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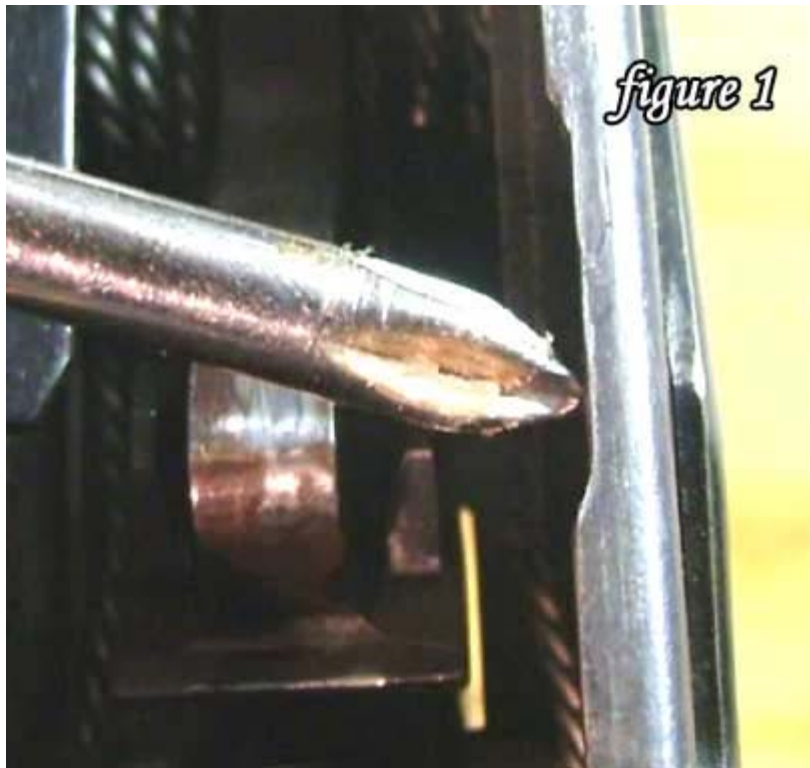
From Soup to Nuts, building an AK-47 Receiver Part V: Final Assembly and Finishing

Article by Rob Summerhill (RapidRob)

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The project is now close to completion. What needs to be done is to hand fit the bolt carrier assembly into the receiver and mount the barrel. A finish will be added to the rifle to protect the receiver and match the mounted parts. I will be using DuraCoat flat black.

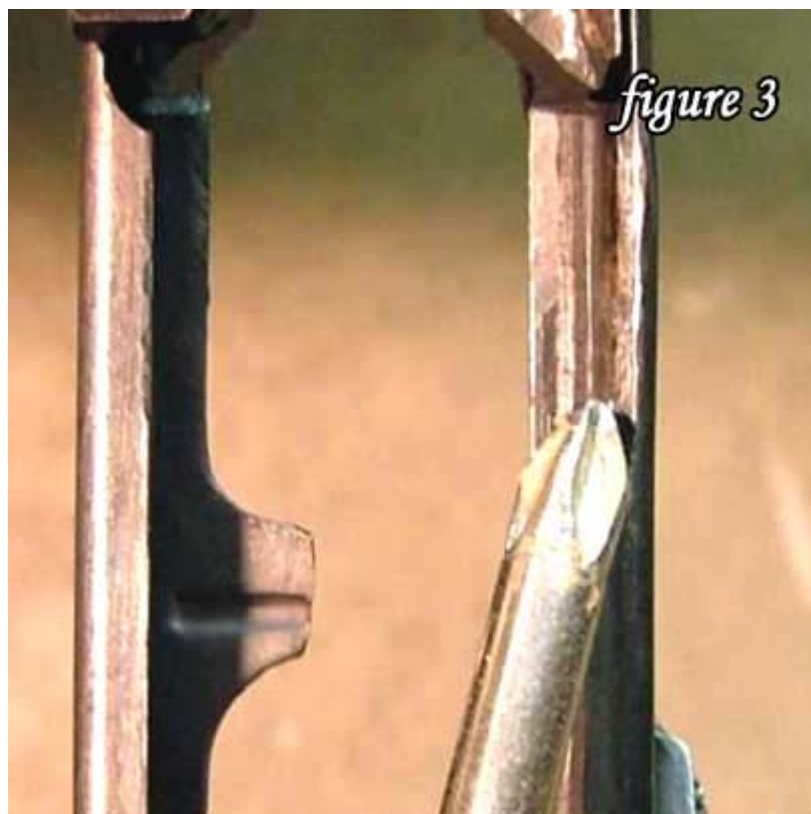
Mounting the bolt carrier is the most time consuming portion of this build. All of the flats for sale are made in such a way that there will be extra steel to remove from the two upper rails of the receiver. The front support pin and the condition of your parts kits will determine the receivers finished width. A new Romanian bolt carrier will have no wear, while a Yugo under folder dark bore may have had thousands of rounds fired through it in its past life. This step must be done right or you will not be happy with your rifle, or worse it will not function properly.



At this point you need to note the factory indentations in the bent top rails. The placement of these slight cut outs is very important for the normal operation of your rifle. 99.9% of all the flats will need to be widened in order to allow a smooth movement of the bolt carrier. First off, the rear cut out of the receiver is used to install/remove the bolt carrier from the receiver for normal maintenance.



Do not remove more than is necessary to install the bolt carrier. Remove too much and the carrier will jump out of the rails when fired. OOW receivers are known to do this. The forward edge of this opening must have a tapered angle to it to help guide the bolt carrier forward into the receiver. Note that there is a second opening cut forward of the rear opening, this opening is for the bolt head. This opening must be wide enough to allow the bolt head free passage into the receiver. As you move forward on the receiver you will note that the two top rails are not equal in the shape or length of the cuts made by the factory. These cuts will help guide the bolt as it strips a round from a magazine and starts to move the round into the chamber. These cuts give the bolt and bolt carrier "wobble room" for any slight misalignment.

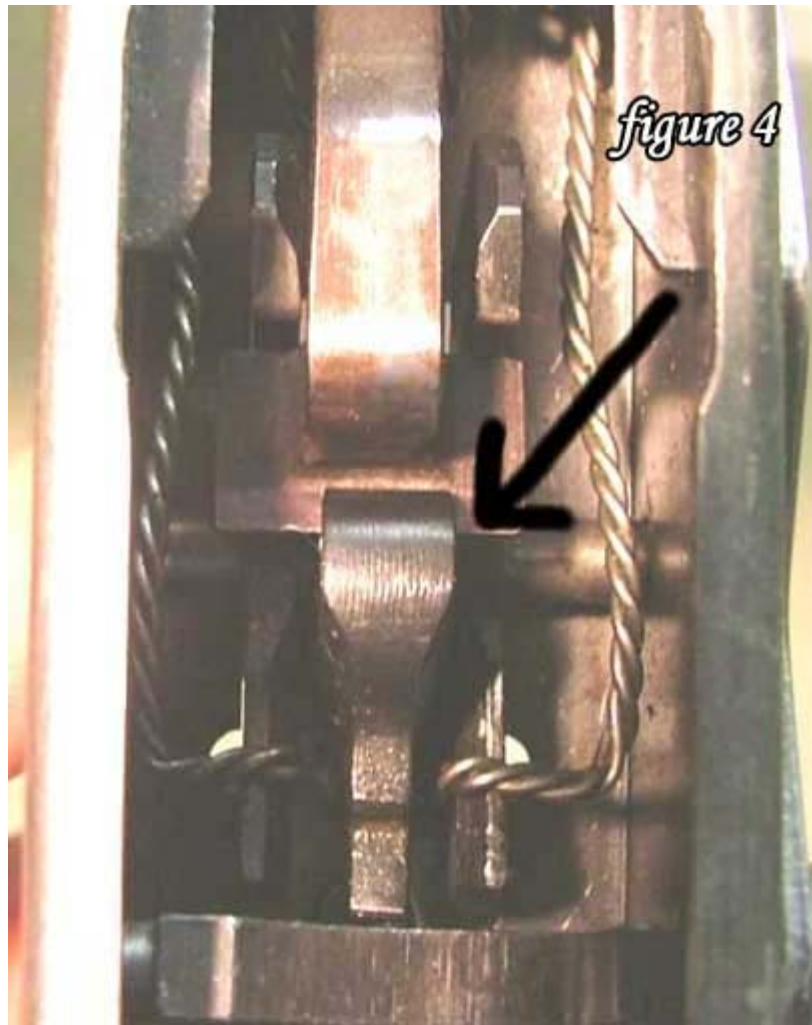


Use what ever means you have to mark the placement of these openings on your receiver.

Using a caliper, or a good steel rule, measure the cut in the bolt carrier to obtain the minimum width the two top rails need to be. Transpose those measurements to the two top rails and mark /scribe onto the surface to help guide your cut. A milling machine would be ideal for this task; however most will have to use a Dremel tool with a good thin cut off wheel. Make sure your cut is straight and both rails are parallel to one another. It's easier to remove metal than to add metal. Take your time with these cuts. When you have made the two rail cuts, test fit the bolt carrier. The thickness of the cut off wheel will give you the clearance the carrier will need to move freely back and forth. Once you have done this, remove any burrs or sharp edges on the two top rails. Now make the cuts for the other openings as mentioned earlier. Once you have done this step you can mount the barrel. Mounting the barrel can be very easy or very hard depending on the condition of your front trunnion and breech end of the barrel. Some barrel pins have gouged the top of the breech badly. Use emery cloth to smooth the breech ring of the barrel to allow smooth movement into the front trunnion. Do not remove any more metal that you absolutely have

too. Removing too much metal will make your rifle unsafe to shoot! Any gouge marks that are below level with the radius of the breech ring is not a problem.

Ok, how to mount the barrel? The easy way is to freeze the barrel. Yes FREEZE the barrel. I placed the barrel in our freezer and let it cool down for 24 hours. In the mean time I have cleaned the front trunnion of any grease, removed burrs in the barrel pin hole and double check the rivets for tightness to the receivers. You can mount the barrel by several means. You can tap the barrel in, hydraulic press it in or use a long pipe clamp and coins. Make sure you have all of the tools ready to go before you pull the barrel out of the freezer. I use Never Seize to lube the barrel breech before installation. You'll have about ten minutes to mount the barrel into the receiver before it heats up and is harder to move in the front trunnion. The barrels rear sight base ears will be used to help you guide the barrel into the trunnion. I place the muzzle on a block of hard lead and start the barrel into the front trunnion with taps from a one pound bronze hammer striking the rear of the front trunnion around the breech and the extension on the left side of the trunnion. Once the barrel starts to move into the trunnion, make sure the barrel is not twisted or at an angle to the receiver. I now switch to a brass or aluminum drift punch and continue to drive the trunnion onto the barrel. The barrel will slip in with out a whole lot of trouble. Don't be shy with the hammer blows. Once you have matched up the hole for the barrel pin with the trunnion hole, stop and do this check. Hold the rifle up and check your sight alignment. Is the rear sight aligned with the gas port? The front sight? If so continue on and drive the barrel pin back into the front trunnion. If not, pad a vice and twist the barrel using a large crescent wrench on the rear sight base or the front trunnion, which ever is easier for you to do. Next, lube the barrel pin and drive it in from the left to the right as viewed from the rear of the rifle. Double check that the sights are still aligned. Now mount all parts and test for functioning. The hammer and trigger pins should pass through the parts and receivers holes and be flush or a little past flush with the right side of the receiver. Make sure that the safety sear catches the hammer if the trigger is held back and the bolt assembly cycled. Failure of the sear to catch will result with the rifle firing with an unlocked bolt.



Mount the magazine and verify that it will lock up with little or no sideways play. Did it move upward enough? If not, slightly trim the lower right rail. A small amount will be all that is needed to remove from this rail. Once done the rifle should be ready to test fire. If you can, run home made dummy rounds through the rifle. Did the ejector work? Is the ejector too wide? If so note the shape of the ejector and trim the edge back just a bit. Do not remove too much or the rifle will not function and jamb when fired. You'll be able to cycle the bolt carrier and see the ejector pass through the bolt face.



The ejector must strike the rim of the fired case. Before you test fire the rifle, make sure the top cover is a tight fit. If too long trim the front edge just a bit. Make sure the bore is clean and all cutting debris is removed from the receiver before test firing the rifle. Load one round only into the magazine and cycle the bolt letting the spring close the bolt. Hold the rifle away from your face. Shooting glasses are a must. Fire the rifle. The case should be ejected and the bolt should go forward again and lock on an empty chamber. If it did not, and you are using a normal type magazine, you will need to trim the top rails just a bit. Use a Dremel tool or Swiss needle files for this trimming. Retrieve the fired case and look closely at the shoulder area of the fired case. Compare this fired case to a live round. Is the shoulder the same? If it looks as if the shoulder has moved forward, do not fire the rifle again. The head space is way off and could damage the rifle or you. If your parts came as a kit, the bolt and front trunnion should be matched. Never mix parts unless you feel you can head space the rifle safely.

If all is well, you now have your own home made AK rifle! All that is left to do is to place a finish on the rifle.

To place a good hard coating on the rifle, I will be applying DuraCoat. This product comes in many colors and is easy to do if you follow the instructions to the "T ". The rifles parts surfaces should be roughed up first with sand paper or glass bead blasting. The most important step is to clean the rifles parts. Brake cleaner followed by acetone works very

well for this step. Use rubber gloves from now on when handling the rifle. An air brush will be needed. A HVLP sprayer can also be used. Harbor Freight has air brushes for less than 10 bucks. However you provide the air to the air brush it must be dry air. Moisture will cause lumps in the surface of the coating. Mix the epoxy coating as per instructions and apply in a thin layer. Keep the air brush moving at all times. Build up several thin coats over several hours time. The coating takes a long time to cure so there is no need to rush. Let the coating dry for at least two hours before you touch it. DuraCoat will not prevent the rifle from working normally. If you can, bake the rifle parts in an oven set to 250-300 Degs for several hours. This will speed the curing time. Other wise, let the rifle set for two weeks. Rushing to shoot the rifle sooner than that will result in a poor finish.

There you have it. From soup to nuts on building you very own semi-auto AK clone.

Make sure to follow all state and federal laws on compliant parts and magazine capacities. Be safe and enjoy your new rifle!

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