Heavy-Duty Universal AR-15 80% Lower Receiver Jig Instructions
**Jig Contents**

The **Heavy-Duty** Universal AR-15 80% Lower Receiver Jig contains the following parts:

1. 1x Top Plate (Al 6061-T6)
2. 1x Right Side Plate (Alloy Steel)
3. 1x Left Side Plate (Alloy Steel)
4. 1x Front Support (Al 6061-T6)
5. 1x Rear Support (Al 6061-T6)
6. 1x Buffer Support (Al 6061-T6)
7. 1x Drill Template (Alloy Steel)
8. 1x Router Template (Alloy Steel)
9. 1x Depth Gauge (Al 6061-T6)
10. 14x Screws [8-32 x ½”]
11. 1x Side Plate Support Screw [8-32 x 1.5”]
12. 1x Rear Take Down Screw [1/4-20 x 1.5]

![Figure 1 Jig Contents](image)
**Required Tools**

The following items are required to finish the 80% AR-15 Lower Receiver:
(Available for sale on Modulus Arms Website as Jig Fabrication Kit)

1. ¼” Dia, ⅛” Shank, 4” Long, 1” Cut, Square End Mill
2. 19/64” Drill Bit
3. 3/8” Drill Stop
4. 3/8” Drill Bit
5. 5/32” Drill Bit

![Figure 2: Jig Fabrication Kit](image)

The additional tools needed to finish the 80% AR-15 Lower Receiver:

1. Router (Laminate/Trim Recommended)
2. Drill (Hand or Drill Press)
3. Vise or device to hold Jig
4. Front Takedown kit or ¼” bolt
5. 9/64” Allen Wrench
6. 3/16” Allen Wrench
7. 3/32” Allen Wrench

![Figure 3: Example Tools](image)

**Routers that we recommend to finish the 80% AR-15 Lower Receiver:**

1. Ridgid R24012
2. Dewalt D26670
3. Makita RT0701C
4. Porter-Cable PCE6430
5. Porter-Cable 7310
**HD Jig Assembly**

**Front Support:** The front takedown pin secures the front support as shown in Figure 4. For best results, the spring and detent from the Modulus Arms AR-15 Lower Parts Kit may be used. Optionally, Modulus Arms offers an AR-15 Front Takedown Kit. To install the Front Support using a Front Takedown Kit, follow Steps 1-5 in Figure 4. If a Front Takedown Pin is not available, you may use a ¼” diameter bolt (not supplied) to achieve the same result as Step 5 in Figure 4.

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*Figure 4: Front Takedown Pin Attachment*
Buffer Support and Rear Support: Thread the Buffer Support into the Lower Receiver in the location shown in Step 1. Thread the Buffer Support into the Lower Receiver (clockwise) as shown in Step 2. Thread the Buffer Support into the Lower Receiver until the Buffer Support is below the rear surface of the lower, then further turn clockwise until the three screw holes are aligned vertically as shown in Step 3. Using two of the ½” long screws, attach the rear support as seen in Step 4. Do not tighten, yet. Make sure the rear support is in contact with the lower receiver rear surface. If it is not in contact, you must thread the buffer support in further. On some lower receivers, especially polymer, the buffer support can go in snug. Threading in two of the screws to use as a handle can help to install the buffer support.

Figure 5: Buffer Support and Rear Support Attachment
Top Plate: Align the Top Plate over the Rear Support and Front Support as shown in Figure 6. Use four ½” screws to attach the Top Plate to the Rear Support and Front Support. Tighten the screws to 1 ft-lb. Now, tighten the screws attaching the Rear Support to the Buffer Support from the previous step to 1 ft-lb. The Top Plate should now be secure.

Figure 6: Top Plate Attachment
**Side Plates:** Place the Left Side Plate into position and thread two ½” screws into the top through the Top Plate as shown in Figure 7. Repeat for the Right Side Plate. Leave these four screws loose. Squeeze the side plates together against the sides of the lower receiver. When they are tight to the lower receiver, tighten the four ½” screws to 1 ft-lb. Screw the 8-32 x 1.5” Side Plate Support Screw into the Right Side Plate and all the way through into the Left Side Plate as shown in Figure 8. Tighten to 1 ft-lb. Do not install the ¼-20 x 1.5” Rear Takedown Screw.

- **Note:** Many questions have been asked about the Side Plate Support Screw. It is used to prevent the side plates from flexing in when clamped in a vise. That is why both sides are threaded.
- **Note:** It is recommended to put masking tape or some other protection over the sides of the lower before installing the side plates. Doing so will help prevent scratches or wear.
**Drilling the Holes**

**Drill Template:** Place the Drill Template into the Top Plate as shown in Figure 9. Thread two ½” screws into the locations shown in Figure 9. Tighten the screws to 1 ft-lb.
Drilling the Trigger Slot Holes: Insert the 19/64” drill bit into the drill and tighten the chuck. Place the drill bit into the hole labeled “A” as shown in Figure 11. Drill through the Lower Receiver until you exit under the Fire Control Group. Figure 10 shows the placement of hole “A”. The hole is also labeled on the Drill Template.

- **Note:** If a hand drill is being used be sure to hold the drill upright. If the drill is not held upright blemishes may be visible in the trigger slot after assembly.
- **Note:** Use a vise, C-clamp or other mechanism to hold the Jig.
- **Note:** Be sure not to start spinning the drill until after the drill bit is placed into the drill guide or premature wear will occur.
- **Note:** Use plenty of WD-40 or cutting fluid and remove the chips regularly.
- **Note:** All the above notes are true for all drilling and will not be repeated.
Drilling the Fire Control Group Holes: Slide the 3/8” drill stop onto the 3/8” drill bit. Insert the 3/8” drill bit into the Depth Gauge in the slot labeled “C” as shown in Figure 12. Make sure the drill bit is inserted all the way into the slot and tighten the drill stop onto the drill bit. Next, drill the six holes labeled “C” in Figure 10. The holes are also labeled on the Drill Template. Be sure to drill to the depth specified with the drill stop and do not go any further.

- **Note:** Be sure the drill stop is tight. Check the placement of the drill stop with the Depth Gauge after each hole. This applies for all drilling.

![Figure 12: Slot C](image1.png)

![Figure 13: Hole “C” Location](image2.png)
Drilling the Rear Shelf Holes: Insert the 3/8” drill bit into the Depth Gauge in slot labeled “B” as shown in Figure 12. Make sure the drill bit is inserted all the way into the slot and tighten the drill stop onto the drill bit. Next, drill the two holes labeled “B” in Figure 10. The holes are also labeled on the Drill Template. Be sure to drill to the depth specified with the drill stop and do not go any further.

Figure 12: Slot B

Figure 13: Hole “B” Location
Milling the Fire Control Group

Configure Jig for Milling Fire Control Group Remove the two screws holding the Drill Template to the Top Plate. Do not remove or loosen any other screws. Remove The Drill Template from the Top Plate. Insert the Router Template into the Top Plate as shown in Figure 14. Thread the four screws as shown in Figure 14. Tighten the screws to 1 ft-lb.

Figure 14: Configuration for Fire Control Group Milling
**Installing the End Mill:** Loosen the router base so that it is as far down as it can go. Insert the end mill into the router. Adjust the end mill in the router until it hits the bottom of the depth gauge slot “A”. When the end mill is at the correct height, tighten the collet of the router locking the end mill in place.

**Fire Control Group Milling:** Move the base of the router until the tip of the end mill is at the first line in slot “C”, shown in Figure 15. Place the router into the opening labeled “C” and into one of the holes previously drilled as shown in Figure 16. Be sure not to touch the sides of the holes when you start the router. Start the router and allow it to come completely up to speed. Start to move the router removing material. Start by moving in a semi-circular motion in small clockwise steps. Press down firmly to prevent the router from lifting. Do not try to move the router in one straight direction but rather in smooth half circles removing small amounts of material as you proceed. Join the drill holes together and then start to widen the opening until you reach the template. When you reach the template, trace the inside diameter of the template in a clockwise motion. Be sure to remove as much material as possible before touching the template or tracing the template. Do not push hard against the template. A gentle touch is enough. Mill the rounded corners in the template last, as they are most likely to chatter. When the opening is the same size as the template turn off the router, wait for it to completely stop and remove it. Adjust the router base so the end mill is at the next mark on the depth gauge as shown in Figure 17. Continue in this pattern until you reach the bottom of the Depth Gauge. On the last step, start the router in the hole you drilled for the trigger slot. This will prevent any need to plunge with the end mill.

- **Note:** DO NOT INSERT OR REMOVE THE END MILL FROM THE TEMPLATE WHILE THE END MILL IS SPINNING. THIS IS DANGEROUS AND THE MOST COMMON CAUSE OF BROKEN END MILLS OR DAMAGED JIGS/LOWERS.
- **Note:** Be sure the end mill is very tight in the router. Tighten it as much as possible. Check regularly
- **Note:** If the router begins to whine or vibrate during milling, turn the router off and remove it from the template. Inspect the end mill and be sure there are no chips jammed into the teeth of the end mill. If there is, use a tool to remove the stuck chips. A small screwdriver or pencil works well. Be sure not to damage the teeth.
- **Note:** We recommend a mid-speed setting on most routers. Adjust as necessary for your exact router.
- **Note:** If you have a shop vacuum, use it. Run the vacuum whenever you are milling. If you do not have a shop vacuum, stop regularly are remove the chips. If they build up, they can become stuck between the end mill and the template and melt. This build up can be removed from the end mill with sand paper. Use of a cutting fluid or WD-40 is recommended.
Figure 15: Fire Control Group Depth Setting

Figure 16: Fire Control Group Router Placement

Figure 17: Fire Control Group Second Depth Mark
**Milling the Rear Shelf and Trigger Slot**

**Configure Jig for Milling Rear Shelf and Trigger Slot:** Remove the four screws connecting the Router Template to the Top Plate. Remove the Router Template from the Top Plate. Rotate the Router Template around and insert into the Top Plate as shown in Figure 18. Thread the four screws as shown. Tighten the screws to 1 ft-lb.

![Figure 18: Fire Control Drill Guide Setup](image)
Milling Rear Shelf: The end mill should already be installed in the router. Move the base of the router until the tip of the end mill is at the first line in slot “B” as shown in Figure 19. Place the router into the opening labeled “B” and into the open cavity at the end of the opening as shown in Figure 20. Be sure not to touch the sides of the opening when you start the router. Start the router and allow it to come completely up to speed. Start to move the router removing material. Start by moving in a semi-circular motion in small clockwise steps. Press down firmly to prevent the router from lifting. Do not try to move the router in one straight direction but rather in smooth half circles removing small amounts of material as you proceed. Join the drill holes and then start to widen the opening until you reach the template. When you reach the template, trace the inside diameter of the template in a clockwise motion. Be sure to remove as much material as possible before touching the template or tracing the template. Do not push hard against the template. A gentle touch is enough. Mill the rounded corners in the template last, as they are most likely to chatter. When the opening is the same size as the template turn off the router, wait for it to completely stop and remove it. Adjust the router base so the end mill is at the next mark on the depth gauge. Continue in this pattern until you reach the bottom of the depth gauge.

- **Note:** DO NOT INSERT OR REMOVE THE END MILL FROM THE TEMPLATE WHILE THE END MILL IS SPINNING. THIS IS DANGEROUS AND THE MOST COMMON CAUSE OF BROKEN END MILLS OR DAMAGED JIGS/LOWERS.

- **Note:** Be sure the end mill is very tight in the router. Tighten it as much as possible. Check regularly

- **Note:** If the router begins to whine or vibrate during milling, turn the router off and remove it from the template. Inspect the end mill and be sure there are no chips jammed into the teeth of the end mill. If there is, use a tool to remove the stuck chips. A small screwdriver or pencil works well. Be sure not to damage the teeth.

- **Note:** If you have a shop vacuum, use it. Run the vacuum whenever you are milling. If you do not have a shop vacuum, stop regularly are remove the chips. If they build up, they can become stuck between the end mill and the template and melt. This build up can be removed from the end mill with sand paper. Use of a cutting fluid or WD-40 is recommended.
Figure 20: Rear Shelf Router Placement
Milling Trigger Slot: The end mill should already be installed in the router. Move the base of the router until the tip of the end mill is at the eleventh line in slot “A”, shown in Figure 22. Place the router into the opening labeled “A” and into the hole previously drilled. You will always use this as a starting location for this step. Be sure not to touch the sides of the opening when you start the router. Start the router and allow it to come completely up to speed. Start to move the router removing material. Start by moving in a semi-circular motion in small clockwise steps. Press down firmly to prevent the router from lifting. Do not try to move the router in one straight direction but rather in smooth half circles removing small amounts of material as you proceed. When you reach the template, trace the inside diameter of the template in a clockwise motion. Be sure to remove as much material as possible before touching the template or tracing the template. Do not push hard against the template. A gentle touch is enough. When the opening is the same size as the template turn off the router, wait for it to completely stop and remove it. Adjust the router base so the end mill is at the next mark on the depth gauge. Continue in this pattern until you exit through the bottom of the Lower Receiver.

- **Note:** DO NOT INSERT OR REMOVE THE END MILL FROM THE TEMPLATE WHILE THE END MILL IS SPINNING. THIS IS DANGEROUS AND THE MOST COMMON CAUSE OF BROKEN END MILLS OR DAMAGED JIGS/LOWERS.

- **Note:** Be sure the end mill is very tight in the router. Tighten it as much as possible. Check regularly

- **Note:** If the router begins to whine or vibrate during milling, turn the router off and remove it from the template. Inspect the end mill and be sure there are no chips jammed into the teeth of the end mill. If there is, use a tool to remove the stuck chips. A small screwdriver or pencil works well. Be sure not to damage the teeth.

- **Note:** If you have a shop vacuum, use it. Run the vacuum whenever you are milling. If you do not have a shop vacuum, stop regularly are remove the chips. If they build up, they can become stuck between the end mill and the template and melt. This build up can be removed from the end mill with sand paper. Use of a cutting fluid or WD-40 is recommended.
Drilling the Hammer, Trigger and Safety Pin Holes

Insert the Rear Takedown Screw: Insert the Rear Takedown Screw through the rear takedown hole in the Right Side Plate and tighten to 1 ft-lb as shown in Figure 23.

Figure 23: Rear Takedown Screw
Drilling the Safety Hole: Clamp the Top Plate into the vise so the Right Side Plate is facing up. Insert the 3/8” drill bit into the drill. Drill the hole shown in Figure 24 through one side of the lower receiver. Do not drill all the way through. Flip the jig over and repeat in the Left Side Plate.

![Figure 24: Safety Hole Location](image)
Drilling the Trigger and Hammer Pin Holes: Insert the 5/32” drill bit into the drill. Drill the holes shown in Figure 25 through one side of the lower receiver. Do not drill all the way through. Flip the jig over and repeat in the opposing holes shown in Figure 26.

Done! Go Shooting!