

## Introduction

This manual provides installation instructions for the Commercial Atlas™ (98K) Automatic Temperature Compensation (ATC) Kits:

- M05819K001 for Single 98K Unit
- M05819K002 for Twin 98K Unit
- M05819K003 for 9850K Single Unit
- M05819K004 for 9850K Twin Unit

## Required Reading

Before installing a kit, the installer must read, understand, and follow:

- This manual
- NFPA 30A, The Automotive and Marine Service Station Code
- NFPA 70, The National Electric Code
- Applicable federal, state and local codes and regulations

Failure to do so may adversely affect the safe use and operation of the equipment.

*Note: This kit must be installed by a Gasboy Authorized Service Contractor (ASC) to ensure warranty.*

## Required Tools

The following tools are needed to install the ATC Kits:

- Open-end wrench set
- Flat-tip screwdriver
- Cross-tip screwdriver
- Allen® wrench set

## Parts Lists

### M05819K001 - ATC Kit for Single Unit (Except 9850K)

Part Number	Description	Quantity
28017	PCB Assembled in LP-70 Polycase Box and BC1379 Mounting Sponge	1
SK460A4	ATC Display Adapter Board (460A4 in Figure 1)	1
SK-461	Pulser/Handle Adapter Board (461A2 in Figure 1)	1
27913	Dual Intrinsic Safety Barrier	1
212AY04	Single Probe Connector Assembly	1
W171	2-Wire Harness for Intrinsic Safety Barrier	1
SW199	Probe Assembly	1
	5/16-inch Flat Washer	1
	5/16-inch Hex Nut	1
20026	Thermowell	1
235-C	Thermowell plug	1
122-B02	1/8-inch NPT Coupling	1
15912	1/8-inch NPT Adapters Drilled to 17/64-inch I.D.	1
103-B02	1/8-inch NPT Couplings	1
W283	Display Adapter Harness	1
W284	Pulser/Handle Ribbon Cable	1
BSN18-C	18-22 AWG Crimp Splices	10
BC256W	White "Volume Corrected to 15° C" Label	2
BC1380	Serialized AV-2322 Nameplate	1
N23760-07	Conduit Seal Washer	2

### M05819K002 - ATC Kit for Twin Unit (Except 9850K)

Part Number	Description	Quantity
28017	PCB Assembled in LP-70 Polycase Box and BC1379 Mounting Sponge	1
SK-460A4	ATC Display Adapter Board (460A4 in Figure 1)	1
SK461	Pulser/Handle Adapter Board (461A2 in Figure 1)	1
27913	Dual Intrinsic Safety Barrier	1
212AY05	Dual Probe Connector Assembly	1
W172	3-Wire Harness for Intrinsic Safety Barrier	1
SW199	Probe Assembly	2
	5/16-inch Flat Washer	1
	5/16-inch Hex Nut	1
20026	Thermowell	2
235-C	Thermowell plug	2
122-B02	1/8-inch NPT X 1-inch Coupling	2
15912	1/8-inch NPT Adapters Drilled to 17/64-inch I.D.	2
103-B02	1/8-inch NPT Couplings	2
W283	Display Adapter Harness	1

Part Number	Description	Quantity
W284	Pulser/Handle Ribbon Cable	2
BSN18-C	18-22 AWG Crimp Splices	10
BC256W	White "Volume Corrected to 15° C" Label	4
BC1380	Serialized AV-2322 Nameplate	1
N23760-07	Conduit Seal Washer	2

### M05819K003 - ATC Kit for Single Unit

Part Number	Description	Quantity
SK-449C	PCB Assembled in LP-70 Polycase Box and BC1379 Mounting Sponge	1
SK460A4	ATC Display Adapter Board (460A4 in Figure 1)	1
SK-461	Pulser/Handle Adapter Board (461A2 in Figure 1)	1
27913	Dual Intrinsic Safety Barrier	1
212AY04	Single Probe Connector Assembly	1
W171	2-Wire Harness for Intrinsic Safety Barrier	1
SW199	Probe Assembly	1
	5/16-inch Flat Washer	1
	5/16-inch Hex Nut	1
20026	Thermowell	1
235-C	Thermowell plug	1
122-B02	1/8-inch NPT Coupling	1
15912	1/8-inch NPT Adapters Drilled to 17/64-inch I.D.	1
103-B02	1/8-inch NPT Couplings	1
W283	Display Adapter Harness	1
W284	Pulser/Handle Ribbon Cable	1
BSN18-C	18-22 AWG Crimp Splices	10
BC256W	White "Volume Corrected to 15° C" Label	2
BC1380	Serialized AV-2322 Nameplate	1
N23760-07	Conduit Seal Washer	2

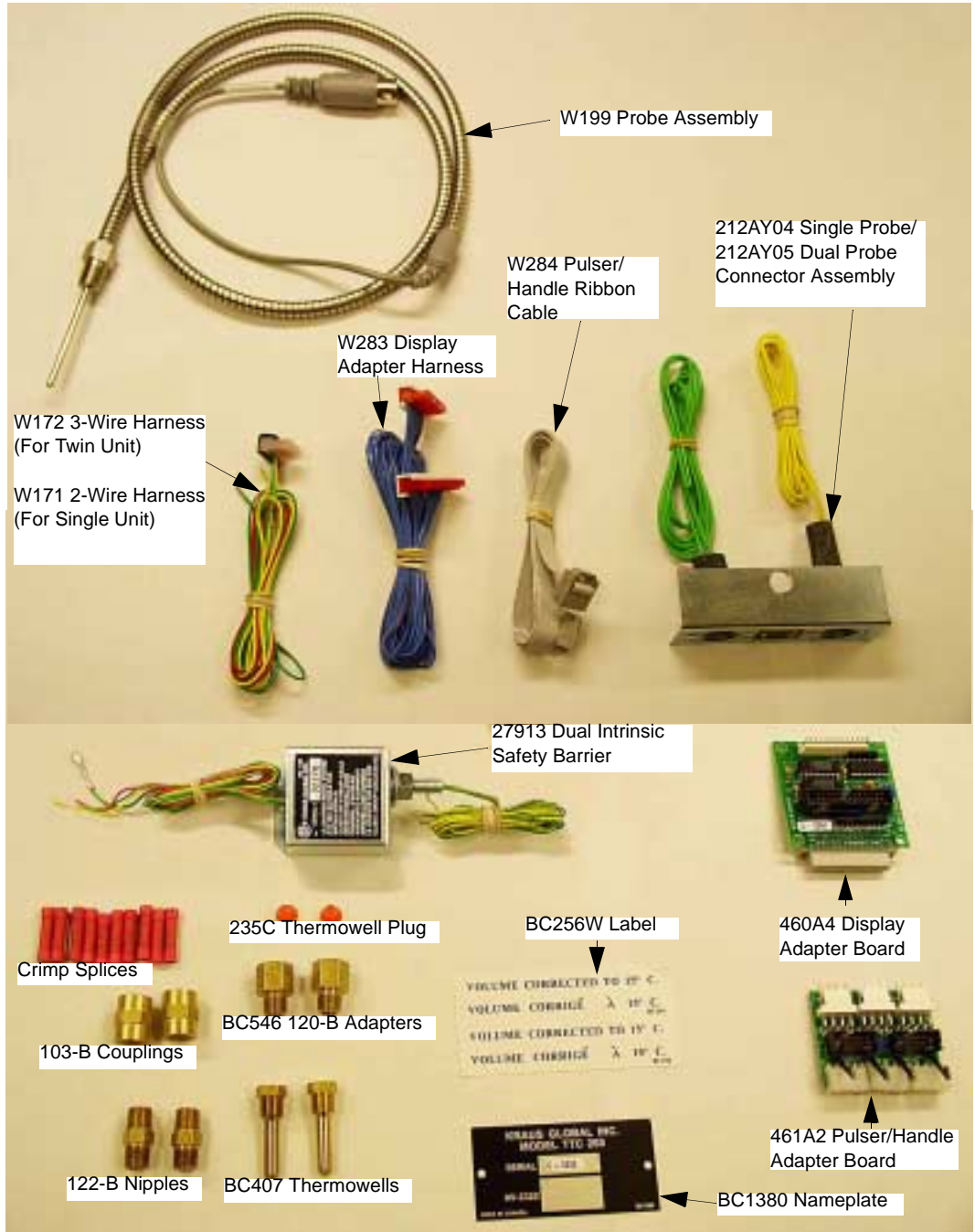
**M05819K004 - ATC Kit for Twin Unit**

<b>Part Number</b>	<b>Description</b>	<b>Quantity</b>
SK-449C	PCB Assembled in LP-70 Polycase Box and BC1379 Mounting Sponge	1
SK-460A4	ATC Display Adapter Board (460A4 in Figure 1)	1
SK461	Pulser/Handle Adapter Board (461A2 in Figure 1)	1
27913	Dual Intrinsic Safety Barrier	1
212AY05	Dual Probe Connector Assembly	1
W172	3-Wire Harness for Intrinsic Safety Barrier	1
SW199	Probe Assembly	2
	5/16-inch Flat Washer	1
	5/16-inch Hex Nut	1
20026	Thermowell	2
235-C	Thermowell plug	2
122-B02	1/8-inch NPT X 1-inch Coupling	2
15912	1/8-inch NPT Adapters Drilled to 17/64-inch I.D.	2
103-B02	1/8-inch NPT Couplings	2
W283	Display Adapter Harness	1
W284	Pulser/Handle Ribbon Cable	2
BSN18-C	18-22 AWG Crimp Splices	10
BC256W	White "Volume Corrected to 15° C" Label	4
BC1380	Serialized AV-2322 Nameplate	1
N23760-07	Conduit Seal Washer	2

## Parts Identification

Figures 1 and 2 provide an identification of the parts in the M05819K001 and M05819K002 kits.

**Figure 1: The Kits Parts Identification**



*Note: If your kit is for a single unit, you will have only one of some of these items.*

**Figure 2: SKIL-449C LP-70 or 28017 Polycase Box and Cover (Part of M05819K001 and M05819K002 kits)**



# Important Safety Information

This section introduces the hazards and safety precautions associated with installing, inspecting, maintaining or servicing this product. Before performing any task on this product, read this safety information and the applicable sections in this manual, where additional hazards and safety precautions for your task will be found. Fire, explosion, electrical shock or pressure release could occur and cause death or serious injury if these safe service procedures are not followed.

## Preliminary Precautions

You are working in a potentially dangerous environment of flammable fuels, vapors, and high voltage or pressures. Only trained or authorized individuals knowledgeable in the related procedures should install, inspect, maintain or service this equipment.



### Emergency Total Electrical Shut-Off

The first and most important information you must know is how to stop all fuel flow to the pump and island. Locate the switch or circuit breakers that shut-off all power to all fueling equipment, dispensing devices, and submerged turbine pumps (STPs).

<b>WARNING</b>	
 	<p>The EMERGENCY STOP, ALL STOP, and PUMP STOP buttons at the cashier's station WILL NOT shut off electrical power to the pump/dispenser.</p> <p>This means that even if you activate these stops, fuel may continue to flow uncontrolled.</p> <p>You must use the TOTAL ELECTRICAL SHUT-OFF in the case of an emergency and not only these cashier station "stops."</p>

### Total Electrical Shut-Off Before Access

Any procedure requiring access to electrical components or the electronics of the dispenser requires total electrical shut-off of that unit. Know the function and location of this switch or circuit breaker before inspecting, installing, maintaining, or servicing Gasboy equipment.

### Evacuation, Barricading and Shut-Off

Any procedures requiring accessing the pump/dispenser or STPs requires the following three actions:



- An evacuation of all unauthorized persons and vehicles using safety tape, cones or barricades to the effected units
- A total electrical shut-off of that unit

## Read the Manual

Read, understand and follow this manual and any other labels or related materials supplied with this equipment. If you do not understand a procedure, call a Gasboy Authorized Service Contractor or call the Gasboy Service Center at 1-800-444-5529. It is imperative to your safety and the safety of others to understand the procedures before beginning work.

## Follow the Regulations

There is applicable information in NFPA 30A; *Automotive and Marine Service Code*, NFPA 70; *National Electrical Code (NEC)*, OSHA regulations and federal, state, and local codes which must be followed. Failure to install, inspect, maintain or service this equipment in accordance with these codes, regulations and standards may lead to legal citations with penalties or affect the safe use and operation of the equipment.

## Replacement Parts

Use only genuine Gasboy replacement parts and retrofit kits on your pump/dispenser. Using parts other than genuine Gasboy replacement parts could create a safety hazard and violate local regulations.

## Safety Symbols and Warning Words

This section provides important information about warning symbols and boxes.

### Alert Symbol



This safety alert symbol is used in this manual and on warning labels to alert you to a precaution which must be followed to prevent potential personal safety hazards. Obey safety directives that follow this symbol to avoid possible injury or death.

### Signal Words

These signal words used in this manual and on warning labels tell you the seriousness of particular safety hazards. The precautions that follow must be followed to prevent death, injury or damage to the equipment



**DANGER** - This signal word is used to alert you to a hazard to unsafe practice which will result in death or serious injury



**WARNING** - This alerts you to a hazard or unsafe practice that could result in death or serious injury.



**CAUTION** with Alert symbol - This signal word designates a hazard or unsafe practice which may result in minor injury.

**CAUTION** without Alert symbol - When used by itself, CAUTION designates a hazard or unsafe practice which may result in property or equipment damage.

## Working With Fuels and Electrical Energy

### Prevent Explosions and Fires

Fuels and their vapors will become explosive if ignited. Spilled or leaking fuels cause vapors. Even filling customer tanks will cause explosive vapors in the vicinity of dispenser or island.

## Important Safety Information

### No Open Flames



Open flames from matches, lighters, welding torches or other sources can ignite fuels and their vapors.

### No Sparks - No Smoking



Sparks from starting vehicles, starting or using power tools, burning cigarettes, cigars or pipes can also ignite fuels and their vapors. Static electricity, including an electrostatic charge on your body, can cause a spark sufficient to ignite fuels and their vapors. After getting out of a vehicle, touch the metal of your vehicle to discharge any electrostatic charge before you approach the dispenser island.

### Working Alone

It is highly recommended that someone who is capable of rendering first aid be present during servicing. Be familiar with Cardiopulmonary Resuscitation (CPR) methods if you are working with or around high voltages. This information is available from the American Red Cross. Always advise the station personnel about where you will be working, and caution them not to activate power while you are working on the equipment. Use the OSHA tag out and lock out procedures. If you are not familiar with this requirement, refer to information in the service manual and OSHA documentation.

### Working With Electricity Safely

Be sure to use safe and established practices in working with electrical devices. Poorly wired devices may cause a fire, explosion or electrical shock. Be sure grounding connections are properly made. Make sure that sealing devices and compounds are in place. Be sure not to pinch wires when replacing covers. Follow OSHA Lock-Out and Tag-Out requirements. Station employees and service contractors need to understand and comply with this program completely to ensure safety while the equipment is down.

### Hazardous Materials

Some materials present inside electronic enclosures may present a health hazard if not handled correctly. Be sure to clean hands after handling equipment. Do not place any equipment in mouth.

#### WARNING

This area contains a chemical known to the State of California to cause cancer.

#### WARNING

This area contains a chemical known to the State of California to cause birth defects or other reproductive harm.

**IMPORTANT:** Oxygen may be needed at scene if gasoline has been ingested or inhaled. Seek medical advice immediately.

## Emergency First Aid

### Informing Emergency Personnel

Compile the following information for emergency personnel: Location of accident (for example, address, front/back of building, and so on.)

Nature of accident (for example, possible heart attack, run over by car, burns, and so on.)

Age of victim (for example, baby, teenager, middle-age, elderly.)

Whether or not victim has received first aid (for example, stopped bleeding by pressure, and so on.)

Whether or not a victim has vomited (for example, if swallowed or inhaled something, and so on.)

#### WARNING



Gasoline ingested may cause unconsciousness and burns to internal organs.

Do not induce vomiting.

Keep airway open.

Oxygen may be needed at scene.

Seek medical advice immediately.

#### WARNING



Gasoline inhaled may cause unconsciousness and burns to lips, mouth and lungs.

Keep airway open.

Seek medical advice immediately.

#### WARNING



Gasoline spilled in eyes may cause burns to eye tissue.

Irrigate eyes with water for approximately 15 minutes.

Seek medical advice immediately.

#### WARNING



Gasoline spilled on skin may cause burns.

Wash area thoroughly with clear/water.

Seek medical advice immediately.

**IMPORTANT:** Oxygen may be needed at scene if gasoline has been ingested or inhaled. Seek medical advice immediately.

### Lockout/Tagout

Lockout/Tagout covers servicing and maintenance of machines and equipment in which unexpected energizing or start up of the machine(s) or equipment or release of stored energy could cause injury to employees or personnel.

Lockout/Tagout applies to all mechanical, hydraulic, chemical or other energy, but does not cover electrical hazards.

Reference Subpart S of 29 CFR Part 1910 - Electrical Hazards, 29 CFR Part 1910.333 contains specific Lockout/Tagout provision for electrical hazards.



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# Installation

## Installing the M05819K001 or M05819K003 ATC Kit in Single Unit

### Preparing for Installation

- 1 Request permission from the manager/owner to remove power from the unit and then remove power using normal procedures. Observe the lockout/tagout safety procedures.
- 2 Make sure you have the proper kit for the model dispenser to be retrofitted.
- 3 Using the proper key for the unit, unlock and remove the doors from both sides of the unit. Place doors in a safe place to prevent damage or scratches.
- 4 Using a cross-tip screwdriver, remove the two screws securing the dial enclosure assembly and remove the assembly. Save screws for replacing assembly after installation.
- 5 Using a cross-tip screwdriver, at side 1 of the unit, remove the two screws (located above the display) and pull the display cover forward. The cover will pivot down in a horizontal position allowing access to the electronics section of the unit. Save screws for replacing assembly after installation.

### Installing ATC Kit

- 1 In kit M05819K001, locate the LP-70 Polycase box with SK-449C mounted inside; or in kit M05819K003, locate LP-70 Polycase box with 28017 PCB mounted inside. Remove the four mounting screws securing the cover and remove the cover from the box. Save screws and cover for reinstalling later.
- 2 Peel the protective cover from the mounting sponge (on the back of the polycase box) and mount the box as shown in Figure 3. Mount approximately 1-1/2-inch up from shelf (1-1/2-inch clearance underneath shelf).

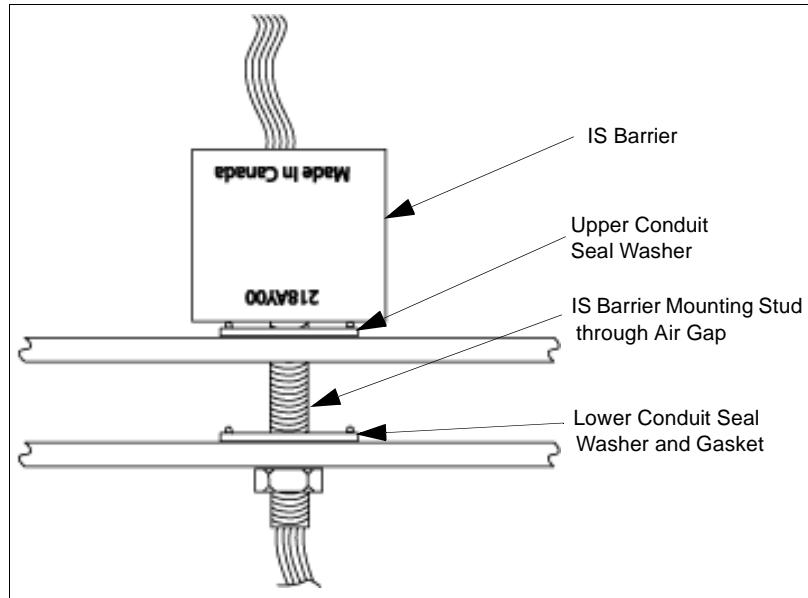
**Figure 3: Mounting the LP-70 Polycase Box**



Approximately 1-1/2-inch Clearance

- 3** On the two shelves creating the air gap, locate the two N23746-01 washers (mounted to shelf with two screws). Note that the lower washer location also has an N23761-04 Gasket.
- 4** Remove the two screws from each washer and remove the washers. Save the gasket and screws for use later.
- 5** In the kit, locate the two N23760-07 Conduit Seal washers.
- 6** Place the two conduit seal washers where the two N23746-01 washers were mounted, place the gasket (saved in Step 4) under the conduit seal washer on the lower shelf, and secure washers with screws removed in Step 4.
- 7** In the kit, locate the 27913 dual intrinsic safety (IS) barrier and 212AY04 single probe connector assembly. Remove the nut and washer from the mounting stud on the IS barrier and slide them off the wires. Save for reuse.
- 8** Feed the wires extending from the IS barrier mounting stud through the conduit seal washer on each shelf as shown in Figure 4 and place the mounting stud through the holes.

**Figure 4: Mounting the IS Barrier on the Shelf.**



- 9 Place the wires extending from the mounting stud through the mounting hole in the single probe connector assembly and place the connector assembly up on the stud (underneath the shelf as shown in Figure 5).

**Figure 5: Probe Connector Assembly and IS Barrier Stud Mounting (Underneath Shelf)**



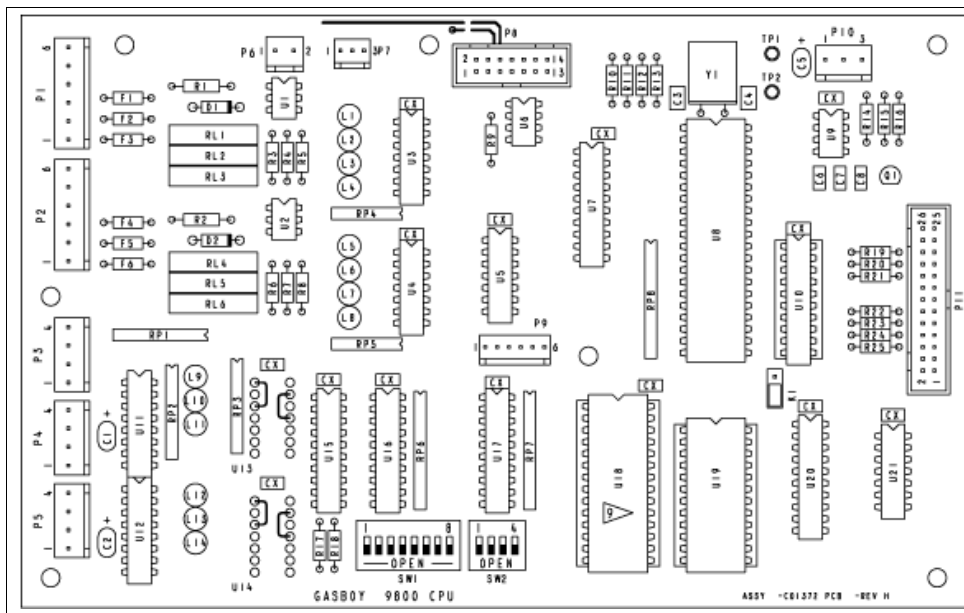
- 10 Place the washer and nut over the wires and turn nut onto the stud securing the IS barrier and probe connector. Tighten snugly but do not overtighten.

- 11 At the CPU Printed Circuit Board Assembly (Figure 6 and Figure 7), disconnect the connectors connected to the **Pulser 1** and **Handles** jacks.

Figure 6: CPU Printed Circuit Board with Original Connections (Picture)

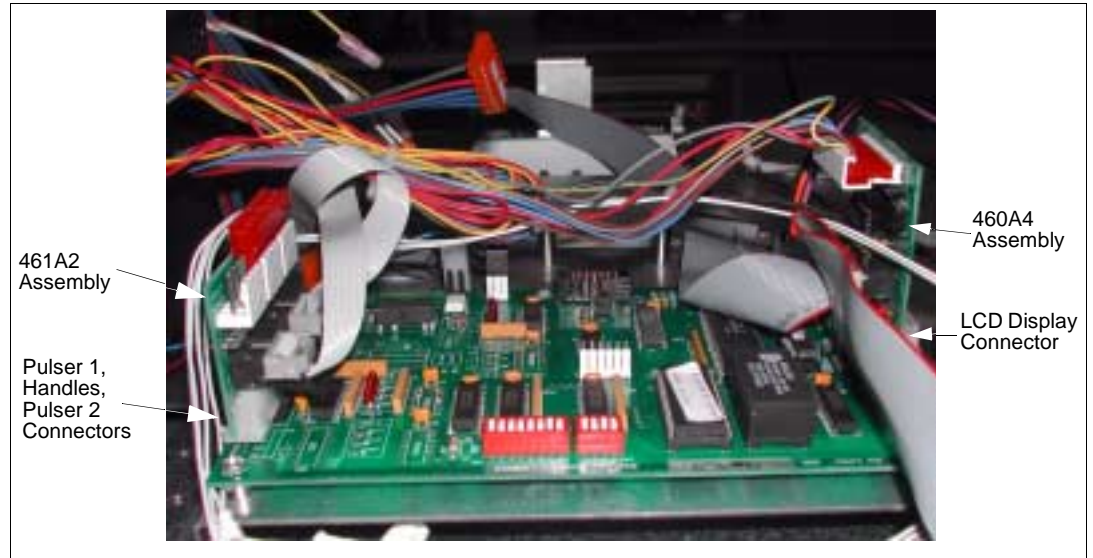


Figure 7: CPU Printed Circuit Board (Drawing)



- 12 In the kit, locate the 461A2 Circuit Board Assembly (see Figure 1 on page 5 for identification). Connect the assembly to the jacks labeled **Pulser 1, Handles**, and **Pulser 2** on the CPU PCA (Figure 8).

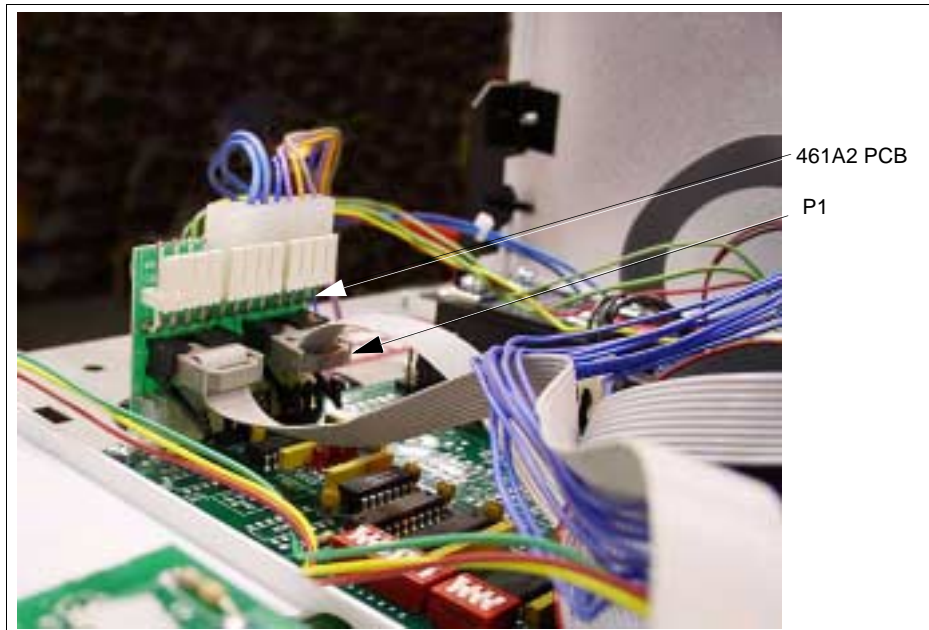
**Figure 8: CPU with New Connections Made**



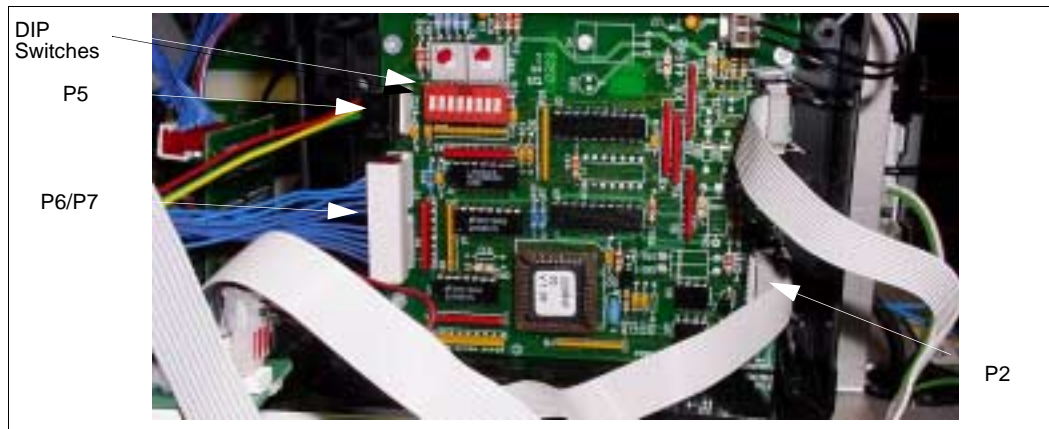
- 13 Reconnect the connectors disconnected in Step 11 to the 461A2 Circuit Board Assembly (directly above the Pulser 1 and Handles connectors).
- 14 At the CPU PCA (Figure 6 and Figure 7), disconnect the connector connected to the **LCD Display** jack.
- 15 In the kit, locate the 460A4 Circuit Board Assembly (see Figure 1 on page 5 for identification). Connect the assembly to the jack labeled **LCD Display** on the CPU PCA.
- 16 Reconnect the connector disconnected in Step 14 to the 460A4 Circuit Board Assembly jack J1 (in center of board).
- 17 In the kit, locate the W284 Pulser/Handle Ribbon Cable (see Figure 1 on page 5 for identification).

- 18 Connect one end of the W284 cable to P1 on the 461A2 board (Figure 9) and the other end to P2 in the LP-70 Polycase box (Figure 10).

**Figure 9: 461A2 Circuit Board in Place with Connections Made**

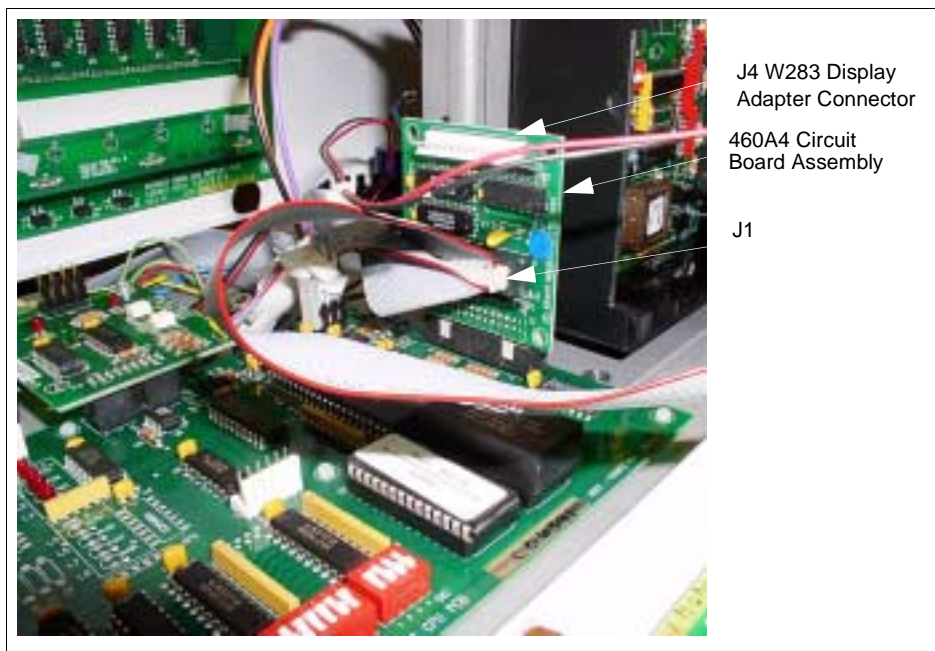


**Figure 10: LP-70 Polycase Box Showing Connections**



- 19 In the kit, locate the W283 Display Adapter Harness (see Figure 1 on page 5 for identification).
- 20 Connect one connector on the harness (both are the same) to J4 on the 460A4 Circuit Board Assembly (Figure 11) and the other connector to P6/P7 in the LP-70 Polycase box (Figure 10).

**Figure 11: 460A4 Circuit Board in Place with Connections Made**



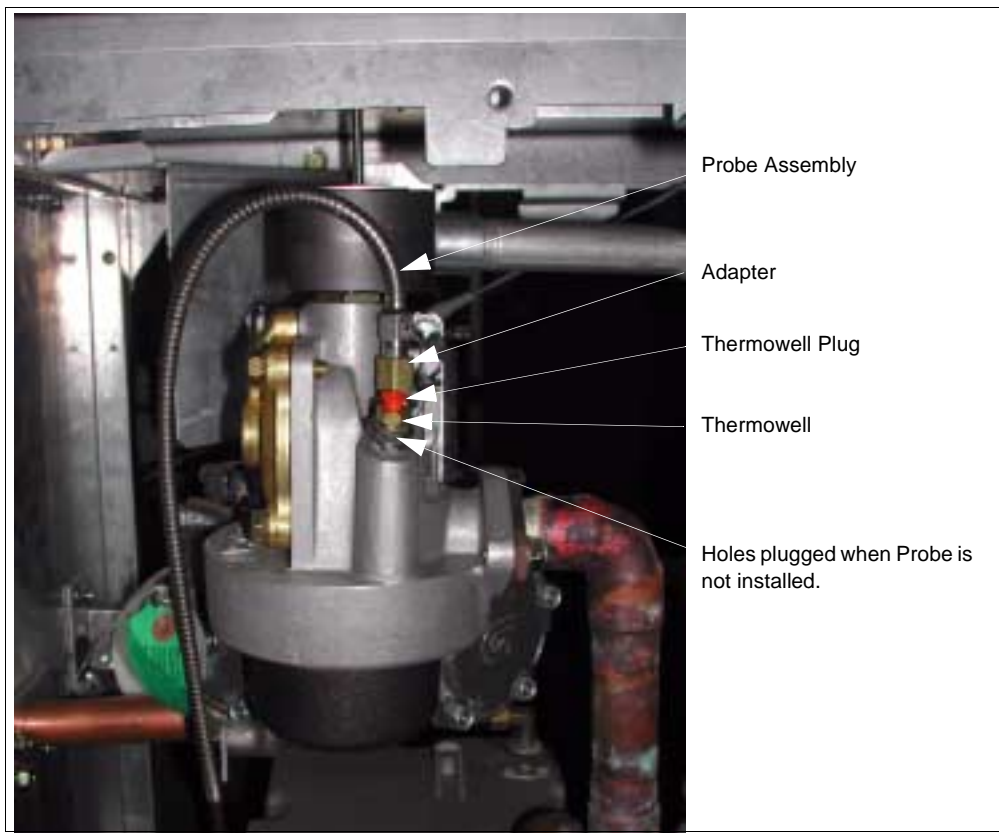
- 21 In the kit, locate the W171 2-wire harness for IS Barrier.
- 22 Place the connector on the harness on P5 of the LP-70 Polycase box (Figure 10).
- 23 Using two of the crimp splices, connect the wires of the harness to the wires extending from the top of the intrinsic safety barrier. Match color codes.
- 24 Using a 0M0205 cap or an appropriate size wire nut (0M0205 cap or wire nut is not part of the kit), cap the end of the green wire from the intrinsic safety barrier.
- 25 Connect the ground wire (wire with eyelet connector) to the nearest true ground.
- 26 In the LP-70 Polycase box, locate the DIP switches shown in Figure 10 and set the switches for the proper unit as shown in the following table:

DIP Switch Settings			
Switch Number	Switch Function	Settings for Existing and Model 9850K	Settings for Models 9840K, 9852K, 9853K
1	Product 1	ON for Diesel, OFF for Gasoline	ON for Diesel, OFF for Gasoline
2	Product 2	ON for Diesel, OFF for Gasoline	ON for Diesel, OFF for Gasoline
3	Not used	N/A	N/A
4	Unit of Measure	N/A	ON for Liters, OFF for Gallons
5	Pulser Multiplier	ON for 9850 and 9850K, OFF for 9852/9853	N/A
6	Number of Probes	ON for two (2) probes, OFF for one (1) probe	ON for two (2) probes, OFF for one (1) probe
7	Pulser Adder	ON for 9840	ON for 9840K
8	ATC	ON for ATC ON, OFF for ATC OFF	ON for ATC ON, OFF for ATC OFF

- 27 Remount the LP-70 Polycase box cover removed in Step 1 on page 9.

- 28 Using two of the crimp splices, connect the two yellow wires extending from the bottom of the intrinsic safety barrier mounting stud to the two blue wires attached to the single probe connector assembly.
- 29 Using two 0M0205 caps or suitable size wire nuts (0M0205 caps or wire nuts are not part of the kit.), cap the end of the two green wires extending from the bottom of the intrinsic safety barrier.
- 30 In the kit, locate the following: (See Figure 1 on page 5 for parts identification.)
  - W199 probe assembly
  - BC407 Thermowell
  - 235-C Thermowell Plug
  - BC546 Adapter
- 31 Underneath the shelf (where the IS barrier stud is secured), locate the two plugs in the hydraulic coupling (Figure 12).

**Figure 12: Hydraulic Coupling (Probe Assembly Mounting Location)**



- 32 Using the appropriate size Allen wrench, remove the two plugs.
- 33 Using SAF-T LOK TBS Sealant, coat the BC407 Thermowell threads and thread into one of the holes where the plugs were removed in the previous step (Figure 12).
- 34 Using a proper size wrench, tighten the thermowell and place the 235-C Thermowell plug into the thermowell.



- 35 Coat the threads of the BC546 Adapter with SAF-T-LOCK sealer and turn it into the other hole where the plugs were removed in Step 34 (see Figure 12).
- 36 Coat the threads of the W199 Probe Assembly with SAF-T-LOCK sealer and turn it into the BC546 adapter mounted in the previous step.
- 37 Using the proper size wrench, tighten both the adapter and probe.

### CAUTION

Be sure the threads on the thermowell, adapter, and probe assembly are properly coated with the SAF-T-LOCK sealant and tightened properly to prevent leaks.

- 38 Connect the other end of the probe to Probe Connector Assembly in the connector labeled “1.” (See Figure 5 on page 11 for Probe Connector Assembly location.)
- 39 Go to “Completing Installation” on page 25 in this manual.

## Installing the M05819K002 or M05819K004 ATC Kit in Twin Unit

### Preparing for Installation

- 1 Request permission from the manager/owner to remove power from the unit and then remove power using normal procedures. Observe the lockout/tagout safety procedures.
- 2 Make sure you have the proper kit for the model dispenser to be retrofitted.
- 3 Using the proper key for the unit, unlock and remove the doors from both sides of the unit. Place doors in a safe place to prevent damage or scratches.
- 4 Using a cross-tip screwdriver, remove the two screws securing the dial enclosure assembly and remove the assembly. Save screws for replacing assembly after installation.
- 5 Using a cross-tip screwdriver, at side 1 of the unit, loosen the two screws (one on each side of the display cover), spring the screw holders and screws out from the display cover and pull the display cover forward. The cover will pivot down in a horizontal position allowing access to the electronics section of the unit.

### Installing ATC Kit

- 1 In kit M05819K003, locate the LP-70 Polycase box with SK-449C PCB mounted inside;  
or  
in kit M05819K004, locate the LP-70 Polycase box with 28017 PCB mounted inside. Remove the four mounting screws securing the cover and remove the cover from the box. Save screws and cover for reinstalling later.

- 2 Peel the protective cover from the mounting sponge (on the back of the polycase box) and mount the box as shown in Figure 13. Mount approximately 1 1/2-inch up from shelf.

**Figure 13: Mounting the LP-70 Polycase Box**

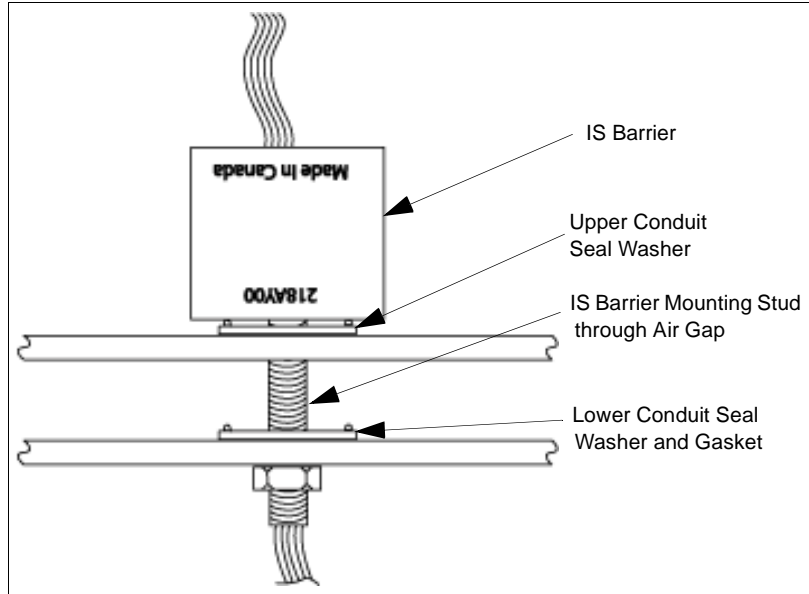


Approximately 1 1/2-inch Clearance

- 3 On the two shelves creating the air gap, locate the two N23746-01 washers (mounted to shelf with two screws). Note that the lower washer location also has an N23761-04 Gasket.
- 4 Remove the two screws from each washer and remove the washers. Save the gasket and screws for use later.
- 5 In the kit, locate the two N23760-07 Conduit Seal washers.
- 6 Place the two conduit seal washers where the two N23746-01 washers were mounted, place the gasket (saved in Step 4) under the conduit seal washer on the lower shelf, and secure washers with screws removed in Step 4.
- 7 In the kit, locate the 27913 single intrinsic safety (IS) barrier and 212AY05 dual probe connector assembly. Remove the nut and washer from the mounting stud on the IS barrier and slide them off the wires. Save for reuse.

- 8 Feed the wires extending from the IS barrier mounting stud through the hole in the shelf as shown in Figure 14 and place the mounting stud through the hole.

**Figure 14: Mounting the IS Barrier on the Shelf.**



- 9 Place the wires extending from the mounting stud through the mounting hole in the dual probe connector assembly. Place the connector assembly up on the stud (underneath the shelf) (Figure 15).

**Figure 15: Probe Connector Assembly and IS Barrier Stud Mounting (Underneath Shelf)**



*Note: The probe connection to the probe connector assembly shown is for a single unit. The dual unit has two probe connectors connected to the probe connector assembly.*

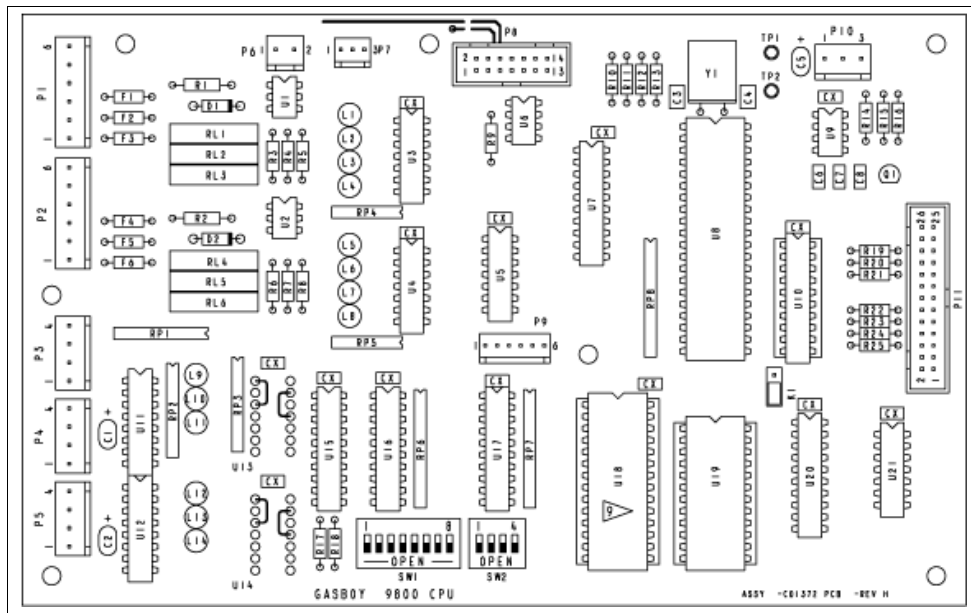
- 10 Place the washer and nut over the wires and turn nut onto the stud securing the IS barrier and probe connector. Tighten snugly but do not overtighten.

- At the CPU Printed Circuit Assembly (Figure 16 and Figure 17), disconnect the connector connected to the **Pulser 1, Handles, and Pulser 2** jacks.

**Figure 16: CPU Printed Circuit Assembly (Picture)**



**Figure 17: CPU Printed Circuit Assembly (Drawing)**



- In the kit, locate the 461A2 Circuit Board Assembly (see Figure 1 on page 5 for identification). Connect the assembly to the jacks labeled **Pulser 1, Handles, and Pulser 2** on the CPU PCA.
- Reconnect the connector removed in Step 7 to the 461A2 Circuit Board Assembly (directly above the Pulser 1, Handles and Pulser 2 connectors).
- At the CPU PCA Assembly (Figure 16 and Figure 17), disconnect the connector connected to the **LCD Display** jack.

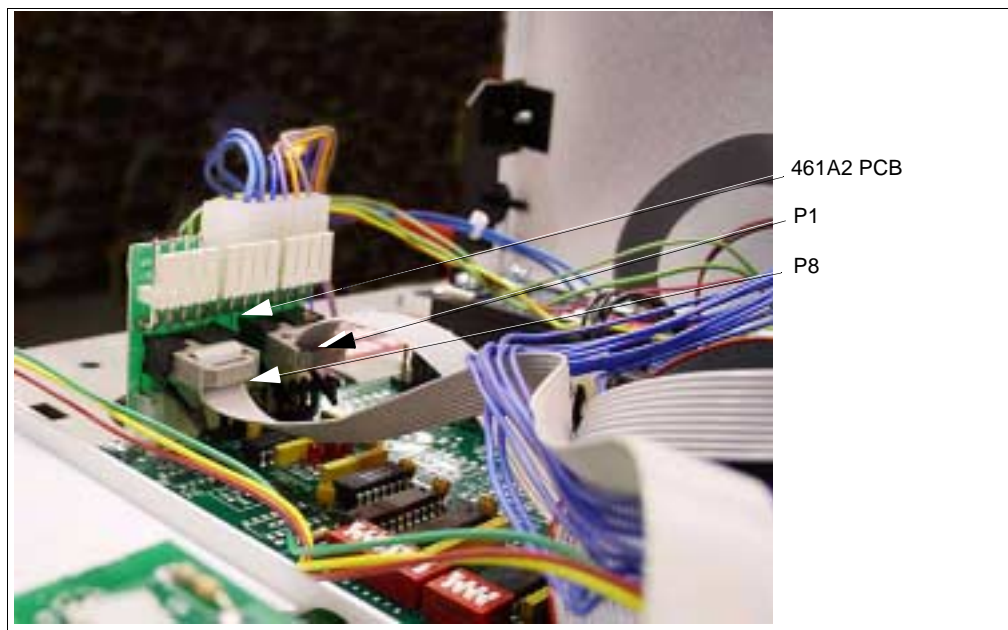
- 15 In the kit, locate the 460A4 Circuit Board Assembly (see Figure 1 on page 5 for identification). Connect the assembly to the jack labeled **LCD Display** on the CPU PCA.
- 16 Reconnect the connector removed in Step 10 to the 460A4 Circuit Board Assembly jack J1 (in center of board).
- 17 In the kit, locate the two W284 Pulser/Handle Ribbon Cables (see Figure 1 on page 5 for identification).
- 18 Connect one end of one W284 cable to P1 on the 461A2 board (Figure 18) and the other end to P2 in the LP-70 Polycase box (Figure 19).
- 19 Connect one end of the second W284 cable to P8 on the 461A2 board (Figure 18) and the other end to P3 in the LP-70 Polycase box (Figure 19).

### IMPORTANT

Be sure the cables are connected to the connectors as follows:

- From P1 of 461A2 to P2 of LP-70 Polycase box
- From P8 of 461A2 to P3 of LP-70 Polycase box

**Figure 18: 461A2 Circuit Board in Place with Connections Made**



**Figure 19: LP-70 Polycase Box Showing Connections**



- 20** In the kit, locate the W283 Display Adapter harness (see Figure 1 on page 5 for identification).
- 21** Connect one connector on the harness (both are the same) to J4 on the 460A4 Circuit Board Assembly (Figure 20) and the other connector to P6/P7 in the LP-70 Polycase box (Figure 19).

**Figure 20: 460A4 Circuit Board in Place with Connections Made**



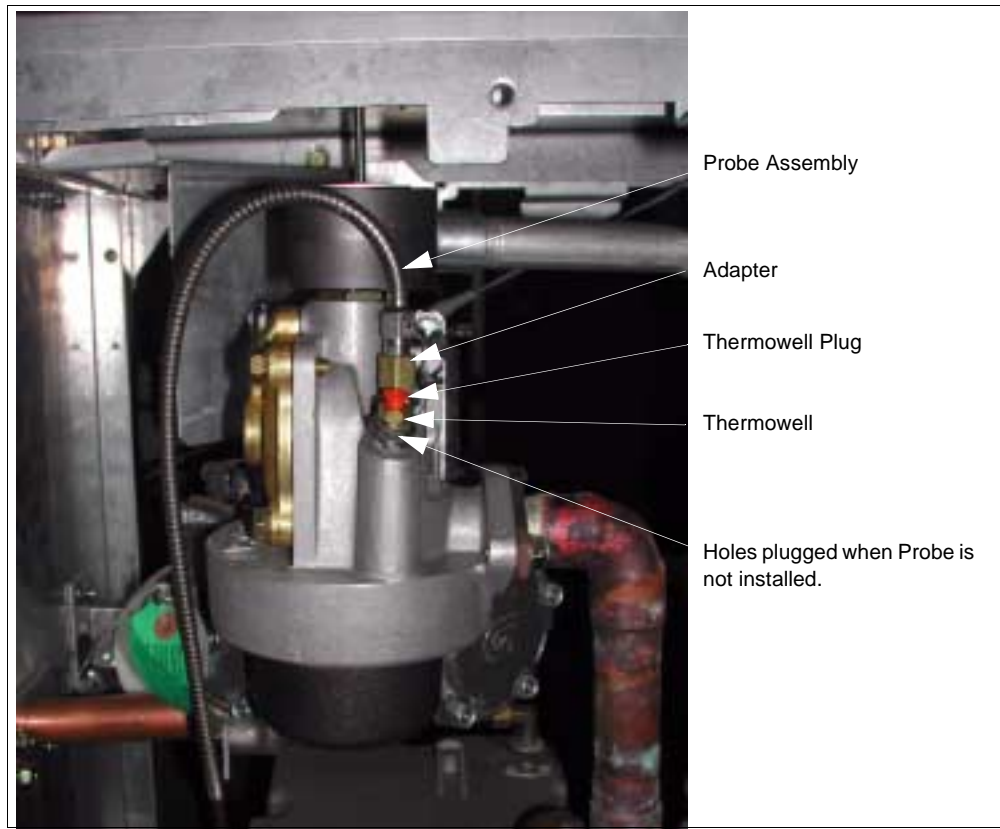
- 22** In the kit, locate the W172 3-wire harness for IS Barrier.
- 23** Place the connector on the harness on P5 of the LP-70 Polycase box (Figure 19).
- 24** Using three of the crimp splices, connect the wires of the harness to the wires extending from the top of the intrinsic safety barrier. Match color codes.
- 25** Connect the ground wire (wire with eyelet connector) to the nearest true ground.

- 26** In the LP-70 Polycase box, locate the DIP switches shown in Figure 19 and set the switches for the proper unit as shown in the following table:

DIP Switch Settings			
Switch Number	Switch Function	Settings for Existing and Model 9850K	Settings for Models 9840K, 9852K, 9853K
1	Product 1	ON for Diesel, OFF for Gasoline	ON for Diesel, OFF for Gasoline
2	Product 2	ON for Diesel, OFF for Gasoline	ON for Diesel, OFF for Gasoline
3	Not used	N/A	N/A
4	Unit of Measure	N/A	ON for Liters, OFF for Gallons
5	Pulser Multiplier	ON for 9850 and 9850K, OFF for 9852/9853	N/A
6	Number of Probes	ON for two (2) probes, OFF for one (1) probe	ON for two (2) probes, OFF for one (1) probe
7	Pulser Adder	ON for 9840	ON for 9840K
8	ATC	ON for ATC ON, OFF for ATC OFF	ON for ATC ON, OFF for ATC OFF

- 27** Remount the LP-70 Polycase box cover removed in step 1.
- 28** Using two of the crimp splices, connect the two green wires extending from the bottom of the intrinsic safety barrier mounting stud to the two green wires attached to the dual probe connector assembly.
- 29** Using two of the crimp splices, connect the two yellow wires extending from the bottom of the intrinsic safety barrier mounting stud to the two yellow wires attached to the dual probe connector assembly.
- 30** In the kit, locate the following: (See Figure 1 on page 5 for parts identification)
- W199 probe assemblies (2)
  - BC407 Thermowells (2)
  - 235-C Thermowell Plugs (2)
  - BC546 Adapters (2)
- 31** Underneath the shelf (where the IS barrier is mounted), locate the two plugs in the hydraulic coupling toward the right side of the unit (Figure 21).

**Figure 21: Hydraulic Coupling (Probe Assembly Mounting Location)**



- 32** Using the appropriate size Allen wrench, remove the two plugs.
- 33** Using SAF-T LOK TBS Sealant, coat the BC407 Thermowell threads and thread into one of the holes where the plugs were removed in the previous step (Figure 21).
- 34** Using a proper size wrench, tighten the thermowell and place the 235-C Thermowell plug into the thermowell.
- 35** Coat the threads of the BC546 Adapter with SAF-T-LOCK sealer and turn it into the other hole where the plugs were removed in step 28 (see Figure 21).
- 36** Coat the threads of the W199 Probe Assembly with SAF-T-LOCK sealer and turn it into the BC546 adapter mounted in the previous step.
- 37** Using the proper size wrench, tighten both the adapter and probe.



**CAUTION**

Be sure the threads on the thermowell, adapter, and probe assembly are properly coated with the SAF-T-LOCK sealant and tightened properly to prevent leaks.

- 38 Connect the other end (connector) of the probe to probe connector assembly in the connector labeled "1".
- 39 Locate the other two plugs in the hydraulic coupling toward the left side of the unit (Figure 21).
- 40 Repeat Steps 28 through 33 to mount the second probe assembly.
- 41 Connect the connector end of the second probe to probe connector assembly in the connector labeled "2".
- 42 Go to "Completing Installation" to complete the installation procedure.

## Completing Installation

- 1 Dress the cabling by placing them in existing cable ties. Be sure the cables do not create any obstruction to operation, access or servicing.
- 2 Test the ATCs to determine that they are functioning properly.
- 3 After determining that the ATCs are functioning properly:
  - using screws saved, remount the dial enclosure assemblies.
  - remount the doors on both sides of the unit.
  - secure doors with the keylocks.
- 4 Inform the manager/owner that the unit can be returned back to service.

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