

AR15 & DPMS 308 F.C.G CNC PROGRAM

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Summary: Machining a lower receiver is like any other part; essentially all you need is to locate **3 positions** for your CNC in order for it to run your program. These three locations are called your **X, Y, & Z coordinates**. The X & Y coordinate is located using an edge finder, and the Z coordinate is located with your cutting tool. Once you find each coordinate you “zero” out the value for that coordinate on your machine, and then you load your program and run it.

Terms of Use: By using these instructions and the 3 referenced FCG programs (**POCKET.TAP**, **SELECTOR.TAP**, and **TRIGGER.TAP**) you understand and agree that all programs are free open source code intended for educational and personal use only and bear no guarantee of working or warranty. You also agree that it is your responsibility to check, understand and verify that the code provided is safe to use with your machine in order to prevent serious damage to your machine or injury to yourself. By using these instructions and/or any code provided along with these instructions you release the authors from any liabilities and/or claims. And you attest that by using these instructions you will not be breaking any laws.

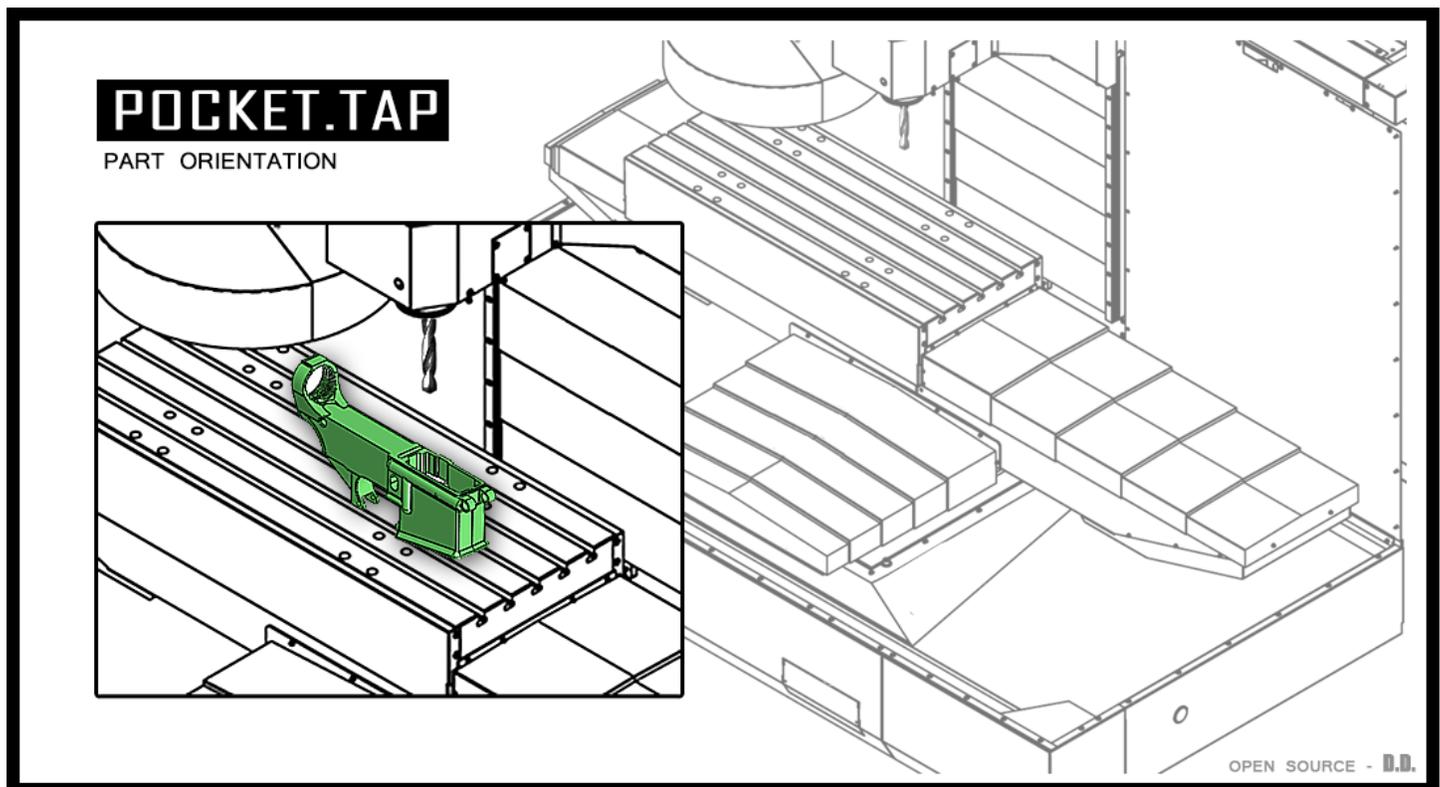
Speeds: Using generic FANUC code the program will ramp and feed at 10 in/min, take a .03 in. depth of cut, and run the spindle at 2000 RPM on all end-mill operations. The drilling plunge feed rate is 2 in/min at 2000 RPM using peck cycles. Please adjust according to your machine or preference.

Tooling used for Each Program: (note: only use cobalt or carbide, don't use drills designed for hand tools)

For the **POCKET.TAP** program use: 3/8" in. 2-Flute Flat End Mill (3" total length)

For the **SELECTOR.TAP** programs use: 3/8" in. Machine Drill.

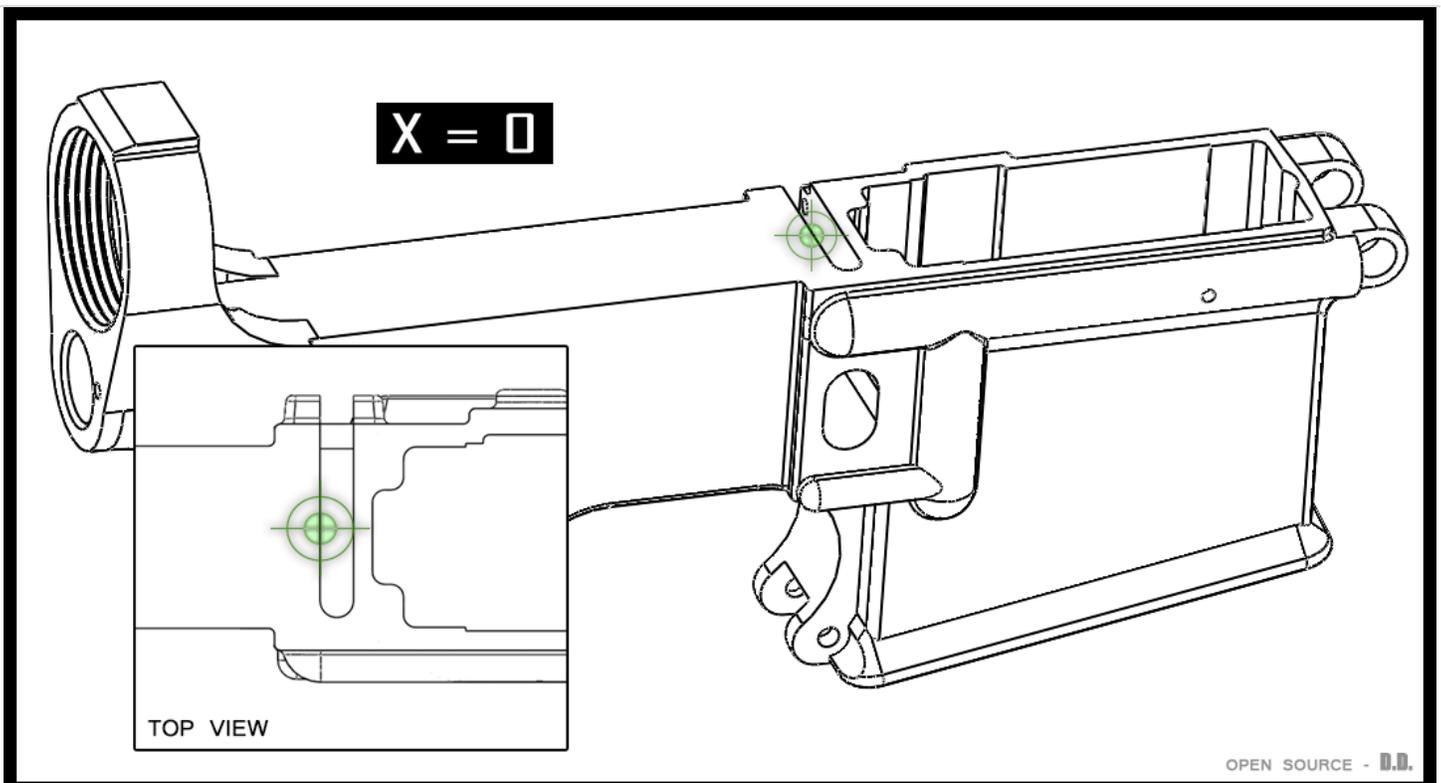
For the **TRIGGER.TAP** program use: 5/32" in. Machine Drill.



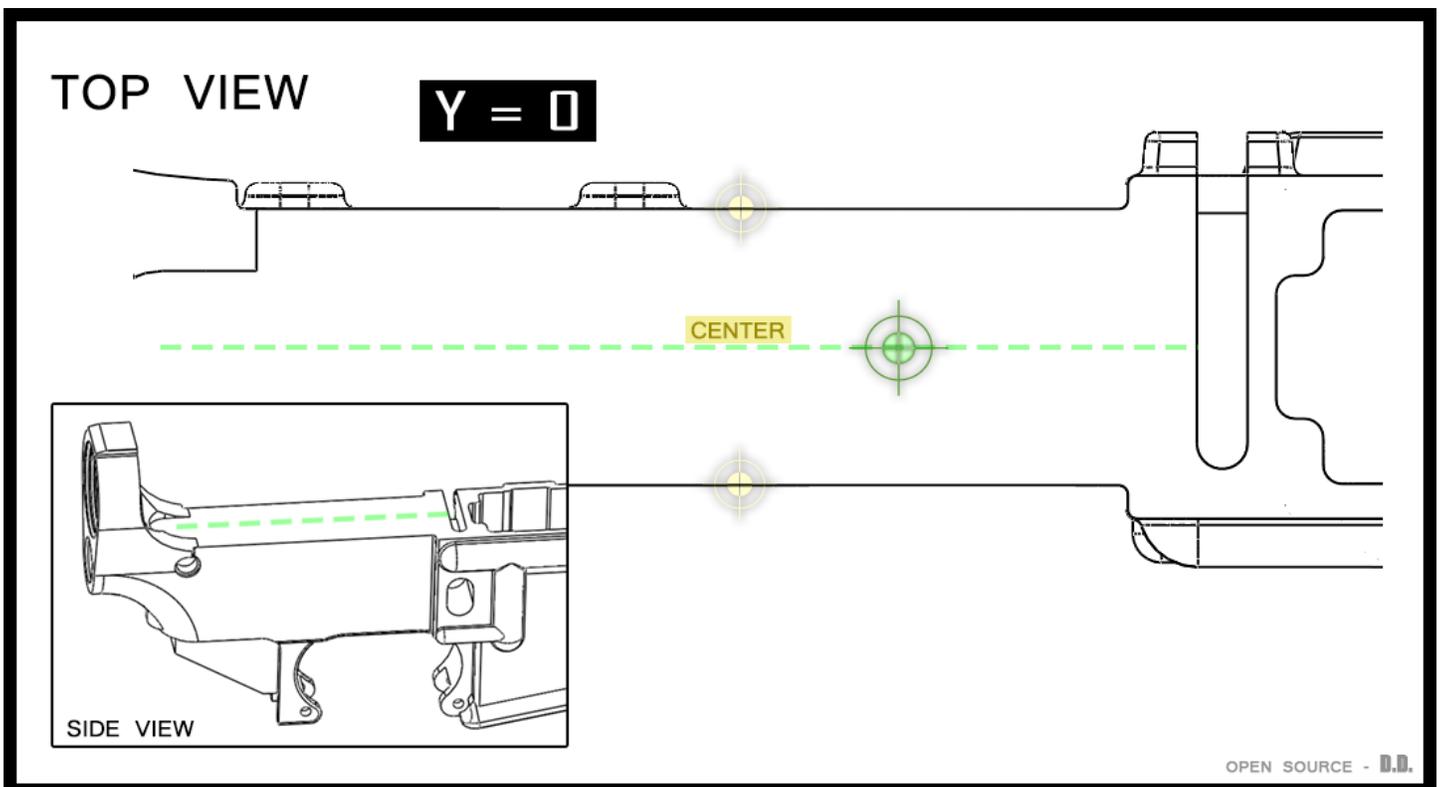
When orienting the an 80% lower receiver to mill out the fire control group pocket using the **POCKET.TAP** program, make sure that the buffer (rear) of the lower is on the **LEFT**, and the magazine well is on the **right**. The 80% lower should be upright with the magazine release button facing you.

Use this orientation to set the X, Y and Z values. It is highly recommended that you make or purchase a fixture to use with this program to ensure the part is flat on all planes and parallel to the spindle head and vice. **Using a vice alone is not recommended** because it can lead to parts that have crooked pockets, un-even features, and misplaced holes.

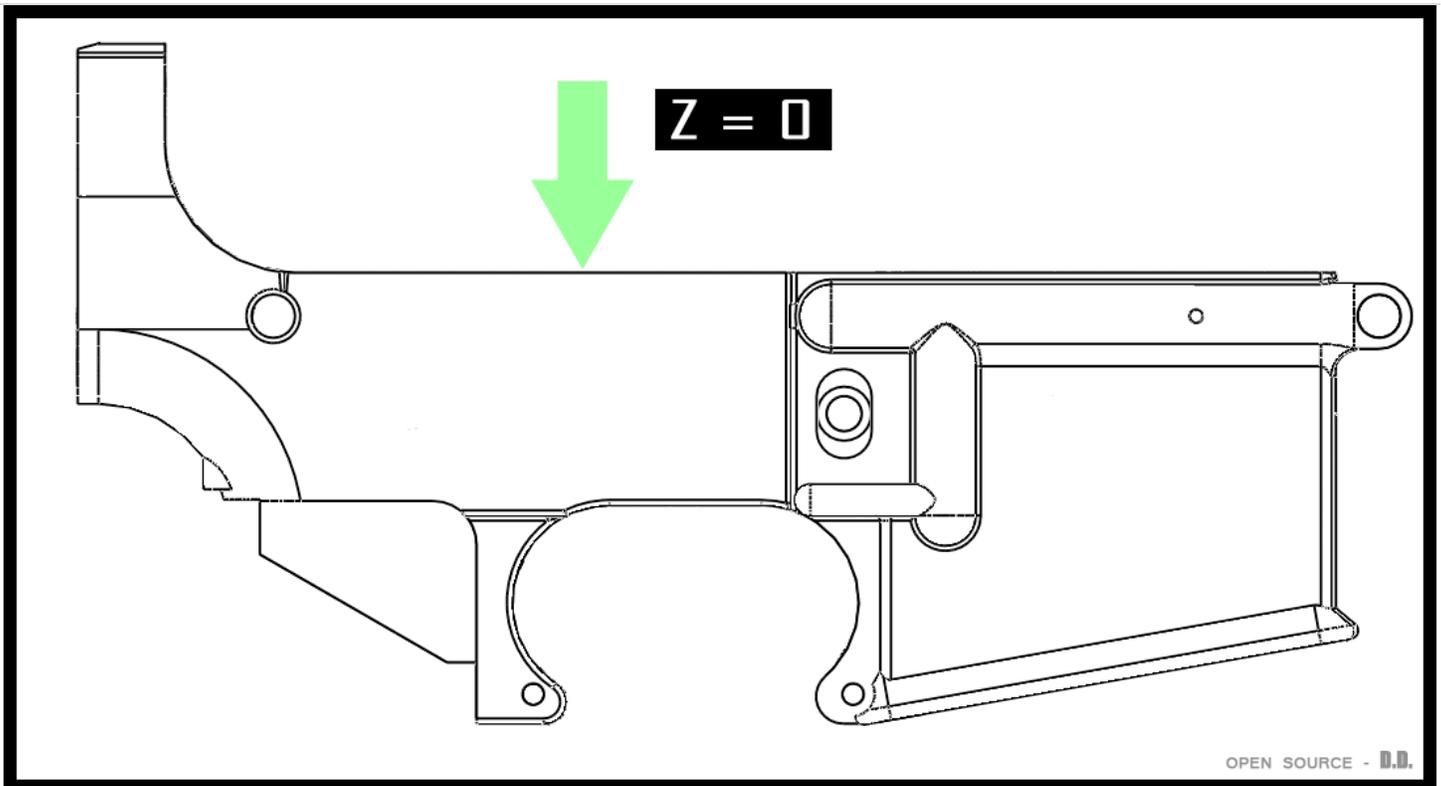
Make sure the 3/8 end mill is sticking out of collet at least 2" to ensure that the bottom of the tool holder clears the top of the receiver (buffer tube section)



In order to find the X zero position use an edge finder and locate the (left) edge of the bolt catch slot when looking at the lower from the top. When you have the center of your edge finder on the edge, zero out your X value.



The Y zero location is a little more complex to find. The **POCKET.TAP** program uses the center of the fire control pocket (when looking at the lower from the top) between each wall. *The most accurate way to find the center is to first locate one edge (one of the yellow cross-hairs) with your edge finder, then temporarily zero your Y value, then move your edge finder to the other edge (the other yellow cross-hair). Pay attention to the value traveled in Y, then move back half that value to end up in the center. Now that you're in the center - re-zero your Y.*

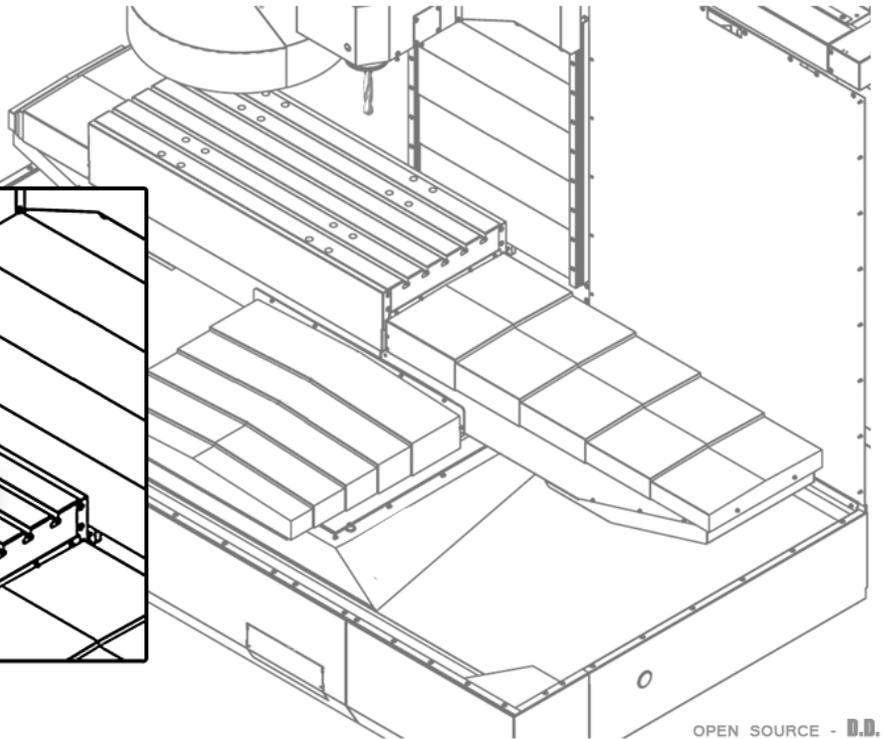
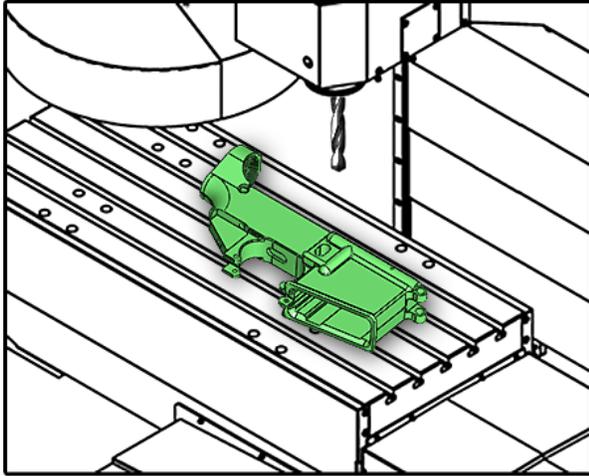


The **Z zero** location is at the top of the fire control group pocket. Remove your edge finder and load the 3/8 2-flute end mill. Bring the tool down slowly until it is within +/- .002" from the top of the part. Zero out your Z value.

Note: The 3/8 end mill will machine out a pocket right next to the buffer tube hole. On an AR15 paperweight the bottom of the tool holder needs to clear the very top of the lower. Make sure your 3/8 2-flute end mill is sticking out of the tool holder enough for it to clear the top of the lower. See **Step 1** for the exact length the end mill needs to stick out of the tool holder.

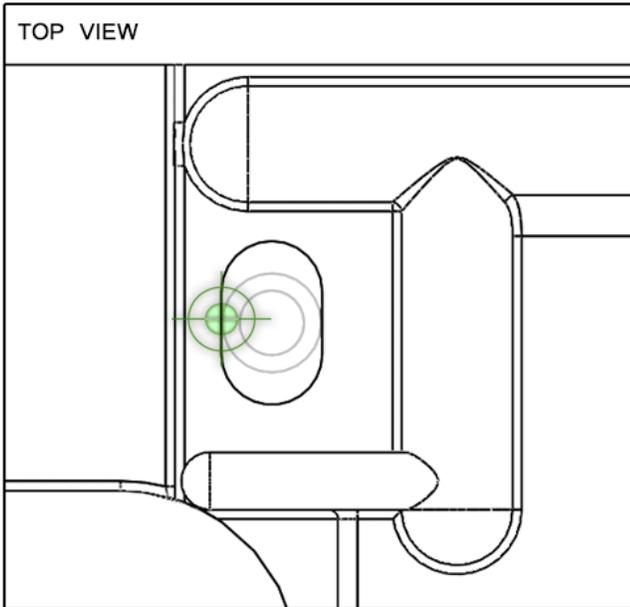
SELECTOR.TAP TRIGGER.TAP

PART ORIENTATION

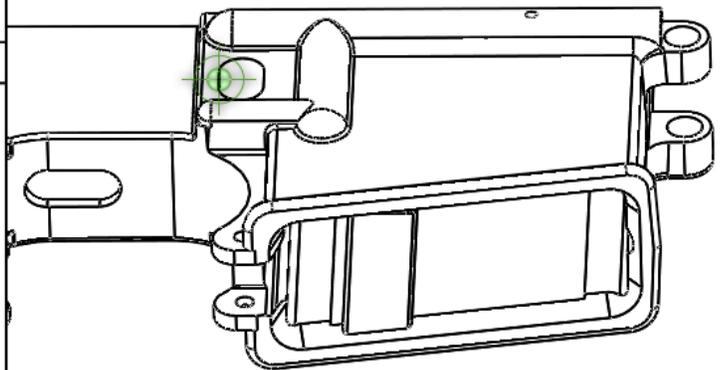


When orienting the an 80% lower receiver to drill out the safety selector hole using the **SELECTOR.TAP** program, or drilling out the trigger mounting holes using the **TRIGGER.TAP** program, make sure that the buffer (rear) of the lower is on the LEFT, and the magazine well is on the right. The 80% lower should be on its side with the magazine release button facing up towards the cutter.

TOP VIEW

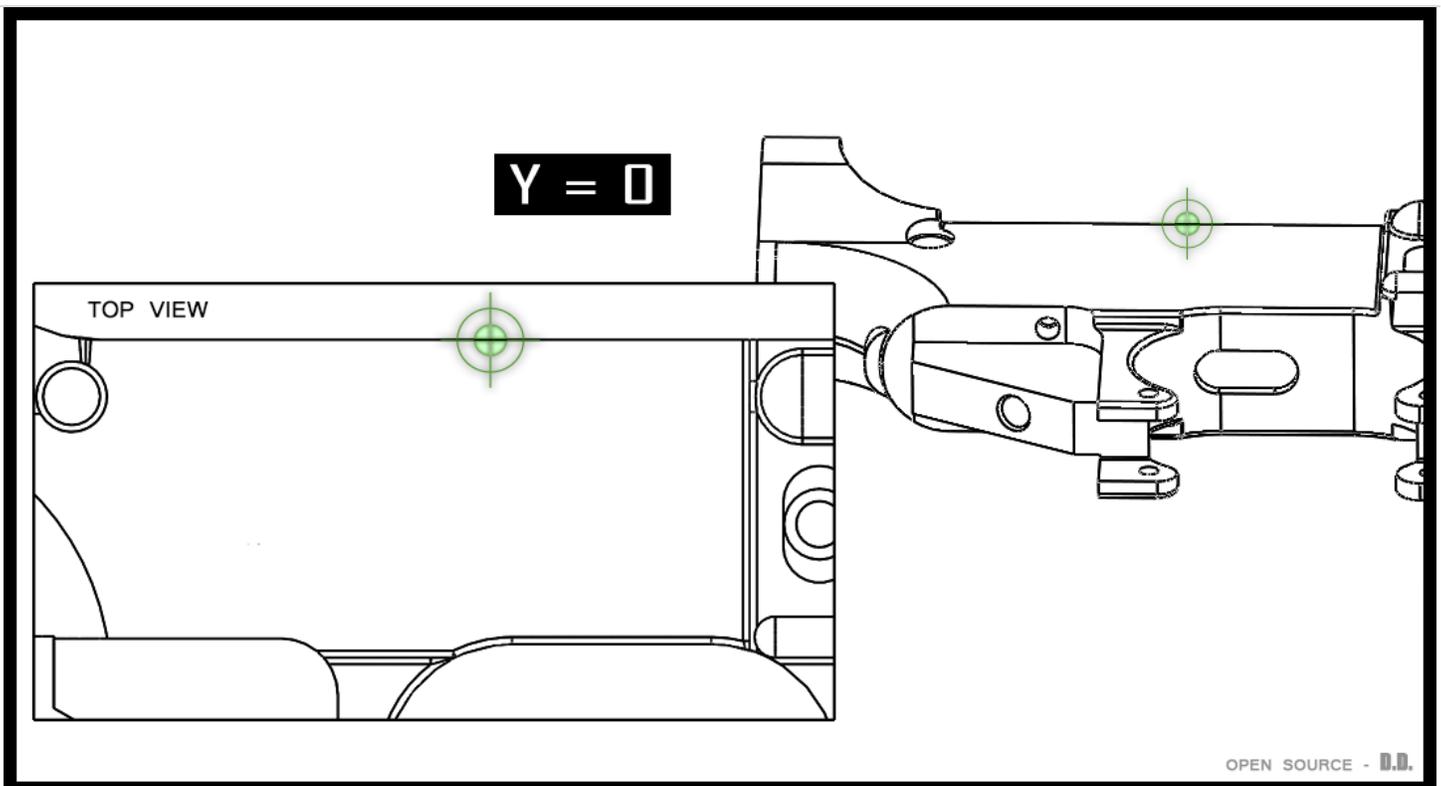


X = 0

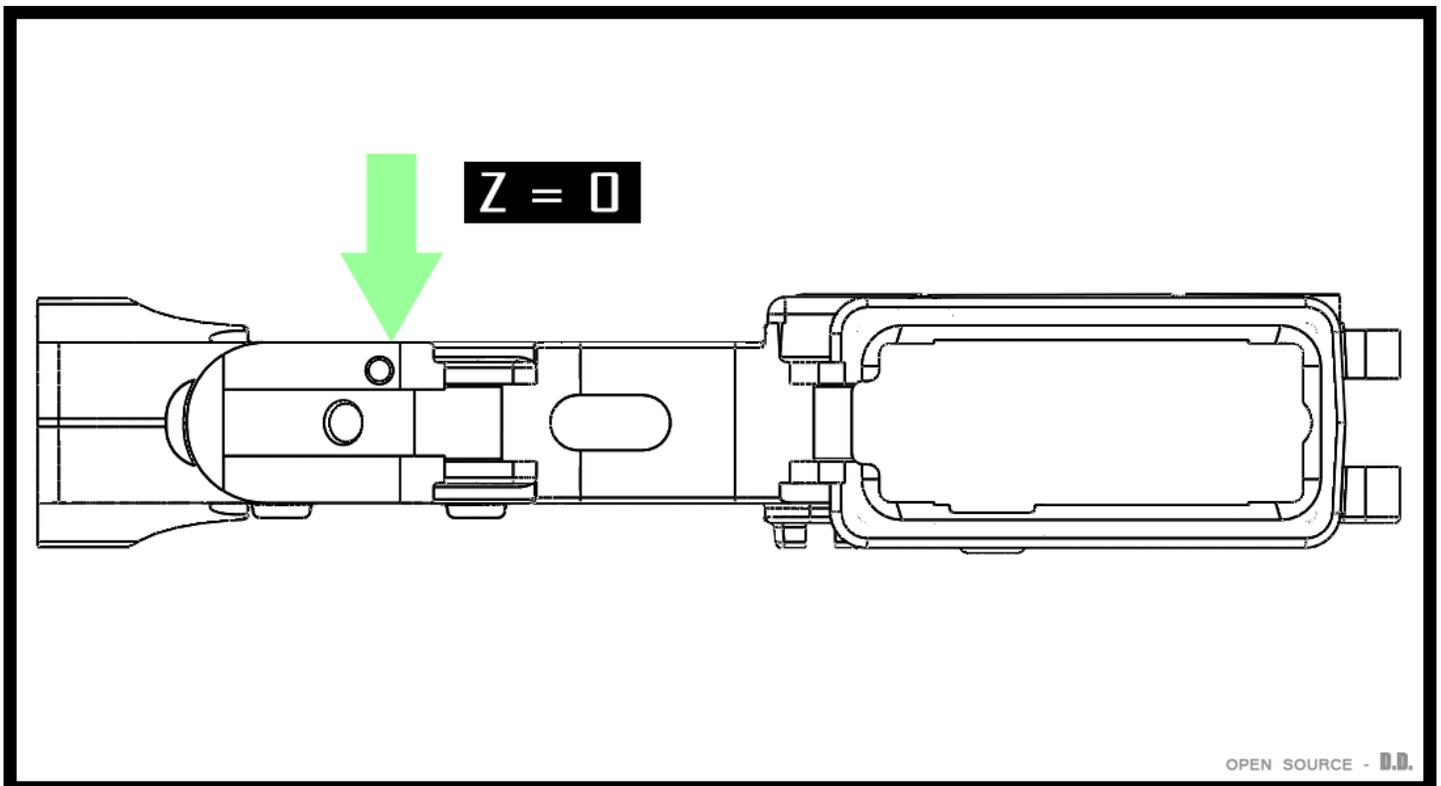


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In order to find the X zero position use an edge finder and locate the (left) edge of the magazine release button pocket. When you have the center of your edge finder on the edge, zero out your X value. You can use the same X zero location for both **TRIGGER.TAP** and **SELECTOR.TAP** programs.



In order to find the Y zero position use an edge finder and locate the (top) edge of fire control group pocket wall. When you have the center of your edge finder on the edge, zero out your Y value. You can use the same Y zero location for both **TRIGGER.TAP** and **SELECTOR.TAP** programs.



The Z zero location is at the top of the fire control group pocket (when its laying down on its side). You will have to set the Z location individually for each program; **TRIGGER.TAP** and **SELECTOR.TAP**. Remove your edge finder and load the appropriate drill depending on which program you're running. Bring the tool down slowly until it is within +/- .005" from the top of the part. Zero out your Z value.