DIY CASE ANNEALER CONSTRUCTION

Annealer Body

- Once all of your pieces of MDF are cut to the proper size, measure and lay out all holes to be drilled into the face of the annealer.

**You can center the motor by finding the radius of the motor mount holes and drawing a circle at that distance with a compass. **

- Duplicate the location of the case feeder hole on the case feeder plate.
- Using a 1 1/8" forstner or spade Bit, bore out the hole for the main drum and then the marked spot on the case feeder plate.
- Use a 1 ½" forstner or spade bit to bore out the hole for the case feeder motor on the annealer face (See Hole Layout Diagram).

NOTE: I waited to drill the torch holder and case stop holes until I was ready to mount these items.

I used an 18g brad nailer and wood glue to build the annealer body. I fastened the sides first, then dry fit the face. The top edge of the sides will be taller due to the angle. Mark and cut off the excess for a flush top.

- Choose your material for the top piece where your controls and display will be mounted. It must be no more than 1/8" thick so you can attach the knobs and snap the displays in the holes. Layout and cut/ drill the holes for your handle, controls and display.

NOTE: I cut a piece of MDF to the proper size for the top and made generous openings for the controls and displays. I put a thin piece of kydex over the top and cut properly sized holes for the controls and displays to fit snugly inside. Thin lexan, or sheet metal would also work well.

- Leave the back open until near the end, or install with hinges. So it can remain open for easy installation of electronics.

Main Drum

- Find center and drill to 5/16” (This may need to be done in steps)
- Determine the desired depth of your drum with a case. Make sure there is enough of the neck exposed to be annealed without excessively heating of the drum. Mine is approximately 1 1/8” tall and will handle 300blk-6.8spc length cases (and maybe longer)
- Cut a 1” wide notch out of the side of the main drum. Be sure to cut all the way to the bottom of the drum to ensure reliable feeding.

Case Feeder Plate

- Install case feeder motor so that mounts are on the outside of the body with 1” 6-32 screws, washers, and nuts. **In order for the case feeder plate to fit flush to the front of the annealer, I used my 1 ½” Forstner bit to mill out the areas where the mounts would interfere with the back of the plate.**

- Install coupler onto the other motor and mount the motor inside the body so that approximately 1/2” of the coupler protrudes out of the front of the annealer. This is accomplished by using the 2” 6-32 screws and washers or spacers.

- Lay the annealer on its back. Place the case feeder plate over the motor and slide the case feeder coupler on the motor shaft. Loosely install the main drum so that it rests on the case feeder plate. Align the plate with the top and right edge, and ensure that the hole in the plate is not interfering with the case feeder coupler. Hold the plate in place and trace around the main drum where it overlaps the plate.

- Cut along the line, sand, and permanently install after checking all previous alignments.

- Re-Install the drum and case feeder snugly.

Case Stop

- Cut 1 ½” off one of the legs of the U-bolt.
- Drill 1/4” hole below the main drum where it is marked.
- Install the U bolt with provided nuts on both sides of the front of the annealer so that the cut end just clears the back side of the drum.

The U-bolt can be rotated to adjust for different diameter cases.

Case Feeder Hopper and Ramp

- Connect all electronics and power up the unit.
- Using a square or piece of sturdy board, make a temporary ramp to deliver the case from feeder to drum.
- Hand feed one case into the feeder coupler while trying different angles. One you find the right angle for reliable feeding into the drum, trace the edge of your temporary ramp.
- Cut and install your aluminum angle iron on the line you marked.
- Test for reliability.
- Do the same for the right side of the case feeder hopper first, then the left.
- Test for reliability as you go.

I cut the mounting side of my 2”x2” angle to 1/2” for a smaller footprint. Be sure that no parts interfere with each other by leaving a 1/16”- 1/4” gap between the angled aluminum and moving parts.

Torch Holder

- Cut 5/16-18 all-thread to 5” long.
- Thread torch holder onto all-thread and install thumb screw.
- Check for proper alignment and drill 5/16” hole in the annealer body where previously marked.
- Use wing nuts and washers on each side of the front of the annealer to secure the torch holder in the proper place for your case neck.
- Insert torch head and tighten the pinch bolt to keep it firmly in place.

Parts to be Made

Main Drum Coupler

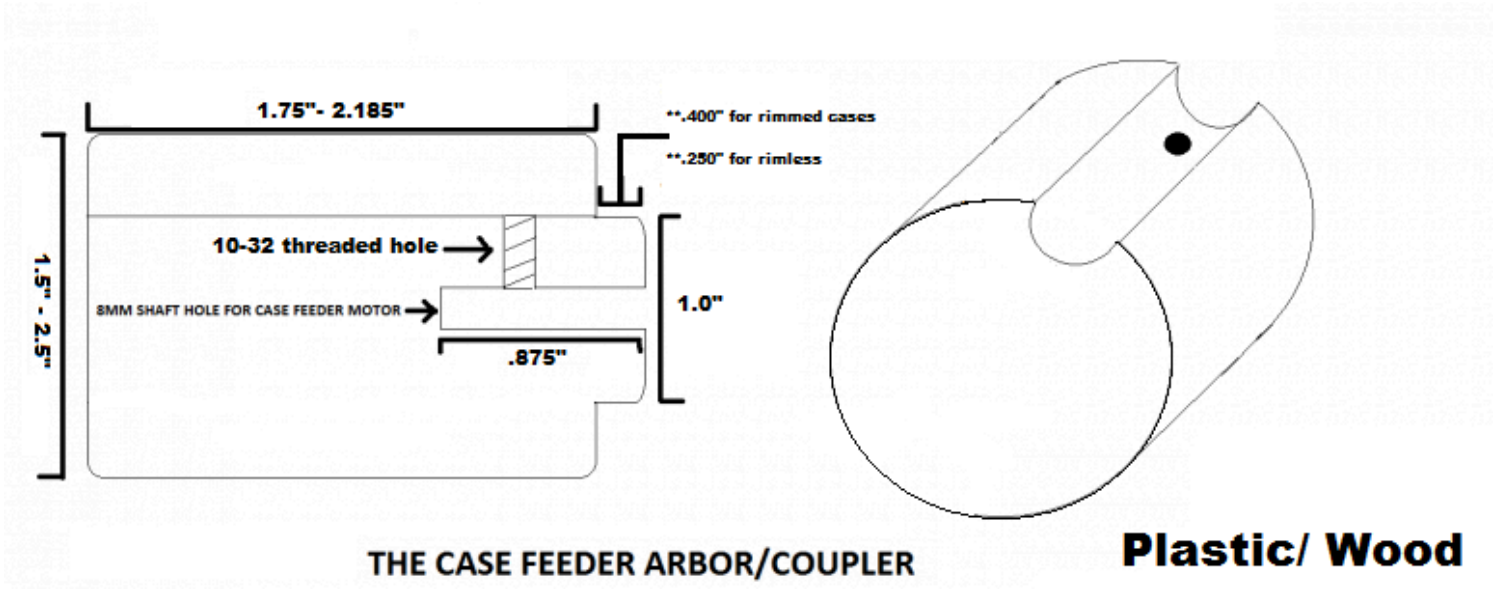
Take the 5/16-18 Coupler Nut and bore out one side to 8mm half the length of the coupler. Approximately .5” from the end you just bored out, Drill and tap a hole for the 10-32 set screw. That’s it!

Case Feeder Coupler

- **With Lathe:** Cut and face your material to length. Center drill an 8mm hole approximately 1.25” deep. Turn .25” of the end down to 1” diameter.

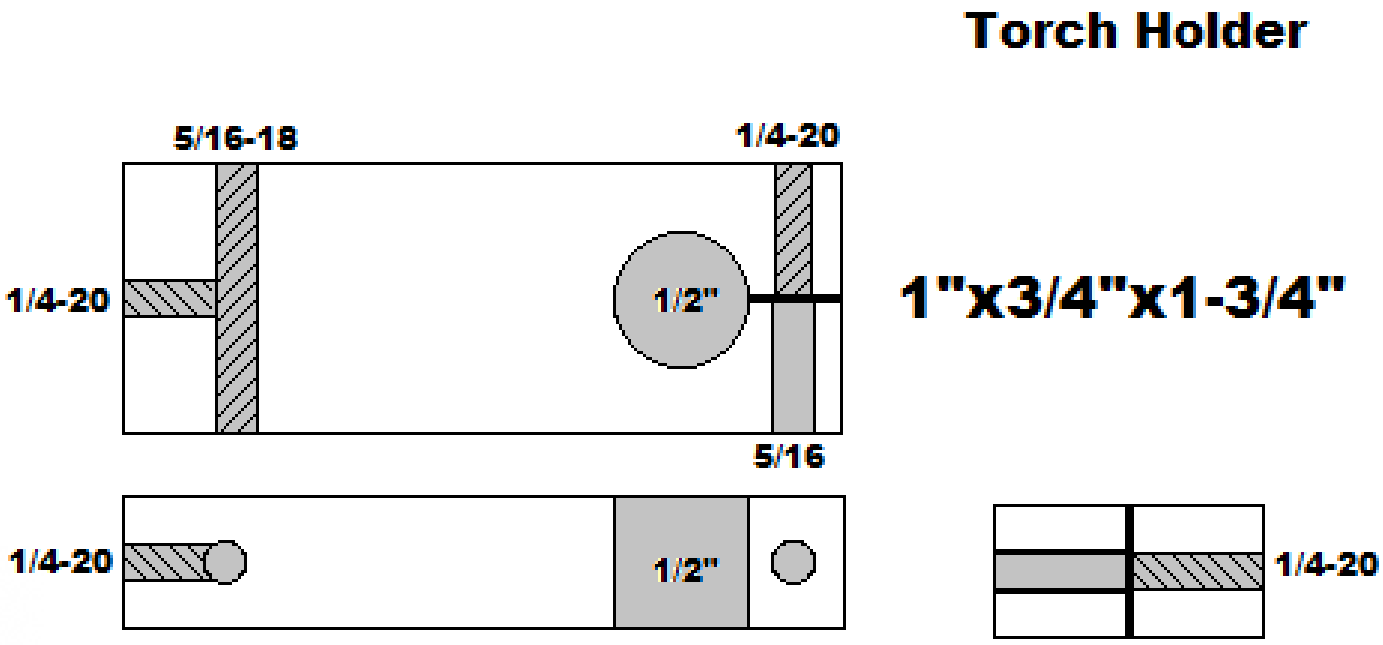
- **Without Lathe:** Cut your piece to length. Find Center and use a hole saw with a 1” **INSIDE** diameter in your drill press to cut .25” deep with the saw. Using the existing pilot hole from the hole saw, bore an 8mm hole ~1.25” deep. Once complete, use a fenced table saw or steady hand and dremel to cut around the circumference, leaving you with the desired shoulder.

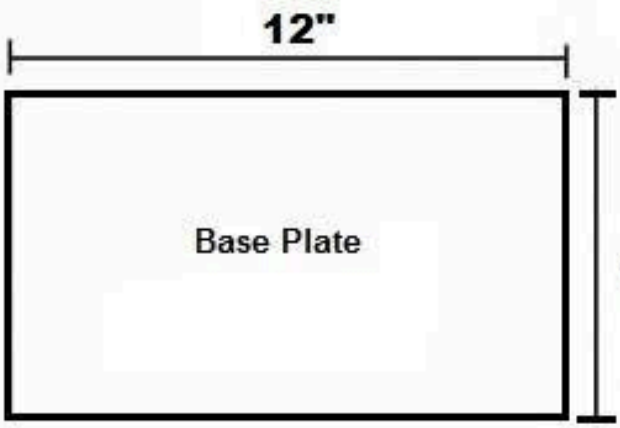
  The process for making the case channel is completed on the drill press, and can be done prior to turning down the end. Choose a Forstner bit slightly larger than the diameter of the case you will be annealing. (I used ½” for 308 and it works with .223/5.56 based cases with no issues) With the coupler in a vise, on end, line up the tip of the bit 1/8-1/4” in from the outside edge of the coupler. Slowly drill down, stopping right before you reach the turned-down area of the coupler. Drill and tap a 10-32 hole in the channel ½” from the motor side for the set screw.

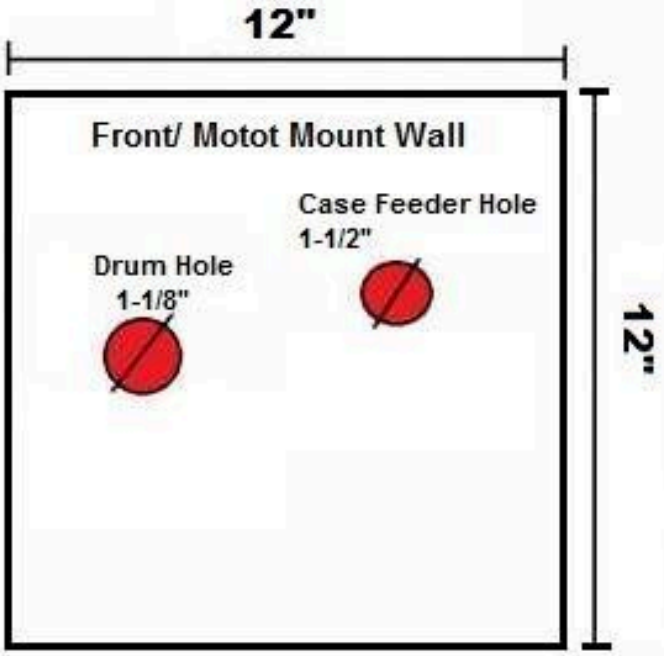


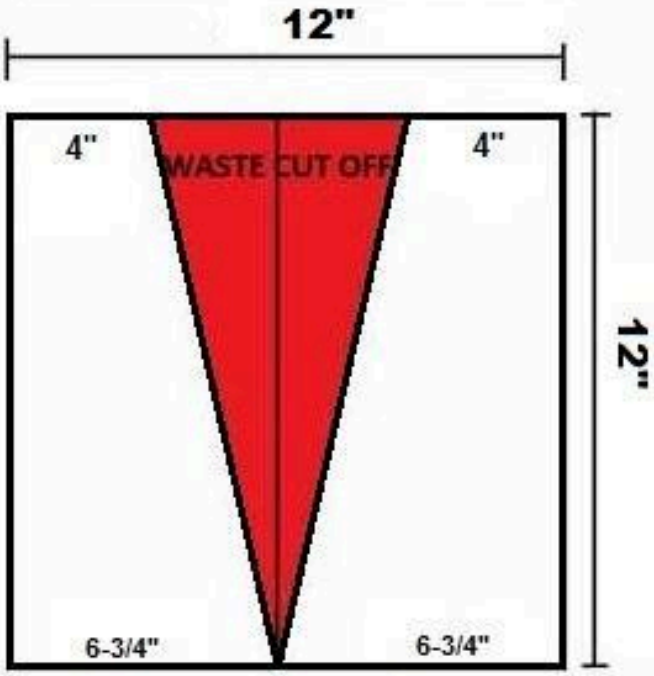
Torch Holder

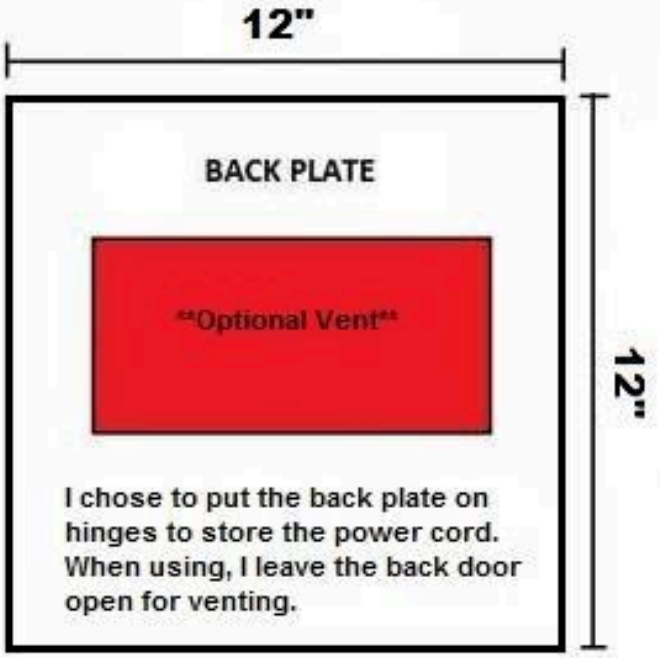
- Cut a piece of wood or aluminum 1”x3/4”x1-3/4”.
- Drill and tap a 5/16-18 hole ½” from the end, centered on the edge (See diagram).
- On the face of the piece, drill a ½” hole for the torch nozzle centered, ¾” from the opposite end.
- Drill a 13/64 hole ¼” from the end centered on the edge of the piece.
- Cut a slit through the end, on center, into the torch hole.
- Tap one side to ¼-20 and drill the other to 5/16.
- Drill and tap a ¼-20 hole centered on the opposite end to intersect with the 5/16-18 hole for a thumb screw



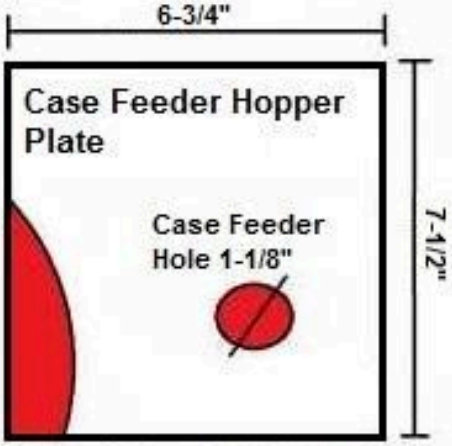




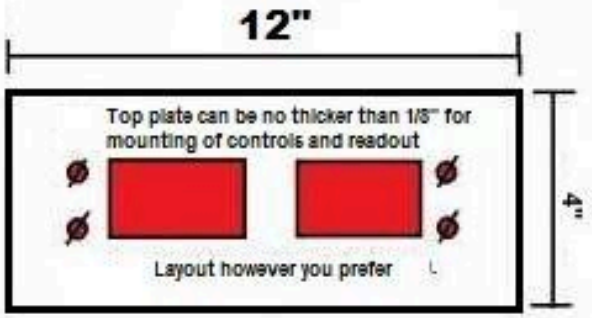




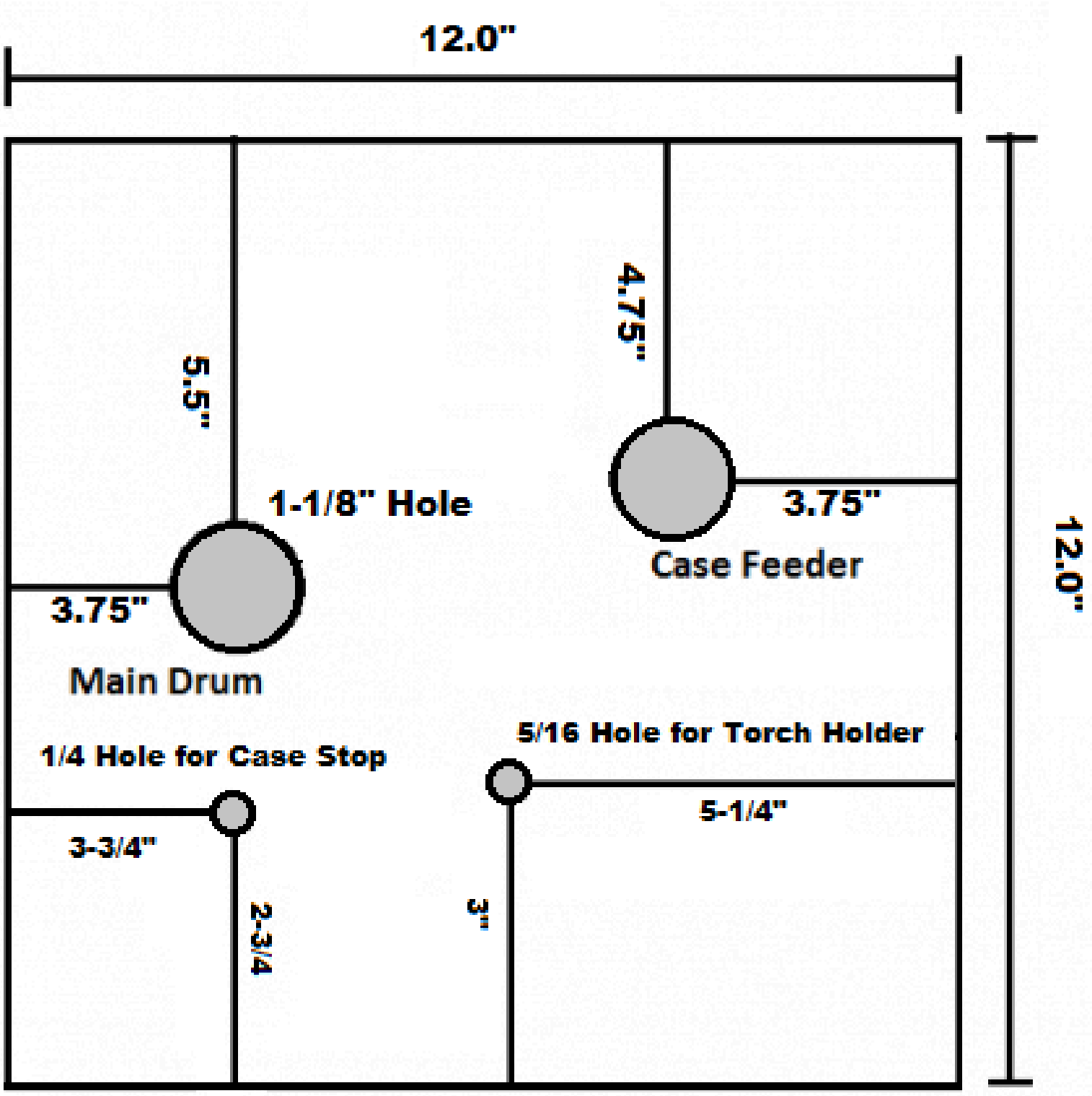
I chose to put the back plate on hinges to store the power cord. When using, I leave the back door open for venting.



The cutout for the drum will vary between users. Secure The plate temporarily with a clamp, mount your drum and trace the edge over the Case Feeder plate for an accurate cutout.



Front: Hole Layout



Case Annealer Shopping List

QTY	Part Name	Price	Source	Application
1	6" Cake Pan	$7.99	Hobby Lobby	Main drum
2	12V DC 25 RPM GEAR-BOX STABILVOLT MOTOR	$18.96	SLOW BOAT FROM CHINA VIA EBAY	CASE FEEDER AND MAIN DRUM
2	PWM SPEED CONTROLLER W/ DIGITAL DISPLAY & SWITCH AND DIAL	$16.70	SLOW BOAT FROM CHINA VIA EBAY	SPEED CONTROL FOR EACH MOTOR
1	DC 12V REGULATED TRANSFORMER POWER SUPPLY FOR LED STRIP	$15.99	SLOW BOAT FROM CHINA VIA EBAY	POWER SOURCE
2	10-32 x 1/4" SET SCREW	$0.58	MENARDS	FASTENS ARBORS TO MOTOR SHAFTS
1	5/16-18 x 3/4" SOCKET HEAD CAP SCREW	$0.59	MENARDS	FASTENS MAIN DRUM TO DRUM ARBOR
1	5/16 WASHERS (11 pkg)	$1.59	MENARDS	BETWEEN DRUM AND ARBOR/ OTHER VARIOUS USES
1	U-BOLT 1/4" x 1-1/8"W x 3-1/2"L	$0.86	MENARDS	CASE STOP
1	1/2" x 24" x 48" MDF	$9.97	MENARDS	ANNEALER BODY
2	5/16-18 WING NUTS	$0.98	MENARDS	TORCH HOLDER ROD
1	3-1/2" CHEST HANDLE (ZINC)	$2.79	MENARDS	ANNEALER TRANSPORTATION
1	12" 5/16-18 ALL THREAD	$0.99	MENARDS	TORCH HOLDER ROD
3	6-32x2 SCREWS	$0.29	MENARDS	MOTOR MOUNTING SCREWS
6	6-32x1 MACHINE SCREWS AND NUTS	$0.89	MENARDS	HANDLE AND MOTOR MOUNTING SCREWS
1	5/16-18 COUPLING NUT	$0.89	MENARDS	DRUM COUPLER
2	#6 FLAT WASHERS (75 pkg)	$1.98	MENARDS	MOTOR SPACING AND MOUNTING
1	1/4-20x1 SOCKET CAP SCREW	$0.59	MENARDS	TORCH HOLDER
1	1/4-20x1/2 THUMB SCREW	$0.49	MENARDS	TORCH HOLDER
1	2"X2"X4' ALUM ANGLE IRON	$11.49	MENARDS	CASE FEEDER
GRAND TOTAL		$94.33		

Setup/ Use

- Gather 2-3 pieces of brass and apply a small amount of temperature indicating paint on the inside and outside of the neck of the case. Put them in the hopper
- Align the torch with the case by adjusting the angle of the torch holder with the thumb screw and depth with the wing nuts on the all thread.
- Turn the torch on, and start both motors.
- As the case enters the flame, watch for the paint to change color.

If the case drops before the color has changed, decrease the speed of the main drum.

If the color changes before the case drops, increase speed.

- **Once the desired drum speed is achieved, adjust the case feed speed so that it only delivers one case to the drum at a time.**

Tip: Make cheat sheets for each type of brass you will be annealing and store in the body. This will save time for future setup.

Enjoy!