

AutoCure 5000 - 2125

Portable Repair Arm

Assembly and Operating Manual



AC5-2125 TABLE OF CONTENTS

1.	WARNINGS AND DANGER	4
	• WARNING, CAUTION & NOTE	5
2.	EQUIPMENT SAFETY GUIDELINES	
	• CAUTION!!	6
	• Lamps, Pyrometer Positioning Beam & Environment	7
3.	OPERATING INSTRUCTIONS	
	• Temperature Controllers Single or Double Ramp Operation	8
	• Temperature Controller Displays	8
	• Cycle Start Button & Heater Position	8
	• Setting the Temperature Controller Parameters	9
4.	LAMP INSTALLATION AND REPLACEMENT INSTRUCTIONS	
	• DANGER!! Precautions for Handling Quartz Infrared Lamps	10
	• CAUTION!! Lamp Instruction/Replacement Procedure	10
5.	HEATER POSITION INSTRUCTIONS	
	• General Instructions	11
	• Heat Masking	12
	• Positioning/Set-up of Heater Head Instructions (2 pgs).....	12-13
6.	MAINTENANCE	
	• Gas Spring & Pivot Points	14
	• Lamps, Reflectors and Heat Sensor (Pyrometer) Lens	14
7.	TROUBLESHOOTING GUIDE	
	• Heater Power Problems	15
	• Temperature Controller Problems	16
	• Temperature Problems.....	17
8.	TEMPERATURE CONTROLLER ERROR CODES	18
9.	PYROMETER ASSEMBLY_DRAWING# AC-61231 (4 pgs)	19-22
10.	SERVICE INSTRUCTIONS FOR PYROMETER	23
	• Old and New Raytek Units (2 pgs).....	24-25
	• Replacement of New Pyrometer Sensor (2 pgs)	26-27
	• Replacement of Pyrometer Controller (2 pgs).....	27-28

•	Verification / Calibration Procedure.....	29
•	Begin Verification / Calibration Cycle	30
•	Verify “Lock” Status of Raytek Comm Module	30
•	Adjusting Raytek Calibration Procedure (3 pgs)	31-33
•	Begin Calibration Cycle	33
•	Calibration Adjustment	34
•	“Lock” Out the Comm Box.....	35
11.	SINGLE HEAD BACK PANEL/BILL OF MATERIAL	36
12.	MECHANICAL DRAWINGS/PARTS LIST (2 pgs)	37-38
13.	TABLES (4 pgs).....	39-42
14.	AUTOCURE MODEL NUMBERS	43
•	AC5-2125-240-PL	44
•	Electrical Schematic	45
•	Spray/Bake	46
•	Heater Heads (5 pgs)	47-51
•	Recommended Spare Parts	52
•	AC5-2125-480-PL	53
•	Electrical Schematics	54
•	Spray/Bake	55
•	Heater Heads (5 pgs)	56-60
•	Recommended Spare Parts	61
15.	BGK-CARLISLE FLUID TECHNOLOGIES CUSTOM PRODUCTS WARRANTY	62

1. Warnings and Danger



**DANGEROUS VOLTAGES ARE
PRESENT IN THIS EQUIPMENT!**

**CONTACT WITH LIVE PARTS
COULD CAUSE
SERIOUS INJURY OR DEATH!**

**CONNECTION, INSTALLATION, MAINTENANCE,
ADJUSTMENT, SERVICING AND OPERATION TO BE
DONE BY QUALIFIED PERSONNEL ONLY.**

**ENSURE THAT EQUIPMENT IS COMPLETELY
AND PROPERLY GROUNDED BEFORE APPLYING
SUPPLY POWER AND BEFORE EQUIPMENT
OPERATION.**

In this manual, the words **WARNING**, **CAUTION** and **NOTE** are used to emphasize important safety information as follows:

WARNING

Hazards or unsafe practices which could result in severe personal injury, death or substantial property damage.

CAUTION

Hazards or unsafe practices which could result in minor personal injury, product or property damage.

NOTE

Important installation, operation or maintenance information.

WARNING

Read the following warnings before using this equipment



READ THE MANUAL

Before operating finishing equipment, read and understand all safety, operation and maintenance information provided in the operation manual.



OPERATOR TRAINING

All personnel must be trained before operating finishing equipment.



EQUIPMENT MISUSE HAZARD

Equipment misuse can cause the equipment to rupture, malfunction, or start unexpectedly and result in serious injury.



LOCK OUT / TAG-OUT

Failure to de-energize, disconnect, lock out and tag-out all power sources before performing equipment maintenance could cause serious injury or death.



AUTOMATIC EQUIPMENT

Automatic equipment may start suddenly without warning.



PRESSURE RELIEF PROCEDURE

Always follow the pressure relief procedure in the equipment instruction manual.



KEEP EQUIPMENT GUARDS IN PLACE

Do not operate the equipment if the safety devices have been removed.



KNOW WHERE AND HOW TO SHUT OFF THE EQUIPMENT IN CASE OF AN EMERGENCY



WEAR SAFETY GLASSES

Failure to wear safety glasses with side shields could result in serious eye injury or blindness.



INSPECT THE EQUIPMENT DAILY

Inspect the equipment for worn or broken parts on a daily basis. Do not operate the equipment if you are uncertain about its condition.



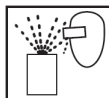
NEVER MODIFY THE EQUIPMENT

Do not modify the equipment unless the manufacturer provides written approval.



NOISE HAZARD

You may be injured by loud noise. Hearing protection may be required when using this equipment.



PROJECTILE HAZARD

You may be injured by venting liquids or gases that are released under pressure, or flying debris.



PINCH POINT HAZARD

Moving parts can crush and cut. Pinch points are basically any areas where there are moving parts.



STATIC CHARGE

Fluid may develop a static charge that must be dissipated through proper grounding of the equipment, objects to be sprayed and all other electrically conductive objects in the dispensing area. Improper grounding or sparks can cause a hazardous condition and result in fire, explosion or electric shock and other serious injury.



WEAR RESPIRATOR

Toxic fumes can cause serious injury or death if inhaled. Wear a respirator as recommended by the fluid and solvent manufacturer's Safety Data Sheet.



TOXIC FLUID & FUMES

Hazardous fluid or toxic fumes can cause serious injury or death if splashed in the eyes or on the skin, inhaled, injected or swallowed. LEARN and KNOW the specific hazards or the fluids you are using.



FIRE AND EXPLOSION HAZARD

Improper equipment grounding, poor ventilation, open flame or sparks can cause a hazardous condition and result in fire or explosion and serious injury.



MEDICAL ALERT

Any injury caused by high pressure liquid can be serious. If you are injured or even suspect an injury:

- ◆ Go to an emergency room immediately.
- ◆ Tell the doctor you suspect an injection injury.
- ◆ Show the doctor this medical information or the medical alert card provided with your airless spray equipment.
- ◆ Tell the doctor what kind of fluid you were spraying or dispensing.



GET IMMEDIATE MEDICAL ATTENTION

To prevent contact with the fluid, please note the following:

- Never point the gun/valve at anyone or any part of the body.
- Never put hand or fingers over the spray tip.
- Never attempt to stop or deflect fluid leaks with your hand, body, glove or rag.
- Always have the tip guard on the spray gun before spraying.
- Always ensure that the gun trigger safety operates before spraying.



CA PROP 65

PROP 65 WARNING

WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

It is the responsibility of the employer to provide this information to the operator of the equipment.

For further safety information regarding this equipment, see the General Equipment Safety Booklet (77-5300).

2. Equipment Safety Guidelines

(Read and understand this manual before operating equipment.)

CAUTION!!

1. Turn power off at source before servicing equipment or attempting any electrical or mechanical maintenance, especially lamp replacement.
2. If the control panel main power switch is ON, voltage may exist at the lamps even though the lamps are not emitting light. AN ELECTRICAL SHOCK COULD POSSIBLY RESULT!
3. Heater head(s) contains high voltage. Do not insert metallic objects into cooling louver openings.
4. Before applying supply power, make sure the AutoCure arm(s) are grounded properly before equipment operation.
5. Before each operation of the AutoCure arm(s), inspect the repair arm(s) heater lamp(s). If any lamps are broken or break at any time, shut the power off and discontinue use. When the damaged or broken lamp(s) are replaced by the qualified personnel, turn the power back on.
6. This is an automatic piece of equipment. Heater can very quickly come on to full intensity without warning to unaware personnel.
7. Heater surfaces can become hot when used at high power for extended periods. Use caution whenever handling heater head(s). The heater head(s) have black insulated handles to use for moving or manipulating heater head(s).
8. Do not move heater when in operation because it will move the temperature sensor viewing area and the heater head's distance to product. If the heater accidentally moves, check temperature sensor viewing area with the "Positioning Beam" and verify acceptable positioning of heater head.
9. Use care when manipulating or positioning heater head(s) and arms. Avoid possible pinch points.
10. The positioning beam/pyrometer must be aimed at the surface target to be heated. If it is not properly aimed at the surface target, (i.e. aimed into open air) the pyrometer will read a lower temperature causing the unit to go to high lamp intensities for abnormal time lengths. If used in this condition for extended period of time, it can damage the unit.
11. When the unit is NOT in operation, the E-stop button MUST be pressed for safety of personnel, unit, and other material/equipment in vicinity of the heater head(s).

LAMPS

All lamp end covers and grills must be installed before operating and using the repair arms to avoid electrical shock.

The lamps of the repair arms have similarities to a standard incandescent light bulb. During the repair arm curing cycle, the repair arm lamps can sometimes emit bright light similar to a standard incandescent light bulb. As you would with an incandescent light bulb, we high recommend you **DO NOT STARE DIRECTLY INTO THE BRIGHT LIGHT.**

DO NOT HANDLE INFRARED LAMPS WITH BARE HANDS. Remove any contamination with alcohol and a clean, soft cloth. Contamination on quartz tubes allows the quartz to overheat, which leads to premature lamp failure.

PYROMETER POSITIONING BEAM

A class 2 laser emits in the visible region (635-870nm) at 1mW of power. The blink reflex of the human eye (aversion response) will prevent eye damage, unless the person deliberately stares into the beam for an extended period. **DO NOT STARE INTO THE BEAM.**

ENVIRONMENT

Heater head contains high voltage connections that are open to atmosphere. These units are not air-purged. Ensure use of unit is acceptable in the area in which it will be used.

3. Operating Instructions

Temperature Controller Single or Double Ramp Operation (See Figure 1)

Single Ramp Operation: The temperature ramps in a predetermined amount of time from ambient to a set point temperature and holds at that temperature for a required amount of time.

Double Ramp Operation: The temperature ramps in a predetermined amount of time from ambient to the first set point temperature and holds at that temperature for a required amount of time, it then ramps in a predetermined amount of time to a second set point temperature and holds at that temperature for a required amount of time.

Temperature Controller Displays

The upper display indicates the mode of the heating cycle and the process temperature. During the Ramp mode the upper display will toggle between the process temperature and ramping. Once the cure temperature (set point) has been reached the upper display will toggle between the hold time remaining (in minutes) and the process temperature. When the hold time becomes less than one minute the upper display will toggle between the hold time remaining (in seconds) and the process temperature. The lower display indicates the cure temperature (set point).

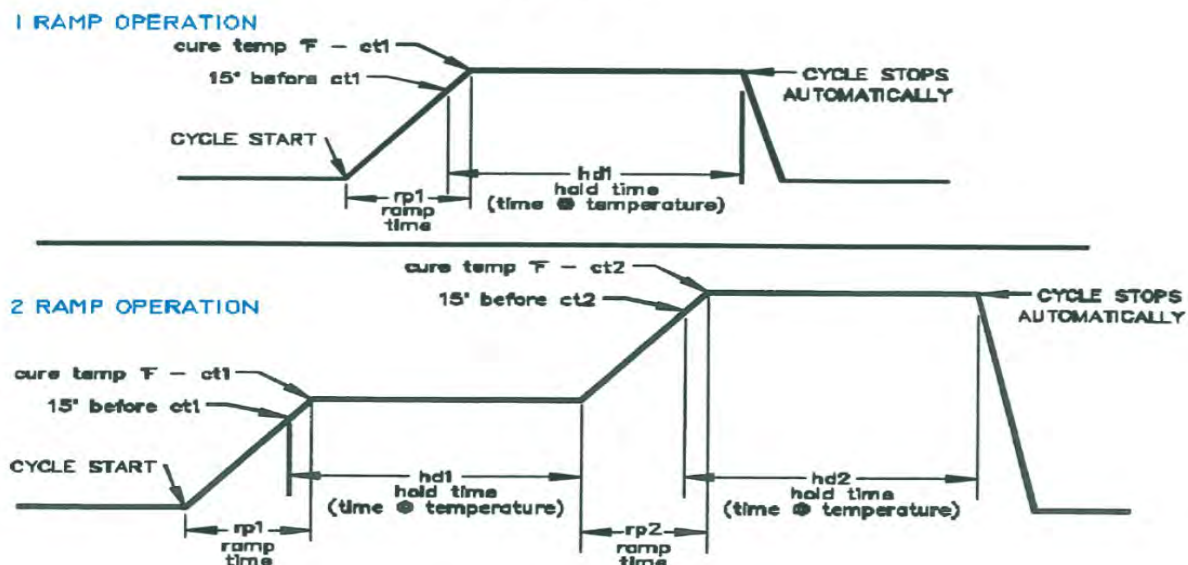
Cycle Start Button

The product will heat to the set point temperature and remain there for the time selected. The hold time will start when the temperature reaches 15°F before set point.

Heater Position

If the heater is too far from the product, the temperature will not be reached and the hold timer will not be activated.

Figure 1



Setting the Temperature Controller Parameters

Single Ramp

1. Turn power on.
2. Turn positioning beam on and position h
3. Set controller parameters
4. Hold the  button for 1-2 seconds
 - a. Set rp1 (ramp time) in minutes  
Press 
 - b. Set ct1 (cure temp) in degrees  
Press 
 - c. Set hd1 (hold time) in minutes  
Press 
 - d. Set rp2 = 0 (this disables 2nd ramp)
Press 
5. Press the  to exit setup menu
6. Set auxiliary heater off or on
7. Press the cycle start

Double Ramp

1. Turn power on.
2. Turn positioning beam on and position h
3. Set controller parameters
4. Hold the  button for 1-2 seconds
 - a. Set rp1 (ramp time) in minutes  
Press 
 - b. Set ct1 (cure temp) in degrees  
Press 
 - c. Set hd1 (hold time) in minutes  
Press 
 - d. Set rp2 (2nd ramp time) in minutes 
Press 
 - e. Set ct2 (2nd cure temp) in degrees 
Press 
 - f. Set hd2 (2nd hold time) in minutes 
Press 
5. Press the  to exit the setup menu
6. Set auxiliary heater off or on
7. Press cycle start



4. Lamp Installation and Replacement Instructions

Danger!!

Turn power off at source before removing end covers and servicing lamps. A fatal electrical shock could possibly result.

Precautions for Handling Quartz Infrared Lamps

Do not handle infrared lamps with bare hands. Remove any contaminations with alcohol and a clean, soft cloth. Contaminations on quartz tubes cause the quartz to overheat, which may lead to premature lamp failure.

Caution!!

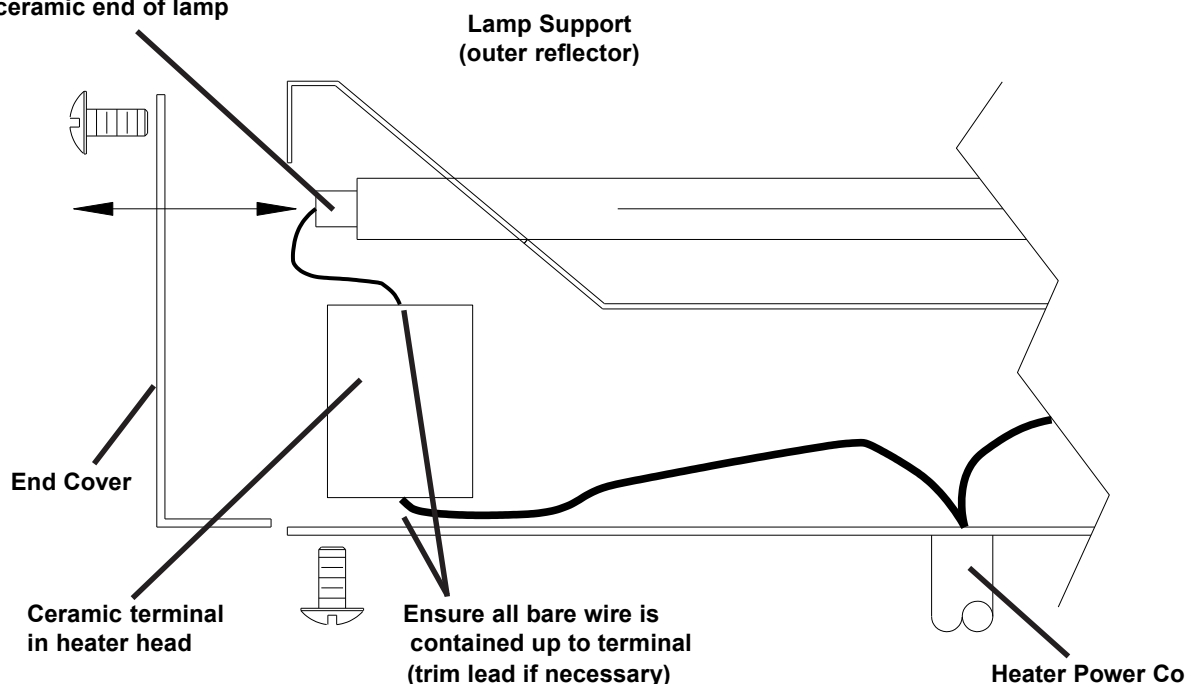
If lamps are replaced, with lamps having metal ends, metal ends must be removed to permit proper assembly and prevent the possibility of arcing or shorting.

Lamp Installation / Replacement Procedure

1. Make sure main system circuit breaker is OFF.
2. Rotate heater so lamps are horizontal.
3. Remove end covers to gain access to lamp leads.
4. Disconnect wire from the ceramic terminal block and remove lamp that is being replaced.
5. Carefully slide the lamp through the lamp support.
6. Remove electrical insulation sleeves from the old lamp on both lamp leads and install them on the new lamp leads. Push the sleeve to the ceramic end of the lamp (see drawing below).
7. Secure the lamp lead to the power wire coming into the heater at the ceramic terminal block.
8. Install end covers.

NOTE: If lamp leads are too tight, damage to lamp may result.

Make sure lamp sleeving
is pushed all the way into
ceramic end of lamp



5. Heater Position Instructions

Important: Precautions and Instructions

General Instructions (Read All)

1. The "Positioning Beam" (red dot) is an aid for proper placement of the heat sensor. The heat sensor reads an area of 0.8 to 1.2" diameter depending on the heater's distance from the surface. The sensor takes an average temperature reading of the area and displays it on the temperature controller. **Note: the red dot is not at the exact center of the sensing area. As you face the control panel the dot is 3/4" to the left of the heat sensor.**
2. Make sure the heat sensing area is reading a painted surface. If the sensing area is positioned incorrectly and is partially reading tape, masking, trim, plastic, rubber, a window, or a wheel well, it will measure an average temperature much higher or lower than the actual temperature of the painted surface. Thus, the heater will possibly overheat the area and scorch the paint, or not heat the part enough and the paint will not be cured.
3. The heater head distance from the product is important. If the heater head is too far away, the product will not reach cure temperature and will run indefinitely trying to get to temperature. If the heater head is too close "striping" may occur. The recommended distance of the heater face to the product is 8 -12". The heater should be as parallel as possible to the product surface, which helps maintain uniform heating over the heated area.
4. Before heating a repair, determine if there are any types of reinforcements or extra thicknesses of metal in the area to be cured. These areas will heat at different rates and not achieve the same temperature as the single thickness metals without reinforcements. Aim the heat sensor on, or near, the multiple thickness or reinforced areas so they will be fully cured.
5. Once the cycle has started, do not move the unit. This will cause the temperature sensor to "see" a different area, which may be cooler. If the temperature drops 18°F, it will reset the timer and run another complete cycle. To help the unit's stability, be sure to lock the casters on the base of the arm after positioning the heater to lock it in place.
6. Check the control panel 3 to 5 minutes into the cycle. See if the temperature has risen to set point and if the timer has started. If it hasn't, determine the problem and correct it. If there is a problem with the position or setup of the arm where it cannot achieve the set point temperature, the timer will not turn on. The heater will run at full intensity indefinitely.
7. To achieve a full cure on a repair area, including overspray, the "effective cure area" of the heater must be considered. The "effective cure area" of the rectangular shaped heater heads is an oval shape that is just slightly smaller than the heater head. A general rule for the "effective cure area" dimensions are 1" in from the sides and end covers of the heater head, which creates the outer boundaries of the oval. When main and auxiliary heater heads are used together, add the two areas together.

Heat Masking

1. Any heat sensitive materials or surfaces (including plastic, rubber, trim, pin stripes, decals, light lenses, mirrors, door handles, interior materials, etc.) in the heating area must be masked or removed during the heating cycle. High temperature/reflective masking material approved for this type of application is required.
2. When curing small areas, it is not recommended to use heat masking around the area except to cover heat sensitive materials. The heat sensor "sees" an area approximately 1" in diameter, a heating area that is 1.5" or smaller could result in a false reading if the heat sensor is reading the masking.

Positioning / Set-Up of Heater Head Instructions

Positioning / Set-Up of an arm on flat surfaces (doors, hood, roofs, trunk lids, etc.)

1. Follow any of the instructions previously mentioned in the precautions and instructions section.
2. Always position heaters parallel and 8 to 12" from the surface.
3. Aim the positioning beam on spot being repaired; make sure that the beam is not aimed at heat sensitive materials.
4. Engage caster locks.
5. Recheck heat sensor aim with the positioning beam.
6. Set the temperature and time settings.
7. Start heat cycle.
8. Approximately 3-5 minutes after start, check that the temperature is at set point and the timer has started.
9. When the timer and the heater lamps shut off, the cycle is complete and ready for the next repair.
10. Press the E-stop button on unit when cycle has completed before moving unit to next repair or in to storage position.

Positioning / Set-Up of a heater on a curved or contoured surfaces (fender, hood, roof, trunk corners)

1. Follow any of the instructions previously mentioned in the precautions and instructions section.
2. Always position heaters parallel and 8 to 12" from the surface. Adjust the A and B heaters to the contour of the curve, with the most direct heat radiation in the area of the repair.
3. Aim the positioning beam on spot being repaired; make sure that the beam is not aimed at heat sensitive materials.
4. Engage caster lock.
5. Recheck heat sensor aim with the positioning beam.
6. Set the temperature and time settings.
7. Start heat cycle.
8. Approximately 3-5 minutes after start, check that the temperature is at set point and the timer has started.
9. When the timer and the heater lamps shut off, the cycle is complete and ready for the next repair.
10. Press the E-stop button on unit when cycle has completed before moving unit to next repair or in to storage position.

Positioning/Set-Up of an arm on roof posts (heavy reinforcements/multiple metal thickness)

1. Follow any of the instructions previously mentioned in the precautions and instructions section.
2. Position heaters parallel to the surface, the length of the heater along the length of the roof post. Do not put the heater 90° to the post, unless the repair area is very small. The heater should be about 8" from the surface for the heavy reinforcement in the posts.
3. Aim the positioning beam on spot being repaired; make sure that the beam is not aimed at heat sensitive materials. The post is very narrow, so carefully position the heat sensor where it will "see" the post.
4. Engage caster lock.
5. Recheck heat sensor aim with the positioning beam.
6. Set the temperature and time settings.
7. Start heat cycle.
8. Approximately 3-5 minutes after start, check that the temperature is at set point and the timer has started.
9. When the timer and the heater lamps shut off, the cycle is complete and ready for the next repair.
10. Press the E-stop button on unit when cycle has completed before moving unit to next repair or in to storage position.

Positioning/Set-Up of an arm on rocker panels (heavy reinforcements/multiple metal thickness)

1. Follow any of the instructions previously mentioned in the precautions and instructions section.
2. Position heaters parallel to the surface, the length of the heater along the length of the rocker panel. If there is an auxiliary heater head, use both heaters and bend them at about a 135° angle to focus more direct heat around the curve of the rocker panel. The heater should be spaced about 8" from the surface for the heavy reinforcement in the rocker panel.
3. Aim the positioning beam on spot being repaired; make sure that the beam is not aimed at heat sensitive materials
4. Engage caster lock.
5. Recheck heat sensor aim with the positioning beam.
6. Set the temperature and time settings.
7. Start heat cycle.
8. Approximately 3-5 minutes after start, check that the temperature is at set point and the timer has started.
9. When the timer and the heater lamps shut off, the cycle is complete and ready for the next repair.
10. Press the E-stop button on unit when cycle has completed before moving unit to next repair or in to storage position.

6. Maintenance

The AutoCure™5000 will require some basic maintenance when used on a regular basis. Failure to do so may degrade the performance of the unit.

Disconnect main power at the source before performing any maintenance procedures.

Gas Spring

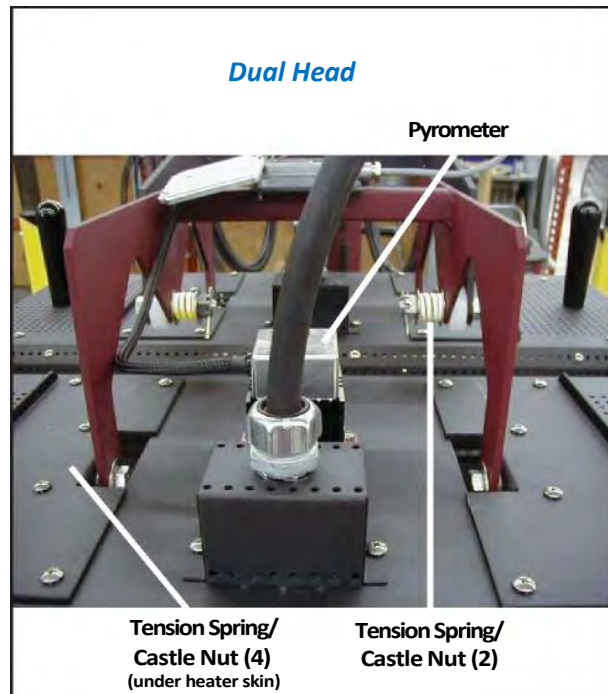
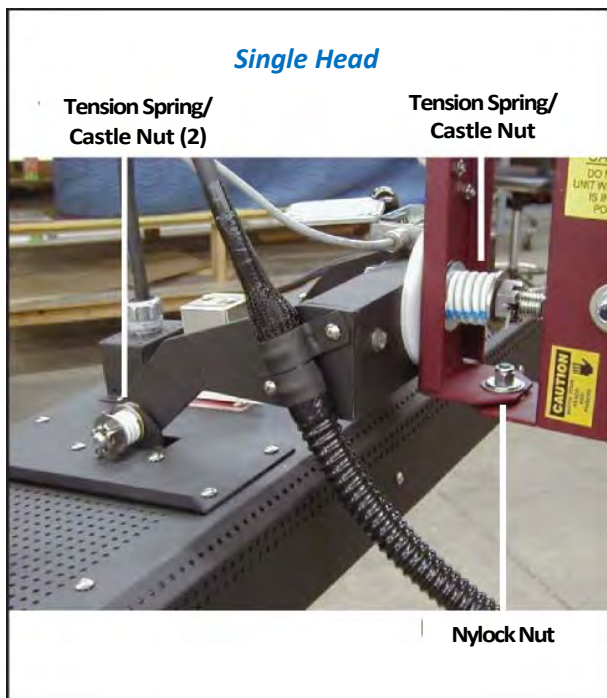
1. Check nylock nut connecting the gas spring for tightness monthly. Check gas spring for leaks. If gas spring becomes weak, raising the heater will become difficult.

Pivot Points

1. Single head units have three (3) castle nut/spring combinations and two (2) shoulder bolts with Nylock nuts. If pivot points become loose, heater positioning will not be maintained. Check these points monthly.
2. Dual head units have seven (7) castle nut/spring combinations and two (2) shoulder bolts with Nylock nuts. If pivot points become loose, heater positioning will not be maintained. Check these points monthly.
3. To adjust spring tension; remove cotter pin, tighten castle nut (usually one or two notches) and replace cotter pin through bolt.

Lamps, Reflectors and Heat Sensor (Pyrometer) Lens

1. Clean with soft cloth and alcohol monthly. Heat sensor accuracy is dependent on a clean lens.



7. Troubleshooting Guide

Heater Power Problems

Problem

Heater lamps come on immediately when disconnect is closed.

Possible Cause and Corrective Action

- With power OFF, measure the resistance from the lamp wires to ground. The measurement should be more than 100 K ohms. If it is less than 100 K, check the lamp wiring and heater head for shorts to ground. Check for a bad firing circuit board or a shorted SCR by: exchanging the firing circuit board with one from a known good control. Does the problem follow the firing circuit board or does it stay with the SCR – replace the defective component.
- Contactor held closed – failed ON. Replace the contactor.

Problem

Heater lamps do not come on.

Possible Cause and Corrective Action

- Is the Power On/Off button illuminated, is the temperature controller on? - Check that incoming line power is present; transformer fuses, primary and secondary are good.
- Do the contactors energize when the Cycle Start button is pressed? – Check for loose wires associated with the contactors, change the temperature controller.
- Check that the set point (bottom display) is higher than the process temperature (top display).
- Are the line fuses in front of the contactors good – check voltage on the load side of the fuses or remove the fuses and check with an ohmmeter.
 - Is the green LED on the firing circuit lit? – Check that the firing circuit has 24 vac, with an ammeter check that the 4-20ma input signal is present from the temperature controller. If the 4-20ma signal is not present, see the section “No Output Signal from Temperature Controller”.
 - Do any of the zones function? – If the above points have been checked, confirm that there is a complete circuit through the lamps and all wiring is tight – change the SCR.
- Are all zones dead? – Zone A should function regardless of the zone switch setting, there is only one firing circuit for all zones - change the firing circuit

Temperature Controller Problems

Problem

Temperature controller has no display.

Possible Cause and Corrective Action

Check the supply voltage (24 VAC) to the unit at terminals 11 and 12. If voltage is present, replace the controller. If voltage is not present, check source of power (fuses, transformers, wiring, etc.)

Problem

No output signal from temperature controller.

Possible Cause and Corrective Action

- Check that the set point (bottom display) is higher than the process temperature (top display).
- Check the 0-5v input to the temperature controller at pins 9 & 10. If the 0-5v signal is not present, confirm that the Raytek pyrometer is functioning.
- Is the LCD display lit? If not, check that the Raytek input power (12 vdc) is present, check that the power supply board is supplying 12 vdc (TB 4) – replace the temperature controller, Raytek, or the power supply board.

Problem

Temperature controller output signal is present, but heater lamps do not come on.

Possible Cause and Corrective Action

Possible defective power controller firing circuit board and/or SCR. Check for a bad firing circuit board or SCR by exchanging the firing circuit board with one from a known good control. Does the problem follow the firing circuit board or does it stay with the SCR – replace the defective component.

Temperature Problems

Problem

The heater reaches set-point temperature, but the paint isn't cured properly or is darkened, or the heater does not reach set-point temperature.

Possible Cause and Corrective Action

- Read the instructions in the manual on how to position and run the heater.
- Clean the temperature sensor lens as described in maintenance section.
- The optical pyrometer is not seeing the surface of the object being heated. The pyrometer has about a 1-inch diameter field of view on the objects' surface. Position the heater head with the pyrometer so it sees the surface being heated. Make sure the pyrometer is not seeing parts of a window, wheel well, tape, masking, etc.

Problem

The temperature display jumps up or down many degrees within a second.

Possible Cause and Corrective Action

- Check for loose connections on the heat sensor (pyrometer) wiring.
- While the heater is running at temperature, gently wiggle the pyrometer cable and have someone watch for sudden temperature changes. If this happens – replace the cable.

Problem

Positioning Beam does not work

Possible Cause and Corrective Action

Check that the power supply board is supplying approximately 3.25 vdc (TB 3). Check that the wires are secure on the power supply board and on the push button. Open the cover on the Heat sink assembly on the back of the heater and retest for the 3.25 v. If the power supply is functioning and there is no voltage at the heat sink assembly, open the Raytek pyrometer and test for the voltage (the 2 wire nuts) – replace the Positioning Beam.

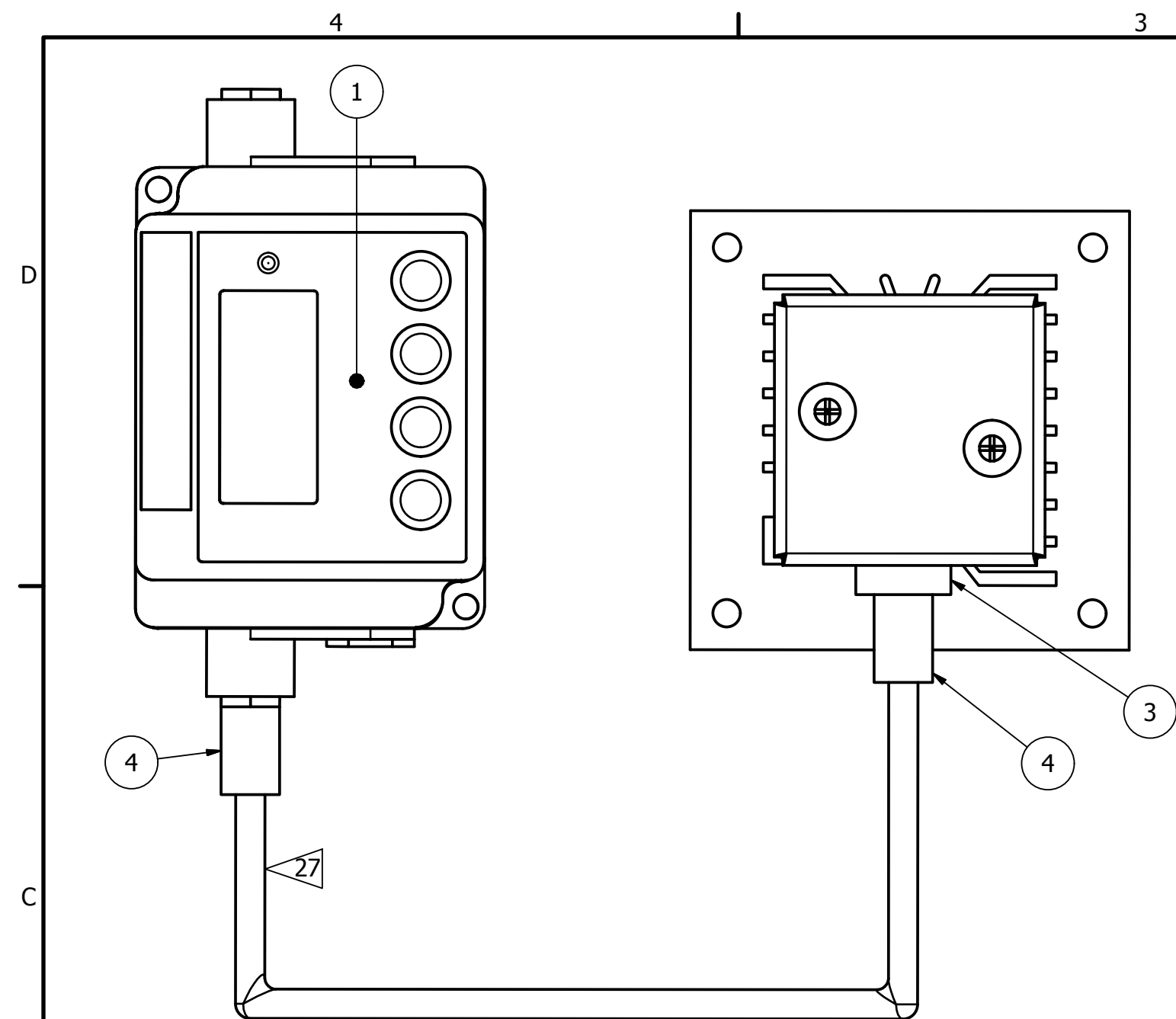
8. Temperature Controller Error Codes

<u>Display</u>	<u>Problem</u>	<u>Actions</u>
Err.H	Open Sensor	Check sensor,wiring, and input
Err.L	Reversed Sensor	Check Sensor polarity
LPbr	Loop Break	Correct problem and Reset controller
0100	Checksum Error	Press Any Key to perform a soft reset and reinitialize controller
0101	RAM Error	
0202	Defaults Loaded	
0303	EEPROM Write Failure	
3865	Power Fail Resume Feature Disabled	No further resume actions available
36 Plus other 2 digit code	Unexpected or invalid interrupt	Reset Controller

Ramp/ Soak Errors

02= Recipe Empty (i.e. no non-zero ramp times)

05= Insufficient Setpoint - Process Value Deviation



PARTS LIST			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	42936	PYROMETER SENSOR
3	1	AC-200026	PYROMETER WIRE CLIP
4	2" x 2	TR-SSEM-283	SHRINK TUBING
5			
8	1	AC-65427	LASER
9	1	AC-61229	PLATE INTERMEDIATE
10	1	AC-61228	INSULATOR PYROMETER
11	1	AC-61227	MOUNT INSULATOR
12	1	AC-61232	HOUSING PYROMETER
13	1	AC-61230	COVER PYROMETER
14	2	AC-200099-3	SCREW MACH FL HD SLOT 8-32 X 2.750
15	2	AC-200032	STANDOFF HEX 8-32 X .750
16	2	AC-13938	WASHER LOCK EXTERNAL
17	2	AC-10142	SCREW MACH TRUSS PH 8-32 X 3/8
18	1	AC-200088	CAUTION LABEL
19	2	AC-200031	FEMALE CONNECTOR
20	2	AC-200030	MALE WIRE CONNECTOR
21	2	AC-200033	CABLE SLEEVE
22	28"	AC-200052-1	MESH
23	35"	AC-200077	BROWN WIRE
24	35"	AC-200078	GREEN WIRE
25	2	72591-01	WHITE CABLE SLEEVE
26	2	AC-200034	WIRE NUTS
27	1	AC-200026	STRAIGHT-THROUGH STRAIN RELIEF

- NOTES:**

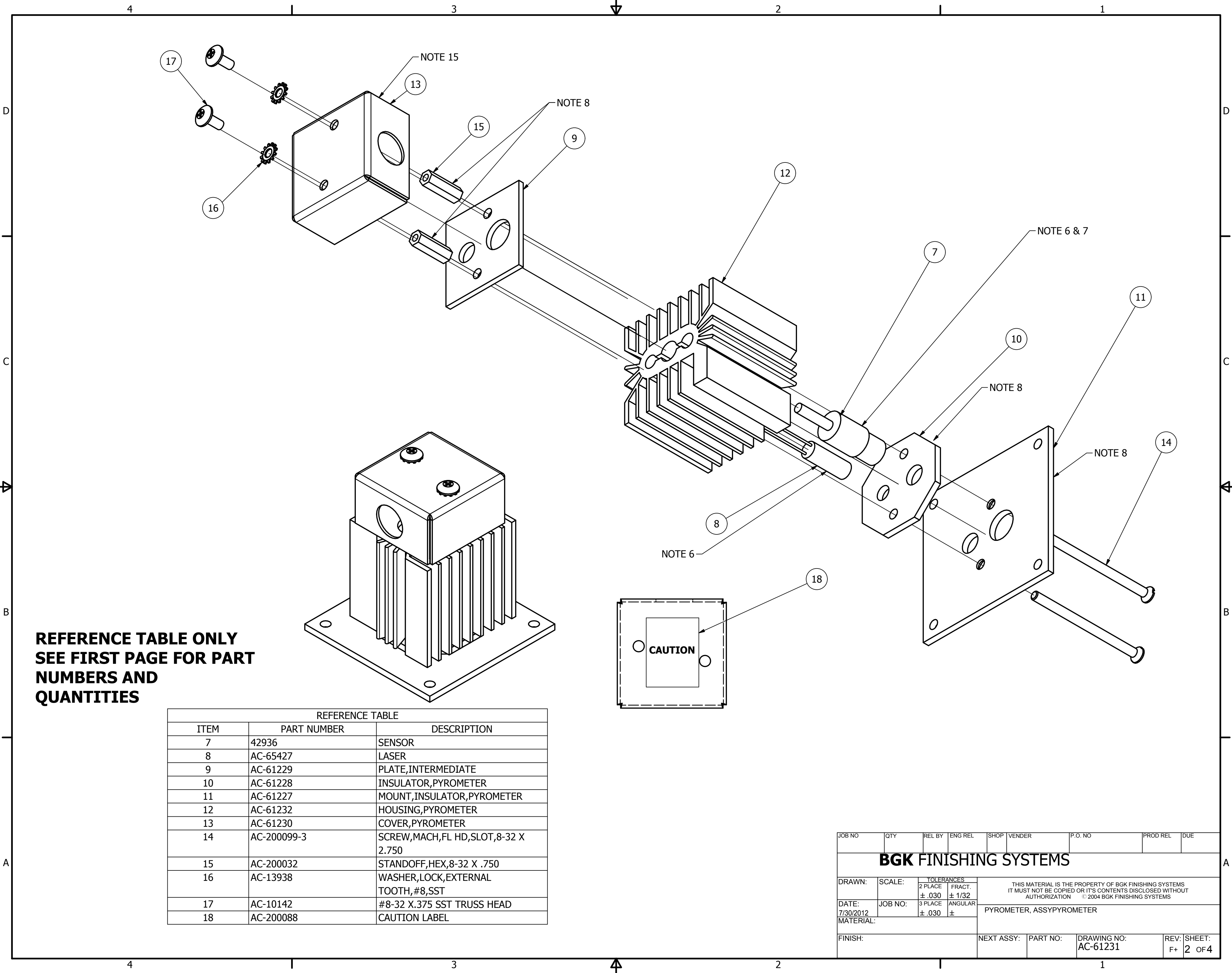
1. OPEN HOUSING AND LOOSEN 4 TERMINALS TO REMOVE PYROMETER.
2. LOOSEN NUT AND REMOVE NUT, GROMMET, AND 3 WASHERS. DISCARD ONE WASHER.
6. WRAP COPPER TAPE 2-3 TURNS TO RUNNING FIT (USE AC-200198).
7. APPLY THERMAL JOINT COMPOUND USING APPLICATOR AND SPREAD ACROSS ENTIRE CIRCUMFERENCE (USE AC-200199).
8. CENTER PYROMETER AND LASER TO THROUGH HOLES WHILE ASSEMBLING PLATES.
9. STRIP BACK 5/16" MINIMUM.
10. ASSEMBLE WITH TOOL HEYCO NO. 29.
11. ASSEMBLE WITH WEED CRIMPER.
12. ASSEMBLE WITH KLINE CRIMPER 1005.
13. STRIP BACK 1/4" MINIMUM.
14. USE TOOL TO INSTALL TERMINALS ONTO WIRES.
15. INSTALL FLEXIBLE CONDUIT AROUND WIRES.
16. INSTALL SHRINK WRAP.
17. INSTALL CABLE THROUGH PYROMETER HOUSING.
18. INSTALL GROMMET OVER SHRINK WRAP INTO PYROMETER HOUSING.
19. AC-200034 REQUIRED FOR WIRE COVER ON AC-42936 2 PLACES. LEAVE LOOSE IN HOUSING. SEE SHEET 3.
20. APPLY SHRINK TUBING ONTO MESH AFTER TRIMMING WIRES TO SAME LENGTH AS MESH. SEE SHEET 4 OF 4 FOR LOCATION.

REVISION HISTORY				
REV	DESCRIPTION	DCO	DATE	APPROVED
B	UPDATED BOM	18943	8/16/12	RAN
C	ADDED NEW PYROMETER	19524	8/16/13	RAN
D	CHANGED 6655-01 TO AC-200077, 6655-05 TO AC-200078	20079	1/21/15	RAN
E	CHANGED QTY OF #18 FROM 2 TO 1 AND REMOVED REF QTYS ON PAGE 2	20168	3/13/15	RN
F	MOVED NOTES 1-2,4-7. REVISED NOTE 8. REMOVED NOTES 2,9,10. ADDED 18 ASSEMBLY NOTES. RENUMBERED NOTES. REMOVED FRONT AND BOTTOM VIEW FROM SHEET 1	20425	8/31/2015	EAO
F+	CORRECT REVISION	20482	10/20/2015	EAO

- NOTES (CONT'D):**

- 21. MOVE NUT UP ONTO SHRINK TUBING TO ALLOW FOR GROMMET INSTALLATION.**
- 22. CUT 1/8" X 1/8" V-NOTCH TO SHRINK TUBE.**
- 23. INSTALL GROMMET ONTO SHRINK TUBE USING BULLET TOOL OR PLIERS.**
- 24. INSTALL 2 WASHERS AS SHOWN - SEE SHEET 3.**
- 25. INSTALL NUT ASSEMBLY.**
- 27. AFTER INSTALLING WIRES INTO TERMINAL BLOCK, PERFORM TWO FINGER PULL TEST.**
- 26. AFTER ASSEMBLY, CONNECTION TO HOUSING MUST PASS UL STANDARD 3LB DROP TEST.**

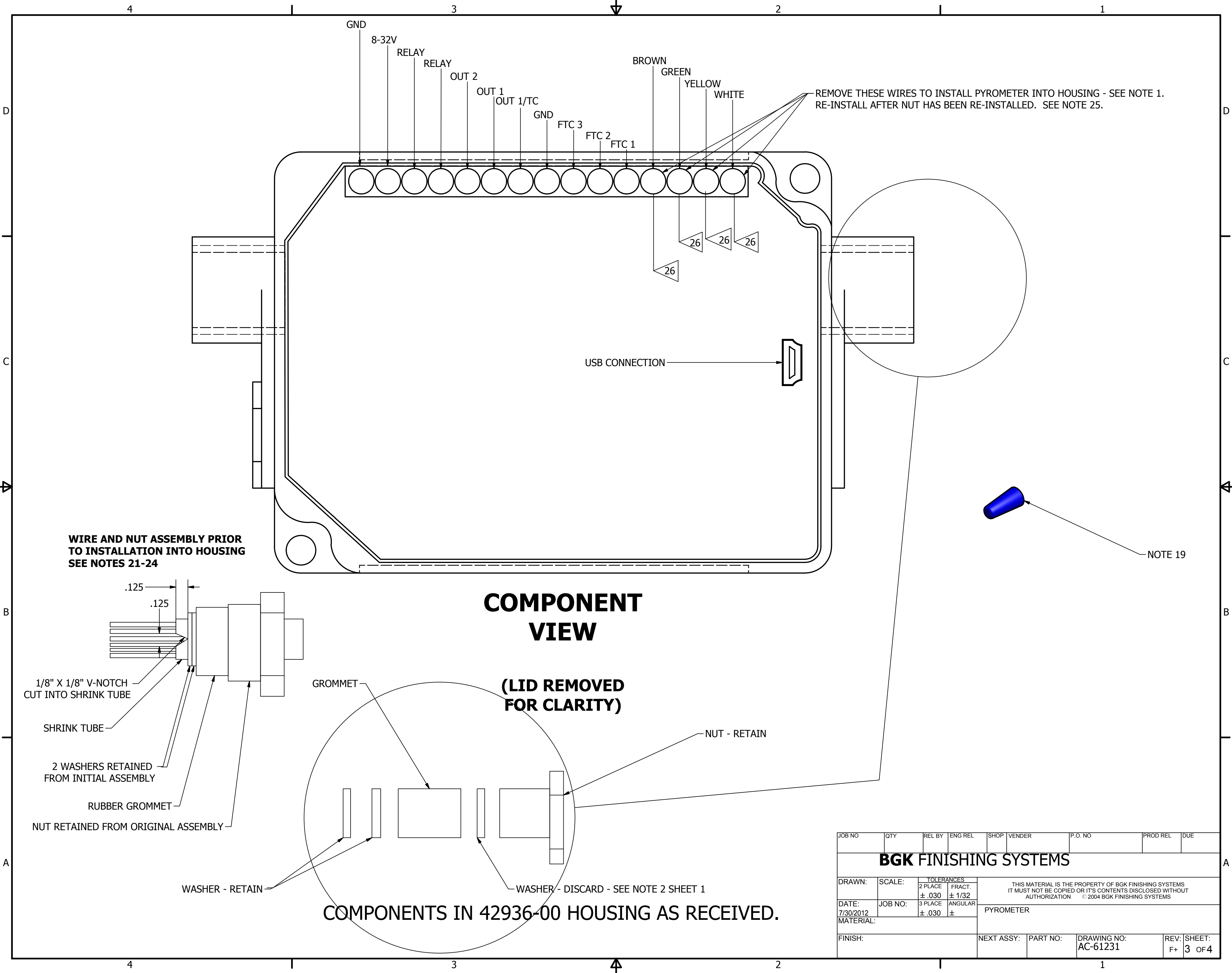
JOB NO	QTY	REL BY	ENG REL	SHOP	VENDER	P.O. NO	PROD REL	DUE					
BGK FINISHING SYSTEMS													
DRAWN:	SCALE:	TOLERANCES		THIS MATERIAL IS THE PROPERTY OF BGK FINISHING SYSTEMS IT MUST NOT BE COPIED OR ITS CONTENTS DISCLOSED WITHOUT AUTHORIZATION © 2004 BGK FINISHING SYSTEMS									
		2 PLACE	FRACT.										
		± .030	± 1/32										
DATE:	JOB NO:	3 PLACE	ANGULAR	PYROMETER									
7/30/2012		± .030	±										
MATERIAL:													
FINISH:				NEXT ASSY:	PART NO:	DRAWING NO:	REV:	SHEET:					
						AC-61231	F+	1 OF 4					



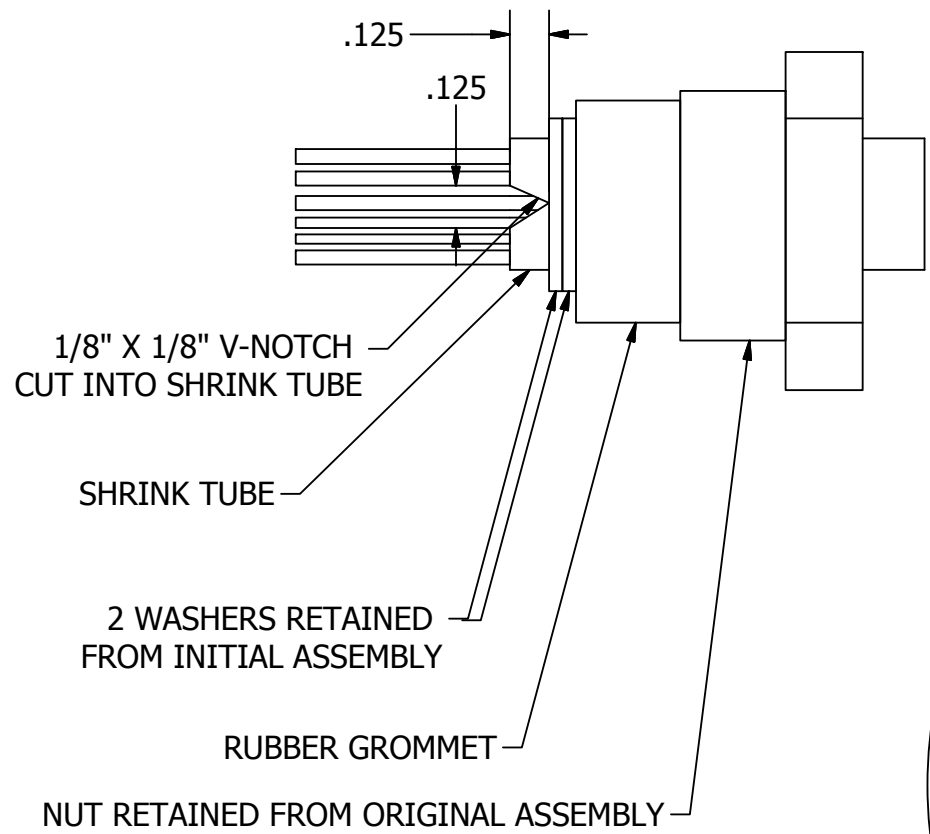
REFERENCE TABLE ONLY
SEE FIRST PAGE FOR PART
NUMBERS AND
QUANTITIES

REFERENCE TABLE		
ITEM	PART NUMBER	DESCRIPTION
7	42936	SENSOR
8	AC-65427	LASER
9	AC-61229	PLATE,INTERMEDIATE
10	AC-61228	INSULATOR,PYROMETER
11	AC-61227	MOUNT,INSULATOR,PYROMETER
12	AC-61232	HOUSING,PYROMETER
13	AC-61230	COVER,PYROMETER
14	AC-200099-3	SCREW,MACH,FL HD,SLOT,8-32 X 2.750
15	AC-200032	STANDOFF,HEX,8-32 X .750
16	AC-13938	WASHER,LOCK,EXTERNAL TOOTH,#8,SST
17	AC-10142	#8-32 X.375 SST TRUSS HEAD
18	AC-200088	CAUTION LABEL

JOB NO	QTY	REL BY	ENG REL	SHOP	VENDER	P.O. NO	PROD REL	DUE
BGK FINISHING SYSTEMS								
DRAWN:	SCALE:	TOLERANCES 2 PLACE ± .030		FRACT. ± 1/32		THIS MATERIAL IS THE PROPERTY OF BGK FINISHING SYSTEMS IT MUST NOT BE COPIED OR IT'S CONTENTS DISCLOSED WITHOUT AUTHORIZATION © 2004 BGK FINISHING SYSTEMS		
DATE: 7/30/2012	JOB NO:	3 PLACE ± .030		ANGULAR ±		PYROMETER, ASSYPYROMETER		
MATERIAL:								
FINISH:				NEXT ASSY:		PART NO:		DRAWING NO: AC-61231
						REV: F+		SHEET: 2 OF 4

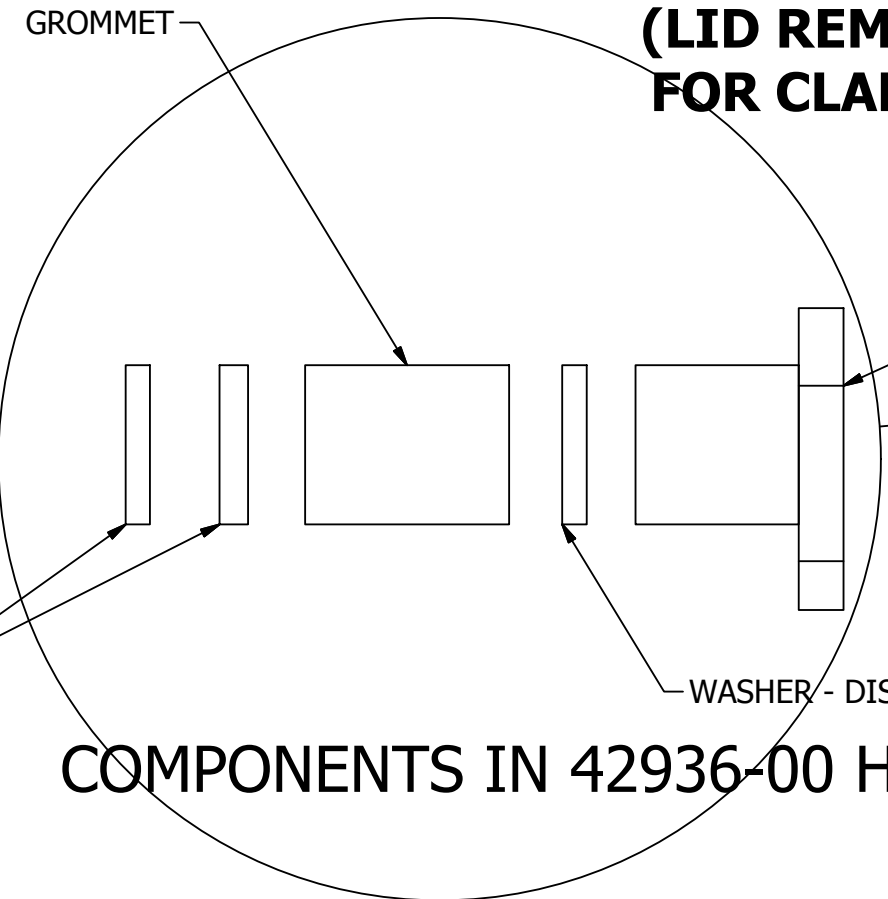


WIRE AND NUT ASSEMBLY PRIOR TO INSTALLATION INTO HOUSING
SEE NOTES 21-24



COMPONENT VIEW

(LID REMOVED FOR CLARITY)



COMPONENTS IN 42936-00 HOUSING AS RECEIVED.

JOB NO	QTY	REL BY	ENG REL	SHOP	VENDER	P.O. NO	PROD REL	DUE
BGK FINISHING SYSTEMS								
DRAWN:	SCALE:	TOLERANCES		THIS MATERIAL IS THE PROPERTY OF BGK FINISHING SYSTEMS IT MUST NOT BE COPIED OR IT'S CONTENTS DISCLOSED WITHOUT AUTHORIZATION © 2004 BGK FINISHING SYSTEMS				
DATE:	JOB NO:	2 PLACE	FRACT.					
7/30/2012		± .030	± 1/32	PYROMETER				
MATERIAL:		3 PLACE	ANGULAR					
		± .030	±					
FINISH:				NEXT ASSY:	PART NO:	DRAWING NO: AC-61231		REV: SHEET: F+ 3 OF 4

4

3

2

1

D

D

C

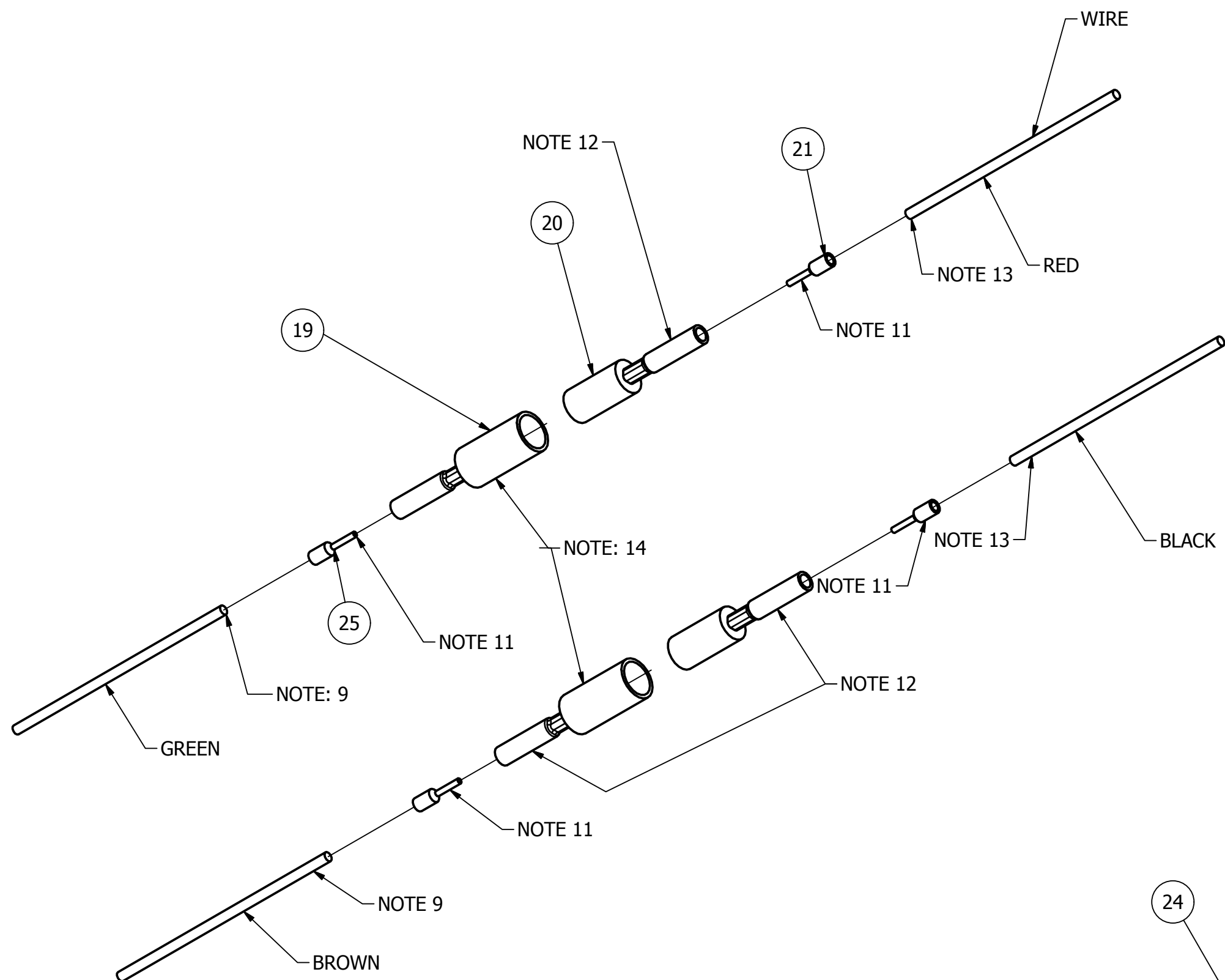
C

B

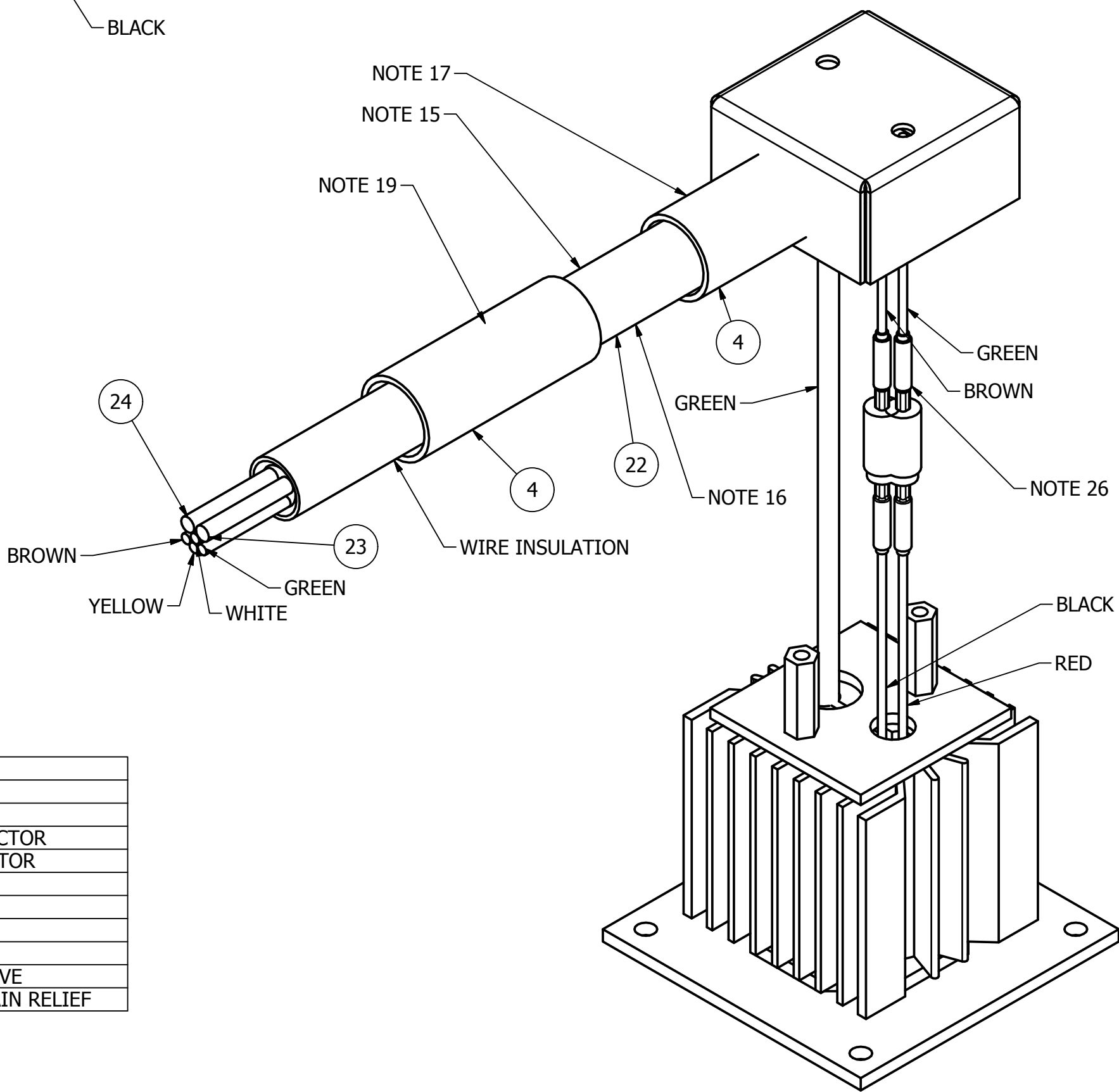
B

A

A



PYROMETER WIRING ASSEMBLY



**REFERENCE TABLE ONLY
SEE FIRST PAGE FOR PART
NUMBERS AND
QUANTITIES**

REFERENCE TABLE		
ITEM	PART No.	DESCRIPTION
4	TR--SSEM-383	SHRINK TUBING
19	AC-200031	FEMALE WIRE CONNECTOR
20	AC-200030	MALE WIRE CONNECTOR
21	AC-200033	CABLE SLEEVE
22	AC-200052-1	MESH
23	AC-200077	BROWN WIRE
24	AC-200078	GREEN WIRE
25	72591-01	WHITE CABLE SLEEVE
27	AC-200026	STRAIGHT-THROUGH STRAIN RELIEF

JOB NO	QTY	REL BY	ENG REL	SHOP	VENDER	P.O. NO	PROD REL	DUE
BGK FINISHING SYSTEMS								
DRAWN:	SCALE:	TOLERANCES		THIS MATERIAL IS THE PROPERTY OF BGK FINISHING SYSTEMS IT MUST NOT BE COPIED OR IT'S CONTENTS DISCLOSED WITHOUT AUTHORIZATION © 2004 BGK FINISHING SYSTEMS				
DATE:	JOB NO:	2 PLACE	3 PLACE	FRACT.	ANGULAR	PYROMETER		
MATERIAL:		± .030	± .030	± 1/32	±			
FINISH:		NEXT ASSY:		PART NO:	DRAWING NO:	REV:	SHEET:	
					AC-61231	F+	4 OF 4	

10. Service Instructions For Pyrometer

RAYTEK PYROMETER REPLACEMENT CALIBRATION VERIFICATION ON OVERHEAD OR PORTABLE REPAIR ARM USING A HAND HELD PYROMETER (Raytek MID Pyrometer with BGK Temperature Controller ONLY)

Purpose:

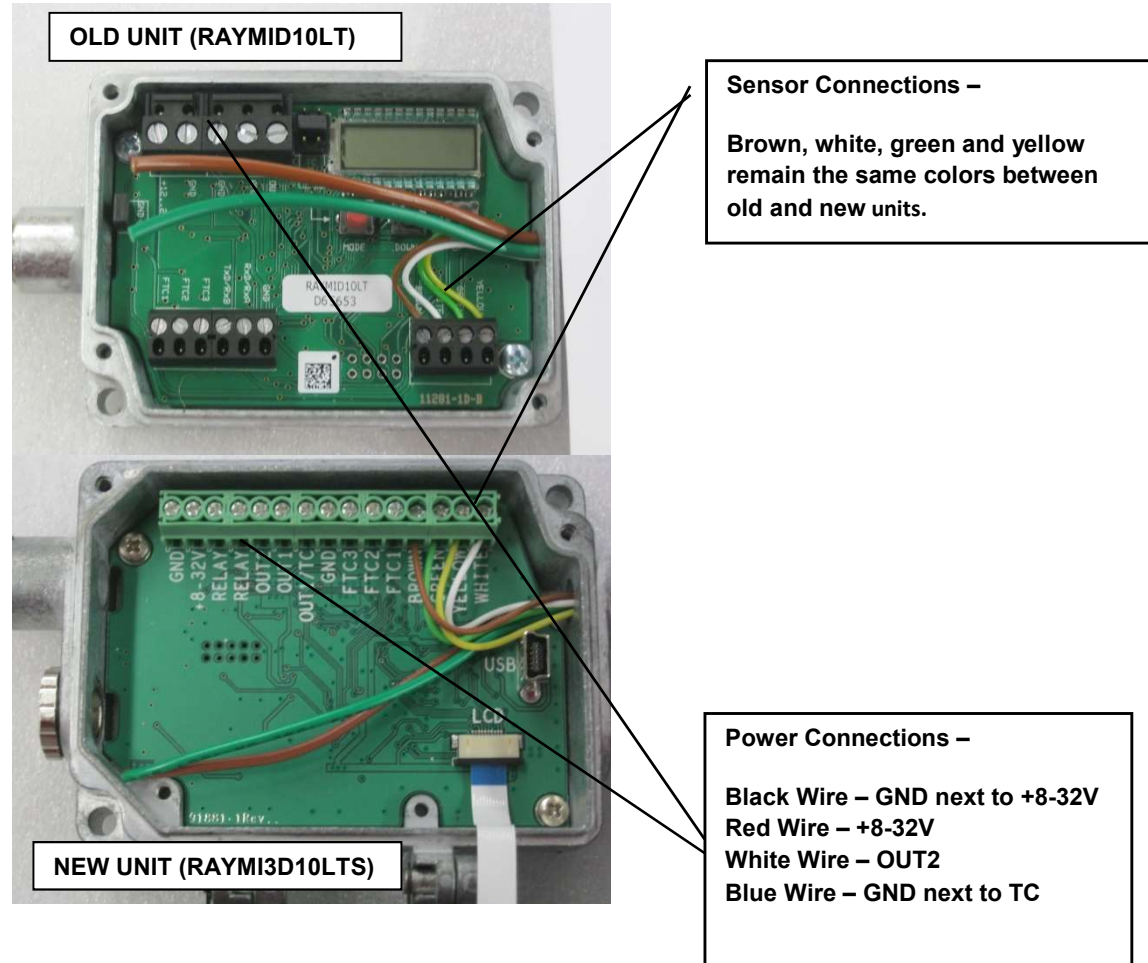
This procedure is to be completed to verify the temperature display is correct on the BGK temperature controller. Then the BGK “Auto-Cure” series repair arms will heat the painted spot repair to the correct temperatures to achieve the proper cure of the paint.

Equipment Required:

- Hand-held Infrared pyrometer in good working order with a current calibration label. Pyrometer with laser aiming is preferred.
- A good condition scrap painted door, fender, or test panel on which to perform the calibration is required. (White or light color is preferred).
- A #1 Phillips screwdriver.

RAYMID10LT Pyrometer Sensor manufactured by Raytek has been discontinued. It has been replaced by model number RAYMI3D10LTS. This Change affects the following Autocure units AC3, AC5, AC6 & AC7, and AC8.

Shown below are photos of the differences between sensors:



Additional modifications required – The AWG gage size of the laser wires that are typically connected inside the sensor with wire nuts. The wire gauge will be changing from 20 AWG to 22 AWG effective upon change over in February 2015.

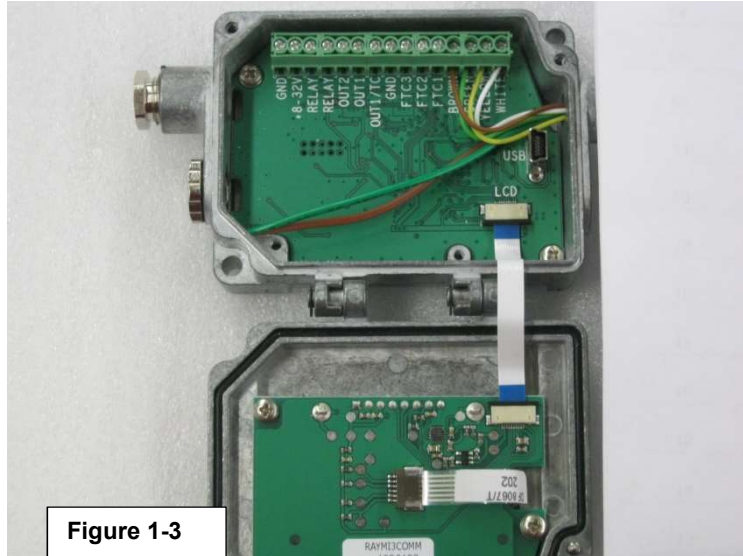


Figure 1-3

The new unit is hinged as shown in Figure 1-3.

Performance - the new sensor is equal, a direct replacement to the older unit. There is no change in emissivity or response time between units, they are equal.



Figure 1-4

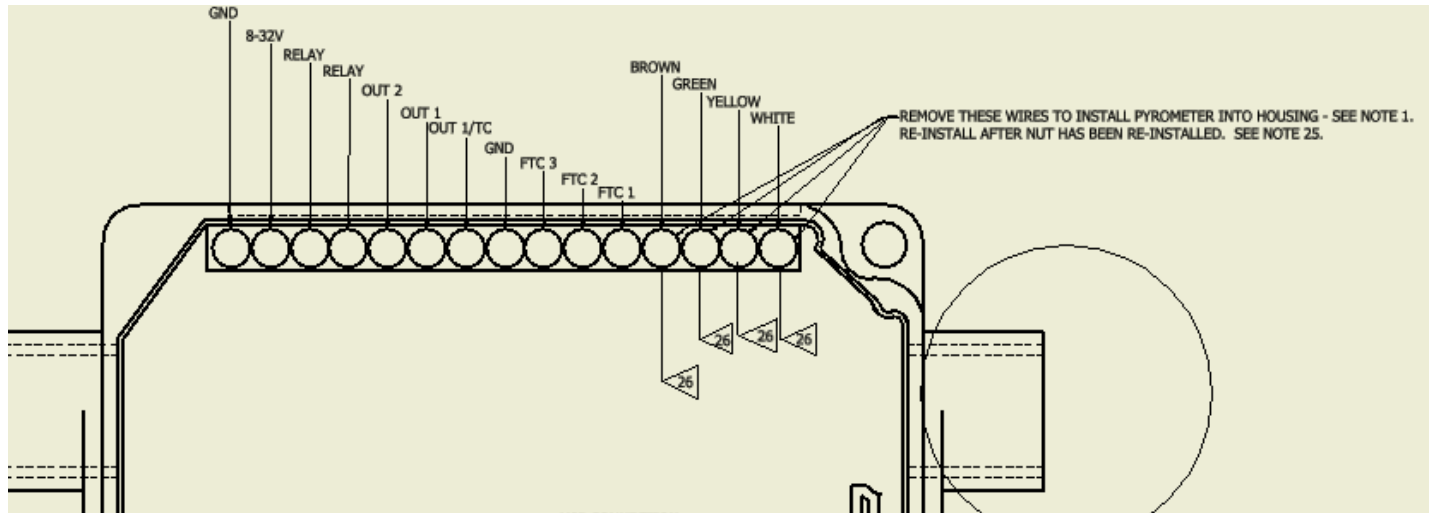
The front cover over lay is solvent resistant. Figure 1-4.

Both the old and new **Raytek** units are not rated for hazardous environment nor are they ATEX approved.

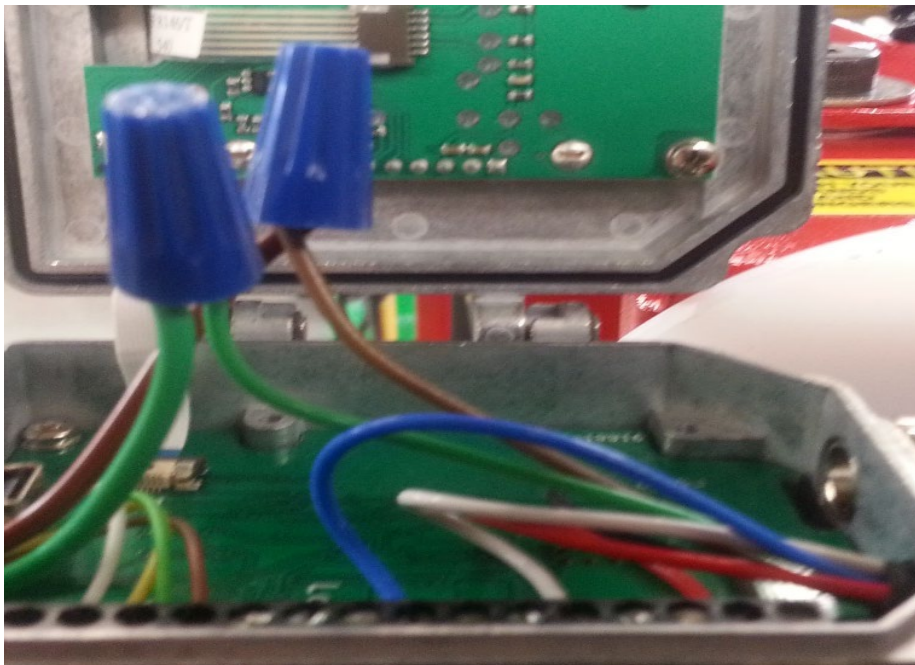
They are **CE** rated only.

Replacement of New Pyrometer Sensor

1. Open Cover for Raytek Sensor, loosen and remove wire from terminals shown below.



2. Undo wires from two wire nuts, as shown.

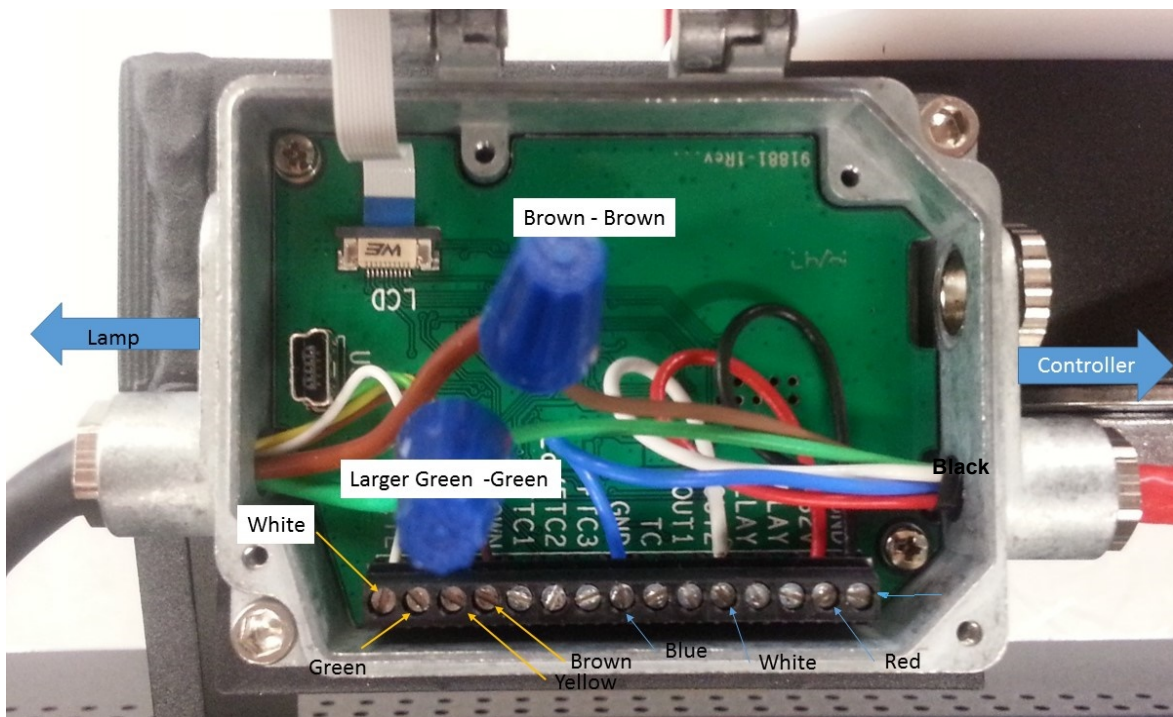


3. Loosen nut on pyrometer side, and remove wires from housing.
4. Open enclosure on top of heat sink, and isolate wires for laser (black/red leads)
5. Clip leads, leaving enough wire to strip and re-connect with crimp connections
6. Loosen and remove standoffs
7. Remove insulating plate
8. Remove heat sink, then remove pyrometer.

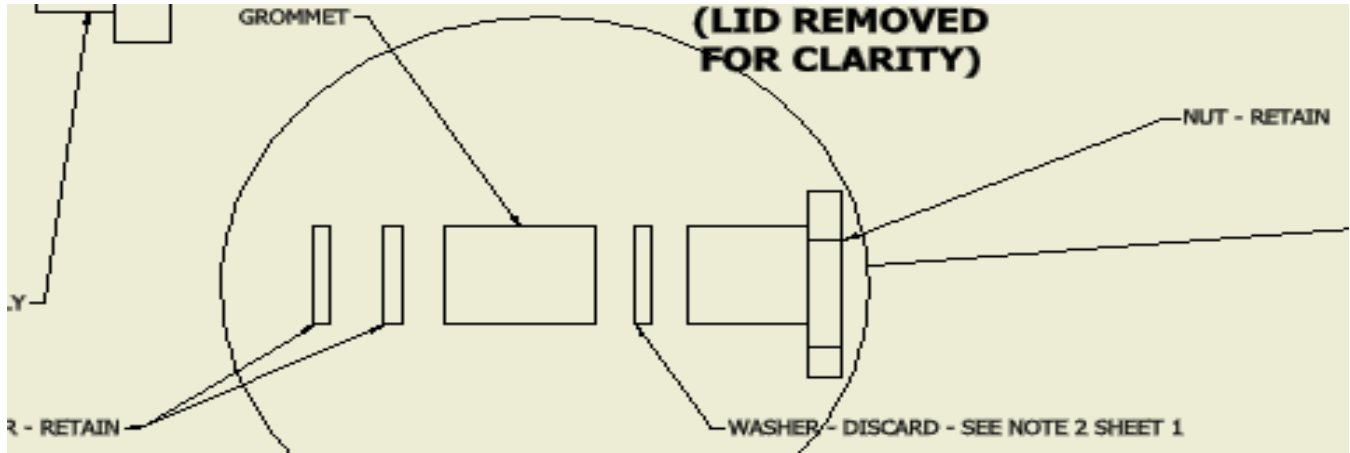
9. Install new pyrometer into heat sink, making sure to adjust fit using varnish tape wrapped on the outside.
10. Install heat sink onto lower insulators
11. Install intermediate plate
12. Crimp laser leads to leads in pyrometer bundle – red to green and brown to black.
13. Install standoffs
14. Replace cover and tighten nuts.
15. If new pyrometer, replace grommet into side of housing.
16. Reconnect leads in Raytek sensor housing using schematic in Step 1.
17. Reconnect wires in wire harness as shown above.

Replacement of Pyrometer Controller

1. Open Housing and loosen 4 terminals to remove pyrometer. Loosen 4 terminals to remove connection to AutoCure Arm as shown below.



2. Open New Housing, and loosen 4 terminals as shown above to remove pyrometer.
3. Disconnect wires in wire nuts.
4. On New Housing, Loosen and remove nut, grommet, and three washers on thermocouple side. Loosen and remove nut and all washers on AC arm side.
5. Unmount housing and replace with new housing.
6. Install nut, grommet and 2 washers onto Thermocouple leads, as shown below.



7. Once installed, insert leads for thermocouple into terminals indicated in Step 1.
8. Insert and tighten down to 20 Nm.
9. From AC arm, insert nut, AC-200104 Nylon washers and Grommet, similar to diagram in step 5.
10. Insert leads into terminals indicated in step 1. Reconnect leads into wire terminals.
11. Tighten down nut to 20 Nm.
12. Verify calibration per SI-B-11-02.1 (see next page).

Verification / Calibration Procedure

1. Position the good condition testing surface (door, fender, etc.) in front of the heater head. Adjust the heater head about 10" away from the painted test surface. (Approx. an open hand width.)



2. On the good condition, scrap painted testing surface with a pen, pencil or grease pen make a small "X" or dot where the surface is mainly flat and there are **NO** reinforcements or multiple thickness metals within about 12 inches of the mark.

3. Then on the arm control panel, push the "Positioning Beam On" button. Locate the positioning beam (red dot) on the test surface on the "X" or dot you made above. Make sure you maintain the 10-inch gap between the test surface and the heater head. This dot is also the point where the hand-held pyrometer will be aimed during calibration to read the same area the arm pyrometer is reading (temperature reading area). Again, ensure the red dot **is not** aimed at areas with reinforcements or multiple thickness metals within about 12 inches of the dot.



Begin Verification / Calibration Cycle

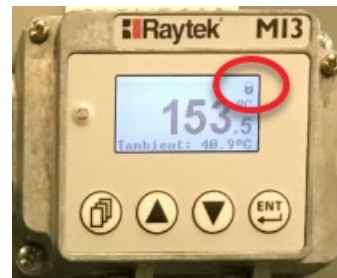
1. Verify that the Ramp 1 and Ramp 2 (if used) cure temperatures (ct1 and ct2) settings are at the proper temperature set points used for the area.
2. Press the “Cycle Start” **button two times with in two seconds**.
Lamp cycle should begin with a ramp-up to the final cure ramp settings. They will be “rp1” set points on a single ramp setup and “rp2” on a dual ramp setup. (See figure A). The temperature set point will be displayed on the bottom display of the temperature controller. The upper display will alternate between “rp_” and the actual temperature feedback from the pyrometer.
After the “rp_” has completed the ramp and flashing, the hold cycle will begin with a constant temperature on the upper display at the “ct_” set point.

Using the handheld pyrometer, measure the temperature of the target about 1” to the right of the positioning beam spot. (Figure D). **Hold the hand-held pyrometer as close to 90° to the testing surface as possible by the edge of the heater head.** This is critical for an accurate and consistent reading.

3. ***Compare the handheld reading with the process temperature (upper display) on the temperature controller. If they are within 5 degrees, no further changes are required. If they are not, continue with doing the following calibration procedure.***

Verify “Lock” Status of Raytek Comm Module

1. **Verify lock status on Raytek box** – Observe the display for a “Padlock” icon on the screen as shown. If the icon is displayed the unit is “Locked out” preventing any parameter changes. Complete steps below to “Unlock” the unit, otherwise continue with next section.



2. The unit can be unlocked by pressing the  button and the  button simultaneously for 3 seconds or alternatively by pressing the  button for 5 seconds.

Adjusting Raytek Calibration Procedure

1. **Verify correct settings on Raytek box** – Press the page button  until “BOX SETUP” is displayed.

OUT2 Mode

Using the arrow keys   until “OUT2 Mode” is displayed. Verify  setting for mode is 0-5V. If the setting is incorrect, press the enter button

and the setting should be highlighted. Press the arrows keys   until the correct settings is display, 0-5V. After settings is correct, press the enter button

 to save setting.

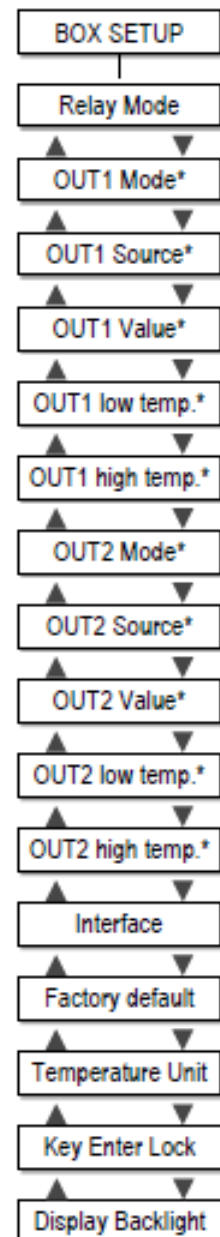
OUT2 Value

Using the arrow keys   until “OUT2 Value” is displayed. Verify the setting for mode is “Tobject”. If the

setting is incorrect, press the enter button  and the setting should be highlighted. Press the arrows keys

  until the correct settings is display, “Tobject”.

After settings is correct, press the enter button  to save setting.

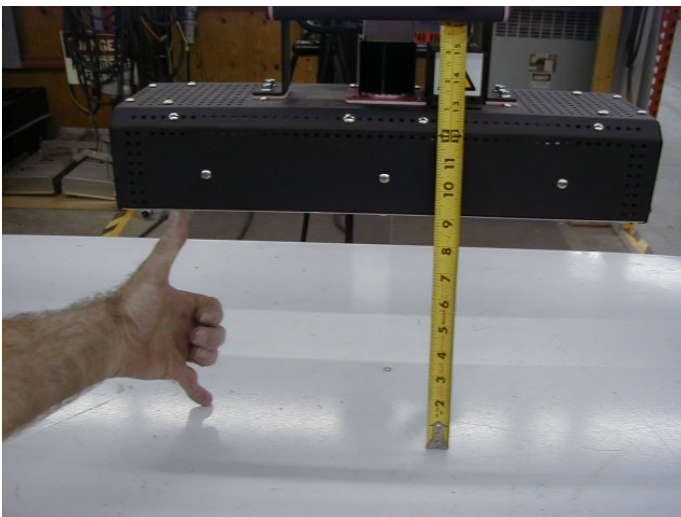


Temperature Unit

Using the arrow keys   until "Temperature Unit" is displayed. Press the enter button  and the setting should be highlighted. Press the arrows keys   until the correct setting is displayed, °F or °C. After settings is correct, press the enter button  to save setting.

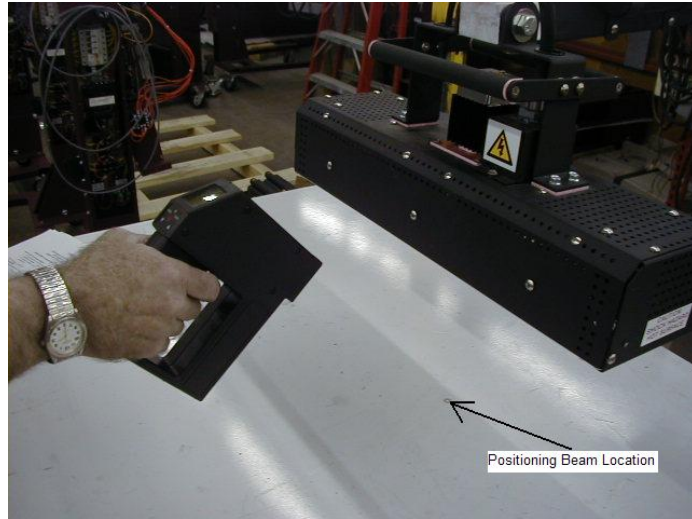


2. Position the testing surface (door, fender, etc.) in front of the heater head. Adjust the heater head about 10" away from the painted test surface. (Approx. an open hand width.)



3. On the scrap painted testing surface with a pen, pencil or grease pen make a small “X” or dot where the surface is mainly flat and there are **NO** reinforcements or multiple thickness metals within about 12 inches of the mark.

4. Then on the arm control panel, push the “Positioning Beam On” button. Locate the positioning beam (red dot) on the test surface on the



“X” or dot you made above. Make sure you maintain the 10-inch gap between the test surface and the heater head. This dot is also the point where the hand-held pyrometer will be aimed during calibration to read the same area the arm pyrometer is reading (temperature reading area). Again, ensure the red dot is **not** aimed at areas with reinforcements or multiple thickness metals within about 12 inches of the dot.

Begin Calibration Cycle

1. Verify that the Ramp 1 and Ramp 2 (if used) cure temperatures (ct1 and ct2) settings are at the proper temperature set points used for the area.
2. Press the “Cycle Start” **button two times with in two seconds.**

Lamp cycle should begin with a ramp-up to the final cure ramp settings. They will be “rp1” set points on a single ramp setup and “rp2” on a dual ramp setup. (See figure A). The temperature set point will be displayed on the bottom display of the temperature controller. The upper display will alternate between “rp_” and the actual temperature feedback from the pyrometer.

After the “rp_” has completed the ramp and flashing, the hold cycle will begin with a constant temperature on the upper display at the “ct_” set point.



Using the handheld pyrometer, measure the temperature of the target about 1” to the right of the positioning beam spot. (Figure D). **Hold the hand-held pyrometer as close to 90° to the testing surface as possible by the edge of the heater head.** This is critical for an accurate and consistent reading.

Compare the handheld reading with the process temperature (upper display) on the temperature controller. If they are within 5 degrees, no further calibration is required. If they are not, continue with the calibration.

Calibration Adjustment

1. Depress the page button

 until "BOX SETUP" is displayed. Press the arrow buttons   until "OUT2 high temp" is displayed. Press the enter button  to allow the temperature setting to be changed.



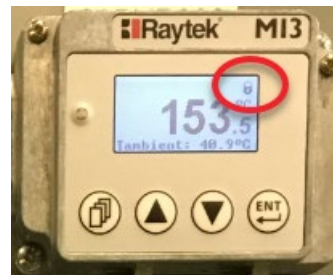
2. If the reading on the handheld pyrometer is higher than that of the process temperature on the temperature controller, decrease the temperature number using the down button  . After adjusting the value press the enter button  to save the value.
3. If the reading on the handheld pyrometer is less than the process temperature on the temperature controller, increase the temperature number using the up button  . After adjusting the value press the enter button  to save the value.
4. ***When you are within 5 degrees difference between the handheld pyrometer and the process temperature, no further calibration is required. Calibration is complete.***
5. Press the page button  until display returns to main screen.

“Lock” out the Comm Box

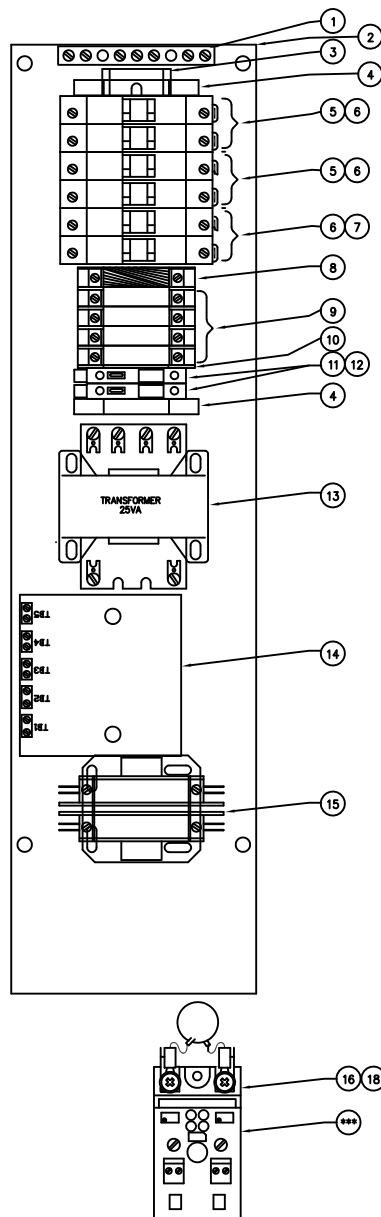
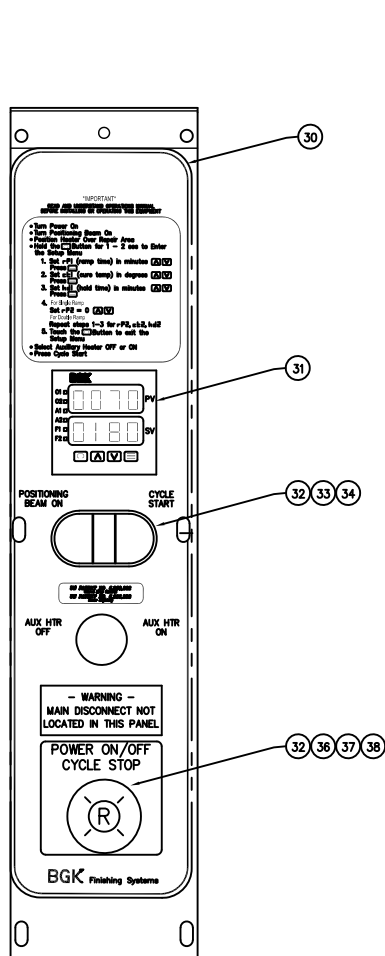
1. Press the page button  until “BOX SETUP” is displayed.

Key Enter Lock

2. Using the arrow keys   until “Key Enter Lock” is displayed. Verify the setting “YES”. If the setting is incorrect, press the enter button  and the setting should be highlighted. Press the arrows keys   until the correct settings “Yes” is displayed. After settings is correct, press the enter button  to save setting.
3. Verify the padlock is displayed as shown.



Procedure is completed.

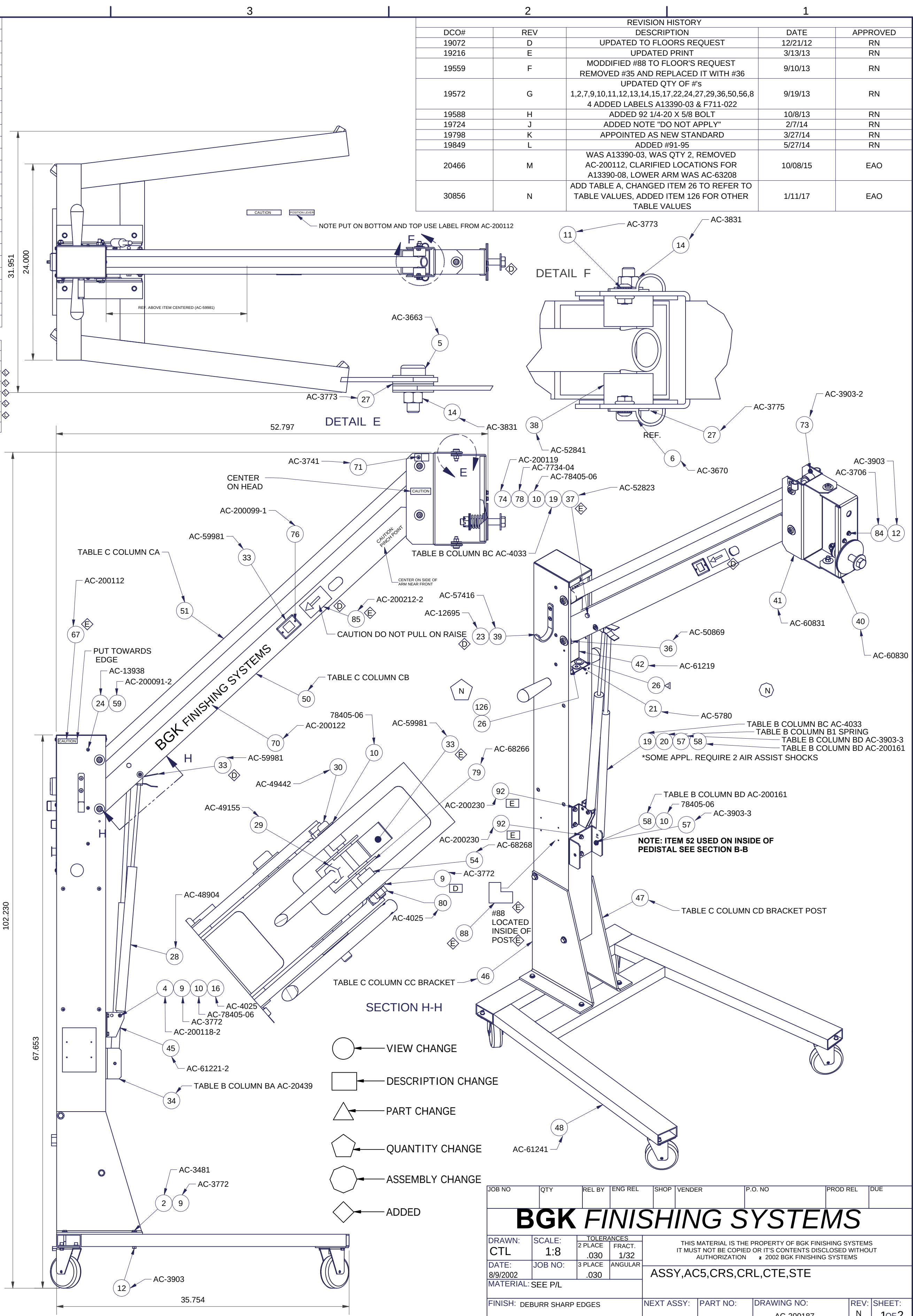


BACK PANEL MOUNTED COMPONENTS			
ITEM	DEVICE ID	QTY. PART NO.	DESCRIPTION
1	GRDBAR 104	1 E-306	GROUND BAR, 7 POLE
2	-	1 B61243	BACK PANEL
3	TB 112	1 050921	DIN RAIL
4	TB 112	2 073654	TERMINAL, END ANCHOR, W10
5	FU 101A&B	4	FUSE (VALUE DEPENDS ON MODEL - SEE SCHEMATIC)
6	FU 101A&B, 107A&B	3 034777	FUSE HOLDER, 2 POLE, 30A, 600V, CLASS CC
7	FU 107A&B	2 E-143	FUSE, 1A, 600V, CLASS CC
8	TB 112	1 055448	TERMINAL, GROUNDING
9	TB 112	4 039205	TERMINAL, 30A, 600V
10	TB 112	1 042338	TERMINAL, BARRIER
11	FU 111, 112	2 074161	FUSE HOLDER, 5x20 NEON IND
12	FU 111, 112	2 AC-200046	FUSE, 2A, 250V
13	T 110	1 AC-61041	TRANSFORMER, 25VA, 230 - 575/24
14	PWRSUP 120	1 AC-46847	POWER SUPPLY, 24AC - 12Vdc & 3.25Vdc
15	CON 114	1 005898	CONTACTOR, 40A, 2 POLE, 24V COIL
16	SCR 103	1 003320*	POWER CONTROLLER, 480V,40A,4-20MA
17	SCR 103	1 AC-200051	THERMSTRATE
**	NOTE - 575V, SCR 103	1 E-984	POWER CONTROLLER, 575V,40A,4-20MA
***	NOTE - FC COMES W/ITEM 16	1 E-466	FIRING CIRCUIT
FRONT PANEL MOUNTED COMPONENTS			
30	OVERLAY	1 078316	OVERLAY
31	INST 115	1 AC-74816-XXX-X-XXX	TEMPERATURE CONTROLLER (See Spare Parts for Complete #)
32	PB 108, 119	2 AC-200022	PLASTIC LATCH, PUSH BUTTON/SWITCH
33	PB 119	1 E-985	PUSH BUTTON, 2 FUNCTION, MOMEN, FLUSH
34	PB 119, SW 111	3 064672	CONTACT, 1 N.O.
36	PB 108	1 063920	PUSH BUTTON,40MM, MUSHRM HD, RED
37	PB 108	2 064674	CONTACT, 1 N.C.
38	PB 108	1 064740	POWER MODULE, RED, 24V

NOTES:

1. TO COMPLETE ASSEMBLY USE PRINT AC5 (CONFIG TABLES)
2. SINGLE: AC-47643 DUAL: AC-200090-4 
- 3 
- 4.

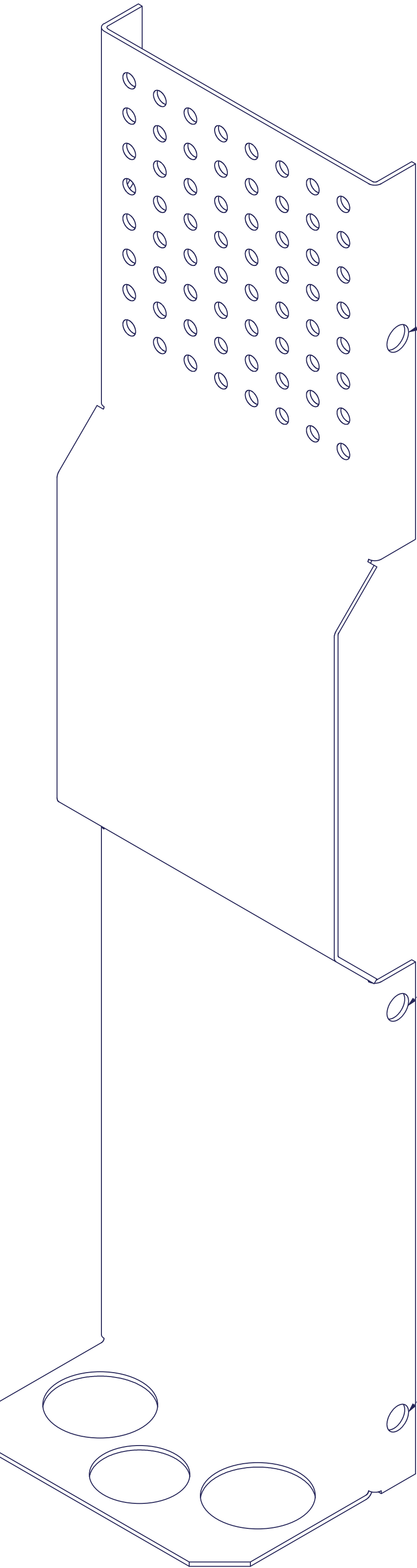
87	1	TABLE AAA COLUMN AK	VOLTAGE LABEL	
88	2	AC-200036	INSULATOR	
89	2	AC-200097	BLACK ALUMINUM RIVETS	
90	1	AC-64248	FIBER GLASS INSULATOR	
91	2	A13390-08	SERIAL NUMBER LABEL	
92	6	AC-200230	1/4-20 X 5/8 SER FLG BOLT	
93	1	7969-16	LOCITITE (NOT SHOWN)	
94	4	20827-00	PANDUIT TYWRAP MOUNT (NOT SHOWN)	
95	4	27141-044	TYWRAP (NOT SHOWN)	



AVK LOCATIONS (AC-5)

AVK TABLE (REFERENCE)

ITEM No.	PART No.	QTY	DESCRIPTION
1	AC-200098-1	6	AVK-8/32



AC-61219

JOB NO.	QTY	REL BY	ENG REL	SHOP	VENDER	P.O. NO.	PROD REL	DUE
BGK FINISHING SYSTEMS								
DRAWN: CTL	SCALE: 1:8	TOLERANCES 2 PLACE .030 1/32 3 PLACE .030 ANGULAR		THIS MATERIAL IS THE PROPERTY OF BGK FINISHING SYSTEMS IT MUST NOT BE COPIED OR IT'S CONTENTS DISCLOSED WITHOUT AUTHORIZATION © 2002 BGK FINISHING SYSTEMS				
DATE: 8/9/2002	JOB NO:	MATERIAL: SEE P/L		BAFFLE,ELECTRICAL CORD				
FINISH: DEBURR SHARP EDGES			NEXT ASSY:	PART NO:	DRAWING NO: AC-200187	REV: N	SHEET: 2 OF 2	

 VIEW CHANGE
 DESCRIPTION CHANGE
 PART CHANGE
 QUANTITY CHANGE
 ASSEMBLY CHANGE
 ADDED

JOB NO	QTY	MEL BY	EMO REL	SHOP	VENDOR	I/P.O. NO.		PROD REL	TIME
BGK FINISHING SYSTEMS									
DRAWN:	SCALE:	TOLERANCES	THIS MATERIAL IS THE PROPERTY OF BGK FINISHING SYSTEMS. IT MUST BE RETURNED TO ITS ORIGINATOR IF IT IS FOUND OUTSIDE WITHOUT AUTHORIZATION. © 2002 BGK FINISHING SYSTEMS						
CTL	+ .030 ±	SURFACE FINISH							
JOB NO:	FINISH	ANGULAR							
DWG 5020012	+ .030 ±								
MATERIAL:			AC 5 ASSEMBLY STEEL CTS,CRS,ORL ALTUCITE 500C						
FINISH:	NEXT ASSY:	PART NO:	DRAWING NO:	REV: SHEET: W/ OF					
		ACS							

****6ft per head each** D

Notes on Sht 2 of 3

TABLE B: HEATER TABLE + GAS SHOCKS & COUNTER WEIGHT

REFERENCE TABLE-A COLUMN-A1		B1	GAS SHOCK, SPRING REQUIREMENTS				BA	BC	BD	BE	BF	BG	BH
HEATER STYLE OPTION	DESCRIPTION	GAS ASSIST SHOCK QTY	CRS & CRL MODEL	CTE MODEL	STE MODEL	SPRING CONNECT BRACKET AC-20439	BALL STUD CONNECT BOLTS AC-4033 *REQUIRED QTY OF BALL STUDS* (REF)	BALL STUD NUT REF. AC-3903-3 & AC-200161 REF QTY	COUNTER WEIGHT QTY AC-70346	COUNTER WEIGHT BOLT QTY 2 EACH	COMPRESSION SPRING	HEAD MOUNTING SCREW	
ACH5-2116	SINGLE HEAD 2 LAMP 1600 WATTS	1	FBN22A		AC-4932	1	4	2		AC-3481	AC-54945	AC-64242-2	
ACH5-2216	DUAL HEAD 2 LAMPS 1600 WATTS												
ACH5-2125	SINGLE HEAD 2 LAMP 2500 WATTS												
ACH5-2225	DUAL LAMP 2 HEAD 2500 WATTS	1	AC-4932	AC-4932	AC-4932	1	4	2	5	7958-128C	AC-54945	AC-64242-2	
ACH5-4125	SINGLE HEAD 4 LAMP 2500 WATTS	1	FBN22A	FBN22A	AC-4151	1	4	2	5	7958-128C	AC-200125-3	AC-64242-1	
ACH5-4225	DUAL HEAD 4 LAMP 2500 WATTS	1	004150	004150	004150	1	4	2	10	7958-176C	AC-200125-3	AC-64242-1	
ACH5-4138	DUAL HEAD 4 LAMP 3800 WATTS	1	AC-4932	AC-4932	AC-4932	1	4	2	5	7958-128C	AC-200125-3	AC-64242-1	
ACH5-4238	DUAL HEAD 4 LAMP 3800 WATTS	2	FBN22L	FBN22L	FBN22L	1	4	4	10	7958-176C	AC-200125-3	AC-64242-1	

NOTES:

- USE SUB ASSY PRINT AC-200187 IN CONJUNCTION WITH AC 5 ASSEMBLY PRINT TO COMPLETE OVER ALL ASSEMBLY OF THE ACS.
- INSTALL REQD. WASHERS TO STIFFEN UP HEATER HEAD ASSEMBLY WHEN HEAD IS ROTATED EITHER LEFT OR RIGHT. IN UPPER MOST POSITION IT SHOULD NOT MOVE. ADD OR SUBTRACT WASHERS TO OBTAIN PROPER HEAD STIFFNESS.
- REFERENCE PRINT AC-200187 FOR PROPER LOCATION OF WARNING AND INFORMATION LABELS.
- USE 4.25" PER SIDE SINGLE HD , DUAL 4.25 X 2 SIDES = 8.50"
- ITEM 20 IS NOT SHOWN AND RESIDES INSIDE CONTROL PANEL
- MAXIMUM POWER SETTING 75% (TO PROLONG CLAMP & SLX LIFE)
-
- ATTATCH CAUTION TAG AC-200105 TO LINE CORD USING AC-200013 TIE. ENSURE CORRECT VOLTAGE TAG IS PLACED ONTO TAG.
- USING-30 (6") CASTER SUBSTITUTE 4 COUNTER WEIGHTS REMOVE AC-70346 REPLACE WITH 4 AC-70346-1
- MAX POWER SETTING 60%
- General Information: Any heater using 2500W lamps (rated at 480V) cannot be used in a +PL (Parallel or full power) when 575V are being Applied.

TABLE: C ARM & BRACKET SELECTION

OPTION	DESCRIPTION	CA	CB	CC	CD	BASE MODEL ACS (QTY 1)
		UPPER NO. QTY. 1 EACH	LOWER NO. QTY. 1 EACH	LEFT BRACKET NO. QTY 1 EACH	RIGHT BRACKET NO. QTY. 1 EACH	
CRS	SHORT (CR)	AC-61954	AC-200286	AC-64094-2	AC-64094-1	AC-200187
CRL	LONG (CR)	AC-60833	AC-200285	AC-64094-2	AC-64094-1	AC-200187
CTE	EXTENDED (CT)	AC-63209	AC-200281	AC-62083-2	AC-62083-1	AC-200187
STE	EXTENDED (CT)	AC-63209	AC-200281	AC-61222-2	AC-61222-1	AC-200187

TABLE: D CASTER SELECTION

OPTION	QTY. PER ASSEMBLY	DA	DESCRIPTION
10	2	AC-49510, AC-200165	STD. CASTER & STD. CASTER W/BRK
20	2	AC-75103, AC-75104	HD CASTER & HD CASTER W/BRK
20	4	AC-64249	PLATE WHEEL MTG
20	8	AC-3727	SCREW HEX FLANGE HEAD 3/8-16 X 1.00
20	8	AC-3831	NUT HEX NYLOCK 3/8-16
20	8	AC-126965	1/4-20 X 1" FLAT HEAD SCREW
30	2	AC-104789	6" CASTER SWIVEL W/O BRAKE
30	2	AC-104792	6" CASTER SWIVEL W/ BRAKE
30	4	AC-104788	PLATE ADAPTER FOR 6" CASTER
30	8	AC-3504	SCREW HEX FLANGE HEAD 3/8-16 X 1.00
30	8	AC-3818	NUT HEX NYLOCK 3/8-16
30	8	AC-3775	WASHER
30	8	AC-126965	1/4-20 X 1" FLAT HEAD SCREW

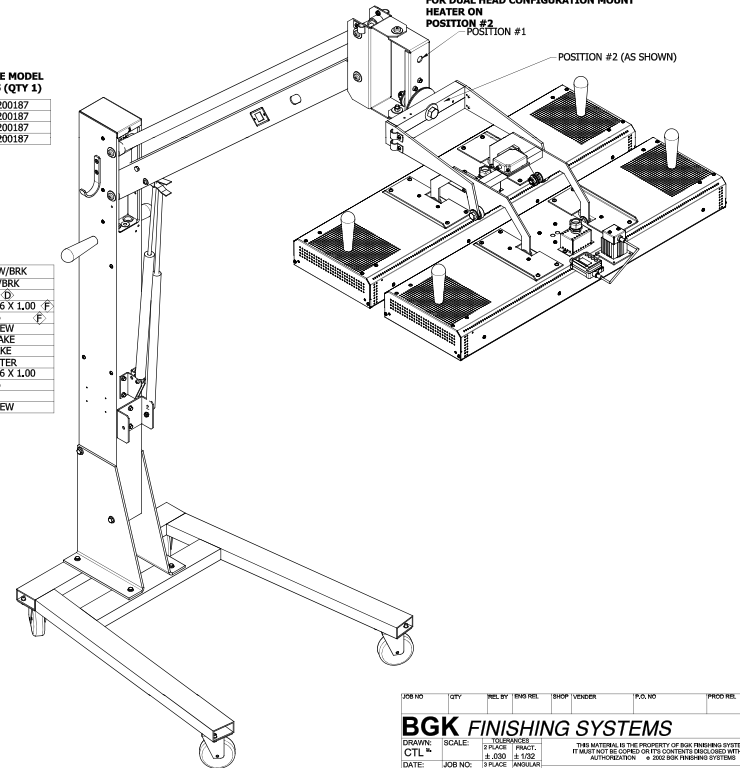
TABLE: E CONTROLLER SELECTION

OPTION	DESCRIPTION
F	FAREINFEIT (DEGREES F)
C	CELSIUS (DEGREES C)

TABLE: F POWER SELECTION

TABLE F POWER SETTING		SPECIAL POWER SETTING
40		40% POWER SETTING OF THE ATHENA CONTROLLER
45		45% POWER SETTING OF THE ATHENA CONTROLLER
50		50% POWER SETTING OF THE ATHENA CONTROLLER
60		60% POWER SETTING OF THE ATHENA CONTROLLER
75		75% POWER SETTING OF THE ATHENA CONTROLLER
100		100% POWER SETTING OF THE ATHENA CONTROLLER
SP		SPECIAL POWER SETTING - DEVIATION REQUIRED

NOTE: FOR SINGLE HEAD CONFIGURATION MOUNT HEATER ON POSITION #1 FOR DUAL HEAD CONFIGURATION MOUNT HEATER ON POSITION #2



EXAMPLE: AC5-2116-240-PL-STE-10-F-75-C

TABLE "G" CANADIAN
RELEASE LEVER OPTION

TABLE "F" POWER SETTING

TABLE "E" FAREINFEIT OR CELSIUS

TABLE "D" CASTER OPTION STD OR HEAVY DUTY
*NOTE ADD LOCITITE 7969-161

TABLE "C" ARM & BRACKET STYLE

TABLE "AAA" HEATER SELECTION + VOLTAGE + WIRING

TABLE: G CANADIAN RELEASE LEVER EXT.

OPTION	QTY	PART #	DESCRIPTION
G	NONE		
C	1	AC-82890	CANADIAN RELEASE LEVER
	1	AC-11799	TRUSS HD SCREW 8-32 X 1/2
	1	AC-3903-1	8-32 SERRATED NUT

JOB NO.	QTY	NEL BY	TRAV REL	SHIP	USER	P.O. NO.	PROD REL	DATE
BGK FINISHING SYSTEMS								
DRAWN: CTL		SCALE: 1:100		TOLERANCES: FRACTIONAL: ±.000 DECIMAL: ±.000		THIS MATERIAL IS THE PROPERTY OF BGK FINISHING SYSTEMS. IT MUST NOT BE COPIED OR ITS CONTENTS DISCLOSED WITHOUT AUTHORIZATION. © 2002 BGK FINISHING SYSTEMS		
DATE: 5/20/2012		JOB NO:		MATERIAL:		AC 5 ASSEMBLY STE, CTE, CRS, CRL		
FINISH:		NEXT ASSY:		PART NO:		DRAWING NO:		REV: SHEET:
		AC-5				AC5		W OF-4

NOTE:
LOOP CORRUGATED TUBE AS SHOWN
TO ALLOW FOR FULL MOVEMENT
OF HEATER HEAD

NOTE:
APPLY TAPE
TO HOLD
MESH

ROUGH CUT TO LENGTH
PLACE SPACER BETWEEN NUT AND SHEET METAL

SEE TABLE A1

REF:
SINGLE HEATER HEAD
SEE TABLE "AAA" FOR
HEATER HEAD STYLES

FINAL ASSEMBLY AC-5

ITEM #	QTY	PART NUMBER	DESCRIPTION
1	1	TABLE-AAA COLUMN-AG1	TABLE-AAA COLUMN-AG1
2	1	TABLE-AAA COLUMN-AH	TABLE-AAA COLUMN-AH
3	1	TABLE-AAA COLUMN-AB1	TABLE-AAA COLUMN-AB1
4	1	TABLE-B COLUMN-BG	TABLE-B COLUMN-BG
5	1	TABLE-AAA COLUMN-AF1	TABLE-AAA COLUMN-AF1
6	1	TABLE-B COLUMN-BH	TABLE-B COLUMN-BH
7	2	AC-21728	WASHER
8	4	AC-3777	WASHER, FLAT 3/4
9	1	AC-3924	PIN,COTTER 1/8 X 1 1/2
10	1	AC-20084	WASHER 3/4 SST
11	1	AC-4670	NUT,SLOTTED 3/4 - 10
12	12"	AC-200552-3	MESH 3/4"
13	2	AC-3903-2	NUT
14	TABLE AAA COLUMN AG1	AC-3741	BOLT
15	TABLE AAA COLUMN AG1	AC-3887	WASHER
16	3	AC-3706	BOLT
18	1	TABLE-AAA COLUMN-AD	CORD GRIP AND LOCK NUT
19	30'	TABLE-AAA COLUMN-AC	LINE CORD
20	TABLE-AAA COLUMN-AE1	TABLE-AAA COLUMN-AE	FUSES
21	1	AC-200105	CAUTION TAG
22	3	AC-200104	WASHER - NYLON
23	TABLE AAA - COLUMN AM1	TABLE AAA - COLUMN AM	LOCK NUT
24	TABLE AAA - COLUMN AH	AC-200232	BUSHING, ALUMINUM
25	1	240-3193	THUMB DRIVE, BLANK
26	1	A13390-10	LABEL, VOLTAGE & CURRENT
27	1	A13390-09	LABEL, CANADA CONFORMANCE

DETAIL A
SCALE 1 / 2

DETAIL OF PYROMETER BOX

REMOVE THREE (3) METAL WASHERS FROM ARM SIDE OF
PYROMETER, REPLACE WITH 3 X AC-200104 NYLON WASHER

JOB NO.	QTY	REL BY	END REL	SHOP / VENDOR	P.O. NO.	PROD REL.	DATE
BGK FINISHING SYSTEMS DRAWING: SCALE: 1"=1'-0" (1/4"=1'-0") CTL: (1/4"=1'-0") (1/8"=1'-0") DATE: 12/10/01 (1/4"=1'-0") (1/8"=1'-0") MATERIAL:							
THIS MATERIAL IS THE PROPERTY OF BGK FINISHING SYSTEMS IT MUST NOT BE LOANED OR RE-COMPUTERIZED WITHOUT AUTHORIZATION - © 2002 BGK FINISHING SYSTEMS ACS ASSEMBLY STE,CTE,CRS,CRL AUTOCURE 5000 PART NO: ACS DRAWING NO: AC5 REV: SHEET: W of 4							

AUTOCURE MODEL NUMBERS

AC5-2125-240-PL

AC5-2125-480-PL

AC5-2125-240-PL

****THIS DOCUMENT APPLIES IF YOUR SYSTEM IS EQUIPPED WITH A
SPRAY/BAKE SWITCH**

Small junction box to interlock controls during spraying.

Maximum Load: 40A FLA, 50A Resistive

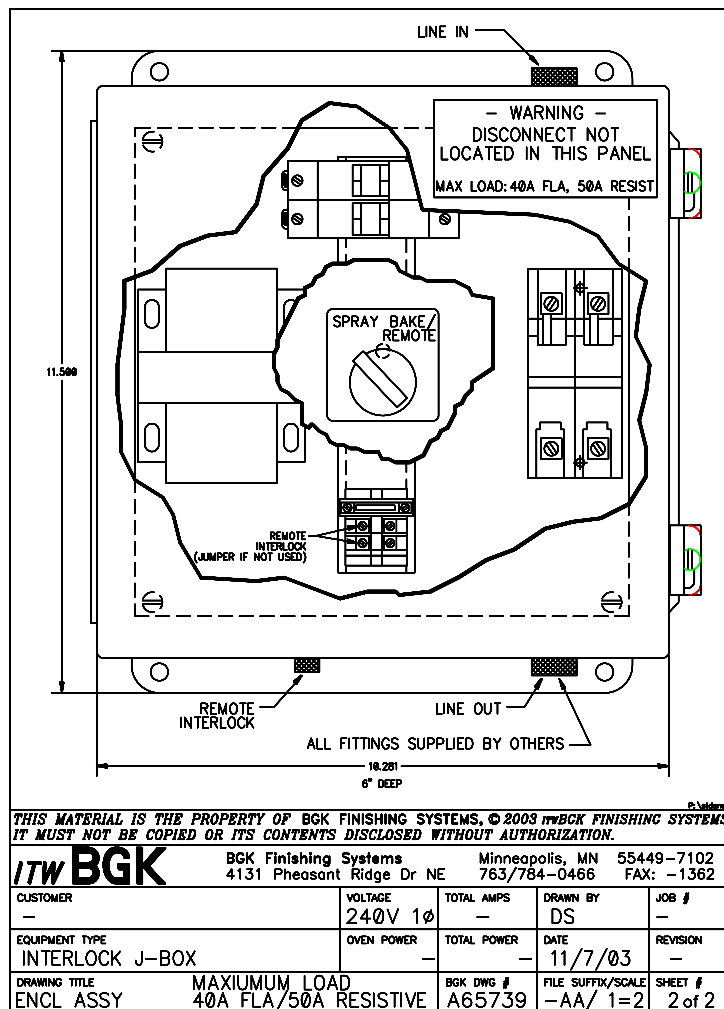
Four configurations:

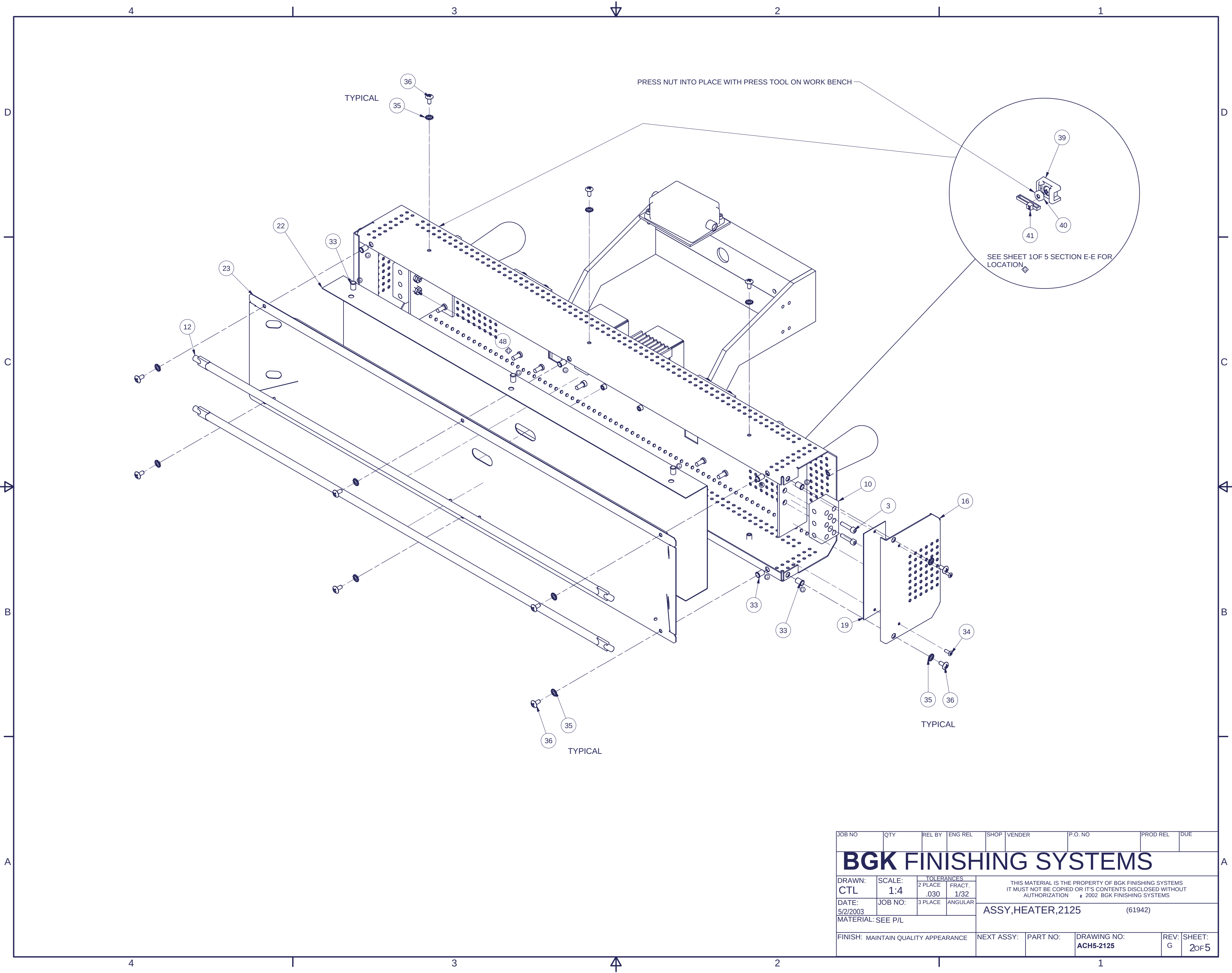
240V 1Ø 480V 1Ø

240V 3Ø 480V 3Ø

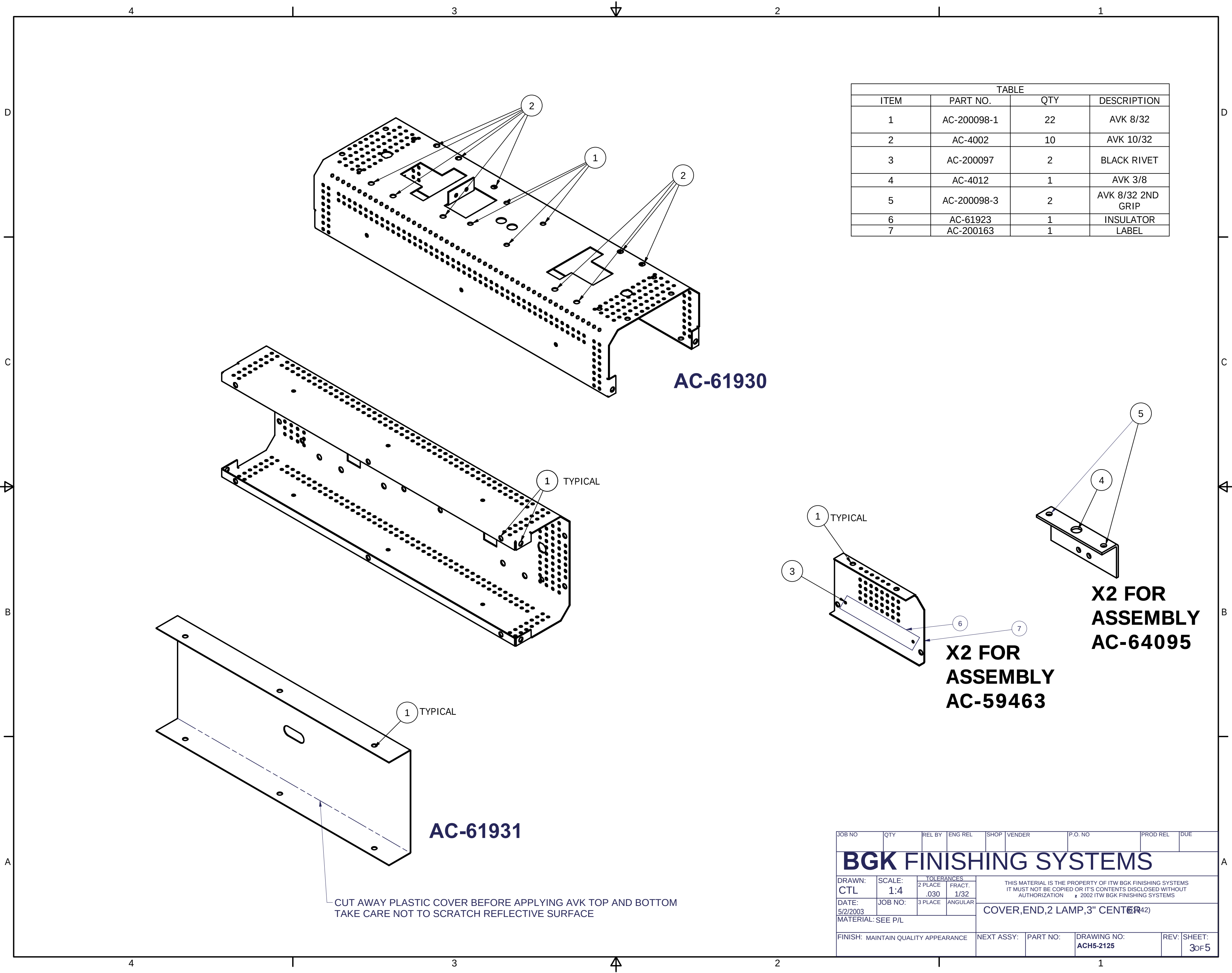
2 Modes of Operation

Local: There is a 2 position switch on the front of the box to switch from Spray to Bake.



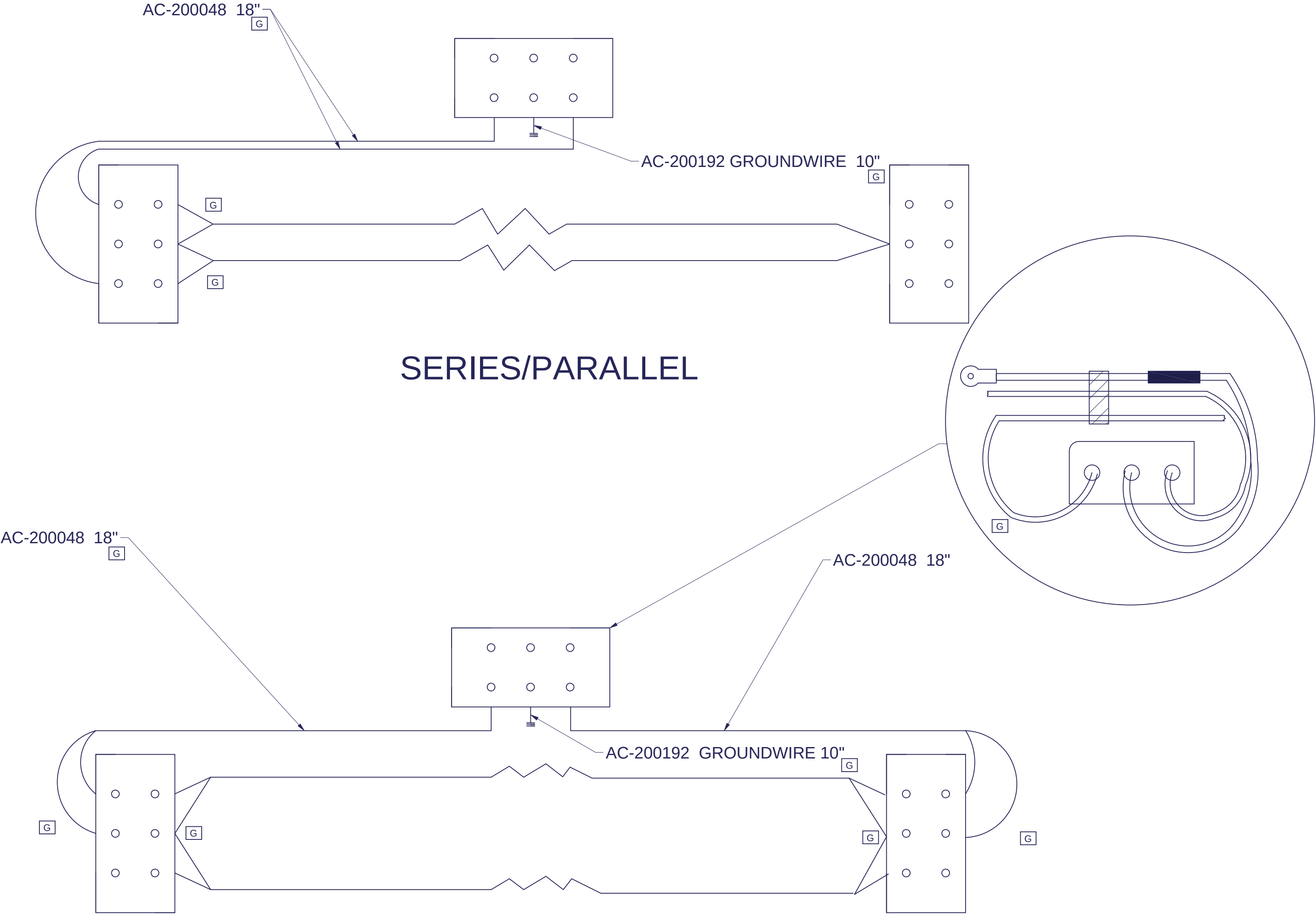


JOB NO	QTY	REL BY	ENG REL	SHOP	VENDER	P.O. NO	PROD REL	DUE
BGK FINISHING SYSTEMS								
DRAWN: CTL	SCALE: 1:4	TOLERANCES 2 PLACE FRACT. .030 1/32		THIS MATERIAL IS THE PROPERTY OF BGK FINISHING SYSTEMS IT MUST NOT BE COPIED OR IT'S CONTENTS DISCLOSED WITHOUT AUTHORIZATION © 2002 BGK FINISHING SYSTEMS				
DATE: 5/2/2003	JOB NO:	3 PLACE	ANGULAR	ASSY,HEATER,2125 (61942)				
MATERIAL: SEE P/L								
FINISH: MAINTAIN QUALITY APPEARANCE				NEXT ASSY:	PART NO:	DRAWING NO: ACH5-2125	REV: G	SHEET: 20F5

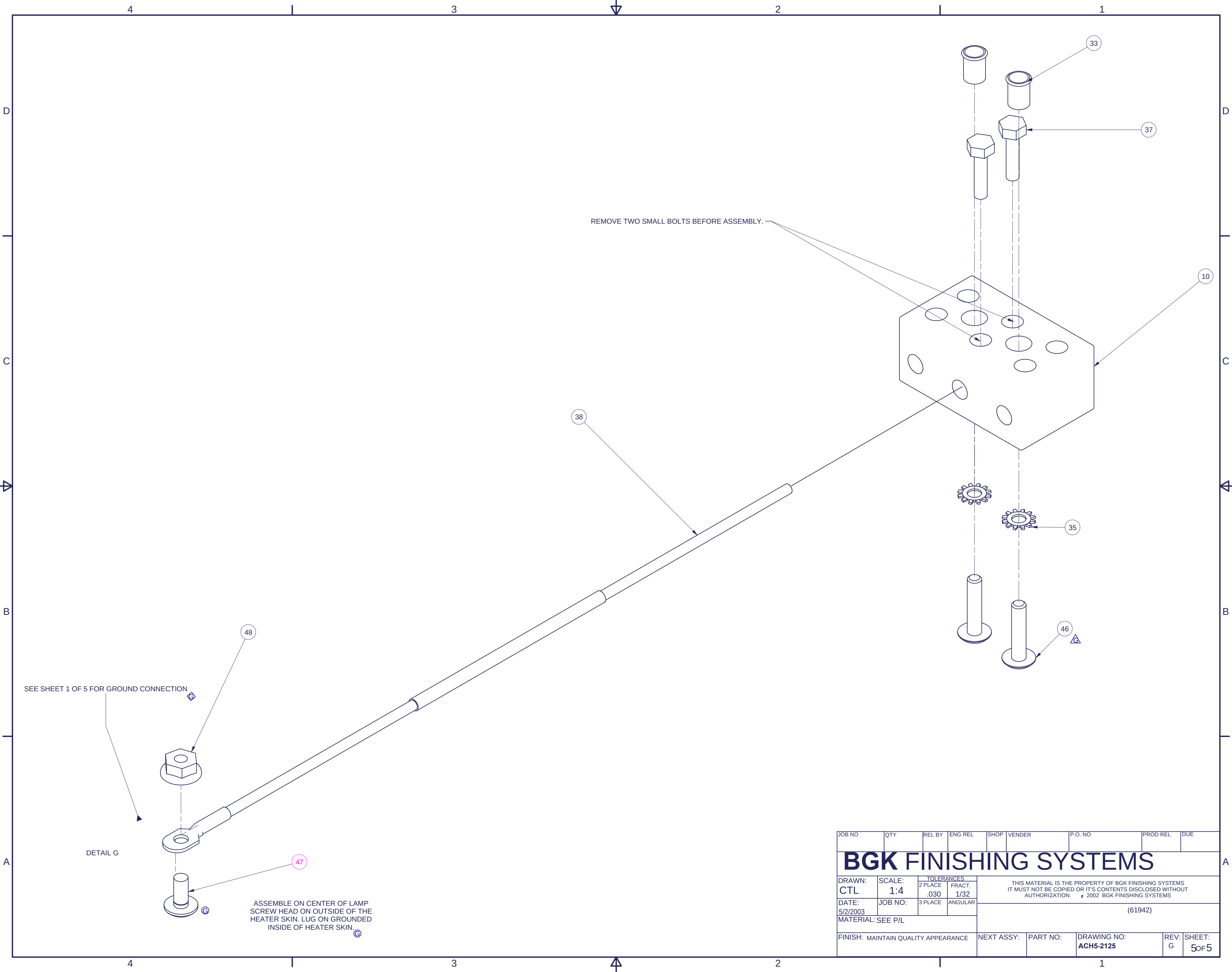


JOB NO	QTY	REL BY	ENG REL	SHOP	VENDER	P.O. NO	PROD REL	DUE
BGK FINISHING SYSTEMS								
DRAWN: CTL	SCALE: 1:4	TOLERANCES 2 PLACE .030		FRACT. 1/32		THIS MATERIAL IS THE PROPERTY OF ITW BGK FINISHING SYSTEMS IT MUST NOT BE COPIED OR IT'S CONTENTS DISCLOSED WITHOUT AUTHORIZATION © 2002 ITW BGK FINISHING SYSTEMS		
DATE: 5/2/2003	JOB NO:	3 PLACE	ANGULAR	COVER,END,2 LAMP,3" CENTER (42)				
MATERIAL: SEE P/L								
FINISH: MAINTAIN QUALITY APPEARANCE				NEXT ASSY:	PART NO:	DRAWING NO: ACH5-2125	REV:	SHEET: 30F5

CIRCUIT TABLE



JOB NO	QTY	REL BY	ENG REL	SHOP	VENDER	P.O. NO	PROD REL	DUE
BGK FINISHING SYSTEMS								
DRAWN: CTL	SCALE: 1:4	TOLERANCES 2 PLACE FRACT. .030 1/32		THIS MATERIAL IS THE PROPERTY OF BGK FINISHING SYSTEMS IT MUST NOT BE COPIED OR IT'S CONTENTS DISCLOSED WITHOUT AUTHORIZATION © 2002 BGK FINISHING SYSTEMS				
DATE: 5/2/2003	JOB NO:	3 PLACE	ANGULAR	WIRING,SCHEMATIC,2125 (61942)				
MATERIAL: SEE P/L								
FINISH: MAINTAIN QUALITY APPEARANCE				NEXT ASSY:	PART NO:	DRAWING NO: ACH5-2125	REV: G	SHEET: 40F5



RECOMMENDED SPARE PARTS

TO ORDER:

CONTACT: SPARE PARTS ORDER ENTRY

PHONE: 1-800-726-8097

E-MAIL: orderentry@CarlisleFT.com

AC5-2125-240-PL

Reference Number	Spares Qty	Part Number	Part Description
CON114	1	005898	CONTACTOR, 40A, 2-POLE, 24 COIL
FU107, FU107B	4	E-143	FUSE,1A,600V,CLASS CC
FU111, FU112	4	AC-200046	FUSE,2A,250VAC,TIME DELAY
FU101A, FU101B, FU104A, FU104B	4	AC-200042	FUSE, LOW PEAK CLASS CC, 10A
INST115	1	AC-74816-240-F-100	TEMP. CONTROLLER (Setup-100%, F deg, 240v)
PWRSUP120	1	AC-46847	POWER SUPPLY,24VAC - 12VDC & 3.25VDC
SCR A FC	1	003317	Firing Circuit Board-PWR CTRLR,4-20MA,240V, 380V, 480V
SCR 103, SCR 104	1	002985	POWER CONTROLLER,SCR,40A, 240V, 380V, 480V
103	2	AC-200051	POWER CONTROLLER THERMSTRATE,H
	1	AC-200064	LASER KIT (Targeting laser only)
PYR 118	1	AC-61231	PYROMETER ASSEMBLY KIT (Complete)
	15FT	AC-62797	CABLE, SHIELD, 6 COND., RED
102	6	39330	Lamp,IR,2500W/480V, CER, CL, TEF

AC5-2125-480-PL

****THIS DOCUMENT APPLIES IF YOUR SYSTEM IS EQUIPPED WITH A
SPRAY/BAKE SWITCH**

Small junction box to interlock controls during spraying.

Maximum Load: 40A FLA, 50A Resistive

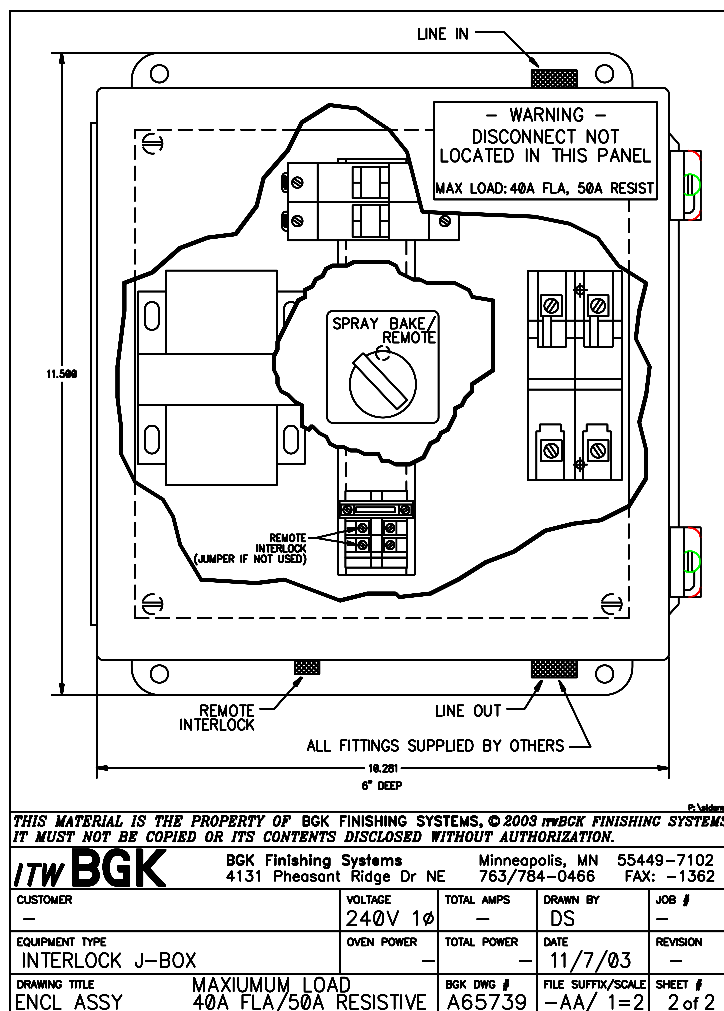
Four configurations:

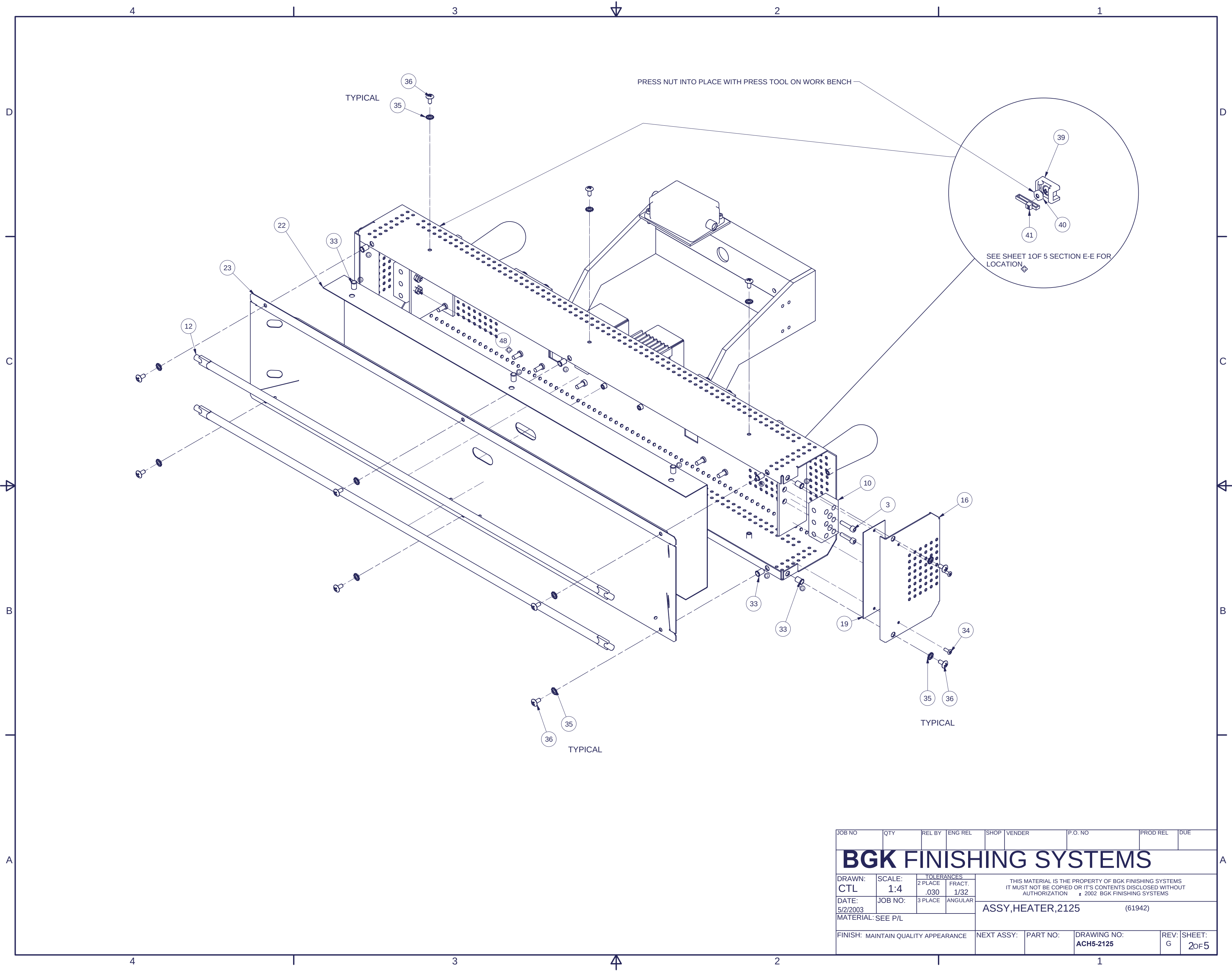
240V 1Ø 480V 1Ø

240V 3Ø 480V 3Ø

2 Modes of Operation

Local: There is a 2 position switch on the front of the box to switch from Spray to Bake.





JOB NO	QTY	REL BY	ENG REL	SHOP	VENDER	P.O. NO	PROD REL	DUE
BGK FINISHING SYSTEMS								
DRAWN: CTL	SCALE: 1:4	TOLERANCES 2 PLACE FRACT. .030 1/32		THIS MATERIAL IS THE PROPERTY OF BGK FINISHING SYSTEMS IT MUST NOT BE COPIED OR IT'S CONTENTS DISCLOSED WITHOUT AUTHORIZATION © 2002 BGK FINISHING SYSTEMS				
DATE: 5/2/2003	JOB NO:	3 PLACE	ANGULAR	ASSY,HEATER,2125 (61942)				
MATERIAL: SEE P/L								
FINISH: MAINTAIN QUALITY APPEARANCE				NEXT ASSY:	PART NO:	DRAWING NO: ACH5-2125	REV: G	SHEET: 20F5

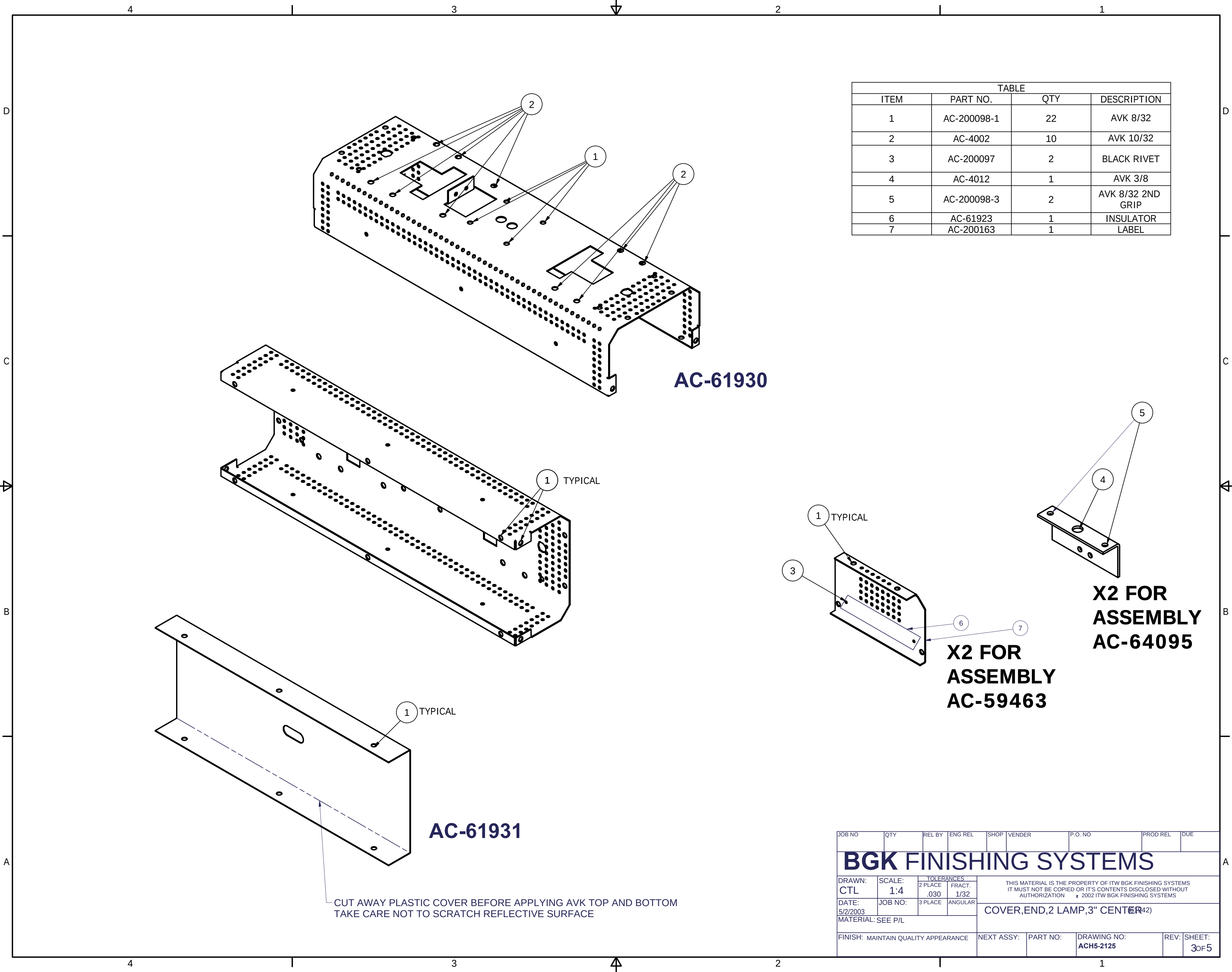
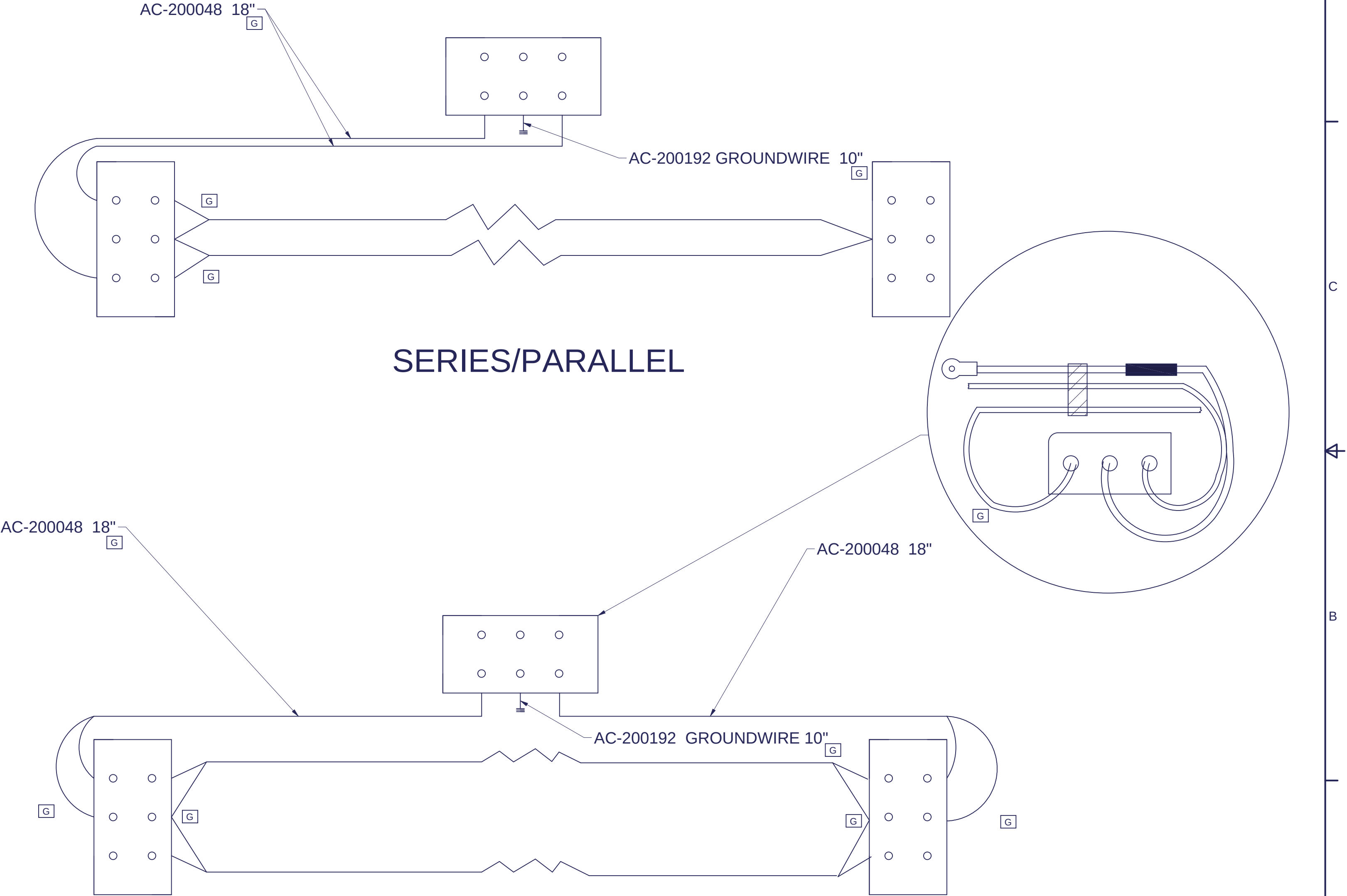


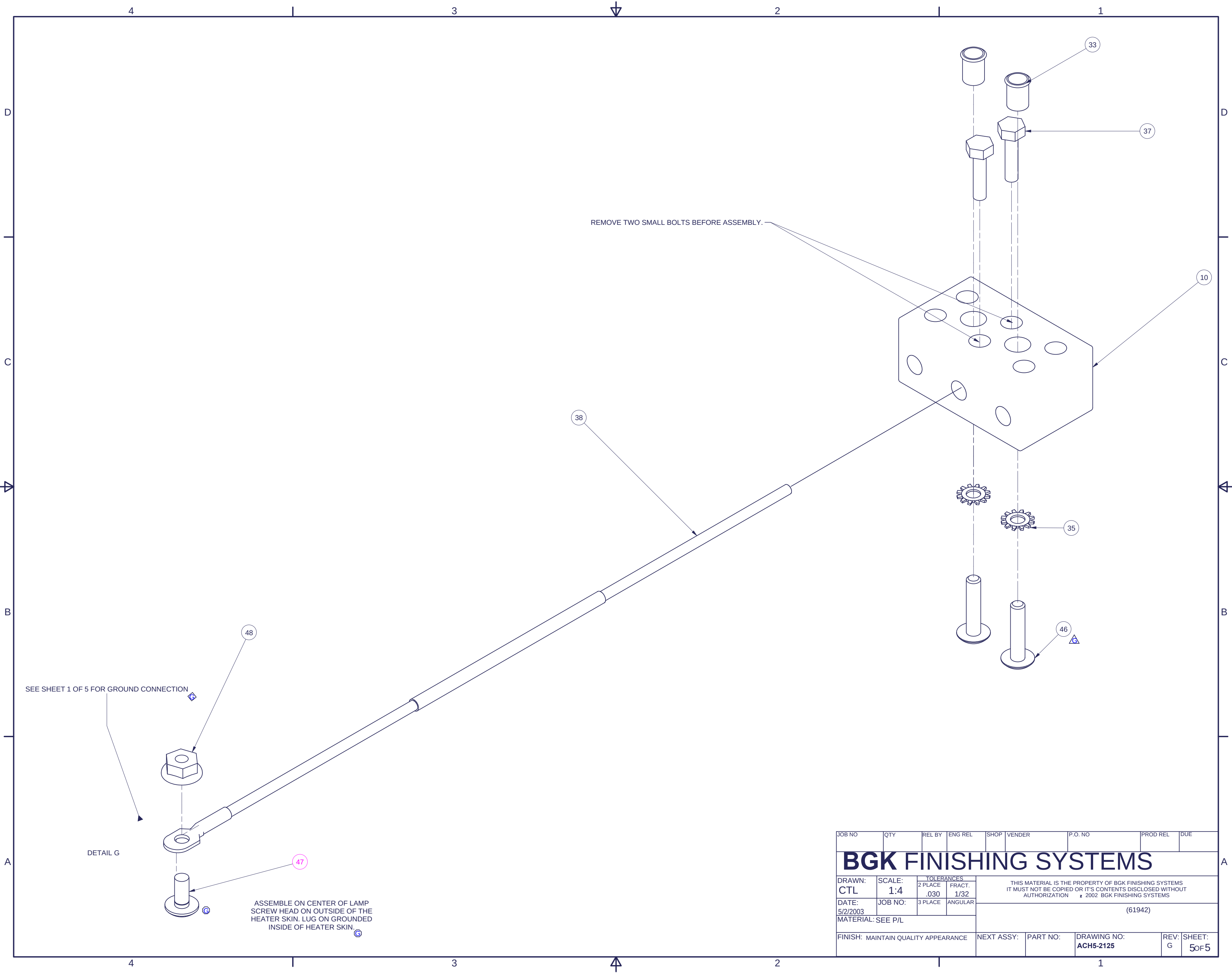
TABLE			
ITEM	PART NO.	QTY	DESCRIPTION
1	AC-200098-1	22	AVK 8/32
2	AC-4002	10	AVK 10/32
3	AC-200097	2	BLACK RIVET
4	AC-4012	1	AVK 3/8
5	AC-200098-3	2	AVK 8/32 2ND GRIP
6	AC-61923	1	INSULATOR
7	AC-200163	1	LABEL

JOB NO	QTY	REL BY	ENG REL	SHOP	VENDER	P.O. NO	PROD REL	DUE
BGK FINISHING SYSTEMS								
DRAWN: CTL	SCALE: 1:4	TOLERANCES		THIS MATERIAL IS THE PROPERTY OF ITW BGK FINISHING SYSTEMS IT MUST NOT BE COPIED OR IT'S CONTENTS DISCLOSED WITHOUT AUTHORIZATION © 2002 ITW BGK FINISHING SYSTEMS				
DATE: 5/2/2003	JOB NO:	2 PLACE .030	FRACT. 1/32					
MATERIAL: SEE P/L		3 PLACE	ANGULAR	COVER,END,2 LAMP,3" CENTER (42)				
FINISH: MAINTAIN QUALITY APPEARANCE				NEXT ASSY:	PART NO:	DRAWING NO: ACH5-2125	REV:	SHEET: 30F5

CIRCUIT TABLE



JOB NO	QTY	REL BY	ENG REL	SHOP	VENDER	P.O. NO	PROD REL	DUE
BGK FINISHING SYSTEMS								
DRAWN: CTL	SCALE: 1:4	TOLERANCES 2 PLACE FRACT. .030 1/32		THIS MATERIAL IS THE PROPERTY OF BGK FINISHING SYSTEMS IT MUST NOT BE COPIED OR IT'S CONTENTS DISCLOSED WITHOUT AUTHORIZATION © 2002 BGK FINISHING SYSTEMS				
DATE: 5/2/2003	JOB NO:	3 PLACE	ANGULAR	WIRING,SCHEMATIC,2125 (61942)				
MATERIAL: SEE P/L								
FINISH: MAINTAIN QUALITY APPEARANCE				NEXT ASSY:	PART NO:	DRAWING NO: ACH5-2125	REV: G	SHEET: 40F5



RECOMMENDED SPARE PARTS

TO ORDER:

CONTACT: SPARE PARTS ORDER ENTRY

PHONE: 1-800-726-8097

E-MAIL: orderentry@CarlisleFT.com

AC5-2125-480-PL

Reference Number	Spares Qty	Part Number	Part Description
CON114	1	005898	CONTACTOR, 40A, 2-POLE, 24 COIL
FU107, FU107B	4	E-143	FUSE,1A,600V,CLASS CC
FU111, FU112	4	AC-200046	FUSE,2A,250VAC,TIME DELAY
FU101A, FU101B	4	AC-200039	FUSE, LOW PEAK CLASS CC, 15A
INST115	1	AC-74816-480-F-100	TEMP. CONTROLLER (Setup-100%, F deg, 480v)
PWRSUP120	1	AC-46847	POWER SUPPLY,24VAC - 12VDC & 3.25VDC
SCR A FC	1	003317	Firing Circuit Board-PWR CTRLR,4-20MA,240V, 380V, 480V
SCR 103, SCR 104	1	002985	POWER CONTROLLER,SCR,40A, 240V, 380V, 480V
103	2	AC-200051	POWER CONTROLLER THERMSTRATE,H
	1	AC-200064	LASER KIT (Targeting laser only)
PYR 118	1	AC-61231	PYROMETER ASSEMBLY KIT (Complete)
	15FT	AC-62797	CABLE, SHIELD, 6 COND., RED
102	6	39330	Lamp,IR,2500W/480V, CER, CL, TEF

WARRANTY POLICY

This product is covered by Carlisle Fluid Technologies' materials and workmanship limited warranty. The use of any parts or accessories, from a source other than Carlisle Fluid Technologies, will void all warranties. Failure to reasonably follow any maintenance guidance provided, may invalidate any warranty.

For specific warranty information please contact Carlisle Fluid Technologies.

For technical assistance or to locate an authorized distributor, contact one of our international sales and customer support locations.

Region	Industrial / Automotive	Automotive Refinishing
Americas	Tel: 1-800-992-4657 Fax: 1-888-246-5732	Tel: 1-800-445-3988 Fax: 1-800-445-6643
Europe, Africa Middle East, India	Tel: +44 (0)1202 571 111 Fax: +44 (0)1202 573 488	
China	Tel: +8621-3373 0108 Fax: +8621-3373 0308	
Japan	Tel: +81 45 785 6421 Fax: +81 45 785 6517	
Australia	Tel: +61 (0) 2 8525 7555 Fax: +61 (0) 2 8525 7575	

For the latest information about our products, visit www.carlisleft.com

Carlisle Fluid Technologies is a global leader in innovative finishing technologies. Carlisle Fluid Technologies reserves the right to modify equipment specifications without prior notice.

BGK™, Binks®, DeVilbiss®, Hosco®, MS®, and Ransburg® are all registered trademarks of Carlisle Fluid Technologies, Inc.

©2020 Carlisle Fluid Technologies, Inc.
All rights reserved.

