

QUAD-PLATE CHILLER MODEL QPC

INSTALLATION AND OPERATION MANUAL

Part No. 9842329

Effective February 1, 1999

Revised January 31, 2014

MUELLER
REFRIGERATION PRODUCTS

MUELLER

QUAD-PLATE CHILLER MODEL QPC

INSTALLATION AND OPERATION MANUAL

Table of Contents

Section 1.0 - Quad-Plate Chiller Introduction

1.1	Introduction	1
1.2	Description of the Equipment	1
1.3	Dimensions and Weight	1
1.4	Refrigeration Components	1
1.5	Liquid Solution Flow Components	1
1.6	Electrical Components	2
	Figure 1—Mueller Quad-Plate Chiller Process Diagram	2

Section 2.0 - Installation

2.1	Inspection	3
2.2	Safety	3
2.3	Location	3
2.4	Chilled Water Piping	3
2.5	Refrigeration Unit Installation	4
	Figure 2—Hot Gas Line	4

Section 3.0 - Cleaning the System

3.1	First Time Start-Up	5
3.2	Filling the System	5

Section 4.0 - Programming and Troubleshooting

4.1	Power On Sequence of Operation	6
4.2	Locking and Unlocking the Temperature Controller	7
4.3	Changing the Setpoint on the Temperature Controller	7
4.4	Changing the Calibration Offset on the Temperature Controller	7
4.5	Changing the Units of Measure on the Temperature Controller	8

Section 5.0 - Diagrams

5.1	Wiring Diagram, Part No. 9842327	9
	Figure 3—Flow Diagram	10

Section 6.0 - Parts Illustrations

6.1	Control Box	11
6.2	Control Box Parts List	11
6.3	Water Piping Assembly	12
6.4	Water Piping Assembly Parts List	12
6.5	Refrigeration Piping Assembly	13
6.6	Refrigeration Piping Assembly Parts List	13

Table of Contents

Section 7.0 - Refrigeration Units

7.1	Air-Cooled Condensing Unit Specifications	.14
7.2	Air-Cooled Condensing Unit Electrical Data	.14
	Figure 4—Refrigeration Cycle Diagram	.14
7.3	EPA Refrigerant Regulations	.15
7.4	Refrigerant Charging	.15
7.5	RGE Electronic Fan Pressure Control Set Point Adjustment	.15
7.6	Thermal Expansion Valve (TEV) Superheat Adjustment	.16
7.7	Hot Gas Bypass Pressure Switch Adjustment	.17

Section 8.0 - Warranty	.18
-------------------------------	-----

Section 9.0 - Installation and Service Notes	.19
---	-----

SECTION 1.0 - QUAD-PLATE CHILLER INTRODUCTION

1.1 Introduction

The Mueller® quad-plate chiller is designed to provide chilled water at a preset temperature for batch applications. This manual provides the basic information necessary to install, start-up, and operate this Mueller quad-plate chiller. The information supplied in this manual must be followed to prevent damage to the equipment.

1.2 Description of the Equipment

The Mueller quad-plate chiller evaporator assembly is available in three models to meet installation and application needs. The sizes are as follows:

- **QPC-5:** Nominal 120-gallon storage capacity to be used with a 5 hp remote condensing unit.
- **QPC-8:** Nominal 120-gallon storage capacity to be used with a 8 hp remote condensing unit.
- **QPC-10:** Nominal 120-gallon storage capacity to be used with a 10 hp remote condensing unit.

1.3 Dimensions and Weight

	QPC-5	QPC-8	QPC-10
Length (in)	70	70	70
Width (in)	51	51	51
Height (in)	74	74	74
Approx. Shipping Weight (lb)	1,720	1,825	1,930

1.4 Refrigeration Components

The refrigeration components of the evaporator assembly include a thermal expansion valve for refrigerant control, refrigerant manifold with hot gas valve/solenoid/pressure switch, and stainless steel quad-plate evaporator. Single-point refrigeration piping connections are provided for ease of installation (see Section 2.5).

1.5 Liquid Solution Flow Components

The liquid solution flow components include a baked, glass-lined, and insulated water storage tank; water solenoid valve to control make-up water; recirculation pump to provide water flow for the evaporator; circulation pump to provide water to the process piping loop; and inner-connect piping. Single-point 1" FPT connections are provided for water inlet, 1" MPT process recirculation return connection, and 1½" MPT process water outlet. This system is designed to maintain the water level in the storage tank after each batch of chilled water is drawn. Make-up water will not enter the storage tank during the batch draw, which eliminates temperature blending of warmer make-up water and chilled water.

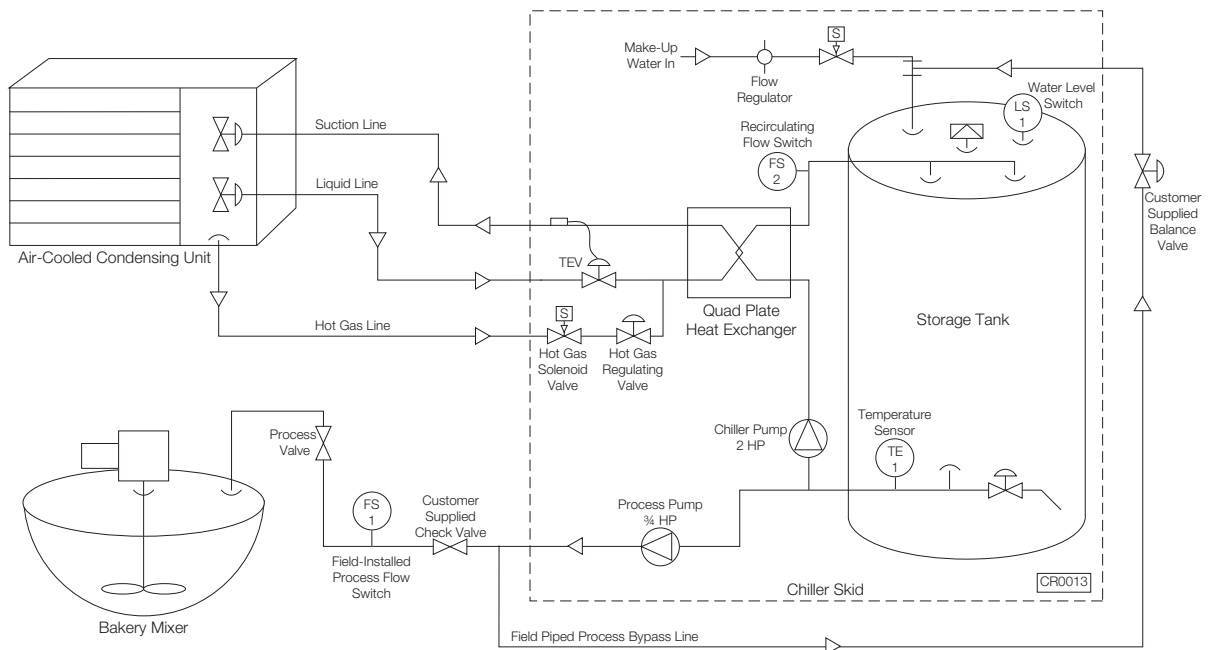
1.6 Electrical Components

All wiring must be performed in compliance with the National Electric Code and local codes and regulations.

The control box contains fuses for system protection. Fuse failure requires troubleshooting to determine the cause of failure and replacement with the same fuses as shown in Figure 5.

The electronic temperature control can be set for temperature control of chilled water and temperature indication in Fahrenheit or Celsius. Programming is described in Section 4.0.

Figure 1 - Mueller Quad-Plate Chiller Process Diagram



Note: Refer to Section 2.4 for chilled water piping.

SECTION 2.0 - INSTALLATION

2.1 Inspection

Because it is possible for equipment to be damaged during shipment, we recommend that you make a thorough inspection of all equipment before it is unloaded from the freight truck. Carefully inspect equipment for hidden damage. It may be difficult to collect for damage if it is not found prior to unloading. It is very important to note any damage on the bill of lading and have the driver sign it.

2.2 Safety

Installation and service should be performed by an authorized service technician who has the proper training to install and service refrigeration equipment. Effective November 1994, the service technician must be certified in refrigerant usage by an EPA-approved testing organization prior to installing or servicing any refrigeration equipment.

Electrical connections must be performed by a qualified electrician in accordance with local and NEC regulations.

2.3 Location

When choosing a location for the Mueller quad-plate chiller, consider these items:

- **Environment:** An indoor location will be necessary where the chiller section is protected from freezing temperature.
- **Serviceability:** The chiller should be located with the circulating pumps and the control panel accessible for service. Keep in mind the chiller will require field connections to the main electrical supply and water supply line. The chiller should be located close to a drain for service and cleaning.
- **Refrigeration Unit:** The refrigeration unit must be located where it is protected from the environment and has adequate air-flow for the condenser. Be especially cautious of conditions that would allow dust or oil to enter the condenser.
- **Efficiency:** Locate the chiller as close as possible to point of use for chilled water.

2.4 Chilled Water Piping

The chiller supply water should be connected to the inlet water solenoid valve located at the top of the water tank (refer to Figure 1, "Process Diagram"). The supply water line should be taken from a source that provides adequate water flow and a minimum of 1" in size. It is recommended that a full flow shut-off valve and union be installed just prior to the solenoid valve for service.

The process water outlet should be connected to the 1½" outlet located near the circulation pump. The process water (chilled water) line should be piped to process water outlet(s) with a minimum pipe size of 1" and a recirculation line of minimum pipe size of ½" connected to the process water return connection. A valve should be installed just prior to the process water return connection to adjust recirculation flow (see Figure 1). All process water lines should be insulated to reduce external heat gain to the chilled water.

The tee fitting and flow switch assembly are shipped loose, to be field installed close to the process control valve (see Figure 1). After installation of switch assembly, there needs to be a connection made to switch from terminals 4 and 5 in quad-plate control box.

2.4 Chilled Water Piping (Continued)

NOTE: Direction of flow to match arrow on flow switch.

Check all piping for leaks and repair if required. Clean and rinse lines and water storage tank prior to use.

2.5 Refrigeration Unit Installation

All refrigerant piping should be in accordance to acceptable refrigeration practices. Distance between refrigeration unit and bakery chiller assembly should be as close as possible. Long distance piping and risers may require attention to reduce restriction of refrigerant flow and to provide adequate oil return.

The liquid, hot gas, and suction lines should be of adequate size as recommended in the ASHRAE Refrigeration Handbook. A liquid line drier of adequate size should be installed on all QPC models. A liquid line sight glass should be installed just prior to the thermal expansion valve (TEV) on the chiller evaporator assembly.

Evacuation to 500 microns prior to charging with refrigerant is required. The system must hold 1,000 microns in a standing vacuum test, ensuring that it is leak free.

When using R-22 refrigerant, charging should be through the suction service valve in vapor form only. When using R-507 refrigerant, charging should be through the suction service valve before the accumulator in liquid form only. Charge with an adequate amount of refrigerant prior to starting the compressor and make sure that water storage tank is filled with water. Refer to Section 3.1 for start-up procedures and Section 7.0 for refrigeration units.

The hot gas line must be field-installed from the condensing unit to the hot gas bypass pressure switch. A tee must field installed/cut-in on the condensing unit. Refer to Figure 2.

Figure 2 - Hot Gas Line



NOTE: Refer to Figure 10, “Refrigeration Cycle Diagram.”

SECTION 3.0 - CLEANING THE SYSTEM

3.1 First Time Start-Up

Make sure that the water piping is complete as described in Section 2.4 and Figure 1, and refrigeration piping is complete as described in Section 2.5 and Figure 4. Make sure that the wiring is complete as described in Section 5.0.

1. The first step to start-up will be to open the supply water shut-off valve(s).
2. Open the drain valve located at the outlet of the water storage tank.
3. A toggle switch that disables the circulation pump is located inside the control box in the upper right-hand corner of the back panel. The up position will allow the pump to run and the down position will disable the pump. Any time the tank is empty, or on initial start-up, the operator must disable the circulation pump. This will allow the fill solenoid to fill the tank and prevent the pump from running dry.
4. Turn the toggle switch to the down position.
5. Turn the power on to the control panel. Make sure the power is off to the refrigeration unit during this part of start-up.
6. Turn the green selector switch located on the front of the control panel from the left position to the center position to energize the system. The green light will be lit. This will allow water to flow to the storage tank. Allow water to flow until clean and clear water is flowing out of the drain.
7. Close the drain valve and allow the storage tank to fill.
8. Turn the toggle switch to the up position and allow the circulation pump to operate for two minutes and turn the selector switch off (left position).
9. Open the drain valve again and drain the water from the storage tank. If the water is not clean, repeat the cleaning procedure.

3.2 Filling the System

1. Close the drain valve.
2. Turn the toggle switch to the down position
3. Turn the selector switch on to fill the system with water again.
4. Open the chilled water valve and allow water to flow until clean.
5. Close the chilled water valve and allow the storage tank to refill with make-up water.
6. Turn the toggle switch to the up position to operate the circulation pump.
7. Complete the initial refrigeration unit charging procedure. Final refrigerant charging is to be completed in conjunction with the thermal expansion valve (TEV) superheat adjustment as described in Sections 7.6 and 7.7.

SECTION 4.0 - PROGRAMMING AND TROUBLESHOOTING

4.1 Power On Sequence of Operation

A. When the selector switch is in the “OFF” (left) position:

1. Power is supplied to the temperature controller and a temperature is displayed. Setpoints may be changed any time power is supplied to the temperature controller. The temperature displayed may not be a true reading of tank temperature if the circulation pump is not running.
2. All other functions of the bakery chiller are disabled.

B. When the selector switch is in the “ON” (center) position:

1. Power is supplied to the temperature controller and a temperature is displayed. Setpoints may be changed any time power is supplied to the temperature controller. The temperature displayed may not be a true reading of tank temperature if the circulation pump is not running.
2. The system light at the center of the selector switch is on.
3. The fill solenoid will allow the tank to fill until the level sensor stops the fill near the top of the storage tank.
4. The circulation pump is on. Any time the tank is empty or on initial start up the operator must disable the circulation pump. This will allow the fill solenoid to fill the tank and prevent the pump from running dry. Refer to Section 3.1, “First Time Start-Up” for detailed information.
5. Water will flow through the quad-plate and close the contacts of the chiller loop flow switch, returning to the top of the storage tank.
6. When the chiller flow switch is closed and the tank is completely filled, the temperature controller can turn the condensing unit on if the water temperature is above the setpoint.
7. If the refrigerant suction pressure falls below 50 psig (R-22) or 67 psig (R-507), the hot gas valve will open to help prevent the quad-plate chiller from freezing. Should the quad-plate chiller freeze, the chiller loop flow switch will turn the condensing unit off. The circulation pump will continue to operate. Refer to Section 7.7, “Hot Gas Pressure Switch Adjustment.”

C. When the selector switch is in the “chiller loop/process pump” (right) position:

1. All of the functions of the chiller loop remain.
2. The process pump is on.
3. Water will flow through the process bypass piping loop and return to the tank.
4. When a batch is drawn, flow through the process increases. This opens the contacts of the process flow switch, disabling the fill solenoid and the condensing unit. The chiller loop pump and the process pump will continue to operate.
5. When the batch draw is complete, the process flow switch contacts will close and the fill solenoid will refill the tank. The temperature controller again has control of the condensing unit.

4.2 Locking and Unlocking the Temperature Controller

1. Press and hold the “SEL” key for 5 seconds until “AL1” is displayed. Press the “↓” down key once to display “LoC.”
2. Press the “SEL” key once again to display the locking code (“0” for unlocked and “4” for locked).
3. Press the “↑” up key or the “↓” down key until either “0” for unlocked or “4” for locked is displayed. (Note: You can enter any number between “0” and “5” but only “0” and “4” are active.)
4. Press the “SEL” key to save the change made. Controller will once again display “LoC.”
5. Press and hold the “SEL” key for 5 seconds until the setpoint value is displayed, indicated by a small “SV” illuminating in the upper left-hand corner of the controller.
6. Press the “SEL” key to display the current tank temperature.

NOTE: If the “SEL” key is not pressed within approximately 25 seconds the controller will time out and return to the current temperature, storing the new setpoint or any changes made.

4.3 Changing the Setpoint on the Temperature Controller

1. Unlock the controller as in Section 2.0.
2. Press the “SEL” once to display the setpoint. This is indicated by a small “SV” illuminating in the upper left-hand corner of the controller.
3. Press the “↑” up key or the “↓” down key until the desired set point is displayed.
4. Press the “SEL” key to save the change made and to display the current tank temperature.

NOTE: If the “SEL” key is not pressed within approximately 25 seconds the controller will time out and return to the current temperature, storing the new setpoint or any changes made.

4.4 Changing the Calibration Offset on the Temperature Controller



IMPORTANT: Temperature control accuracy is a very important variable in the functionality and protection of the quad-plate chiller. Before energizing the refrigeration, you must measure the water temperature at the reservoir drain with a CALIBRATED thermometer. If the temperature control does not correspond, adjust the offset by following the directions below.

1. Unlock the controller as in Section 2.0.
2. Press and hold the “SEL” key for 7 seconds until “P-F” is displayed.
3. Press the “↓” down key once to display “PUOF.”
4. Press the “SEL” key once to display the calibration offset.

4.4 Changing the Calibration Offset on the Temperature Controller (Continued)

5. Press the “↑” up key or the “↓” down key to adjust the calibration offset to the amount of offset required to match the actual water temperature. (The calibration offset may be used to set the actual temperature display should it not be the same as the water temperature in the storage tank.)
6. Press the “SEL” key to save the change made. Controller will once again display “PUOF.”
7. Press and hold the “SEL” key for 5 seconds until the setpoint value is displayed, indicated by a small “SV” illuminating in the upper left hand corner of the controller.
8. Press the “SEL” key to display the current tank temperature.

NOTE: If the “SEL” key is not pressed within approximately 25 seconds the controller will time out and return to the current temperature, storing the new setpoint or any changes made.

4.5 Changing the Units of Measure on the Temperature Controller

NOTE: Once the display has been changed to the desired units of measure (°F or °C), the temperature setpoint must also be changed to match the units (i.e., 36°F or 2.2°C). Call Paul Mueller Company for assistance.

1. Unlock the controller as in Section 2.0.
2. Press and hold the “SEL” key for 7 seconds until “P-F” is displayed.
3. Press the “SEL” once to display the current temperature unit of measure (“F” for Fahrenheit and “C” for Celsius).
4. Press the “↑” up key or the “↓” down key until either “F” for Fahrenheit or “C” for Celsius is displayed.
5. Press the “SEL” key to save the change made. Controller will once again display “P-F.”
6. Press and hold the “SEL” key for 5 seconds until the setpoint value is displayed, indicated by a small “SV” illuminating in the upper left hand corner of the controller.
7. Press the “SEL” key to display the current tank temperature.

NOTE: If the “SEL” key is not pressed within approximately 25 seconds the controller will time out and return to the current temperature, storing the new setpoint or any changes made.

SECTION 5.0 - DIAGRAMS

5.1 Wiring Diagram, Part No. 9842327

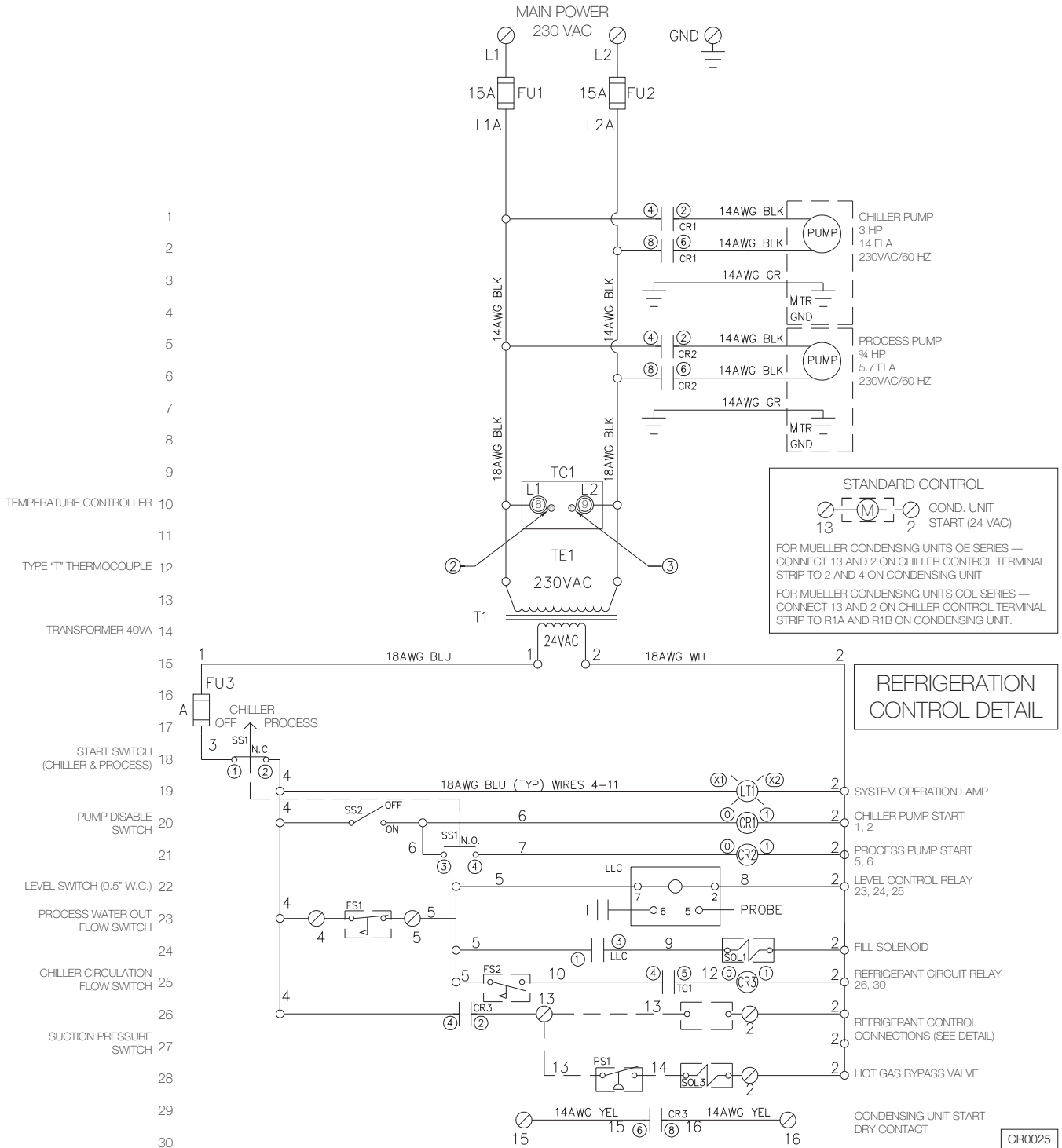
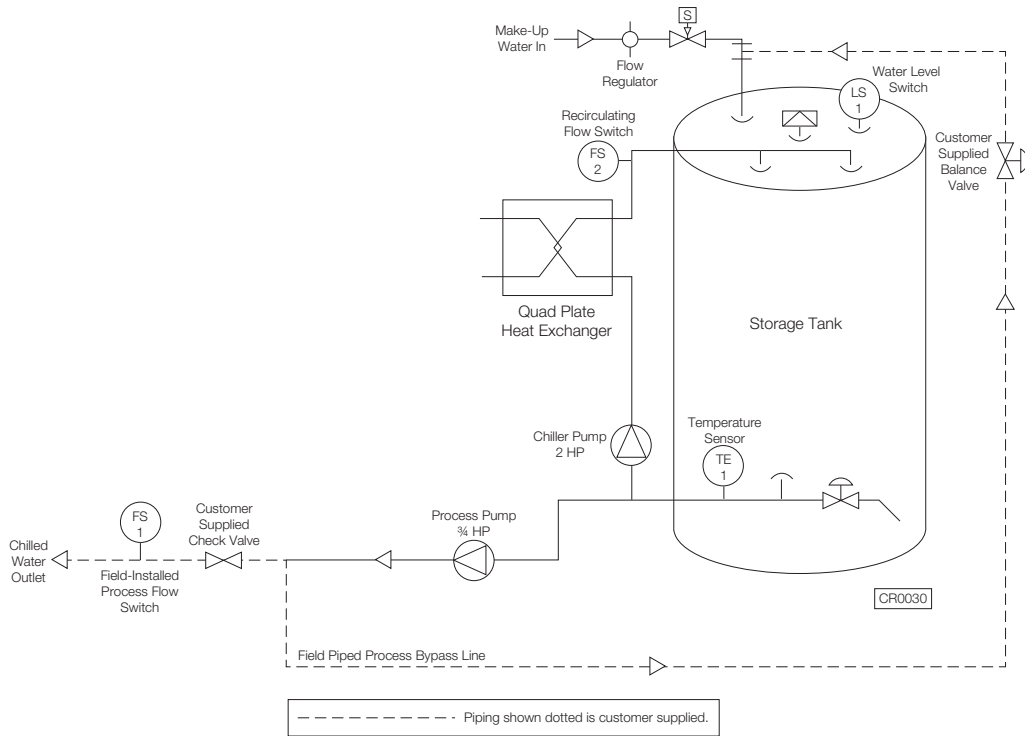
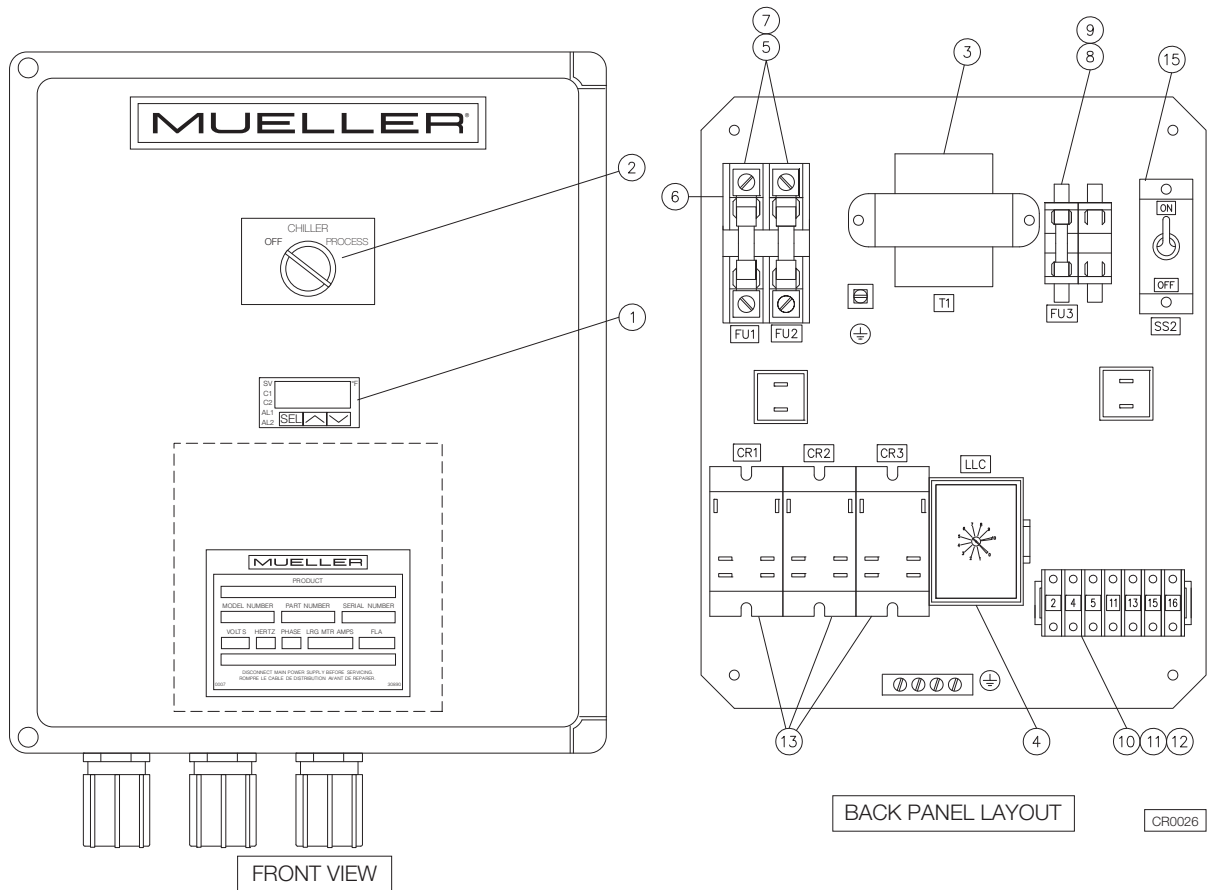


Figure 3 - Flow Diagram



SECTION 6.0 - PARTS ILLUSTRATIONS

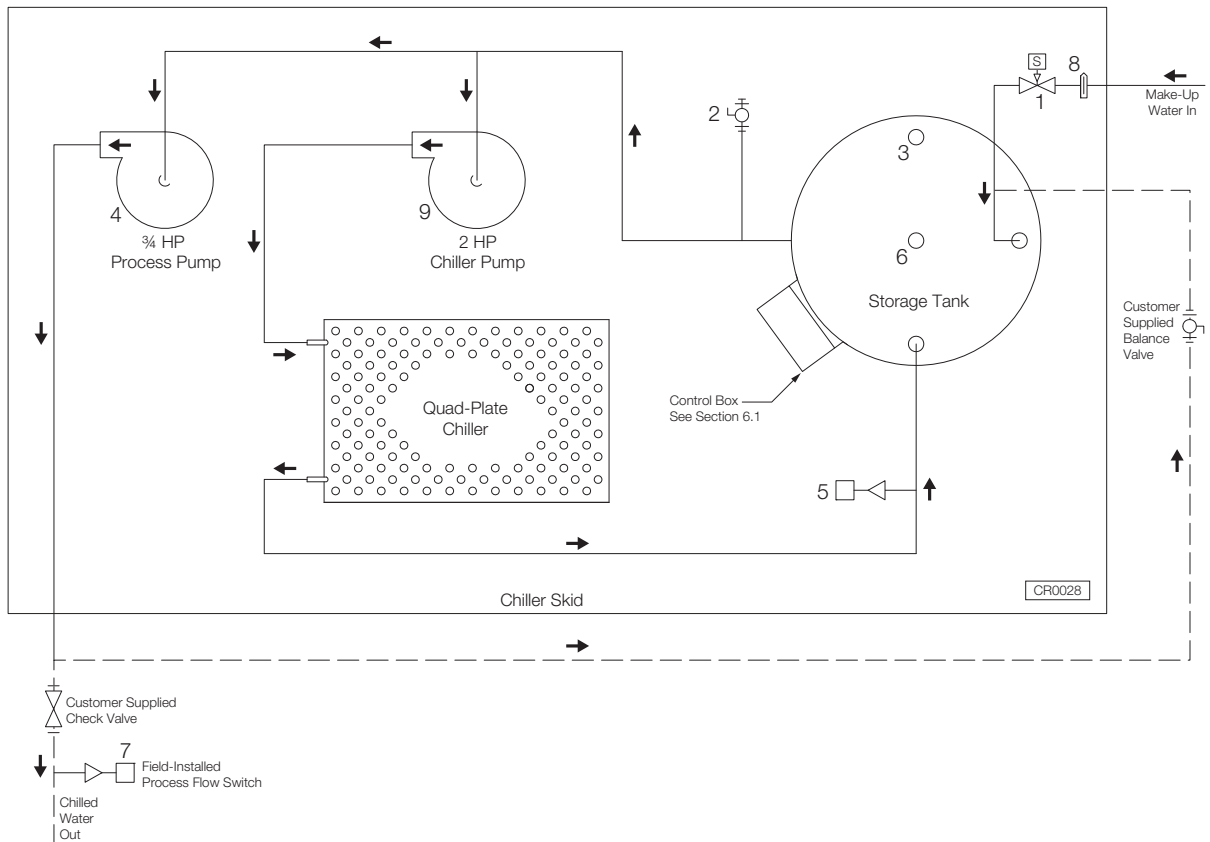
6.1 Control Box



6.2 Control Box Parts List

Item Number	Number Required	Part Number	Description
1	1	9844261	CONTROLLER, TEMPERATURE, 1/32 DIN
2	1	9842325	SWITCH, SELECTOR, 3-POSITION
3	1	9844577	TRANSFORMER, 208-240V, PRIM 24V, 75VA
4	1	9844317	MODULE, LIQUID LEVEL CONTROL
5	2	9820091	FUSE BLOCK, 30 AMP, CLASS CC
6	1	505793	FUSE BLOCK, END BARRIER
7	2	9820112	FUSE, CARTRIDGE, 15 AMP, 600V
8	2	8820703	FUSE, BLOCK, 30 AMP, 300V, 10 POLE
9	1	8806523	FUSE, CARTRIDGE, 2 AMP, 250V
10	7	8805635	TERMINAL, BLOCK
11	1	8805636	BARRIER, ELEC. END
12	2	8805226	CLIP, RETAINER
13	3	8820240	RELAY SWITCH, DPST, 24 VAC
14	1	8820165	THERMOCOUPLE, SENSOR, TYPE "T"
15	1	30853	SWITCH, TOGGLE, DPST

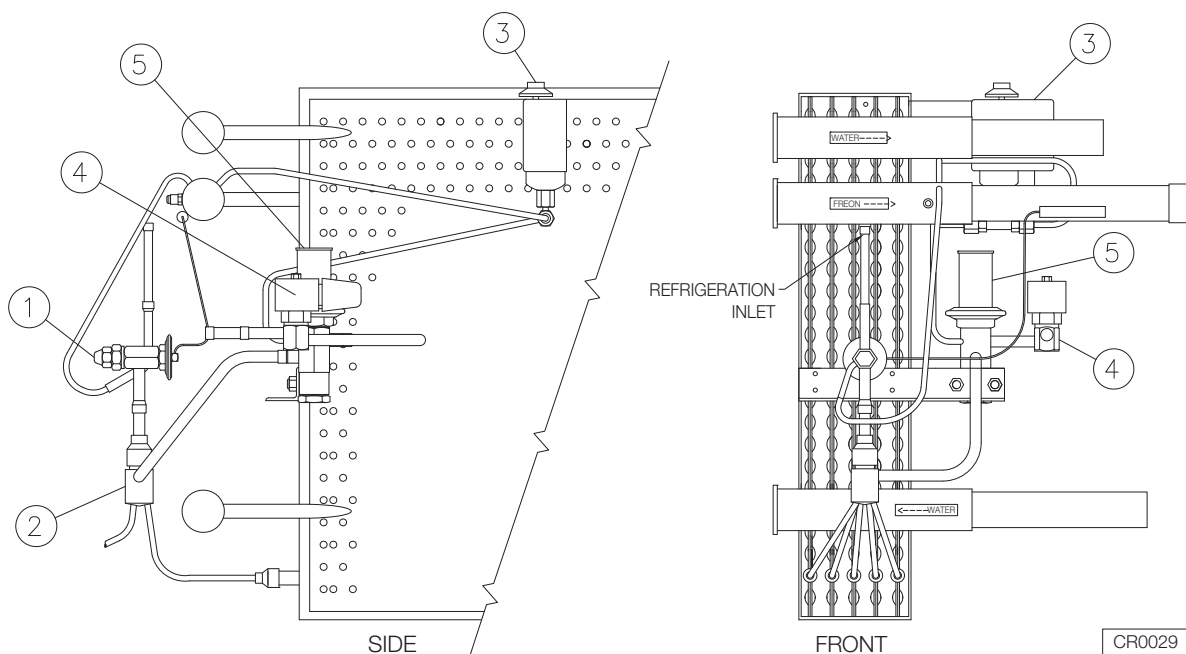
6.3 Water Piping Assembly



6.4 Water Piping Assembly Parts List

Item Number	Number Required	Part Number	Description
1	1	9841357	SOLENOID VALVE, 1" NPT, 2-WAY NC
2	1	8807153	BALL VALVE, .5" NPT, BRASS
3	1	9844320	LEVEL PROBE, 24 VAC
4	1	9844345	PROCESS PUMP, .75HP
5	1	9841768	CHILLER CIRCULATION FLOW SWITCH, MAGNETIC
6	1	9841770	TANK VENT, 1.25" FPT, MUSHROOM
7	1	9843081	PROCESS FLOW SWITCH, NON-MAGNETIC
8	1	9843188	FLOW REGULATOR, 1", 20 GPM
9	1	9842261	CHILLER PUMP, 2HP

6.5 Refrigeration Piping Assembly



6.6 Refrigeration Piping Assembly Parts List

Model	Refrigerant	Item Number	Number Required	Part Number	Description
QPC-005	R-22	1A	1	9843177	Valve Expansion, 4 Ton
	R-507		1	9843711	Valve Expansion, 4 Ton
QPC-008	R-22	1B	1	9843177	Valve Expansion, 4 Ton
	R-507		1	8825838	Valve Expansion, 7 Ton
QPC-010	R-22	1C	1	9843179	Valve Expansion, 8 Ton
	R-507		1	8825838	Valve Expansion, 7 Ton
QPC-005	R-22	2A	1	9843181	Distributor, .875"ODF, 1653R
	R-507		1	9843181	Distributor, .875"ODF, 1653R
QPC-008	R-22	2B	1	8820580	Distributor, .875"ODF, #1653R
	R-507		1	8820580	Distributor, .875"ODF, #1653R
QPC-010	R-22	2C	1	9843147	Distributor, .875"ODF, #1655R
	R-507		1	9843147	Distributor, .875"ODF, #1655R
		3	1	9813913	Switch Pressure, Low Style 5
		4	1	9841999	Valve Solenoid, .5"ODS x .5"ODS
		5	1	9842000	Valve Bypass, .5"ODF, Brass

SECTION 7.0 - REFRIGERATION UNITS

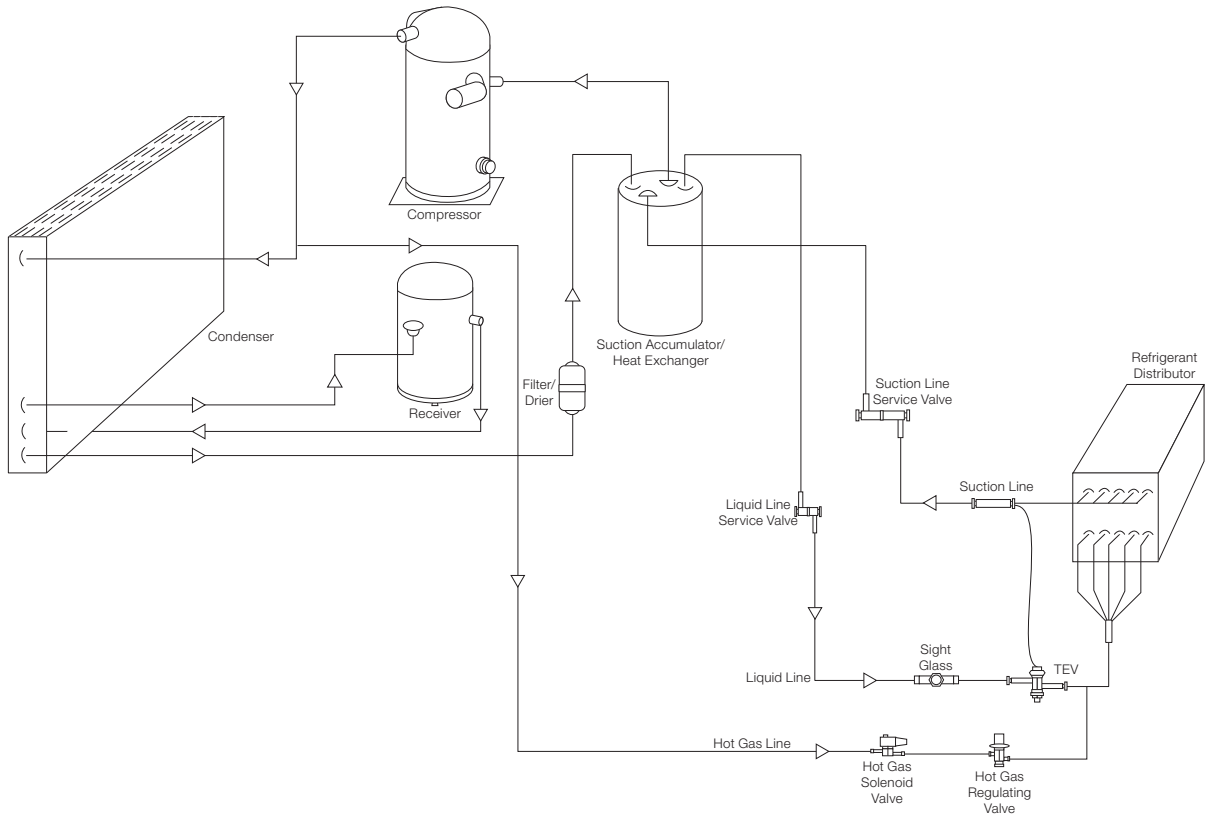
7.1 Air-Cooled Condensing Unit Specifications

Model	Unit Model Number	Length (inches)	Width (inches)	Height (inches)	Liquid Line SWT	Suction Line SWT	Approximate Shipping Weight (lbs.)
QPC-5	OESE-A53(4)	40.1	30.4	31.5	3/8"	7/8"	388
QPC-8	OESE-A753(4)	46.5	33.5	42.5	5/8"	1 5/8"	450
QPC-10	OESE-A103(4)	46.5	33.5	42.5	5/8"	1 5/8"	450

7.2 Air-Cooled Condensing Unit Electrical Data

Unit Model Number	208-230/3/60		480/3/60	
	Unit MCA	Unit MFS	Unit MCA	Unit MVS
OESE-A53(4)	26	40	13.9	20
OESE-A753(4)	36.5	60	19.3	30
OESE-A103(4)	50.75	90	25	40

Figure 4 - Refrigeration Cycle Diagram



7.3 EPA Refrigerant Regulations¹ and Installation/Service Technician Requirements

Quad-plate chillers are designed to operate on either R-22 or R-507 refrigerant, depending upon the unit ordered. R-22 (chlorodifluoromethane) is a Class II HCFC refrigerant. R-507 is an HFC binary mixture of 50% R-125 (pentafluoroethane) and 50% R-143a (1,1,1-trifluoroethane). Both refrigerants are specified by ASHRAE Standard 34 Safety Classification as “A-1” refrigerants with low flame propagation and low toxicity.

EPA regulations require that any technician performing refrigerant installation or service on a high-pressure appliance be certified as a Type II or universal technician in accordance with Section 608 of the Clean Air Act.

An authorized Mueller service technician who has the proper certification and training to install and service Mueller equipment should perform installation and service. For assistance in locating an authorized Mueller service technician, contact our Service Department at 1-800-MUELLER (683-5537).

An authorized electrician in accordance with local and NEC regulations must provide all electrical connections.

¹As adopted for the United States and Canada. These regulations may change or differ for your locality. It is the responsibility of the technician performing the refrigerant service and/or installation to abide by all regulatory requirements for the installation locality, state, and country.

7.4 Refrigerant Charging

1. The refrigerant charge amounts are to be used as a starting charge and will vary with line length and weather conditions.

QPC Model	QPC-5	QPC-8	QPC-10
R-22 Refrigerant (lbs.)	14	19	24
R-507 Refrigerant (lbs.)	13	18	23

2. Make sure that the proper procedures are followed and the TEV superheat adjustment is made. Refer to Section 7.5, “Thermal Expansion Valve (TEV) Superheat Adjustment.”
3. After the refrigerant sight glass is clear and the superheat adjustment is made, record the system refrigerant charge in Section 9.0.

7.5 RGE Electronic Fan Pressure Control Set Point Adjustment

For R-22 units, the RGE is factory set to energize the fan at minimum speed when the high-side pressure rises above 150-160 psig. The fan motor should operate at full speed (1,075 rpm) when the high-side pressure rises above 195-200 psig. This setting should be verified on initial start-up.

For R-507/404a units, the RGE is factory set to energize the fan at minimum speed when the high-side pressure rises above 190-200 psig. The fan motor should operate at full speed (1,075 rpm) when the high-side pressure rises above 230-240 psig. This setting should be verified on initial start-up.

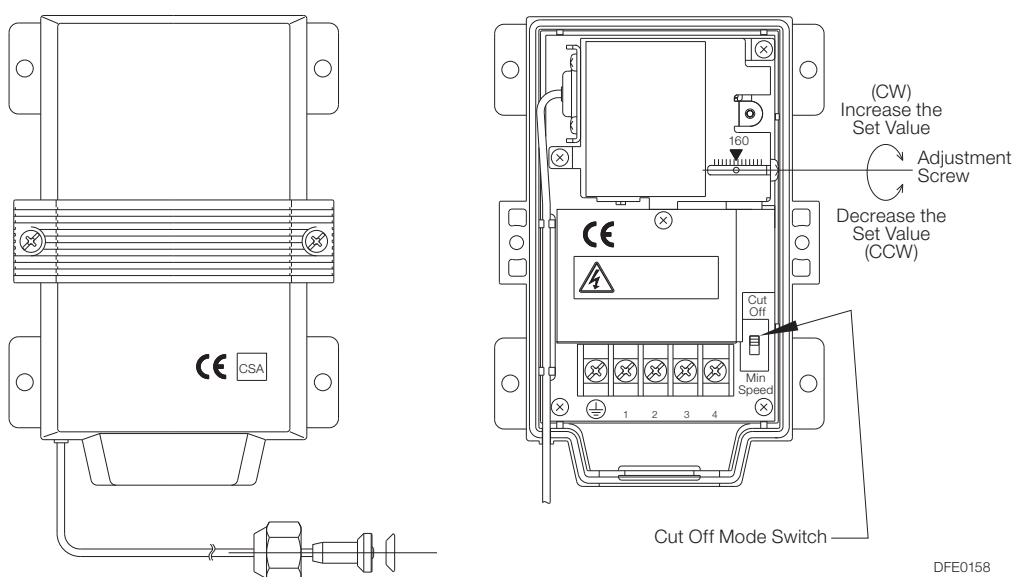
To verify RGE operation, connect the high side of a manifold gauge to the liquid line service valve (P6). Energize the condensing unit and monitor the fan operation in accordance with the high side pressure.

7.5 RGE Electronic Fan Pressure Control Set Point Adjustment (Continued)

In low-ambient conditions, the condenser may have to be partially blocked to increase head pressure.

To adjust the pressure range, remove the RGE cover and locate the adjustment screw (see Figure 6). To increase the pressure range, turn the adjustment screw clockwise. To lower pressure range, turn the adjustment screw counter clockwise. One turn of the adjustment screw will change the range by approximately 15 psig.

Figure 6 - Mueller RGE Electronic Fan Pressure Control



7.6 Thermal Expansion Valve (TEV) Superheat Adjustment

Take the following readings with the water storage tank full of water at a temperature below 40°F:

1. Take an accurate suction pressure at the evaporator outlet.

SERVICE NOTE: The suction pressure must be taken at the evaporator outlet rather than the suction-service valve due to unknown pressure drop in the refrigerant line between the evaporator and compressor. The technician should also make certain that the system is charged with refrigerant as described in Sections 2.5 and 7.4.

2. Utilizing an accurate electronic thermometer, take the actual suction line temperature near the TEV sensing bulb.
3. Utilizing a pressure-temperature chart, convert the suction pressure reading from Step 1 to saturation temperature.
4. The superheat value is found by subtracting the saturation temperature determined in Step 3 from the actual suction line temperature taken in Step 2.
5. If the superheat is not in the range of 8 to 10°F, at conditions as described above, adjust the TEV.

7.6 Thermal Expansion Valve (TEV) Superheat Adjustment (Continued)

6. If the superheat is below 8°F, turn the TEV's adjustment stem clockwise 1/8 to 1/4 of a turn. Allow the system to operate for 5 minutes before repeating test.
7. If the superheat is above 10°F, turn the TEV's adjustment stem counterclockwise 1/8 to 1/4 of a turn. Allow the system to operate for 5 minutes before repeating test.
8. Any time adjustment is made to the TEV, the refrigerant charge should be checked.
9. Check the superheat setting and make final adjustments at a product temperature near setpoint for best performance.

7.7 Hot Gas Bypass Pressure Switch Adjustment

The hot gas bypass pressure switch is located on the quad-plate evaporator assembly. This pressure switch will open the hot gas solenoid valve, if required, to eliminate the possibility of evaporator freeze-up. The pressure switch settings should be checked and reset prior to start-up.

Hot Gas Bypass Pressure Switch Settings		
	R-22	R-507
Cut In	47 psig	64 psig
Cut Out	50 psig	67 psig

The hot gas bypass valve [ADRP(E)-3] has an operational range of 0–80 psig. This valve is factory-set at 60 psig, so if you are using R-507, you need to adjust the valve so that it will operate at the cut in and cut out settings listed above. To do this, screw the adjustment screw in (clockwise) until it starts by passing hot gas at higher pressures than 67 psig.

SECTION 8.0 - WARRANTY

WARRANTY

Mueller® Quad-Plate Chiller

One Year Parts Warranty

The Paul Mueller Company (hereafter referred to as *Company*) will repair or (at the *Company's* option) replace any part or portion of a Mueller Quad-Plate Chiller found to be defective in workmanship or material under normal use, service, and installation procedures, for a period of one (1) year from the date of installation by the original purchaser-user, or eighteen (18) months from the date of shipment from the *Company* factory, whichever occurs first. This warranty covers replacement of parts or repair of the equipment only. (See General Provisions).

Claim Procedures for One Year Parts Warranty

All defective parts covered by the one year parts warranty, must be returned to the *Company* with an attached Returned Goods Tag (form O-209) and with transportation cost prepaid. Current instructions for return procedures, provided by the Refrigeration Products Department, must be followed to receive warranty.

Five-Year Structural Warranty

The *Company* warrants to the original purchaser-user that the Mueller Quad-Plate Chiller evaporator (cooling plate) and water storage tank will remain free from defects in material and workmanship under normal use, service, and installation procedures, for a period of five (5) years from the date of installation by the original purchaser-user or sixty-six (66) months from date of shipment from the *Company* factory, whichever comes first. Under this warranty, the *Company's* obligation shall be limited to the repair or, at the *Company's* option, the replacement of the Quad-Plate Chiller evaporator or water tank. Damage caused by freezing is not covered by this warranty. (See General Provisions.)

Claim Procedures for the Five-Year Warranty

A return authorization number must be obtained from the Paul Mueller Company Refrigeration Products Department prior to returning a Mueller Quad-Plate Chiller evaporator or water tank. Current instructions for return procedures, provided by the Refrigeration Products Department, must be followed to receive warranty.

General Provisions

Transportation and inspection cost incurred by the *Company* will be charged to the purchaser/user if returned material is not found to be defective. This warranty does not cover items such as refrigerant, mileage, product loss, cost of substitute storage facilities, parts and labor charged by others, or consumable items such as filter driers, rubber goods, or glass. The above will constitute the *Company's* total responsibility. The above warranties will not apply in the event of abuse, misuse, negligence, improper installation procedures alterations by unauthorized service, damage by flood, fire, windstorm, lightning, or acts of God. Oral statements made by employees' or representatives' of the *Company* will not constitute warranties. The above warranties apply only to the original purchaser-user and original installation location and are not transferable.

This warranty is effective on Mueller Quad-Plate Chillers purchased within the continental United States and Canada. Contact the Mueller International Sales Department for warranty provisions and policies outside of the continental United States and Canada.

MUELLER

REFRIGERATION PRODUCTS

Paul Mueller Company

1600 West Phelps Street • Springfield, Missouri 65802, U.S.A.
Phone: 417-575-9000 • 1-800-MUELLER • Fax: 1-800-436-2466

SECTION 9.0 - INSTALLATION AND SERVICE NOTES

Customer Name: _____ Dealer Name: _____

Address: _____ Address: _____

Telephone: _____ Telephone: _____

Quad-Plate Chiller Model: _____ Serial No.: _____

Compressor Model: _____ Serial No.: _____

Date of Installation: _____

Notes: _____

MUELLER

1600 West Phelps Street • Springfield, Missouri 65802, U.S.A.
Phone: 417-575-9000 • 1-800-MUELLER • Fax: 417-575-9887
www.paulmueller.com • refrigeration@paulmueller.com