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1.1 Introduction

1.1.1 About This Manual

This manual introduces the functions and operations, as well as installation and maintenance procedures for the KRAUS Automatic Temperature Compensation system.

In an effort to help our customers take full advantage of our state-of-the-art products, we have provided this handbook to aid in initial set up and later to be used as a reference guide should the need arise.

The three divided sections are:

1. INFORMATION

Gives general information on system functions as well as cautionary advice.

2. INSTALLATION

Gives all information needed to successfully install and operate the system, as well as technical advice to aid in troubleshooting.

3. TECHNICAL DATA

Gives information on products that make up the system, in the form of drawings, manufacturer's literature, and references to related systems and products.

These three sections are set up in such a way that information is easily understood and instantly available to those who need it, whether they are an engineer, technician or supply manager.

Due to different environmental conditions this manual may be subject to, it has been designed to fit neatly in a protective three holed binder. This also serves the function of containing information from other related products in one convenient package.

1.1 Introduction

1.1.2 Helpful Hints and Warnings

Throughout this manual, in the left hand margin, there will be indicators, with text, to give various hints and warnings. The following are examples of what you will see, and their meanings:



SUGGESTION

Gives a hint on how to best use the equipment or advice on proper procedures.



ATTENTION

Gives notice to an important aspect of system operation.



CAUTION

Gives a warning to prevent damage to equipment or cause human injury.

Kraus Industries Ltd. assumes no responsibility for personal injury or equipment damage caused by non-observance of the safety warnings.

1.1 Introduction

1.1.3 Service and Product Support

Should you experience any difficulties in system operation, and you have referred to the troubleshooting tables in this manual (Section 2.3.5) without success, customer assistance is available.

The procedure to receive such assistance is as follows:

1. Document the following information:

- System Disfunction
- Corrective Measures Taken
- System Model Number
- System Serial Number
- Purchase Order Information
- Date of Installation
- Equipment Location (i.e. City, Address, etc...)

2. Call or Fax our Product Service line at:

Company Service number	1 204 988 1234
Company Fax number	1 204 654 2881

One of our qualified personnel will provide assistance in getting your system operational.

1.2 Product Information

1.2.1 System Components

The following is a list of operating components used in this installation, along with a brief explanation of their operation:

ATC Board

Takes the signals from the temperature probe and flow meter, compensates for temperature deviation from 15 °C, then sends the compensated signal back to the main processor board.

Pre-Modular Adapter Board

Diverts the signal from the pulser to the ATC board, then returns the compensated signal from the ATC board to the main processor board. Also supplies a +5VDC and handle switch signals to the ATC Board and display.

Intrinsic Safety (I.S.) Barrier

Energy limits the temperature probe signal, then sends the same signal on to the ATC board.

Thermistor Temperature Probes

Converts temperature of the product to a corresponding voltage signal that is sent to the ATC board, via the I.S. Barrier.

ATC Display Board

Gives a visual display of product temperature, flow rate and uncompensated volume. Also indicates error conditions.

2.1 Pre-Installation

2.1.1 Site Preparation

- Extreme caution should be used to ensure that no ignition sources exist.
- The dispensing area should be roped off or isolated from public use.
- Dispenser station operator should be made aware of the work that needs to be completed to prevent accidental “turn on” of the pump.
- Any main electrical disconnection should be labeled or locked to prevent accidental power up.

2.1.2 Installation Requirements

To complete the installation, the following points should be taken into consideration:

- Any electrical installation should be carried out by a registered electrician.
- Any fuel dispensing connections should be made by qualified and experienced personnel.
- Installation must be performed in accordance with the relevant standards, laws and by-laws governing the type of application.

2.1 Pre-Installation

2.1.3 Unit Configuration

The GTC 200-1 and 200-2 must be configured for installation. This is accomplished by setting the DIP switches on the ATC circuit board. (See Figure 14)

Options for configuration can be set in accordance with the tables below:

ATC board DIP Switch Settings		GTC 200-1
SWITCH #	OPTION	SWITCH STATUS
1	Selects whether product 1 is gasoline or diesel	OFF = GASOLINE
2	Selects whether product 2 is gasoline or diesel	OFF (N/A)
3	Selects whether product 3 is gasoline or diesel	OFF (N/A)
4	Selects whether product 4 is gasoline or diesel	OFF (N/A)
5	Selects whether Blender or Pre-Modular Quad is used	OFF or ON
6	Selects whether or not dispenser is 2 Product Highline or Pre-Modular Quad	OFF = NO ON = YES
7	Selects whether or not the unit is installed in a modular or MPD pump	ON = NOT MPD or MODULAR
8	Selects whether ATC is ON or OFF	ON = ATC ON

ATC board DIP Switch Settings		GTC 200-2
SWITCH #	OPTION	SWITCH STATUS
1	Selects whether product 1 is gasoline or diesel	OFF = GASOLINE
2	Selects whether product 2 is gasoline or diesel	OFF = GASOLINE
3	Selects whether product 3 is gasoline or diesel	OFF (N/A)
4	Selects whether product 4 is gasoline or diesel	OFF (N/A)
5	Selects whether Blender or Pre-Modular Quad is used	OFF or ON
6	Selects whether or not dispenser is 2 Product Highline or Pre-Modular Quad	OFF= NO ON = YES
7	Selects whether or not the unit is installed in a modular or MPD pump	ON = NOT MPD or MODULAR
8	Selects whether ATC is ON or OFF	ON = ATC ON

2.2 Component Installation



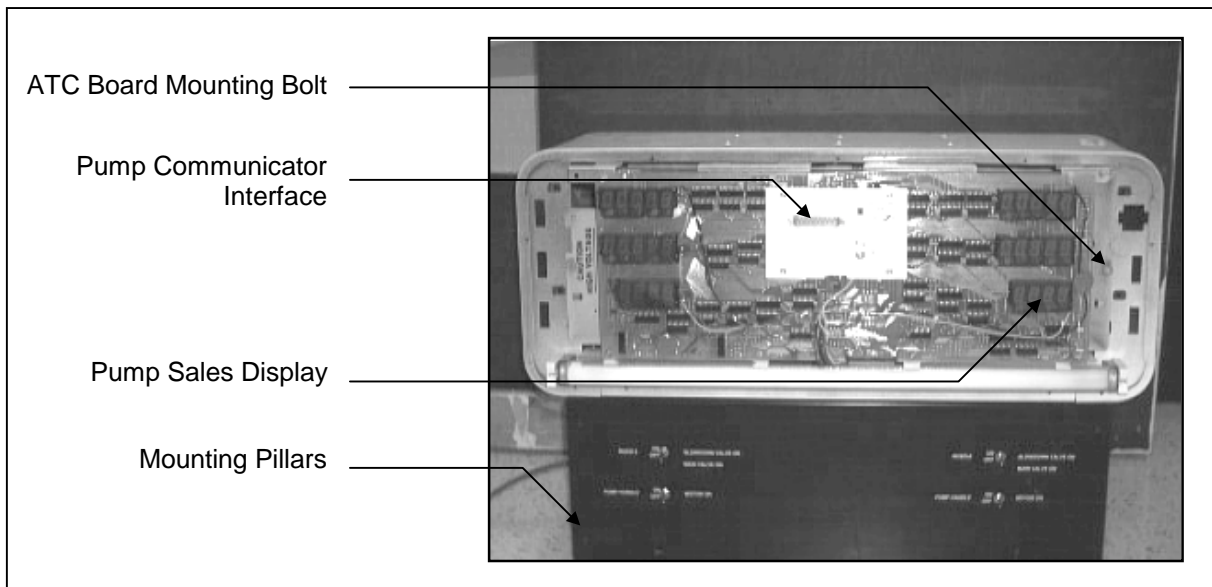
SUGGESTION

2.2.1 Test Well and Temperature Probes

Complete component installation diagrams are located in Technical Data Section 3.1.1

Before components can be installed, power must be shut off to the pump as follows:

1. Open front panel of display, on top of pump, to expose main control boards. (See Figure 1)



2. If possible, disconnect electrical power supply at main breaker *or* remove main fuse.

2.2 Component Installation

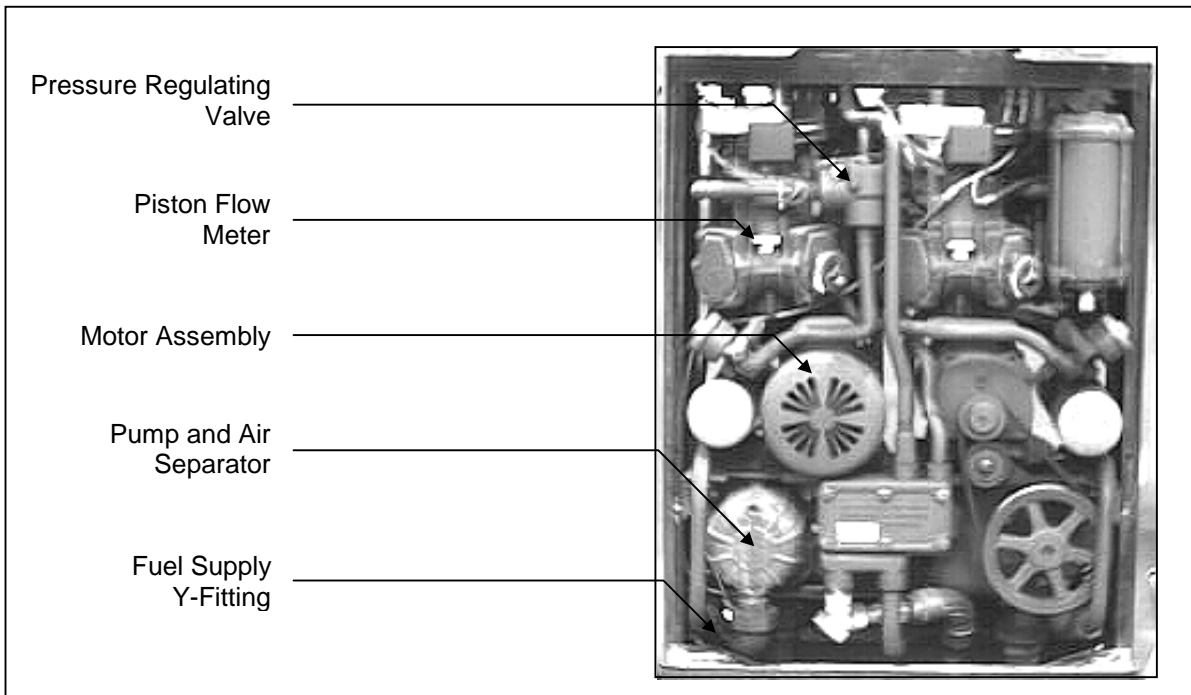
2.2.1 Test Well and Temperature Probes

2.2.1.1 For Salesmaker and Dual 1 Product Highline Models

Thermal Test Well Connection

A. In the case of having a Pressure Regulating Valve

1. Remove the two lower panels to expose the main pump assembly. (See Figure 2)



Salesmaker Model Shown

2. Locate the pressure regulating valve before each meter. (See Figure 2)
3. Remove the valves from each section.



CAUTION

Due to the presence of combustible gasses, DO NOT drill probe holes or solder fittings while the pipe is connected to the pump assembly.

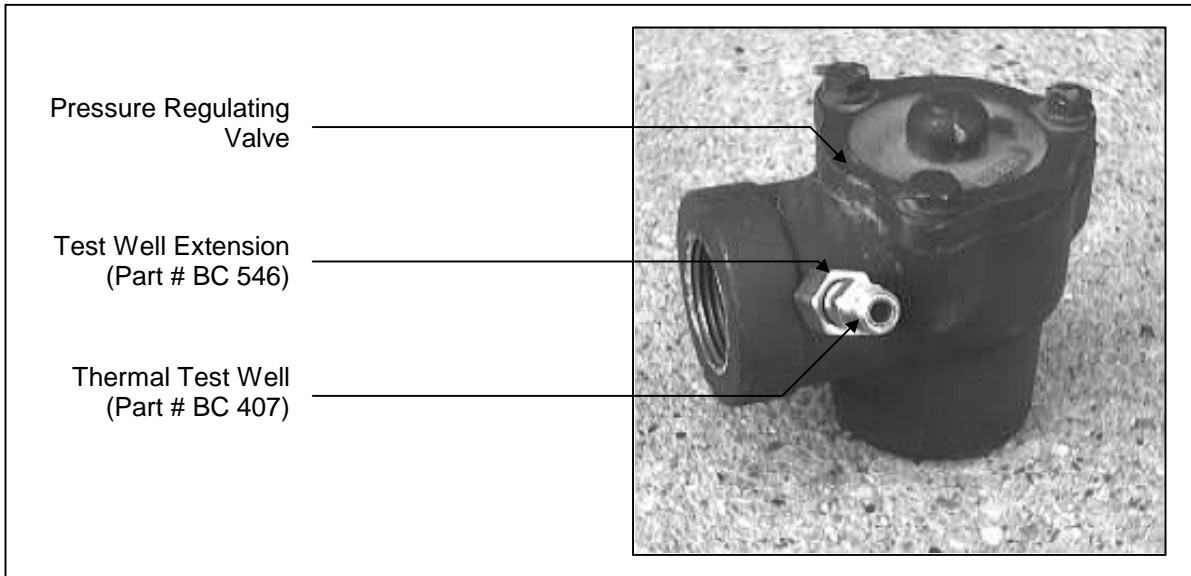
2.2 Component Installation

2.2.1 Test Well and Temperature Probes

2.2.1.1 For Salesmaker and Dual 1 Product Highline Models

Thermal Test Well Connection (Cont'd)

- A. In the case of having a Pressure Regulating Valve
4. With the valve mounted securely, drill 1 hole of size Q or 21/64", in the leg that leads to the meter, and tap for 1/8" NPT. (See Figure 3)



The following guidelines should also be followed for installing the test well:

- The hole should be drilled so that the extension will be at an angle within 45° of vertical when the extension is installed and assembly is reconnected. This is so that it will hold thermally conductive fluid for measuring purposes.
 - The fitting should provide easy access for insertion of a thermometer.
 - The fitting should be placed in an appropriate position so as not to hinder reinstallation of the assembly.
5. Install the 1/8" NPT test well extension fitting (Part # BC 546) into the newly drilled hole. The inside will be drilled out larger to accommodate the test well (Part # BC 407). (See Figure 3)

2.2 Component Installation



ATTENTION

2.2.1 Test Well and Temperature Probes

2.2.1.1 For Salesmaker and Dual 1 Product Highline Models

Thermal Test Well Connection (Cont'd)

A. In the case of having a Pressure Regulating Valve

If connection is less than 5 threads, then soldering is required. Any other connections must be made using thread sealing compound suitable for use with gasoline.

6. Install the test well (Part # BC 407) into the extension fitting (Part # BC 546) and, after tightening, cover with a thermal well plug. (Part # 235-C) (See Figure 3)
7. Thoroughly clean, then re-connect the completed assembly.



ATTENTION

The valve assembly must be thoroughly cleaned before being reconnected to the pump. This is to prevent drill cuttings from entering the dispensing system.

8. Repeat procedure for each test well to be installed.



ATTENTION

Pressure regulating valve assembly operates as a check valve in forward flow cases, and therefore does not alter the temperature of product being measured.

2.2 Component Installation

2.2.1 Test Well and Temperature Probes

2.2.1.1 For Salesmaker and Dual 1 Product Highline Models

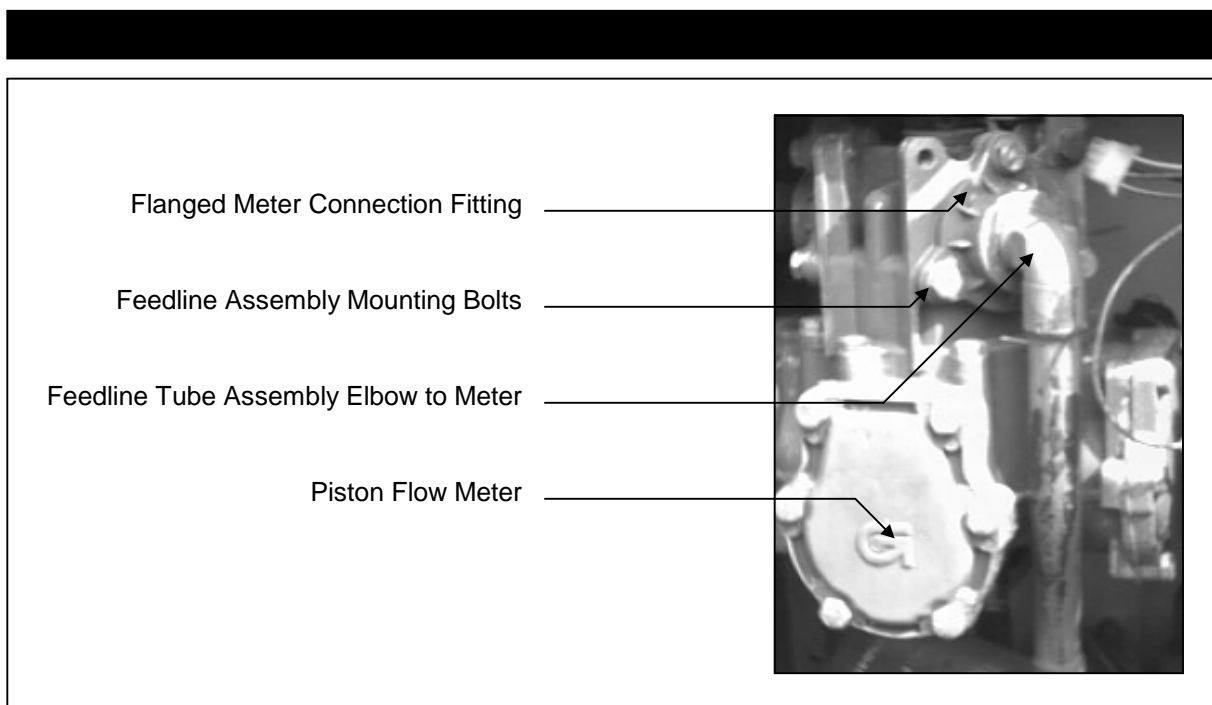
Thermal Test Well Connection

B. In the case of having Feedline Tube Assemblies

1. Remove the two lower panels to expose the main pump assembly.
2. Locate the feedline tube assemblies connected to each meter. (See Figures 4 and 5)

In order to connect test wells, each complete assembly must be removed as follows:

3. Disconnect the bolts that mount the flanged fitting end of the assembly to the meter, being careful not to damage the O-ring seal between the flange and meter inlet. (See Figure 4)



4. Disconnect the tubing from the tee fittings on the solenoid valve assembly. (See Figure 5)
5. Disconnect the bolts mounting the solenoid valve assembly to the pressure regulator. (See Figure 5)

2.2 Component Installation

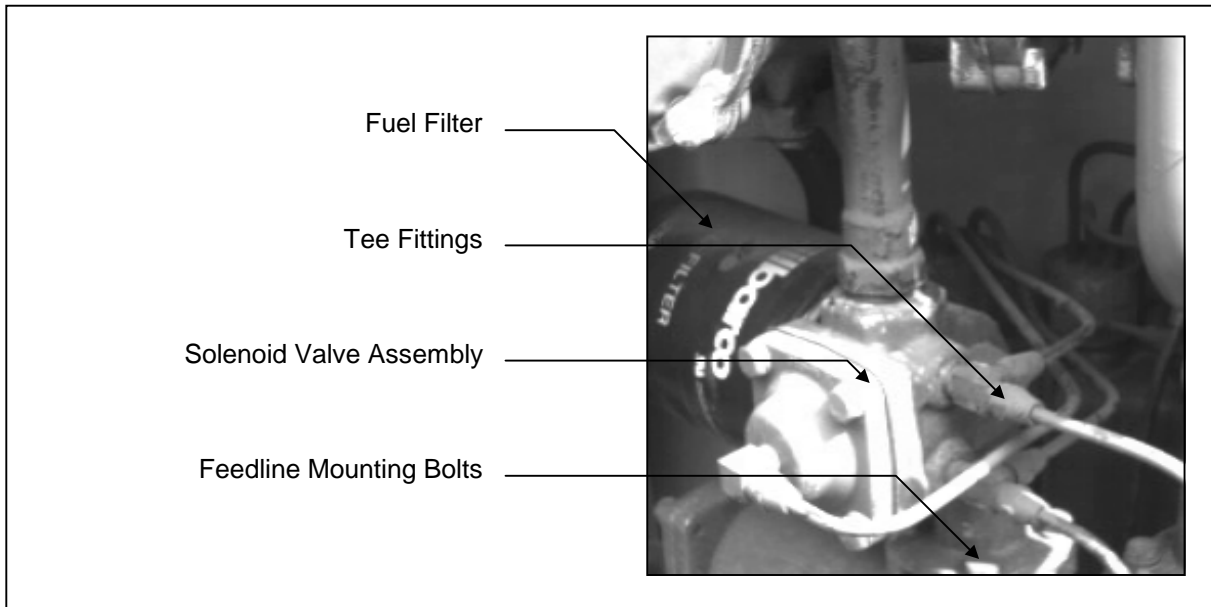
2.2.1 Test Well and Temperature Probes

2.2.1.1 For Salesmaker and Dual 1 Product Highline Models

Thermal Test Well Connection (Cont'd)

B. In the case of having Feedline Tube Assemblies

6. Remove feedline tube assembly and repeat procedure for each one in the enclosure.



CAUTION

Due to the presence of combustible gasses, DO NOT drill probe holes or solder fittings to parts directly connected to the pump.

With the feedline assemblies removed:

7. Remove the flanged fitting from the assembly in order that the sealant is not destroyed due to soldering.

2.2 Component Installation

2.2.1 Test Well and Temperature Probes

2.2.1.1 For Salesmaker and Dual 1 Product Highline Models

Thermal Test Well Connection (Cont'd)

B. In the case of having Feedline Tube Assemblies

8. With the pipe section mounted securely, drill 1 hole of size Q or 21/64", in the middle of the elbow that is located just before the meter, and tap for 1/8" NPT. (See Figure 6) The following guidelines should also be followed for installing the test well:
 - The hole should be drilled so that the extension will be at an angle within 45° of vertical when the extension is installed and assembly is reconnected. This is so that it will hold thermally conductive fluid for measuring purposes.
 - The fitting should provide easy access for insertion of a thermometer.
 - The fitting should be placed in an appropriate position so as not to hinder reinstallation of the assembly.
9. Install and silver solder the 1/8" NPT test well extension fitting (Part # BC 546) into the newly drilled hole. The inside will be drilled out larger to accommodate the test well (Part # BC 407). (See Figure 6)



ATTENTION

If connection is less than 5 threads, then soldering is required. Any other connections must be made using thread sealing compound suitable for use with gasoline.

10. Install the test well (Part # BC 407) into the extension fitting (Part # BC 546) and, after tightening, cover with a thermal well plug. (Part # 235-C) (See Figure 6)

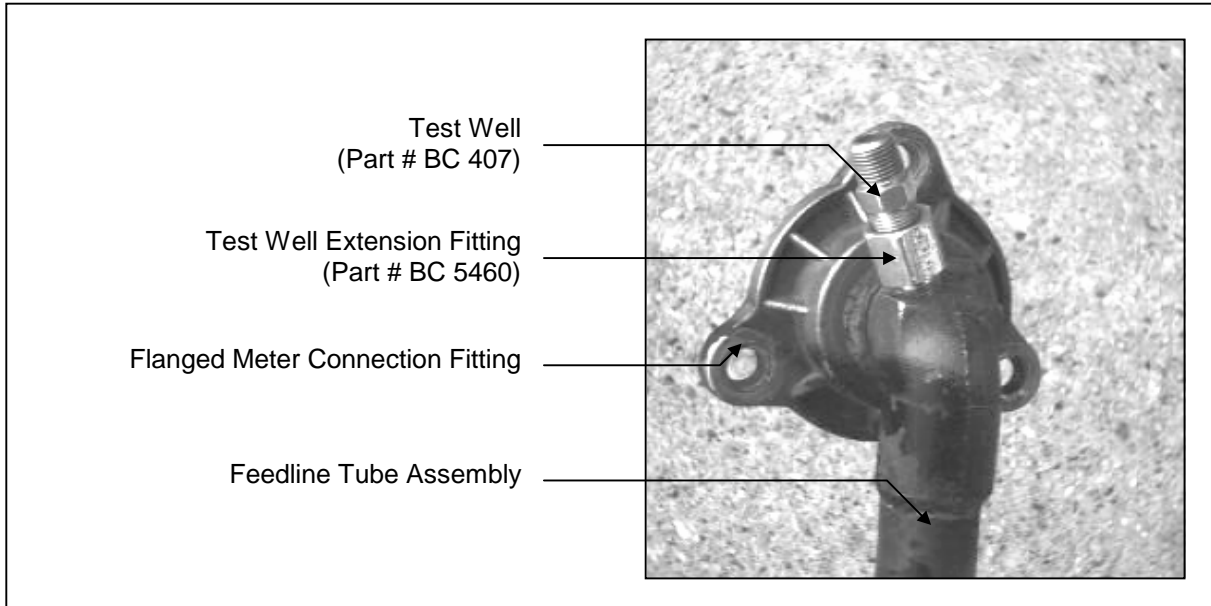
2.2 Component Installation

2.2.1 Test Well and Temperature Probes

2.2.1.1 For Salesmaker and Dual 1 Product Highline Models

Thermal Test Well Connection (Cont'd)

B. In the case of having Feedline Tube Assemblies



11. Re-connect the feedline tube assemblies, by following steps 3 to 7 in reverse order . (Apply new thread sealing when reattaching the flanged fitting and elbow)



ATTENTION

The feedline tube assembly must be thoroughly cleaned before being reconnected to the pump. This is to prevent drill cuttings from entering the dispensing system.

2.2 Component Installation

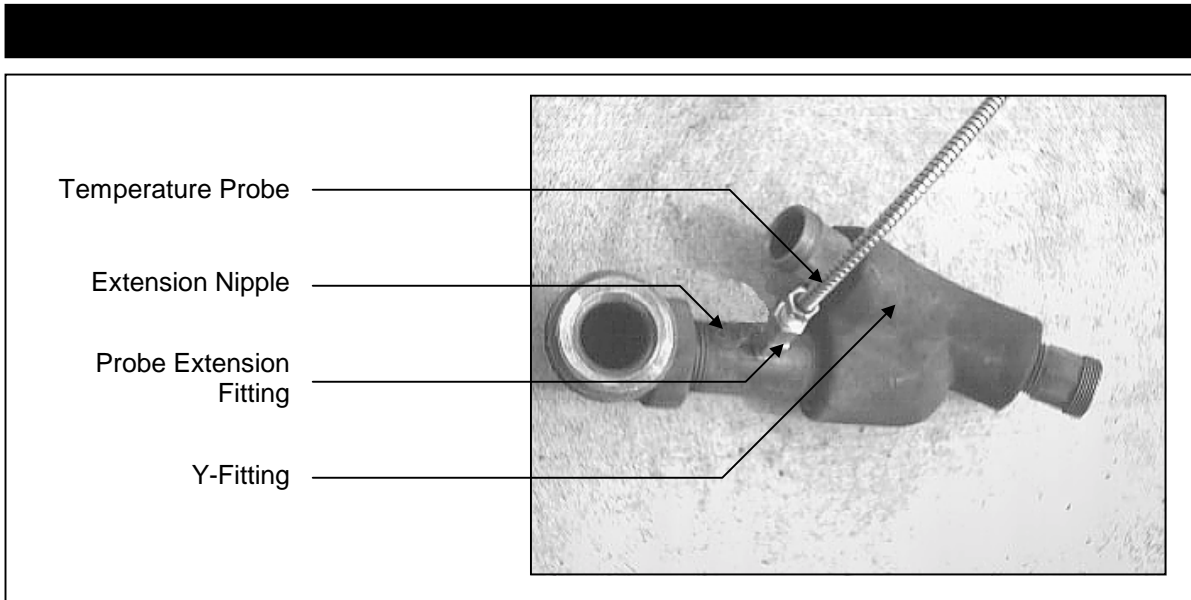
2.2.1 Test Well and Temperature Probes

2.2.1.2 For Salesmaker or Single Product 2 Hose Highline Dispensers

Temperature Probe Connection

A. In the case of a Suction Salesmaker

1. Locate fuel supply inlet Y-fitting at the bottom of the pump assembly. (See Figure 2)
2. Remove Y-fitting and pipe extension nipple.
3. With the pipe section mounted securely, drill 1 hole of size Q or 21/64", in the extension nipple, and tap for 1/8" NPT. (See Figure 7)



4. Install extension fitting (Part # BC 546) into hole, using sealing compound suitable for use with gasoline.
5. Install the temperature probe into the extension fitting.



SUGGESTION

The temperature probe end should ideally be placed in the center of fuel flow inside the piping, two extension fittings are supplied in order to adjust the position of the probe.

6. Thoroughly clean, then re-install the pipe section into the pump assembly.

Repeat procedure for each temperature probe

2.2 Component Installation

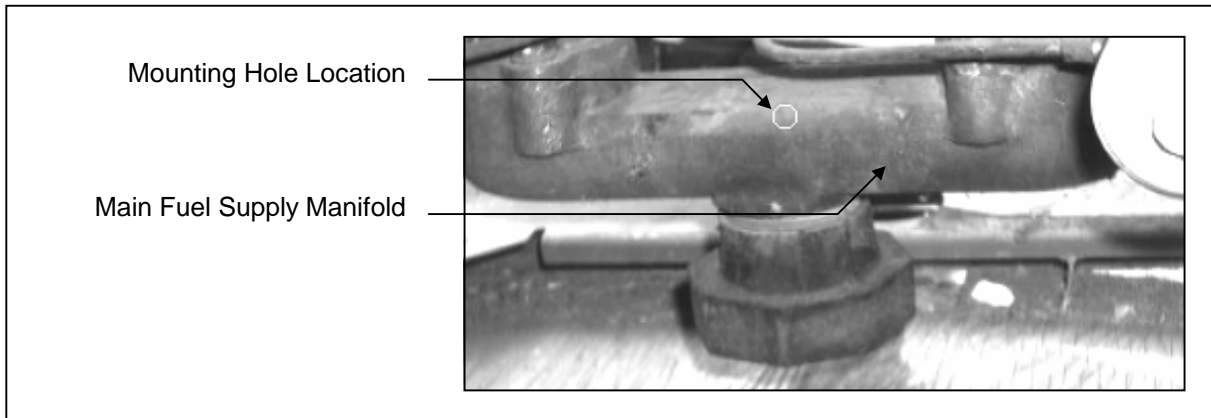
2.2.1 Test Well and Temperature Probes

2.2.1.2 For Salesmaker or Single Product 2 Hose Highline Dispensers

Temperature Probe Connection

B. In the case of having a manifold assembly

1. Locate the fuel supply manifold at the bottom of the pump assembly, inside the main enclosure. (See Figure 9)
2. Remove manifold.
3. With the manifold mounted securely, drill one hole of size Q or 21/64" in the center of the manifold body, or in a location where the probe is common to both meters. (See Figure 8 for hole location)



SUGGESTION

The hole should be placed so that with the probe installed, the manifold can be re-connected without the probe interfering with the front panel of the enclosure.

4. Tap the hole for 1/8" NPT, and install temperature probe extension fitting using thread sealing compound suitable for use with gasoline.



SUGGESTION

The temperature probe end should ideally be placed in the center of fuel flow inside the manifold, two extension fittings are supplied in order to adjust the position of the probe.

5. Install temperature probe inside the extension fitting, also using thread sealing compound suitable for use with gasoline.
6. Thoroughly clean, then re-connect manifold to pump assembly.

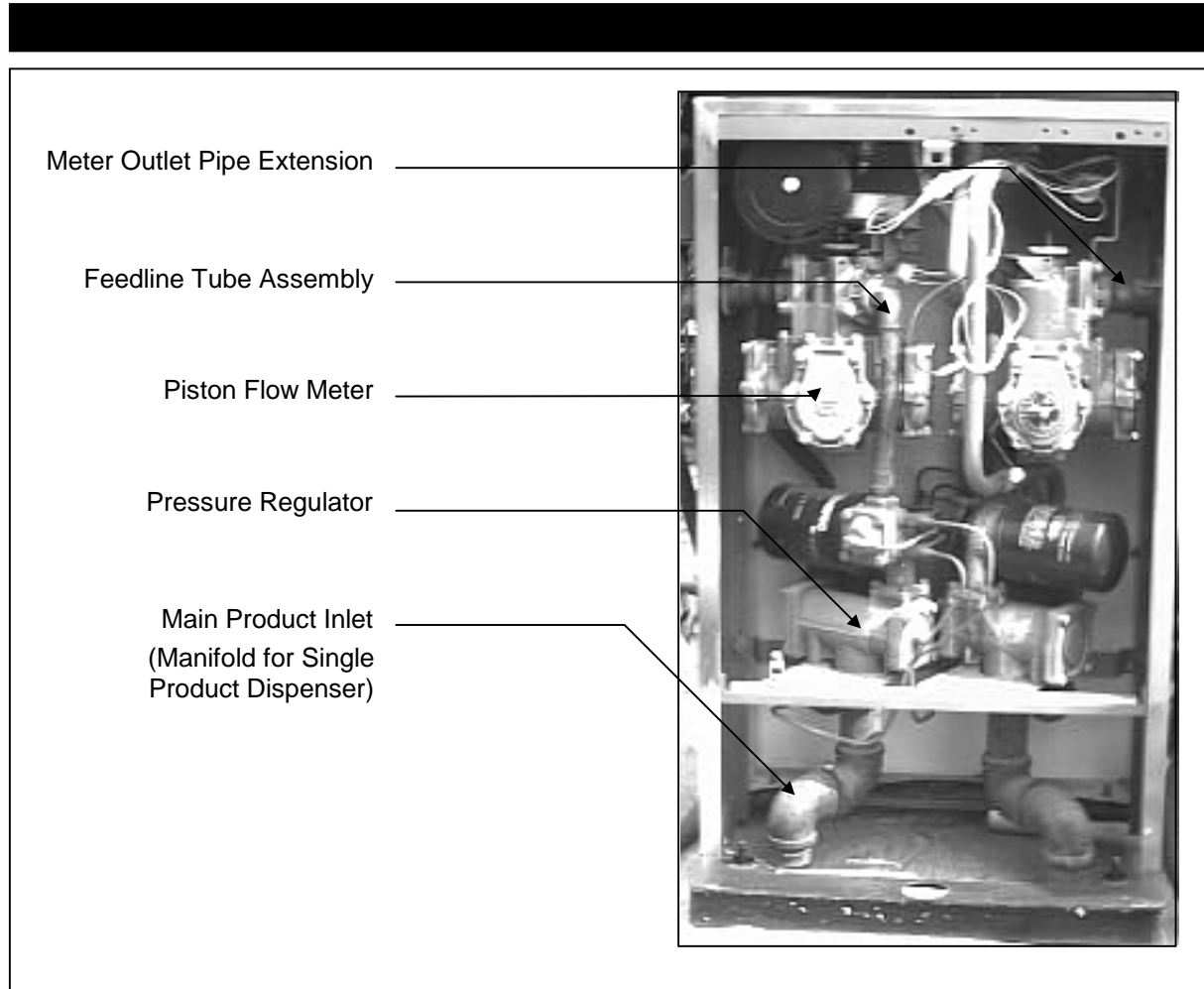
2.2 Component Installation

2.2.1 Test Well and Temperature Probes

2.2.1.3 For Single Highline and Dual 2 Product Highline Models

Test well and Temperature probe will be installed in the same location for each product.

1. Locate the pipe extension nipple leading from the meters to the dispensing hoses, inside the main enclosure. (See Figure 9)



Dual Product Dispenser Shown

2. Remove the pipe sections leading from each meter.
3. With pipe section mounted securely, drill two holes of size Q or 21/64" about one inch apart, near the center.

2.2 Component Installation

2.2.1 Test Well and Temperature Probes

2.2.1.3 For Single Highline and Dual 2 Product Highline Models

The following guidelines should also be followed for installing the test well:

- The hole should be drilled so that the extension will be at an angle within 45° of vertical when the extension is installed and assembly is reconnected. This is so that it will hold thermally conductive fluid for measuring purposes.
 - The fitting should provide easy access for insertion of a thermometer.
 - The fitting should be placed in an appropriate position so as not to hinder reinstallation of the assembly.
4. Tap the holes for 1/8" NPT, and install temperature probe and test well extension fittings into the holes using thread sealing compound suitable for use with gasoline.



SUGGESTION

The temperature probe end should ideally be placed in the center of fuel flow inside the pipe, two extension fittings are supplied in order to adjust the position of the probe.

5. Install temperature probe inside the extension fitting, using thread sealing compound suitable for use with gasoline.
6. Install the test well (Part # BC 407) into the extension fitting (Part # BC 546) and, after tightening, cover with a thermal well plug. (Part # 235-C)
7. Thoroughly clean, then re-connect pipe section to pump assembly



CAUTION

Due to the presence of combustible gasses, DO NOT drill probe holes or solder fittings to parts directly connected to the pump.



ATTENTION

If connection is less than 5 threads, then soldering is required. Any other connections must be made using thread sealing compound suitable for use with gasoline.

2.2 Component Installation



SUGGESTION

2.2.2 Intrinsic Safety Barrier Mounting

1. Once the temperature probes have been installed, remove pillar panels between sales display head and vapor barrier.
-

Be sure to label all wires before disconnecting so that they may be reconnected properly.

Steps 2 to 5 apply to Salesmaker model only

2. Disconnect the meter pulser wires (attached by harness terminals) and ballast wires (black and white).

With the wires disconnected, the display head can be taken off.

3. Remove the sales head mounting bolts located on the bottom of the pillars.
 4. Remove the bolts on side of the panel to separate the pump handle receptacles from the vapor barrier.
-



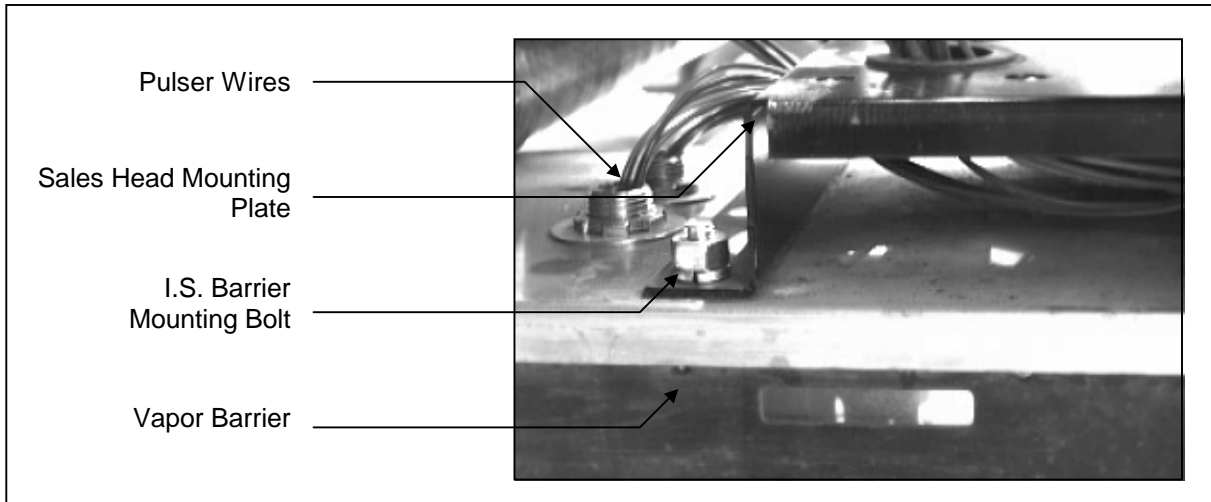
CAUTION

The next step requires two people.

5. Slowly raise pump head.
6. Use the I.S. Barrier threaded extension to replace one of the bolts (as shown in Figure 10) on the pillar mounting plate. I.S. Barrier should be mounted above the vapor barrier.

2.2 Component Installation

2.2.2 Intrinsic Safety Barrier Mounting (Cont'd)



8. Crimp the wires coming from the top of the I.S. Barrier to the 5 Pin 3 wire harness (2 wire harness for GTC 200-1) that will connect to the ATC Board. (Part # W172 or W171) Wires will correspond by color.
9. Replace the Sales Display Head, while running the wires through the appropriate pillars.
10. Return Sales Display Head to its normal position and tighten the bolts.
11. Connect the ground wire (Green #20 AWG) from the I.S. Barrier to the I.S. ground screw of the Pump Head Unit, on the pillar.



CAUTION

Ground wire connection is critical for safe operation of the equipment.

12. Run the crimp wired harness up and through to the Sales Display Head control panel to the site where the ATC board will be mounted. (See Figs. 1 and 8)

2.2 Component Installation

2.2.3 Probe Connector Assembly Installation

1. Find a suitable mounting location to attach the probe connector assembly bracket (mounting bracket can accommodate bolt up to 5/16") inside the main enclosure.
2. With connector assembly securely mounted, attach the wires from the back of the assembly to the wires coming from the I.S. Barrier. (Refer to connection diagrams, Section 3.1.1, Figures 16 and 17)
 - For GTC 200-1, connect the blue wires from the probe connector assembly (using the supplied crimp-on connectors) to the yellow wires from the I.S. Barrier.
 - For GTC 200-2, connect the wires from the assembly (using the supplied crimp-on connectors) to the like colored wires of the I.S. Barrier. (Yellow - Product 1, Green - Product 2)



ATTENTION

Connections MUST be made using crimp-on wire nuts or butt connectors. This is a Weights and Measures requirement to make the connection tamper resistant.

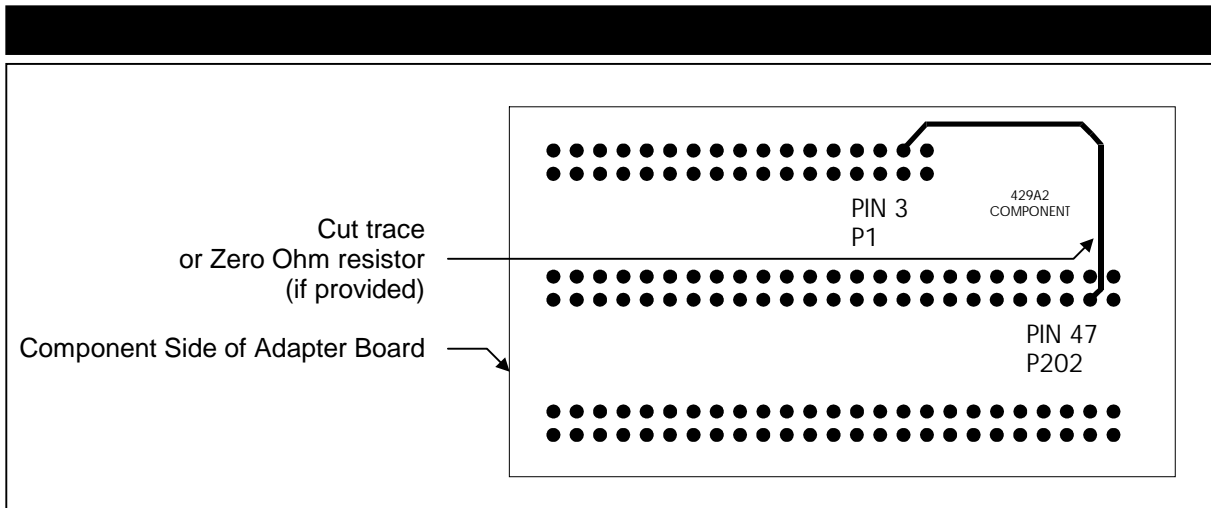
2.2 Component Installation

2.2.4 Pre-Modular Adapter Board Connection

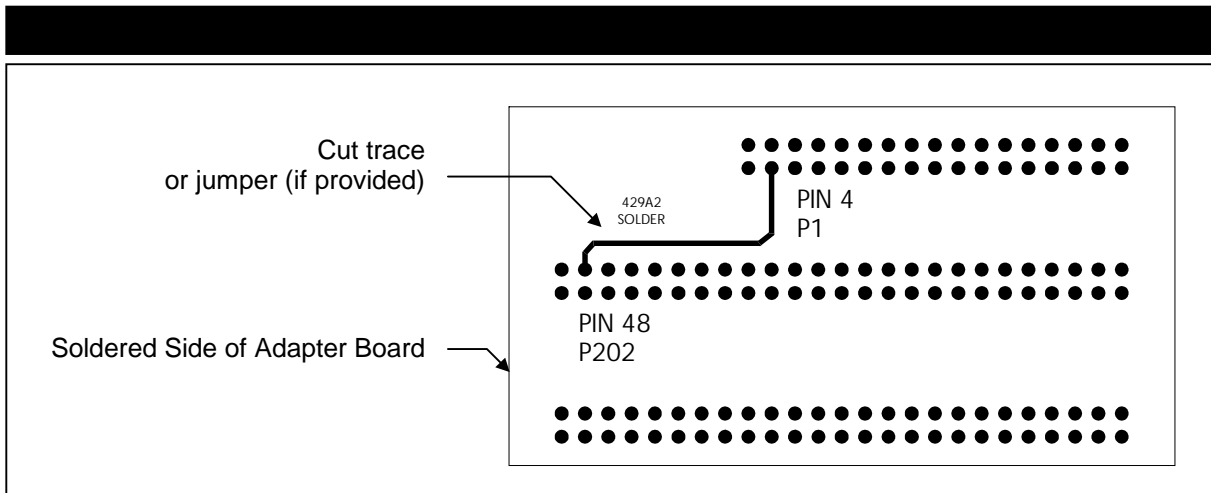
1. Tilt the Display Board down to expose the pump CPU Board. (See Figure 13)
2. Detach the 50 Pin Ribbon Cable (40 Pin on T80 models) from the CPU Board.
3. Attach the Pre-Modular Adapter Board (Part #SKIL-429) to the Main Processing Board on the connector to which the cable was attached.

For installation in Highline dispensers with Z80 microprocessors, the following modifications should be made before connecting:

- i. On the component side of the board, sever the trace, or cut the jumper located in the top right hand corner, connecting pin 3 of P1 to pin 47 of P202. (See Figure 11)



- ii. On the soldered side of the board, sever the trace located between pin 4 of F1 and pin 48 of P202. (See Figure 12)



2.2 Component Installation



ATTENTION



ATTENTION

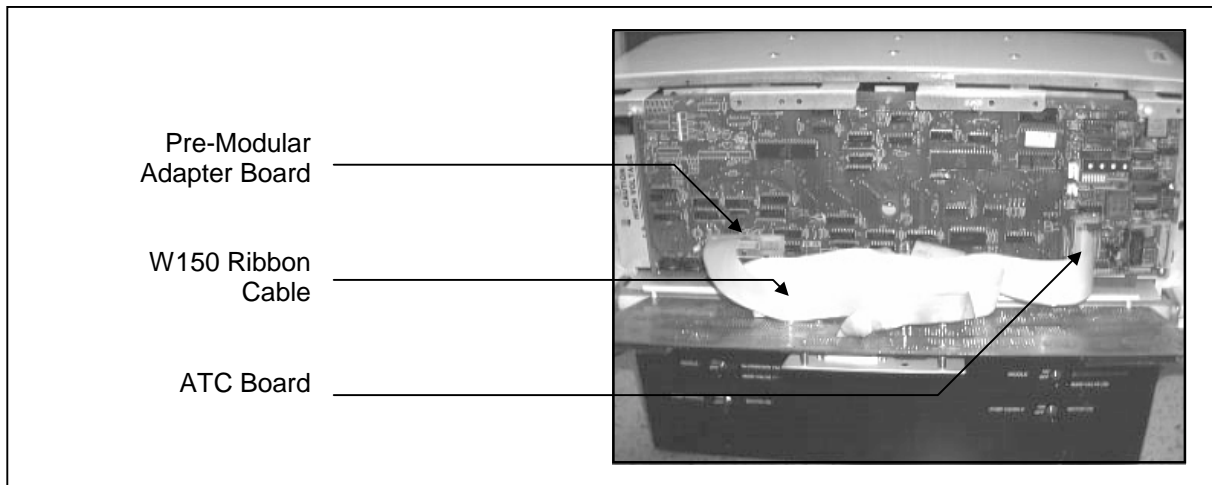
2.2.4 Pre-Modular Adapter Board Connection

On the 40 Pin version (T80 models), the connector should be offset to the left (i.e. un-used connectors should be on the right hand side).

4. Re-attach Ribbon Cable to receptacle on the Pre-Modular Adapter board (Strain relief bar may need to be removed in order for the cable to attach properly).

It may be necessary to trim any jumper pins located behind the adapter board to prevent short circuiting.

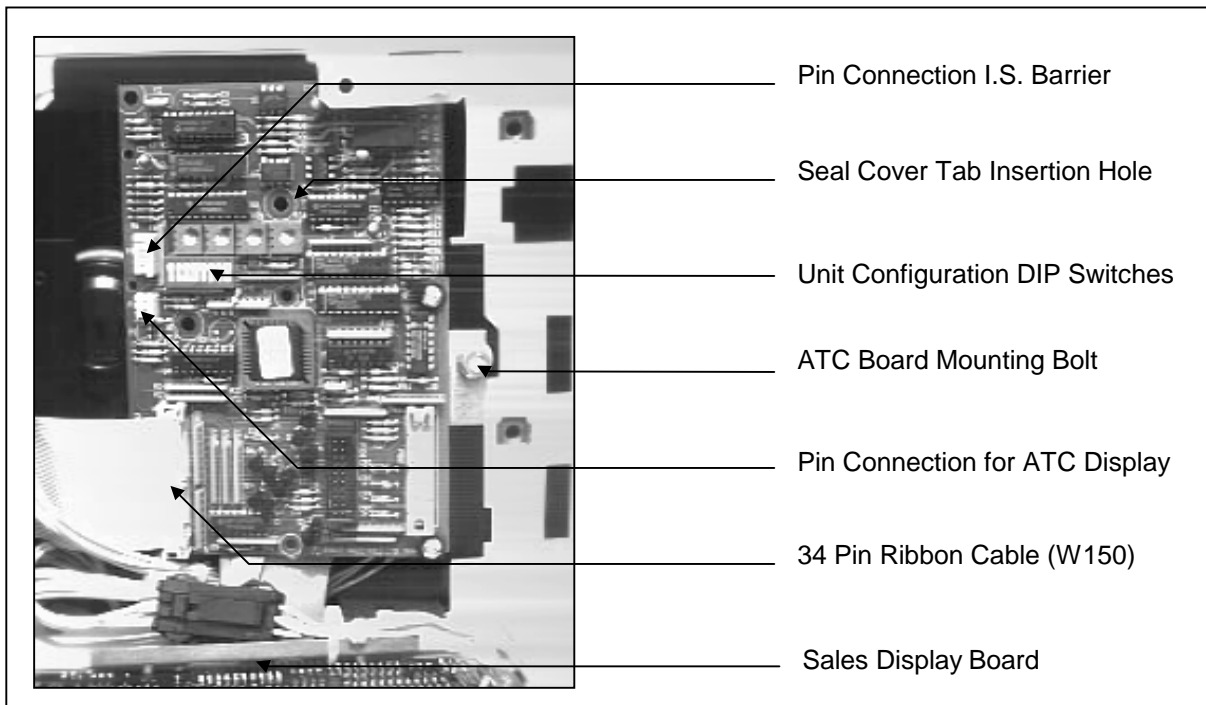
5. Attach Ribbon Cable (Part # W150) from ATC board to the remaining 34 Pin, upper receptacle on Adapter Board.



2.2 Component Installation

2.2.5 ATC Board Installation

1. Open front panel of display. (See Figure 1)
2. Tilt the sales display board by loosening plastic locks on top and pulling down. (See Figure 13)
3. Locate and loosen the mounting bolt on the right hand side of the mounting plate. (See Figure 14)
4. Install 3 plastic spacers in bottom of ATC board
5. Insert bracket end of ATC board between the bolt and the mounting plate, then tighten, making sure the tab is in the slot. Ensure spacers are resting on logic board, not on components.
6. Connect the wire harness from the I.S. Barrier to the P5 connector on the ATC board.



7. Connect the 34 Pin Ribbon Cable (Part # W150), already attached to the Pre-Modular Adapter Board, to the receptacle (P1) on the lower left hand side of the board.
8. Place seal cover (BC1239) over DIP switch section by inserting tab through hole, then twist tie cover to board with some wire. (See Figure 14 for hole location)



2.2 Component Installation

2.2.6 ATC Display Board Installation

1. Remove backing paper to expose adhesive strips.
2. Position the display board on the Pump Communicator Interface plate and adhere firmly, making sure the display is visible when enclosure is replaced. (See Fig. 1 for location)
3. Attach the wire harness (Part # W189) from ATC Display to connector P3 on middle left hand side of the ATC Board.

2.3 Post Installation

2.3.1 Post Installation Check

Once the ATC system has been installed as per the previous instructions, and the pump has been re-assembled, power can be restored.

The following operations should now be verified:

- Sales displays are operational. (The pulser error code may be flashing on the price display)
- ATC display is operational. (Display may be blank until handle switches are thrown) If display is not operating, check to see if power is being sent from the Main Processing board in the card cage to the ATC Board by measuring for +5 VDC on the Ribbon connector. Power can be measured across pins 1 & 3 of P3.



ATTENTION

If error messages are flashing on the price displays, reset them with the handle switches.

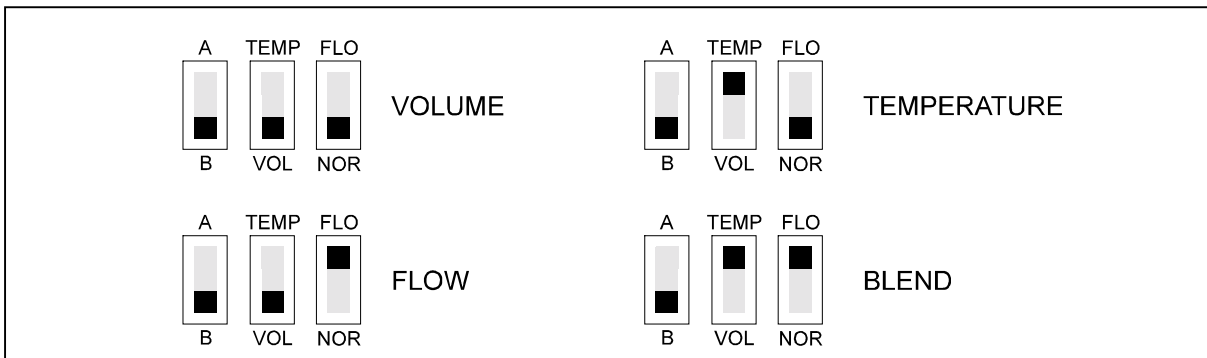
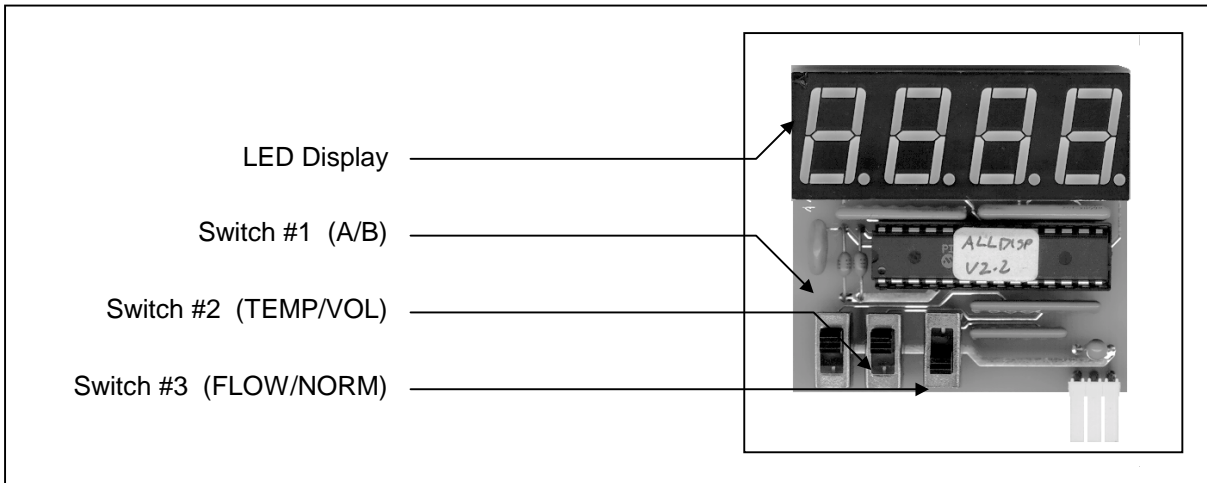
2.3 Post Installation

2.3.2 ATC Display Board Functions

The three switches on the board (See Figures 15 & 16) determine what information is displayed.

SWITCH 1	A/B	Selects the temperature and uncompensated volume reading for either A side or B side .
SWITCH 2	TEMP/VOL	Selects between the product temperature and uncorrected volume of product. (In normal mode)
SWITCH 3	FLOW/NORM	Selects between having the flowrate or the temperature and volume (as above) of a product displayed.

Note: The NORM position may be labeled BLEND.



Error Messages

Error message will alternate at 1 second intervals with the information selected by the switches.

A-d	A/D Converter Error
Prob	Probe Error
PULS	Pulser Error

The priority of errors is as shown above. That is, if there is both a probe and pulser error, only a probe error is reported.

Status Messages

Will show for 1 second when handle switch is turned on. Must be in normal mode.

With **TEMP** switch selected:

re1.5 Software Revision Number for the ATC Main Board Controller.

With **VOL** switch selected:

gas	Shows product type is gasoline
desl	Shows product type is diesel
OFF	ATC Compensation is disabled

2.3 Post Installation

2.3.4 Probe Connection Verification

With the dispenser ready to be tested:

1. Ensure power is applied to the unit.
2. Ensure ATC is ON (DIP switch #8 is on)
3. Initialize the system as per the Gilbarco pump requirements.
4. Set the ATC display to show volume for the side being tested.
5. Run a delivery into a test can.

The ratio of the net volume on the dispenser and the gross volume on the ATC display should be the correct VCF (Volume Correction Factor) for the temperature displayed and the product selected.

6. Now unplug the temperature probe for the product being delivered.

The pump should stop, and the status on the ATC display should indicate a temperature probe failure.

7. Repeat the test procedure for each hose.

2.3 Post Installation

2.3.5 Installation Troubleshooting

The following tables give examples of problems that may be faced after installation, as well as their cause and solution. This troubleshooting section should be referred to before calling for technical support.

Troubleshooting		GTC 200-1 & 2
PROBLEM	POSSIBLE CAUSE AND SOLUTION	
<p>PULSER ERROR ON PUMP (ERROR CODE 20)</p> <p>ATC Display for that side indicates PULS or shows no error.</p>	<p>DIP Switches are set incorrectly. DIP switch settings are as follows: (See Table 1)</p> <ul style="list-style-type: none"> • #1-4 product types: ON for Diesel, OFF for Gasoline • #5 ON for blender and pre-modular Salesmaker quad only • #6 ON for two hose, 2 probe Highline and pre-modular Salesmaker quad • #7 ON only for pre-modular Highline, 1 or 2 hose • #8 ON to enable volume correction (ATC) 	
	<p>Defective adapter board, ribbon cable or ATC board. Replace as necessary.</p>	
<p>PULSER ERROR ON PUMP (ERROR CODE 20)</p> <p>ATC Display for that side indicates Prob, and temperature for that side reads -50.0C.</p>	<p>-50.0C Reading indicates an open probe circuit. Defective I.S. barrier, probe connector assembly, associated wiring, ATC board or probe. Replace as necessary.</p>	
	<p>DIP switch #6 is set incorrectly. Should be ON only if dispenser is a two hose Highline using 2 probes, or a Pre-Modular Salesmaker Quad.</p>	
	<p>Traces or jumpers not cut off adapter board on pre-modular Highline. Traces and jumpers only to be left on for Salesmaker quad.</p>	

2.3 Post Installation 2.3.5 Installation Troubleshooting

PROBLEM	POSSIBLE CAUSE AND SOLUTION
<p>PULSER ERROR ON PUMP (ERROR CODE 20)</p> <p>ATC Display for that side indicates Prob, and temperature for that side reads 50.0C.</p>	<p>50.0C Reading indicates shorted probe circuit. Defective I.S. barrier, probe connector assembly, associated wiring, ATC board or temperature probe could be the problem. The following procedure should indicate the source:</p> <ul style="list-style-type: none"> • Unplug the probe. If it is faulty, the display temperature will switch to -50.0C. • If display doesn't change, detach the I.S. barrier plug from the ATC board. • If the temperature still reads 50.0C, then the ATC board is bad. • If the temperature changes to -50.0C, then the short is somewhere in the I.S. barrier or the associated wiring.
<p>PULSER ERROR ON PUMP (ERROR CODE 20)</p> <p>ATC display for that side is dead.</p>	<p>Display may be too dim to read in daylight with front bezel off. It may be necessary to shade ATC display with hand.</p> <hr/> <p>Ensure that DIP switch #7 is set correctly. Should be ON only if pre-modular Highline.</p> <p>Lift one handle switch and see if display comes on. If it doesn't, flip DIP switch #8 on and off to see if display comes on.</p> <p>If it doesn't, check for 5VDC across outer two pins of ATC display. If there is no power present, defective adapter board, ribbon cable, ATC display harness or ATC board are possible causes. Replace as necessary.</p>

2.3 Post Installation 2.3.5 Installation Troubleshooting

PROBLEM	POSSIBLE CAUSE AND SOLUTION
<p>TEMPERATURE ON ATC DISPLAY DOES NOT AGREE WITH THERMOMETER IN TEST WELL.</p> <p>With all handles in the OFF position, the temperature is still displayed.</p>	<p>DIP Switches are set incorrectly. DIP switch settings are as follows: (See Table 1)</p> <ul style="list-style-type: none"> • #1-4 product types: ON for Diesel, OFF for Gasoline • #5 ON for blender and pre-modular Salesmaker quad only. • #6 ON for two hose, 2 probe Highline and on pre-modular Salesmaker quad. • #7 ON only for pre-modular Highline, 1 or 2 hose. • #8 ON to enable volume correction (ATC).
	<p>Traces or jumpers are not cut off the adapter board on pre-modular Highline. Traces and jumpers are only to be left on for Salesmaker quad. Temperature must read “- - -” with all handles in the OFF position.</p>
	<p>Pre-modular Salesmaker quad requires chip software version 1.5 or newer in order for the handle switches to be properly recognized by ATC. Replace with a board using the appropriate chip.</p>

2.3 Post Installation 2.3.5 Installation Troubleshooting

PROBLEM	POSSIBLE CAUSE AND SOLUTION
<p>TEMPERATURE ON ATC DISPLAY DOES NOT AGREE WITH THERMOMETER IN TEST WELL.</p> <p>With all the handles in the OFF position, temperature displays “- - - -”.</p>	<p>DIP switch #6 is set incorrectly. Should be ON only if dispenser is a two hose Highline using 2 probes or for a Pre-Modular Salesmaker Quad.</p> <p>With DIP switch #6 OFF, both hoses on Highline use probe 1, as for a dual 1 installation or a Salesmaker quad. On a single hose pump, DIP switch #6 does not matter.</p>
	<p>A temperature altering device is located between the probe and test well, i.e. pumping unit. Relocate probe and test well.</p>
	<p>Product not flowing long enough to stabilize temperatures at test well.</p>
	<p>Probes mixed up in multiple probe installation. To check, unplug the probe. Temperature display for that product should switch to -50.0°C. If it doesn't, then another probe is plugged into the appropriate socket. Re-attach probes as necessary.</p>
	<p>Traces or jumpers cut on adapter board used on pre-modular Salesmaker quad installation. Traces and jumpers must not be cut off in a quad.</p>

2.3 Post Installation

2.3.5 Installation Troubleshooting

PROBLEM	POSSIBLE CAUSE AND SOLUTION
<p>OTHER MALFUNCTIONS WITH PRE-MODULAR HIGHLINES AND SALESMAKER QUADS</p>	<p>On pre-modular Highline and Salesmaker quad, space is a problem. It may be necessary to ensure that there is nothing shorting out. The following modification may be needed:</p> <p>The first few kits were inadvertently shipped without the BC 1163 adhesive insulator on the BC1060 seal cover. Without this, the cover will short out the pump display board. Newer kits have a lower profile seal cover and a right angle connector on the ATC board and therefore do not have this problem.</p> <p>Unless right angle connectors on the ATC Control and Display boards are used, the black caps on the 3 and 5 pin harnesses should be removed to improve clearances between the seal cover and the display board, and between the programming access door and the ATC display. In some cases, it may be necessary to trim the 3 pin plug on the ATC display end of the harness. This is to prevent the access door from pressing on the ATC display, causing it to short on the mounting plate. The ATC display has since been redesigned with a right angle connector.</p> <p>The centre bolt on the pump dial face bezel must not be over tightened. Over tightening will cause the access door to press on the ATC display causing it to short on the mounting plate. The centre bolt is not to provide mechanical support, but rather to prevent removal of the bezel without a key for the access door.</p> <p>Components on the logic board behind the ATC board may have to be bent down to clear the ATC board.</p> <p>The 3 wire harness to the ATC display should be routed under the pump display board to facilitate lowering of the pump display board.</p> <p>Jumper pins on the logic board may have to be trimmed to keep from shorting on adapter board. Also, the strain relief bar, if provided, on the 40 or 50 pin ribbon cable plug from the reg. board to the adapter board should be removed. Otherwise it will be too tight when the display is tilted back up.</p>

2.3 Post Installation

2.3.6 Enabling ATC Function

When the meters are calibrated in a pump with ATC enabled, it will be necessary to use the gross volume reading from the mechanical counter or ATC display. The temperature compensated volume on the pump display **cannot** be used for this purpose.



ATTENTION

Before the dispenser can be used in trade, in the ATC mode, it must be inspected and approved by Weights and Measures Canada.

The ATC function must be disabled with DIP switch #8 set to OFF until the pump is inspected.

Once the inspector approves the pump, the B256B "VOLUME CORRECTED TO 15 °C" labels should then be applied to the faceplates adjacent to the volume displays, and the plate with the AV number must be applied to the side of the dispenser.

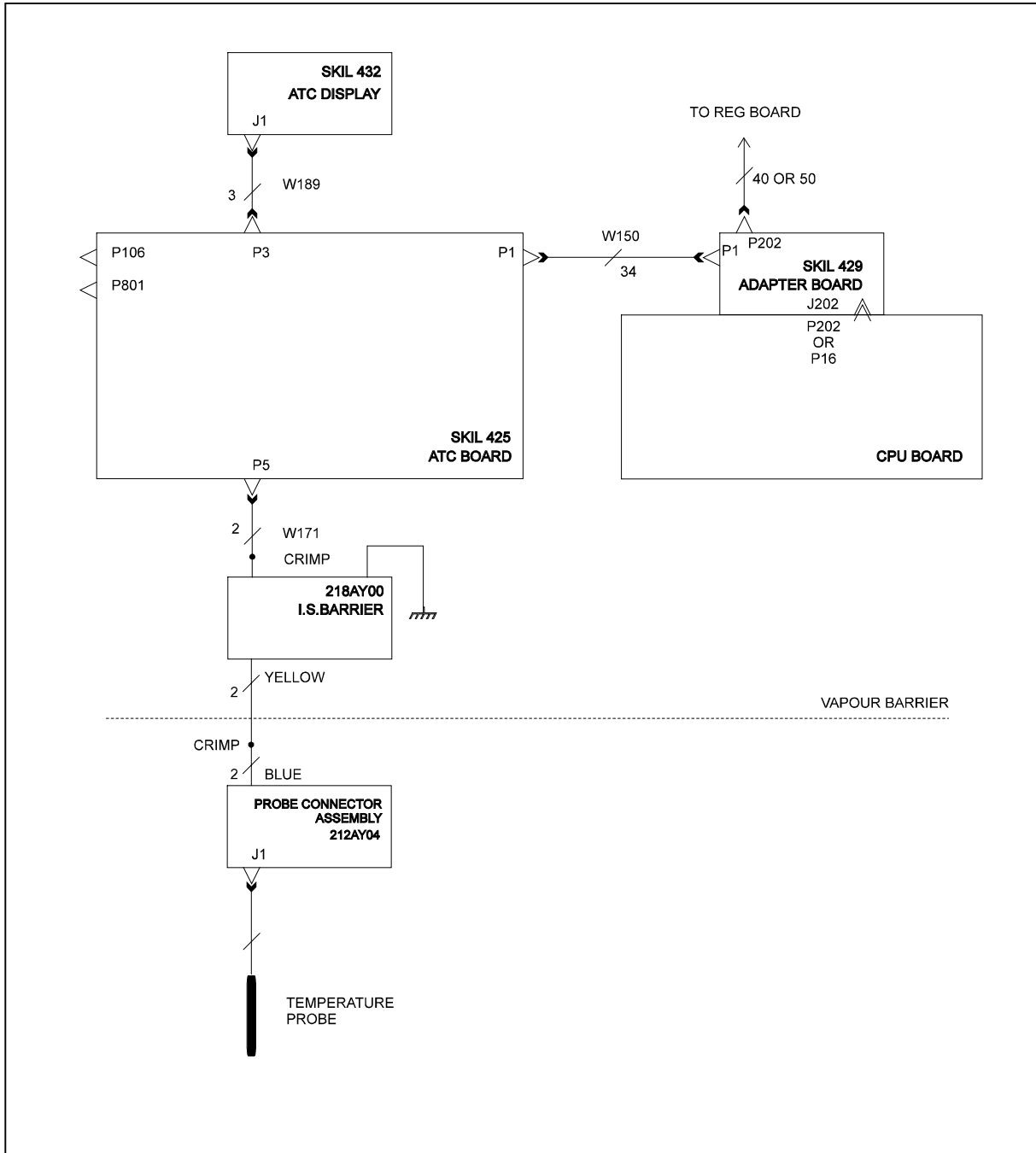
Failure to do so could result in the station being closed down by Weights and Measures inspectors.

3.1 Components

3.1.1 Connection Diagrams

3.1.1.1 GTC 200-1

The following diagram shows connections for the GTC 200-1. Refer to following parts listing for description of components.

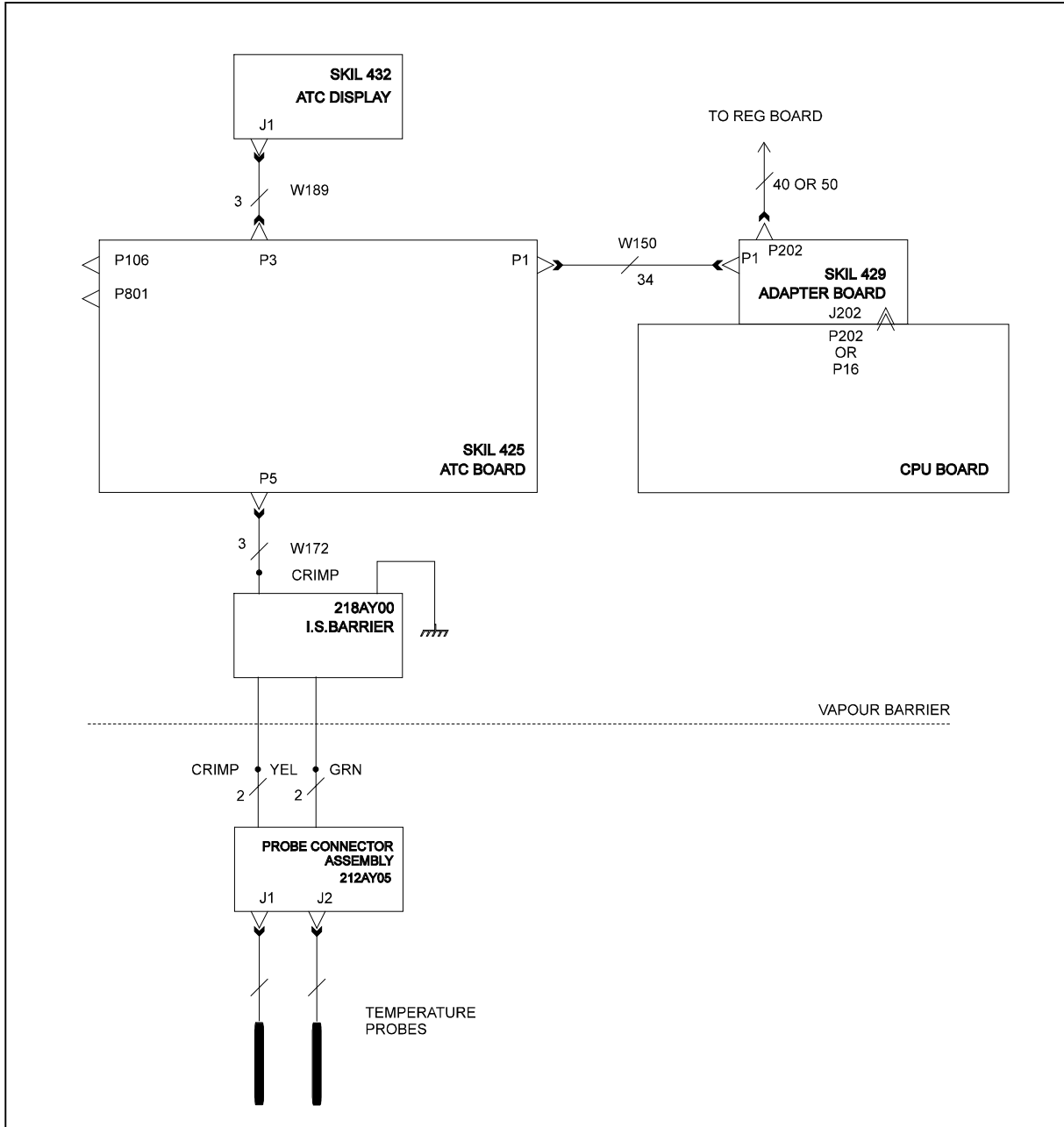


3.1 Components

3.1.1 Connection Diagrams

3.1.1.2 GTC 200-2

The following diagram shows connections for the GTC 200-2. Refer to following parts listing for description of components.



3.1 Components

3.1.2 List of Components

3.1.2.1 GTC 200-1

The following is an itemized account of components supplied for the GTC 200-1 installation:

List of Components		
GILBARCO Single Product Highline Pre-Modular ATC Kit		GTC 200-1

QTY	PART #	DESCRIPTION
1	SKIL-425	ATC BOARD
1	SKIL-429	T80/Z80 HIGHLINE/SALESMAN ADAPTER BOARD
1	BC 1239	SEAL COVER
1	BC1022	MPD BOARD BRACKET
1	218AY00	DUAL INTRINSIC SAFETY BARRIER
1	W171	5 PIN 2 WIRE HARNESS FOR I.S. BARRIER
1		5/16" HEX NUT FOR I.S. BARRIER
1		5/16" FLAT WASHER FOR I.S. BARRIER
1	W199	TEMPERATURE PROBE
2	BC407	THERMAL WELL
2	120B 02X02	EXTENSION FITTINGS
2	213P-2	THERMAL WELL PLUG
1	W150	34 PIN RIBBON CABLE
1	212AY04	SINGLE PROBE CONNECTOR ASSEMBLY
1	SKIL-432	ATC DISPLAY BOARD
4	BC256B	BLACK "VOLUME CORRECTED TO 15 C" LABELS
1	BC1058	SERIALIZED NAMEPLATE
4		18-22 AWG CRIMP SPLICES
1	W189	3 WIRE ATC DISPLAY HARNESS
2	BC 546	120-B 1/8" NPT ADAPTER DRILLED OUT TO 17/64" I.D.
1	212KT00.INS	GTC 200-1 & 200-2 INSTALLATION MANUAL

3.1 Components

3.1.2 List of Components

3.1.1.2 GTC 200-2

The following is an itemized account of components supplied for the GTC 200-2 installation:

List of Components		
GILBARCO Two Product Highline Pre-Modular ATC Kit		GTC 200-2

QTY	PART #	DESCRIPTION
1	SKIL-425	ATC BOARD
1	SKIL-429	T80/Z80 HIGHLINE/SALESMAN ADAPTER BOARD
1	BC1239	SEAL COVER
1	212AY05	DUAL PROBE CONNECTOR ASSEMBLY
1	BC1022	MPD BOARD BRACKET
1	218AY00	DUAL INTRINSIC SAFETY BARRIER
1	W172	5 PIN 3 WIRE HARNESS FOR I.S. BARRIER
1		5/16" HEX NUT FOR I.S. BARRIER
1		5/16" FLAT WASHER FOR I.S. BARRIER
2	18115	TEMPERATURE PROBES
4	BC407	THERMAL WELLS
4	120B 02X02	EXTENSION FITTINGS
4	213P-2	THERMAL WELL PLUG
1	W150	34 PIN RIBBON CABLE
1	SKIL-432	ATC DISPLAY BOARD
4	BC256B	BLACK "VOLUME CORRECTED TO 15 C" LABELS
1	BC1058	SERIALIZED NAMEPLATE
6		18-22 AWG CRIMP SPLICES
1	W151	3 WIRE ATC DISPLAY HARNESS
4	BC 546	120-B 1/8" NPT ADAPTER DRILLED OUT TO 17/64" I.D.
1	212KT00.INS	GTC 200-1 & 200-2 INSTALLATION MANUAL