



EMERSONTM

Original Instructions
DCM00052 - REV. 03



Ultraseal 20 EX Actuator

Instruction Manual

Branson Ultrasonics Corp.
120 Park Ridge Road
Brookfield, CT 06804
(203) 796-0400
<http://www.bransonultrasonics.com>

BRANSON



Table of Contents

Chapter 1: Ultraseal 20 EX Actuator

1.1	Mechanical Actuator Specifications	2
1.2	Ultrasonic Stack Assembly	3
1.3	Explosion Proof Protection System	7
1.4	Tool Gap Requirements	9
1.5	Setting Weld Height Proximity Switch	13
1.6	Ultrasonic Stack Disassembly	15
1.7	Ultrasonic Stack Assembly	16
1.8	Ultraseal 20 Tool Kit BOM	17
1.9	Ultraseal 20 EX Actuator BOM	18
1.10	File Attachments	22



List of Figures

Chapter 1: Ultraseal 20 EX Actuator

Figure 1.1	Ultraseal 20 EX Actuator	2
Figure 1.2	Ultrasonic Stack Assembly	3
Figure 1.3	Horn with a Tip	4
Figure 1.4	Tooling Setup, Rotation and Replacement.	9
Figure 1.5	Cutting Gap	11
Figure 1.6	Crash Gap	11
Figure 1.7	Stack feeler gage positioning	12
Figure 1.8	Setting Weld Height Proximity Switch	13



List of Tables

Chapter 1: Ultraseal 20 EX Actuator

Table 1.1	Specifications Ultraseal 20 EX	2
Table 1.2	Ultrasonic Stack Assembly	3
Table 1.3	Start point reference for various tube sizes.	6
Table 1.4	MTS-20 TOOLKIT BOM	17
Table 1.5	G7A00000 ACTUATOR MTS-20 EX TOUCHSCREEN (BOM BY SUB ASSEMBLY)	18
Table 1.6	File Attachments	22



Chapter 1: Ultraseal 20 EX Actuator

1.1	Mechanical Actuator Specifications	2
1.2	Ultrasonic Stack Assembly	3
1.3	Explosion Proof Protection System	7
1.4	Tool Gap Requirements	9
1.5	Setting Weld Height Proximity Switch	13
1.6	Ultrasonic Stack Disassembly.	15
1.7	Ultrasonic Stack Assembly	16
1.8	Ultraseal 20 Tool Kit BOM.	17
1.9	Ultraseal 20 EX Actuator BOM	18
1.10	File Attachments.	22

1.1 Mechanical Actuator Specifications

The ULTRASEAL 20 EX system is comprised of a controller and mechanical actuator. The mechanical actuator is the subject of this Instruction Set. It rigidly holds the converter and horn assembly known as the ultrasonic stack ([Figure 1.2 Ultrasonic Stack Assembly](#)). A pneumatic cylinder drives the anvil towards the horn to apply precise pressure to the tube being sealed. The application tooling (i.e. anvil & replaceable tip) is designed for easy replacement.

Figure 1.1 Ultraseal 20 EX Actuator



Table 1.1 Specifications Ultraseal 20 EX

Specifications	ULTRASEAL 20
Actuator	G7A00000
Length	22.3" (566 mm)
Height	9.7" (246 mm)
Width	3.6" (91 mm)
Weight	26.5 lbs. (12 Kg)
Stroke	0.563" (143 mm)
Tooling Extension (1/2 wave)	5" (127 mm)

1.2 Ultrasonic Stack Assembly

The converter-booster-horn assembly, or ultrasonic stack, is supported by means of two diaphragm springs clamped between a spring retainer and a nut ring. The diaphragm springs are mounted at either end of the booster and are securely bolted to the nut ring and spring retainer.

The diaphragm shaped springs are made from titanium and are acoustically tuned at the 20 kHz operating frequency. This system permits very efficient transmission of ultrasonic vibration along the axis of the ultrasonic stack while providing an extremely rigid mounting.

Figure 1.2 Ultrasonic Stack Assembly

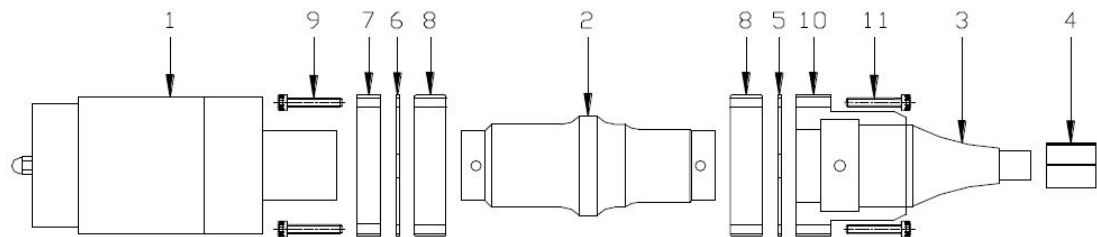


Table 1.2 Ultrasonic Stack Assembly

Item	Description	Item	Description
1	Converter	2	Booster
3	Horn	4	Tip
5	Front Diaphragm Spring	6	Rear Diaphragm Spring
7	Spring Retainer	8	Nut Ring
9	M5 x 20 mm SHCS	10	Nodal Support
11	M5 x 30 mm SHCS		

1.2.1 Converter

The 20 kHz electrical energy from the power supply is applied to the transducer element or converter, which transforms the high frequency electric current into high frequency mechanical vibrations at the same frequency. The heart of the converter is a lead-zirconate-titanate electrostrictive element that, when subjected to an alternating current expands and contracts.

The converter's efficiency of changing electrical energy to mechanical vibrations exceeds ninety-five percent.

1.2.2 Booster

A booster couples the converter to the horn and helps determine the amplitude of vibration produced at the face of the horn. The booster is a resonant half-wave metal

device made of titanium and is designed to resonate at the same frequency as the converter with which it is to be used. A booster has two functions:

- As a rigid mounting for the converter/booster/horn stack and
- As an amplitude-of-vibration increaser as ultrasonic energy is transmitted from the converter through the booster to the horn. The ratio of input to output amplitude is called the gain

1.2.3 Horn

The horn is a half-wave length resonant metal device that transfers the ultrasonic vibrations from the booster to the weld tip. The horn is made of titanium and is designed to resonate at 20 kHz.

The acoustical efficiency of titanium helps to maintain constant amplitude throughout the operating temperature of the welder. Since the horn is a vital part of the ultrasonic assembly system, it should not be altered without proper training and advice from Branson. The horn with a tip ([Figure 1.3](#)), can be rotated or replaced.

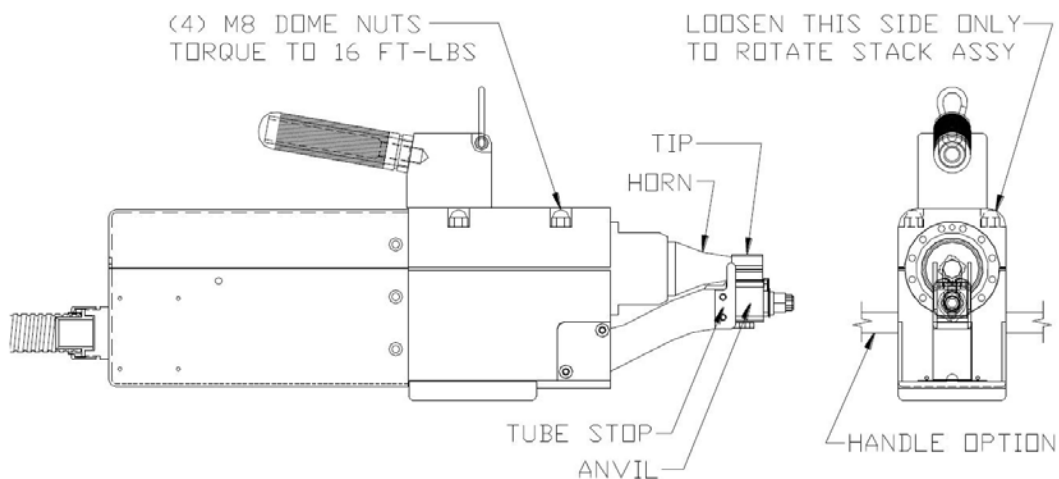
1.2.4 Welding Tip

The welding tip is designed to flatten (crimp) the tube and deliver the ultrasonic vibrations into the bonding area while cutting the tube off just past the sealing point. Replaceable welding tips are fabricated from high-grade tool steel and heat-treated to precise specifications to provide maximum life. The tip is coated to further enhance tool life and provide corrosion resistance.

1.2.5 Actuator

The ultrasonic stack is mounted into a cast aluminum housing. An air cylinder through a linkage to the anvil drives the anvil upwards towards the horn to apply a precise force to the tube being sealed and cut.

Figure 1.3 Horn with a Tip



1.2.6 Anvil

The anvil is made of high grade tool steel and coated for maximum wear and corrosion resistance.

1.2.7 Tube Stop

The tube stop is mounted just behind the anvil and provides a back-stop for positioning of the tube.

1.2.8 Operating Instructions

When properly set up the ULTRASEAL 20 EX System will produce quality seals by simply placing the appropriate tubing against both tube stops and actuating the start switch. Consistent quality tubing is important to maintaining a reliable process. The following material specification is recommended and will produce the most reliable results.

1.2.9 Tube Specifications

Preferred Copper Tube Properties:

Material: C12200.

Cu%: 99.9 (min).

P%: 0.015-0.040.

Total Bi, Pb, P content %: Not to exceed 0.10.

The material should conform to ASTM B 280-88 or 95A.

Temper:

"O" Soft annealed to 50-60.

Tensile strength 17,000 psi.

Yield Strength 11,000-13,000 psi.

% Elongation 40-50.

Grain size 0.1 micron max.

Hardness, Rockwell 15T scale 42-46.

The tube should be free from cracks or tears on the outer surface when bent 180° around a plate with thickness 1.5 times the I.D. of the tube.

The tube should be free from excessive porosity or grain boundary inherent to hydrogen embrittlement or physical structure indicating any segregation of grain boundary, when subject to the following:

Tubing shall be heated at 850 +/- 25° C for 30 minutes in a hydrogen environment. It may be etched with FeCl₃ if necessary.

The location of the weld should ideally be at least 3" (75mm) away from any brazed joint in the refrigeration system. This will minimize the effect of the heat hardening and oxidation which takes place during brazing.

1.2.10 Seal Parameters

To obtain quality seals each and every time, the correct combination of weld parameter settings must be developed. These parameters include:

- Height (mm)
- Trigger Pressure ("Force", psi/bar)
- Weld Pressure, Pressure During Sonics (psi/bar)
- Amplitude (Microns)
- Energy (Joules)
- Time (Seconds)

- Power (Watts)
- Seal Height (mm)

Table 1.3 Start point reference for various tube sizes

Tube Size	Wall Thickness	Seal Height	Weld = Trigger Pressure	Amplitude	Energy	Time Range	Power
Capillary	.028" .70mm	.030" - .038" .75mm - .95mm	≈ 20 psi	45 – 55 microns	1500 joules	0.25 – 1.75 sec	≈ 600 watts
1/4" 6.4mm O.D.	.028" .70mm	.030" - .038" .75mm - .95mm	≈ 50 psi	50 – 60 microns	2400 joules	0.25 - 1.75 sec	≈ 1500 watts
5/16" 8.0mm O.D.	.028" .70mm	.030" - .038" .75mm- .95mm	≈ 65 psi	50 – 60 microns	3200 joules	0.25 - 1.75 sec	≈ 2200 watts
3/8" 9.5mm O.D.	.028" .70mm	.030" - .038" .75mm - .95mm	≈ 75 psi	55 – 65 microns	4200 joules	0.25 - 1.75 sec	≈ 3200 watts
1/2" 12.7mm O.D.	.028" .70mm	.030" - .038" .75mm - .95mm	≈ 80 psi	60 – 70 microns	7000 joules	0.25 - 2.25 sec	≈ 4000 watts

For all tube sizes:

Squeeze Time: 0.25 sec

Hold Time: 0.30 sec

Pre Height min/max: 1.5mm – 15 mm


Height min/max: 0.5mm- 15mm

1.3 Explosion Proof Protection System


1.3.1 "EX" Overview

When the air supply to the controller is open, a continual flow of air will purge the actuator.

The actuator is gasket sealed to minimize uncontrolled leakage from it and is designed to have controlled air flow and venting. The sealed actuator assembly allows purge air to pressurize it. This positive pressure does not allow intrusion of outside air or gases from the working environment to enter the actuator. An air pressure switch (self bleed/decay type) located in the controller is connected to feedback air line and continuously monitors air pressure in the actuator. An internal circuit in the controller verifies closure of the air pressure switch before the system power can be turned on. In addition, the circuit will shut system power if pressure inside the actuator falls below a set pressure point.

NOTICE	
	The removal, disabling or modification of the pressure monitoring system will void any "EX" certification.

1.3.2 Installation Requirements for the Ultraseal 20 EX

NOTICE	
	Be aware of any external effects and/or aggressive substances the equipment might be subjected to while in service.

- The controller must be located away from the "EX" environment in an area which is not considered a hazardous zone and is not therefore subject to "EX" regulations.
- The Branson supplied environmentally sealed electrical/air harness must be used to connect the actuator to the controller.
- Clean, dry air must be supplied to the controller at a minimum pressure of 80 psi and filtered to 5 microns or less.
- The air supply line must be equipped with a manual shut off valve which is located close to the controller.

1.3.3 Basic Start Up Procedure

- Turn air supply to the controller on. The actuator will immediately start to purge and pressurize with air supplied from the controller.

- After allowing the air supply to purge for at least 43 seconds, press the main power switch located on the front of the controller.
- Once the system power is on, close the main air supply. If the "EX" safety system is working properly, the system will power down within several seconds as the actuator purge pressure drops below the preset safety level.
- If the system does not power down once the air supply is turned off do not attempt to operate the actuator in an "EX" environment. Contact Branson service department immediately.
- If the system shuts down when the main air supply is closed the "EX" safety interlock is working properly. Open the air supply and restart the system.

1.3.4 Avoiding An Overload Condition

It is possible to increase the Amplitude and/or the Pressure to a point where the power available is not adequate to initiate or maintain vibration under the given mechanical load. At this point, the power supply will stall resulting in an Overload condition. Electronic circuits in the system will protect the power supply if this condition exists.

1.3.5 Air Purging of the Tooling

The actuator is equipped with a system to supply compressed air to the tube and the tooling during the weld, to expel any ambient gas and cool the tooling. The air is set to come on at the beginning of the weld cycle and remain on for 30 seconds after the weld is finished. Although the cooling parameters are adjustable through the touchscreen controller the above parameters should be maintained.

1.3.6 Periodic Maintenance

In order to maintain optimum operating conditions, it is important to perform various maintenance and equipment inspections at periodic intervals. Please observe the following recommendations in addition to those found in the General Information Instruction Set under Periodic Maintenance.

1.3.7 Recommended Maintenance

Daily:

- Perform pressure switch safety test as outlined in [1.3.3 Basic Start Up Procedure](#).
- Check cut gap ([Figure 1.5 Cutting Gap](#)).
- Check crash gap ([Figure 1.6 Crash Gap](#)).
- Perform Height Encoder Zero Set. See [1.5.1 Height Encoder Zero Set](#).
- Check weld parameters energy, height, and time.
- Inspect and clean tooling. Look for excessive wear, chips, or cracking. If found, tooling should be rotated and the stack should be re-tuned. If the stack cannot be tuned, the tip should be replaced. This will prevent poor sealing in production.
- Measure the final weld thickness of sample parts to determine if they are within predetermined tolerance range. Adjust proximity switch as necessary to achieve final weld thickness. See [1.5 Setting Weld Height Proximity Switch](#).

Once a Month:

- Inspect all cables and connections for any twisting or stress on the connectors.

Every Three Months:

- Service stack. Disassemble, clean interfaces and re-assemble Tightening to the proper torque.

1.4 Tool Gap Requirements

Tooling includes the Horn, Tip, Anvil and all surfaces that contact the tube to be sealed during processing. The tooling should be inspected to confirm a proper gap. If the tooling is in contact during the application of ultrasonic energy, severe damage may result to the tooling and power supply.


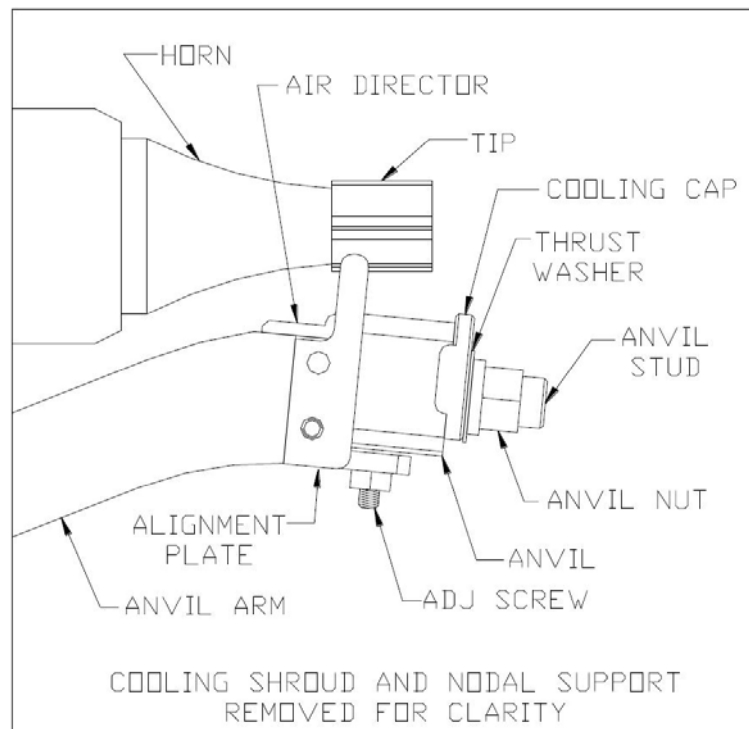
NOTICE	
	<p>Check the tool gap whenever tooling is changed or whenever tool contact is suspected.</p>


Figure 1.4 Tooling Setup, Rotation and Replacement



1.4.1 Tooling Setup, Rotation and Replacement

See [Figure 1.4](#).

For best performance, rotate tooling each 5,000 cycles.

NOTICE	
	Replace or Maintain Anvil First.

1.4.1.1 Anvil Replacement

- Power OFF.
- Remove anvil nut, thrust washers, cooling cap, and anvil.
- Remove air deflection plate and wipe off any excess copper dust, oil, etc.
- Replace deflection plate, new anvil, cooling cap, thrust washers and anvil nut.
- Set up anvil per “Anvil Rotation” below.

1.4.1.2 Anvil Rotation

- Remove anvil nut and thrust washers.
- Flip anvil over and orient the cutting edge to the desired side.
- Ensure that air deflection plate located behind anvil is down as far as possible.
- Replace thrust washers and anvil nut.
- Set cut and crash gap as described in [1.4.2 Horn Tip Rotation](#).
- Torque anvil nut to 60 ft. lbs.

1.4.1.3 Horn Tip Replacement

- Power OFF.
- Remove the sealing tip using the tip adapter wrench included in the tool kit.
- Clean the horn/tip interface removing any copper residue, oil, etc.
- Apply a small amount of anti-seize compound to the horn threads.
- Replace and torque the tip to 70 ft-lbs using the tip adapter wrench. Verify cutting edge orientation.
- Set cut and crash gap as described in [1.4.2 Horn Tip Rotation](#).

Figure 1.5 Cutting Gap

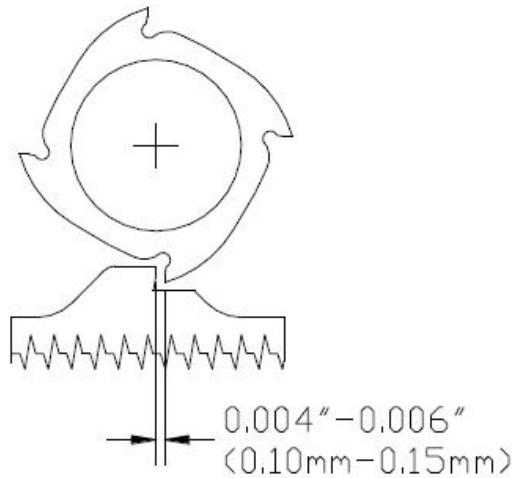
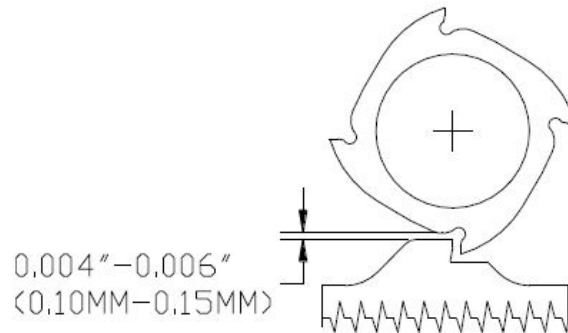


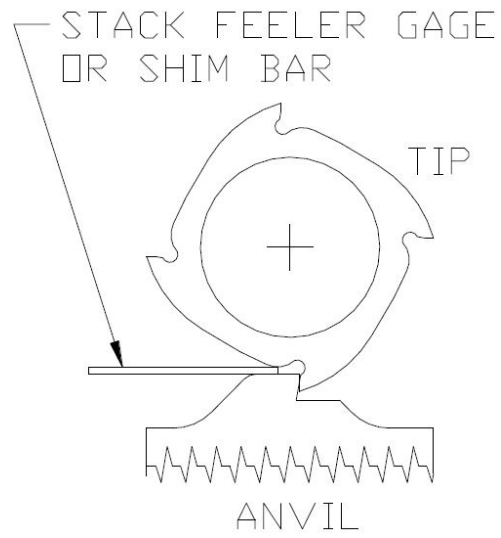
Figure 1.6 Crash Gap



1.4.2 Horn Tip Rotation

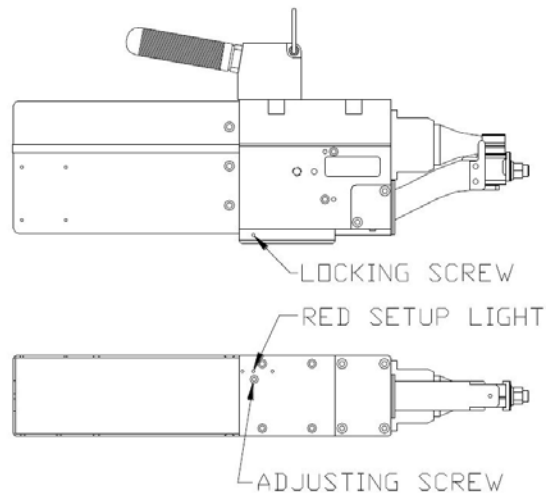
- Note tooling orientation before removing.
- Power ON.
- Loosen the anvil nut and 6mm jam nut. Turn the set screw counter-clockwise to lower the anvil.
- Loosen two 13mm jam nuts located on right side of handle assembly.
- Raise anvil (step reference Menu> Maintain> Anvil)
- Rotate horn tip to a new lobe and raise the anvil into position so that cut gap can be temporarily set to between .004" and .006" (.10mm - .15mm).
- Torque the two right 13mm dome nuts to 16 ft-lbs.
- Set the crash gap between .004" and .006" (.10mm - .15mm) and torque anvil nut to 60 ft-lbs.
- Loosen the two right 13mm dome nuts and rotate the horn tip. Set a .004" to .006" (.10mm - .15mm) cut gap, and torque the loose dome nuts to 16 ft-lbs.
- Perform Height Encoder Zero Set. See [1.5.1 Height Encoder Zero Set](#).
- Verify weld height prox switch is set correctly and readjust if necessary. See [1.5 Setting Weld Height Proximity Switch](#).

Figure 1.7 Stack feeler gage positioning



1.5 Setting Weld Height Proximity Switch

Figure 1.8 Setting Weld Height Proximity Switch



Tools Required-2mm Allen wrench, 2.5mm Allen wrench, Feeler gauge set, Dial caliper
 Parameter Settings- System must be setup to run in the energy mode.

The preheight and height are used for quality monitoring. Refer to Touchscreen Controller Instruction Set portion of this manual for more information.

- Turn system on its right side (tooling facing toward you).
- Set/Stack feeler gage to final seal height target as required (recommended starting height target = 1.0-1.2 times tubing single wall thickness).
- Carefully position feeler gage stack into tooling ([Figure 1.7](#)).
- Raise the anvil (step reference- Menu> Maintain> Anvil) to contact feeler gage stack.
- Loosen lock set screw on side of bottom plate ([Figure 1.8](#)).
- Carefully adjust prox switch screw on bottom plate until height switch "Red Light" illuminates.
- Tighten prox switch lock set screw on side of bottom plate ([Figure 1.8](#)).
- Lower the anvil (step reference- Anvil).
- Verify that setting is correct via a GO/NO GO check.
- "GO" = Feeler gage height (1.0-1.2 times tubing single wall thickness) - (.05mm).
- "NO GO" = Feeler gage height (1.0-1.2 times tubing single wall thickness) + (.05mm).
- Carefully position "GO" gage in tooling ([Figure 1.7](#)).
- Raise the anvil (step reference- Anvil) to contact feeler gage stack.
- Height switch (Red light) should illuminate. If not, lower the anvil (step reference-Anvil), remove "GO" gage and repeat setting procedure.
- Lower the anvil (step reference- Anvil).
- Carefully position "NO GO" gage in tooling ([Figure 1.7](#)).
- Raise the anvil (step reference- Anvil) to contact feeler gage stack.
- Height switch (Red light) should not illuminate. If illuminated, lower the anvil (step reference- Anvil), remove "NO GO" gage and repeat setting procedure.
- Lower the anvil (step reference- Anvil).
- Store all gages.
- Turn system upright.
- Return to run mode (step reference- Exit> Exit).
- Produces samples, evaluate sealed tube final height and test as required. Repeat this procedure as necessary.

1.5.1 Height Encoder Zero Set

To be performed when horn or anvil tooling is removed, rotated, adjusted.

- Read all steps completely and exercise CAUTION as tooling moves during the calibration process.
- Position 1mm thick gage between the horn and anvil ([Figure 1.7](#)). Insure that fingers are not positioned within tooling zone.
- Raise anvil (step reference- Menu> Maintain> Height> Anvil)
- Visually insure that 1mm (.0395”) gage is parallel between tip and anvil. If not, lower the anvil (step reference- Anvil) and repeat procedure. If parallel, continue.
- Perform calibration (step reference- Calibration) System force will adjust and data will be processed for approx. 5 seconds. Upon completion horn returns to home, releasing the gage.
- Exit to Run Mode (step reference- Exit> Exit).

1.6 Ultrasonic Stack Disassembly


The transmission of ultrasonic energy along the stack requires a tight and clean interface between the Converter, Booster, Diaphragm Springs and Horn.

Remove the stack and check the interfaces after one million cycles or whenever a problem is suspected. The procedure is as follows:

- Be sure that power supply is off to prevent any possible electrical shock from the high voltage contact on the converter.
- Remove three screws from the back cover.
- Remove the four dome nuts on the handle/ main housing top.
- Clamp the ULTRASEAL 20 EX in a soft-jawed vise, and using the spanner wrench, unscrew the horn from the stack.
- Remove the remaining parts of the ultrasonic stack from the actuator body.
- Remove the two sets of M5 X 20 mm bolts from the two polar mount clamp rings and remove the polar mount clamp rings.
- The converter can now be removed from the booster by placing one spanner wrench on the converter and one on the booster and turning in opposite directions.
- The stack is now disassembled into three main components.
- The Ultrasonic Horn.
- The Booster.
- The Converter.
- The reassembly of the ultrasonic stack is the reverse of this procedure. A torque of 85 ft-lbs is required for the threaded connections between the horn and booster and 55 ft-lbs between the booster and converter.

1.7 Ultrasonic Stack Assembly

- Be sure that the mating surfaces of the horn, booster, and converter are clean and smooth. Any minor scratches or discolorations can be polished away using Scotch Bright or 600 grit emery or similar mild abrasive pads. Any gouges, scratches, or chips in any place on any of the stack components should be analyzed by Branson personnel.

NOTICE	
	Never use emery less than 600 grit, sandpaper, harsh abrasives, grinding equipment, engraving equipment, or debossing equipment on the stack components. This can cause severe damage to the machine.

- Spread an EXTREMELY thin film of silicone lubricant (Branson P/N 101-053-002) across the mating surfaces of the horn, booster, and the converter.
- Hand tighten the converter and horn to the booster. (Make sure that the front and rear diaphragm springs, the polar mount clamp rings and the nut rings are in place).
- If the ULTRASEAL 20 welder is not available to use as a polar mount clamp, then clamp the stack in a padded vise. (Clamping should be done on the back section of the horn which is approximately 2 inches (50.8mm) in diameter. A moderate clamping force is all that is necessary for this procedure).
- Insert the 1/2" drive torque wrench into the square hole in the spanner wrench, adapter (Branson P/N 48000-03-011).
- Set the torque of the wrench to 85 ft-lbs.
- Place the spanner wrench on the booster and apply torque until the wrench clicks once.
- The booster is now properly fastened to the horn.
- Set the torque of the wrench to 55 ft-lbs (75 Newton/Meters).
- Place the spanner wrench on the converter and apply torque until the wrench clicks once.
- Attach the clamp rings to the nut rings with the two sets of 12 (M5 X 20mm) socket head bolts. Torque these bolts to 110 inch pounds (12.4 Newton/Meters).
- The ultrasonic stack is now assembled.

1.7.1 Ultrasonics Testing

Ensure that nothing is touching the tip on all four sides. With the tooling disengaged and unloaded, test the sonics no longer than one second (step reference- Menu> Maintain> Sonic> 100% Test). If there is a loud squealing noise, the problem may be in the following areas:

- The Tip may not be secured properly.
- The Horn may not be secured properly.
- Tooling may be in contact with each other.

1.8 Ultraseal 20 Tool Kit BOM

Table 1.4 MTS-20 TOOLKIT BOM

PART NO	QTY	DESCRIPTION
106-088	2	WRENCH, SPANNER 201-118-019
101-053-002	1	LUBRICANT
211-111	1	WRENCH, 10MM
211-218	1	SOCKET, 13MM DEEP
211-219	1	SOCKET, ADAPTER
211-247	1	WRENCH, ALLEN 3MM
211-248	1	WRENCH, ALLEN 4MM
211-636	1	CANVAS BAG W/BRANSON LOGO
11008-09-001	2	HANDLE, EXTENSION
11008-09-002	1	SOCKET, 5/8" MODIFIED
48000-03-011	1	WRENCH, SPANNER
G4A50A26	2	CUT-OFF CLEARANCE GAGE
G6A00A10-##	1	WRENCH, TIP ASSY
M1A50A45	1	SPACER, 1MM
X3A50325	1	SPACER, 6MM

1.9 Ultraseal 20 EX Actuator BOM

Table 1.5 G7A00000 ACTUATOR MTS-20 EX TOUCHSCREEN (BOM BY SUB ASSEMBLY)

ASSY	QTY	PART NO	QTY	DESCRIPTION
G7A00002	1			HOUSING, MAIN BOTTOM ASSY.
		203-128	4	STUD,SPECIAL M8 X 45 835 10
		204-005	2	BEARING, CUP, TIMKEN #L-215
		209-036	1	PLUG,PARKER 3/8 219P-6
		209-038	1	ELBOW, MALE PARKER #229-4-4
		209-091	1	FTG STR 1/4 NPT x 3/8 TUBE
		209-221	1	FTG UNION 1/4TUBE X 1/4TUBE EA
		G3A50A07	1	NUT,CYLINDER MOD. MTS
		G3A50A20	1	RACEWAY MTS
		G4A50A20	1	CYLINDER, AIR MODIFIED
		G6A50A14	1	PLATE,CYLINDER
		G6A50A93	1	MAIN HOUSING
G7A00005	1			ASSY, HANDLE
		102-106	1	BASE,OPERATOR
		102-111	2	COVER, DUST
		201-077	1	BUSHING,CARR LANE TYPE P
		210-032	1	CARIBINER,
		211-152	2	GRIP,RUBBER HAND,
		211-163	1	PLUG,MCMASTER
		G5A50A07	2	TUBE,GRIP
		G6A50A16	1	BASE,HANDLE
		J1A00043	1	WIRING DIAGRAM,START HANDLE
		J1A00227	1	CABLE,START MTS20 STD.AND E
		102-077R	1	PUSH BUTTON EAO 51-132.025
		102-078R	1	LENS,GREEN EAO 51-933.5
		102-105R	1	LENSE,AMBER
G7A00006	1			ASSY,REAR COVER BOTTOM
		203-228	4	STAND-OFF,M4X10MM MSC 00267
		207-031	2	FTG T FLOW CONTROL OD 1/4 T
		209-007	1	PLUG, PNEUMADYNE, SPG-10

Table 1.5 G7A00000 ACTUATOR MTS-20 EX TOUCHSCREEN (BOM BY SUB ASSEMBLY)

ASSY	QTY	PART NO	QTY	DESCRIPTION
		209-009	1	FITTING BARB PNEUMADYNE SBF
		G6A50A06	1	CAP,STRAIN RELIEF,CONVERTER
		G6A50A07	1	CAP,CONVERTER NON-ROTATING
		G6A50A08	2	SPRING,CONTACT
		G6A50A11	2	PIN,LOCATING CONVERTER CAP
		G7A50006	1	COVER,REAR BOTTOM,EX
		G7A50011-02	1	ASSY,HARNESS MTS-20STD&EX,1
		G7A50019	1	GASKET, BOTTOM
		J1A00053	1	CABLE, BUZZER
		104-256R	1	ALARM, FLOYD BELL XC-06-330
		000-127-027	1	SNAP BUTTON CJ410-5/8
		102-242-632R	1	ASSY AMTECH ACTUATOR INTF B
G7A00003	1			ASSY,CAM BLOCK & ANVIL ARM
		11003-01-043	1	NUT,ANVIL (MOD 5)
		203-467	1	SCREW,HEX HEAD,M4X6MM
		204-027	2	FOLLOWER,ROLLER
		209-070	1	FTG MALE ELB 1/8NPT X1/4TUB
		210-028	2	WASHER,THRUST
		G4A50A09	1	FRAME,HOUSING GUARD MTS
		G4A50A12	1	PIN,CAM BLOCK LOCK-ULTRA 20
		G4A50A21	2	SCREW,LOCK SHAFT
		G5A50019	1	PLATE WASHER MTS
		G5A50A06	1	BLOCK,CAM,15 Deg,Standard
		G6A50A17	1	ARM,ANVIL,STANDARD TOOLING
		G6A50A18	1	DIRECTOR,AIR COOLING
		G6A50A19	1	CAP,COOLING PURGE
		G6A50A40	1	ENCODER,TARGET
		G6A50A73	1	SET SCREW MODIFICATION
		G6A50A79	1	BEARING SHAFT
		G6A50A80	1	BEARING SPACER
		G6A50A81	2	THRUST WASHER, VESPEL
		G6A50A94	1	TARGET, PROXIMITY SWITCH

Table 1.5 G7A00000 ACTUATOR MTS-20 EX TOUCHSCREEN (BOM BY SUB ASSEMBLY)

ASSY	QTY	PART NO	QTY	DESCRIPTION
		203-923	1	BHCS with Through-Hole,M4x6
		210-092	2	WASHER, # 8 SPLIT LOCK
G7A00004	1			ASSY,ACTUATOR
		204-006	2	BEARING,CONE,
		G3A50A09	1	SHAFT,MTS
		G4A50A08	1	PLATE,BEARING COVER MTS RIG
		G4A50A29	1	COVER,BOTTOM FRONT REV 8
		G4A50A30	2	LOCKNUT,MOD. MTS-20
		G4A50A31	1	GUARD,HOUSING
		G4A50A59	1	PLATE,BEARING COVER LEFT
		G6A50A92	1	CLAMP,ENCODER
		101-236R	1	CONN HSG 3X1 100CL REC
		101-237R	3	CRIMP TERMINAL FEM 22-30 AW
		103-088	1	ENCODER,LINEAR,10mm TRAVEL
		G7A50084		SCHEMATIC,ENCODER ASSY WIRI
G7A00007	1			ASSY,PROXIMITY SWITCH
		102-117	1	SWT,Prox PEPPER&FUCHS
		202-033	3	SPRING,COMPRESSION
		203-094	1	SCREW SET, BRASS TIPPED,M4x
		203-129	2	RING RETAINING E 1/8" SST
		204-119	2	RING RETAINING E 3/32" SST
		G6A50A36	1	COVER,BOTTOM REAR
		G6A50A38	2	PLATE,RETAINING
		G6A50A41	2	SHAFT,SWITCH MOUNT
		G6A50A67	1	INSULATOR, PROX SWITCH
		G6A50A82	1	MOUNT,PROX. SWITCH,FINE THR
		G6A50A83	1	SCREW,PROX. ADJ.,FINE THREA
		J1A00054R	1	CABLE, PROX
G7A00008	1			ASSY,FINAL
		203-081	4	WASHER,ZINC PLATED M8
		203-127	4	NUT,M8 DOME
		G3A50A03	2	RING,NUT MTS

Table 1.5 G7A00000 ACTUATOR MTS-20 EX TOUCHSCREEN (BOM BY SUB ASSEMBLY)

ASSY	QTY	PART NO	QTY	DESCRIPTION
		G4A50A54	1	NODAL SUPPORT
		G6A50A04	1	GASKET, END, LOWER
		G6A50A04-01	1	GASKET, END, UPPER
		G6A50A09	1	COVER, REAR TOP
		G6A50A15	1	GASKET, REAR COVER
		G6A50A64	1	STACK, RING
		G7A50017	1	GASKET, SLOT
		G7A50022	1	GASKET, COVER, FRONT
		G7A50028	1	GASKET, STACK
		N5A50A46	1	SPRING, FRONT DIAPHRAGM
		N5A50A47	1	SPRING, REAR DIAPHRAGM
		N5A50A48	1	CLAMP, RING
G6A00A31				ADJUSTMENT GUIDE ASSY
		G6A50A61	2	GUIDE, ADJUSTABLE
		G6A50A62	2	ADJUSTABLE GUIDE, ADAPTER PL
		G6A50A63	2	ADJUSTING PLATE, WASHER PLAT
		G6A50A74	1	COOLING SHROUD, STAINLESS ST

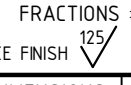

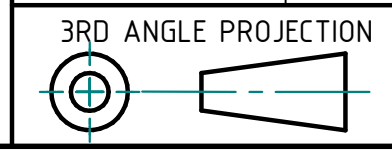
1.10 File Attachments

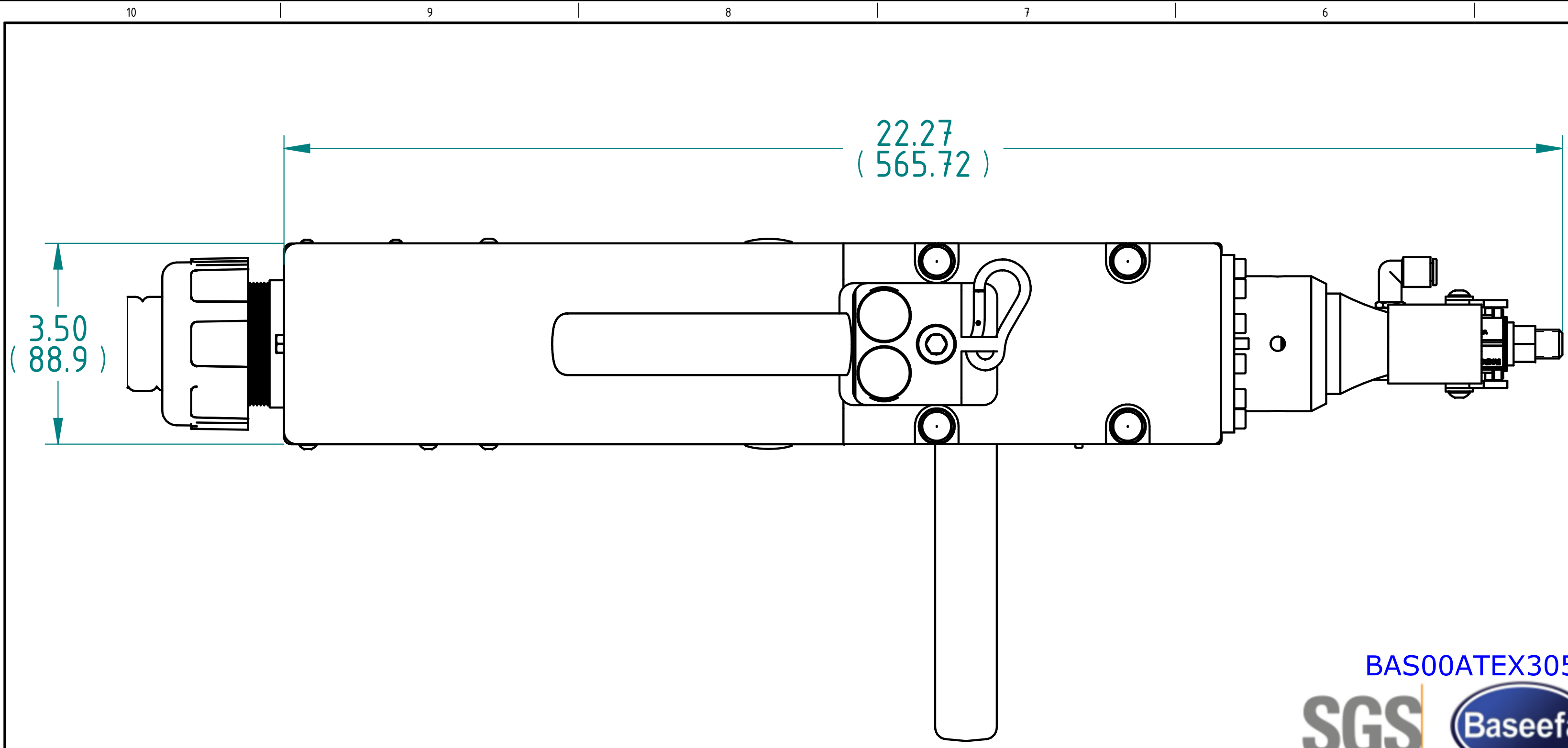
Table 1.6 File Attachments

Description	File
Assembly Drawing MTS20	G7A00000
Purge Shut-Off Circuit	G7A00028
Barrier Circuit	G7A00029
Pressure Area	G7A50001
"EX" Certification	US20EX CERT
Actuator EX Label	G7A50013
Controller EX Label	G7A50014

REVISIONS						
ZONE	REV	DESCRIPTION	DATE	ECN/ECO	DRAWN	APPR.
-	1	INITIAL RELEASE	09/29/2003	-	DDL	-
-	02	CONVERTED TO SOLID EDGE	05/27/2015	-	SB	MGD
A1	03	REMOVED "EX" FROM THE TITLE OF THE DRAWING	08/28/2015	21364	SB	V.DIAZ

Item #	Part #	Description	Qty	Item #	Part #	Description	Qty	Item #	Part #	Description	Qty	Item #	Part #	Description	Qty
1	000 ANVIL	REFERENCE	1	21	G4A50A09	HOUSING GUARD FRAME	1	38	G6A50A07	CONVERTER CAP	1	53	G6A50A40	ENCODER TARGET	1
2	000 BOOSTER	REFERENCE	1	22	G4A50A12	CAM BLOCK LOCK PIN	1	39	G6A50A08	CONTACT SPRING	2	54	G6A50A41	SHAFT, SWITCH MOUNT	2
3	000 HORN	REFERENCE	1					40	G6A50A09	COVER, REAR TOP	1				
4	000 TIP	REFERENCE	1	23	G4A50A20	AIR CYL MOD	1	41	G6A50A10	COVER, REAR BOTTON	1	55	G6A50A51	STUD, M8	4
5	102-117	SENSOR	1												
6	104-256	ALARM	1	25	G4A50A29	COVER, BOTTOM FRONT	1	43	G6A50A14	CYLINDER PLATE	1	57	G6A50A64	STACK RING	1
7	101-135-032E	CONVERTER	1												
8	11003-01-043	TIP NUT	1	27	G4A50A31	HOUSING GUARD	1	45	G6A50A17	ANVIL ARM	1	59	G6A50A67	PROX SWITCH INSUL	1
9	204-005	BEARING	2												
10	204-006	BEARING CONE	2	29	G4A50A54	NODAL SUPPORT	1	47	G6A50A19	CAP, COOLING PURGE	1	61	N5A50A46	FR DIAPHRAGM SPRING	1
11	204-027	BEARING	1												
12	210-028	THRUST WASHER	2	31	G5A50019	WASHER PLATE	1	49	G6A50A35	TARGET, PROX SWITCH	1	63	N5A50A48	SPRING CLAMP	1
13	210-032	CARIBINER	1												
14	211-152	GRIP	1	33	G5A50A06	CAM BLOCK	1	51	G6A50A37	MOUNT, PROX SWITCH	1	65	G6A50100	ADJUSTING PLATE, WASHER PLATE	2
15	G3A50A03	NUT RING	2												
16	G3A50A07	CYL NUT MOD	1	35	G6A50A92	CLAMP, ENCODER	1	36	G5A50A21	MAIN HOUSING	1	37	G6A50A06	CAP STRAIN RELIEF	1
17	G3A90A09	SHAFT	2												
18	G3A50A17-1	ALIGNMENT GUIDES	2	37	G6A50A06	CAP STRAIN RELIEF	1								
19	G3A50A20	RACE WAY	1												
20	G4A50A08	BRG COVER PLATE, RGT	1												

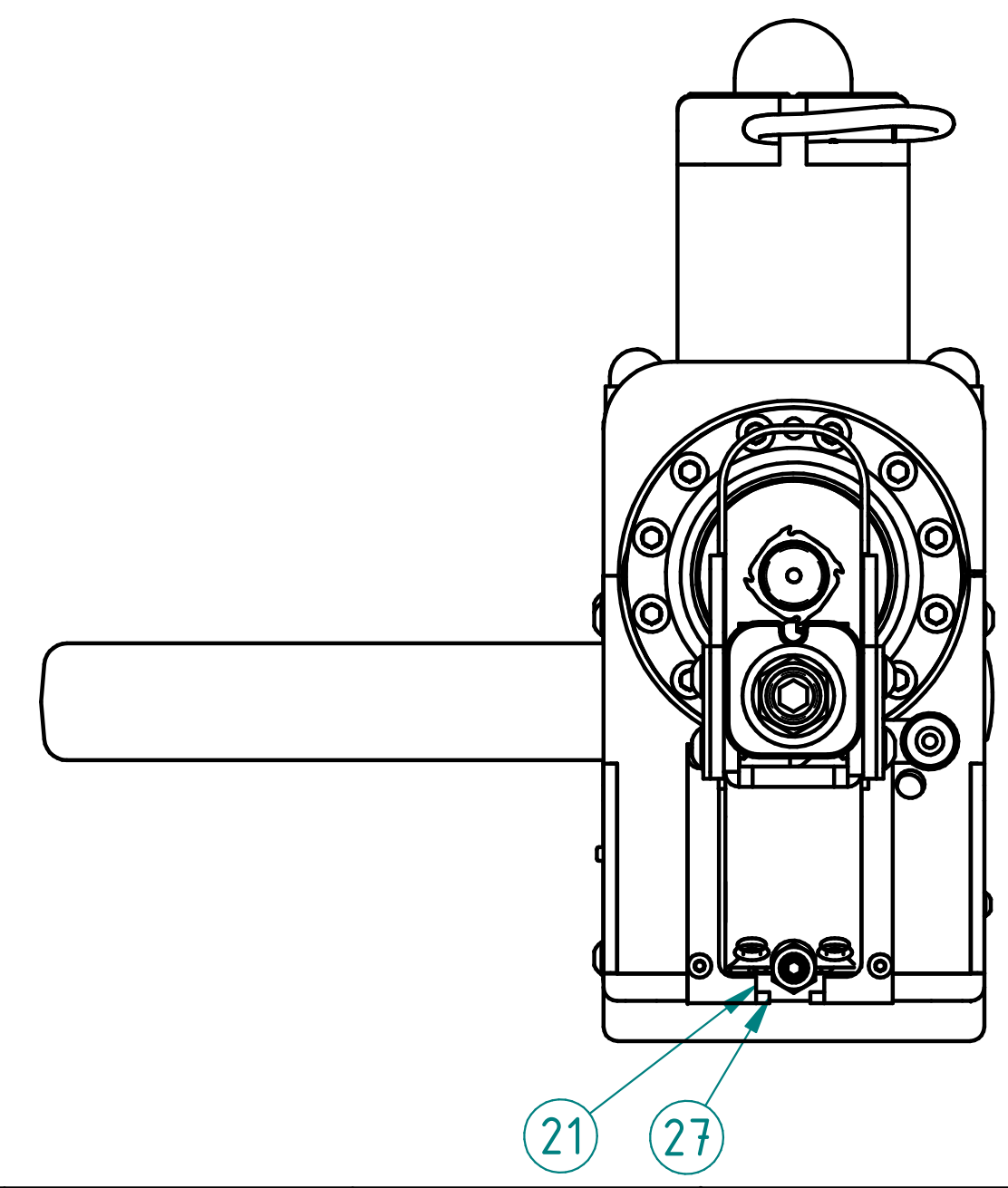
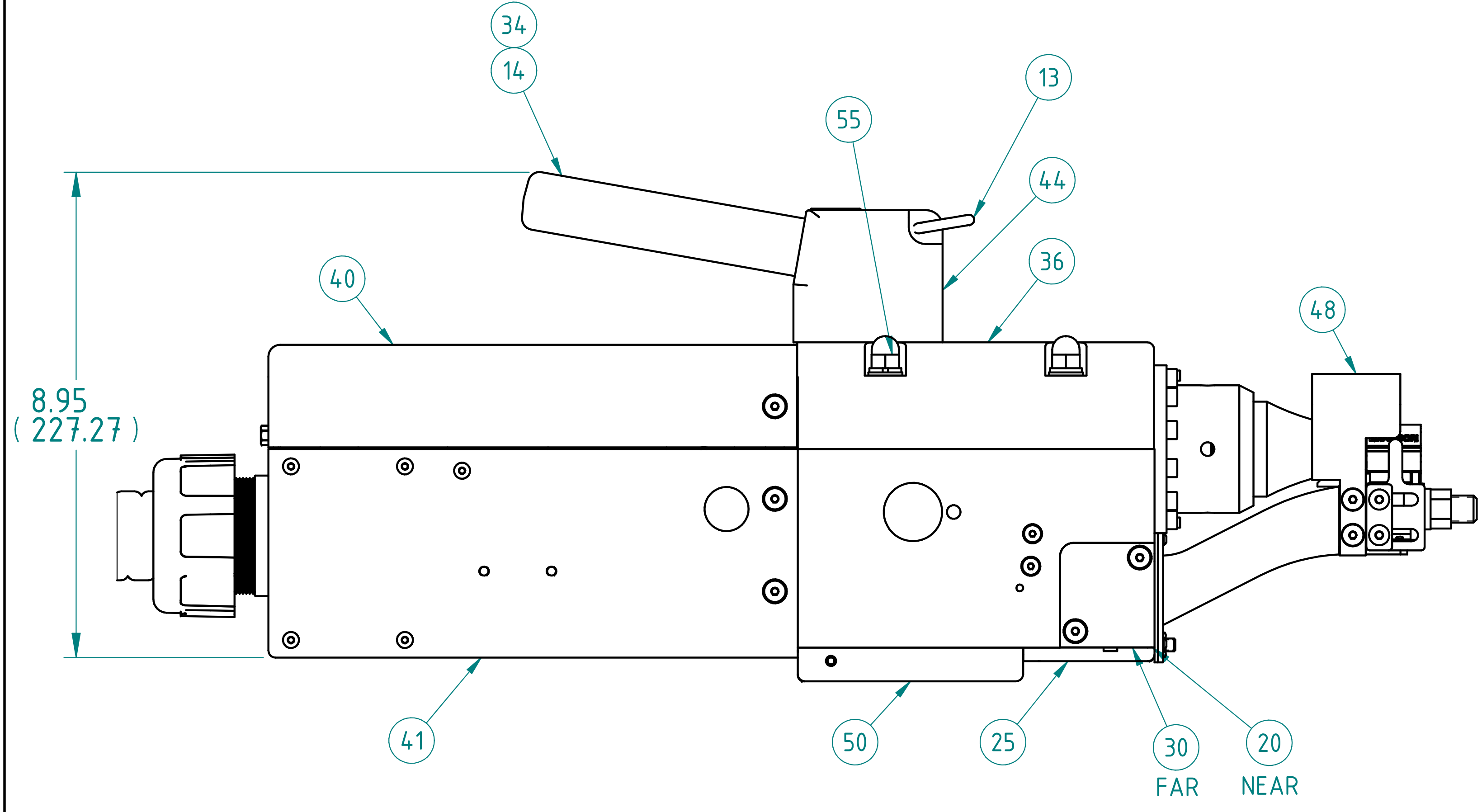
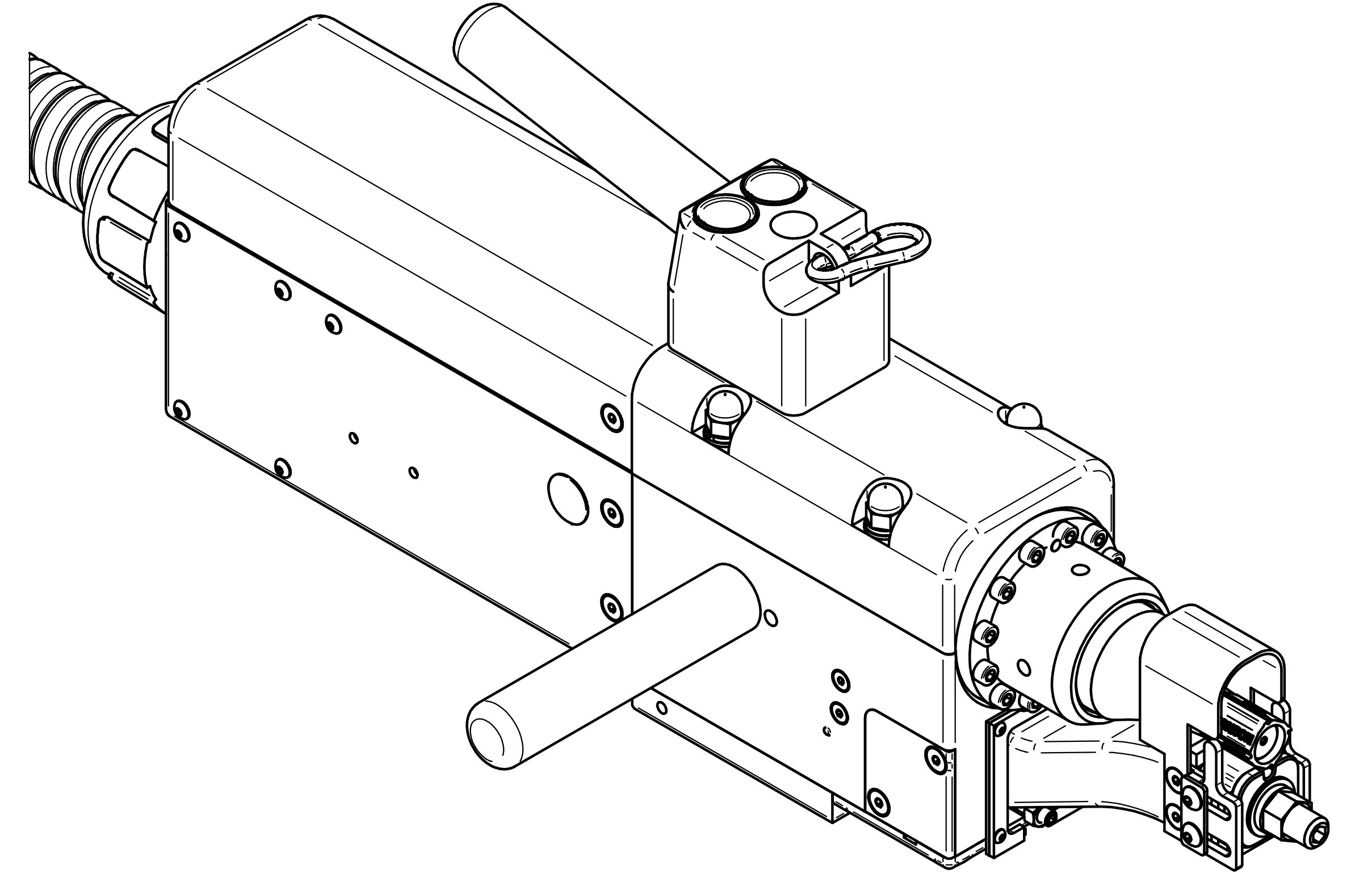
<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND TOLERANCES ARE: 2 PLACE DECIMALS ±.015 3 PLACE DECIMALS ±.005 ANGLES ±1° FRACTIONS ±1/32 SURFACE FINISH: </small>	<small>This PROPRIETARY Document is property of Branson Ultrasonics Corp., Danbury, CT. It is confidential in nature, non-transferable, and issued with the clear understanding that it is not traced or copied without permission and is returnable upon demand.</small>	<small>MATERIAL: None</small>		BRANSON					
				<small>SECONDARY DIMENSIONS ARE PROVIDED FOR REFERENCE ONLY</small>		<small>TITLE ACTUATOR, MTS-20</small>			
				<small>3RD ANGLE PROJECTION</small> 	<small>Article or material must comply with requirements stipulated by RoHS in its current version.</small>	<small>FINISH: NONE</small>	<small>NAME DDL</small>	<small>DATE 09/29/03</small>	<small>REV 03</small>
				<small>SCALE: 1:2</small>	<small>SHEET 1 OF 3</small>	<small>SIZE/DWG NO D G7A00000</small>	<small>REVISIONS</small>	<small>APPR.</small>	



BAS00ATEX3059X/5

SGS **Baseefa** Schedule Drawing

R. Patel
R. Patel



<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND TOLERANCES ARE: 2 PLACE DECIMALS ±0.05 3 PLACE DECIMALS ±0.005 ANGLES ±1° FRACTIONS ±1/32 SURFACE FINISH: </small>	<small>This PROPRIETARY Document is property of Branson Ultrasonics Corp., Danbury, CT. It is confidential in nature, non-transferable, and issued with the clear understanding that it is not traced or copied without permission and is returnable upon demand.</small>		<small>MATERIAL:</small> None			BRANSON			
	<small>SECONDARY DIMENSIONS ARE PROVIDED FOR REFERENCE ONLY</small>		<small>Material Spec.</small> None			<small>NAME</small> DDL	<small>DATE</small> 09/29/03	<small>TITLE</small> ACTUATOR, MTS-20	
	<small>INCHES (MM)</small>		<small>FINISH:</small> NONE			<small>CHECKED</small> 	<small>APPROVED</small> 	<small>SCALE</small> : 1:1.6	<small>SHEET</small> 2 OF 3
	<small>3RD ANGLE PROJECTION</small>		<small>Article or material must comply with requirements stipulated by RoHS in its current version.</small>			<small>FINISH Spec.</small> N/A	<small>SIZE</small> DWG NO D	<small>REV</small> 03	<small>SIZE</small> G7A00000

SOLID EDGE

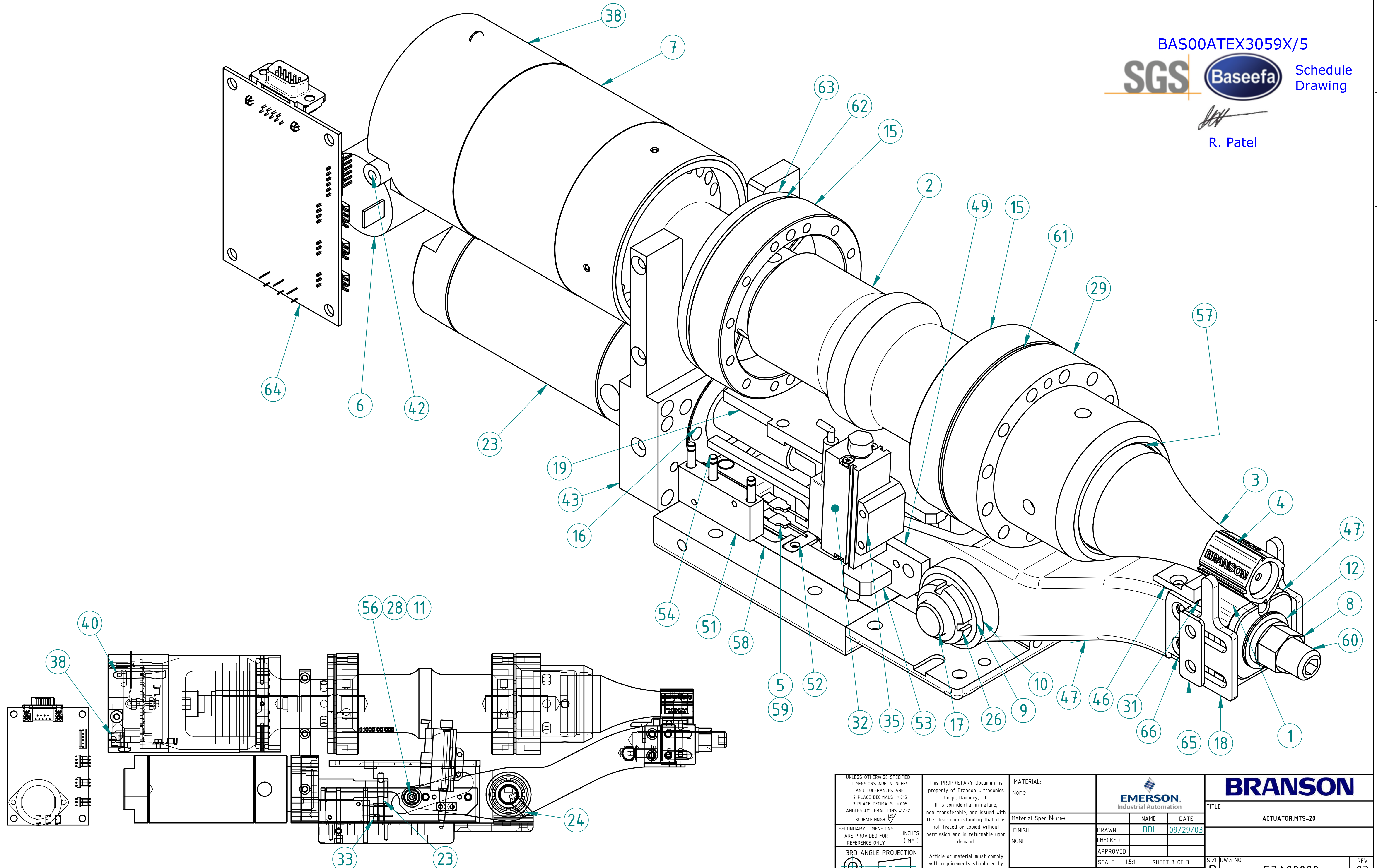
BAS00ATEX3059X/5



Schedule Drawing

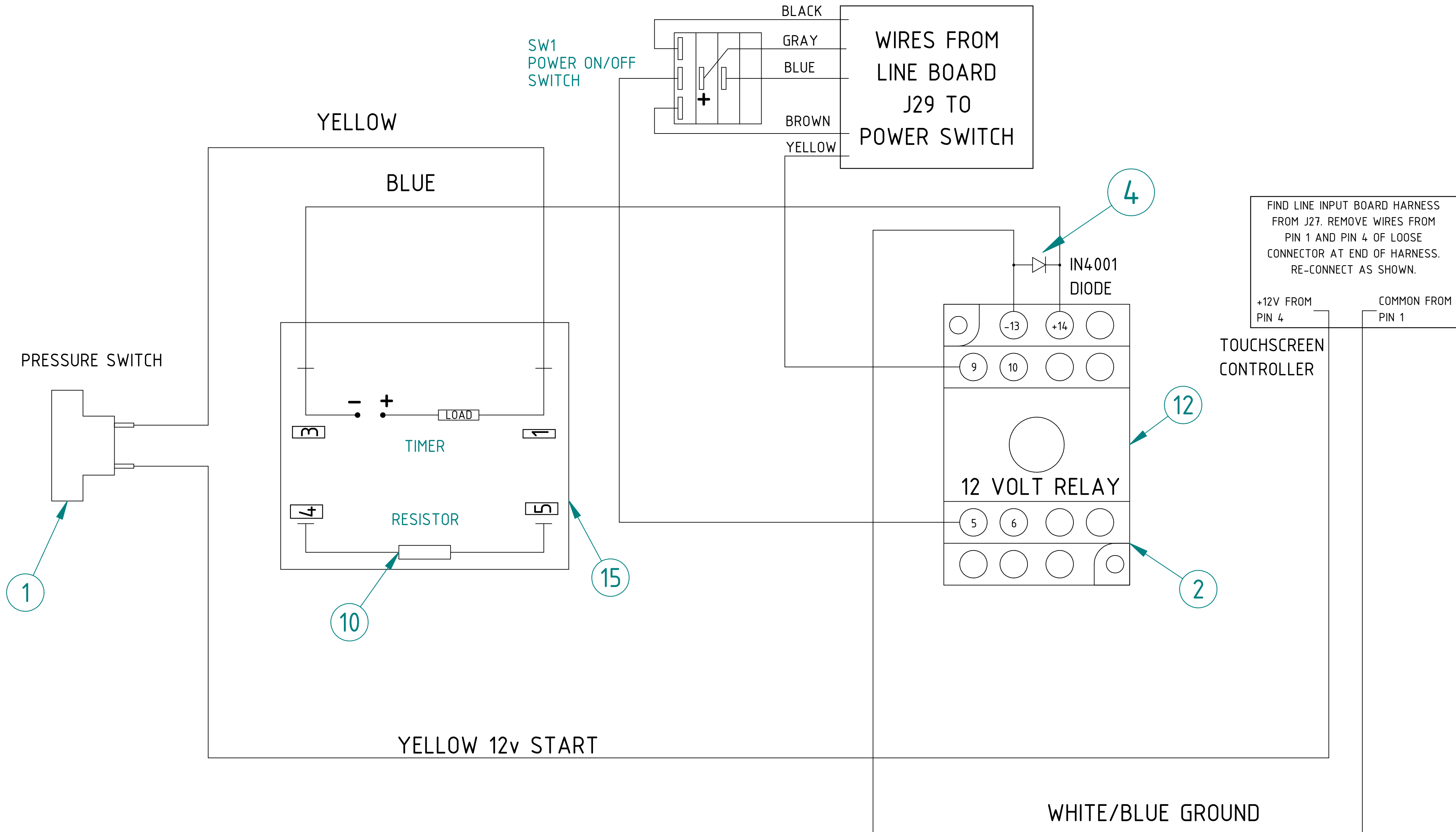
R. Patel

R. Patel



<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND TOLERANCES ARE: 2 PLACE DECIMALS ±.015 3 PLACE DECIMALS ±.005 ANGLES ±1° FRACTIONS ±1/32 SURFACE FINISH: $\sqrt{32}$</small>	<small>This PROPRIETARY Document is property of Branson Ultrasonics Corp., Danbury, CT. It is confidential in nature, non-transferable, and issued with the clear understanding that it is not traced or copied without permission and is returnable upon demand.</small>		<small>MATERIAL: None</small>			BRANSON	
	<small>SECONDARY DIMENSIONS ARE PROVIDED FOR REFERENCE ONLY</small>		<small>FINISH: NONE</small>			<small>TITLE ACTUATOR, MTS-20</small>	
	<small>INCHES (MM)</small>		<small>APPROVED</small>			<small>SCALE: 15:1 SHEET 3 OF 3</small>	
	<small>3RD ANGLE PROJECTION</small>		<small>FINISH SPEC. N/A</small>			<small>SIZE/DWG NO D G7A00000</small>	
				<small>REV 03</small>		<small>SOLID EDGE</small>	

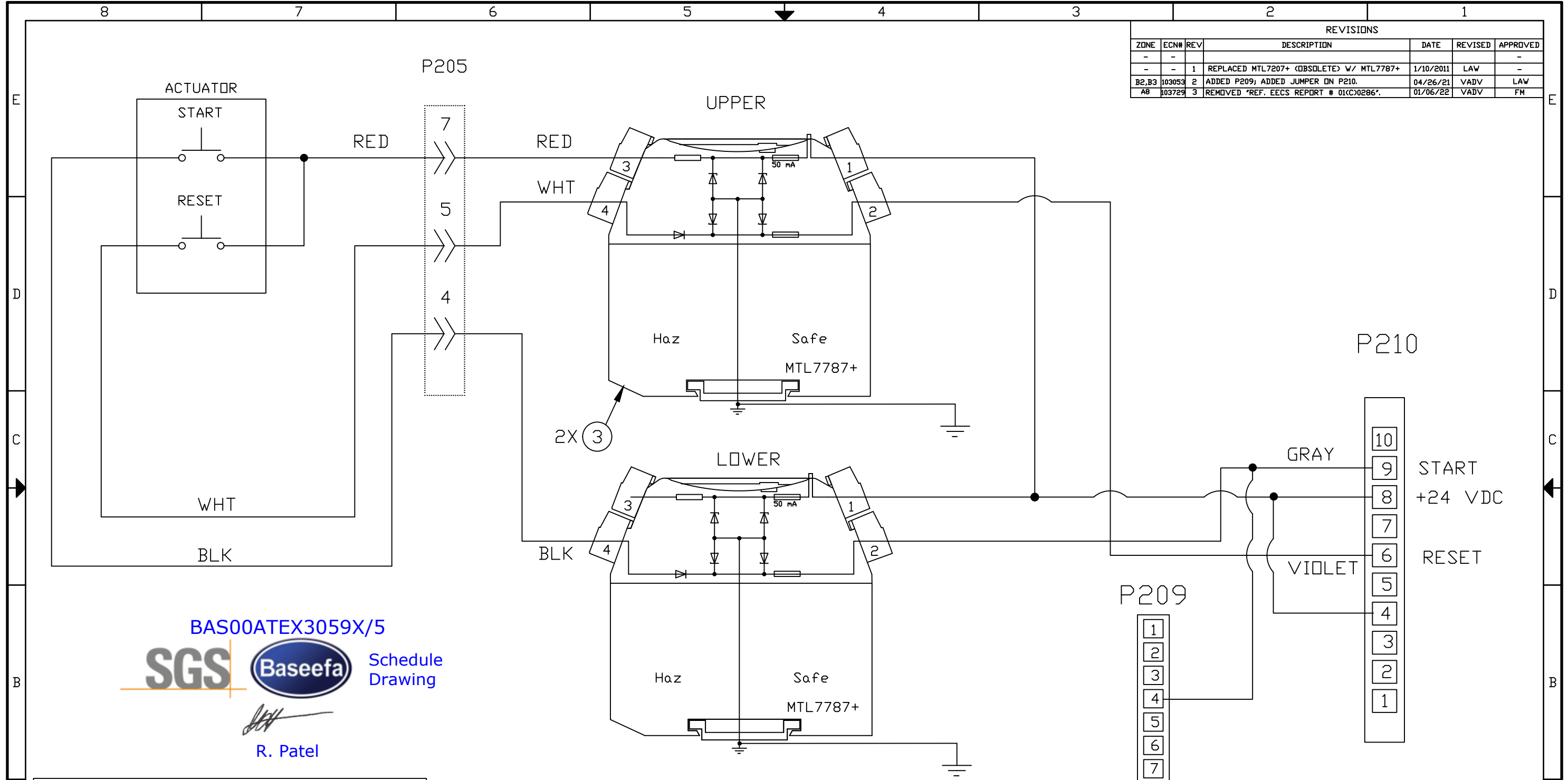
REVISIONS						
ZONE	REV	DESCRIPTION	DATE	ECN/ECO	DRAWN	APPR.
---	01	ORIGINAL	---	---	---	---
---	02	REMOVE CABLE J1A001126, RUN COMMON TO POWER SWITCH THROUGH RELAY. TERMINALS 5 & 9	03-12-08	---	LAW	---
C1-D2	03	REMOVED 101-361M 101-632, 101-086 & 101-085; ADDED BALLOONS.	4-22-21	103053	VADV	LAW
ALL	04	REDRAWN IN SOLID EDGE; REMOVED *REF. EECS REPORT # 01C10286.	01/04/22	103729	VADV	FM



WARNING
 CHANGES TO THIS PRINT MAY ENHANCE,
 BUT MUST NOT CONTRADICT INFORMATION
 ON CERTIFICATION DRAWING G7A00031.

<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND TOLERANCES ARE: 2 PLACE DECIMALS ±0.05 3 PLACE DECIMALS ±0.005 4 PLACE DECIMALS ±0.0005 ANGLES ±1° FRACTIONS 1/32 SURFACE FINISH</small> GD & T Standard ASME Y 14.5 SECONDARY DIMENSIONS ARE PROVIDED FOR REFERENCE ONLY	This PROPRIETARY Document is property of Branson Ultrasonics Corp., Brookfield, CT. It is confidential in nature, non-transferable, and issued with the clear understanding that it is not traced or copied without permission and is returnable upon demand.		MATERIAL: N/A		TITLE MTS20 EX PURGE SHUTOFF CIRCUIT	
	Article or material must comply with requirements stipulated by RoHS in its current version.		FINISH: N/A			
	3RD ANGLE PROJECTION		DRAWN: J.W. 8/27/03 CHECKED: --- APPROVED: --- SCALE: 1:1 SHEET 1 OF 1		AGENCY PART: NO BUC CLASSIFICATION: 3 Important IP CLASSIFICATION: Error: No reference WEIGHT: Error: No reference SIZE DWG NO: G7A00028	
	Finish Spec. N/A		MATERIAL: N/A		REV 04	

REVISIONS					
ZONE	ECN#	REV	DESCRIPTION	DATE	APPROVED
-	-	1	REPLACED MTL7207+ (OBSOLETE) W/ MTL7787+	1/10/2011	LAW
B2,B3	103053	2	ADDED P209; ADDED JUMPER ON P210.	04/26/21	VADV LAW
AB	103729	3	REMOVED 'REF. EECS REPORT # 01C0286'.	01/06/22	VADV FM

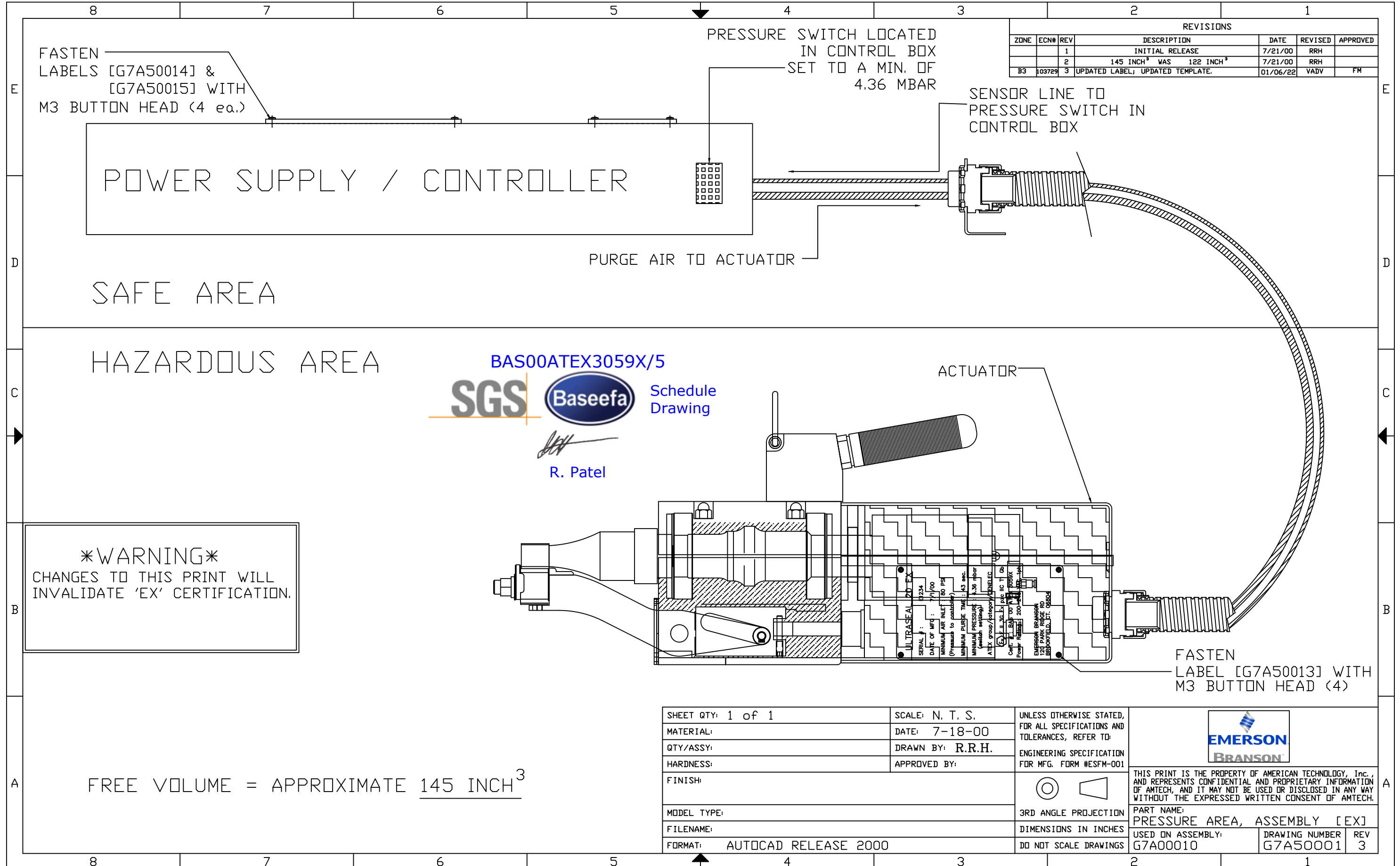


BAS00ATEX3059X/5
SGS **Baseefa** Schedule Drawing

 R. Patel

WARNING
 CHANGES TO THIS PRINT MAY ENHANCE,
 BUT MUST NOT CONTRADICT INFORMATION
 ON CERTIFICATION DRAWING G7A00032

SHEET QTY: 1 of 1	SCALE: NONE	UNLESS OTHERWISE STATED, FOR ALL SPECIFICATIONS AND TOLERANCES, REFER TO: ENGINEERING SPECIFICATION FOR MFG. FORM #ESFM-001	
MATERIAL:	DATE: 8/27/03		
QTY/ASSY:	DRAWN BY: JW	DIMENSIONAL TOLERANCES 4 PLACE DECIMAL: ±.0005 3 PLACE DECIMAL: ±.005 2 PLACE DECIMAL: ±.010 FRACTIONAL DIM: ±1/64 ANGULAR DIM: ±1/2°	THIS PRINT IS THE PROPERTY OF AMERICAN TECHNOLOGY, Inc., AND REPRESENTS CONFIDENTIAL AND PROPRIETARY INFORMATION OF AMTECH, AND IT MAY NOT BE USED OR DISCLOSED IN ANY WAY WITHOUT THE EXPRESSED WRITTEN CONSENT OF AMTECH.
HARDNESS:	APPROVED BY:		
FINISH:		PART NAME: MTS 20 EX BARRIER CIRCUIT	
MODEL TYPE: ULTRASEAL 20 'EX'	DIMENSIONS ARE IN INCHES	USED ON ASSEMBLY: TOUCHSCREEN	
FILENAME: G7A00029.dwg	DO NOT SCALE DRAWINGS	DRAWING NUMBER G7A00029	REV 3
FORMAT: AUTOCAD RELEASE 2000			



REVISIONS						
ZONE	ECN#	REV	DESCRIPTION	DATE	REVISED	APPROVED
		1	INITIAL RELEASE	7/21/00	RRH	
		2	145 INCH ³ WAS 122 INCH ³	7/21/00	RRH	
B3	103729	3	UPDATED LABEL, UPDATED TEMPLATE.	01/06/22	VADV	FH


BAS00ATEX3059X/5

 Schedule Drawing

 R. Patel

WARNING
 CHANGES TO THIS PRINT WILL
 INVALIDATE 'EX' CERTIFICATION.

FREE VOLUME = APPROXIMATE 145 INCH³

SHEET QTY: 1 of 1	SCALE: N. T. S.	UNLESS OTHERWISE STATED, FOR ALL SPECIFICATIONS AND TOLERANCES, REFER TO:	
MATERIAL:	DATE: 7-18-00	ENGINEERING SPECIFICATION FOR MFG. FORM #ESFM-001	
QTY/ASSY:	DRAWN BY: R.R.H.		THIS PRINT IS THE PROPERTY OF AMERICAN TECHNOLOGY, Inc., AND REPRESENTS CONFIDENTIAL AND PROPRIETARY INFORMATION OF AMTECH, AND IT MAY NOT BE USED OR DISCLOSED IN ANY WAY WITHOUT THE EXPRESSED WRITTEN CONSENT OF AMTECH.
HARDNESS:	APPROVED BY:		
FINISH:			
MODEL TYPE:		3RD ANGLE PROJECTION	PART NAME: PRESSURE AREA, ASSEMBLY [EX]
FILENAME:		DIMENSIONS IN INCHES	USED ON ASSEMBLY: G7A00010
FORMAT: AUTOCAD RELEASE 2000		DO NOT SCALE DRAWINGS	DRAWING NUMBER G7A50001
			REV 3

1 **TYPE EXAMINATION CERTIFICATE**

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres
Directive 2014/34/EU**

3 Type Examination Certificate Number: **BAS00ATEX3059X – Issue 5**

3.1 In accordance with Article 41 of Directive 2014/34/EU, Type Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Supplementary Certificates to such Type Examination Certificates, and new issues of such certificates, may continue to bear the original certificate number issued prior to 20 April 2016.

4 Product: **Ultraseal-20Ex Tube Sealer**

5 Manufacturer: **Branson Ultrasonics Corporation**

6 Address: **120 Park Ridge Road, Brookfield, Connecticut, 06804 United States of America**

7 This re-issued certificate extends Type Examination Certificate No. **BAS00ATEX3059X** to apply to product designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

8 SGS Fimko Oy certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products of Category 3 intended for use in potentially explosive atmospheres given in Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014.

8.1 The original certificate was issued by SGS Baseefa Ltd (UK Notified Body 1180). It, and any supplements previously issued by SGS Baseefa Ltd have been transferred to the supervision of SGS Fimko Oy (EU Notified Body 0598). The original certificate number is retained.

The examination and test results are recorded in confidential Report No. – See Certificate History

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN IEC 60079-0: 2018 EN 60079-2: 2014

except in respect of those requirements listed at item 18 of the Schedule.

10 If the sign “X” is placed after the certificate number, it indicates that the product is subject to the Specific Conditions of Use specified in the schedule to this certificate.

11 This TYPE EXAMINATION CERTIFICATE relates only to the design of the specified equipment and not to specific items of equipment subsequently manufactured.

12 The marking of the product shall include the following:

Ⓢ II 3G Ex pzc IIC T1 Gc

SGS Fimko Oy Customer Reference No. **4295**


Project File No. **21/0474**

This document is issued by the Company subject to their General Conditions for Certification Services accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained herein reflects the Company’s findings at the time of their intervention only and within the limits of Client’s instructions, if any. It does not necessarily indicate that the equipment may be used in particular industries or circumstances. The Company’s sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, schedule included, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS Fimko Oy

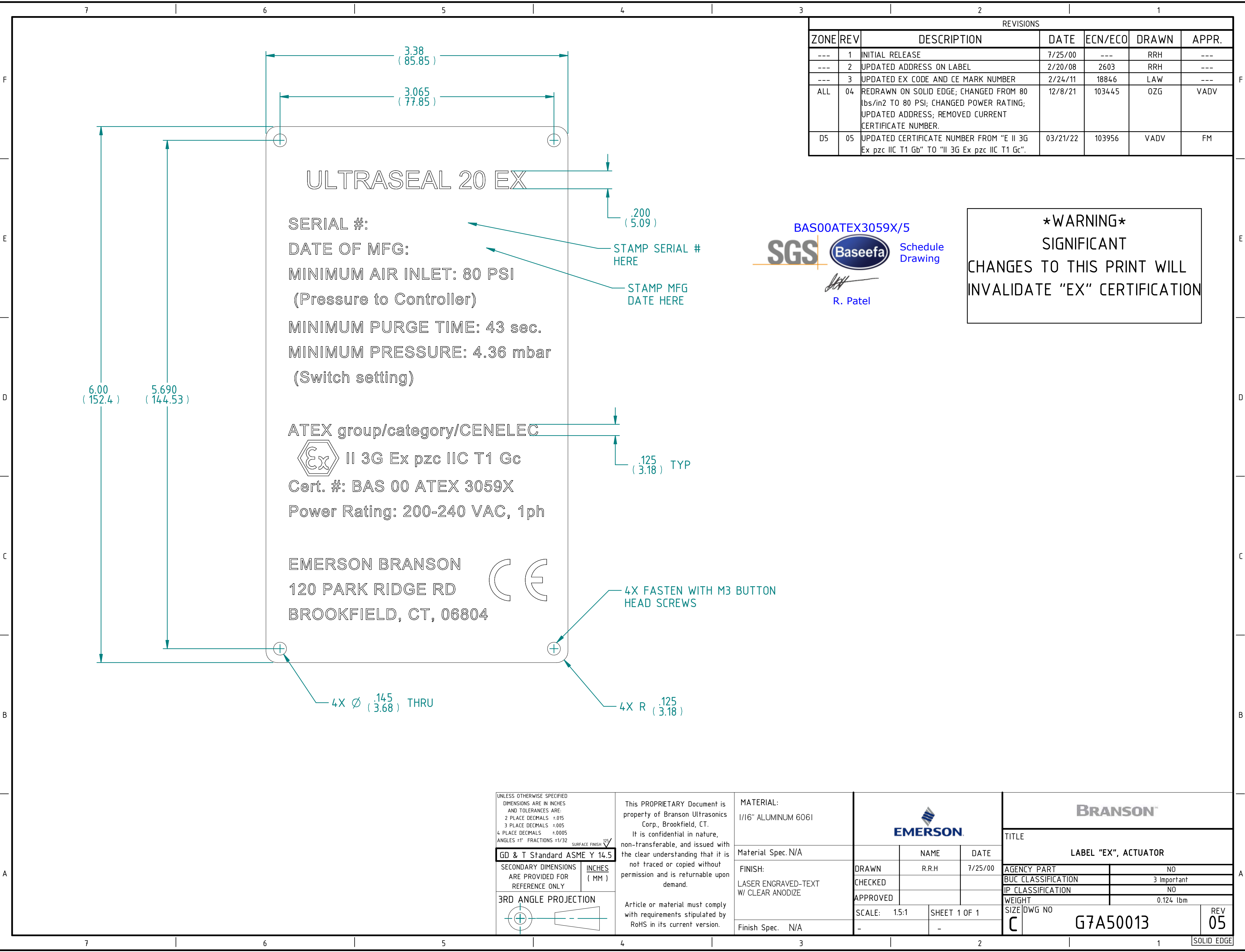
Takomotie 8
FI-00380 Helsinki, Finland
Telephone +358 (0)9 696 361
e-mail sgs.fimko@sgs.com
web site www.sgs.fi

Business ID 0978538-5 Member of the SGS Group (SGA SA)



Tuomas Hänninen
SGS Fimko Oy

REVISIONS						
ZONE	REV	DESCRIPTION	DATE	ECN/ECO	DRAWN	APPR.
---	1	INITIAL RELEASE	7/25/00	---	RRH	---
---	2	UPDATED ADDRESS ON LABEL	2/20/08	2603	RRH	---
---	3	UPDATED EX CODE AND CE MARK NUMBER	2/24/11	18846	LAW	---
ALL	04	REDRAWN ON SOLID EDGE; CHANGED FROM 80 lbs/in2 TO 80 PSI; CHANGED POWER RATING; UPDATED ADDRESS; REMOVED CURRENT CERTIFICATE NUMBER.	12/8/21	103445	OZG	VADV
D5	05	UPDATED CERTIFICATE NUMBER FROM "E II 3G Ex pzc IIC T1 Gb" TO "II 3G Ex pzc IIC T1 Gc".	03/21/22	103956	VADV	FM



UNLESS OTHERWISE SPECIFIED
 DIMENSIONS ARE IN INCHES
 AND TOLERANCES ARE:
 2 PLACE DECIMALS +.015
 3 PLACE DECIMALS +.005
 4 PLACE DECIMALS +.0005
 ANGLES ±1° FRACTIONS ±1/32

GD & T Standard ASME Y 14.5

SECONDARY DIMENSIONS
 ARE PROVIDED FOR
 REFERENCE ONLY

INCHES
 (MM)

3RD ANGLE PROJECTION

This PROPRIETARY Document is property of Branson Ultrasonics Corp., Brookfield, CT. It is confidential in nature, non-transferable, and issued with the clear understanding that it is not traced or copied without permission and is returnable upon demand.

Article or material must comply with requirements stipulated by RoHS in its current version.

MATERIAL:
1/16" ALUMINUM 6061

Material Spec. N/A

FINISH:
LASER ENGRAVED-TEXT
W/ CLEAR ANODIZE

Finish Spec. N/A

EMERSON		NAME	DATE
		R.R.H	7/25/00
DRAWN	CHECKED	APPROVED	
SCALE: 1.5:1	SHEET 1 OF 1		

BRANSON		TITLE	
		LABEL "EX", ACTUATOR	
AGENCY PART	NO		
BUC CLASSIFICATION	3 Important		
IP CLASSIFICATION	NO		
WEIGHT	0.124 lbm		
SIZE DWG NO	G7A50013	REV	05

SOLID EDGE

REVISIONS						
ZONE	REV	DESCRIPTION	DATE	ECN/ECO	DRAWN	APPR.
---	1	INITIAL RELEASE	7/25/00	---	RRH	---
---	2	UPDATED ADDRESS ON LABEL	2/20/08	2603	RRH	---
---	3	UPDATED EX CODE AND CE MARK NUMBER	2/24/11	18846	LAW	---
---	04	POWER RATING CHANGED FROM 200-245 TO 200-240 VAC.	08-09-21	103224	VADV	VADV
ALL	05	REDRAWN ON SOLID EDGE; CHANGED FROM 80 lbs/in2 TO 80 PSI; UPDATED ADDRESS; UPDATED CERTIFICATE NUMBER.	12/13/21	103681	VADV	VADV
D5	06	UPDATED CERTIFICATE NUMBER FROM "E II 3G Ex pzc IIC T1 Gb" TO "II 3G Ex pzc IIC T1 Gc".	03/21/22	103729	VADV	FM

ULTRASEAL 20 EX

SERIAL #:
 DATE OF MFG:
 MINIMUM AIR INLET: 80 PSI
 (Pressure to Controller)
 MINIMUM PURGE TIME: 43 sec.
 MINIMUM PRESSURE: 4.36 mbar
 (Switch setting)

STAMP SERIAL #
HERE

STAMP MFG
DATE HERE

WARNING
 SIGNIFICANT
 CHANGES TO THIS PRINT WILL
 INVALIDATE "EX" CERTIFICATION



ATEX group/category/CENELEC



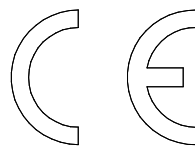
II 3G Ex pzc IIC T1 Gc

Cert. #: BAS 00 ATEX 3059X

Power Rating: 200-240 VAC, 1ph

WARNING
 LOCATE IN
 NON-HAZARDOUS AREA
 ONLY

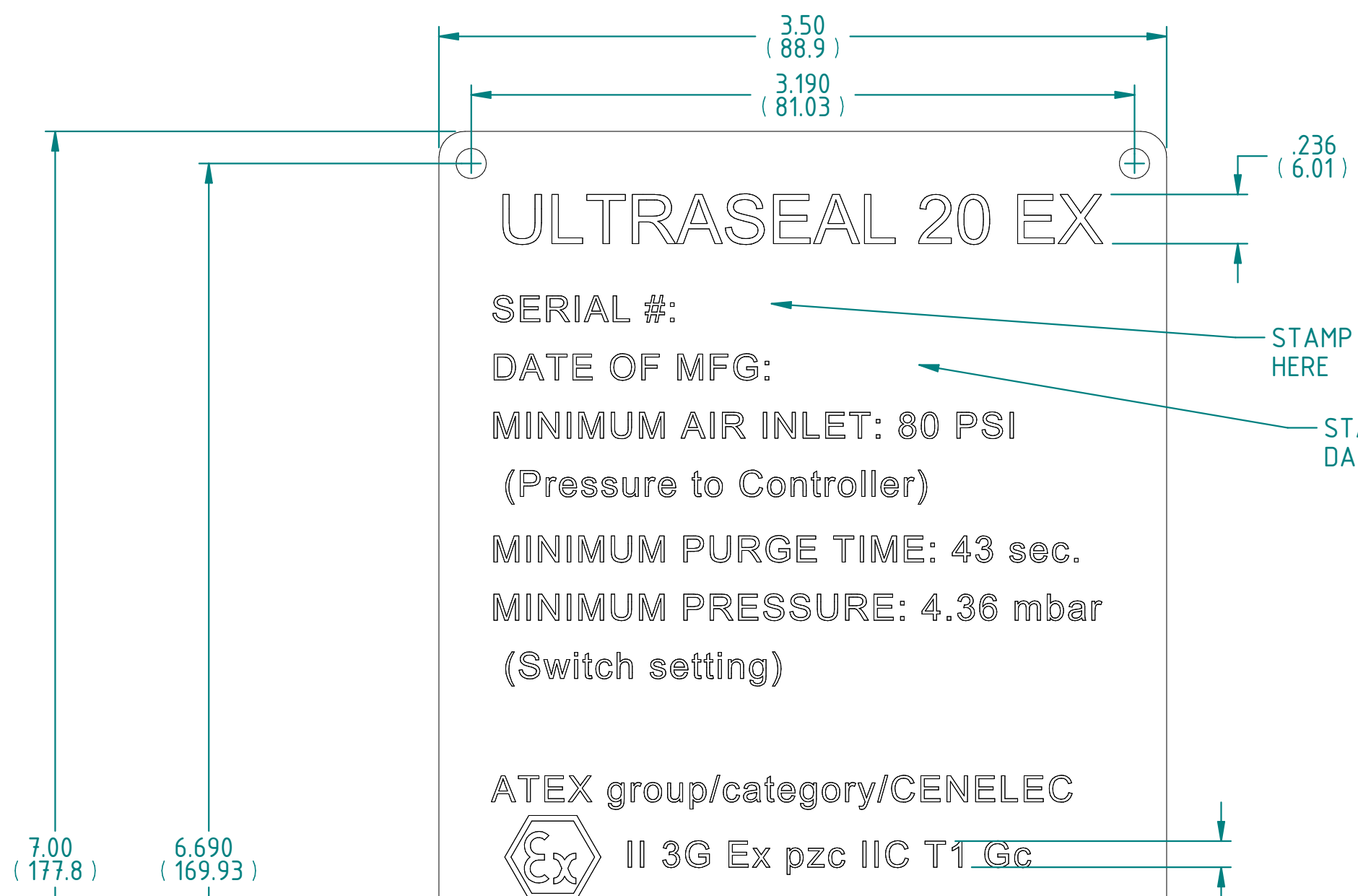
EMERSON BRANSON
 120 PARK RIDGE RD
 BROOKFIELD, CT, 06804



4X FASTEN WITH M3 BUTTON
HEAD SCREWS

4X Ø .145
(3.68) THRU

4X R .125
(3.18)



UNLESS OTHERWISE SPECIFIED
 DIMENSIONS ARE IN INCHES
 AND TOLERANCES ARE:
 2 PLACE DECIMALS ±.015
 3 PLACE DECIMALS ±.005
 4 PLACE DECIMALS ±.0005
 ANGLES ±1° FRACTIONS ±1/32

GD & T Standard ASME Y 14.5

SECONDARY DIMENSIONS
 ARE PROVIDED FOR
 REFERENCE ONLY

INCHES
 (MM)

3RD ANGLE PROJECTION

This PROPRIETARY Document is
 property of Branson Ultrasonics
 Corp., Brookfield, CT.
 It is confidential in nature,
 non-transferable, and issued with
 the clear understanding that it is
 not traced or copied without
 permission and is returnable upon
 demand.

Article or material must comply
 with requirements stipulated by
 RoHS in its current version.

MATERIAL:
 1/16" ALUMINUM 6061

Material Spec. N/A

FINISH:
 LASER ENGRAVED-TEXT
 W/ CLEAR ANODIZE

Finish Spec. N/A

			NAME	DATE
			R.R.H	7/25/00
DRAWN				
CHECKED				
APPROVED				
SCALE: 1.5:1	SHEET 1 OF 1			

		TITLE	
		CONTROLLER, EX LABEL	
AGENCY PART	NO		
BUC CLASSIFICATION	3 Important		
IP CLASSIFICATION	NO		
WEIGHT	0.149 lbm		
SIZE DWG NO	G7A50014		REV
C			06

SOLID EDGE