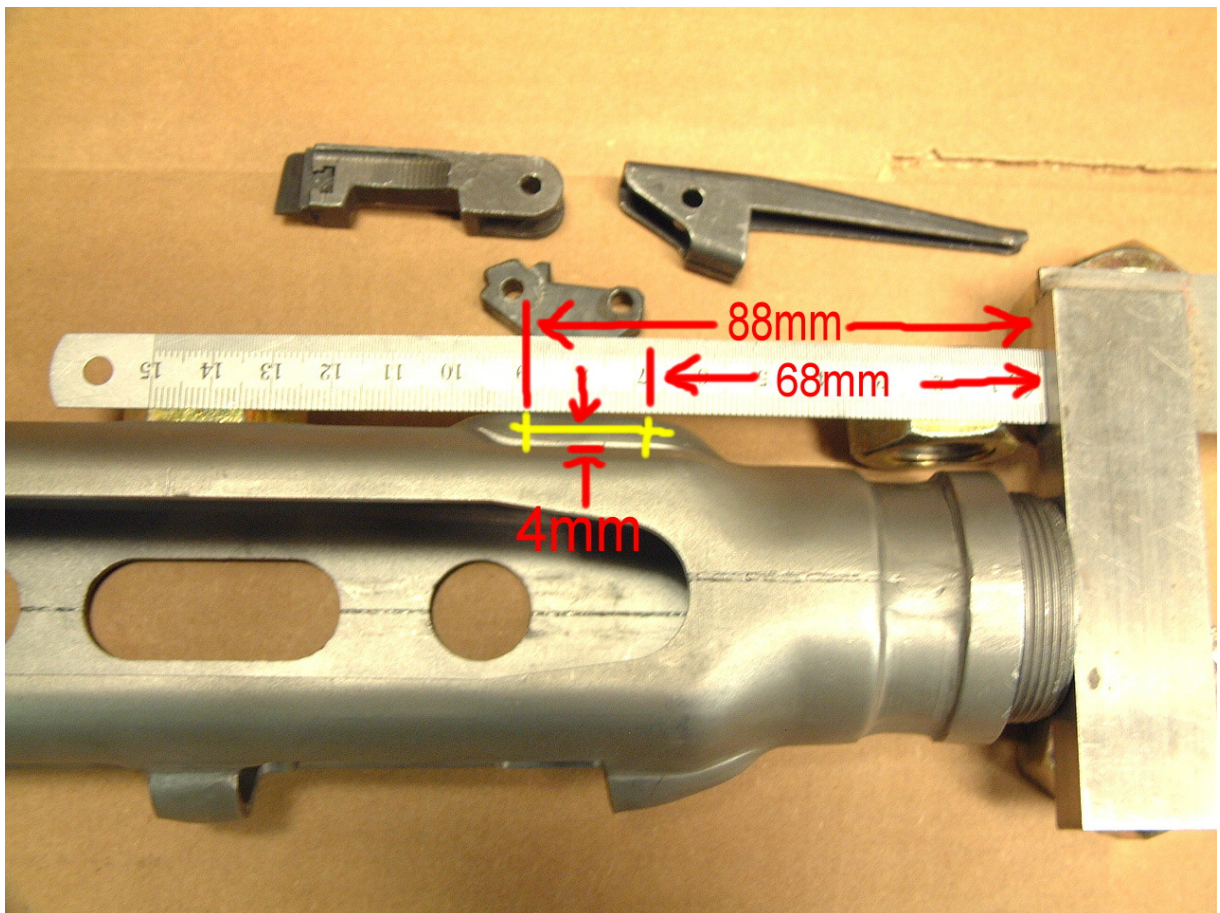
71- The area that needs to be machined to get the feed tray down flat is this area.



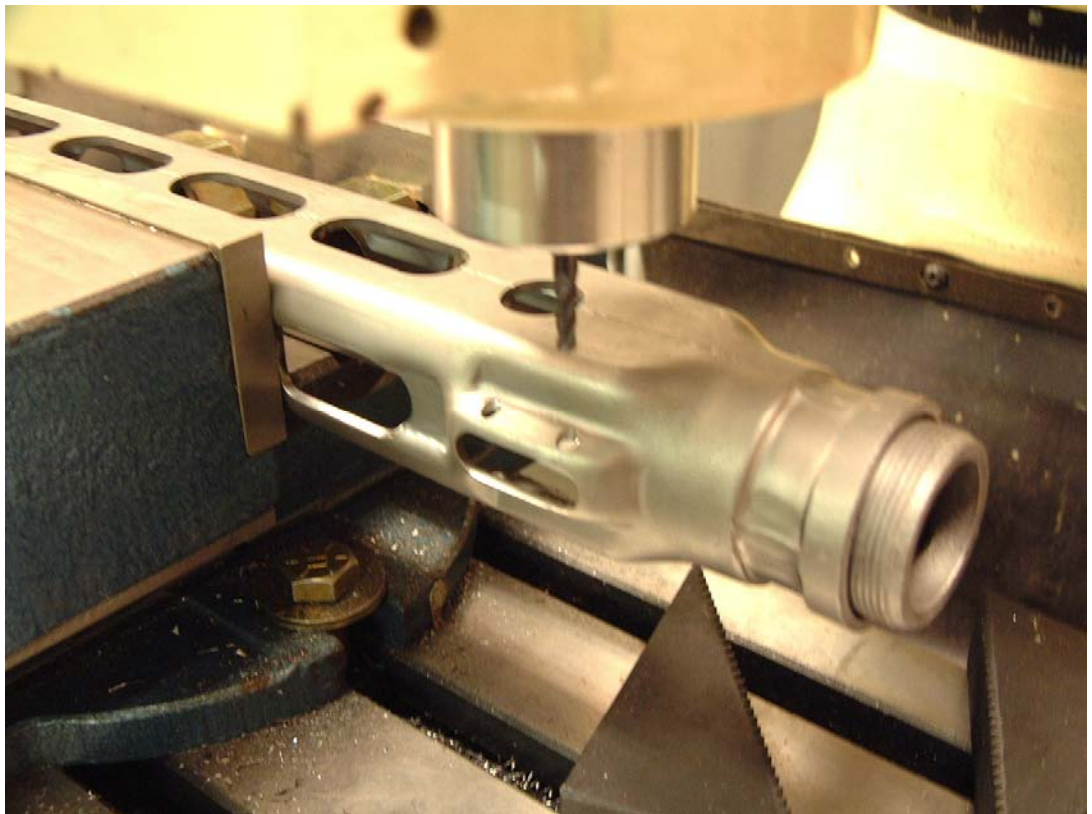
72- Use a 3/8" mill for this task. A grinder or a sanding disk will also work. Remove the trunnion before addressing. Re-install the trunnion using the temp bolt when finished (step #32)



73- Install the feed cover on the receiver. Feed cover should latch nicely.



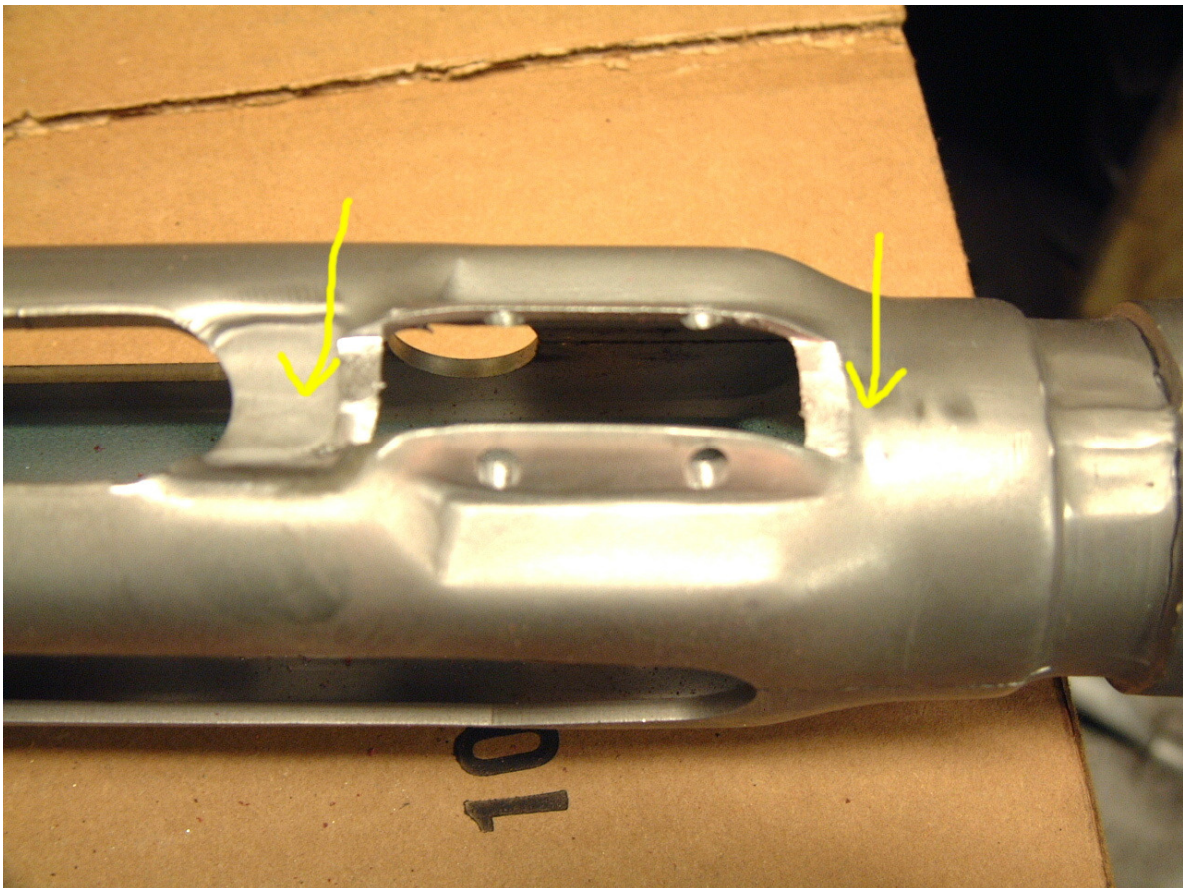
74- Lay out the holes for the front sight assy on both sides of the receiver. Measure from the front of the receiver bushing. The flash hider lock hole is 68mm and the sight is 88mm. Measure 4mm up from the flat area.



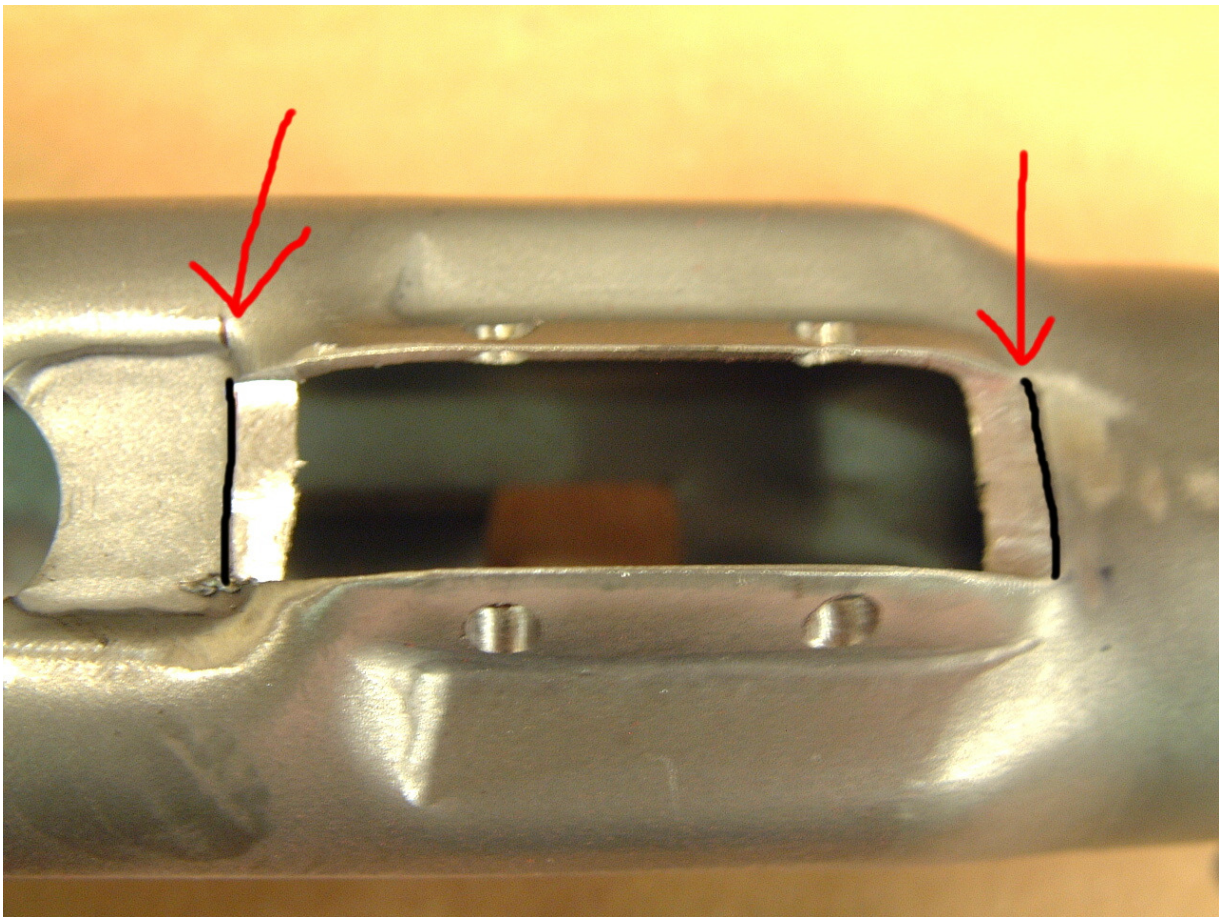
75- A 5/32" mill MUST be used for these holes. A drill bit will walk. Lay out and set up is very important for this step.



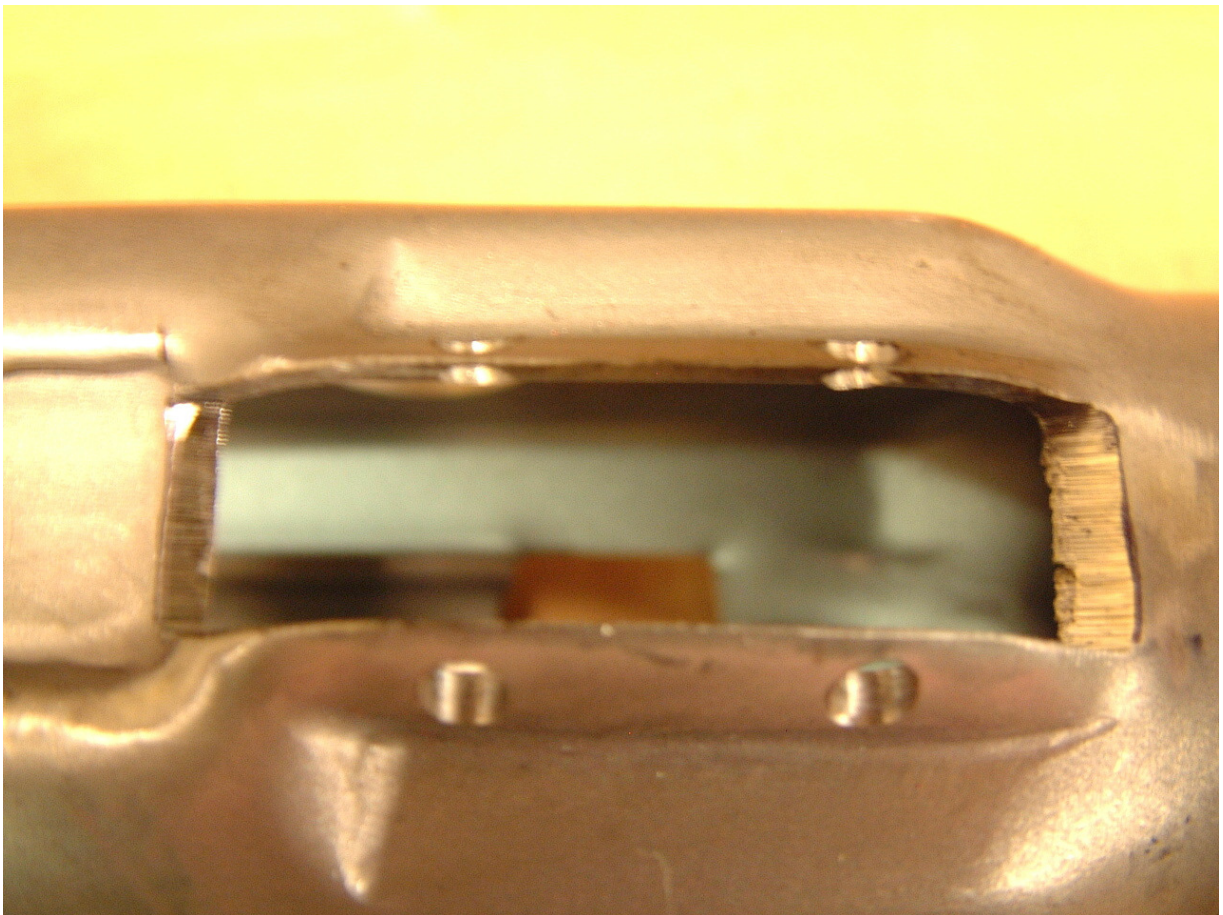
76- Mark out a 13mm wide slot for the sight assy. Make sure it is centered on the receiver.



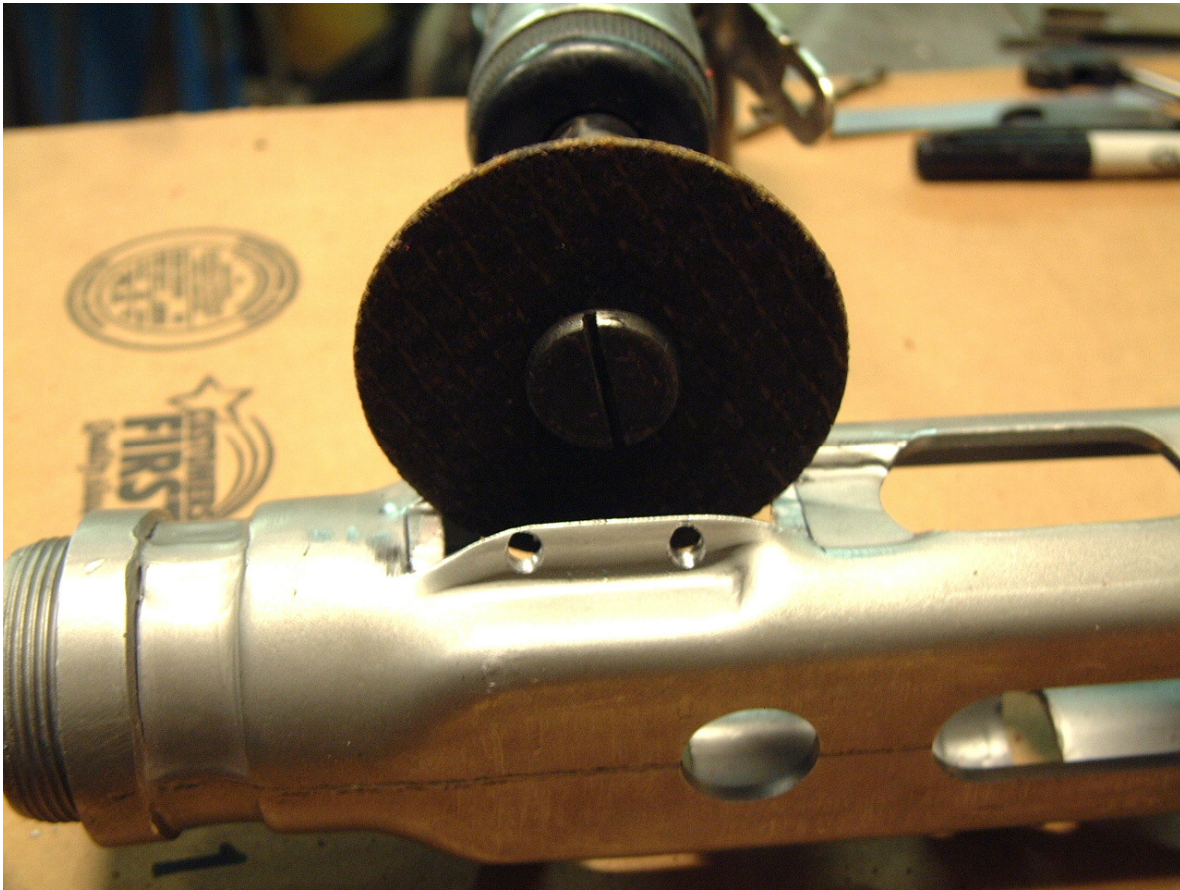
77- Milling out the slot. Mill it even with these two areas. They are not on the same level. The flash hider lock is lower.



78- Mark the two mill lines.



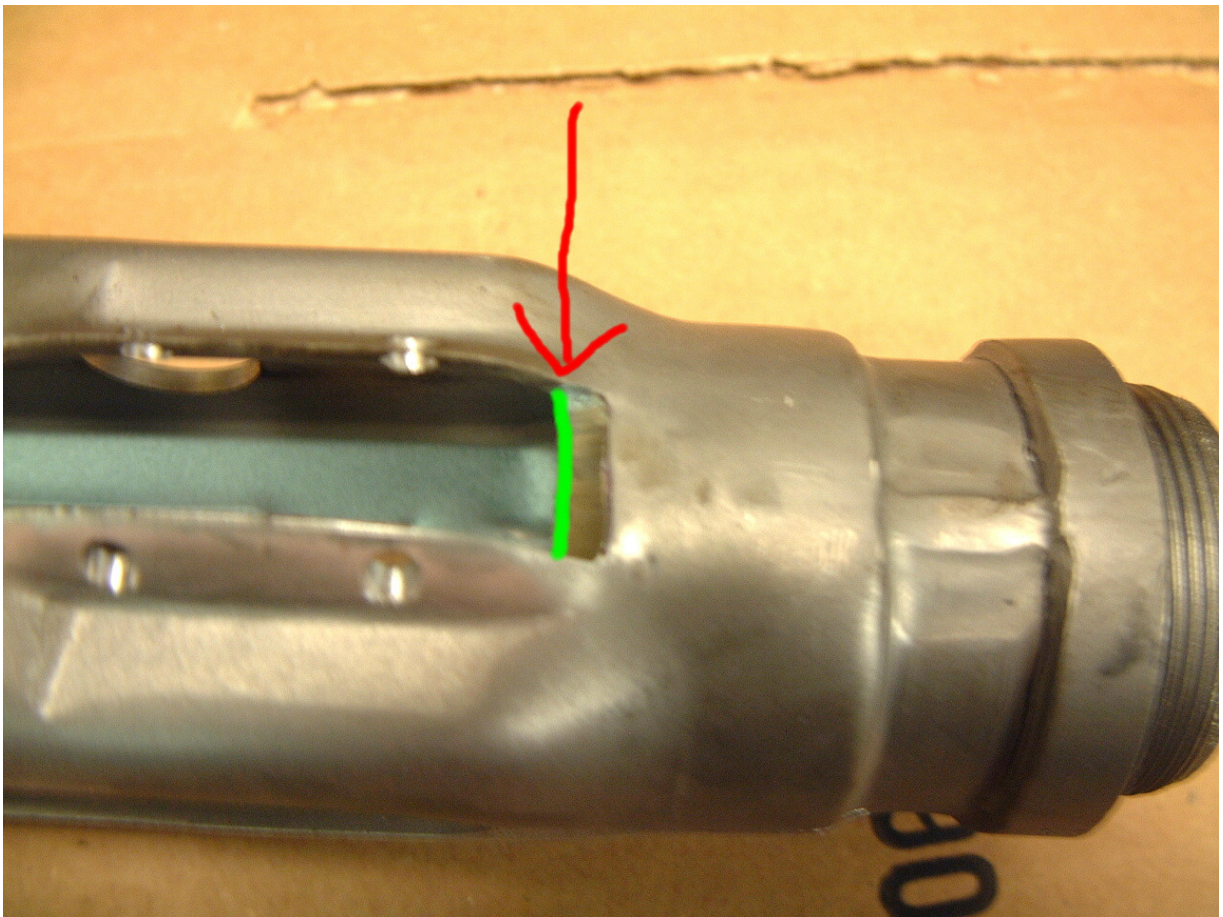
79- The slot for the sight assy needs to have a bevel added.



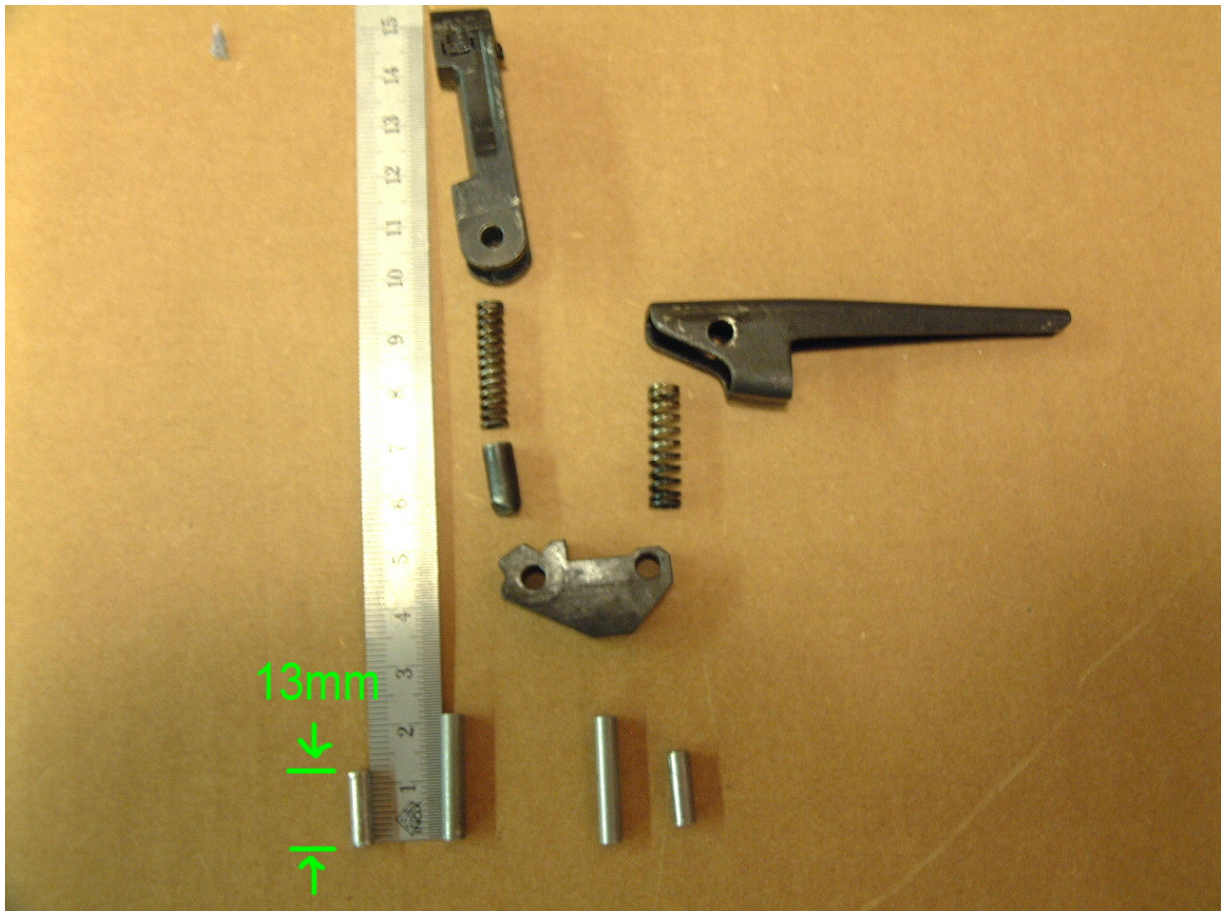
80- Use a 3" cut off wheel to add the bevel starting at the lines marked in step #78.



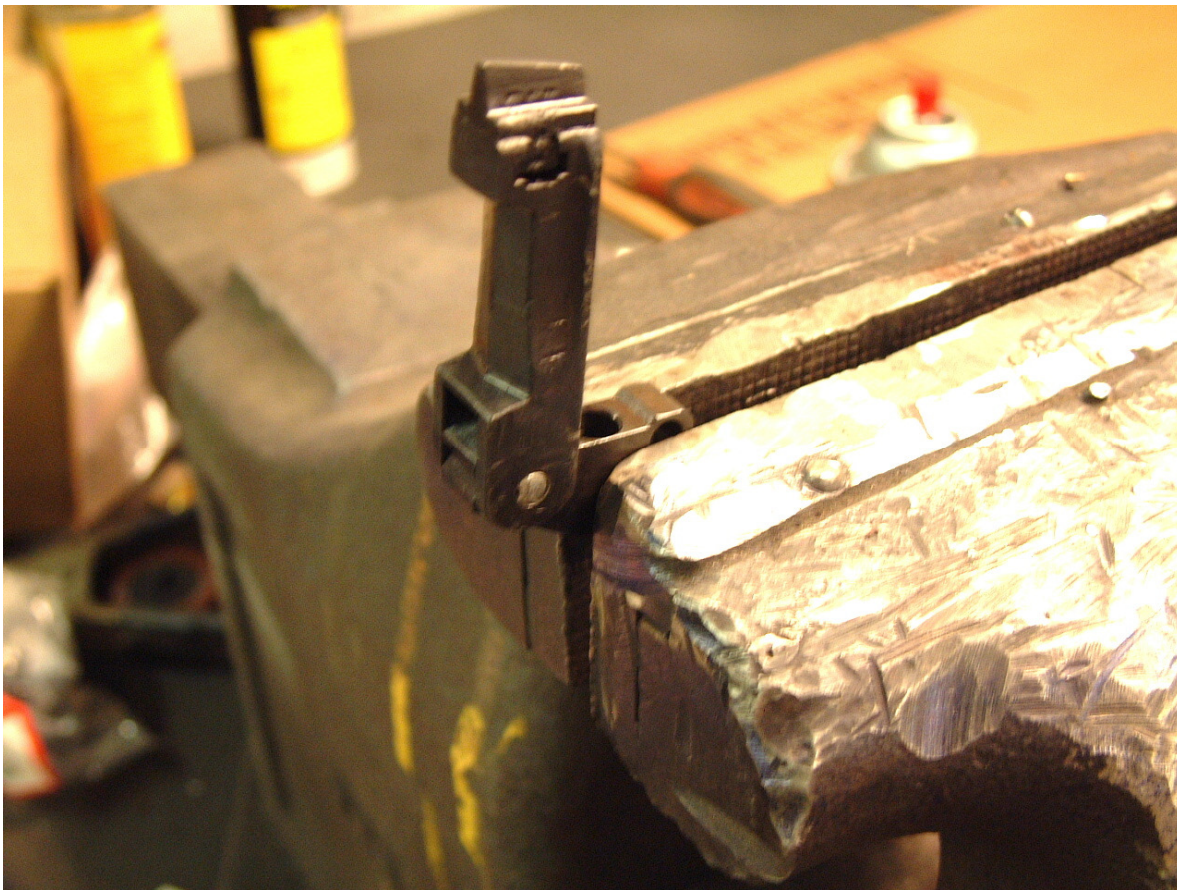
81- Test fit the flash hider lock bar using a 5/32" drill bit. Lift the flash hider lock up and measure to the front receiver bushing. Minimum measurement is 20mm. If OK, skip step #82. *Example is 18mm.*



82- Remove a little material from this area. Go back step #81 and re-measure flash hider lock bar height.



83- Cut 2 old pins to 13mm for assembling the front sight assy.



84- Assemble the sight assy & flash hider lock bar using the short pins. Assemble the front sight first by clamp the block in a vice. The flash hider lock bar can be assembled by hand.



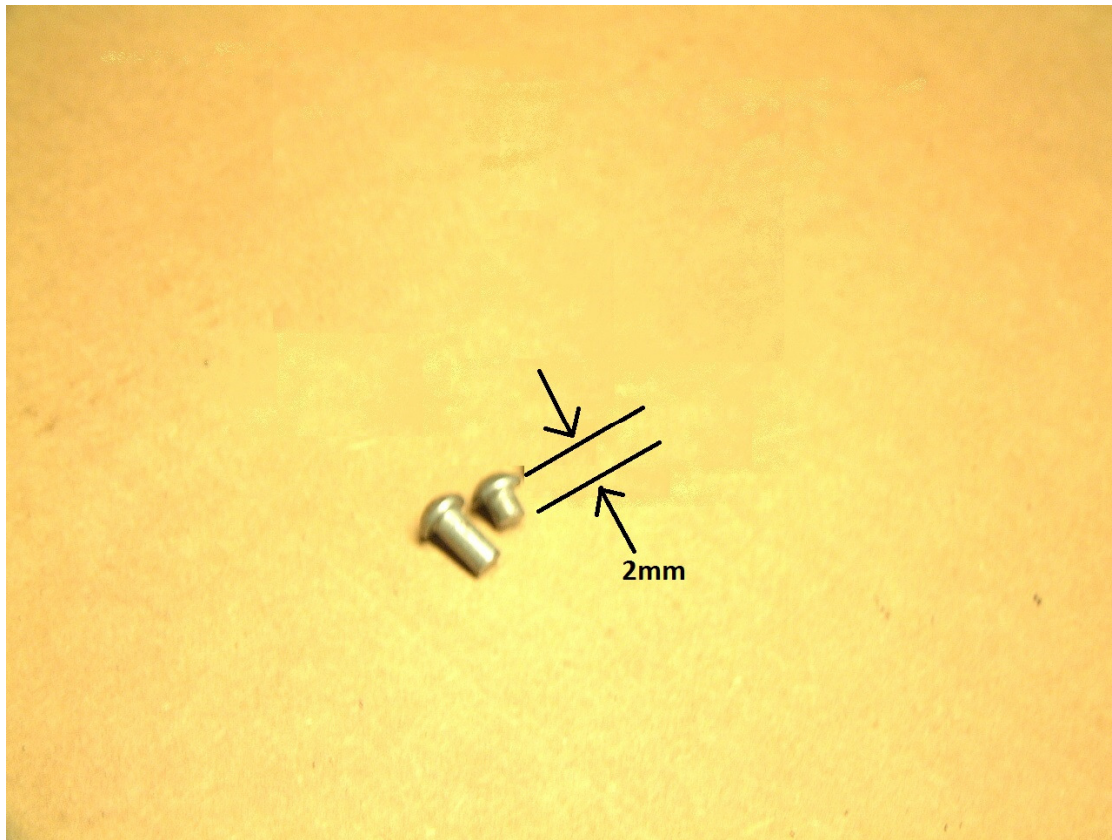
85- Install the assembled sight assembly into the receiver. Drive the short pins out with the correct long pins. Watch the alignment with the receiver holes.



86- Mushroom both ends of the pins. A lady finger up against a vice on one side while hitting the other side works well.



87- Install the front AA sight bracket. Insert the rivets from the inside. Rivet in place.



88- Cut 1 rivet to the length of 2mm

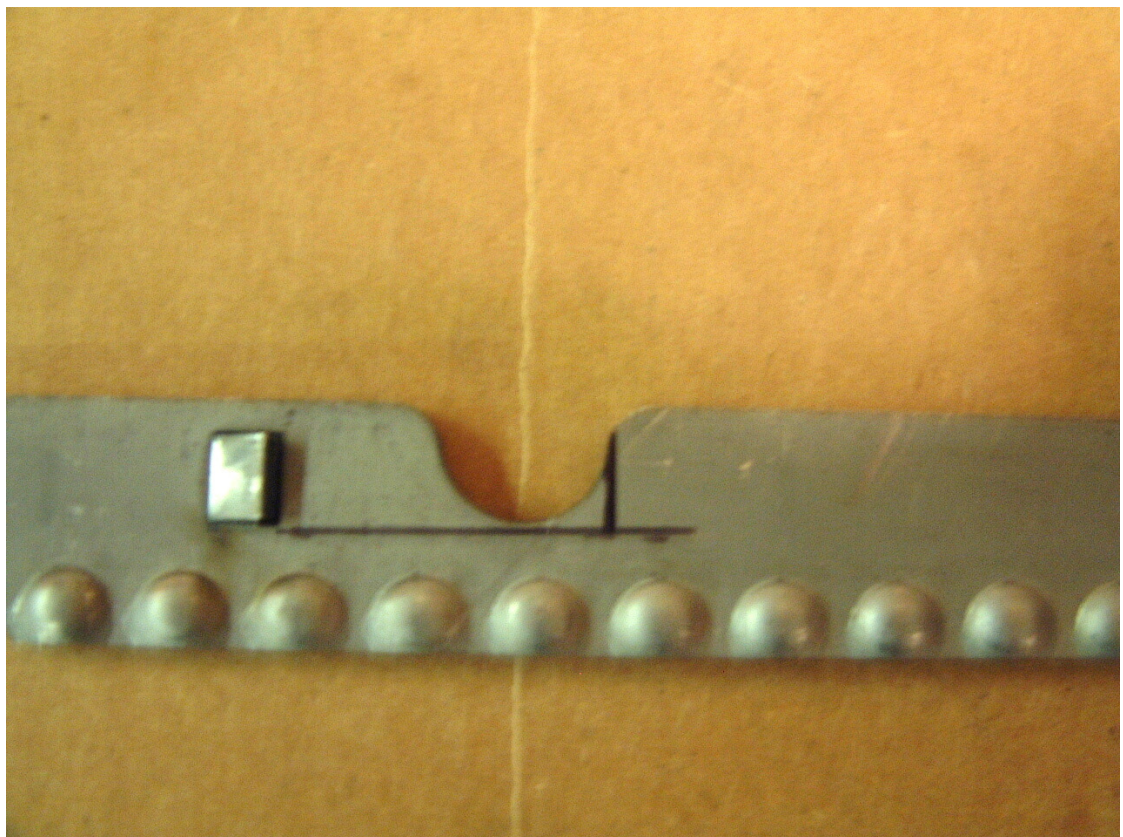


89- Drill out both rivet holes on the Lafette lug with a 3/8" drill bit. Insert the rivet from step #88 inside the receiver. Place the lug on the bottom of the receiver. Weld the lug to the receiver making sure the rivet is also welded. Grind the welds flush.

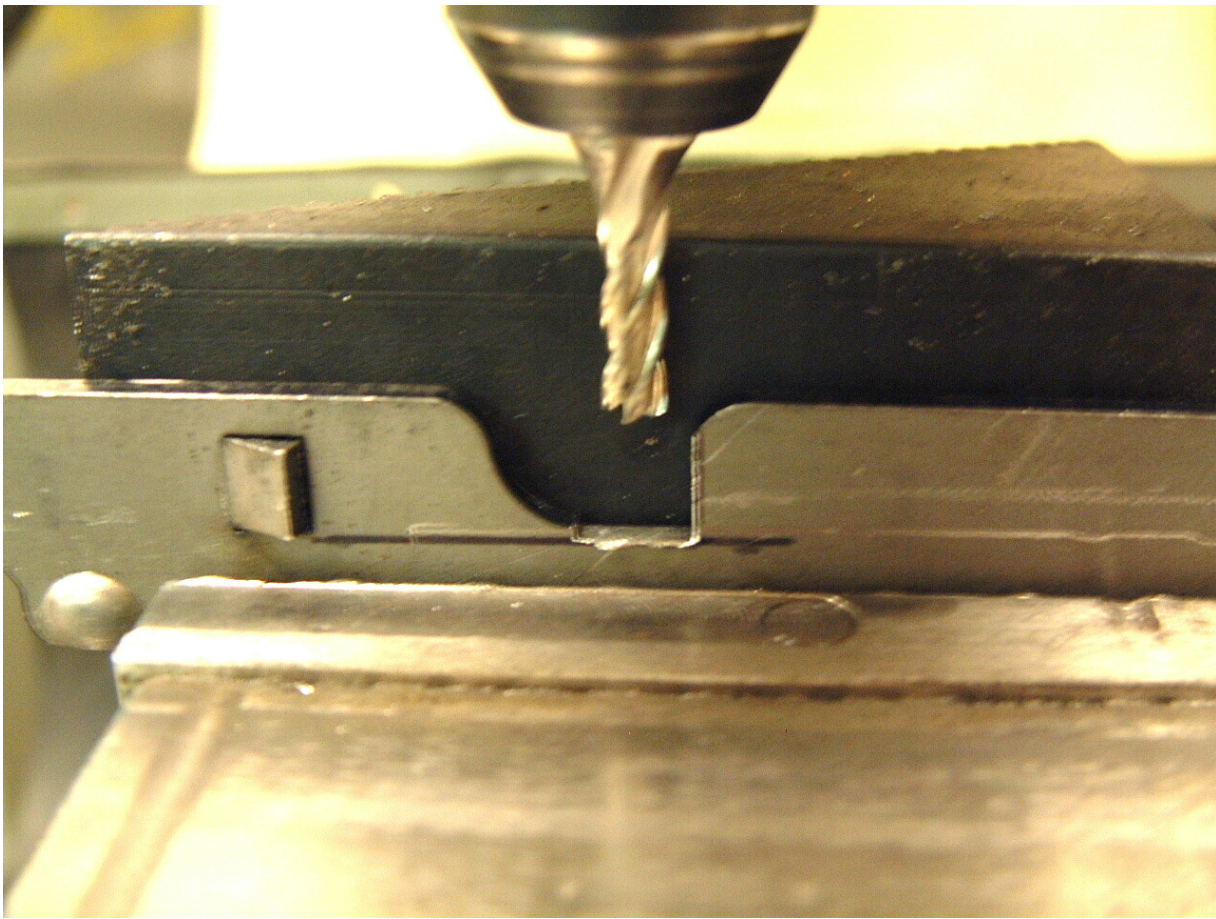


90- Install the rear sight bracket on the receiver. Insert the rivets from the inside. Rivet into place.

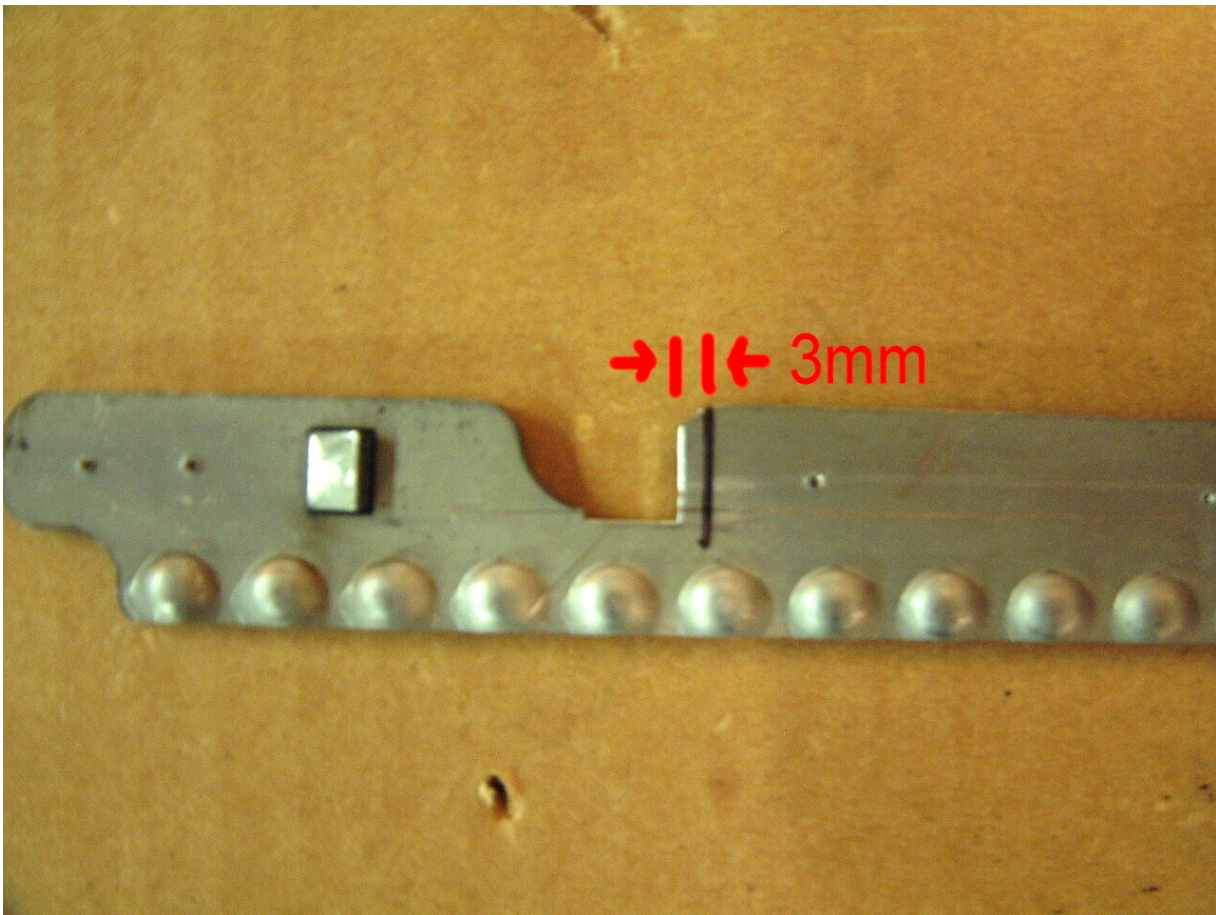
Steps #91 thru #101 are for a bolt hold open lock. It is not original to the MG42. These steps can be omitted. If omitted proceed to step #102



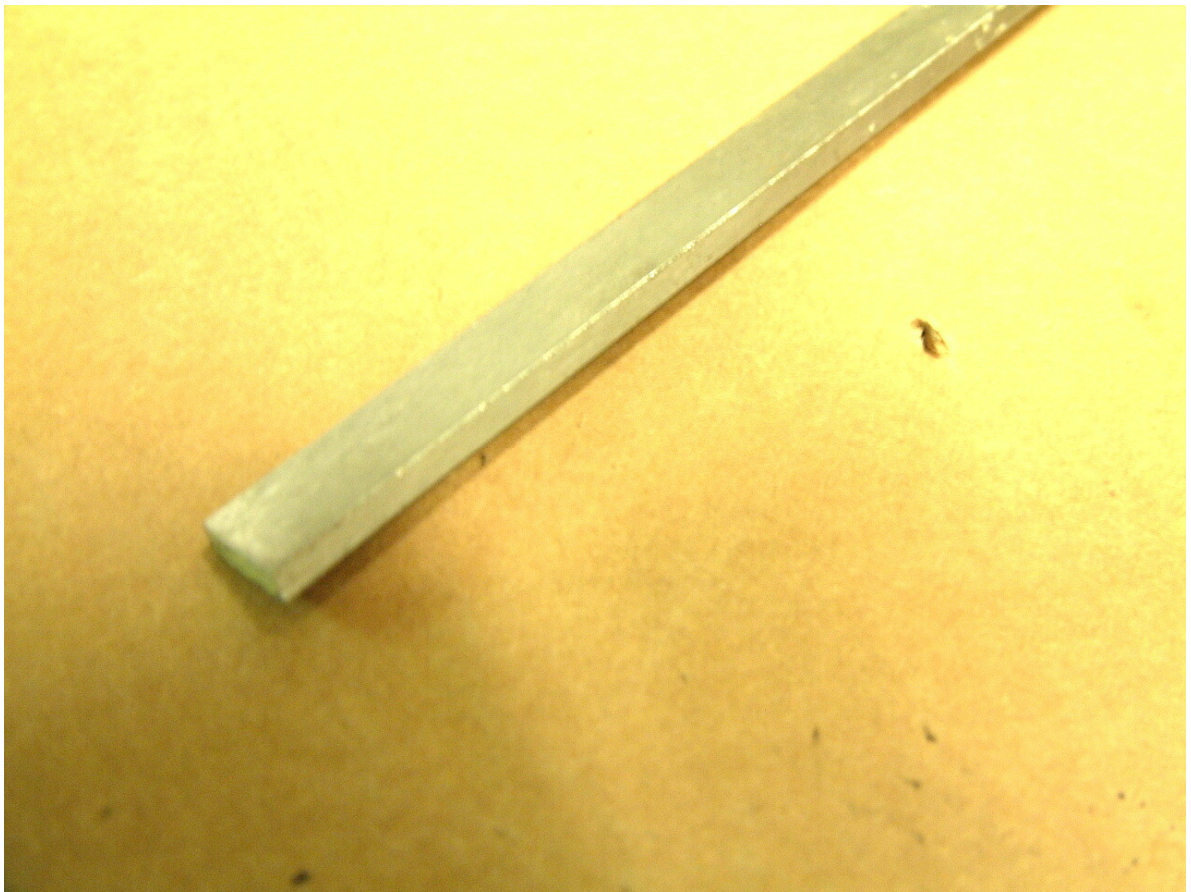
91- Mark a line 12mm down on the ratchet plate. Draw a vertical line to square up the round rivet cutout in front of the charging handle stop.



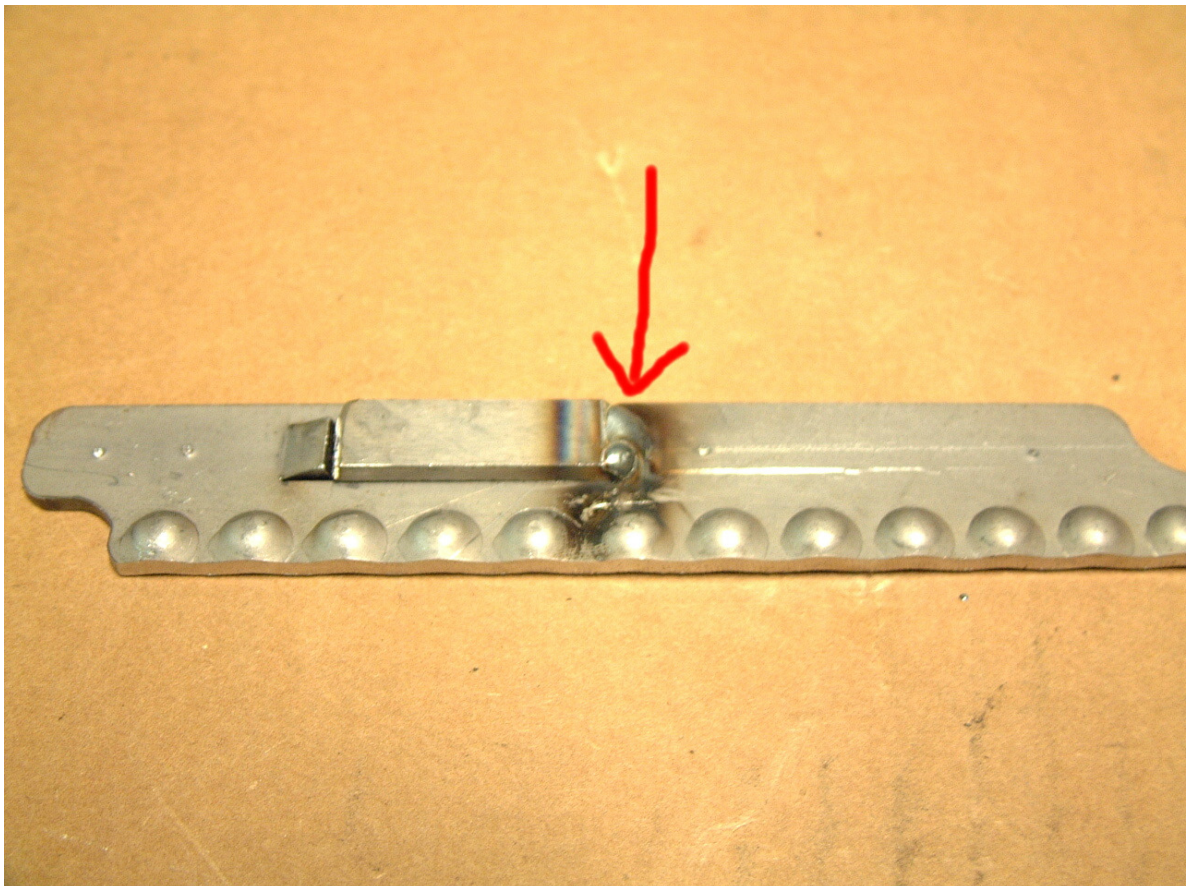
92- Mill out the area.



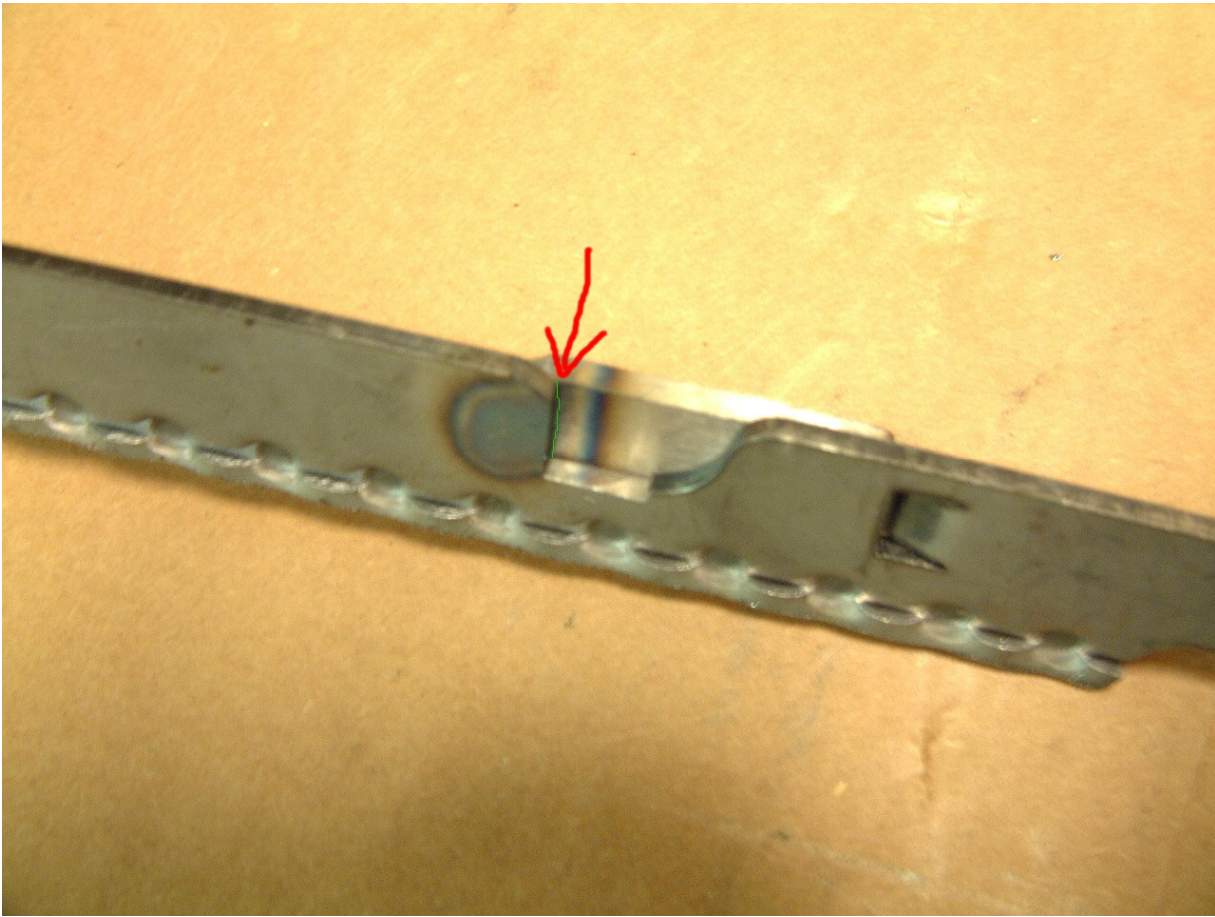
93- Mark a vertical line 3mm in from the cut.



94- Use a 1/8" x 3/8" key stock for steps #95 and #98



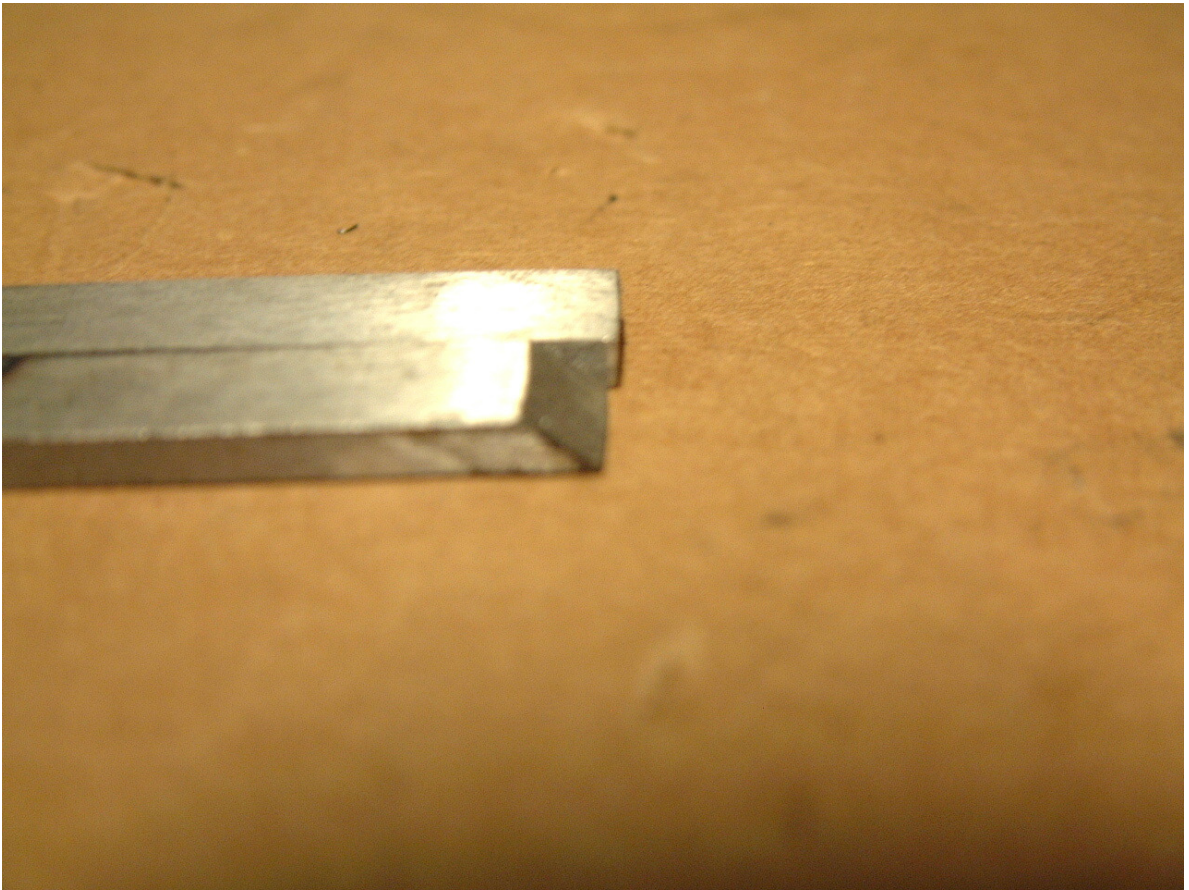
95- Line up key stock with the vertical line marked on step #93 and the horizontal line machined out on step #92. Only weld the front of the key stock to the ratchet plate.



96- Cut the key stock flush with the notch milled in step #92.



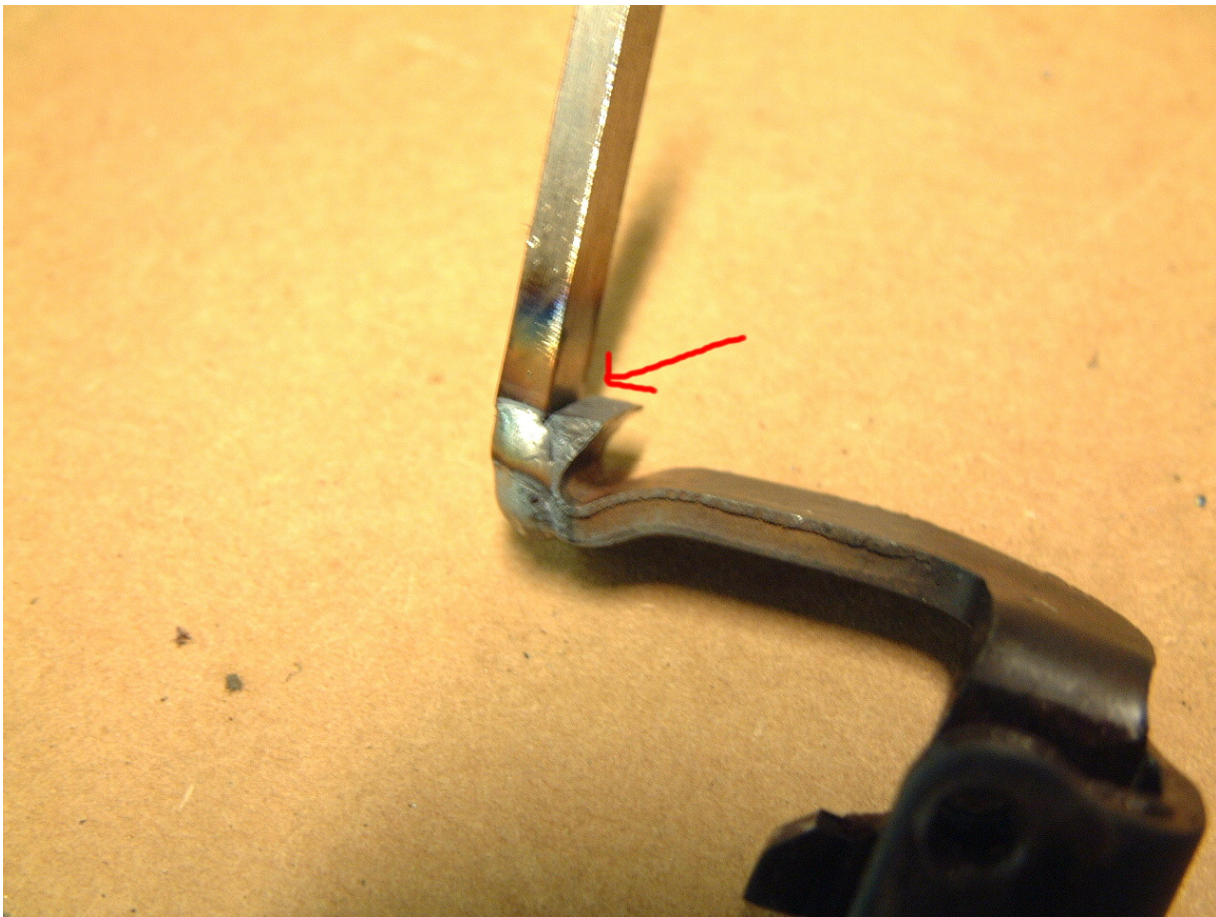
97- Grind the weld into a smooth ramp.



98- Grind a bevel on one end of key stock.



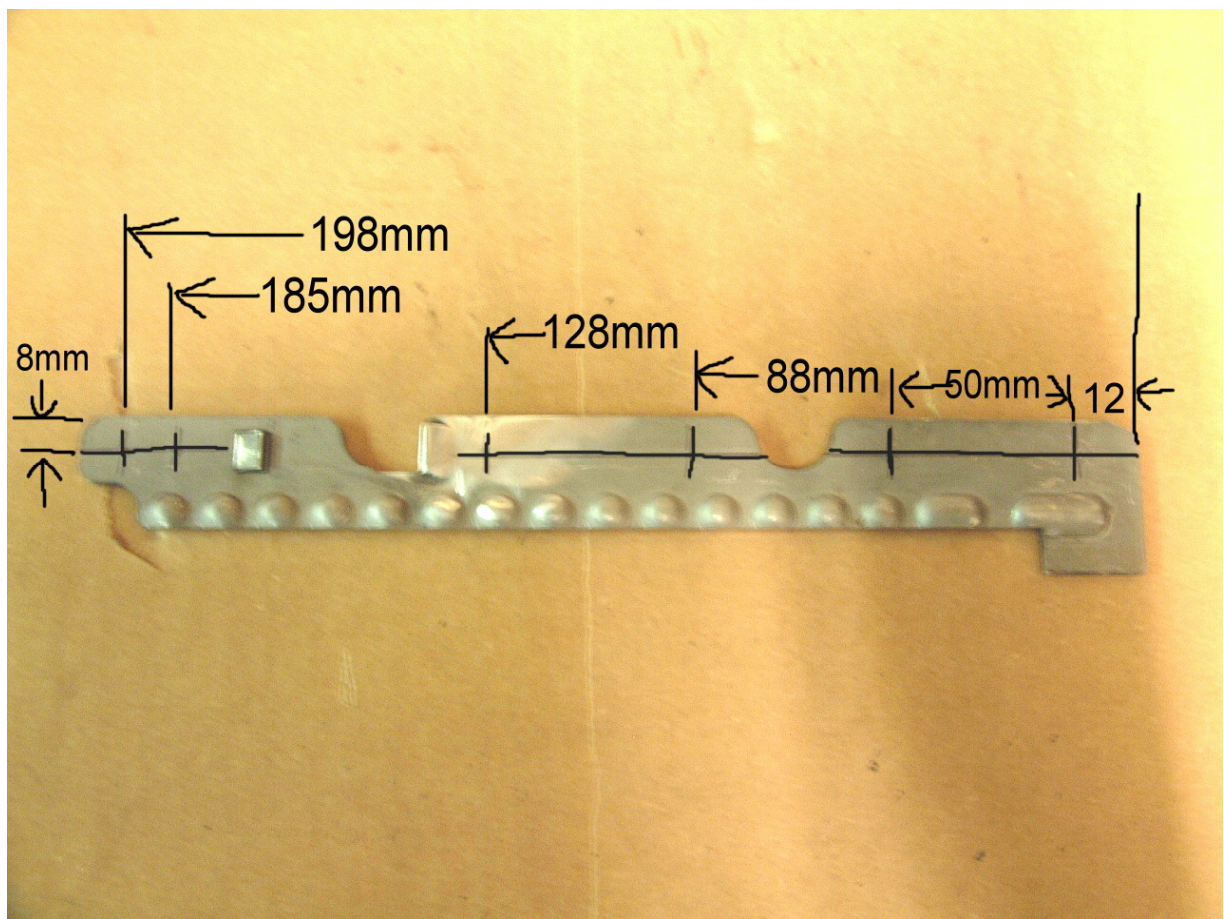
99- Weld the beveled key stock onto the charging handle lock assy. Only weld the top and sides. Do not weld the bottom.



100- Cut key stock flush with the bottom of the lock assy.



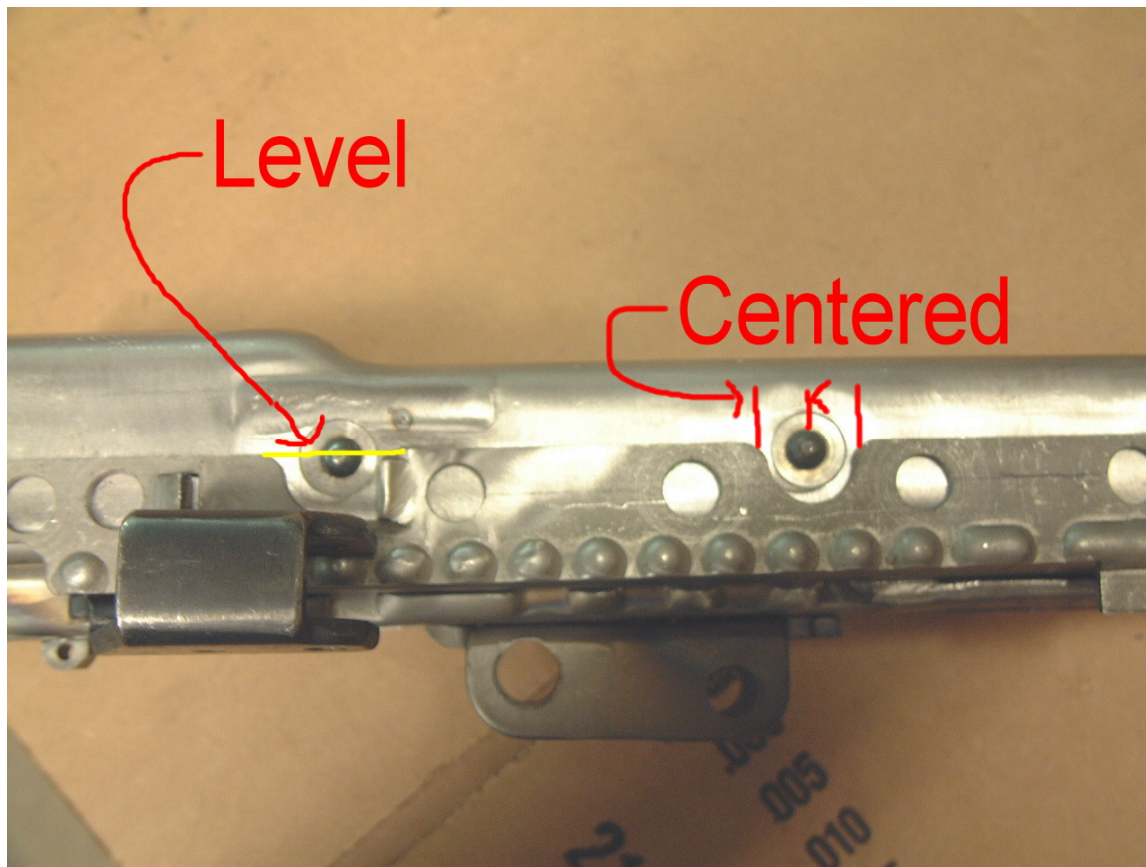
101- Grind the welds smooth.



102- Lay out the holes on the ratchet plate. Drill them out with a 3/8" drill bit.



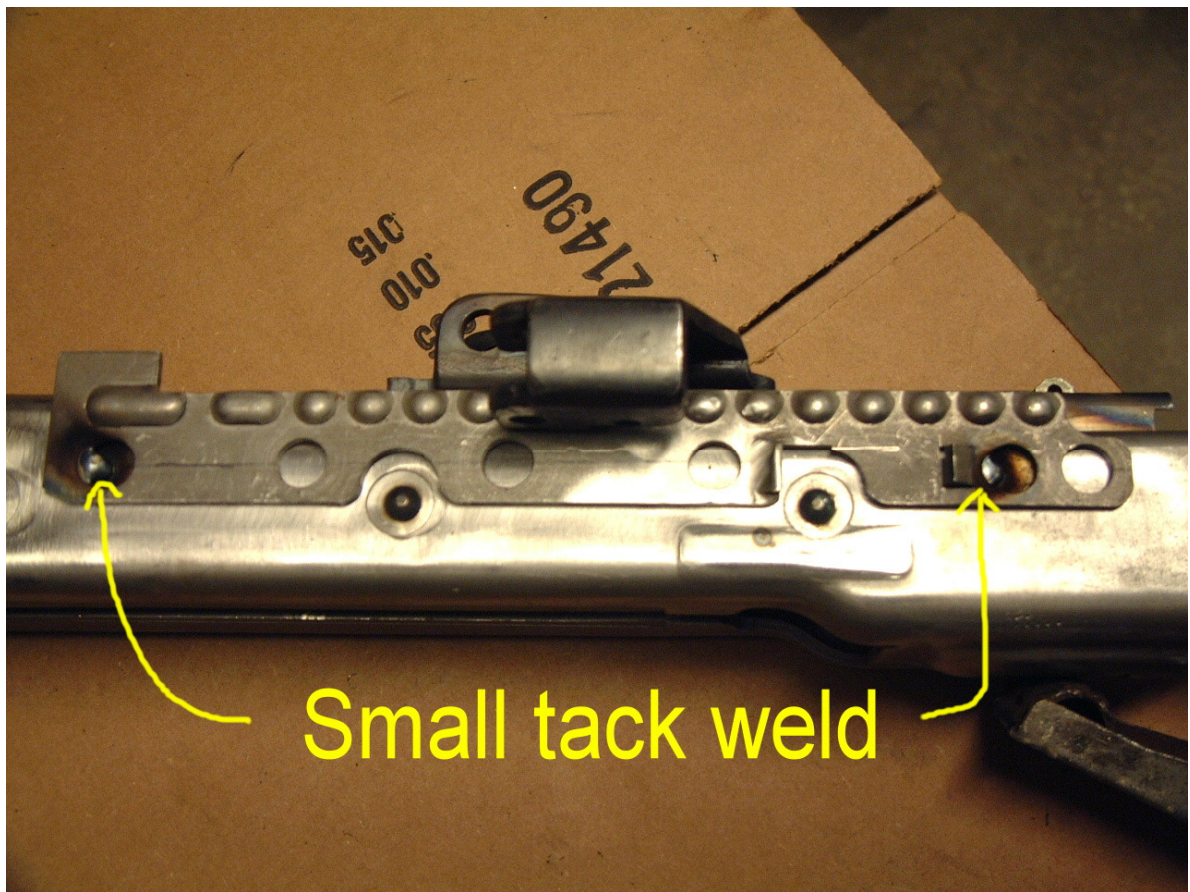
103- Bend the stop tab up until it looks like this. It can always be bend back down later if it is too far up.



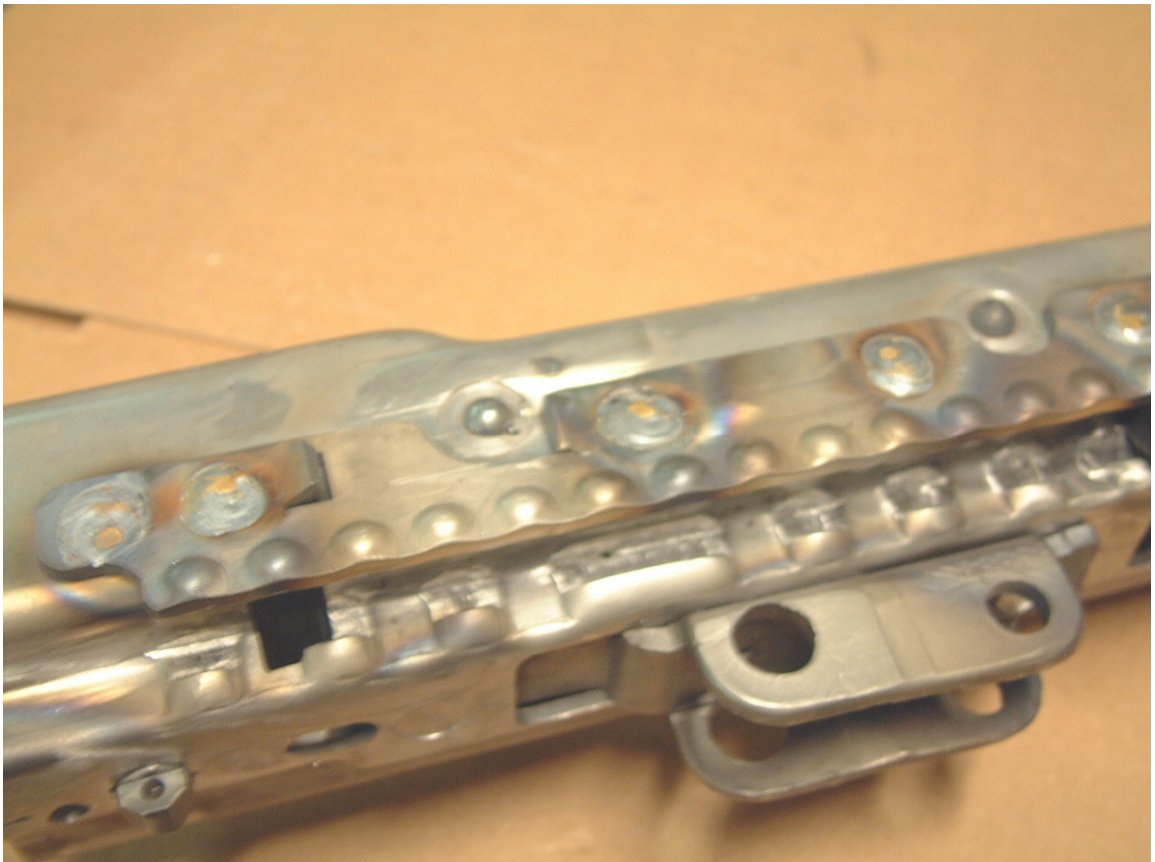
- 104- Install the disassembled charging handle into the receiver. Align the ratchet plate. The rivets should be centered in the cut outs. The center of the rivet should be almost level with the top of the ratchet plate.



- 105- Place the charging handle to the rear of the ratchet plate. Tack weld the ratchet plate to the receiver. Only put one tack weld in the second hole from the rear.



- 106- Place the charging handle all the way forward. Weld a small tack in the first hole. After tacking ensure charging handle moves freely and is straight.

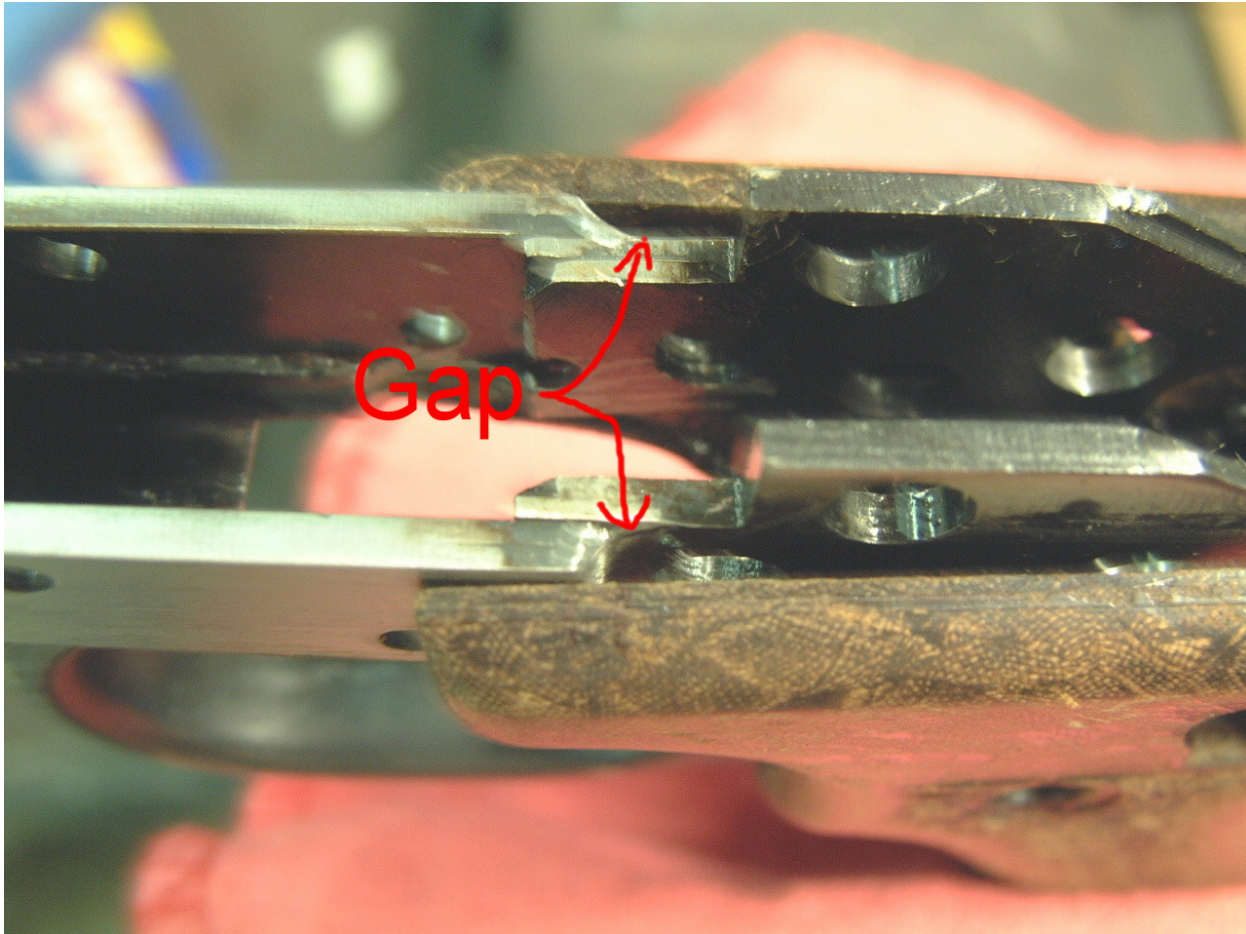


- 107- Weld all the holes. These welds do not get ground smooth so ensure they are nice plug welds. After welding check again that the charging handle still moves freely.

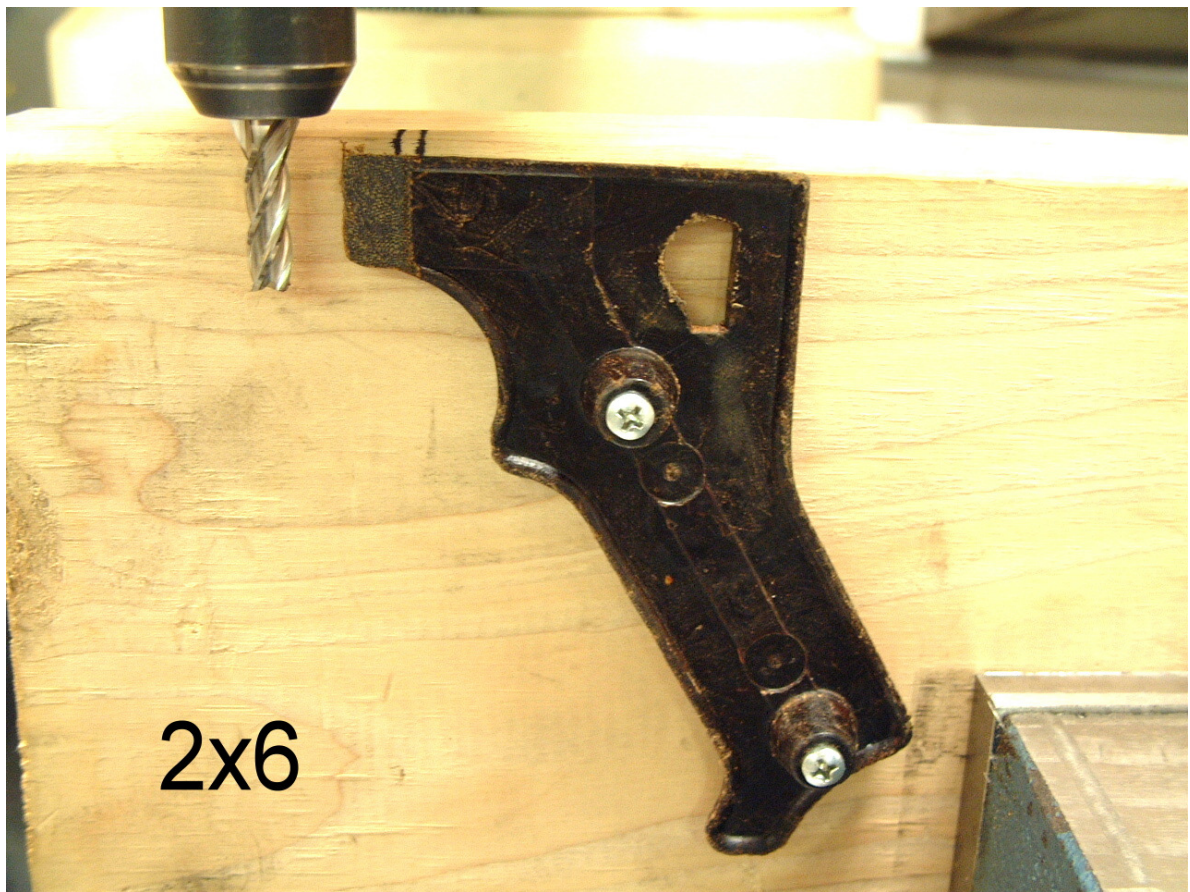


Preassembled semi-auto trigger pack assembly skip to step #112.

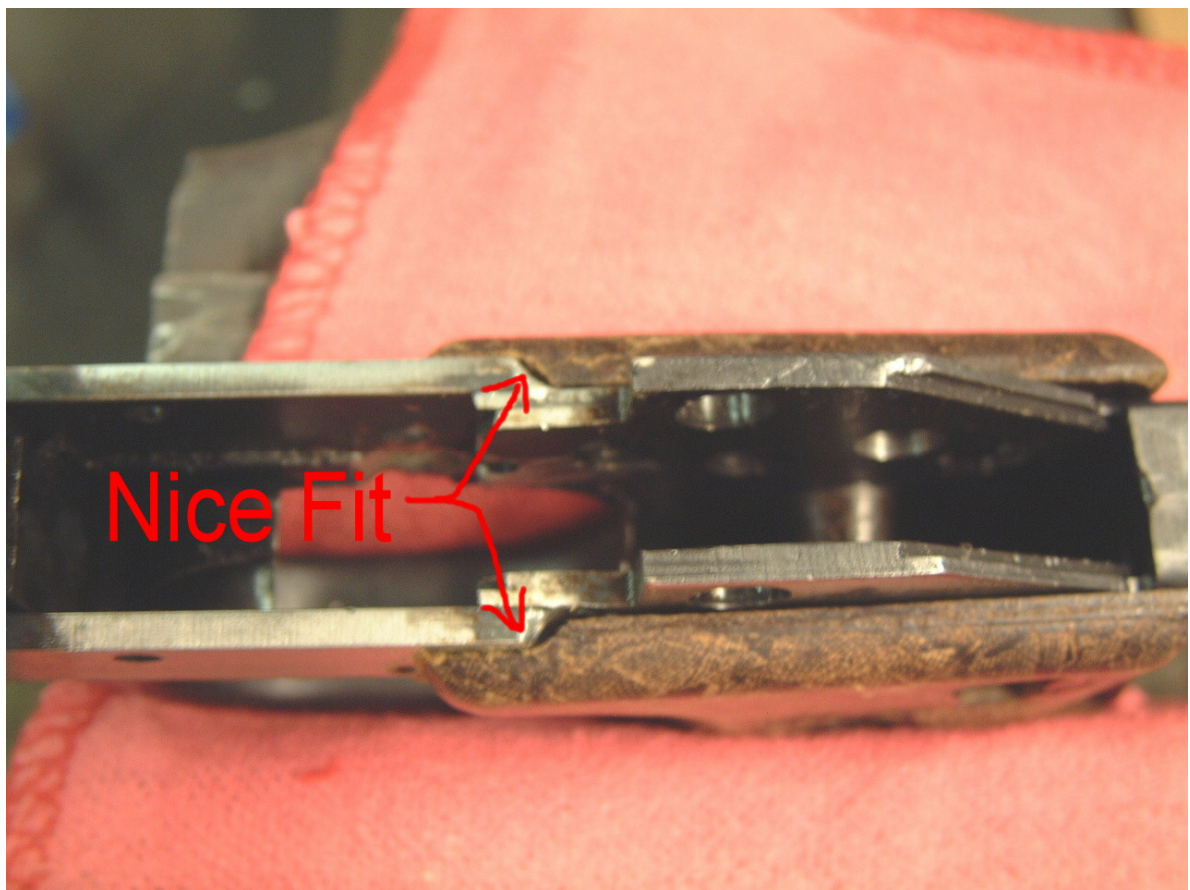
The grip panels on the un-assembled trigger packs will not fit on a semi-auto modified trigger frame without milling a relief cut for the hammer box.



- 108- Hold the grip panels up against the trigger housing. Mark the area where the hammer box interferes with the grip panels lying flat.



- 109- Using two wood screws, screw the grip panel down to a 2x6. Mill the panel very carefully using a 1/4" mill. Trial fit the trigger housing after each pass to check the fit to prevent removing too much.



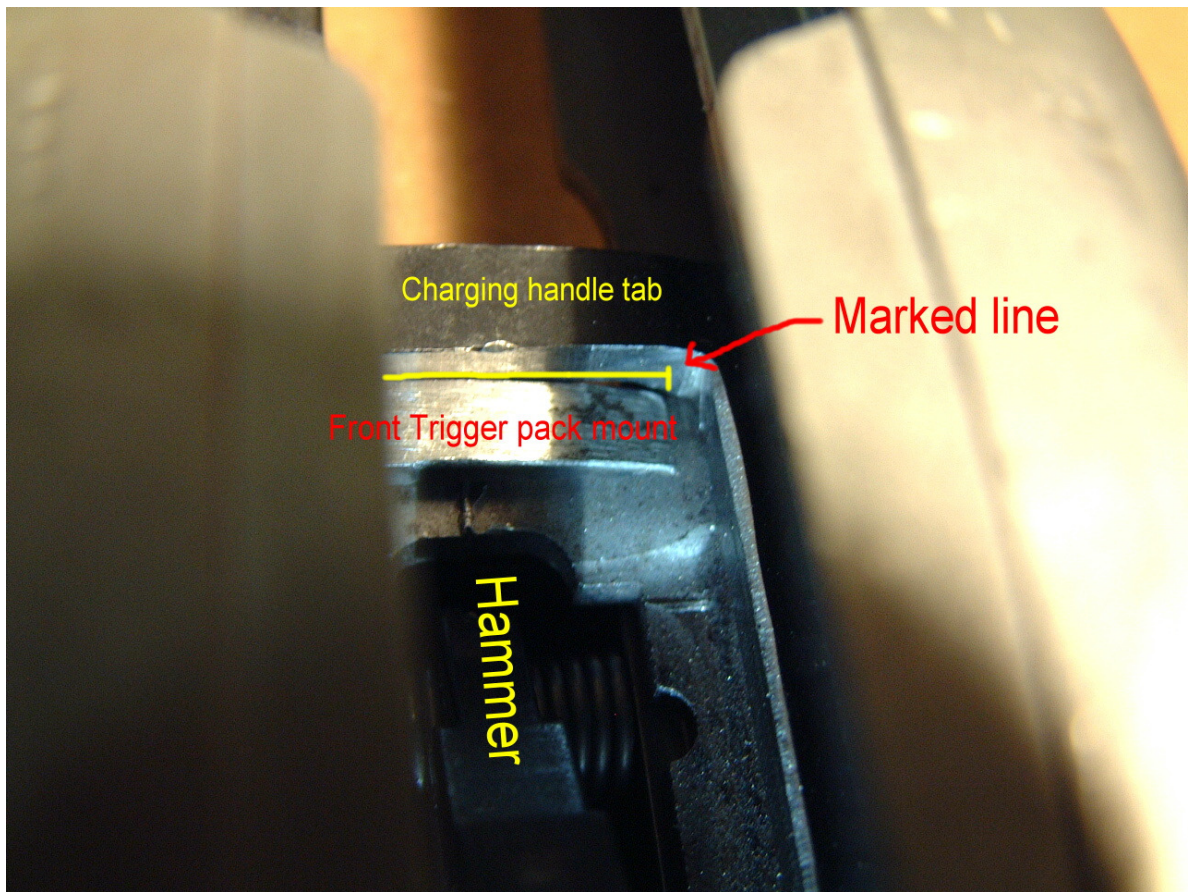
- 110- You should have a nice fit when you are finished.



111- Assemble the trigger pack



112- Ensure the charging handle is all the way forward in the receiver. Install the trigger pack. The hammer on the trigger pack must be down in the cocked position to install.



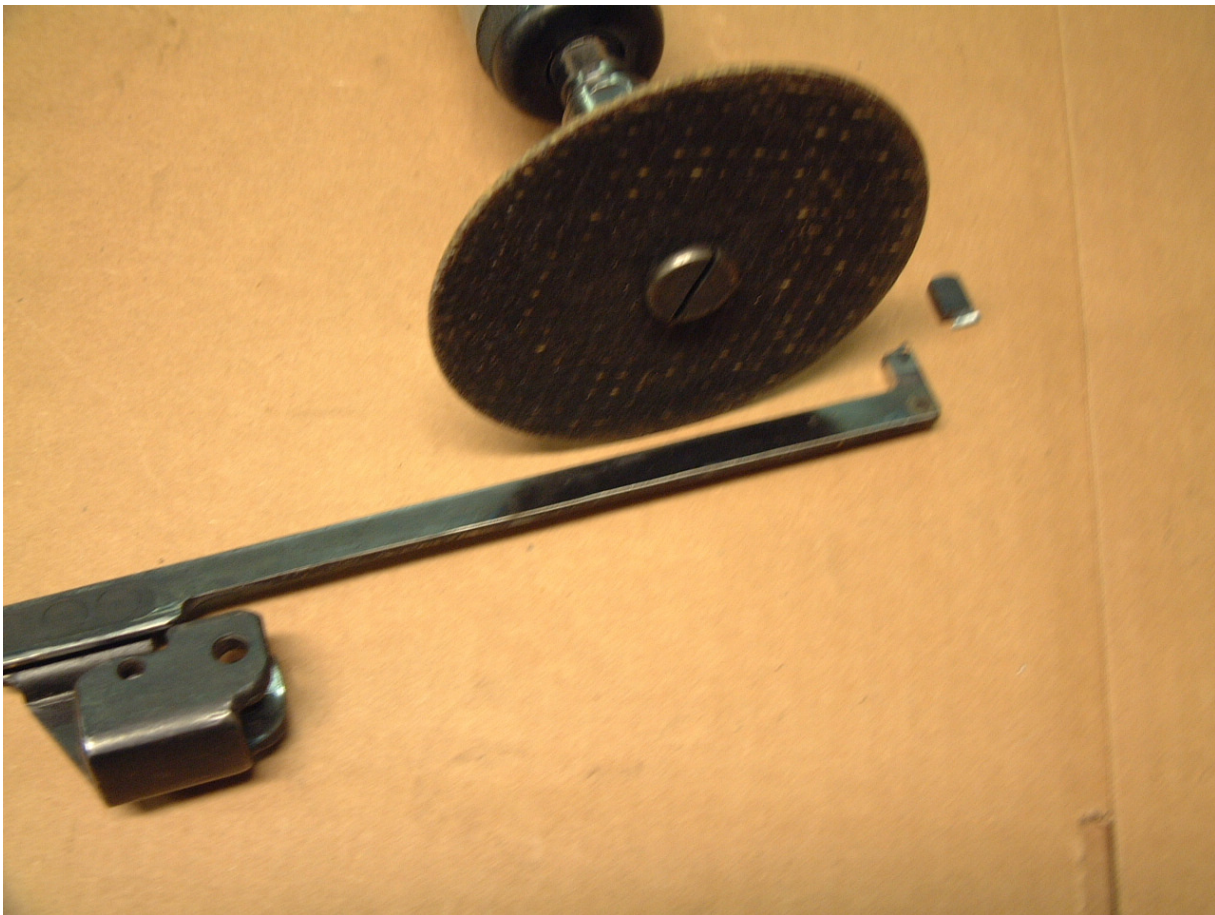
- 113- Move the charging handle back and check for interference with the front trigger pack mount. Mark the interference area on the charging handle.



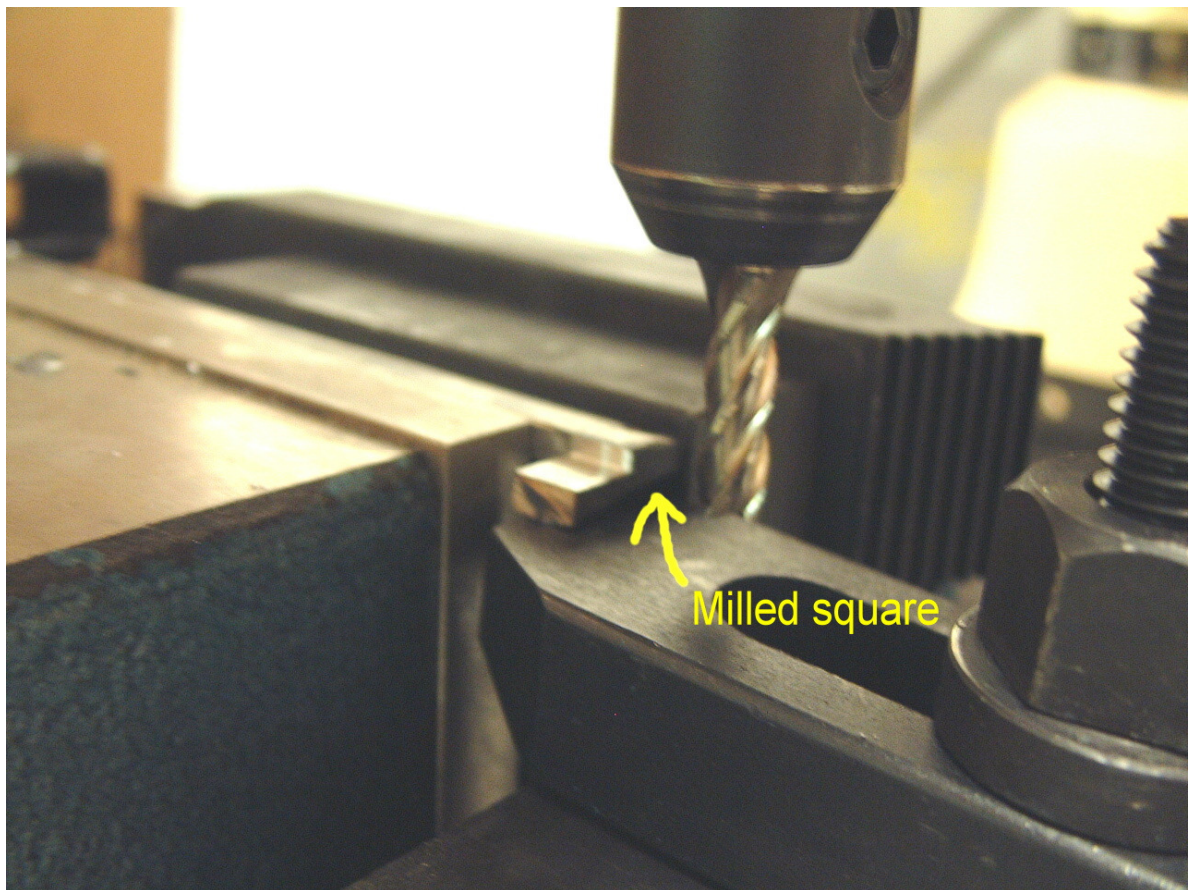
- 114- Carefully release the hammer. Don't let it slam. Mark the charging handle where the hammer is on the charging handle.



- 115- Re cock the hammer on the trigger pack. Remove the trigger pack and charging handle.



- 116- Cut off the charging handle bolt tab at the hammer mark. (step #114)



- 117- Mill a notch in the charging handle bolt tab to clear the front trigger pack mount. (step #113)



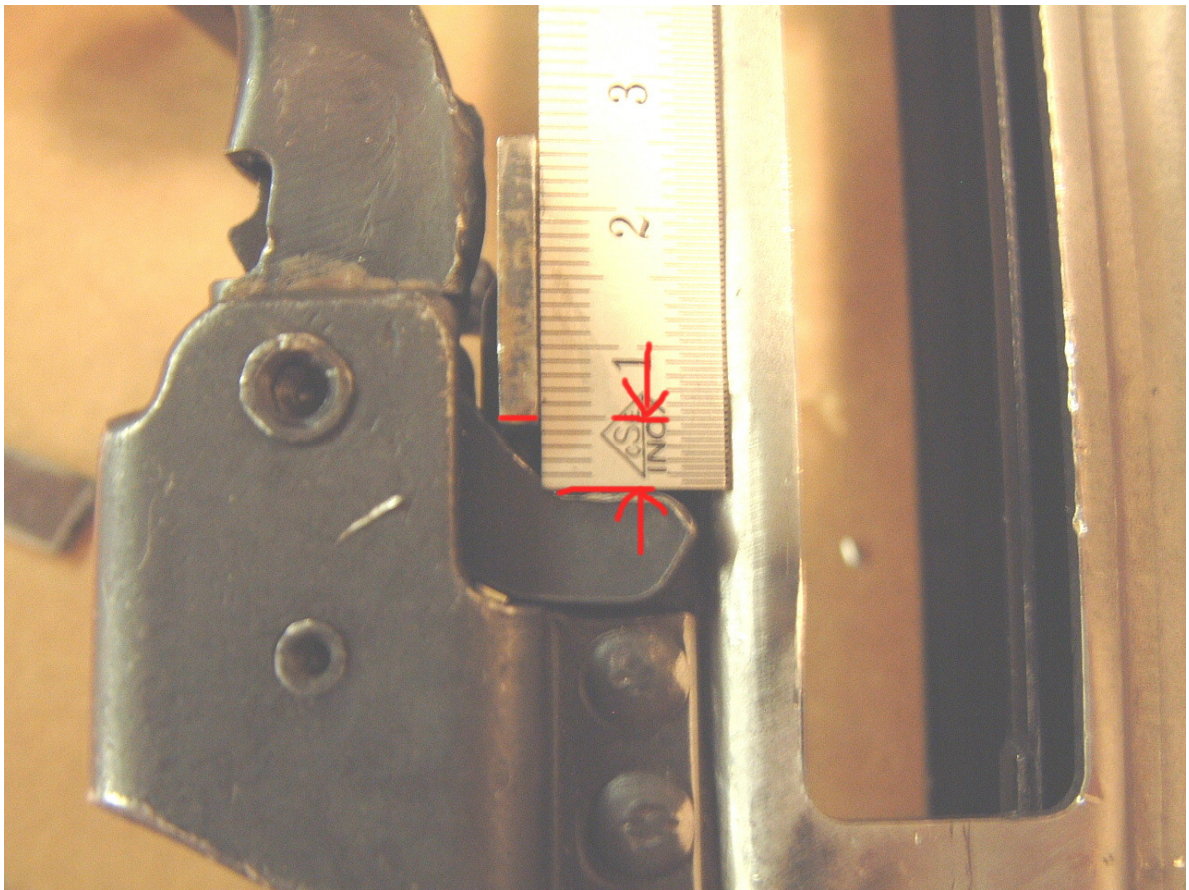
- 118- Assemble the charging handle. Don't forget the button on the end. (step #13) This is the correct orientation of the spring in the lock bar.



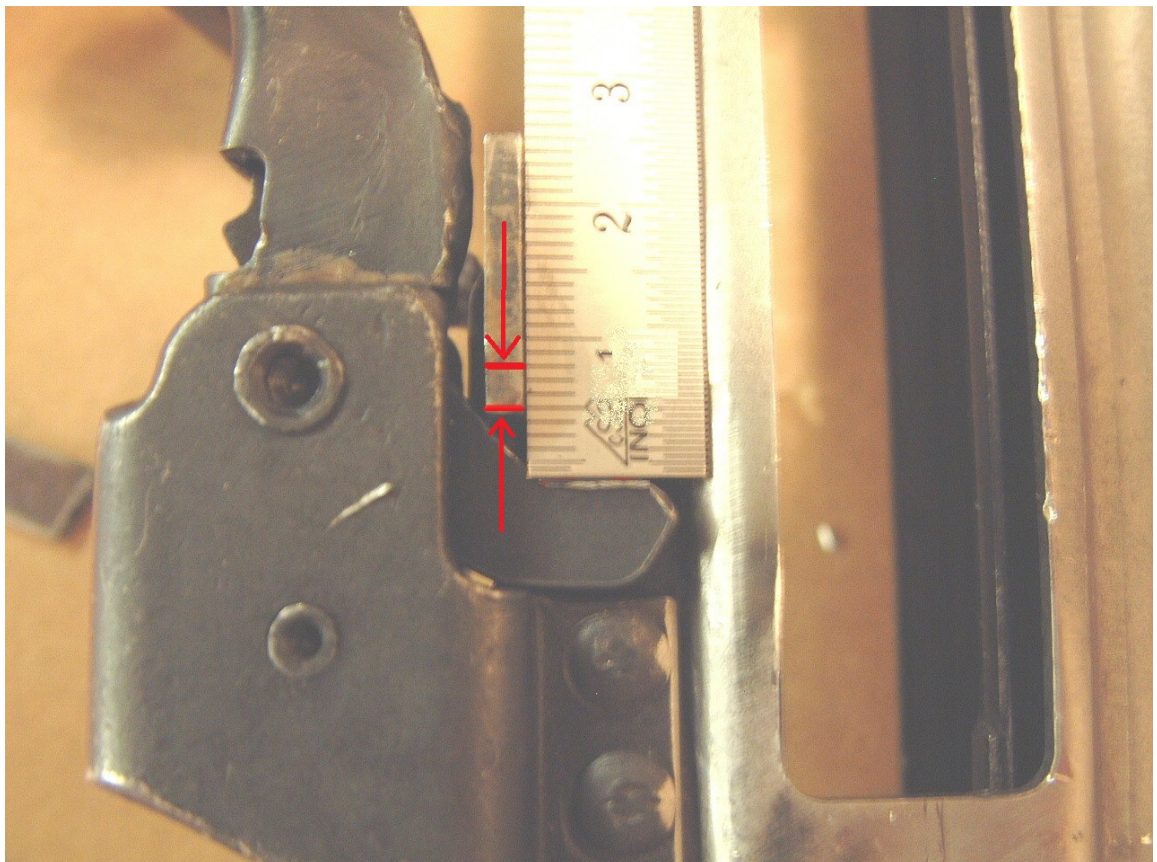
- 119- Install the charging handle all the way forward in the receiver. Then install the trigger pack. Check the clearance between the charging handle tab and front trigger mount. (step #113) Check the clearance between the charging handle tab and the hammer. (step #114)



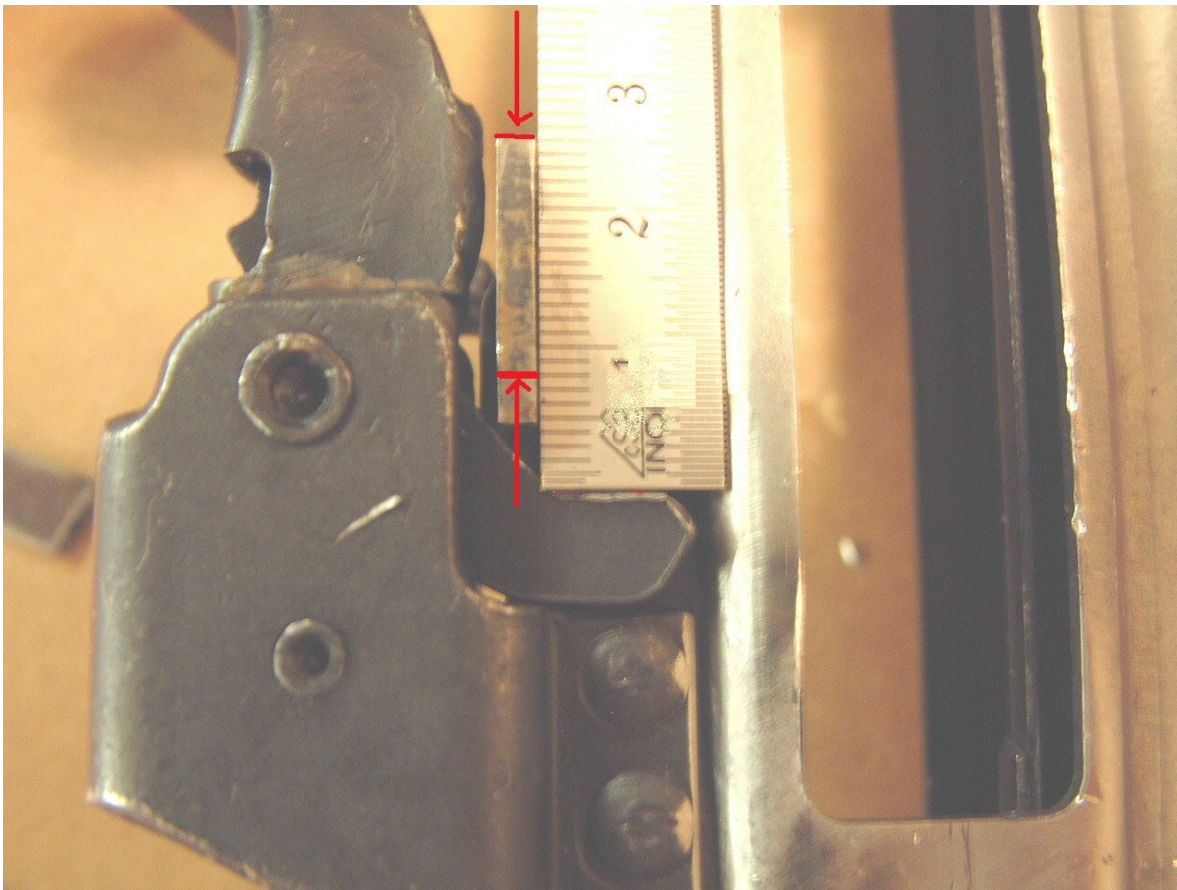
- 120- Remove the trigger pack. Move the charging handle all the way forward. Measure the distance from the charging handle bolt tab to the front of the ejection port. Measurement~“120H” *Example is 8mm*



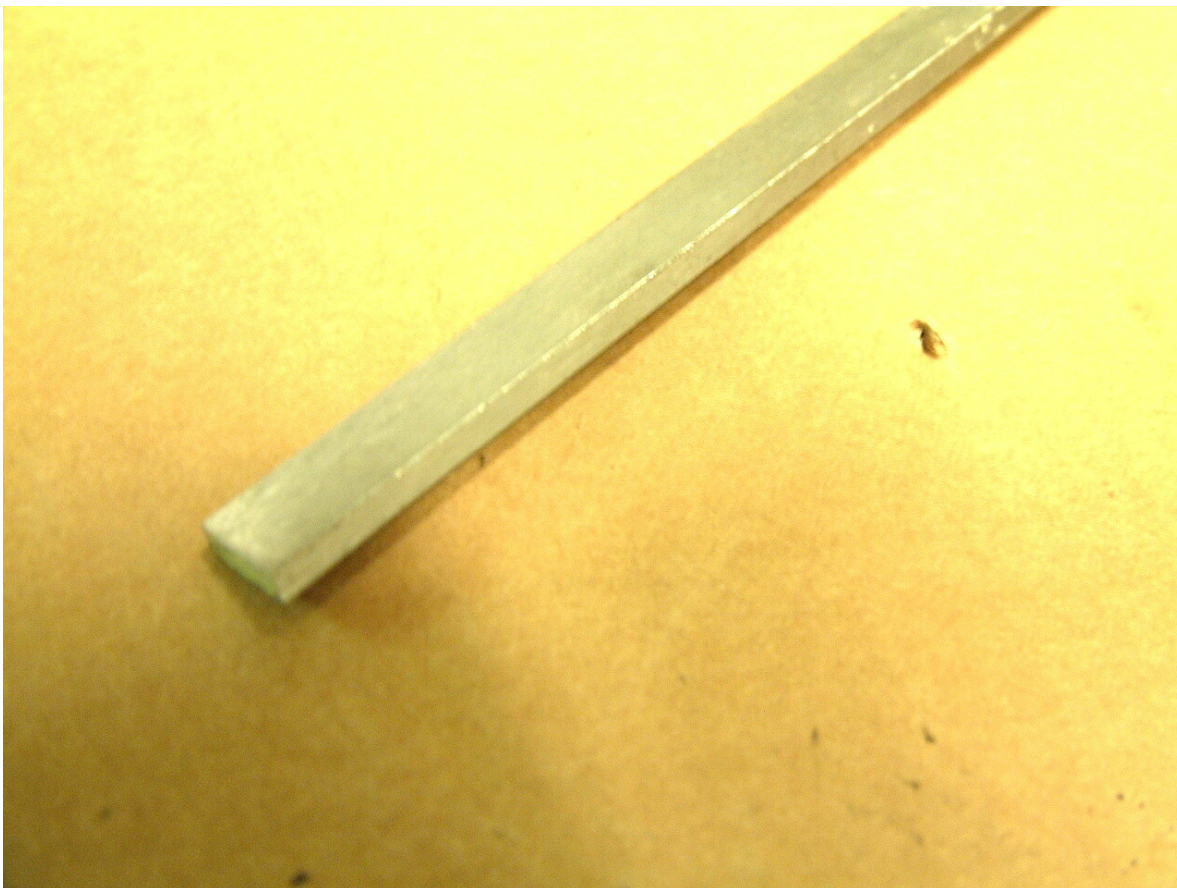
- 121- Measure the distance between the front of the charging handle push off bar and the ratchet plate.
 Measurement~“121J” *Example is 5mm*



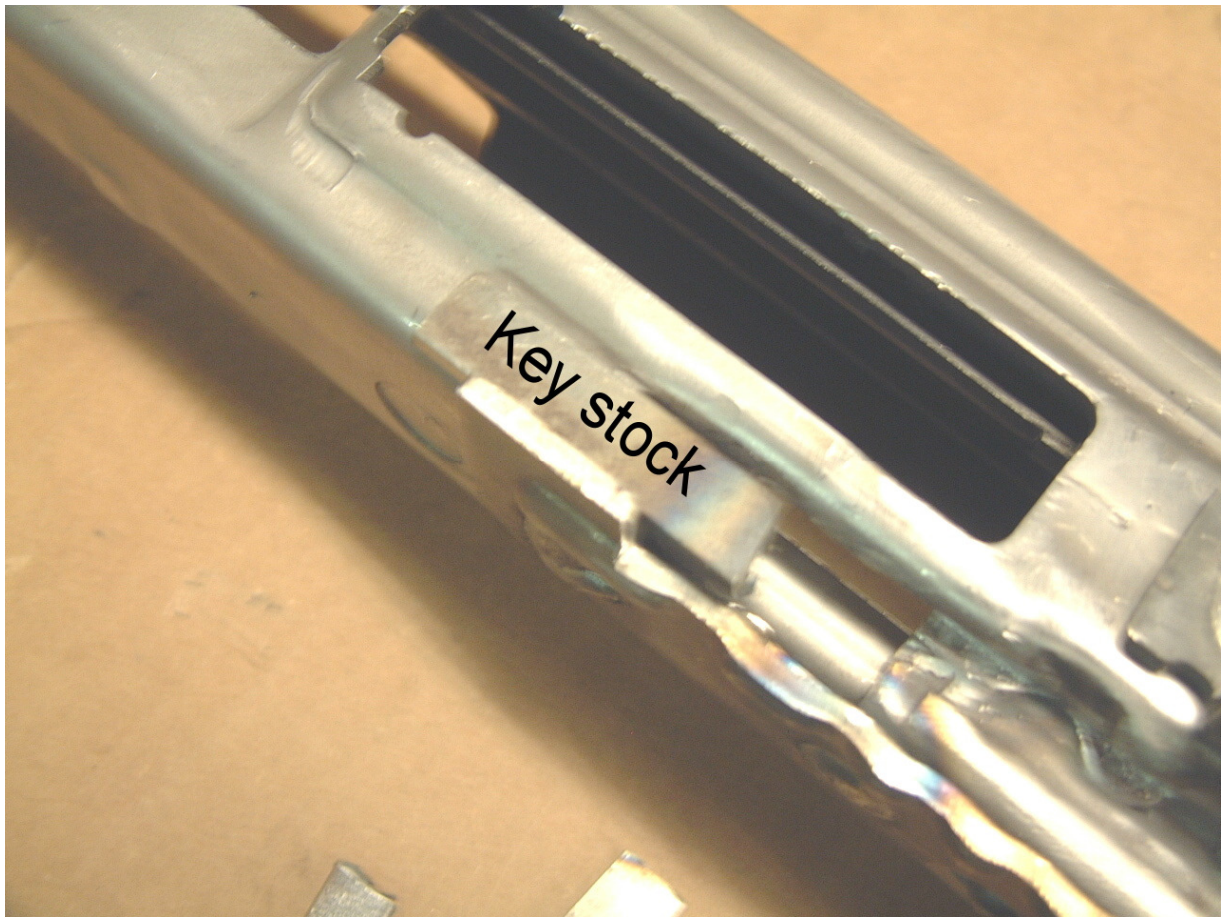
- 122- “120H” - “121J” = Measurement~“122K” Measure forward on the ratchet plate “121K” and mark it. *Example is 3mm*



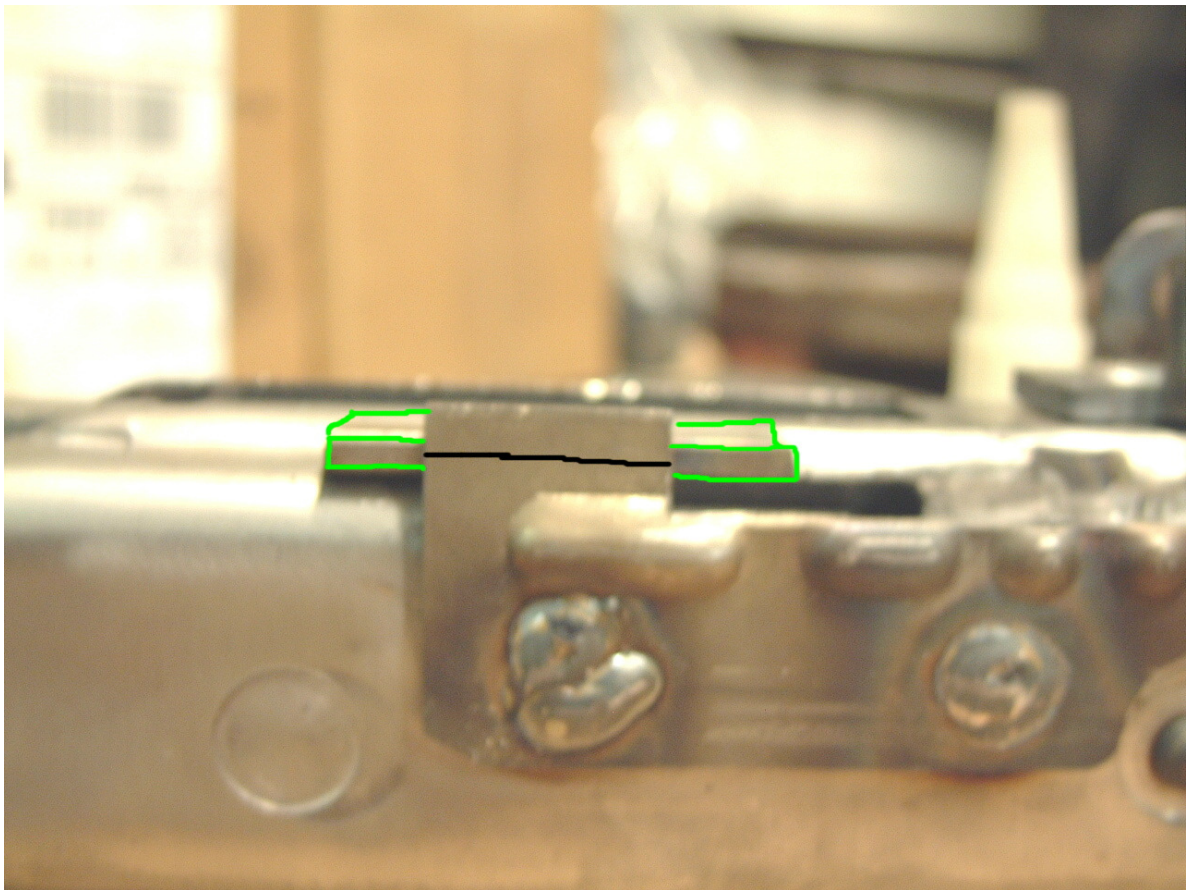
- 123- Measure from the mark (step #122) to the front of the ratchet plate Measurement~“123L”.
Example is 17mm. Remove charging handle.



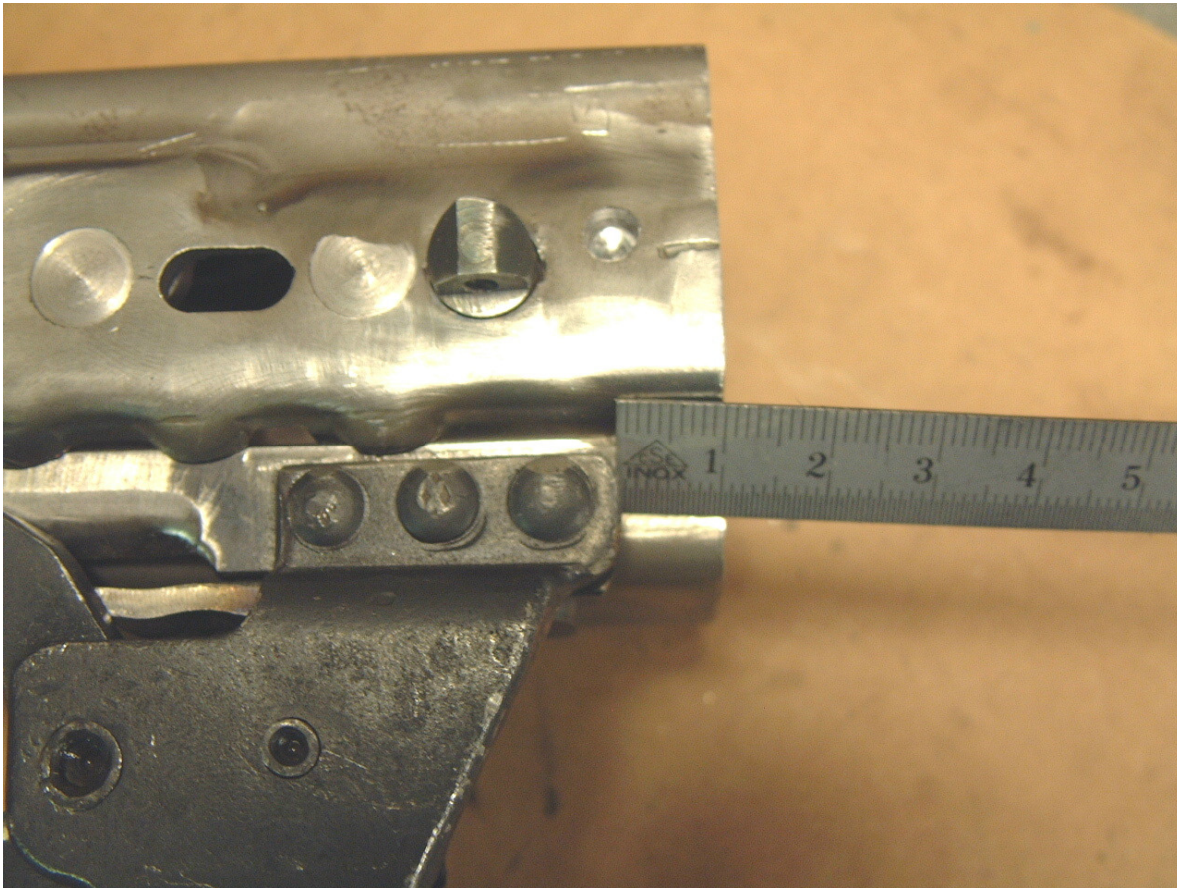
- 124- Use a 1/8” x 3/8” key stock for steps #125, #131, and #132



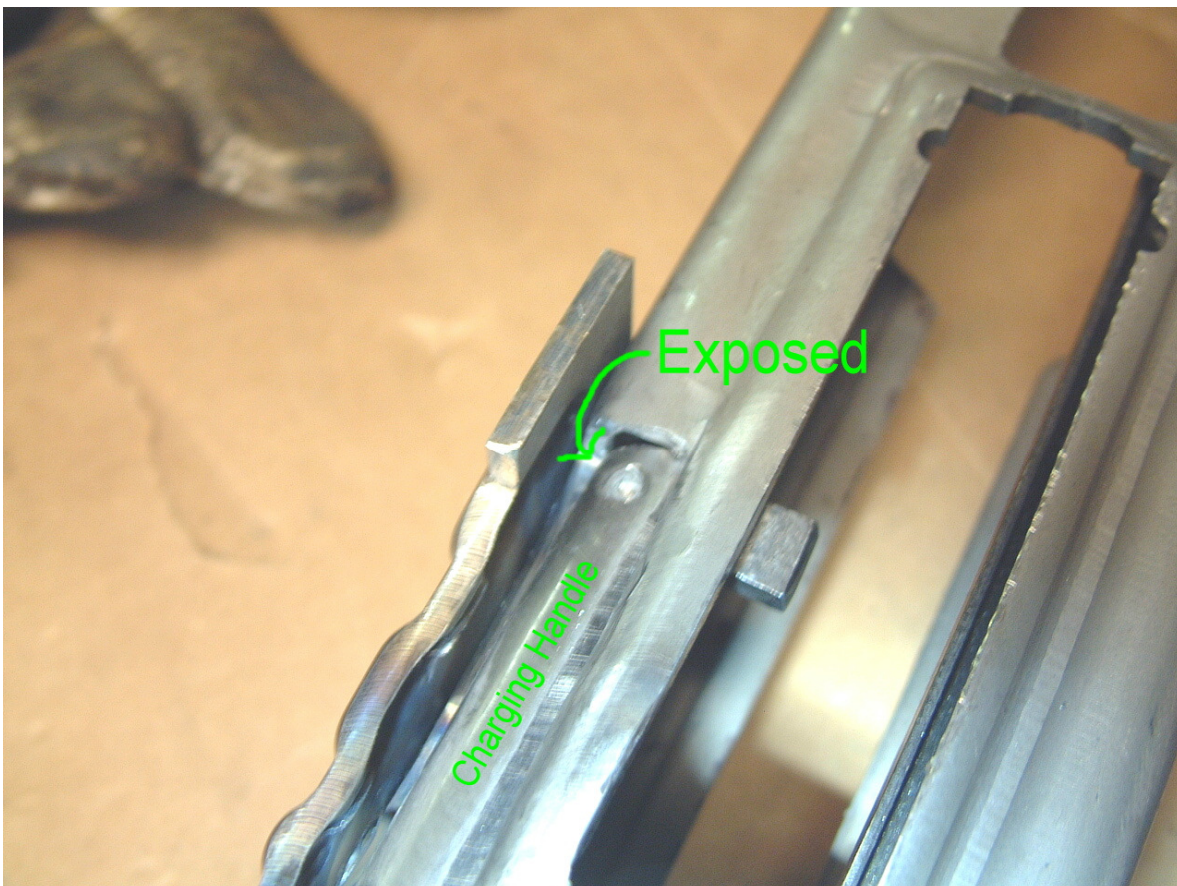
- 125- Lay a short section of key stock on the bottom of the receiver next to the ratchet plate tab.



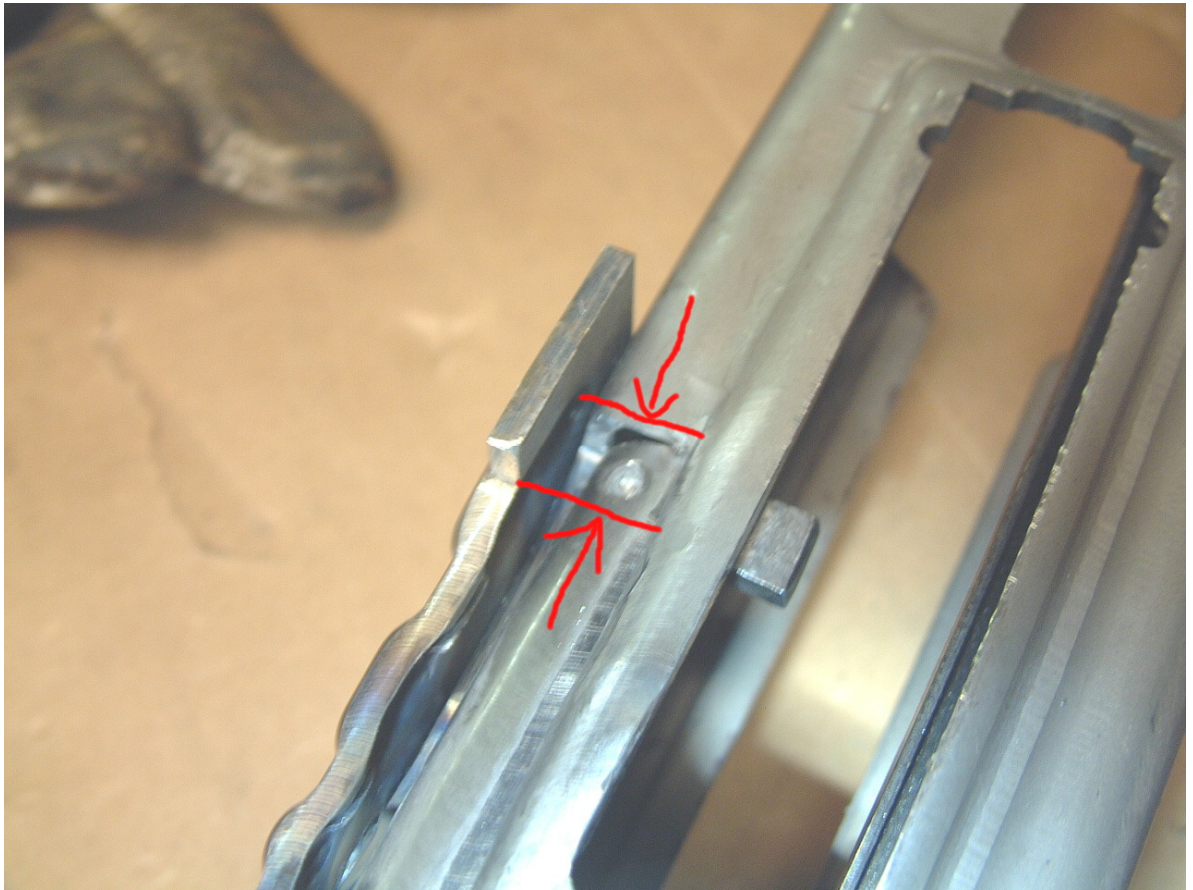
- 126- Mark the ratchet plate tab $\frac{1}{2}$ way between the thickness of the key stock. Cut the ratchet plate tab off at the mark from step #122. Now cut the tab off at the mark that was made.



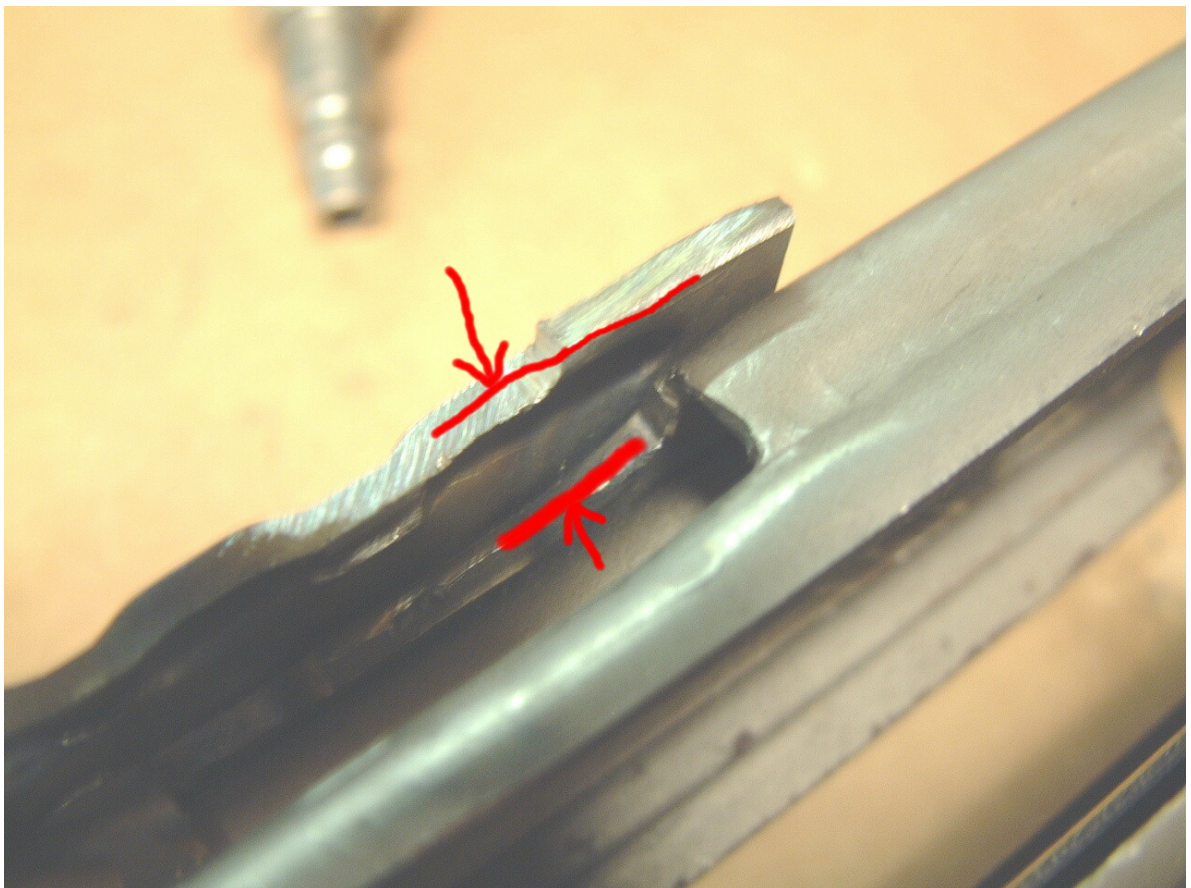
- 127- Insert the charging handle and place it 10mm from the back of the receiver.



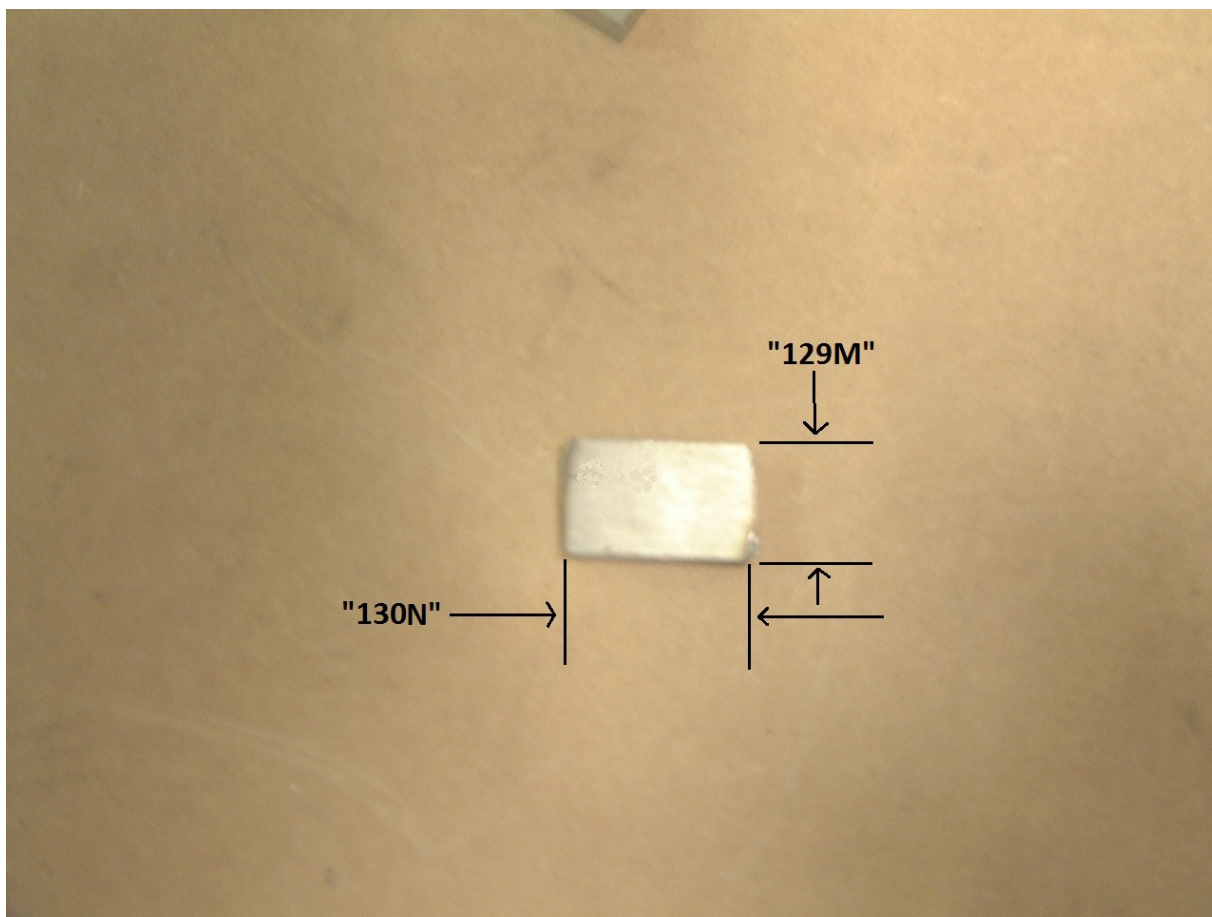
- 128- The corner of the charging handle will be exposed in the receiver cut out. A small piece of key stock will be welded in to fill this area to prevent the charging handle from jumping out.



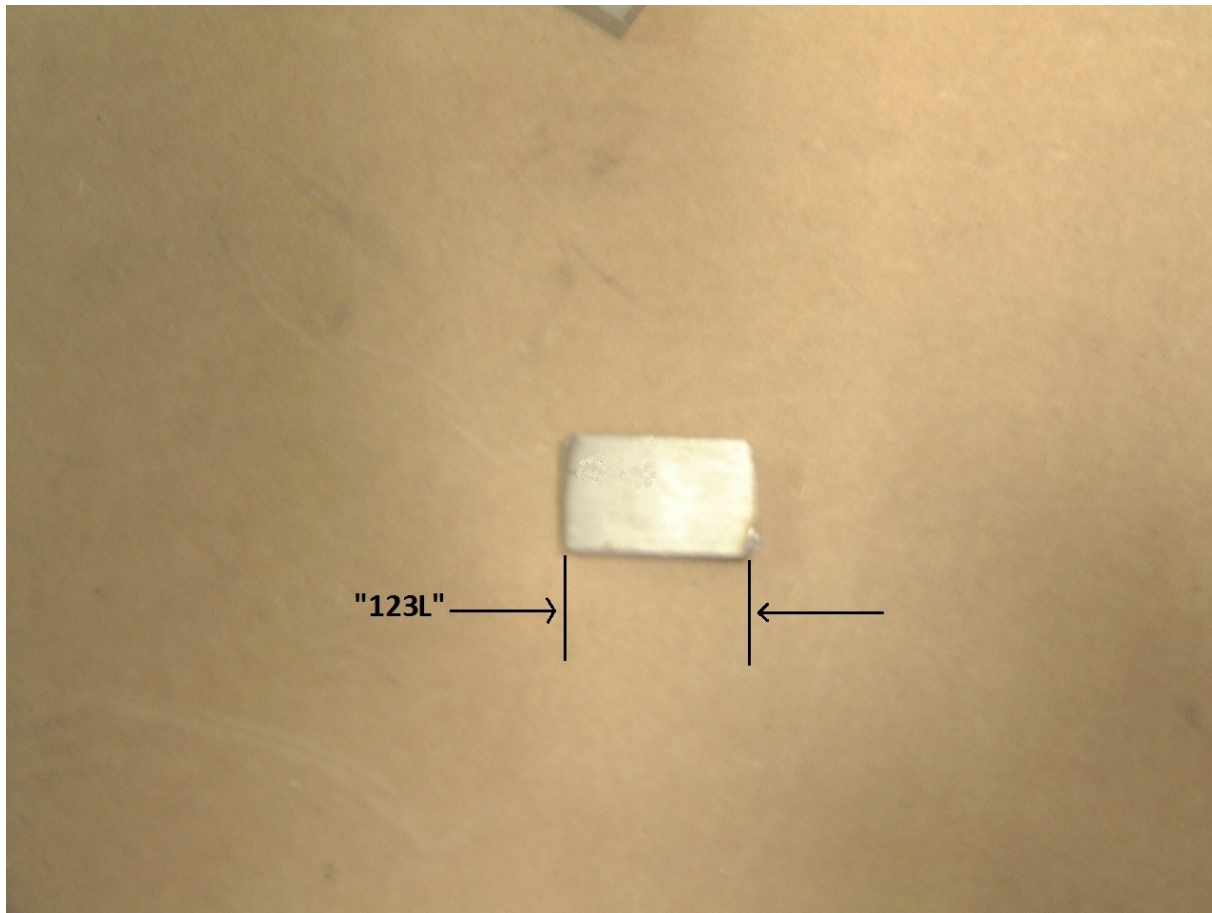
- 129- Measure the distance between the back of the ratchet plate tab and the front of the cut-out.
Measurement~“129M”. *Example is 6mm*



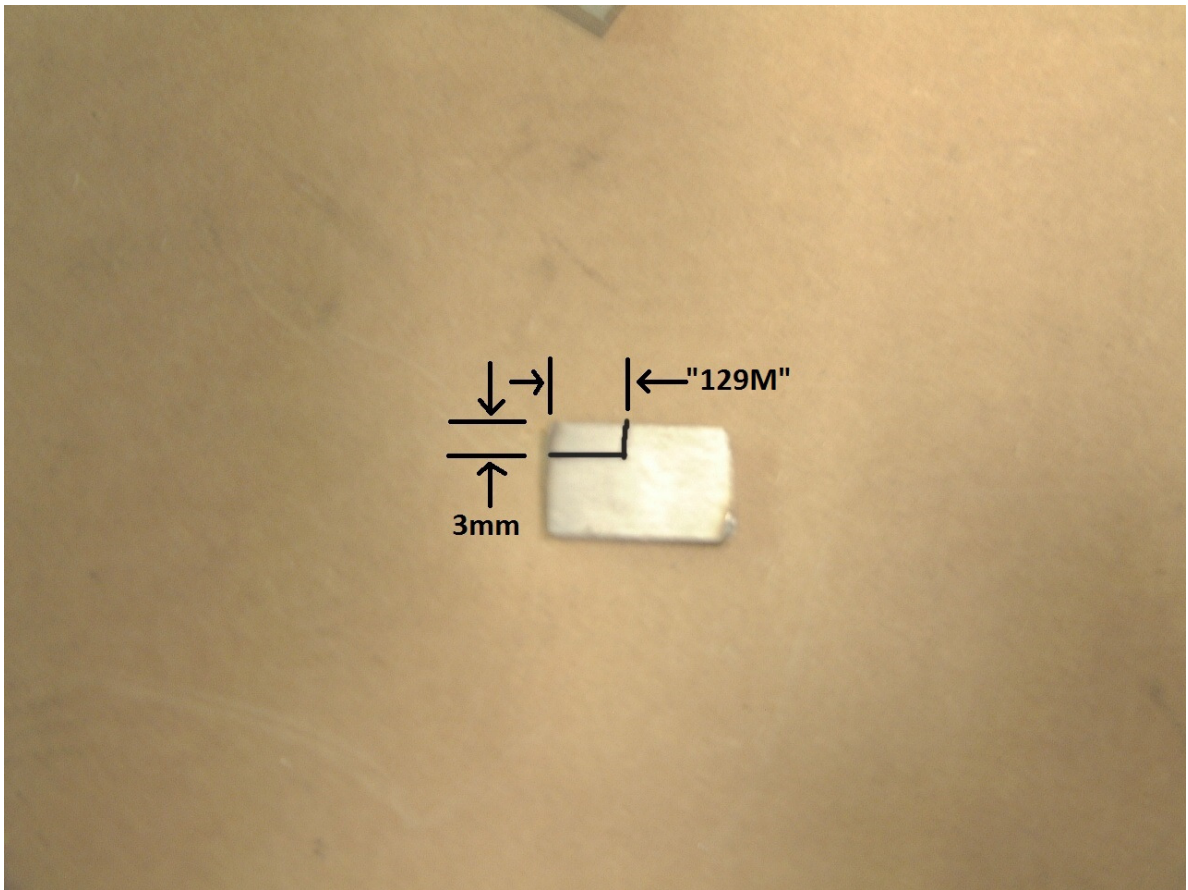
- 130- Measure the distance between the top of the ratchet plate tab and the bottom of the cut-out.
Measurement~“130N”. *Example is 11mm*



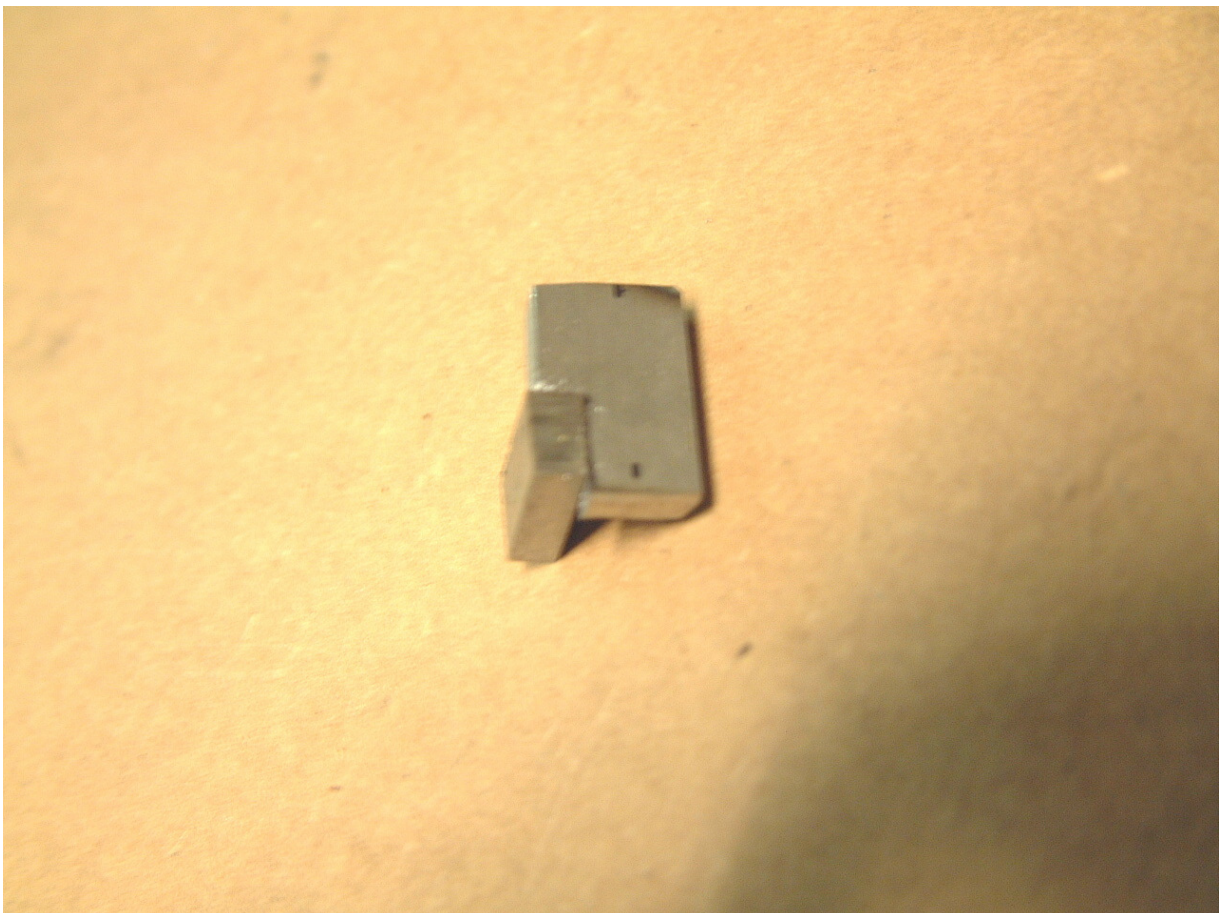
131- Cut a piece of key stock to these measurements: "129M" x "130N". *Example is 6mm x 11mm*



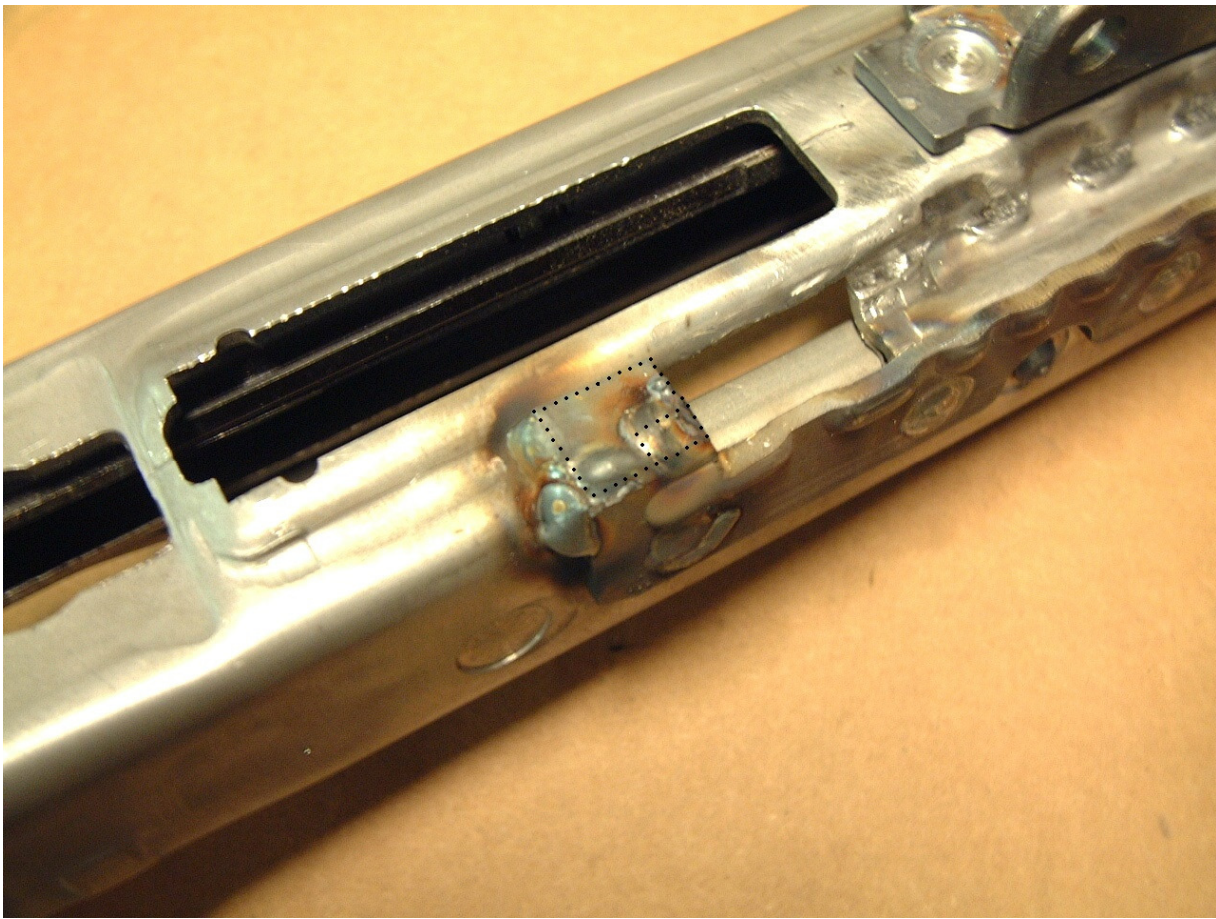
132- Cut a length of key stock to measurement "123L". *Example is 17mm*



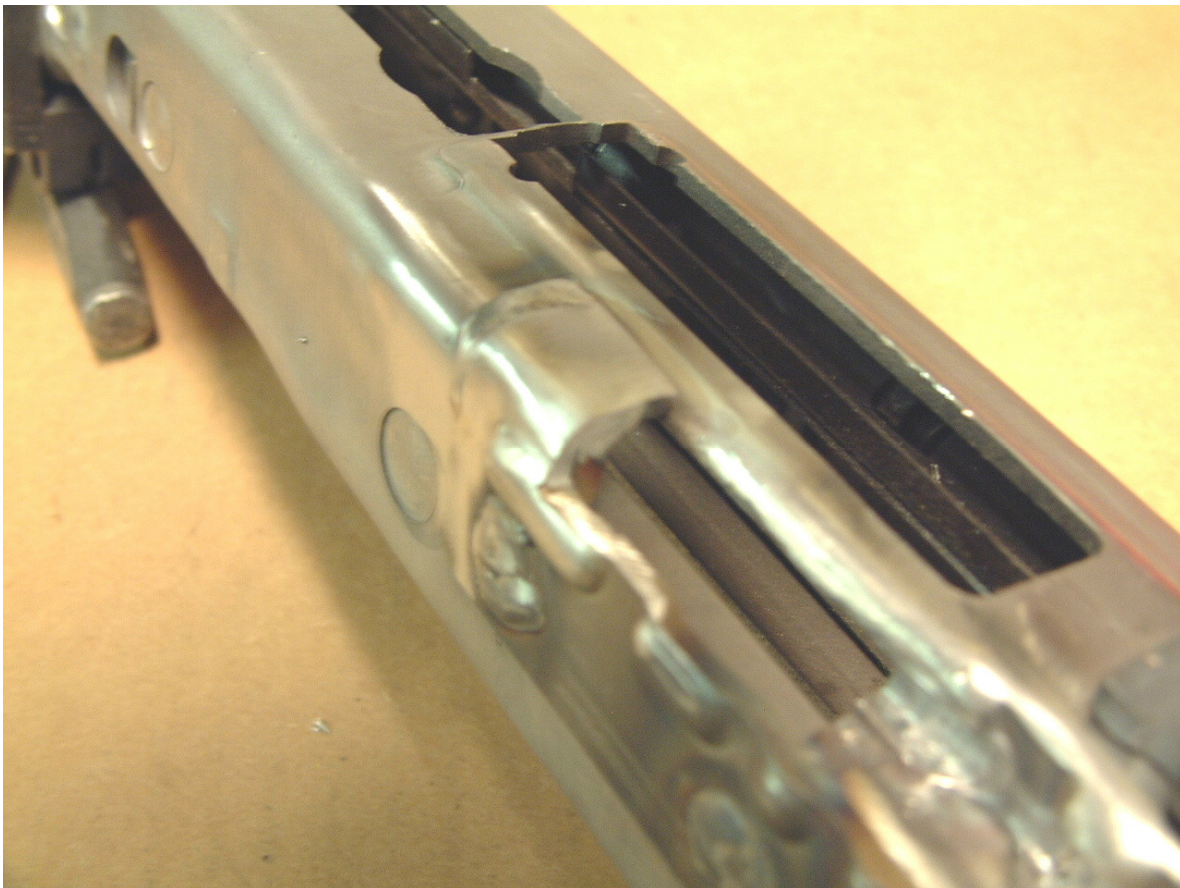
- 133- Take the piece of key stock from step #132 and mark out a notch 3mm x “129M”. Cut out the notch.



- 134- This is the way they the parts from step #131 & step #133 get put together.



- 135- Install the 2 pieces into the receiver and weld. Do not weld the side closest to the trigger pack cutout.



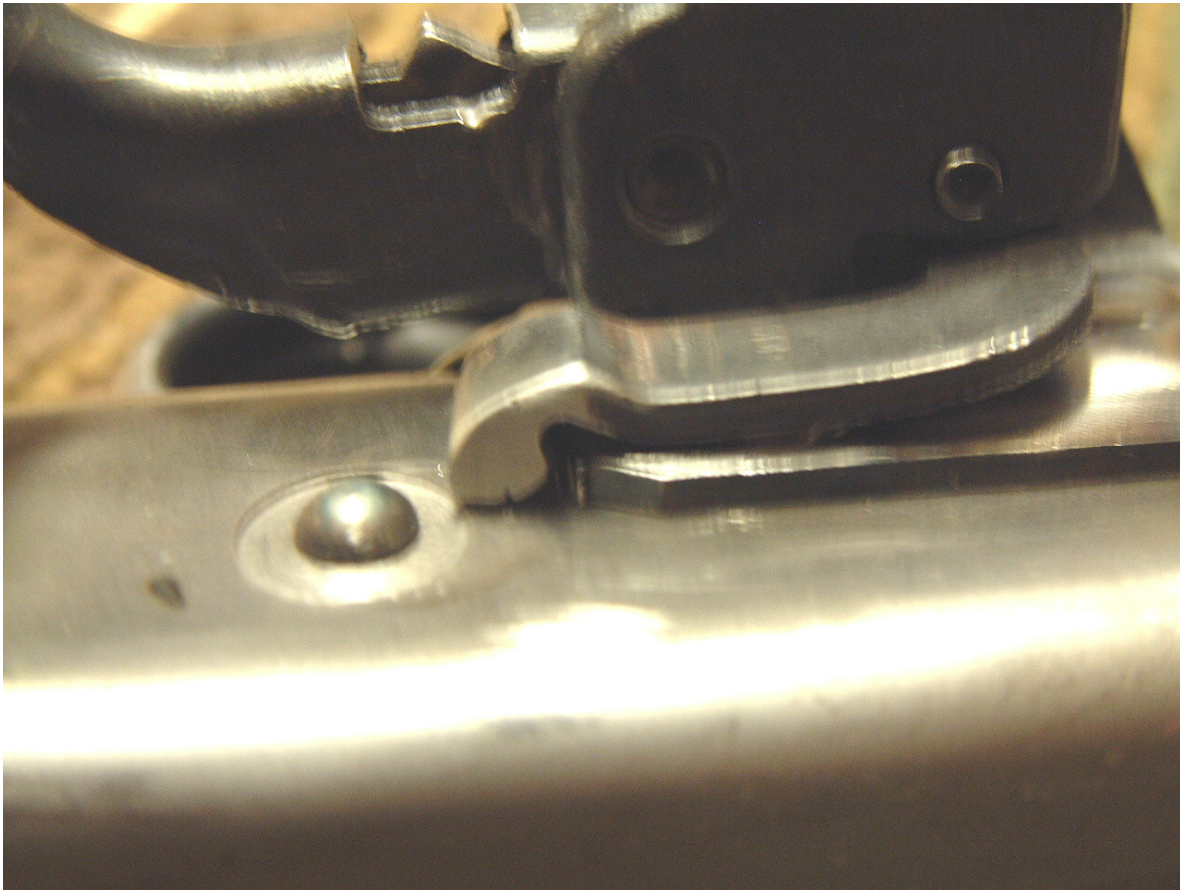
- 136- Grind all the welds smooth except the front weld.



- 137- Install charging handle and push it all the way forward. Mark the area where the push bar hits the receiver/ratchet plate area.



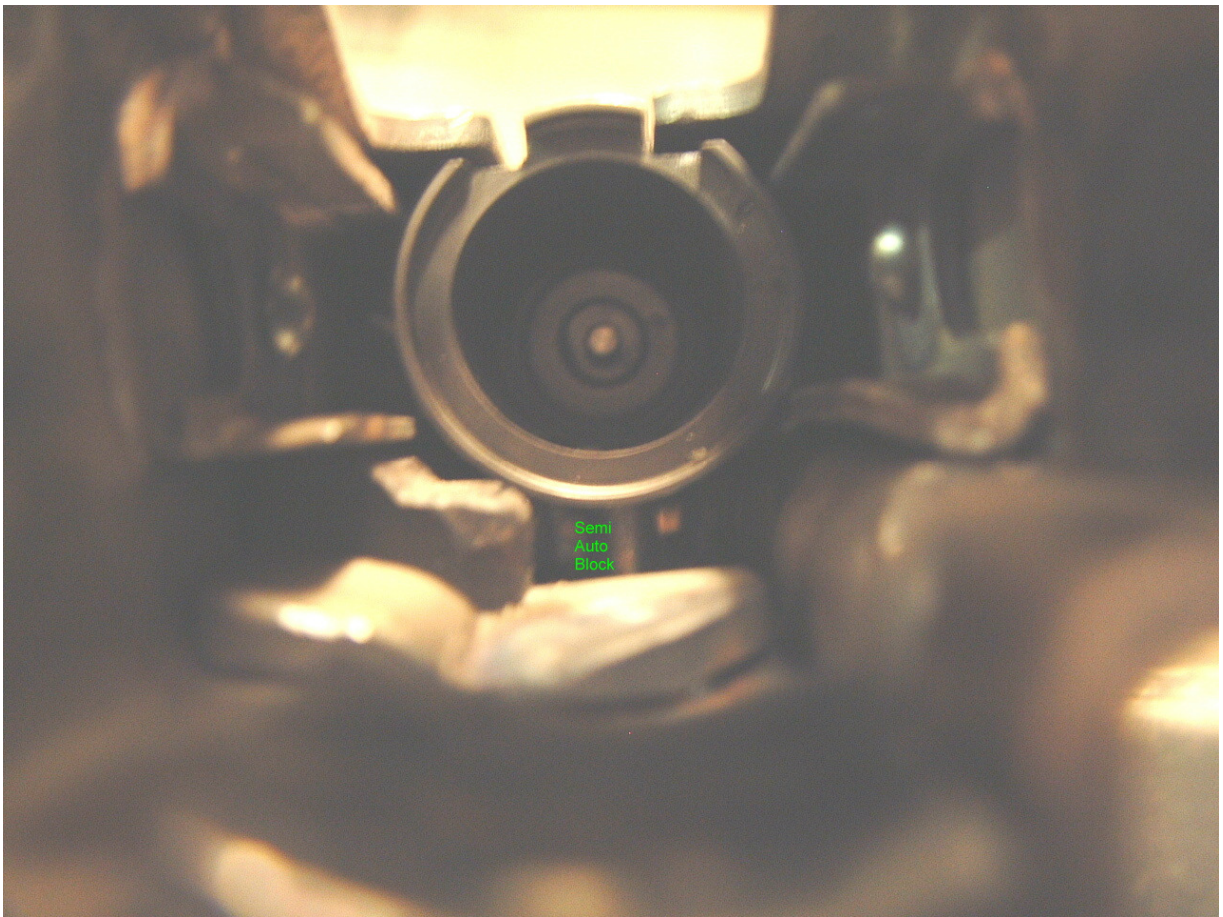
- 138- Grind out the marked out area. Install the charging handle. Check the clearance between the receiver and charging handle push bar. Remove material from the push bar to have a 0.5mm gap.



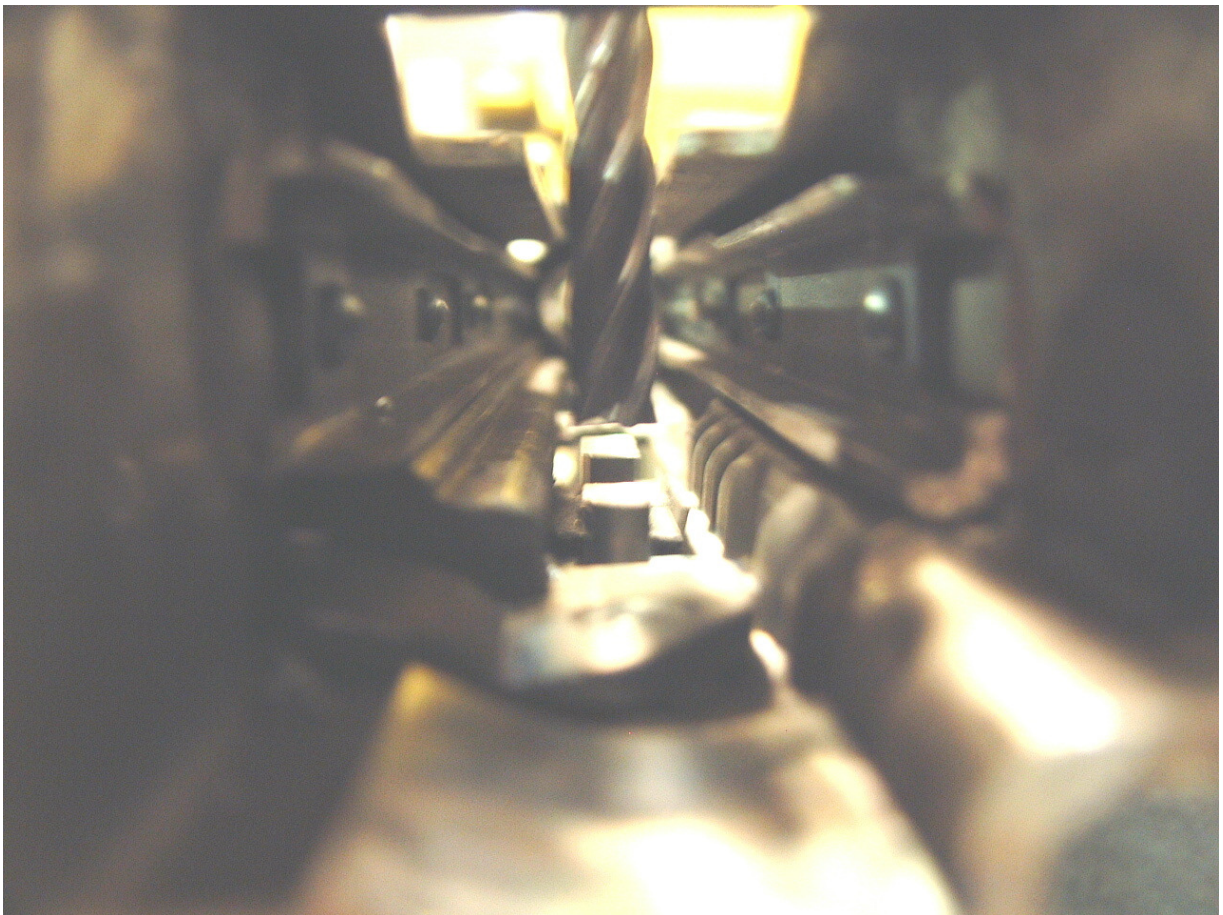
- 139- Check the charging handle stow lock. The front of the ratchet plate may need to be mill back to get it to lock properly.



- 140- Assemble the bolt assy. Install the bolt in the receiver.



- 141- Mark the semi auto receiver block where the rear of the bolt hits it.



- 142- Mill the semi auto receiver block to the line marked in step #141. Remove as little as possible.



- 143- Install the charging handle and bolt into the receiver. Check the fit of the charging handle tab on the bolt tab



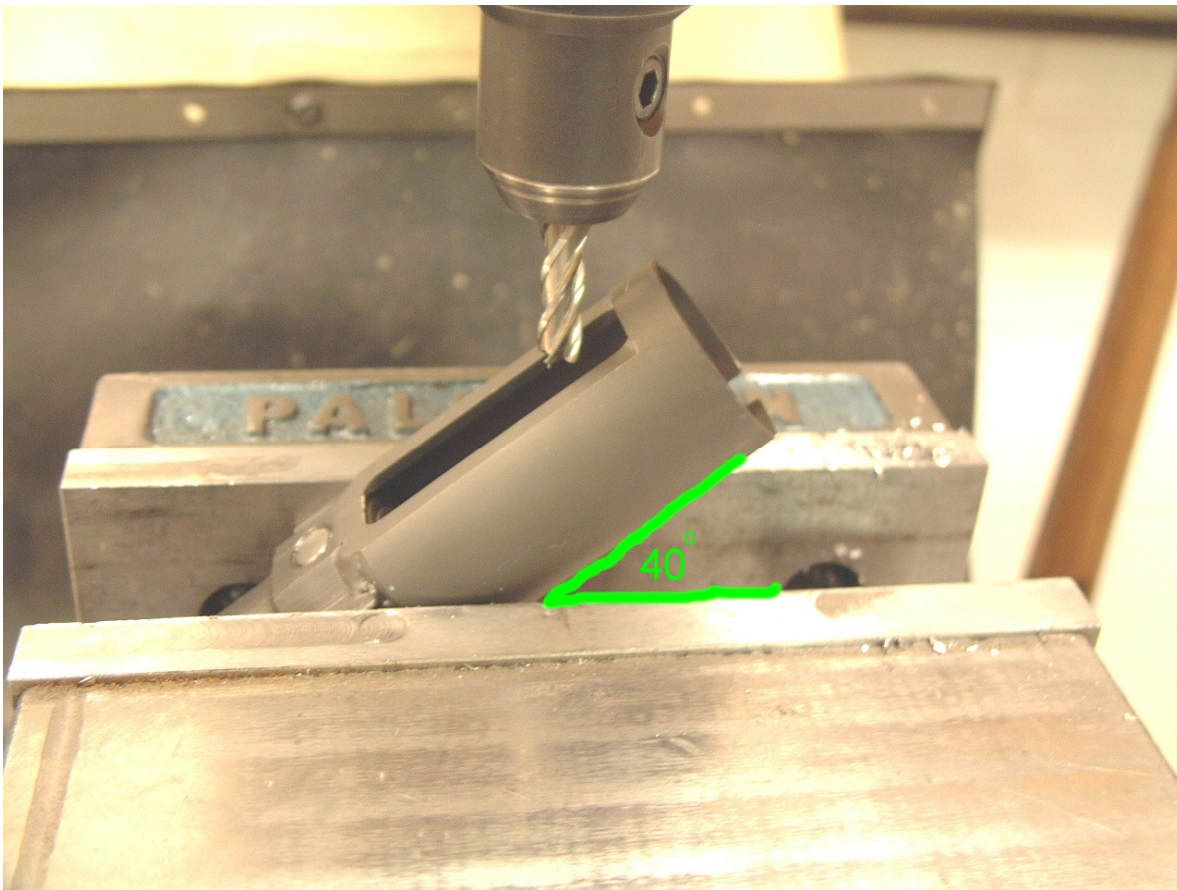
- 144- Install the barrel, trigger pack, recoil spring, and buffer assy.



- 145- Pull the trigger while watching the rear of the bolt. If the bolt move back or the hammer will hang up proceed with steps #146 - #148; otherwise proceed to step #149.



- 146- Remove the bolt and disassemble it. This is the area that needs to be milled. Mark a line 40mm from the back of the bolt.



147- Set up the bolt in the mill at a 40 angle. Mill the bolt to the line marked in step #146.



148- The bolt should look like this. Reassemble the bolt. Install the bolt, recoil spring, and buffer assy. Depress the hammer to slide the bolt head over it. Repeat step #145



149- Install buffer latch & spring. Install barrel booster cone, flash hider, stock, and rear sight assembly.

.....
Measurements:

12A _____ **120H** _____

14B _____ **121J** _____

15C _____ **122K** _____

26D _____ **123L** _____

27E _____ **129M** _____

28F _____ **130N** _____

44G _____

14B **12A** **15C**
 _____ - _____ = _____

27E **16D** **28F**
 _____ - _____ + **0.5MM** = _____

120H **121J** **122K**
 _____ - _____ = _____