PREMIER®

Geothermal/Water Source Heat Pumps

- **3/4 thru 6 Ton**

Premier Installation Manual

Installation Information

Water Piping Connections

Desuperheater Connections

Electrical

Startup Procedures

Troubleshooting

Preventive Maintenance

ENERGY STAR

WFI™

IM1555 11/06

WFI

PREMIER®

Model Nomenclature

P 040 T L 3 2 0 C A D S S A

Family
P = Premier

Unit Capacity
MBTUH

Discharge Air Configuration
T = Top Discharge Vertical
E = End Discharge Horizontal
S = Side Discharge Horizontal

Return Air Configuration
L = Left
R= Right

Voltage
0 = 208-230/60/1 (Commercial)
1 = 208-230/60/1 (Residential)
2 = 265-277/60/1
3 = 208-230/60/3
4 = 460/60/3

Hot Water Option
0 = None
1 = Hot Water Generation
With Factory Installed Pump (Residential)
2 = Hot Water Generation
Without Pump (Commercial 022-066, 230 VAC only)

Blower Options
0 = PSC Blower
1 = ECM Blower
2 = Oversized ECM Blower Option
(040-046 Only)

Coax Options
C = Copper
N = Cupronickel

Sound Kit
A = None
B = Blanket

Filter Options
D = 1" Pleated Disposable

Non-Standard Options
S = Standard
4 = FX10*
5 = FX10 w/Open N2 Com. Card*
6 = FX10 w/LonWorks Com. Card*
7 = FX10 w/BacNet Com. Card*

Non-Standard Option Details

Vintage
A = All Others
B = P028(Single Phase),
P056(All Voltages)

Note: * FX10 available only on units with PSC blowers without desuperheaters.

Table of Contents

General Installation Information

WARNING: Before performing service or maintenance operations on a system, turn off main power switches to the indoor unit. If applicable, turn off the accessory heater power switch. Electrical shock could cause personal injury.

Safety Considerations

Installing and servicing heating and air conditioning equipment can be hazardous due to system pressure and electrical components. Only trained and qualified service personnel should install, repair or service heating and air conditioning equipment.

Untrained personnel can perform the basic maintenance functions of cleaning coils and cleaning and replacing filters. All other operations should be performed by trained service personnel. When working on heating and air conditioning equipment, observe precautions in the literature, tags and labels attached to the unit and other safety precautions that may apply.

Follow all safety codes. Wear safety glasses and work gloves. Use a quenching cloth for brazing operations and have a fire extinguisher available.

Moving and Storage

Move units in the normal “up” orientation as indicated by the arrows on each carton. Horizontal units may be moved and stored per the information on the carton. Do not stack more than three units in total height. Vertical units may be stored one upon another to a maximum height of two units. Do not attempt to move units while stacked.

When the equipment is received, all items should be carefully checked against the bill of lading to be sure all crates and cartons have been received. Examine units for shipping damage, removing the units from the cartons if necessary. Units in question should also be internally inspected. If any damage is noted, the carrier should make the proper notation on the delivery receipt, acknowledging the damage. Units are to be stored in clean, dry location to prevent damage.

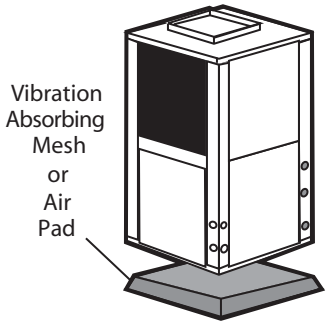
Unit Location

Locate the unit in an indoor area that allows for easy removal of the filter and access panels. Location should have enough space for service personnel to perform maintenance or repair. Provide sufficient room to make water, electrical and duct connection(s). If the unit is located in a confined space, such as a closet, provisions must be made for return air to freely enter the space by means of a louvered door, etc. Any access panel screws that would be difficult to remove after the unit is installed should be removed prior to setting the unit. On horizontal units, allow adequate room below the unit for a condensate drain trap and do not locate the unit above supply piping. **Care should be taken when units are located in unconditioned spaces to prevent damage from frozen water lines and excessive heat that could damage electrical components.**

Installing Vertical Units

Vertical units are available in left or right air return configurations. Vertical units should be mounted level on a vibration absorbing pad slightly larger than the base to provide isolation between the unit and the floor. It is not necessary to anchor the unit to the floor (see right). If access to the left side of the unit will be limited after installation, remove the two mounting screws on the left side of the control box before setting the unit (leave the two front mounting screws intact). This will allow the control box to be removed with only the two front mounting screws for future service.

Figure 1: Vertical Unit Mounting



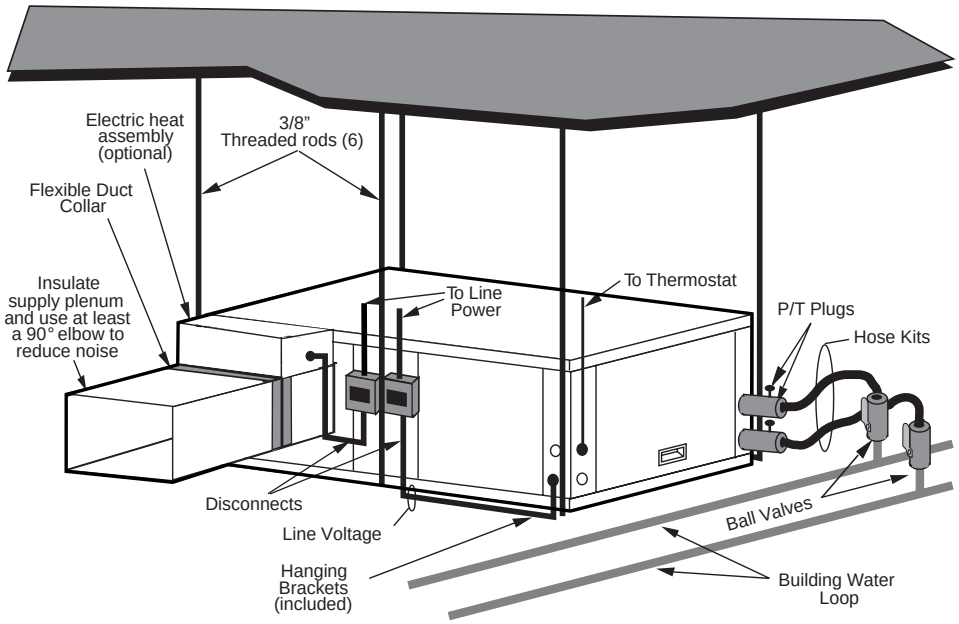
Installing Horizontal Units

Horizontal units are available with side or end discharge and may be field converted from one to the other by replacing the discharge panel with a new panel which must be ordered separately. Horizontal units are normally suspended from a ceiling by four or six 3/8-inch diameter threaded rods. The rods are usually attached to the unit by hanger bracket kits furnished with each unit.

Lay out the threaded rods per the dimensions in Figure 3. Assemble the hangers to the unit as shown. Securely tighten the brackets to the unit using the weld nuts located on the underside of the bottom panel. When attaching the hanger rods to the bracket, a double nut is required since vibration could loosen a single nut. To allow filter access, one bracket on the filter side should be installed 180° from the position shown in the figure below. The unit should be pitched approximately 1/4-inch towards the drain in both directions to facilitate the removal of condensate. Use only the bolts provided in the kit. The use of longer bolts could damage internal parts.

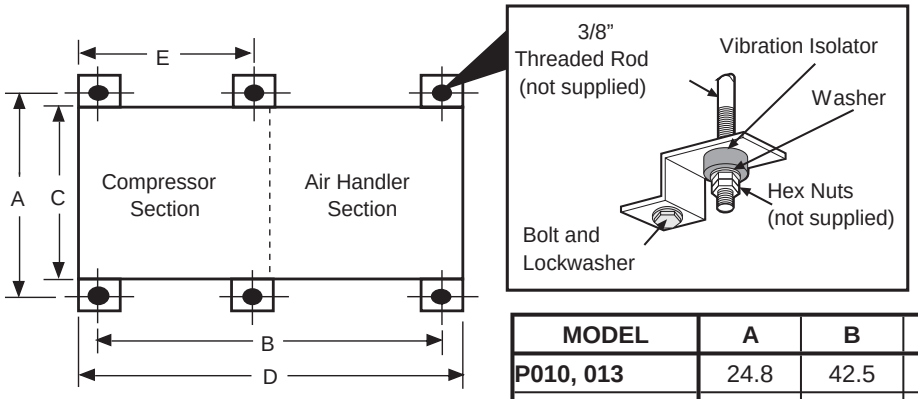
Some residential applications require the installation of horizontal units on an attic floor. In this case, the unit should be set in a full size secondary drain pan on top of a vibration absorbing mesh. The secondary drain pan prevents possible condensate overflow or water leakage damage to the ceiling. The secondary drain pan is usually placed on a plywood base isolated from the

Figure 2: Typical Horizontal Unit Installation



CAUTION: Do not use rods smaller than 3/8-inch diameter since they may not be strong enough to support the unit. The rods must be securely anchored to the ceiling.

Figure 3: Hanger Location and Assembly



P010-034, 4 hangers included
P040-066, 6 hangers included

MODEL	A	B	C	D	E
P010, 013	24.8	42.5	22.5	44.0	–
P019	24.8	51.5	22.5	53.0	–
P022, 028, 034	24.8	61.5	22.5	63.0	–
P040, 046	27.8	70.5	25.5	72.0	29.9
P056	27.8	75.5	25.5	77.0	29.9
P066	27.8	80.5	25.5	82.0	29.9

Duct System

An air outlet collar is provided on vertical top flow units and all horizontal units to facilitate a duct connection. A flexible connector is recommended for discharge and return air duct connections on metal duct systems. Uninsulated duct should be insulated with a minimum of 1-inch duct insulation. Application of the unit to uninsulated ductwork in an unconditioned space is not recommended as the unit's performance will be adversely affected.

If the unit is connected to existing ductwork, check the duct system to ensure that it has the capacity to accommodate the air required for the unit application. If the duct is too small, as in the replacement of heating only systems, larger ductwork should be installed. All existing ductwork should be checked for leaks and repaired if necessary.

The duct system should be sized to handle the design airflow quietly and efficiently. To maximize sound attenuation of the unit blower, the supply and return plenums should include an internal duct liner of fiberglass or constructed of ductboard for the first 10 feet. On systems employing a sheet metal duct system, canvas connectors should be used between the unit and the ductwork. If air noise or excessive airflow is a problem, the blower speed can be changed (refer to pages 16-17).

CAUTION: Be sure to remove the shipping material from the blower discharge before connecting ductwork.

Water Piping

The proper water flow must be provided to each unit whenever the unit operates. To assure proper flow, use pressure/temperature ports to determine the flow rate. These ports should be located adjacent to the supply and return water connections on the unit. The proper flow rate cannot be accurately set without measuring the water pressure drop through the refrigerant-to-water heat exchanger.

All source water connections on residential units are swivel fittings that accept a 1-inch male pipe thread (MPT). The swivel connector has a rubber gasket seal similar to a rubber hose gasket, which when mated to the flush end of any 1-inch threaded pipe provides a leak-free seal without the need for thread sealing tape or compound. Check to ensure that the rubber seal is in the swivel connector prior to attempting any connection. The rubber seals are shipped attached to the waterline. To make the connection to a ground loop system, mate the brass connector (supplied in CK4L and CK3L connector kit) against the rubber gasket in the swivel connector and thread the female locking ring onto the pipe threads, while maintaining the brass connector in the desired direction. Tighten the connectors by hand, then gently snug the fitting with pliers to provide a leak-proof joint. When connecting to an open loop (ground water) system, thread any 1-inch MPT fitting (SCH80 PVC or copper) into the swivel connector and tighten in the same manner as noted above. The open and closed loop piping system should include pressure/temperature taps for serviceability.

All source water connections on commercial units are standard female pipe thread.

Never use flexible hoses smaller than 1-inch inside diameter on the unit. Limit hose length to 10 feet per connection. Check carefully for water leaks.

Freeze Protection

Set the freeze protection switch SW2-2 on the printed circuit board for applications using a closed loop antifreeze solution to "LOOP". On applications using an open loop/groundwater system (or closed loop no antifreeze), set this dip switch to "WELL", the factory default setting. (Refer to the Dip Switch Field Selection table on page 20.)

Water Quality

In ground water situations where scaling could be heavy or where biological growth such as iron bacteria will be present, a closed loop system is recommended. The heat exchanger coils in ground water systems may, over a period of time, lose heat exchange capabilities due to a buildup of mineral deposits inside. These can be cleaned, but only by a qualified service mechanic, as special solutions and pumping equipment are required. Desuperheater coils can likewise become scaled and possibly plugged. In areas with extremely hard water, the owner should be informed that the heat exchanger may require occasional flushing.

Units with cupronickel heat exchangers are recommended for open loop applications due to the increased resistance to build-up and corrosion, along with reduced wear caused by acid cleaning.

Material		Copper	90/10 Cupro-Nickel
pH	**Acidity/Alkalinity**	7- 9	5 - 9
Scaling	Calcium and Magnesium Carbonate	(Total Hardness) less than 350 ppm	(Total Hardness) less than 350 ppm
Corrosion	Hydrogen Sulfide	Less than .5 ppm (rotten egg smell appears at 0.5 PPM)	10 - 50 ppm
	Sulfates	Less than 125 ppm	Less than 125 ppm
	Chlorine	Less than .5 ppm	Less than .5 ppm
	Chlorides	Less than 20 ppm	Less than125 ppm
	Carbon Dioxide	Less than 50 ppm	10 - 50 ppm
	Ammonia	Less than 2 ppm	Less than 2 ppm
	Ammonia Chloride	Less than .5 ppm	Less than .5 ppm
	Ammonia Nitrate	Less than .5 ppm	Less than .5 ppm
	Ammonia Hydroxide	Less than .5 ppm	Less than .5 ppm
	Ammonia Sulfate	Less than .5 ppm	Less than .5 ppm
	Total Dissolved Solids (TDS)	Less than 1000 ppm	1000-1500 ppm
Iron Fouling (Biological Growth)	Iron, Fe^{2}+ (Ferrous) Bacterial Iron Potential	None	None
	Iron Oxide	Less than 1 ppm. Above this level deposition will occur.	Less than 1 ppm. Above this level deposition will occur.
Erosion	Suspended Solids	Less than 10 ppm and filtered for max of 600 micron size	Less than 10 ppm and filtered for max of 600 micron size
	Threshold Velocity (Fresh Water)	5-8 ft/sec	8-12 ft/sec

Note: Grains = PPM divided by 17 • mg/l is equivalent to PPM

Condensate Drain

On vertical units, the internal condensate drain assembly consists of a drain tube which is connected to the drain pan, a 3/4-inch PVC female adapter and a flexible connecting hose. The female adapter may exit either the front or the side of the cabinet. The adapter should be glued to the field-installed PVC condensate piping. On vertical units, a condensate hose is inside all cabinets as a trapping loop; therefore, an external trap is not necessary.

On horizontal units, a copper stub is provided for condensate drain piping connection. An external trap is required (see Figures 4 and 5 below). If a vent is necessary, an open stand pipe may be applied to a tee in the field-installed condensate piping.

Figure 4: Horizontal Drain Connection

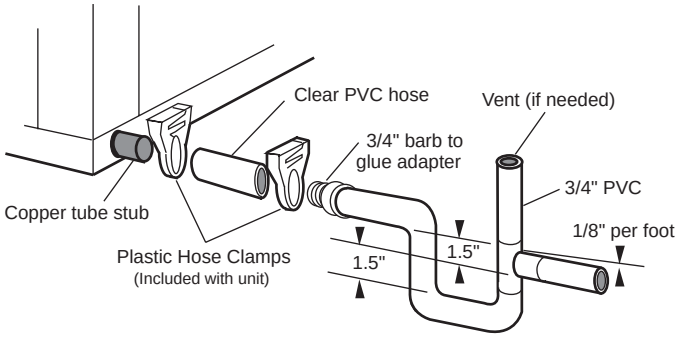
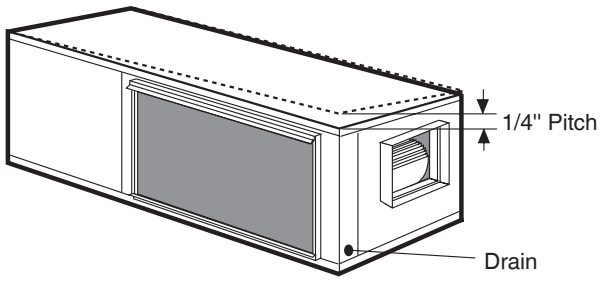


Figure 5: Unit Pitch for Drain



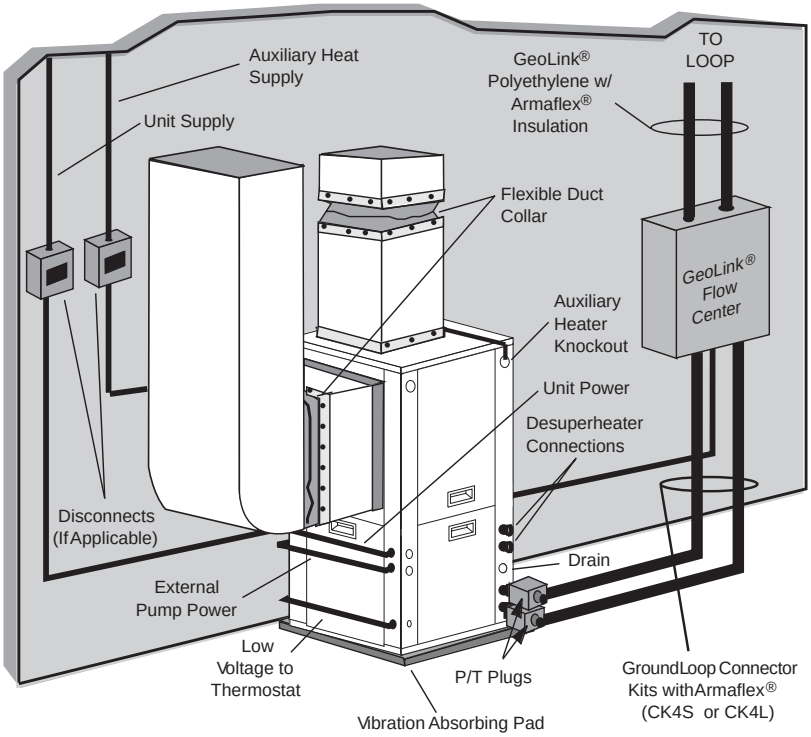
Closed Loop Ground Source Systems

Note: For closed loop systems with antifreeze protection, set SW2-2 to the "loop" position (see table on page 32).

Once piping is completed between the unit, flow center and the ground loop (see figure below), final purging and charging of the loop is required. A flush cart (or a 1.5 HP pump minimum) is needed to achieve adequate flow velocity in the loop to purge air and dirt particles from the loop itself. Antifreeze solution is used in most areas to prevent freezing. Flush the system adequately to remove as much air as possible then pressurize the loop to a static pressure of 40-50 PSI (summer) or 50-75 PSI (winter). This is normally adequate for good system operation. Loop static pressure will fluctuate with the seasons. Pressures will be higher in the winter months than during the cooling season. This fluctuation is normal and should be considered when initially charging the system.

After pressurization, be sure to remove the plug in the end of the loop pump motor(s), if applicable, to allow trapped air to be discharged and to ensure that the motor housing has been flooded. Ensure that the loop flow center provides adequate flow through the unit by checking the pressure drop across the heat exchanger and comparing it to the unit capacity data in the specification catalog. Usually 2.5 to 3 GPM of flow per ton of cooling capacity is recommended in earth loop applications. (See wiring diagram attached to the inside of the unit for pump wiring details.)

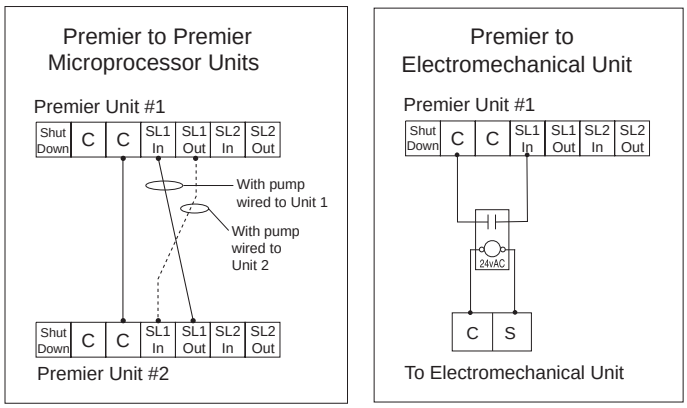
Figure 6: Closed Loop, Ground Source Application - Single unit with Flow Center



Multiple Units on One Flow Center

When two units are connected to one loop pumping system, pump control is automatically achieved by connecting the SL terminals on connector P2 in both units with 2-wire thermostat wire. These terminals are polarity dependant. The loop pump(s) may be powered from either unit, whichever is more convenient. If either unit calls, the loop pump(s) will automatically start. The use of two units on one flow center is generally limited to a total of 20 GPM capacity.

Figure 7: Primary/Secondary Hook-up

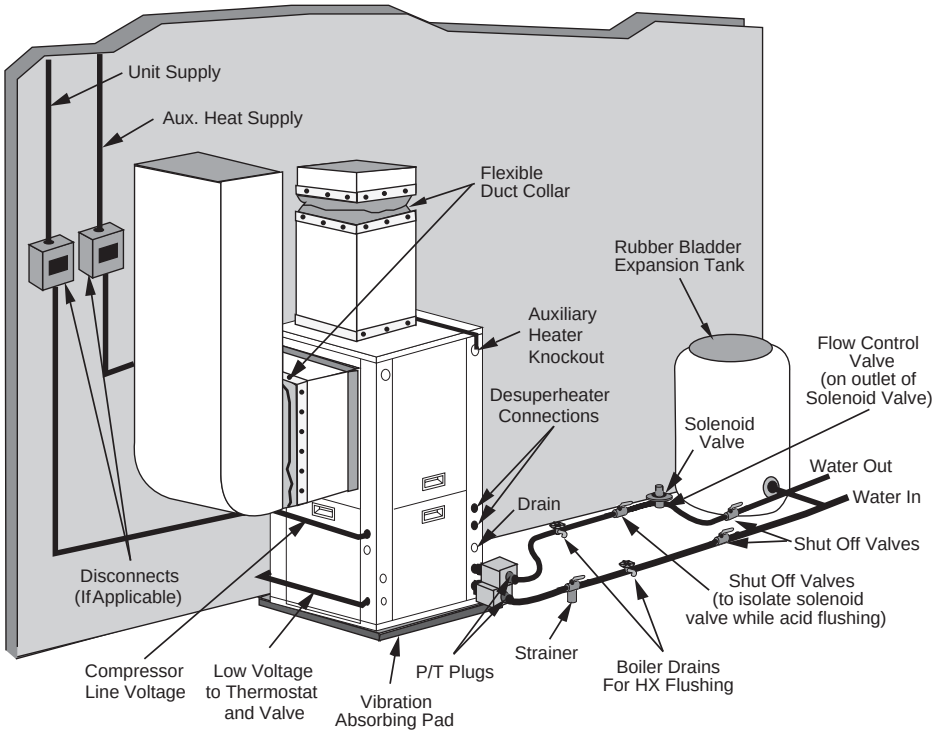


Open Loop Ground Water Systems

Always maintain water pressure in the heat exchanger by placing water control valves at the outlet of the unit to prevent mineral precipitation. Use a closed, bladder-type expansion tank to minimize mineral formation due to air exposure. Ensure proper water flow through the unit by checking pressure drop across the heat exchanger and comparing it to the figures in Capacity Tables in the Specification Catalog. Normally, about 2 GPM flow rate per ton of cooling capacity (1.5 GPM per ton minimum at 50°F) is needed in open loop systems.

Note: For open loop/ground water systems or systems that do not contain an antifreeze solution, set SW2-Switch #2 to the "WELL" position.

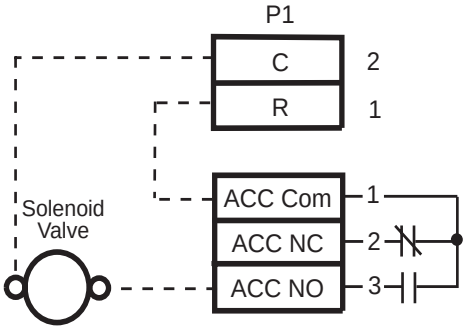
Figure 8: Open System - Groundwater Application



Discharge water from the unit is not contaminated in any manner and can be disposed of in various ways, depending on local building codes (e.g. recharge well, storm sewer, drain field, adjacent stream or pond, etc.). Most local codes forbid using the sanitary sewer for disposal. Consult your local building and zoning department to assure compliance in your area.

The water control solenoid is wired between the common pin #2 connector P1 and pin #3 connector P3, and a jumper wire is connected between R and pin #1 connector P3 (refer to Figure 9). Notice that DIP switch 2-3, located on the PCB, must be switched to the "Comp" position so the valve will operate with the compressor.

Figure 9: Typical single-stage external 24V water solenoid valves (type PPV100 or BPV100) wiring



Note: Switch SW2 - 3 to comp position.

Boiler/Cooling Tower Closed Loop Systems

Boiler/Cooling Tower

The water loop is usually maintained between 60°F and 90°F. Premier units allow 25°F to 110°F EWT for proper heating and cooling operation.

To reject excess heat from the water loop, the use of a closed circuit evaporative cooler or an open type cooling tower with a secondary heat exchanger between the tower and the water loop is recommended. If an open type cooling tower is used without a secondary heat, continuous chemical treatment and filtering of the water must be performed to ensure the water is free from damaging materials.

Water Piping Connections

Units should not be connected to the supply and return piping until the water system has been cleaned and flushed completely. Supply and return water connections are standard female pipe thread on commercial units (1-inch swivel on residential units). Never use flexible hoses with an inside pipe diameter that is smaller than the water connections on the unit and limit the hose length to 10 feet or less per connection. High-pressure flexible hoses provide sound attenuation for both normal unit operating noise and hydraulic pumping noise. Hard piping can also be brought directly to the unit although it is not recommended since no vibration or noise attenuation can be accomplished.

System Cleaning and Flushing

Prior to start up of any heat pump, the water circulating system must be cleaned and flushed of all dirt and debris. If the system is equipped with water shutoff valves, the supply and return runouts must be connected together at each unit location to prevent the introduction of dirt into the unit, (see Figure 10). The system should be filled at the water makeup connection with all air vents open. After filling, vents should be closed.

The contractor should start the main circulator with the pressure reducing valve makeup open. Vents should be checked in sequence to bleed off any trapped air and to verify circulation through all components of the system.

As water cirulates through the system, the contractor should check and repair any leaks found in the piping system. Drain(s) at the lowest point(s) in the system should be opened for the initial flush and blowdown, making sure water fill valves are set at the same rate. Check the pressure gauge at the pump suction and manually adjust the makeup water valve to hold the same positive pressure both before and after opening the drain valves. Flushing should continue for at least two hours, or longer if required, unil drain water is clean and clear.

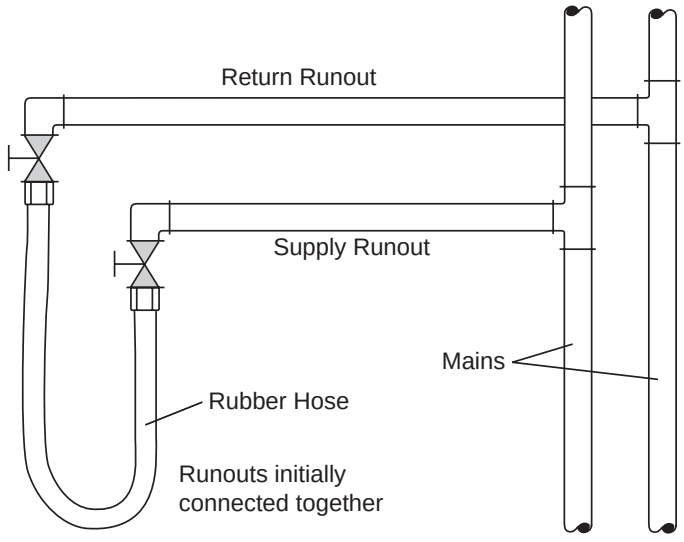
The supplemental heater and/or circulator pump, if used, should be shut off. All drains and vents should be opened to completely drain the system. Short circuited supply and return runouts should now be connected to the unit supply and return connections.

Refill the system with clean water. Test the system water for acidity and treat as required to leave the water slightly alkaline (pH 7.5 to 8.5). The specified percentage of antifreeze may also be added at this time. Use commercial grade antifreeze designed for HVAC systems only. Environol™ brand antifreeze is recommended.

Once the system has been filled with clean water and antifreeze (if used), precautions should be taken to protect the system from dirty water conditions. Dirty water will result in system-wide degradation of performance, and solids may clog valves, strainers, flow regulators, etc. Additionally, the heat exchanger may become clogged which reduces compressor service life and can cause premature unit failure. In boiler/tower applications, set the loop control panel set points to desired temperatures. Supply power to all motors and start the circulating pumps. After full flow has been established through all components including the heat rejector (regardless of season), air vented and loop temperatures stabilized, each of the units will be ready for check, test and start up and for air and water balancing.

Note: For closed loop systems with antifreeze protection, set SW2-2 to the “LOOP” position.

Figure 10: Flushing with Water Shutoff Valve Equipped Systems



Desuperheater Connections

Water Tank Preparation

Electric water heaters are recommended for use with the desuperheater in potable water systems. A tank with a 50-gallon minimum capacity should be installed. Multiple tanks may be piped in series to create larger buffer tanks.

Figure 11: Water Heater Connection Kit

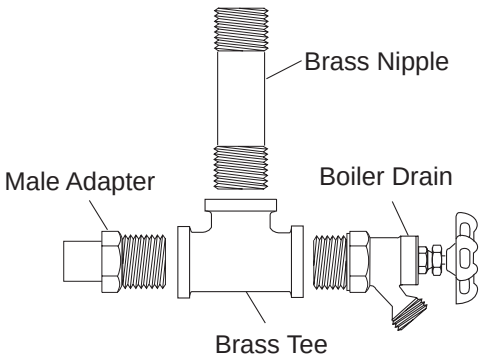


Figure 12: Desuperheater Installation In Preheat Tank

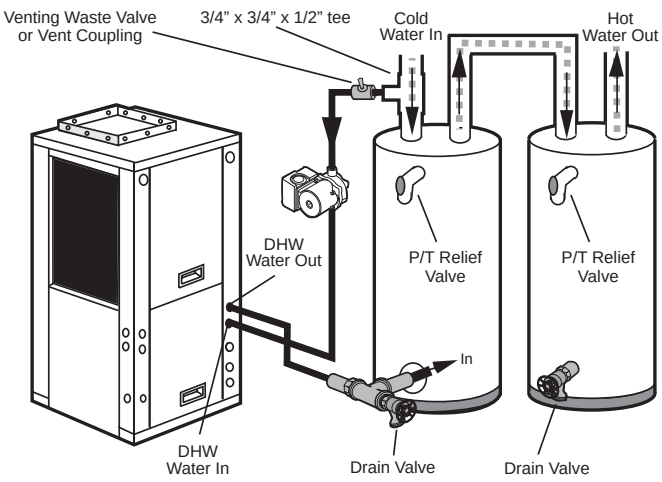
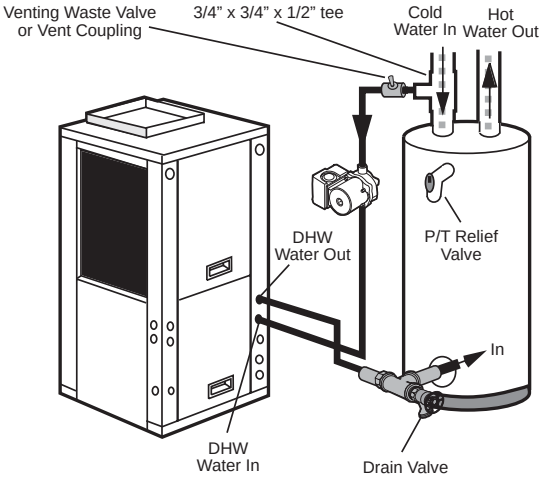


Figure 13: Typical Desuperheater Installation



Note: Desuperheater pump mounted externally with commercial units; internally in residential units.

Initial Desuperheater Startup

Plumbing Installation

1. Remove drain valve and fitting from water heater.
2. Thread the 3/4-inch NPT x 3 1/2-inch brass nipple into the water heater drain port.
3. Attach the center port of the 3/4-inch FPT tee to the opposite end of the brass nipple.
4. Attach the 1/2-inch SWT x 3/4-inch NPT copper adapter to the side of the tee closest to the unit.
5. Install the drain valve on the tee opposite the adapter.
6. Run interconnecting tubing from the tee to DHW “WATER OUT” at the unit.
7. Cut the cold water “IN” line going to the water heater.
8. Insert the 3/4-inch x 3/4-inch x 1/2-inch reducing solder tee “IN” line with cold water line as shown.
9. Run interconnecting copper tubing between the unit DHW “WATER IN” and the tee (1/2-inch nominal) using (2) 1/2-inch sweat x 1-inch MPT adapters. The recommended maximum distance is 50 ft.
10. To prevent air entrapment in the system, install a vent coupling at the highest point of the interconnecting lines.
11. Insulate all exposed surfaces of both connection water lines with 3/8-inch wall closed cell insulation.

Note: All plumbing and piping connections must comply with local plumbing codes.

Desuperheater Startup

1. Close the drain valve to the water heater.
2. Open the cold water supply to the tank.
3. Open the hot water faucet in the house to bleed air from the system. Close when full.
4. Depress the handle on the pressure relief valve to bleed any remaining air from the tank then close.
5. If so equipped, unscrew the indicator plug on the motor end of the pump until all air is purged from the pump, then tighten the plug. Use vent couplings to bleed air from the lines.
6. Carefully inspect all plumbing for water leaks and correct as required.
7. Before restoring electrical supply to the water heater, adjust the temperature setting on the tank.
   - On tanks with both upper and lower elements, the lower element should be turned down to the lowest setting, approximately 100°F. The upper element should be adjusted to 120°F to 130°F. Depending upon the specific needs of the customer, you may want to adjust the upper element differently.
   - On tanks with a single element, lower the thermostat setting to 120°F.
8. After thermostat(s) is adjusted, replace the access cover and restore electrical supply to the water heater.
9. Make sure that any valves in the desuperheater water circulating circuit are open.
10. Turn on the Premier unit to first stage heating.
11. The DHW pump should be running. Be sure the disable switch for the DHW pump (SW4) is ON. The DHW OFF LED on the unit should not be illuminated.
12. The temperature difference between the water entering and leaving the desuperheater should be 5°F to 15°F. The water flow should be approximately 0.4 GPM per ton of nominal cooling.
13. Allow the unit to heat water for 15 to 20 minutes to be sure operation is normal.
14. When the pump is first started, open the inspection port (if equipped) until water dribbles out, then replace. Allow the pump to run for at least five minutes to ensure that water has filled the circulator properly.

CAUTION: Never operate the DHW circulating pump while dry. If the unit is placed in operation before the desuperheater piping is connected, be sure that the pump switch is set to the OFF position.

Desuperheater Notes: When servicing a unit’s refrigeration circuit, it is always good practice to disable the desuperheater pump. This can be accomplished by using the DHW pump disable switch located on the front of the unit cabinet near the LED annunciator panel. The red DHW OFF LED will illuminate, indicating the DHW pump is disabled.

Electrical Connections

General

Be sure the available power is the same voltage and phase as that shown on the unit serial plate. Line and low voltage wiring must be done in accordance with local codes or the National Electric Code, whichever is applicable.

Unit Power Connection

Connect the incoming line voltage wires to L1 and L2 or L1, L2, and L3 of the contactor as shown in Figures 14 and 15. (For more information, refer to the Unit Electrical Data section in the Specification Catalog SP1555.)

External Loop Pump Power Connection

If the unit is to be used with an external loop pump (FC1 or FC2 flow center), the pump(s) will be connected to the terminals on PB1 in the unit electrical box as shown in Figures 14 and 15. The pumps will automatically be cycled as required by the unit or by an SL signal from another Premier unit sharing the flow center.

Accessory Relay

A set of “dry” contacts has been provided to control accessory devices, such as 2-wire water solenoid valves on open loop installations, electronic air cleaners, humidifiers, etc. This relay contact should be used only with 24 volt signals and not line voltage power. The relay has both normally open and normally closed contacts and can operate with either the fan or the compressor. Use DIP switch SW2-3 to cycle the relay with fan or compressor. The relay contacts are available on terminals #2 and #3 of P3. The default value of the switch is set to operate with fan. For use with electronic air filter.

208 Volt Operation

All Premier units are factory wired for 230 volt operation. There is a switch located on the control box which allows the installer to select 208 volt unit operation. Refer to Figures 14 and 15 below for switch location.

Figure 14: Line Voltage 208-230/60/1 Control Box

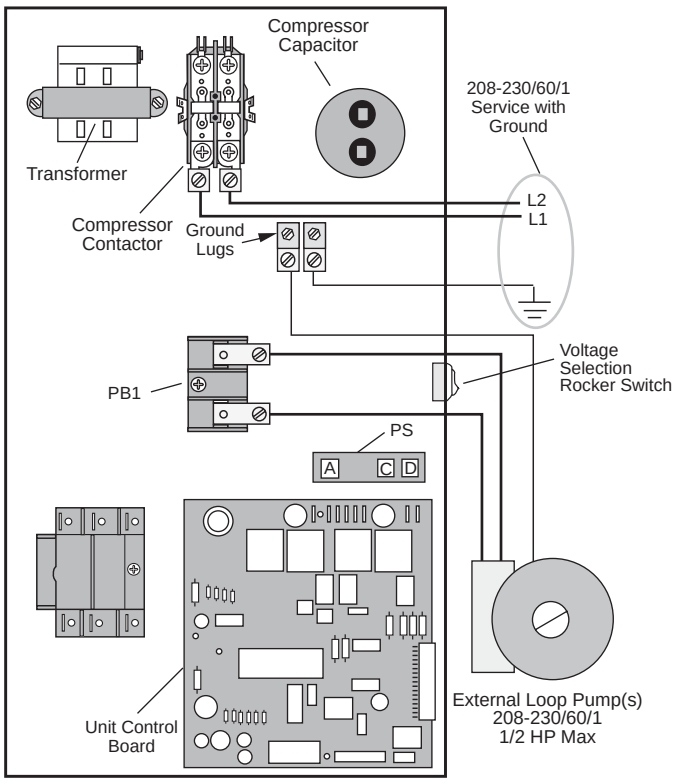
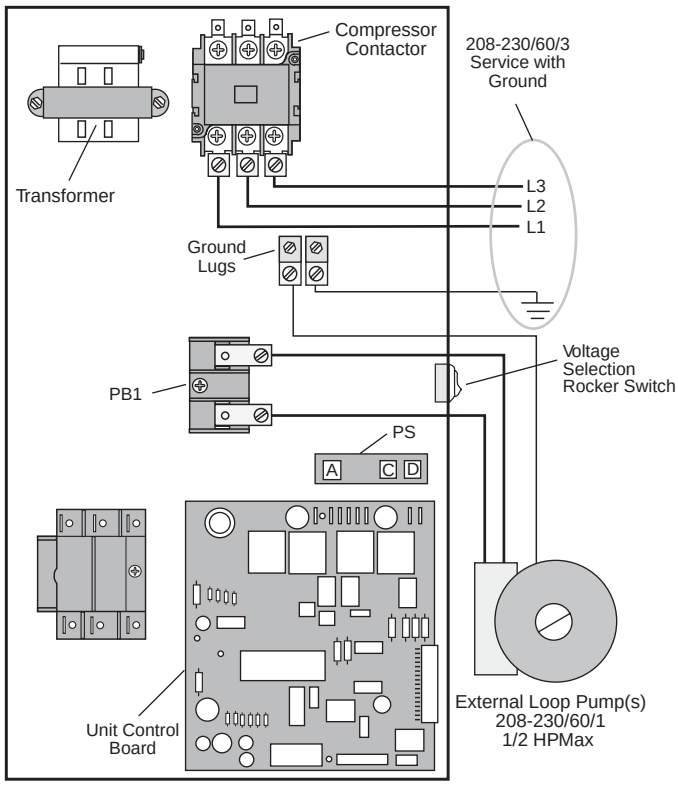


Figure 15: Line Voltage 208-230/60/3 Control Box



Electronic Thermostat Installation

Position the thermostat subbase against the wall so that it is level and the thermostat wires protrude through the middle of the subbase. Mark the position of the subbase mounting holes and drill holes with a 3/16-inch bit. Install supplied anchors and secure base to the wall. Thermostat wire must be 8-conductor 18 AWG wire. Strip the wires back 1/4-inch (longer strip lengths may cause shorts) and insert the thermostat wires into the connector as shown. Tighten the screws to insure tight connections. The thermostat has the same type connectors, requiring the same wiring. See instructions enclosed in the thermostat for detailed installation and operation information.

Figure 16: Thermostat Wiring

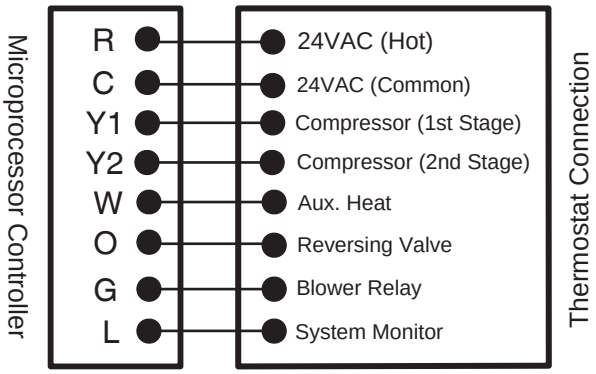
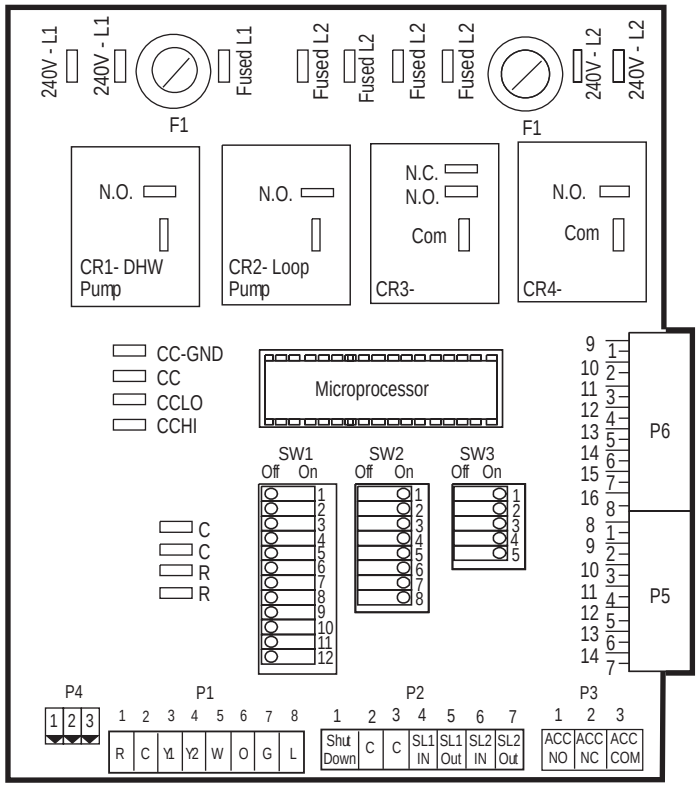


Figure 17: Logic Board Physical Layout

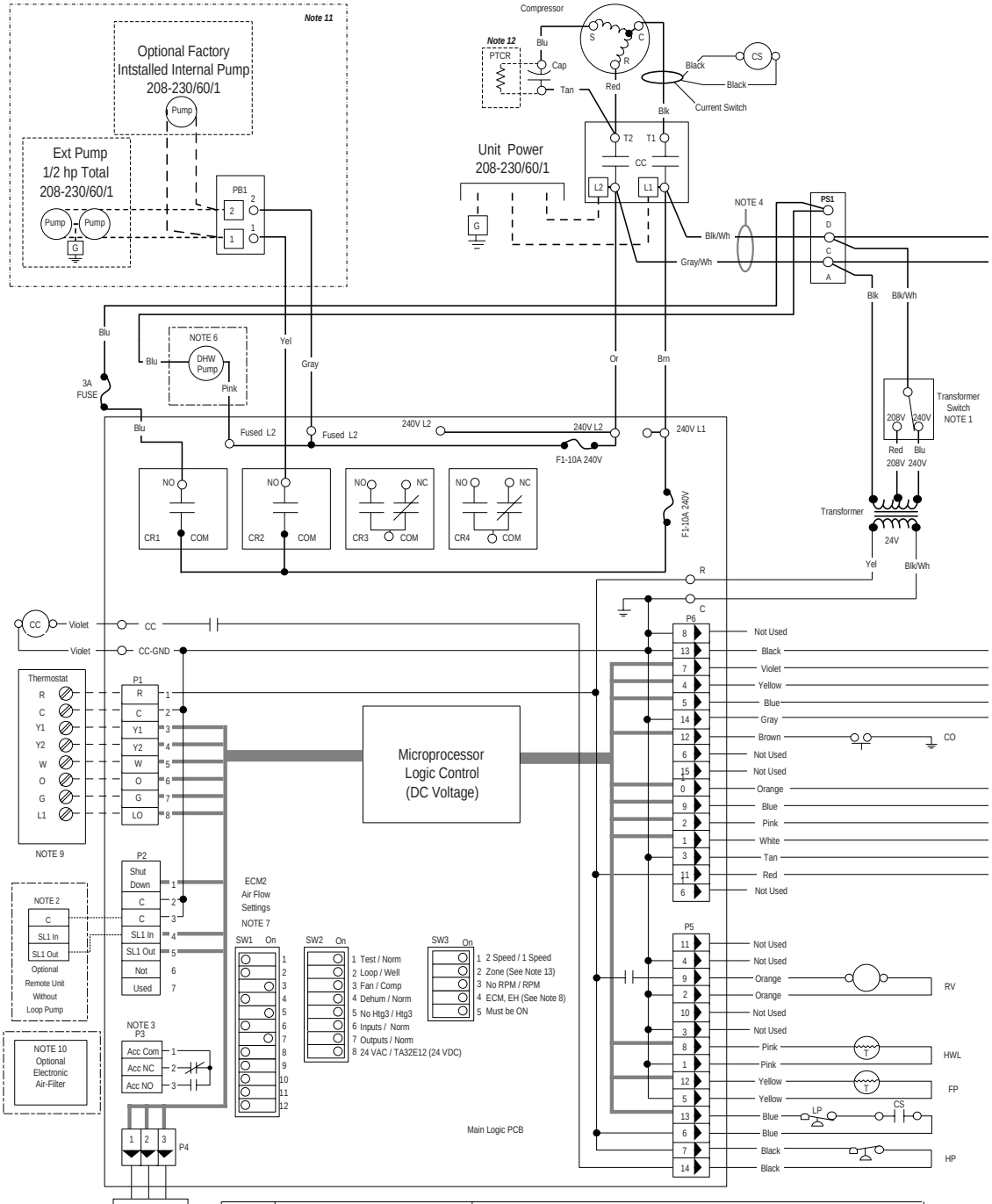


Notes: DIP switch SW2-#8 is required to be in the “OFF” position for the control to recognize the 24VAC thermostat inputs. The second stage compressor wire must be installed between the unit and the thermostat for proper control operation. SW3-2 “OFF” to be used with zoned systems. SW3-2 “ON” to be used for unzoned systems. SW3-4 “OFF” is used with ECM and 17P501A01 Electric Heat board. SW3-4 “ON” is used with ECM2 and 17P514A01 Electric Heat board.

Wiring Schematics

P Series/E Series - Single Speed Wiring Schematic - 208-230/60/1, ECM Blower

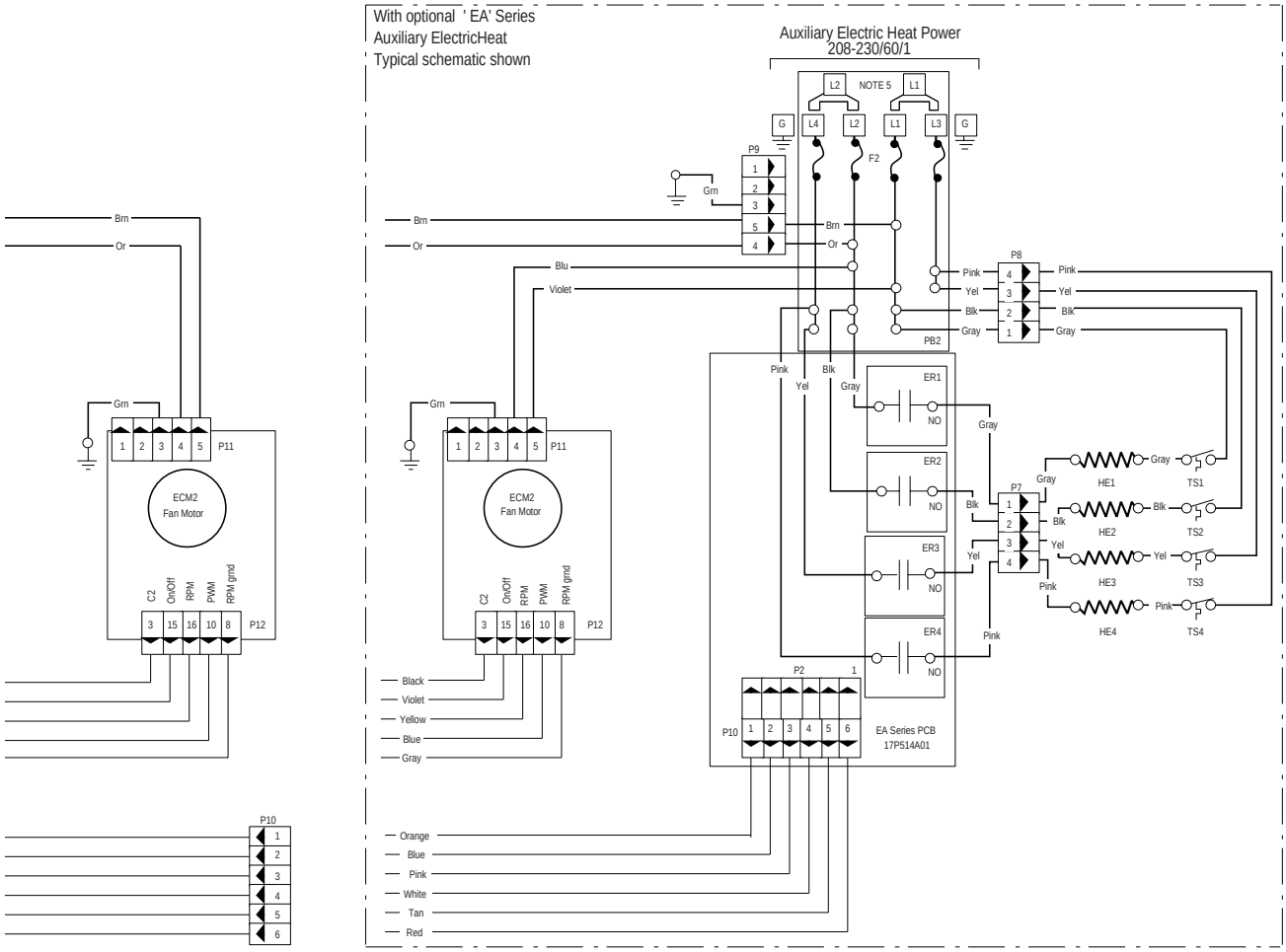
97P618-19 10/13/05



LED	Normal Display Mode	Diagnostic Modes			
		Current Fault Status	Inputs	Outputs	Outputs2
	Field Selection Dips - #1 On, #6 On, #7 On	#1 Off, #6 On, #7 On	#6 Off, #7 On	#6 On, #7 Off	#6 Off, #7 Off
Drain	Drain pan overflow Lockout	Drain pan overflow	Y1	Compressor	Blower Lo
Water Flow	FP thermistor (loop<15°F,well<30°F) Lockout	FP thermistor (loop<15°F, well<30°F)	Y2	Not Used	Blower Med
High Press	High Pressure > 380 PSI Lockout **	High Pressure > 380 PSI	O	RV	Blower Hi
Low Press	Low Pressure < 15 PSI Lockout **	Low Pressure < 15 PSI	G	FAN	Aux Heat #1
Air Flow	ECM2 RPM < 100 rpm Lockout	ECM2 RPM < 100 rpm	W	DHW Pump	Aux Heat #2
Status	Microprocessor malfunction*	Not Used	SL1	Loop Pump	AuxHeat #3
DHW Limit	HWL thermistor > 130°F	HWL thermistor > 130°F	Not Used	Not Used	Aux Heat #4
DHW off	DHW pump switch off	DHW pump switch off	--	--	--

*Green LED not flashing

** E Series units High Pressure > 600 PSI, Low Pressure < 40 PSI

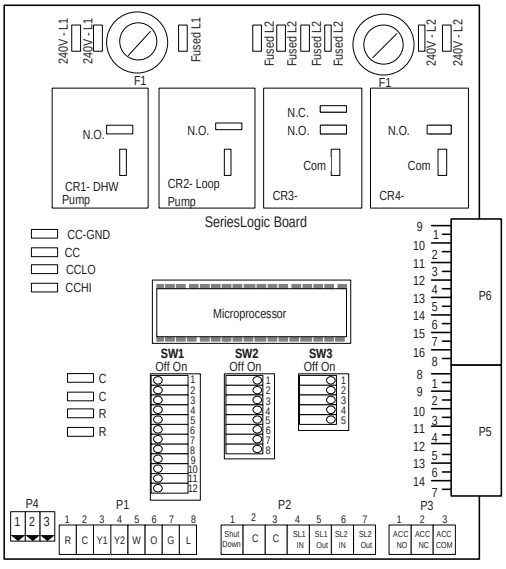


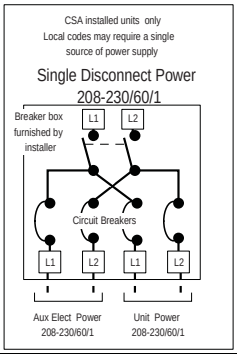
Legend

	Factory Low voltage wiring	T	Thermistor
	Factory Line voltage wiring	G	Light emitting diode - Green
	Field low voltage wiring		Relay coil
	Field line voltage wiring		Capacitor w/ bleed resistor
	Optional block		Switch - Condensate overflow
	DC Voltage PCB traces		Switch - High pressure
	Internal junction		Switch - Low pressure
	Quick connect terminal		Switch -Hot Water On/Off
	Wire nut	P 1 2 3	Polarized connector
L1	Field wire lug		
	Ground		
	Relay Contacts- N.O., N.C.		
	Fuse		

CS -	Current Switch	LP -	Low pressure switch
CC -	Compressor Contactor	PB1, PB2 -	Power blocks
CO -	Condensate overflow sensor	PS -	Power strip
CR1 -	DHW pump relay	RV -	Reversing Valve coil
CR2-	Loop pump relay	SW1 -	DIP package 12 position
CR3 -	PSC Fan Speed Relay	SW2 -	DIP package 8 position
CR4 -	PSC Fan Power Relay	SW3 -	DIP package 5 position
F1 and F2 -	Fuses	SW4 -	Hot water pump enable switch
FP -	Freeze protection sensor	TS -	Thermal limit switch
HE -	Heater element	HWL -	Hot water limit sensor
HP -	High pressure switch		
ER1 to ER4 -	Aux heat stage relays		

Logic Board Physical Layout





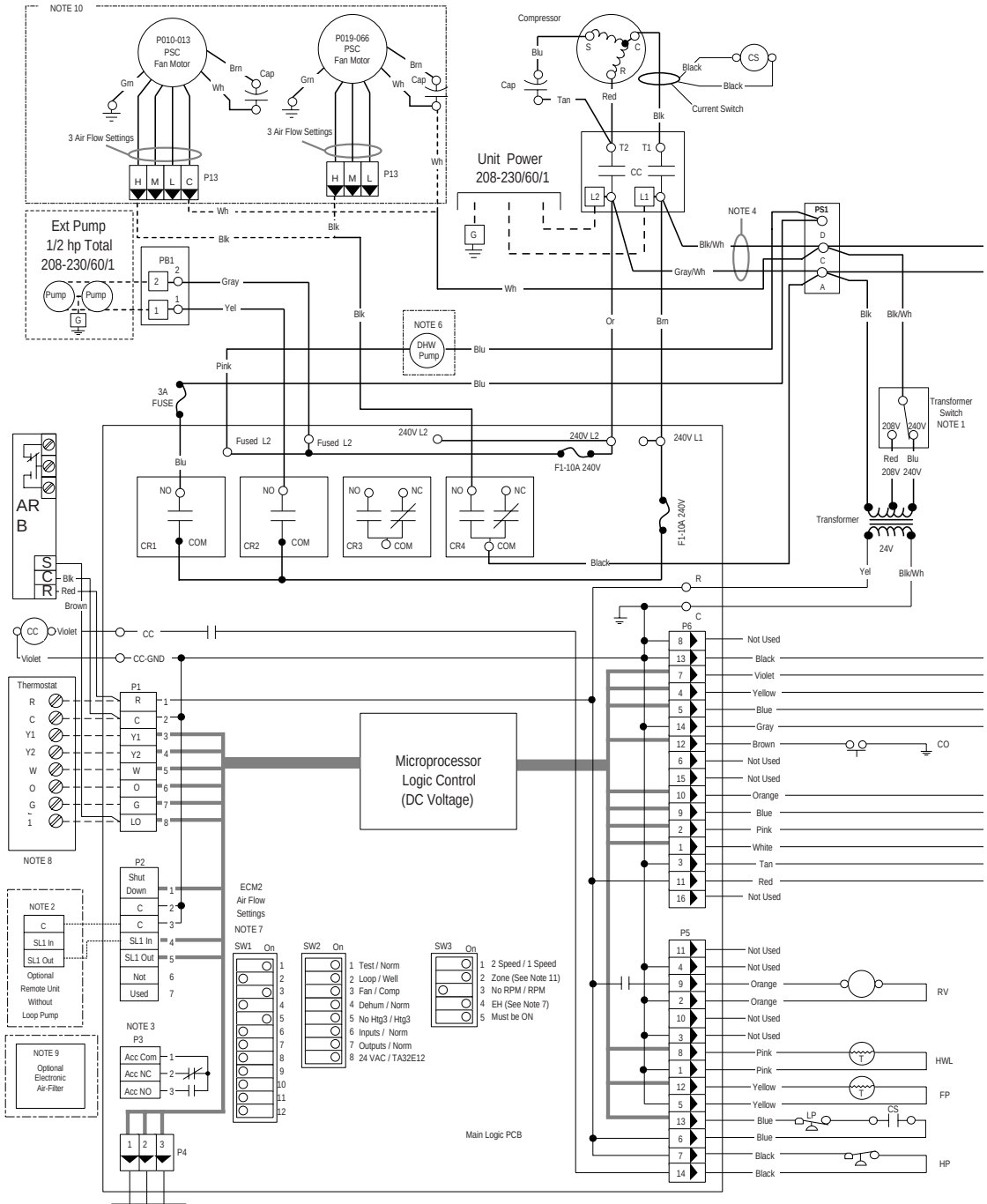
Notes:

1 - Place switch to 208V position to operate unit at 208V.
2 - Connection of remote unit that does not have a loop pump for slave operation
3 - 24V Accessory relay (see SW2 - 3 for description of operation)
4 - The blk/wh and gray/wh wires are removed when Aux Heat is installed
5 - Buss lugs L1 and L2 can be removed and dual power wire sets connected directly to box box lugs L1, L2, and L3, L4.
6 - DHW pump only in models with hot water generation option.
7 - Air Flow Configuration Example: SW1 configured for dip 3 as low, dip 5 as medium, and dip 7 as high speed ECM2 fan.
8 - SW3 - 4 should be in the OFF position when using ECM motor and 17P501A01 electric heat board and should be ON when using ECM2 with 17P514A01 electric heat board.
9 - When using thermostat TA32E12, SW2 -8 should be in the ON position. When using 24VAC thermostats, SW2-8 should be in the OFF position.
10- When optional electronic air-filter is installed, power for the electronic air-filter is provided by P2-2 and 24 VAC.
11- Optional pumping systems available on residential models only. Internal pump only available on P Series units.
12- Only on 024 and 035 E series models.
13- SW3-2 should be OFF to operate with zone control system and ON to operate with un-zoned system.

Wiring Schematics

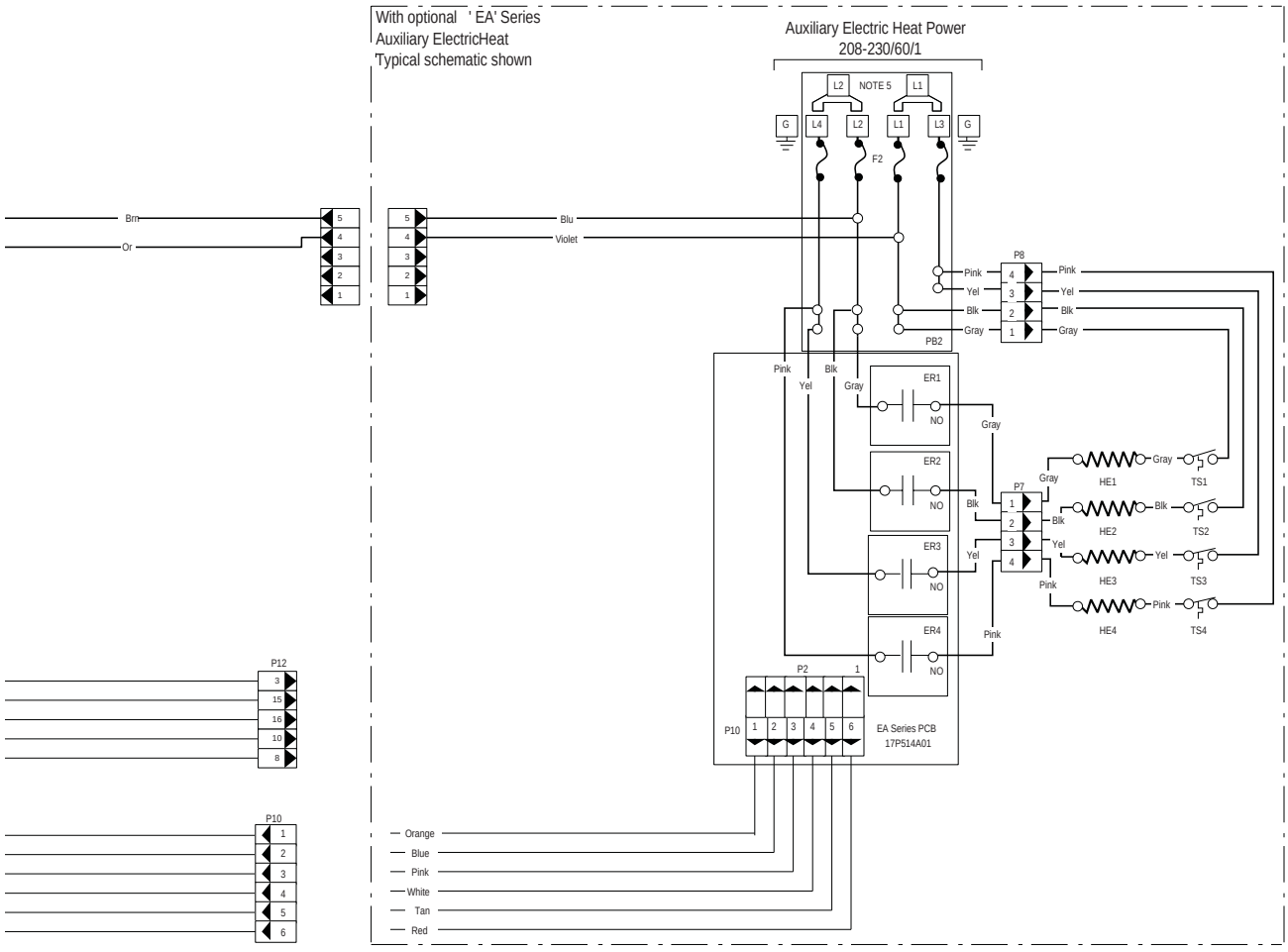
P Series - Single Speed Wiring Schematic - 208-230/60/1, PSC Blower

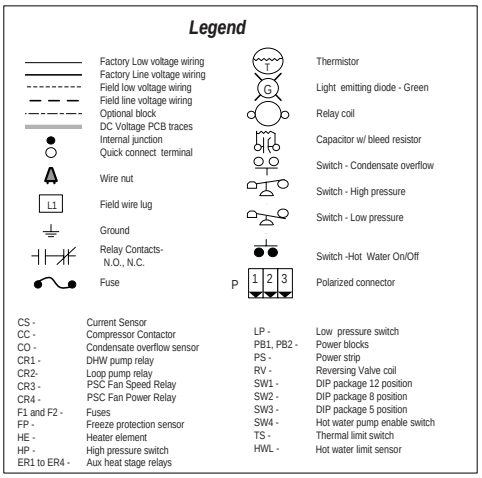
97P619-36 10/13/05

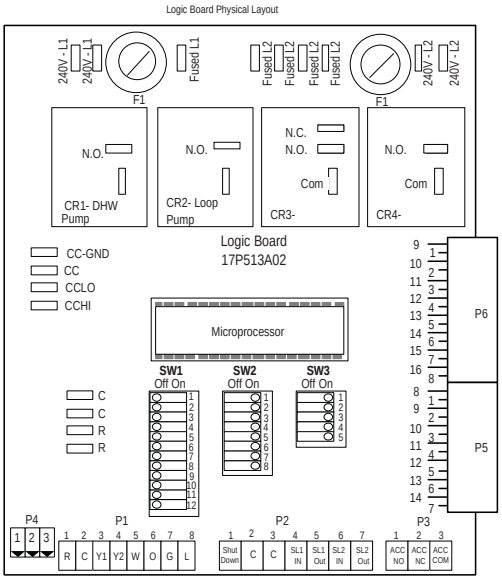


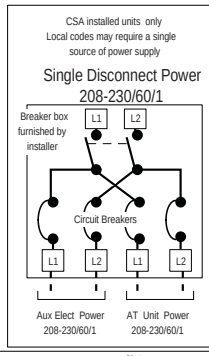
LED	Normal Display Mode	Diagnostic Modes			
		Current Fault Status	Inputs	Outputs	Outputs2
	Field Selection Dips - #1 On, #6 On, #7 On	#1 Off, #6 On, #7 On	#6 Off, #7 On	#6 On, #7 Off	#6 Off, #7 Off
Drain	Drain pan overflow Lockout	Drain pan overflow	Y1	Compressor	Blower Lo
Water Flow	FP thermistor (loop<15°F,well<30°F) Lockout	FP thermistor (loop<15°F, well<30°F)	Y2	Not Used	Blower Med
High Press	High Pressure > 380 PSI Lockout	High Pressure > 380 PSI	O	RV	Blower Hi
Low Press	Low Pressure < 15 PSI Lockout	Low Pressure < 15 PSI	G	FAN	Aux Heat #1
Air Flow	ECM2 RPM < 100 rpm Lockout	ECM2 RPM < 100 rpm	W	DHW Pump	Aux Heat #2
Status	Microprocessor malfunction*	Not Used	SL1	Loop Pump	AuxHeat #3
DHW Limit	HWL thermistor > 130°F	HWL thermistor > 130°F	Not Used	Not Used	Aux Heat #4
DHW off	DHW pump switch off	DHW pump switch off	--	--	--

*Green LED not flashing









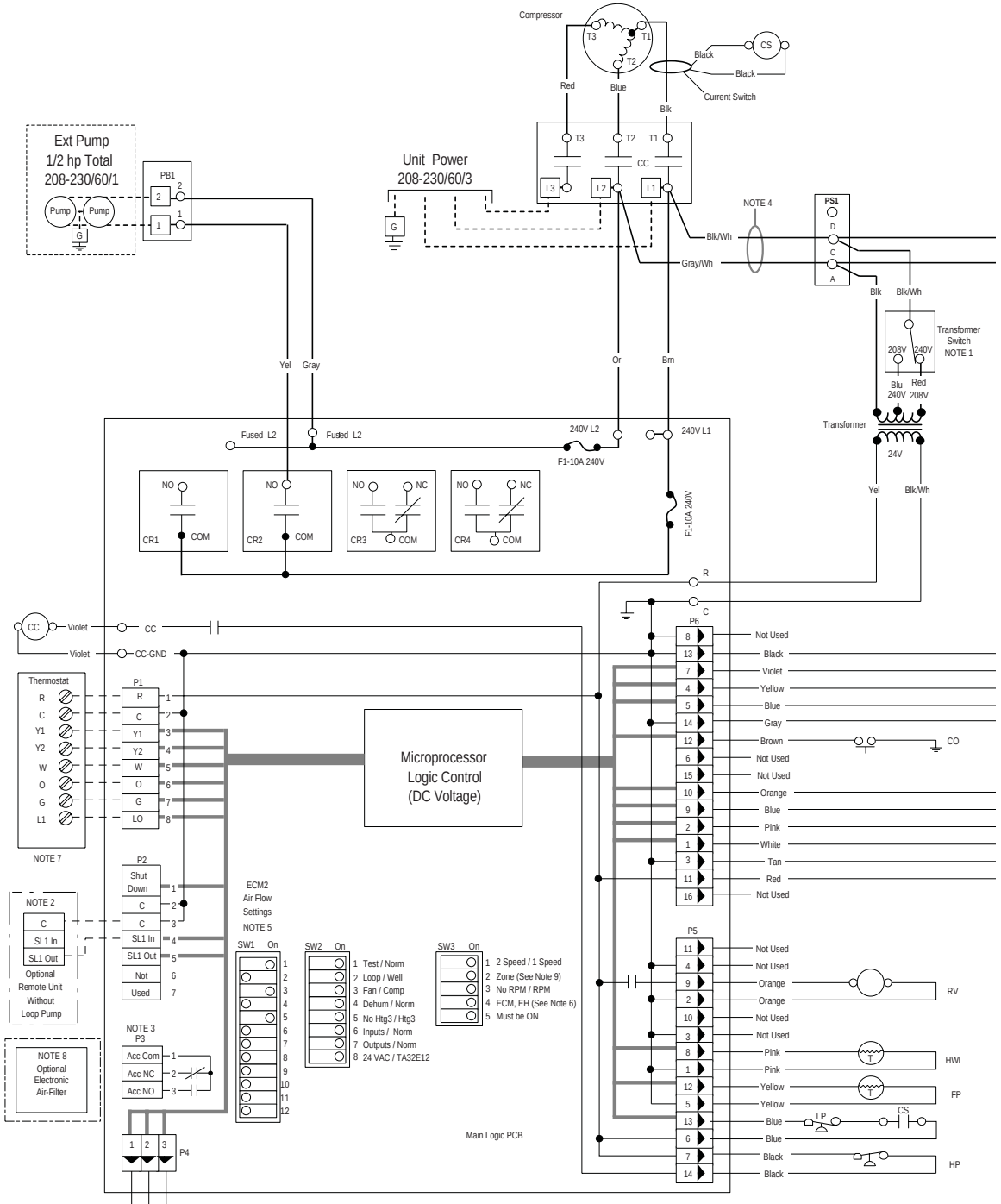
Notes:

1 - Place switch to 208V position to operate unit at 208V.
2 - Connection of remote unit that does not have a loop pump for slave operation.
3 - 24V Accessory relay (see SW2 - 3 for description of operation)
4 - The blk/wh and gray/wh wires are removed when Aux Heat is installed
5 - Buss lugs L1 and L2 can be removed and dual power wire sets connected directly to box lugs L1, L2, and L3, L4.
6 - DHW pump only in models with hot water generation option.
7 - SW3-4 should be in the ON position when using Premier 2 Electric Heat control 17P514A01, and it should be in the OFF position when using Premier Electric Heat control 17P501A01.
8 - When using thermostat TA32E12, SW2 -8 should be in the ON position. When using 24VAC thermostats, SW2-8 should be in the OFF position.
9 - When optional electronic air-filter is installed, power for the electronic air-filter is provided by P2-2 and 24 VAC.
10- Unit may be wired with either example shown. Consult installation manual for blower speed wiring instructions.
11- SW3-2 should be OFF to operate with zone control system and ON to operate with unzoned system.

Wiring Schematics

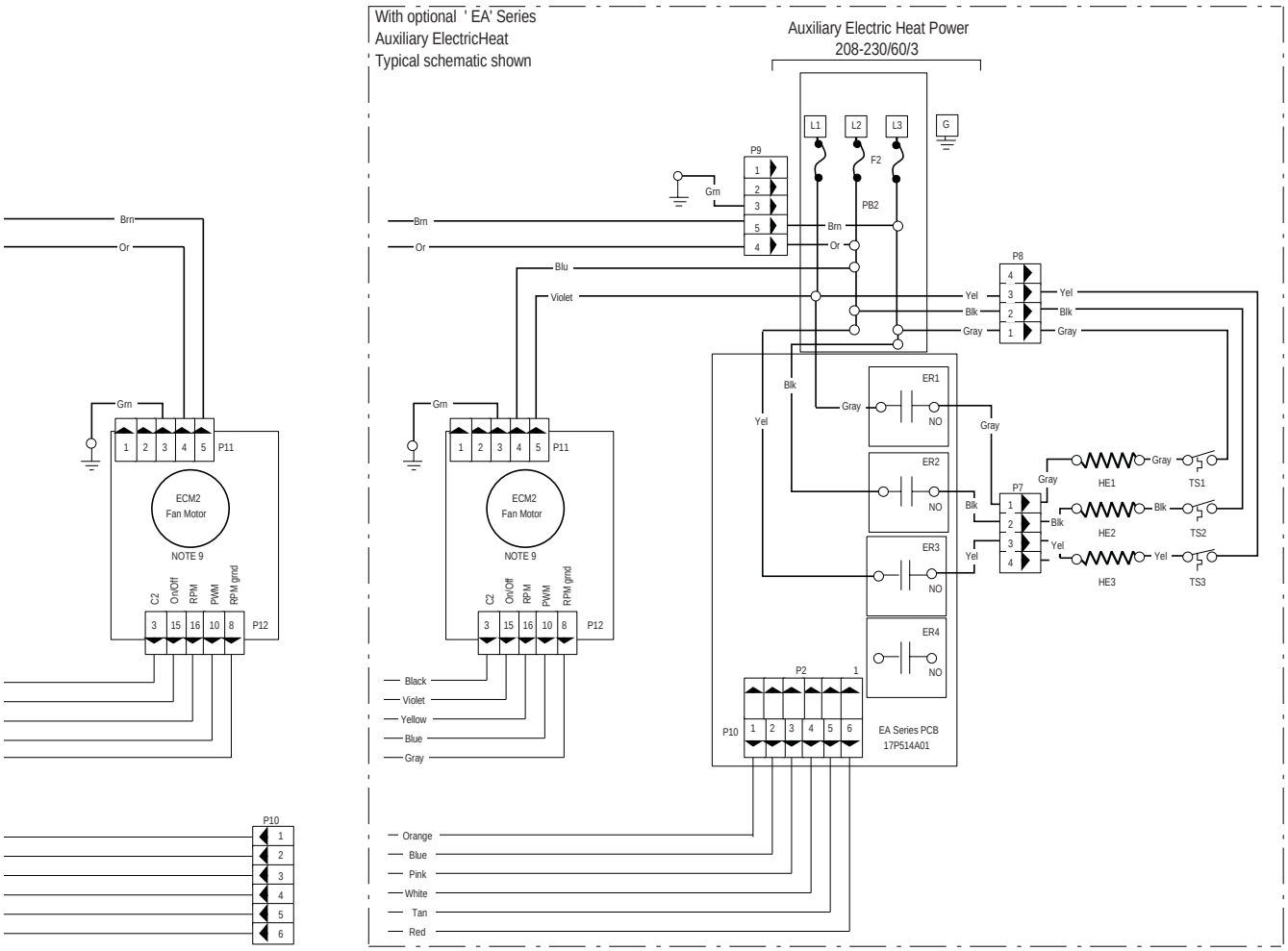
P Series - Single Speed Wiring Schematic - 208-230/60/3, ECM Blower

97P618-20 10/13/05

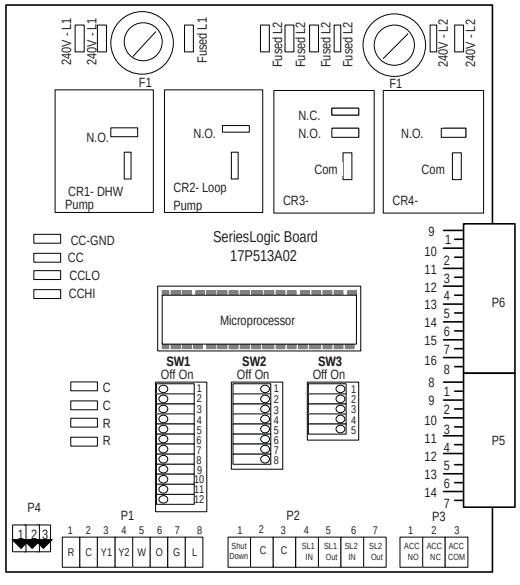


LED	Normal Display Mode	Diagnostic Modes			
		Current Fault Status	Inputs	Outputs	Outputs2
	Field Selection Dips - #1 On, #6 On, #7 On	#1 Off, #6 On, #7 On	#6 Off, #7 On	#6 On, #7 Off	#6 Off, #7 Off
Drain	Drain pan overflow Lockout	Drain pan overflow	Y1	Compressor	Blower Lo
Water Flow	FP thermistor (loop<15°F,well<30°F) Lockout	FP thermistor (loop<15°F, well<30°F)	Y2	Not Used	Blower Med
High Press	High Pressure > 380 PSI Lockout	High Pressure > 380 PSI	O	RV	Blower Hi
Low Press	Low Pressure < 15 PSI Lockout	Low Pressure < 15 PSI	G	FAN	Aux Heat #1
Air Flow	ECM2 RPM < 100 rpm Lockout	ECM2 RPM < 100 rpm	W	DHW Pump	Aux Heat #2
Status	Microprocessor malfunction*	Not Used	SL1	Loop Pump	AuxHeat #3
DHW Limit	HWL thermistor > 130°F	HWL thermistor > 130°F	Not Used	Not Used	Aux Heat #4
DHW off	DHW pump switch off	DHW pump switch off	--	--	--

*Green LED not flashing



Logic Board (Single-Speed Configuration) Physical Layout



Legend

Factory Low voltage wiring	Thermistor
Factory Line voltage wiring	Light emitting diode - Green
Field low voltage wiring	Relay coil
Field line voltage wiring	Capacitor w/ bleed resistor
Optional block	Switch - Condensate overflow
DC Voltage PCB traces	Switch - High pressure
Internal junction	Switch - Low pressure
Quick connect terminal	Switch -Hot Water On/Off
Wire nut	Polarized connector
Field wire lug	
Ground	
Relay Contacts- N.O., N.C.	
Fuse	

CS -	Current Switch
CC -	Compressor Contactor
CO -	Condensate overflow sensor
CR1 -	DHW pump relay
CR2-	Loop pump relay
CR3 -	PSC Fan Speed Relay
CR4 -	PSC Fan Power Relay
F1 and F2 -	Fuses
FP -	Freeze protection sensor
HE -	Heater element
HP -	High pressure switch
ER1 to ER4 -	Aux heat stage relays
LP -	Low pressure switch
PB1, PB2 -	Power blocks
PS -	Power strip
RV -	Reversing Valve coil
SW1 -	DIP package 12 position
SW2 -	DIP package 8 position
SW3 -	DIP package 5 position
SW4 -	Hot water pump enable switch
TS -	Thermal limit switch
HWL -	Hot water limit sensor

Notes:

1 - Place switch to 208V position to operate unit at 208V.

2 - Connection of remote unit that does not have a loop pump for slave operation

3 - 24V Accessory relay (see SW2 - 3 for description of operation)

4 - The blk/wh and gray/wh wires are removed when Aux Heat is installed (ECM2 only).

5 - Air Flow Configuration Example: SW1 configured for dip 3 as low, dip 5 as medium, and dip 7 as high speed ECM2 fan.

6 - SW3-4 should be in the OFF position when using ECM motor and 17P501A01 electric heat board and should be ON when using ECM2 with 17P514A01 electric heat board.

7 - When using thermostat TA32E12, SW2 -8 should be in the ON position. When using 24VAC thermostats, SW2-8 should be in the OFF position.

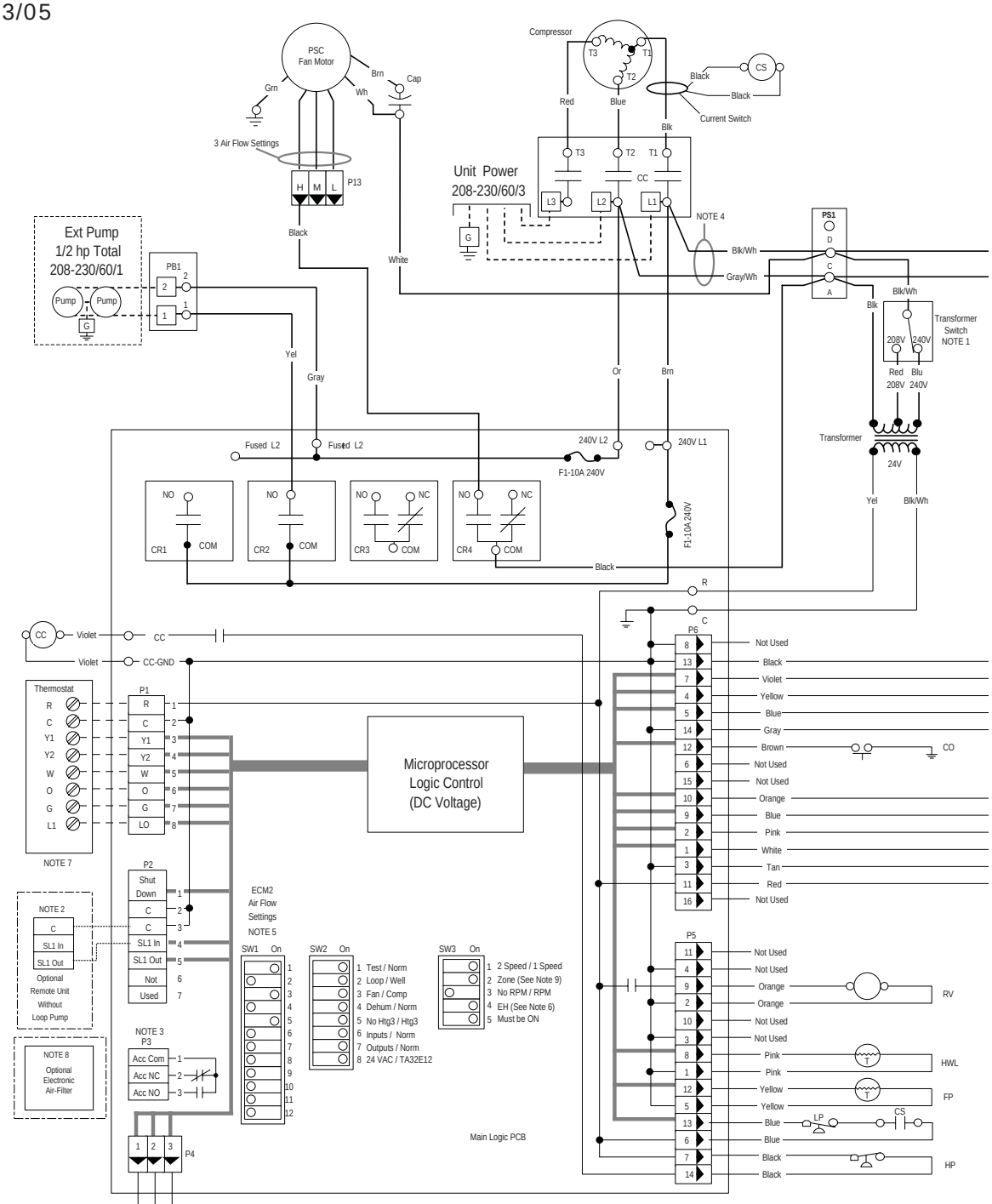
8 - When optional electronic air-filter is installed, power for the electronic air-filter is provided by P2-2 and 24 VAC.

9 - SW3-2 should be OFF to operate with zone control system and ON to operate with un-zoned system.

Wiring Schematics

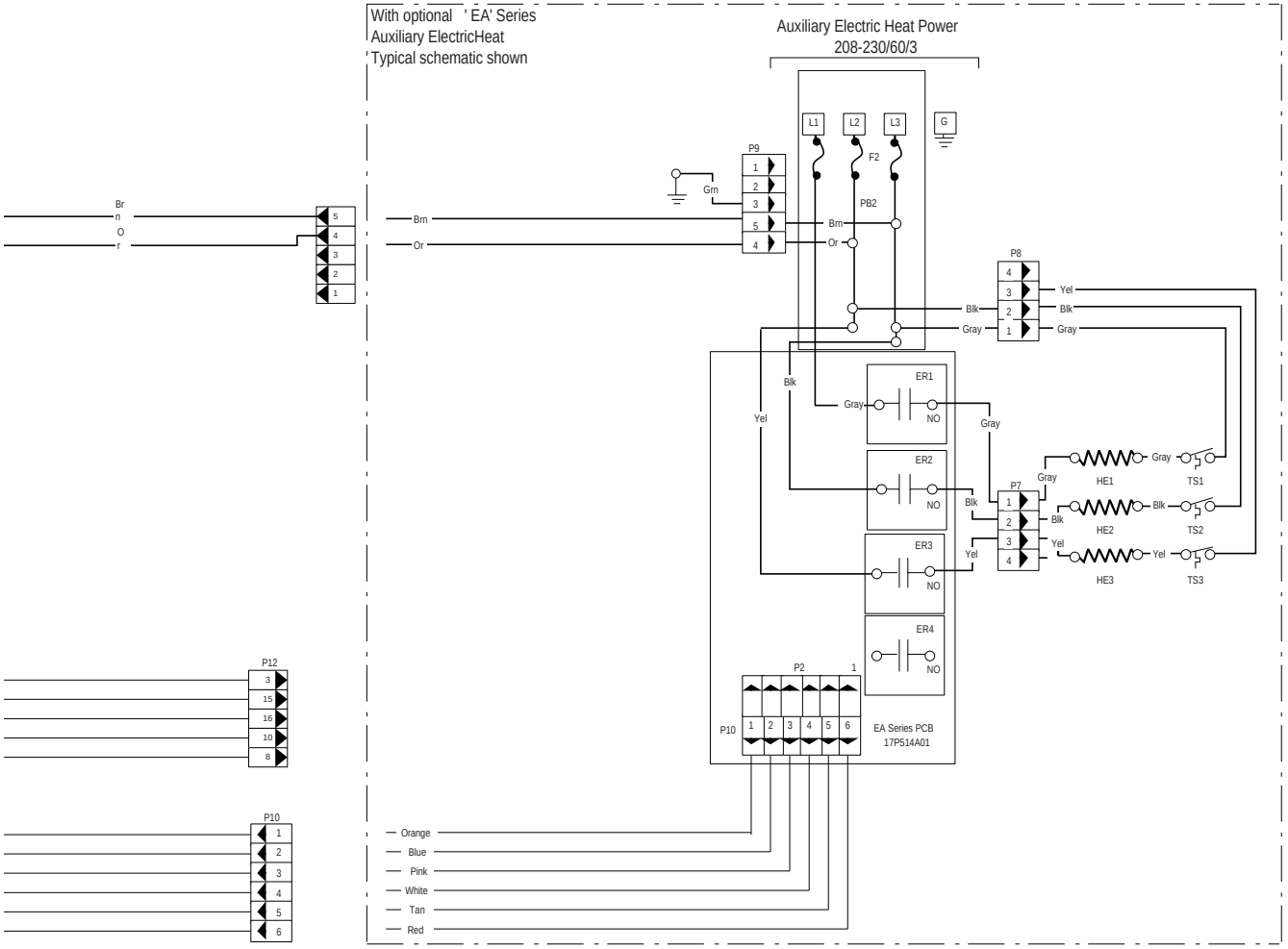
P Series - Single Speed Wiring Schematic - 208-230/60/3, PSC Blower

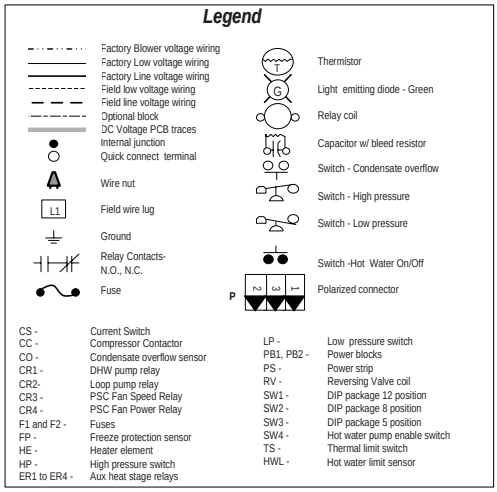
97P619-33 10/13/05

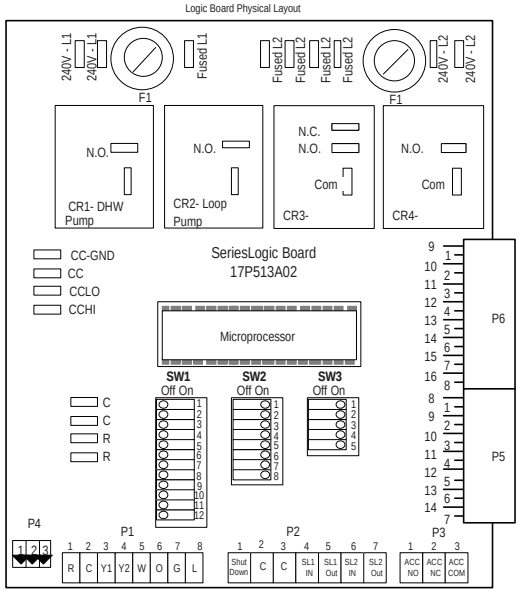


LED	Normal Display Mode	Diagnostic Modes			
		Current Fault Status	Inputs	Outputs	Outputs2
	Field Selection Dips - #1 On, #6 On, #7 On	#1 Off, #6 On, #7 On	#6 Off, #7 On	#6 On, #7 Off	#6 Off, #7 Off
Drain	Drain pan overflow Lockout	Drain pan overflow	Y1	Compressor	Blower Lo
Water Flow	FP thermistor (loop<15°F,well<30°F) Lockout	FP thermistor (loop<15°F, well<30°F)	Y2	Not Used	Blower Med
High Press	High Pressure > 380 PSI Lockout	High Pressure > 380 PSI	O	RV	Blower Hi
Low Press	Low Pressure < 15 PSI Lockout	Low Pressure < 15 PSI	G	FAN	Aux Heat #1
Air Flow	ECM2 RPM < 100 rpm Lockout	ECM2 RPM < 100 rpm	W	DHW Pump	Aux Heat #2
Status	Microprocessor malfunction*	Not Used	SL1	Loop Pump	AuxHeat #3
DHW Limit	HWL thermistor > 130°F	HWL thermistor > 130°F	Not Used	Not Used	Aux Heat #4
DHW off	DHW pump switch off	DHW pump switch off	--	--	--

*Green LED not flashing







Notes:

1 - Place switch to 208V position to operate unit at 208V.

2 - Connection of remote unit that does not have a loop pump for slave operation

3 - 24V Accessory relay (see SW2 - 3 for description of operation)

4 - The blk/wh and gray/wh wires are removed when Aux Heat is installed (ECM2 only).

5 - Air Flow Configuration Example: SW1 configured for dip 3 as low, dip 5 as medium, and dip 7 as high speed ECM2 fan.

6 - SW3-4 should be in the ON position when using Electric Heat control 17P514A01, and it should be in the OFF position when using Electric Heat control 17P501A01.

7 - When using thermostat TA32E12, SW2 -8 should be in the ON position. When using 24VAC thermostats, SW2-8 should be in the OFF position.

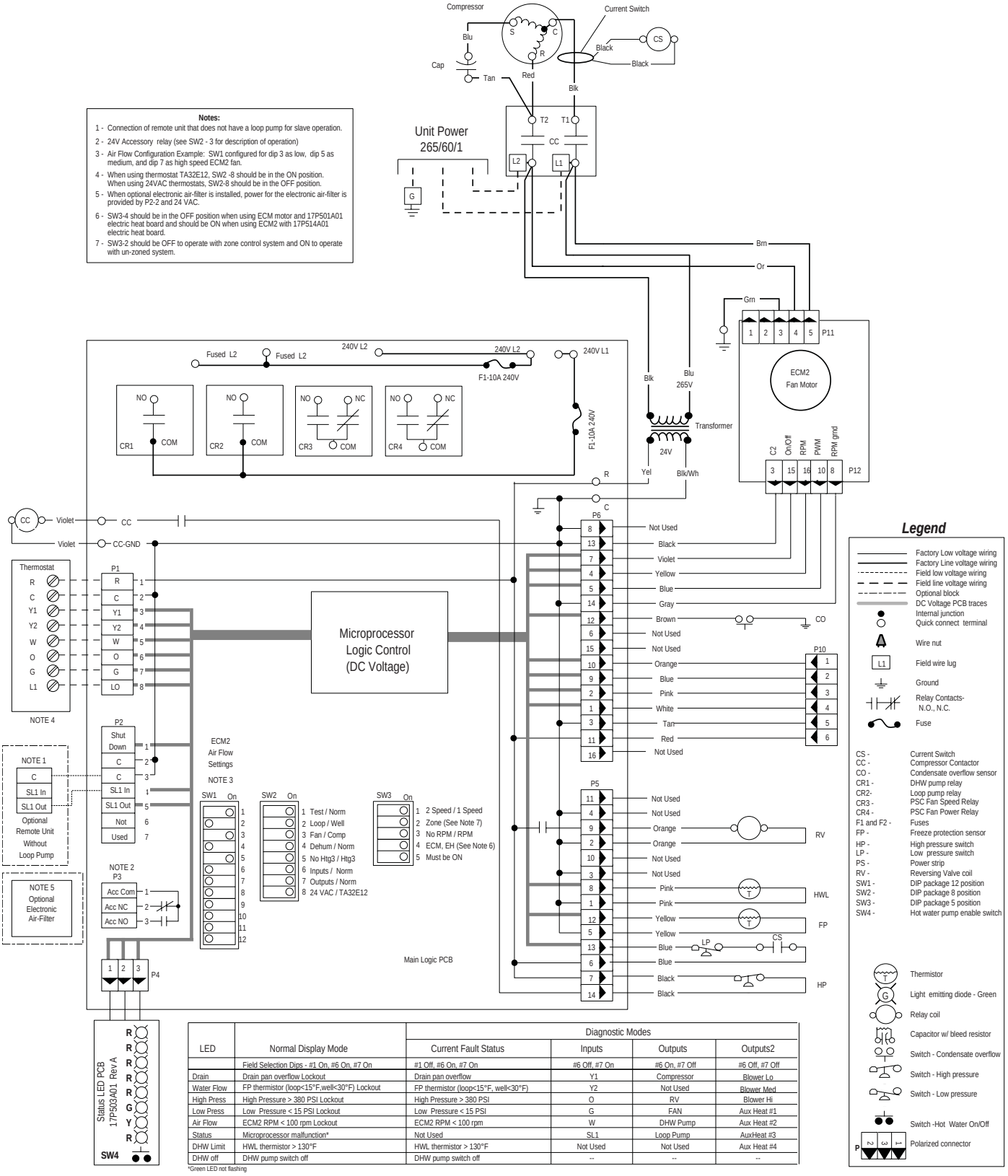
8 - When optional electronic air-filter is installed, power for the electronic air-filter is provided by P2-2 and 24 VAC.

9 - SW3-2 should be OFF to operate with zone control system and ON to operate with un-zoned system.

Wiring Schematics

P Series - Single Speed Wiring Schematic - 265/60/1, ECM Blower

97P618-15 10/13/05



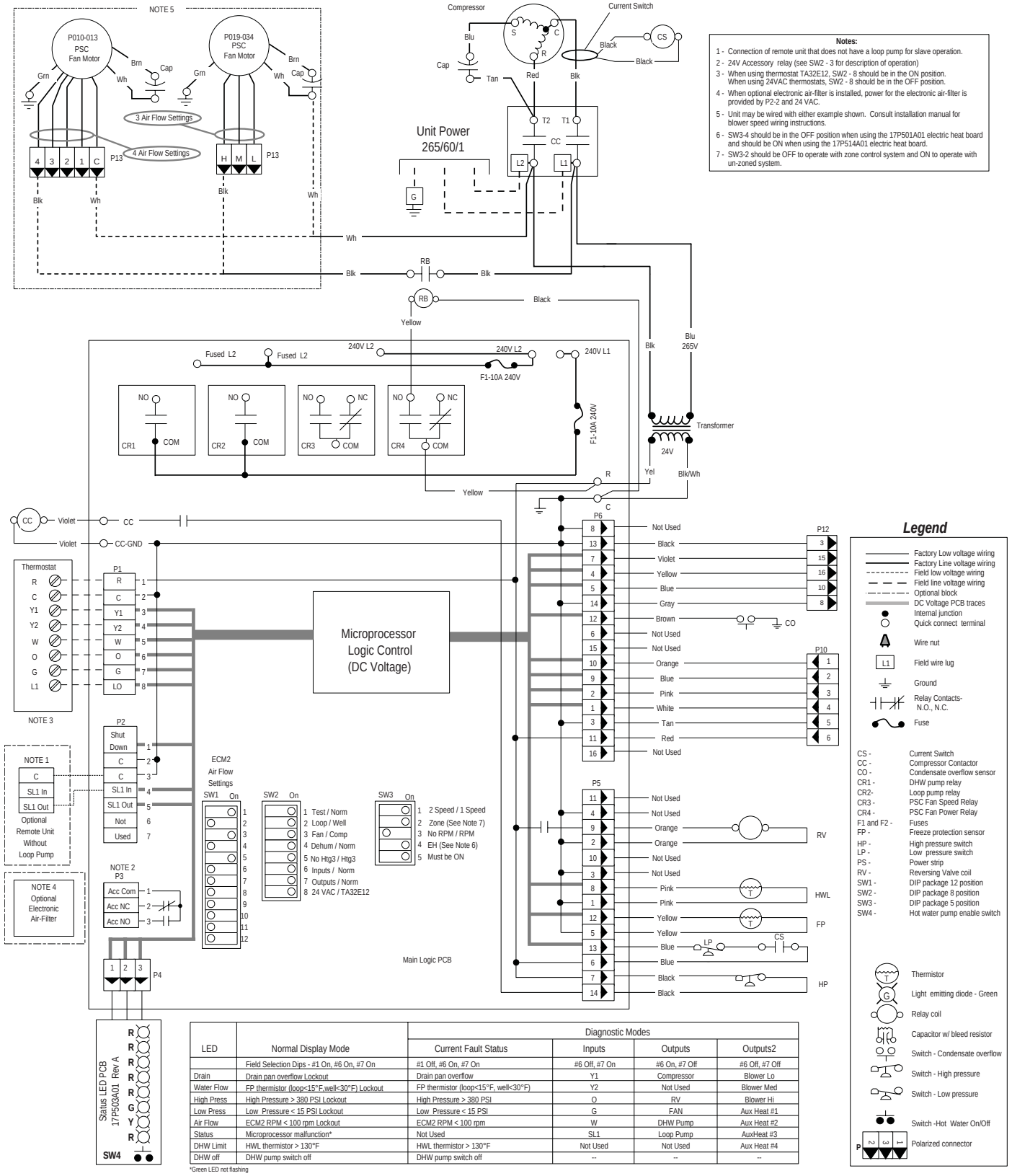
LED	Normal Display Mode	Diagnostic Modes			
		Current Fault Status	Inputs	Outputs	Outputs2
	Field Selection Dips - #1 On, #6 On, #7 On	#1 Off, #6 On, #7 On	#6 Off, #7 On	#6 On, #7 Off	#6 Off, #7 Off
Drain	Drain pan overflow Lockout	Drain pan overflow	Y1	Compressor	Blower Lo
Water Flow	FP thermistor (loop<15°F,well<30°F) Lockout	FP thermistor (loop<15°F, well<30°F)	Y2	Not Used	Blower Med
High Press	High Pressure > 380 PSI Lockout	High Pressure > 380 PSI	O	RV	Blower Hi
Low Press	Low Pressure < 15 PSI Lockout	Low Pressure < 15 PSI	G	FAN	Aux Heat #1
Air Flow	ECM2 RPM < 100 rpm Lockout	ECM2 RPM < 100 rpm	W	DHW Pump	Aux Heat #2
Status	Microprocessor malfunction*	Not Used	SL1	Loop Pump	AuxHeat #3
DHW Limit	HWL thermistor > 130°F	HWL thermistor > 130°F	Not Used	Not Used	Aux Heat #4
DHW off	DHW pump switch off	DHW pump switch off	--	--	--

*Green LED not flashing

Wiring Schematics

P Series - Single Speed Wiring Schematic - 265/60/1, PSC Blower

97P619-21 10/13/05



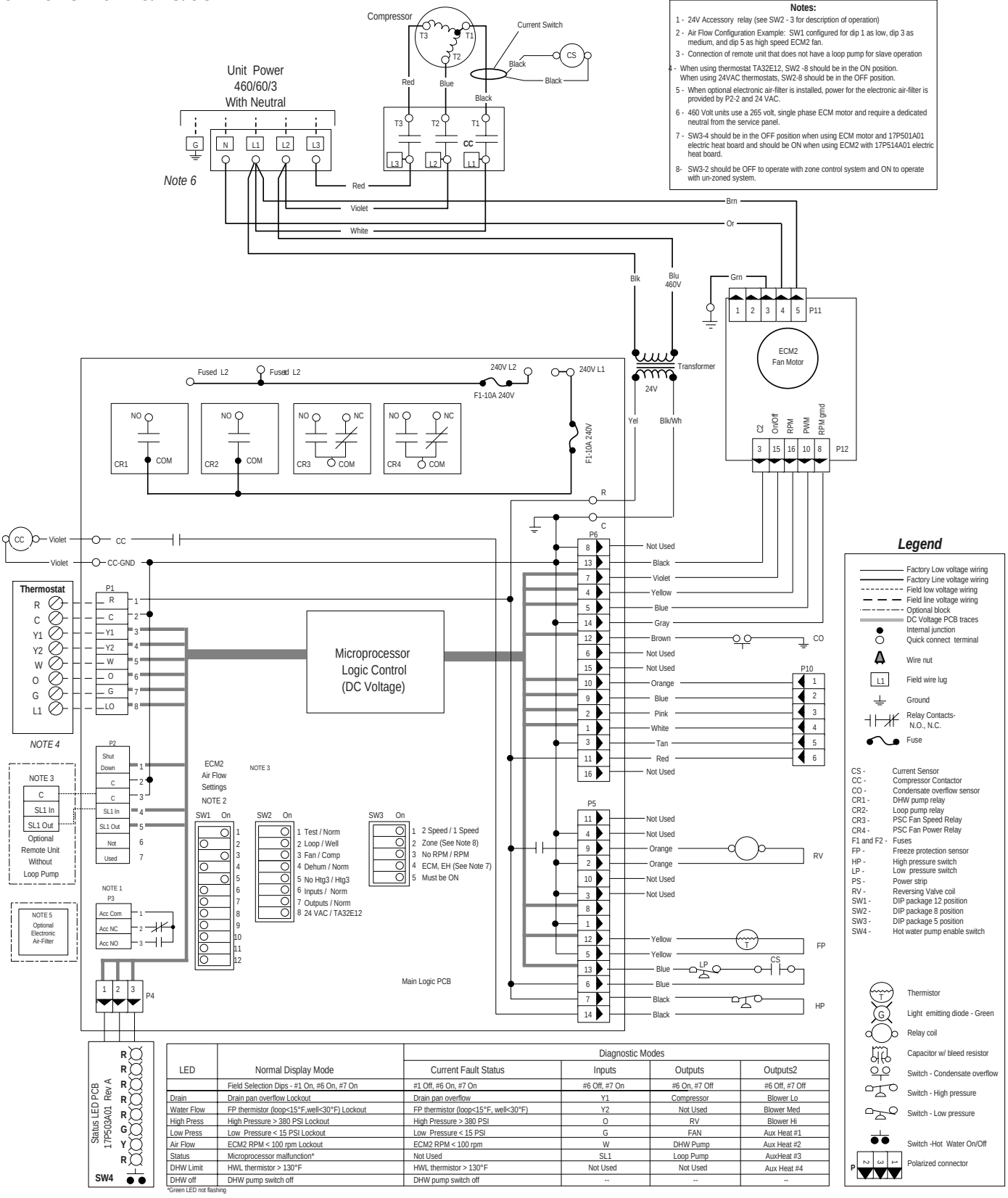
LED	Normal Display Mode	Diagnostic Modes			
		Current Fault Status	Inputs	Outputs	Outputs2
	Field Selection Dips - #1 On, #6 On, #7 On	#1 Off, #6 On, #7 On	#6 Off, #7 On	#6 On, #7 Off	#6 Off, #7 Off
Drain	Drain pan overflow Lockout	Drain pan overflow	Y1	Compressor	Blower Lo
Water Flow	FP thermistor (loop<15°F,well<30°F) Lockout	FP thermistor (loop<15°F, well<30°F)	Y2	Not Used	Blower Med
High Press	High Pressure > 380 PSI Lockout	High Pressure > 380 PSI	O	RV	Blower Hi
Low Press	Low Pressure < 15 PSI Lockout	Low Pressure < 15 PSI	G	FAN	Aux Heat #1
Air Flow	ECM2 RPM < 100 rpm Lockout	ECM2 RPM < 100 rpm	W	DHW Pump	Aux Heat #2
Status	Microprocessor malfunction*	Not Used	SL1	Loop Pump	AuxHeat #3
DHW Limit	HWL thermistor > 130°F	HWL thermistor > 130°F	Not Used	Not Used	Aux Heat #4
DHW off	DHW pump switch off	DHW pump switch off	--	--	--

*Green LED not flashing

Wiring Schematics

P Series - Single Speed Wiring Schematic - 460/60/3, ECM Blower

97P618-16 10/13/05



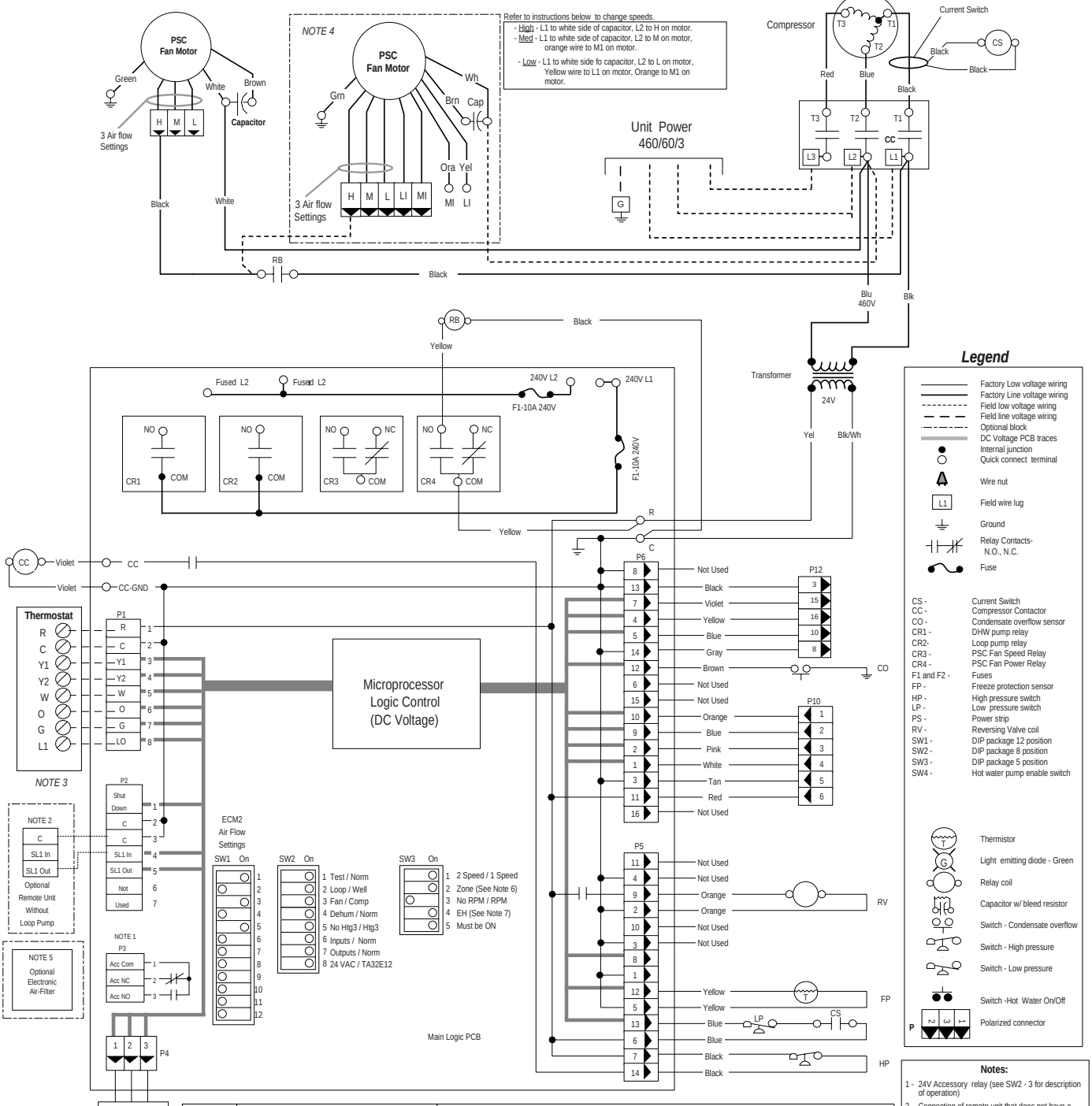
LED	Normal Display Mode	Diagnostic Modes			
		Current Fault Status	Inputs	Outputs	Outputs2
	Field Selection Dips - #1 On, #6 On, #7 On	#1 Off, #6 On, #7 On	#6 Off, #7 On	#6 On, #7 Off	#6 Off, #7 Off
Drain	Drain pan overflow Lockout	Drain pan overflow	Y1	Compressor	Blower Lo
Water Flow	FP thermistor (loop<15°F,well<30°F) Lockout	FP thermistor (loop<15°F, well<30°F)	Y2	Not Used	Blower Med
High Press	High Pressure > 380 PSI Lockout	High Pressure > 380 PSI	O	RV	Blower Hi
Low Press	Low Pressure < 15 PSI Lockout	Low Pressure < 15 PSI	G	FAN	Aux Heat #1
Air Flow	ECM2 RPM < 100 rpm Lockout	ECM2 RPM < 100 rpm	W	DHW Pump	Aux Heat #2
Status	Microprocessor malfunction*	Not Used	SL1	Loop Pump	AuxHeat #3
DHW Limit	HWL thermistor > 130°F	HWL thermistor > 130°F	Not Used	Not Used	Aux Heat #4
DHW off	DHW pump switch off	DHW pump switch off	--	--	--

*Green LED not flashing

Wiring Schematics

P Series - Single Speed Wiring Schematic - 460-575/60/3, PSC Blower

97P619-22 10/13/05



Legend

- Factory Low voltage wiring
- Factory Line voltage wiring
- Field low voltage wiring
- Field line voltage wiring
- Optional block
- DC Voltage PCB traces
- Internal junction
- Quick connect terminal
- Wire nut
- Field wire lug
- Ground
- Relay Contacts- N.O., N.C.
- Fuse

CS -	Current Switch
CC -	Compressor Contactor
CO -	Condensate overflow sensor
CR1 -	DHW pump relay
CR2-	Loop pump relay
CR3 -	PSC Fan Speed Relay
CR4 -	PSC Fan Power Relay
F1 and F2 -	Fuses
FP -	Freeze protection sensor
HP -	High pressure switch
LP -	Low pressure switch
PS -	Power strip
RV -	Reversing Valve coil
SW1 -	DIP package 12 position
SW2 -	DIP package 8 position
SW3 -	DIP package 5 position
SW4 -	Hot water pump enable switch

- Thermistor
- Light emitting diode - Green
- Relay coil
- Capacitor w/ bleed resistor
- Switch - Condensate overflow
- Switch - High pressure
- Switch - Low pressure
- Switch -Hot Water On/Off
- Polarized connector

LED	Normal Display Mode	Diagnostic Modes			
		Current Fault Status	Inputs	Outputs	Outputs2
	Field Selection Dips - #1 On, #6 On, #7 On	#1 Off, #6 On, #7 On	#6 Off, #7 On	#6 On, #7 Off	#6 Off, #7 Off
Drain	Drain pan overflow Lockout	Drain pan overflow	Y1	Compressor	Blower Lo
Water Flow	FP thermistor (loop<15°F,well<30°F) Lockout	FP thermistor (loop<15°F, well<30°F)	Y2	Not Used	Blower Med
High Press	High Pressure > 380 PSI Lockout	High Pressure > 380 PSI	O	RV	Blower Hi
Low Press	Low Pressure < 15 PSI Lockout	Low Pressure < 15 PSI	G	FAN	Aux Heat #1
Air Flow	ECM2 RPM < 100 rpm Lockout	ECM2 RPM < 100 rpm	W	DHW Pump	Aux Heat #2
Status	Microprocessor malfunction*	Not Used	SL1	Loop Pump	AuxHeat #3
DHW Limit	HWL thermistor > 130°F	HWL thermistor > 130°F	Not Used	Not Used	Aux Heat #4
DHW off	DHW pump switch off	DHW pump switch off	--	--	--

*Green LED not flashing

Notes:

1 - 24V Accessory relay (see SW2 - 3 for description of operation)

2 - Connection of remote unit that does not have a loop pump for slave operation.

3 - When using thermostat TA32E12, SW2 - 8 should be in the ON position. When using 24VAC thermostats, SW2 - 8 should be in the OFF position.

4 - Some fan motors may be terminated and wired with either example shown. Refer to instructions on motor to change speeds.

5 - When optional electronic air-filter is installed, power for the electronic air-filter is provided by P2-2 and 24 VAC.

6 - SW3 - 2 should be OFF to operate with zone control system and ON to operate with un-zoned system.

7 - SW3-4 should be in the OFF position when using the 17P501A01 electric heat board and should be ON when using the 17P514A01 electric heat board.

Fan Performance Data

ECM2 Motor

MODEL	MAX ESP	AIRFLOW DIP SWITCH SETTINGS											
		1	2	3	4	5	6	7	8	9	10	11	12
P019	0.5	300	400 L	500 M	600 H	700	800	–	–	–	–	–	–
P022	0.5	–	400	500 L	600 M	700 H	800	900	–	–	–	–	–
P028	0.5	–	400	500 L	600	700 M	800	900 H	1000	1100	–	–	–
P034	0.5	–	–	–	600	700 L	800	900 M	1000	1100 H	1150	1225	1300
P040	0.5	650	750	850 L	950	1050 M	1150	1250	1325 H	1375	1475	–	–
P046	0.5	650	750	850	950	1050 L	1150	1250 M	1325	1375	1475	1550 H	1600
P040 w/1hp*	0.75	800 L	1000 M	1100	1300 H	1500	–	–	–	–	–	–	–
P046 w/1hp*	0.75	800	1000 L	1100 M	1300	1500 H	1600	1800	–	–	–	–	
P056	0.75	750	900	1000	1200 L	1400 M	1600	1700	1850 H	2000	2200	2300	2400
P066	0.75	750	900	1000	1200	1400 L	1600	1700 M	1850	2000	2200 H	2300	2400

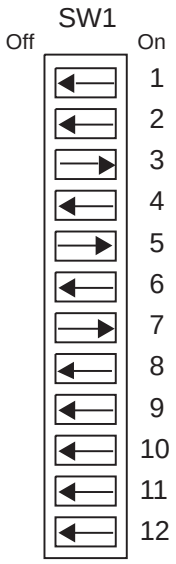
Notes: Factory settings are at recommended L-M-H DIP switch locations.
Factory L setting is minimum allowed for cooling.
M-H settings must be located within shaded CFM range.
CFM is controlled within 5% up to the maximum ESP.
Max ESP includes allowance for wet coil and standard filter.
* With optional 1 HP fan motor.

A 12-position DIP switch package on the control allows the airflow levels to be set for low, medium, and high speed when using the ECM2 blower motor. Only three of the DIP switches can be in the "on" position.

- The first "on" switch (the lowest position number) determines the low speed fan setting.
- The second "on" switch determines the medium speed fan setting.
- The third "on" switch determines the high speed fan setting.

The example to the right shows SW1 on the control board configured for the following P028 airflow settings.

Low Speed Fan: 500 CFM
Medium Speed Fan: 700 CFM
High Speed Fan: 900 CFM



Fan Performance Data

PSC Motor

MODEL	FAN SPEED	MOTOR HP	AIRFLOW (CFM) AT EXTERNAL STATIC PRESSURE (IN. WG)														
			0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.60	0.70	0.80	0.90	1.00
P010	H	1/10	450	440	420	410	380	360	340	330	310	300	–	–	–	–	–
	MH		410	400	380	370	350	330	310	300	280	270	–	–	–	–	–
	ML*		370	360	340	330	310	290	280	270	250	240	–	–	–	–	–
	L		310	300	280	270	250	240	230	220	210	200	–	–	–	–	–
P013	H	1/10	450	440	420	410	390	370	350	340	320	310	–	–	–	–	–
	MH*		400	390	380	370	350	340	320	310	290	280	–	–	–	–	–
	ML		370	360	340	330	310	300	290	280	260	250	–	–	–	–	–
	L		330	320	310	300	290	280	260	250	230	220	–	–	–	–	–
P019	H	1/6	790	780	775	770	765	760	740	720	690	670	610	–	–	–	–
	M		720	690	685	680	670	660	650	640	620	600	–	–	–	–	–
	L		590	570	560	550	545	540	530	520	510	500	–	–	–	–	–
P022	H	1/5	1020	990	960	930	900	870	850	830	800	770	690	–	–	–	–
	M		860	840	820	800	780	760	740	720	690	670	–	–	–	–	–
	L		720	700	680	650	640	620	600	580	570	550	–	–	–	–	–
P028	H	1/3	1120	1100	1070	1050	1040	1030	1020	1010	1000	980	830	–	–	–	–
	M		1020	1000	980	960	920	880	860	840	820	790	–	–	–	–	–
	L		860	850	840	830	810	800	780	760	740	710	–	–	–	–	–
P034	H	1/2	1360	1340	1300	1270	1230	1200	1170	1150	1120	1090	990	870	–	–	–
	M		1190	1170	1140	1120	1090	1060	1030	1010	970	930	–	–	–	–	–
	L		1010	990	970	950	940	920	900	880	860	840	–	–	–	–	–
P040	H	1/2	–	–	1730	1700	1670	1650	1620	1580	1540	1490	1400	1290	–	–	–
	M		1510	1500	1490	1480	1450	1430	1400	1380	1350	1320	–	–	–	–	–
	L		1170	1160	1150	1140	1130	1120	1100	1080	1050	1030	–	–	–	–	–
P046	H	1/2	–	–	1870	1820	1780	1750	1720	1680	1630	1580	1450	1330	1190	–	–
	M		1710	1660	1630	1590	1560	1530	1490	1460	1410	1370	–	–	–	–	–
	L		1280	1250	1230	1220	1200	1180	1150	1120	1090	1050	–	–	–	–	–
P056	H	3/4	–	–	–	–	2180	2160	2130	2100	2070	2040	1990	1910	1810	1690	–
	M		2030	2010	1990	1970	1950	1930	1910	1880	1850	1830	1780	–	–	–	–
	L		1790	1770	1760	1750	1730	1720	1700	1690	1670	1640	–	–	–	–	–
P066	H	1	–	–	–	–	2540	2520	2490	2460	2430	2410	2320	2230	2130	1980	1820
	M		2430	2390	2360	2340	2310	2290	2270	2250	2220	2190	2120	2050	–	–	–
	L		2000	1980	1970	1950	1930	1920	1900	1860	1830	1780	–	–	–	–	–

Notes: Includes allowance for wet coil and clean factory installed filter.
A " – " in the table indicates operating range is not recommended.
Factory settings indicated in bold print.
* At 265V, the P010 is shipped on ML and the P013 on MH.

Standard Microprocessor Control Operation

The Premier control system is a microprocessor-based printed circuit board conveniently located in the unit control box for easy accessibility. The microprocessor provides control of the entire unit as well as outputs for status modes, faults, and diagnostics. Low voltage terminal strips provide all necessary terminals for field connections. LEDs are located on the front of the unit for quick inspection without removing any access panels. The control offers optimal space conditioning. The board accepts traditional 24VAC thermostat inputs.

Startup

The unit will not operate until all the inputs and safety controls are checked for normal conditions. At first power-up, a four-minute delay is employed before the compressor is energized.

Component Sequencing Delays

Components are sequenced and delayed for optimum space conditioning performance.

Accessory Relay

An accessory relay on the control board allows for field connection of solenoid valves, electronic air cleaners, etc. The accessory relay has a normally open output and a normally closed output. The accessory relay is factory set to control the optional electronic air-cleaner.

Short Cycle Protection

The control employs a minimum “off” time of four minutes and a minimum “on” time of two minutes to provide for short cycle protection of the compressor.

Loop Pump SL Signals

A signal between multiple Premier control boards at the SL inputs and outputs (SL1-In and Out) will provide for remote control of the loop pump on any unit.

Condensate Overflow Protection

The Premier control board incorporates an impedance sensing liquid sensor at the top of the drain pan. Upon a continuous 30-second sensing of the condensate, compressor operation is suspended (see fault retry), the condensate overflow lockout LED begins flashing, and an output signal (LO) is made available for conneciton to a “fault” LED at the thermostat.

Shutdown Input

A simple grounded signal to the “shutdown” input on the control board puts the unit into shutdown mode. Compressor, hot water pump and fan operaiotn are suspended

Safety Controls

The Premier control receives separate signals for a high pressure switch for safety, a low pressure switch to prevent loss of charge damage, and a low suction temperature thermistor for freeze protection. Upon a continuous 30-second measurement of the fault (immediate for high pressure), compressor operation is suspended (see fault retry), the appropriate lockout LED begins flashing, and an output signal (LO) is made available for connection to a “fault” LED at the thermostat.

Testing

The Premier control allows service personnel to shorten most timing delays for faster diagnostics (see field selection DIP switch #1).

Standard Microprocessor Control Operation

Fault Retry

All faults (except for low RPM fault with the ECM2 fan motor) are retried twice before finally locking the unit out. The "fault retry" feature is designed to prevent nuisance calls.

Diagnostics

The Premier control board allows all inputs and outputs to be displayed on the LEDs for fast and simple control board diagnosis (see field selection DIP switches #6 and #7).

Resistance Heat Control

For units equipped with internal electric heaters, the electric heat control module contains the appropriate high-voltage control relays. Control signals energize the relays in the proper sequence, and the LED display board indicates which stages are energized.

Fan Speed Control

A DIP switch on the Premier control allows field selection of low and medium fan speeds for cooling in the dehumidification mode or medium and high fan speeds for cooling in the normal mode (ECM2 version only).

Hot Water High Limit

This mode occurs when the hot water thermistor temperature is at or above 130°F for 30 continuous seconds. The DHW limit status LED on the unit illuminates, and the hot water pump de-energizes. Hot water pump operations resume on the next compressor cycle or after 30 minutes of continuous compressor operation during the current thermostat demand cycle.

Hot Water Pump Switch

When the pump switch is engaged, hot water pump operation is disabled, and the pump status LED on the unit illuminates.

ECM2 Airflow Selection DIP Switches (SW1)

A 12-position DIP switch package on the Premier control allows the airflow levels to be set for low, medium and high speed when using the ECM2 blower motor (refer to the Blower table on page 28).

Only three of the DIP switches can be in the "on" position. The first "on" switch (the lowest position number) determines the "low speed fan" setting. The second "on" switch determines the "medium speed fan" setting, and the third "on" switch determines the "high speed fan" setting.

DIP Switch Settings

Field Selection DIP Switches (SW2)

An eight-position DIP switch package on the control allows the field selectable options shown in the table below.

FIELD SELECTION DIP SWITCHES (SW2)				
DIP SWITCH NUMBER		**DESCRIPTION**	**OFF POSITION**	**ON POSITION**
SW 2-	**1**	**Service Test Mode** Allows field selection of “normal” or “test” operational modes. Test mode accelerates most timing functions 16 times to allow faster troubleshooting. Test mode also allows viewing the current status of the fault inputs on the LED display.	Test Mode	Normal Timing Operation
SW 2-	**2**	**Freeze Protection Setting** Allows field selection of freeze thermistor fault sensing temperatures for well water (30°F) or antifreeze-protected (15°F) earth loops.	Loop Water Freeze Protection 15°F	Well Water Freeze Protection 30°F
SW 2-	**3**	**Accessory Relay** Allows field selection of the accessory relay to operate with the compressor or fan.	Acc Relay Tracks Fan	Acc Relay Tracks Compressor
SW 2-	**4**	**Fan Speed Control** Allows field selection of reduced fan speed (85% of selected medium and high speed - ECM only) for cooling in the dehumidification mode.	Dehumidification Fan Speeds	Normal Fan Speeds
SW 2-	**5**	**Auxiliary Off** Disables third-stage heating. Full emergency heat would still be available if needed.	Disable Heating Stage 3	Enable Heating Stage 3
SW 2-	**6**	**Diagnostics-Inputs** Allows viewing the inputs from the thermostat to the control board such as Y1, Y2, O, G, W, and SL1-In on the LED display.	Diagnostic Inputs/Output Viewed at LEDs	Normal Display Viewd at LEDs
SW 2-	**7**	**Diagnostics-Outputs** Allows viewing the outputs from the control board such as compressor, reversing valve, blower, hot water pump, and loop pump on the LED display	Diagnostic Outputs Viewed at LEDs	Normal Display Viewed at LEDs
SW 2-	**8**	**Thermostat Selection** Allows field seleciton of the type of thermostat being connected to the Premier control. The DIP switch should be in the “off” position for 24VAC thermostats.	24 VAC Thermostats	N/A

DIP Switch Settings

Factory Setup DIP Switches (SW3)

A five-position DIP switch package on the control allows the field selectable options shown in the table below.

FACTORY SETUP DIP SWITCHES (SW3)				
DIP SWITCH NUMBER		**DESCRIPTION**	**OFF POSITION**	**ON POSITION**
SW 3-	**1**	**Single-Speed** Configures the control for single-speed compressor operation and should always be left in the “ON” position.	Two-Speed Operation	Single-Speed Operation
SW 3-	**2**	**Zoned/Finish on Second Stage** Configures control to operate with zoned or un-zoned systems	Zoned Systems	Un-Zoned Systems
SW 3-	**3**	**No RPM/RPM** Configures the control to monitor the RPM output of an ECM/ECM2 blower motor. When using IntelliZone with a PSC fan motor, the control should be configured for “NO RPM” sensing.	PSC Fan/RPM Monitoring Disabled	ECM2 Fan/RPM Monitoring Enabled
SW 3-	**4**	**AT EH Board and ECM/Premier2 EH Board and ECM2** Configures the control to operate with electric heat control board (17P501A01) and ECM motor or with electric heat board (17P514A01) and ECM2	Electric Heat Control - 17P501A01	Electric Heat Control - 17P514A01
SW 3-	**5**	**Must be on**	Future Use	Normal

FX10 Control Operation
(Optional Microprocessor)

FX10 Advanced Control

The Johnson Controls FX10 board is specifically designed for commercial heat pumps and provides control of the entire unit as well as input ports for Open N2, LonTalk, BacNet communication protocols as well as an input port for a user interface. The user interface is an accessory item that can be used to aid in diagnostics and unit setup. A 16-pin low voltage terminal board provides terminals for common field connections. The FX10 Control provides:

- Operational sequencing
- High and low-pressure switch monitoring
- General lockout
- Freeze protection
- Condensate overflow sensing
- Lockout mode control
- Emergency shutdown mode
- Random start and short cycle protection

Short Cycle Protection

Allows a minimum compressor "off" time of four minutes and a minimum "on" time of two minutes.

Random Start

A delay of 1 to 120 seconds is generated after each power-up to prevent simultaneous startup of all units within a building after the release from an unoccupied cycle or power loss.

Emergency Shutdown

A field-applied dry contact can be used to place the control into emergency shutdown mode. During this mode, all outputs on the board are disabled.

Freeze Protection

Field selectable for 15° or 30°F (-9° or -1°C)

Installation Options

- Stand-alone controlled by standard room thermostat
- Stand-alone with a Zone Temperature Sensor (must have user interface to change set points beyond the allowed +/- 5°F)
- Integrated into BAS by adding communication module

Inputs/Outputs

- 6 Analog Inputs
- 12 Digital Inputs
- 9 Digital Output Relays (or 7 relays & 2 triacs)

Accessory Outputs

Quantity 2. One cycled with fan, other with compressor.

Main FX10 Board
(Shown with optional communication card)

User Interface

4 x 20 backlit LCD.

Optional Plug-in Communication Modules -
(compatible with standard BAS protocols)

- Open N2
- LonTalk
- BacNet

Display

Requires DLI Card/Kit. Up to 2 displays, either 1 local and 1 remote, or 2 remote. (A 2-display configuration requires identical displays.) Local display can be up to 3 meters from the controller, power supply, and data communication. Remote display can be up to 300 meters from the controller. Remote display must be independently powered with data communication done via 3 pole shielded cable.

Control Timing & Fault Recognition Delays

Lead compressor "ON" delay	30 seconds
Lag compressor "ON" delay (not applicable for single compressor models)	60 seconds
Minimum compressor "ON" time (except for fault condition)	2 minutes
Short cycle delay	4 minutes
Random start delay	0-120 seconds
High pressure fault	<1 second
Low pressure fault	30 seconds
Freeze protection fault	30 seconds
Condensate overflow fault	30 seconds
Low pressure fault bypass	2 minutes
Freeze protection fault bypass	2 minutes

Note: Refer to Submittal Data SD1981, Application Guide AGFX10, or BACnet Protocol Implementation Conformance Statement for more information.

Startup Procedures

Before Powering Unit, Check The Following:

- High Voltage is correct and matches nameplate.
- Fuses, breakers and wire size correct.
- Low voltage wiring complete.
- Piping completed and water system cleaned and flushed.
- Air is purged from closed loop system.
- Isolation valves are open, water control valves or loop pumps wired.
- Condensate line open and correctly pitched.
- Black/white and gray/white wires in unit control box have been removed if auxiliary heat has been installed in models 019-066.
- Dip switches are set correctly.
- DHW pump switch is “OFF” unless piping is completed and air has been purged.
- Blower rotates freely – foam shipping support has been removed.
- Blower speed correct (DIP switch setting ECM blowers only).
- Air filter/cleaner is clean and in position.
- Service/access panels are in place.
- Return air temperature is between 50-80ºF heating and 60-95ºF cooling.
- Air coil is clean.

Startup Steps

Note: Complete the Equipment Startup/Commissioning Check Sheet during this procedure. Refer to thermostat operating instructions and complete the startup procedure.

1. Initiate a control signal to energize the blower motor. Check blower operation. Desuperheater pump should be de-energized.
2. Initiate a control signal to place the unit in the cooling mode. Cooling setpoint must be set below room temperature.
3. First stage cooling will energize after a time delay.
4. Be sure that the compressor and water control valve or loop pump(s) are activated.
5. Verify that the water flow rate is correct by measuring the pressure drop through the heat exchanger using the P/T plugs and comparing to unit capacity data in specification catalog.
6. Check the temperature of both the supply and discharge water. (Refer to the table on page 37.)
7. Check for an air temperature drop of 15°F to 20°F across the air coil, depending on the fan speed and entering water temperature.
8. Decrease the cooling set point several degrees and verify high-speed blower operation.
9. Adjust the cooling setpoint above the room temperature and verify that the compressor and water valve or loop pumps deactivate.
10. Initiate a control signal to place the unit in the heating mode. Heating setpoint must be set above room temperature.
11. First stage heating will energize after a time delay.
12. Check the temperature of both the supply and discharge water. (Refer to the table on page 37.)
13. Check for an air temperature rise of 20°F to 35°F across the air coil, depending on the fan speed and entering water temperature.
15. If auxiliary electric heaters are installed, increase the heating setpoint until the electric heat banks are sequenced on when the thermostat is in the Emergency Heat mode. Check amperage of each element.
16. Adjust the heating setpoint below room temperature and verify that the compressor and water valve or loop pumps deactivate.
17. During all testing, check for excessive vibration, noise or water leaks. Correct or repair as required.
18. Set system to desired normal operating mode and set temperature to maintain desired comfort level.
19. Instruct the owner/operator in the proper operation of the thermostat and system maintenance.

Description of Unit Operation

Note: Fan speed operation below applies only to units equiped with ECM blower motors.

Heating Operation

Heat, 1st Stage (Y1)

The fan motor is started on low speed immediately, the loop pump is energized 5 seconds after the “Y1” input is received, and the compressor is energized on low capacity 10 seconds after the “Y1” input. The fan is switched to medium speed 15 seconds after “Y1” input. The hot water pump is cycled 30 seconds after the “Y1” input.

Heat, 2nd Stage (Y1, Y2)

The hot water pump is de-energized, which directs all heat to satisfying the thermostat, and the fan changes to high speed 15 seconds after the “Y2”input.

Heat, 3rd Stage (Y1, Y2, W)

The first stage of resistance heat is energized 10 seconds after “W” input, and with continuous 3rd stage demand, the additional stages of resistance heat engage sequentially every 5 minutes.

Emergency Heat

The fan is started on high speed, and the first stage of resistance heat is energized 10 seconds after the “W” input. Continuing demand will engage the additional stages of resistance heat sequentially every 2 minutes.

Cooling Operation

In all cooling operations, the reversing valve directly tracks the “O” input. Thus, anytime the “O” input is present, the reversing valve will be energized.

Cool, 1st Stage (Y1,O)

The fan motor is started on low speed immediately, the loop pump is energized 5 seconds after the “Y1” input is received, and the compressor is energized 10 seconds after the “Y1” input. In the ECM2 version, the fan is switched to medium speed 15 seconds after “Y1” input (remains in low speed if in dehumidification mode). The hot water pump is cycled 30 seconds after the “Y1” input.

Cool, 2nd Stage (Y1, Y2, O)

The fan changes to high speed (85% of high speed if in dehumidification mode) 15 seconds after the “Y2” input.

Fan (G only)

The fan starts on low speed. Regardless of fan input “G” from thermostat, the fan will remain on low speed for 30 seconds at the end of each heating, cooling or emergency heat cycle.

Lockout Conditions

During lockout mode, the appropriate unit and thermostat lockout LEDs will illuminate. The compressor, loop pump, hot water pump, and accessory outputs are de-energized. Unless the lockout is caused by an ECM2 low RPM fault, the fan will continue to run on low speed. If the thermostat calls for heating, emergency heat operation will occur.

Lockout modes of any kind can be reset at the thermostat after a 5-second waitinng perioud, which restores normal operation but keeeps the unit lockout LED illuminated. Interruption of power to the unit will reset a lockout without a waiting period and clear all lockout LEDs.

High Pressure

This lockout mode occurs when the normally closed safety switch is opened momentarily.

Low Pressure

This lockout mode occurs when the normally closed low pressure switch is opened for 30 continuous seconds.

Freeze Protection (Water Flow)

This lockout mode occurs when the freeze thermistor temperature is at or below the selected freeze protection point (well 30°F or loop 15°F) for 30 continuous seconds.

Condensate Overflow

This lockout mode occurs when the condensate overflow level has been reached for 30 continuous seconds.

Fan RPM

When equipped with an ECM2 fan motor, the Premier control board monitors fan RPM to sense operation. This lockout mode occurs if the fan RPM falls below the low RPM limit (100 RPM) for 30 continuous seconds.

Operation Logic

OPERATION LOGIC DATA	HEATING				COOLING		FAN ON	SL1 - IN ON
	STG1	STG2	STG3	EMERG	STG1	STG2		
Compressor	On	On	On	Off	On	On	–	–
ECM2 Normal	Med	High	High	High	Med	High	Low	–
ECM2 Dehumidify	Med	High	High	High	Low	Med	Low	–
PSC	Low	High	High	High	Low	High	–	–
Rev Valve	Off	Off	Off	Off	On	On	–	–
Loop Pump	On	On	On	Off	On	On	–	On
DHW Pump	On	Off	Off	Off	On	On	–	–
Aux Heater	Off	Off	Staged	Staged	Off	Off	–	–
SL 1- Out	On	On	On	Off	On	On	–	–
Emerg LED	On	Off	Off	On	Off	Off	Off	–
T-Stat Signal	Y1	Y1, Y2	Y1, Y2, W	W	Y1, O	Y1, Y2, O	G	–

Typical Water and Air Temperature Changes

WATER FLOW RATE	WATER TEMPERATURE CHANGE		AIR TEMPERATURE CHANGE	
	RISE (CLG)	DROP (HTG)	DROP (CLG)	RISE (HTG)
3 GPM/TON	9-12	4-8	15-20	20-35
1.5 GPM/TON	20-26	10-17		

Water Pressure Drop

UNIT	GPM	PRESSURE DROP (PSI)				
		30° EWT	50° EWT	70° EWT	90° EWT	110° EWT
P010	1.5	2.1	2.0	2.0	1.9	1.8
	2.0	3.4	3.2	3.1	3.0	2.9
	2.5	5.2	4.9	4.7	4.6	4.5
P013	1.5	2.0	1.9	1.9	1.8	1.7
	2.5	4.6	4.4	4.2	4.1	4.0
	3.5	8.1	7.7	7.4	7.2	7.0
P019	3.0	1.2	1.2	1.1	1.1	1.1
	4.0	2.1	2.0	2.0	1.9	1.8
	5.0	3.5	3.3	3.2	3.1	3.0
P022	3.0	1.5	1.4	1.3	1.3	1.3
	4.5	3.2	3.1	3.0	2.9	2.8
	6.0	6.0	5.8	5.6	5.4	5.2
P028	4.0	1.2	1.2	1.1	1.1	1.1
	5.5	2.1	2.0	2.0	1.9	1.8
	7.0	3.2	3.1	3.0	2.9	2.8
P034	5.0	2.4	2.2	2.2	2.1	2.0
	7.0	3.9	3.7	3.6	3.5	3.4
	9.0	6.2	5.9	5.7	5.5	5.3
P040	5.0	1.7	1.6	1.5	1.5	1.5
	8.0	3.5	3.3	3.2	3.1	3.0
	11.0	6.2	5.9	5.7	5.5	5.3
P046	6.0	2.2	2.1	2.1	2.0	1.9
	9.0	4.5	4.3	4.1	4.0	3.9
	12.0	7.2	6.8	6.6	6.4	6.2
P056	8.0	2.6	2.5	2.4	2.4	2.3
	11.0	4.8	4.6	4.4	4.3	4.1
	14.0	7.5	7.2	6.9	6.7	6.5
P066	10.0	3.7	3.5	3.4	3.3	3.2
	13.0	6.1	5.8	5.6	5.5	5.3
	16.0	9.3	8.9	8.6	8.3	8.1

Troubleshooting

To check the unit control board for proper operation:

1. Disconnect thermostat wires at the control board.
2. Jumper the desired test input (Y1, Y2, W, O, or G) to the R terminal with the SW2-8 in the “OFF” position to simulate a thermostat signal.
3. If control functions properly:
   - Check for thermostat and field control wiring (use the diagnostic inputs mode).
4. If control responds improperly:
   - Ensure that component being controlled is functioning (Compressor, Blower, Reversing Valve, etc.)
   - Ensure that wiring from control to the component is functioning (use the diagnostic outputs mode).
   - If steps above check properly, replace unit control.

Note: Verify that air and water flow rates are at proper levels before servicing the refrigerant circuit.

LED Definition

LED	NORMAL DISPLAY MODE	DIAGNOSTIC MODES			
		CURRENT FAULT STATUS	INPUTS	OUTPUTS 1	OUTPUTS 2
	Field Selection DIPs: 1-On, 6-On, 7-On	1-Off, 6-On, 7-On	1-N/A, 6-Off, 7-On	1-N/A, 6-On, 7-Off	1-N/A, 6-Off, 7-Off
Drain	Drain Pan Overflow Lockout	Drain Pan Overflow	Y1	Compressor	Blower Low
Water Flow	FP Thermistor (Loop <15°F Well<30°F) Lockout	FP Thermistor (Loop<15°F, Well<30°F)	Y2	Not Used	Blower Med
High Pressure	High Pressure >380 PSI Lockout	High Pressure >380 PSI	O	RV	Blower High
Low Pressure	Low Pressure <15 PSI Lockout	Low Pressure <15 PSI	G	Fan	Aux Heat #1
Airflow	ECM2 RPM<100 RPM Lockout	ECM2 RPM <100 RPM	W	DHW Pump	Aux Heat #2
Status	Microprocessor Malfunction	Not Used	SL1	Loop Pump	Aux Heat #3
DHW Limit	HWL Thermistor >130°F	HWL Thermistor >130°F	Not Used	Not Used	Aux Heat #4
DHW Off	DHW Pump Switch Off	DHW Pump Switch Off	–	–	–

Typical Superheat/Subcooling

ENTERING WATER TEMPERATURE	HEATING		COOLING	
	SUPERHEAT	SUBCOOLING	SUPERHEAT	SUBCOOLING
30	9 - 14	5 - 9	25 - 35	15 - 25
50	10 - 14	5 - 9	10 - 18	15 - 25
70	12 - 16	5 - 8	9 - 14	13 - 18
90	N/A	N/A	8 - 13	13 - 18

Typical Suction & Discharge Pressures

ENTERING WATER TEMPERATURE	HEATING		COOLING	
	SUCTION	DISCHARGE	SUCTION	DISCHARGE
30	35 - 45	170 - 200	62 - 77	95 - 125
50	55 - 65	185 - 220	70 - 83	125 - 165
70	70 - 90	200 - 240	73 - 86	170 - 210
90	90 - 110	220 - 260	75 - 88	220 - 260

Preventive Maintenance

Water Coil Maintenance

1. Keep all air out of the water. An open loop system should be checked to ensure that the well head is not allowing air to infiltrate the water line. Lines should always be airtight.
2. Keep the system under pressure at all times. It is recommended in open loop systems that the water control valve be placed in the discharge line to prevent loss of pressure during off cycles. Closed loop systems must have positive static pressure.

Note: On open loop systems, if the installation is in an area with a known **high mineral content (125 PPM or greater)** in the water, it is best to establish with the owner a periodic maintenance schedule so the coil can be checked regularly. Should periodic coil cleaning be necessary, use standard coil cleaning procedures which are compatible with either the cupronickel or copper water lines. Generally, the more water flowing through the unit the less chance for scaling.

Other Maintenance

Air Coil

To obtain maximum performance, the air coil should be cleaned before startup. A 10% solution of dishwasher detergent and water is recommended for both sides of coil; a thorough water rinse should follow.

CAUTION: Fin edges are sharp.

Fan Motors (ECM & PSC)

Blower Motors are equipped with sealed ball bearings and require no periodic oiling.

Desuperheater Coils

See Water Coil Maintenance section.

Filters

Filters must be clean to obtain maximum performance. They should be inspected monthly under normal operating conditions and be replaced when necessary. Units should never be operated without a filter.

Condensate Drain

In areas where airborne bacteria produce a sludge in the drain pan, it may be necessary to treat chemically to minimize the problem. The condensate drain can pick up lint and dirt, especially with dirty filters. Inspect twice a year to avoid the possibility of overflow.

Air Coil

The air coil must be cleaned to obtain maximum performance. Check once a year under normal operating conditions and, if dirty, brush or vacuum clean. Care must be taken not to damage the aluminum fins while cleaning.

Replacement Procedures

Obtaining Parts

When ordering service or replacement parts, refer to the model number and serial number of the unit as stamped on the serial plate attached to the unit. If replacement parts are required, mention the date of installation of the unit and the date of failure, along with an explanation of the malfunctions and a description of the replacement parts required.

In-warranty Material Return

Material may not be returned except by permission of authorized warranty personnel. Contact your local distributor for warranty return authorization and assistance.

Manufactured by WFI
9000 Conservation Way
Fort Wayne, IN 46809

Product:	Premier
Type:	Geothermal/Water Source Heat Pumps
Size:	3/4 thru 6 Tons

Document Type:	Installation Manual
Part Number:	IM1555
Release Date:	11/06
Supercedes:	IM1555 10/05