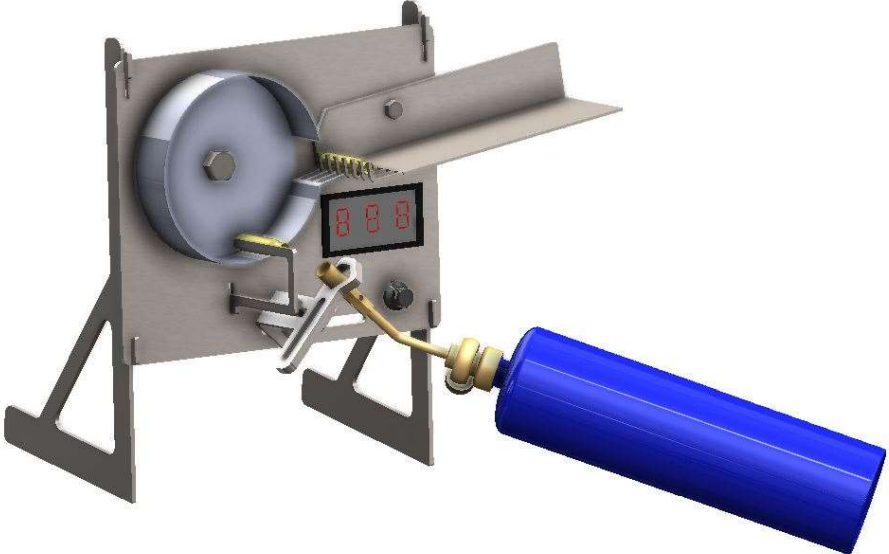




ECHO

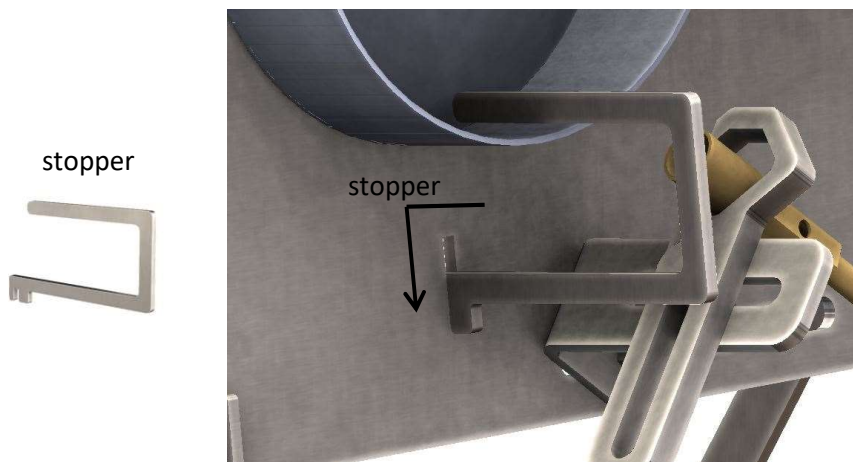
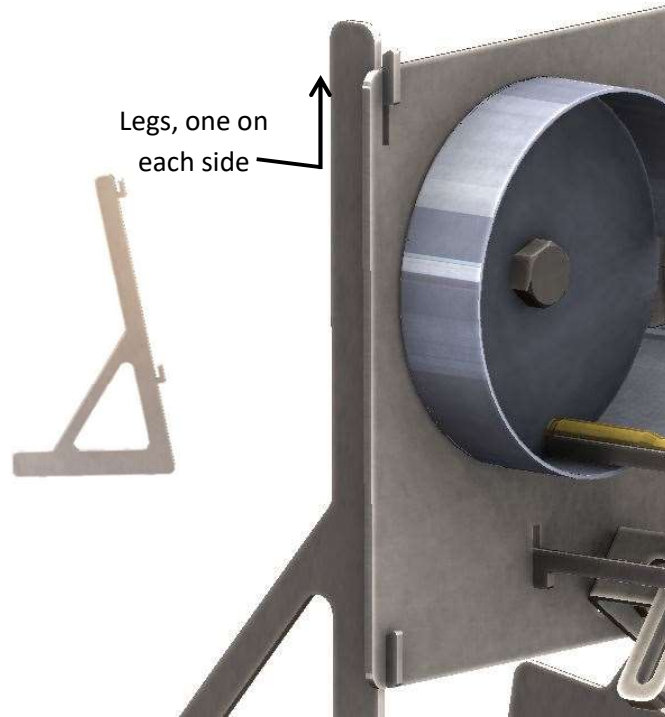
ANNEALING MACHINE



ASSEMBLING YOUR ECHO ANNEALING MACHINE

CONGRATULATIONS! THE ECHO MACHINE IS DELIVERED TO YOU ALMOST TOTALLY ASSEMBLED. ALL YOU HAVE TO DO IS FIX THE LEGS, INSTALL THE STOPPER AND PLUG IT INTO A 110AC SOURCE. YOU WILL NEED A STANDARD PROPANE TORCH, AVAILABLE AT ANY HARDWARE STORE.

TO INSTALL THE LEGS AND STOPPER, REFER TO THE IMAGES BELOW.

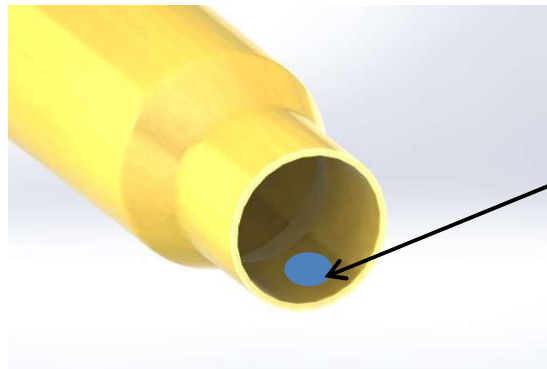


QUICK START

BRASS SHOULD BE EMPTY, WITH NO "LIVE" PRIMER, PREFERABLY REMOVED (TO HELP DRAIN AND DRY THEM). DO NOT STORE POWDER, PRIMER, OR ANY OTHER FLAMMABLE MATERIAL NEAR YOUR ANNEALING AREA.

IT MAY BE HELPFUL TO USE BAD BRASS TO FAMILIARIZE YOURSELF WITH THE FLAME AND SPEED ADJUSTMENTS OF THE DRUM FOR THE FIRST FEW TIMES, BEFORE USING YOUR GOOD BRASS. A BRASS THAT IS OVERHEATED IS NO LONGER GOOD AND MUST NOT BE RELOADED AND USED ANYMORE, BUT A BRASS THAT HAS NOT BEEN HEATED SUFFICIENTLY CAN BE RE-ANNEALED WITHOUT ANY PROBLEM. IT IS THEREFORE WISE TO START WITH A HIGHER DRUM SPEED AND GRADUALLY REDUCE IT TO REACH THE CORRECT TEMPERATURE. YOU CAN RE-ANNEAL THE BRASS THAT HAS NOT BEEN HEATED ENOUGH WHEN THEY HAD TO COOL DOWN COMPLETELY.

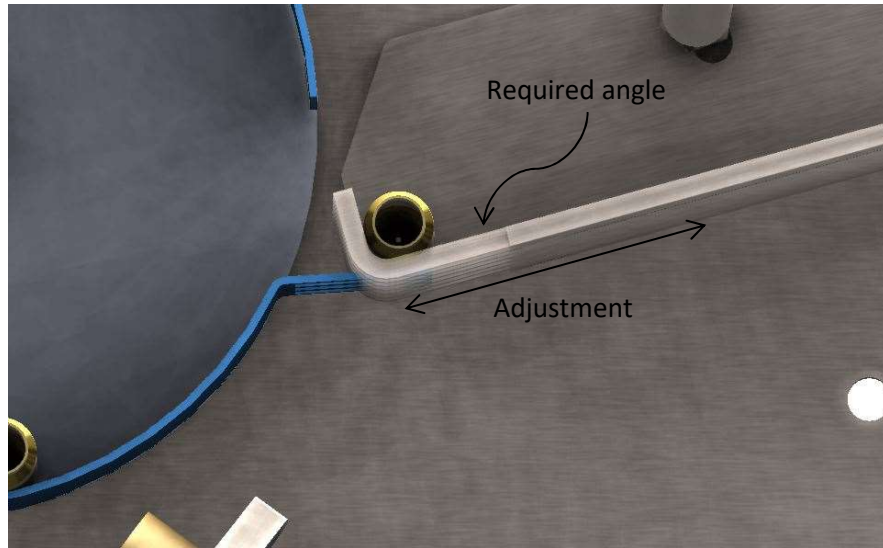
PREPARE IN ADVANCE BETWEEN 5 AND 10 BRASS WITH ONE OR TWO DROPS OF TEMPILAC INSIDE THE NECK. THE FIRST ONES WILL BE USED TO CALIBRATE THE HEATING TIME, AND THE OTHERS TO ENSURE THAT THE HEATING TIME REMAINS CORRECT THROUGHOUT THE BATCH, IDEALLY ONCE EVERY 10-15 BRASS APPROXIMATELY. THE TEMPILAC MUST BE DRY BEFORE THE BRASSES ARE HEATED TO BE EFFECTIVE.



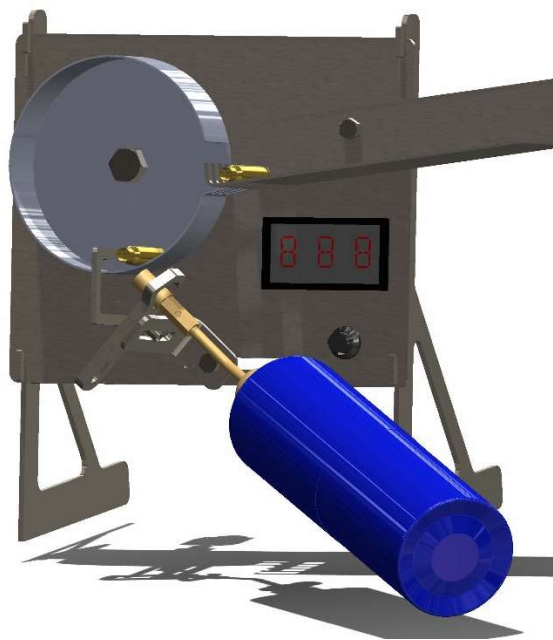
Tempilac applied inside the neck, ideally two drops on opposite sides

IT IS RECOMMENDED TO START THE MACHINE IN ADVANCE AND LET IT TURN EMPTY FOR ABOUT 1 TO 2 MINUTES FOR THE GEAR MOTOR TO WARM UP, THIS HELPS TO HAVE A VERY CONSTANT SPEED.

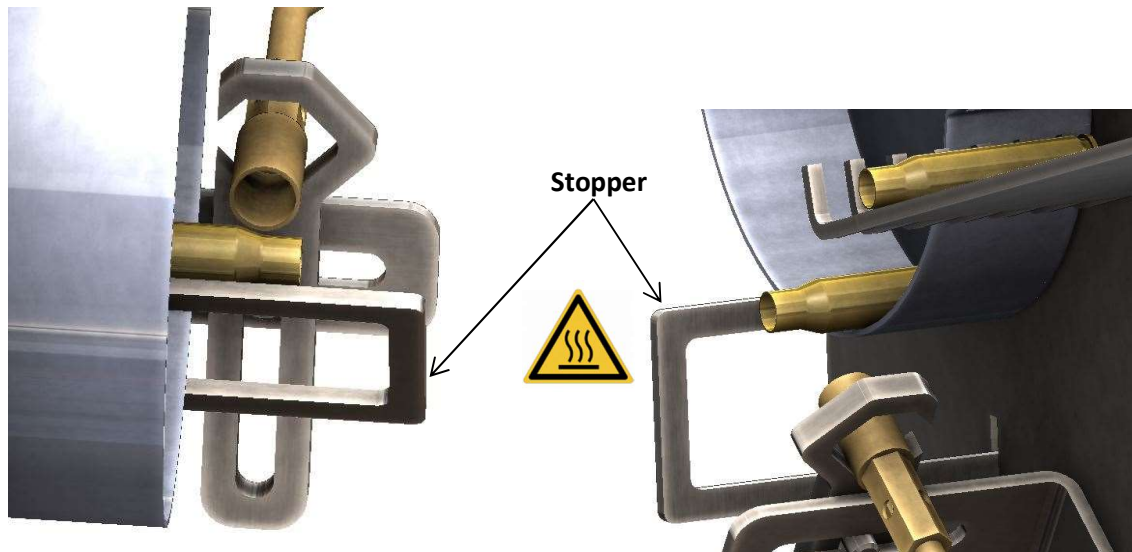
ADJUST THE BRASS CHUTE SO THAT THE DRUM FINGERS PICK UP ONLY ONE BRASS AT A TIME (THE ECHO MACHINE HAS BEEN PREVIOUSLY ADJUSTED FOR 308WIN PARENT CASES). THE FINGERS SHOULD NOT TOUCH THE SECOND BRASS IN THE ACCUMULATION. TIGHTEN THE SCREW THAT HOLDS THE CHUTE TIGHT SO THAT IT DOES NOT ACCIDENTALLY MOVE DURING USE. (7/16 WRENCH)



INSTALL THE TORCH IN THE HOLDER. NOTE THAT THE TANK ITSELF IS PROBABLY AS HEAVY AS YOUR ECHO ANNEALER, SO POSITION IT SO THAT THE TORCH BASE IS RESTING ON THE TABLE IN A WAY THAT THE MACHINE REMAINS STABLE, AND THE TORCH POINTED TOWARDS THE NECK PORTION OF THE BRASS.



ADJUST THE FLAME SO THAT THE NECK AND THE SHOULDER ARE HEATED, AS SHOWN BELOW. AVOID DIRECTING THE FLAME ON THE DRUM. **WARNING!** THE STOPPER WILL BECOME VERY HOT DURING THE ANNEALING, DO NOT TOUCH IT!



IT IS BETTER TO ADJUST THE FLAME JUST A TAD LOWER THAN ITS GREATEST INTENSITY; THIS IS HOW ITS HEAT IS MOST CONSISTENT (THAT WAY THE PRESSURE VARIATIONS OF THE THANK WILL HAVE A LOWER IMPACT ON THE AMOUNT OF THE GAS RELEASED, THUS KEEPING THE FLAME TEMPERATURE MORE STABLE). IT IS BEST TO ADJUST THE ANNEALING TEMPERATURE WITH THE DRUM SPEED RATHER THAN ADJUSTING THE FLAME INTENSITY. WE HAVE NOTICED THAT THE TEMPERATURE VARIES MUCH LESS WHEN THE FLAME IS AT NEAR MAXIMUM AND THAT THE SPEED OF THE DRUM IS ADJUSTED ACCORDINGLY. IF THE FLAME VARIES DURING USE, YOU WILL NEED TO REPEAT THE TESTS PROCEDURE WITH SOME TEMPILAG TO MAKE SURE THAT THE TEMPERATURE AND SPEED OF THE DRUM IS STILL ADEQUATE. BEWARE OF ALMOST EMPTY PROPANE TANKS...

START BY ADJUSTING THE SPEED OF THE DRUM TO THE FASTEST, AND TEST ANNEALING A BRASS WITH TEMPILAC. IF THE TEMPILAC HAS NOT MELTED, THE TIME IS NOT LONG ENOUGH TO REACH THE TEMPERATURE OF 750F, SO REDUCE THE SPEED OF THE DRUM.

REPEAT THE TEST UNTIL THE TEMPILAC BECOMES LIQUID JUST BEFORE THE BRASS FALLS OUT OF THE DRUM. YOU WILL THEN HAVE FOUND THE RIGHT SPEED ADJUSTMENT TO REACH THE CORRECT TEMPERATURE. **YOU CAN NOT VALIDATE A CORRECT ANNEALING OF A BRASS ONLY BY ITS DISCOLORATION.** DISCOLORATION VARIES BETWEEN BRASS MANUFACTURERS WHEN EXPOSED TO THE SAME TEMPERATURE/TIME. SOME WILL BE DISCOLORED A LOT BY THE ANNEALING PROCESS, AND OTHERS ARE BARELY DISCOLORED.

VALIDATE YOUR ADJUSTMENTS REGULARLY, ESPECIALLY IF YOU CHANGE YOUR LOT AND / OR MANUFACTURERS. IF THE NECK OF THE BRASS IS THICKER OR THINNER, IT WILL AFFECT THE TIME REQUIRED TO REACH THE CORRECT TEMPERATURE.

LET THE DRUM COOL DOWN AFTER A BATCH OF 100 BRASS TO ANNEAL. TURN OFF THE FLAME AND WAIT FOR THE DRUM TO COOL DOWN TO AVOID DAMAGING THE DRUM'S BUSHING OR GEAR MOTOR.

WHILE IT'S NOT MANDATORY, IT IS RECOMMENDED TO DROP THE BRASS INTO A BOWL OF WATER, TO COOL THE BRASS QUICKLY AND THUS AVOID CHANGING THE PROPERTIES OF THE LOWER PARTS OF THE BODY'S BRASS. NEVER HEAT THE BODY OF A BRASS. THE BODY OF A BRASS IS TREATED DIFFERENTLY TO ENSURE GOOD RESISTANCE AGAINST THE HIGH PRESSURE DURING THE FIRING, FOR THE SAFETY OF THE SHOOTER. THROW AWAY A BRASS THAT ITS BODY COULD HAVE BEEN HEATED TOO MUCH (OVER 400F).



FOR ANY QUESTIONS, DON'T HESITATE TO CONTACT US!

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