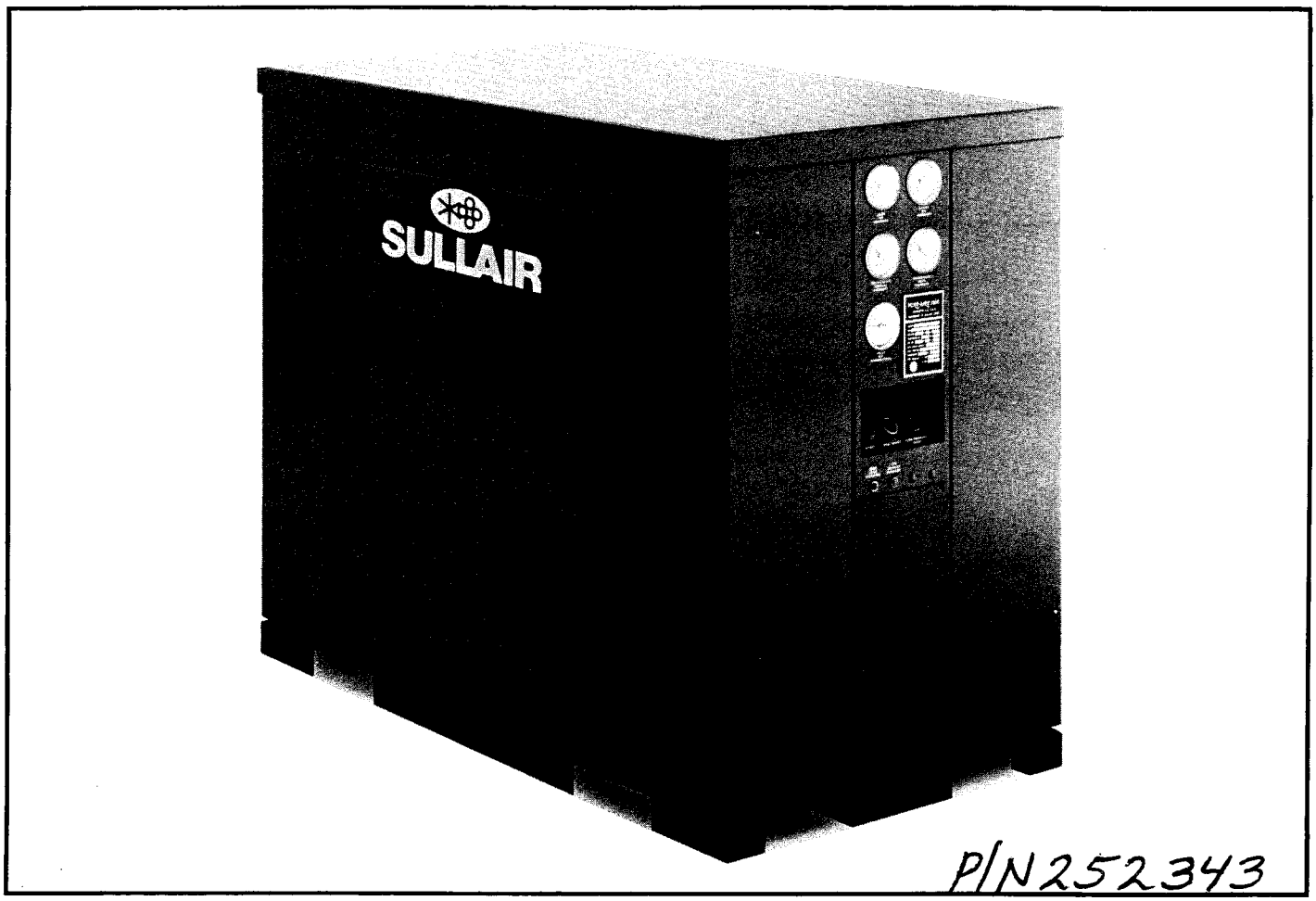
Operators Manual and Parts List

Sullair® PSII Refrigerated Air Dryer

Models 110-2000



PRICE $50.00

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PRODUCT SAFETY POLICY

May 15, 1984

It is Sullair Corporation's policy to produce and market the best product available commensurate with the safety and health needs of the customer.

Sullair's objective is to furnish a product that is safe for it's designed and intended use. It is Sullair's corporate desire that no Sullair product be the direct cause of an accident when used for its intended application.

Product safety shall be assured through systematic application of sound engineering and management principles in the conception, design, development, testing, manufacturing, sale and servicing of all products.

Adequate instructions and cautionary labels shall be utilized.

This is a reaffirmation of a policy existing at Sullair since its origin.

R. T. Bloomberg

Robert T. Bloomberg
President and Chief
Executive Officer

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Section 1
SAFETY

1.1 GENERAL

Sullair Corporation and its subsidiaries design and manufacture all of their products so they can be operated safely. However, the responsibility for safe operations rests with those who use and maintain these products. The following safety precautions are offered as a guide which, if conscientiously followed, will minimize the possibility of accidents throughout the useful life of this equipment.

The dryer should be operated only by those who have been trained and delegated to do so, and who have read and understand this Operators Manual. Failure to follow the instructions, procedures and safety precautions in this manual may increase the possibility of accidents and injuries.

NEVER start this dryer unless it is safe to do so. DO NOT attempt to operate the dryer with a known unsafe condition. Tag the dryer and render it inoperative by disconnecting and locking out all power at source or otherwise disabling its prime mover so others who may not know of the unsafe condition cannot operate it until the condition is corrected.

Install, use and operate this dryer only in full compliance with all pertinent OSHA regulations and all applicable Federal, State and Local codes, standards, and regulations.

DO NOT modify this dryer and/or controls in any way except with written factory approval.

While not specifically applicable to all types of dryers with all types of prime movers, most of the precautionary statements contained herein are applicable to most dryers and the concepts behind these statements are generally applicable to all dryers.

1.2 PERSONAL PROTECTIVE EQUIPMENT

Prior to installing or operating this dryer, owners, employers, and users should become familiar with, and comply with, all applicable OSHA regulations and any other applicable Federal, State and Local codes, standards, and regulations relative to personal protective equipment, such as eye and face protective equipment, respiratory protective equipment, equipment intended to protect the extremities, protective clothing, protective shields and barriers and electrical protective equipment, as well as noise exposure administrative and/or engineering controls and/or personal hearing protective equipment.

1.3 PRESSURE

A. Secure all connections by wire, chain or other suitable retaining devices to prevent tools or hose ends from being accidentally disconnected and expelled.
B. DO NOT overpressure the unit.
C. Vent all internal pressure prior to opening any line, fitting, hose, valve, drain plug, connection or other component, such as filters and line oilers.
D. Keep personnel out of line with and away from the discharge opening of hoses or tools or other points of compressed air discharge.
E. Use air at pressures less than 30 PSIG (207kPa) for cleaning purposes, and then only with effective chip guarding and personal protective equipment per OSHA Standard 29 CFR 1910.242(b).
F. DO NOT engage in horseplay with air hose as serious injury or death may result.
G. DO NOT pass air through the dryer while the dryer is in the OFF position.
H. DO NOT pass air through the dryer until the dryer has been stabilized. This condition exists when the refrigeration suction and discharge gauges read normal.
I. DO NOT operate a dryer at abnormal conditions. Consult the manual for normal operating conditions.
J. Only qualfied personnel should attempt to repair leaks or problems with the refrigerant system of the dryer.

Section 1
SAFETY

1.4 FIRE AND EXPLOSION

A. Clean up spills of lubricant or other combustible substances immediately, when such spills occur.
B. Shut off the dryer and allow it to cool. Then keep sparks, flames and other sources of ignition away.
C. DO NOT permit fluids, including air line anti-icer system and anti-freeze compound or oil film to accumulate on, under or around acoustical material or on any external surfaces of the air dryer or on internal surfaces of the enclosure. Wipe down using an aqueous industrial cleaner or steam clean as required. If necessary, remove acoustical material, clean all surfaces and then replace acoustical material. Any acoustical material with a protective covering that has been torn or punctured should be replaced immediately to prevent accumulation of liquids of oil film within the material. DO NOT use flammable solvents for cleaning purposes.
D. Disconnect and lock out all power at source prior to attempting any repairs or cleaning of the dryer or of the inside of the enclosure, if any.
E. Keep electrical wiring, including all terminals and pressure connectors in good condition. Replace any wiring that has cracked, cut abraded or otherwise degraded insulation, or terminals that are worn, discolored or corroded. Keep all terminals and pressure connectors clean and tight.
F. Keep grounded and/or conductive objects such as tools away from exposed live electrical parts such as terminals to avoid arcing which might serve as a source of ignition.
G. Remove any acoustical material or other material that may be damaged by heat or that may support combustion and is in close proximity, prior to attempting weld repairs.
H. Keep suitable fully charged Class BC or ABC fire extinguisher or extinguishers nearby when servicing and operating the dryer.
I. Keep oily rags, trash, leaves, litter or other combustibles away from the dryer.
J. DO NOT operate the dryer without proper flow of cooling air or water or with inadequate flow of lubricant or with degraded lubricant.
K. DO NOT attempt to operate the compressor and dryer in any classification of hazardous environment unless the compressor and dryer has been specifically designed and manufactured for that duty.

1.5 MOVING PARTS

A. Keep hands, arms and other parts of the body and also clothing away from couplings, fans and other moving parts.
B. DO NOT attempt to operate the dryer with fan, coupling or other guards removed.
C. Wear snug fitting clothing and confine long hair when working around this dryer, especially when exposed to hot or moving parts.
D. Keep access doors, if any, closed except when making repairs or adjustments.
E. Make sure all personnel are out of and/or clear of the dryer prior to attempting to start or operate it.
F. Disconnect and lock out all power at source and verify at the dryer that all circuits are de-energized, to minimize the possibility of accidental start-up or operation, prior to attempting repairs or adjustments. This is especially important when compressors and dryers are remotely controlled.
G. Keep hands, feet, floors, controls and walking surfaces clean and free of oil, water, or other liquids, to minimize the possibility of slips and falls.

1.6 HOT SURFACES, SHARP EDGES AND SHARP CORNERS

A. Avoid bodily contact with hot fluid, hot coolant, hot surfaces and sharp edges and corners.
B. Keep all parts of the body away from all points of air discharge.
C. Wear personal protective equipment including gloves and head covering when working in, on, or around the dryer.
D. Keep a first aid kit handy. Seek medical assistance promptly in case of injury. DO NOT ignore small cuts and burns as they may lead to infection.

1.7 TOXIC AND IRRITATING SUBSTANCES

A. DO NOT use air from this dryer for respiration (breathing) except in full compliance with OSHA Standards 29 CFR 1910 and any other Federal, State or Local codes or regulations.
B. DO NOT use air line anti-icer systems in air lines supplying respirators or other breathing air utilization equipment and DO NOT discharge air from these systems in unventilated or other confined areas.
C. Operate the dryer only in open or adequately ventilated areas.

DANGER

Death or serious injury can result from inhaling compressed air without using proper safety equipment. See OSHA standards on safety equipment.

1.8 ELECTRIC SHOCK

A. This dryer should be installed and maintained in full compliance with all applicable Federal, State and Local codes, standards and regulations, including those of the National Electrical Code, and also including those relative to equipment grounding conductors, and only by personnel that are trained, qualified and delegated to do so.
B. Keep all parts of the body and any hand-held tools or other conductive objects away from exposed live parts of the electrical system. Maintain dry footing, stand on insulating surfaces and DO NOT contact any portion of the dryer when making adjustments or repairs to exposed live parts of the electrical system. Make all such adjustments or repairs with one hand only, so as to minimize the possibility of creating a current path through the heart.
C. Attempt repairs in clean, dry and well lighted and ventilated areas only.
D. DO NOT leave the dryer unattended with open electrical enclosures. If necessary to do so, then disconnect, lock out and tag all power at source so others will not inadvertently restore power.
E. Disconnect, lock out, and tag all power at source prior to attempting repairs or adjustments to rotating machinery and prior to handling any ungrounded conductors.

1.9 LIFTING

A. Dryers to be lifted by helicopter must be supported by slings. In any event, lift and/or handle only in full compliance with OSHA standards 29 CFR 1910 subpart N.
B. Inspect points of attachment for cracked welds and for cracked, bent, corroded or otherwise degraded members, and for loose bolts or nuts prior to lifting.
C. Make sure entire lifting rigging and supporting structure has been inspected, is in good condition and has a rated capacity of at least the weight of the dryer. If you are unsure of the weight, then weigh dryer before lifting.
D. Make sure lifting hook has a functional safety latch, or equivalent, and that it is fully engaged and latched on the bail or slings.
E. Use guide ropes or equivalent to prevent twisting or swinging of the machine once it has been lifted clear of the ground.
F. DO NOT attempt to lift in high winds.
G. DO NOT lift dryer by motor lifting eye.
H. Keep all personnel out from under and away from the dryer when it is suspended.
I. Lift dryer no higher than necessary.
J. Keep lift operator in constant attendance whenever dryer is suspended.
K. Set the dryer down only on level surfaces capable of safely supporting at least its weight and unit loading.
L. When moving dryers by forklift truck, utilize fork pockets if provided. Otherwise, utilize pallet if provided. If neither fork pockets or pallet are provided, then make sure machine is secure and well balanced on forks before attempting to raise or transport it any significant distance.
M. Make sure forklift truck forks are fully engaged and tipped back prior to lifting or transporting the dryer.
N. Forklift no higher than necessary to clear obstacles at floor level and transport and corner at minimum practical speeds.

O. Make sure pallet mounted dryers are firmly bolted or otherwise secured to the pallet prior to attempting to forklift or transport them. NEVER attempt to forklift a dryer that is not secured to its pallet, as uneven floors or sudden stops may cause the dryer to tumble off, possibly causing serious injury or property damage in the process.

1.10 ENTRAPMENT

A. If the dryer enclosure, if any, is large enough to hold a man, and if it is necessary to enter it to perform service or adjustments, inform other personnel before doing so, or else secure and tag the access door in the open position to avoid the possibility of others closing and possibly latching the door with personnel inside.
B. Make sure all personnel are out of dryer before closing and latching enclosure doors.

Section 2
DESCRIPTION

2.1 INTRODUCTION

This manual provides information and recommendations for installing, operating and servicing the Sullair Refrigerated Air Dryer. The unit is designed and manufactured to the highest quality standards. All self-contained units have been fully tested and inspected by the manufacturer before shipment from the factory.

The information, specifications and illustrations in this manual are in accord with information in effect at the time of printing. The manufacturer reserves the right to change design and specifications without notice and without incurring obligations.

The refrigerant (R-12 or R-22) and air system can be easily followed by referring to the schematic diagram.

A complete set of gauges and indicating lights are provided as standard equipment for analyzing the system's operation and performance.

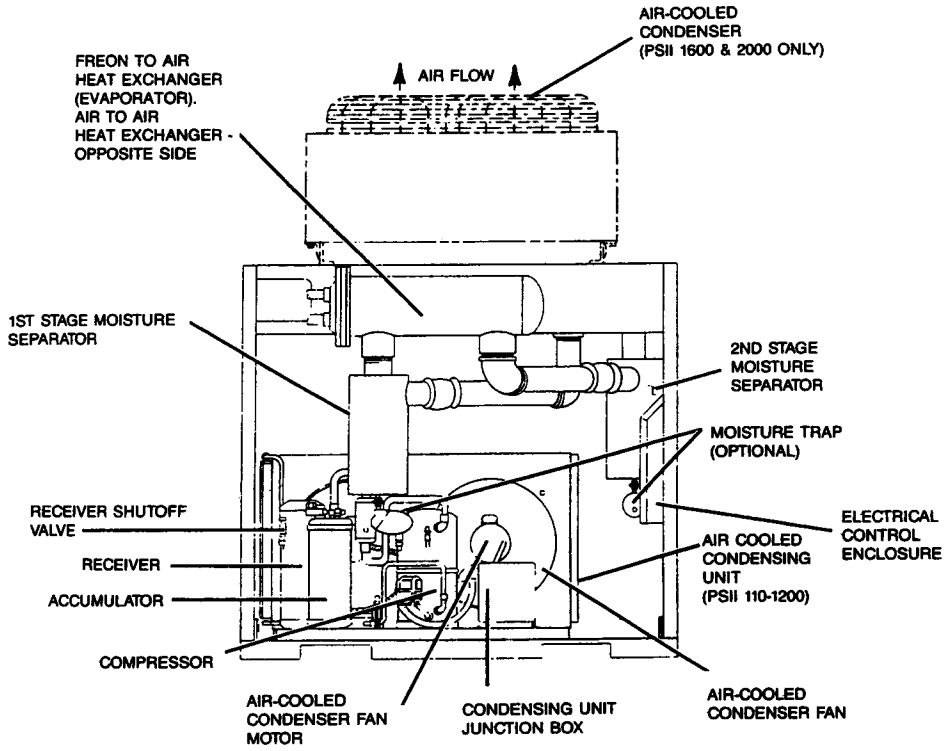
Direct any question or problem not covered herein to the Sullair Representative from whom the unit was purchased, or Sullair Corporation by calling toll free 1-800-348-2722. Always specify the model and serial number of the machine in all correspondence regarding service and parts.

2.2 DESCRIPTION OF COMPONENTS

Refer to Figure 2-1. Parts can be ordered from your nearest Sullair representative. If for any reason parts cannot be obtained in this manner, contact the factory. Authorization and shipping instructions must be obtained from the factory before returning the parts to the factory. The manufacturer will not be responsible for parts returned without proper authorization or identification.

The Sullair Refrigerated Air Dryer is designed for the purpose of removing moisture from compressed air by cooling to a temperature of 35°F/39°F (2°C/4°C) or 50°F (10°C).

Figure 2-1 Description of Components



Section 2
DESCRIPTION

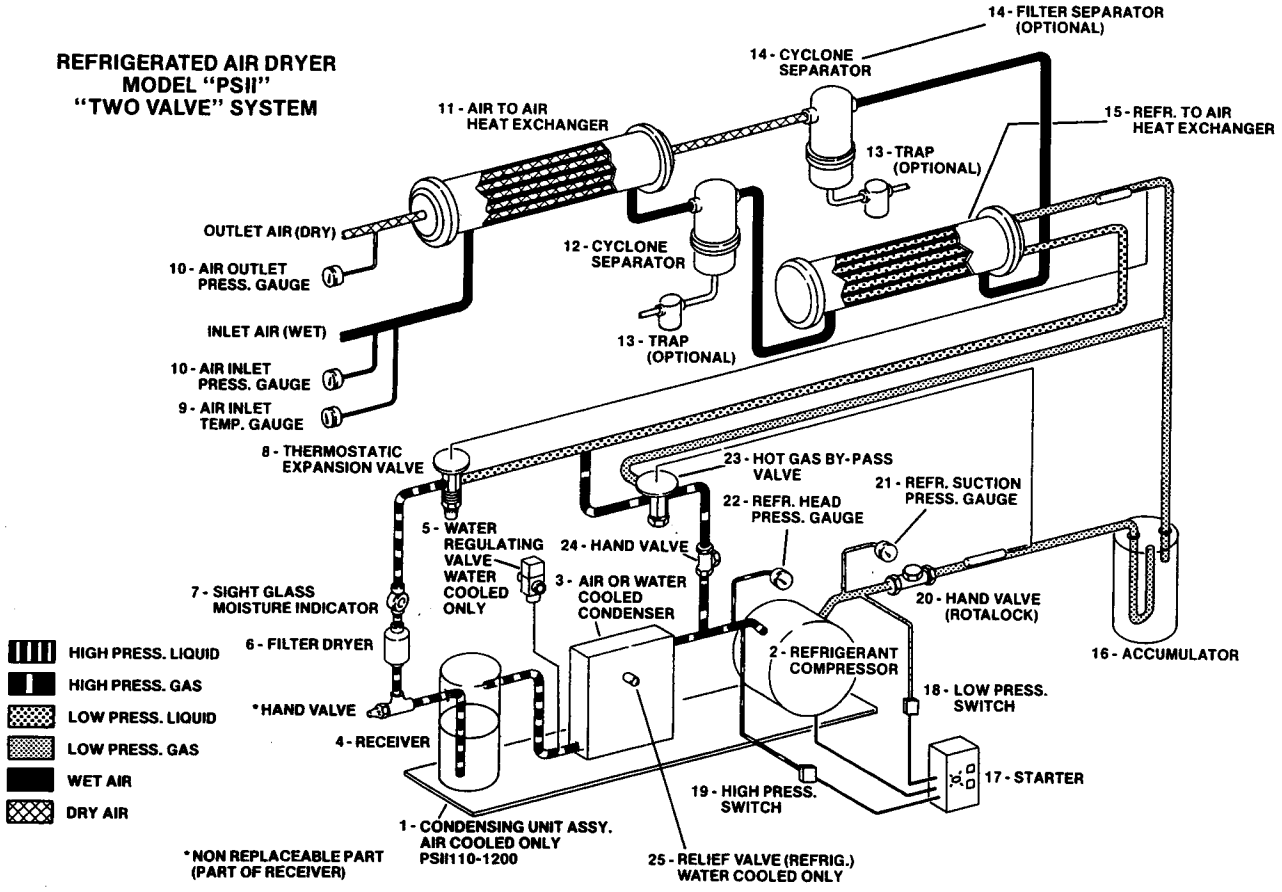
2.3 REFRIGERANT CIRCUIT: TWO VALVE SYSTEM FUNCTIONAL DESCRIPTION

Refrigerant is cycled through a closed-loop system with two basic sections commonly referred to as high and low pressure sections. The circuit leaving the thermostatic expansion valve to the evaporator (refrigerant-to-air heat exchanger) and to the compressor inlet is known as the low pressure or suction side. The circuit leaving the refrigerant compressor to the hot gas bypass valve, air-cooled condenser, to the receiver, filter drier, sight glass and expansion device is called the high pressure or discharge side.

The compressor increases the pressure and temperature of the low pressure refrigerant gas drawn from the evaporator (an isentropic process), and discharges it into an air-cooled condenser. In the condenser, heat is removed from the refrigerant gas thereby condensing into a saturated liquid at constant pressure. The high pressure liquid refrigerant will then flow into the receiver, and through the filter drier (which prevents plugging of the expansion device due to the retention scale, dirt, moisture, etc.).

After the filter drier, the refrigerant will flow through the sight glass/moisture indicator and into the thermostatic expansion valve which controls the flow of the liquid refrigerant by the degree of superheat of the suction gas. The expansion valve reduces the pressure and temperature of the refrigerant causing it to partially vaporize until it is at the saturation temperature corresponding to its reduced pressure. In any case, the flow of refrigerant into the evaporator normally increases, as the evaporator load increases. Before the low pressure and temperature refrigerant will enter the evaporator, a portion of the high pressure and temperature

Figure 2-2 PSII 110-2000



refrigerant taken between the compressor discharge and the condenser inlet is diverted through a hot gas bypass valve into the evaporator inlet. The primary advantage of this method is that the thermostatic expansion valve will respond to the increased superheat of the vapor leaving the evaporator, and will provide the liquid required for desuperheating. Also, the evaporator serves as an excellent mixing chamber for the bypassed hot gas and the liquid-vapor mixture from the expansion device (thermostatic expansion valve). This ensures a dry vapor reaching the compressor suction. Oil return from the evaporator is also improved since the velocity in the evaporator is kept high by the hot gas.

As the liquid-vapor mixture enters the evaporator, it absorbs the heat (at constant pressure) from the compressed air causing the boiling action to continue until it is completely vaporized. The compressor takes in the low pressure and temperature refrigerant vapor for another cycle.

2.4 COMPRESSED AIR CIRCUIT, FUNCTIONAL DESCRIPTION

The compressed air drying circuit utilizes an air-to-air heat exchanger (which acts as a precooler/reheater) and an air-to-refrigerant heat exchanger.

Warm saturated air first enters the air-to-air heat exchanger, where it is pre-cooled. By pre-cooling the incoming air, energy is saved through reduction of the heat load imposed on the refrigerant compressor and condenser. Moisture is partially removed in the first stage cyclone separator where it is discharged from the dryer through an automatic drain trap. From the separator, the saturated air enters the air-to-refrigerant heat exchanger (evaporator) further reducing the air temperature to the specified dewpoint of 35°F/39°F (2°C/4°C) or 50°F (10°C). Water is condensed as the air is cooled to the required pressure dewpoint.

The cold air then flows through a second stage cyclone separator where the condensed water is removed and discharged through another automatic drain trap.

The chilled air then re-enters the air-to-air heat exchanger where it is reheated. Reheating of the air does not affect the air's dewpoint. It prevents condensation of moisture on the outside of the air-distribution piping. The cold air flows through the air-to-air heat exchanger in a direction opposite to the flow of the warm, moist incoming air. This counterflow action assures high temperature differentials throughout the heat exchanger, resulting in more effective heat transfer.

2.6 WATER-COOLED CONDENSING UNIT

The principle of operation of a water-cooled system is basically the same as the air-cooled unit. The main difference is that, in the water-cooled system, the cooling medium used to change hot refrigerant gas into its liquid form is water, either in a tube-in-tube or tube-and-shell type condenser.

A modulating water-flow regulating valve, controlled by the high side pressure, regulates the amount of water flowing through the condenser. This maintains the refrigerant condensing temperature at 100°F (38C°), which is pre-set at the factory. However, this setting can be manually adjusted to most varying conditions in the field. These features give the water-cooled units the flexibility to perform efficiently under various loads and conditions.

Section 3
SPECIFICATIONS

	PSII 110	PSII 170	PSII 240	PSII 280
Flow Capacity SCFM at 35°F (2°C) Pressure Dewpoint*	110	170	240	280
Flow Capacity M³/hr. at 2°C (35°F) Pressure Dewpoint	187	289	408	476
Economy Flow SCFM at 50°F (10°C) Pressure Dewpoint	150	200	280	350
Economy Flow M³/hr. at 10°C (50°F) Pressure Dewpoint	255	340	476	595
Power Input (KW)	0.91	1.30	2.05	2.05
Air Inlet/Outlet Connection (FPT)	1½	1½	1½	1½
Drain Connection (NPT)	¾	¾	¾	¾
Refrigerant Compressor HP Rating	½	¾	1½	1½
Maximum Heat of Rejection (BTU/hr.)**				
Air-Cooled	6145	9496	13,407	15,641
Water-Cooled	5798	8960	12,650	14,758
Cooling Air Flow CFM	350	800	1125	1125
Required Water Flow GPM 80°F (27°C) In 90°F (32°C) Out, 100°F (38°C) Condensing	1.16	1.79	2.53	2.95
Voltage***	A,B	A,B	C,D,E	C,D,E
Height (inches)	42	42	42	42
Height (mm)	1067	1067	1067	1067
Width (inches)	25	25	25	25
Width (mm)	635	635	635	635
Length (inches)	45	45	45	45
Length (mm)	1143	1143	1143	1143
Weight (lbs.)	540	577	645	674
Weight (kgs.)	245	262	293	306

* Flow ratings based on design conditions of 100°F (38°C) inlet air temperature, 100 PSIG (690kPa) inlet air pressure and 100°F (38°C) ambient air temperature.

** Maximum heat rejection based on 120°F (49°C) condensing for air-cooled, 100°F (38°C) condensing for water-cooled.

*** Voltage Code: A - 115/1/60 C - 208-230/3/60 E - 575/3/60
B - 208-230/1/60 D - 460/3/60

Section 3
SPECIFICATIONS

	PSII 350	PSII 450	PSII 520	PSII 650
Flow Capacity SCFM at 35°F (2°C) Pressure Dewpoint*	350	450	520	650
Flow Capacity M³/hr. at 2°C (35°F) Pressure Dewpoint	595	765	884	1105
Economy Flow SCFM at 50°F (10°C) Pressure Dewpoint	450	520	650	600
Economy Flow M³/hr. at 10°C (50°F) Pressure Dewpoint	765	884	1105	1360
Power Input (KW)	2.83	2.83	4.50	4.50
Air Inlet/Outlet Connection (FPT)	2	2	2	3
Drain Connection (NPT)	¾	¾	¾	¾
Refrigerant Compressor HP Rating	2	2	3	3
Maximum Heat of Rejection (BTU/hr.)** Air-Cooled Water-Cooled	19,552 18,448	23,138 23,719	29,048 27,408	36,310 34,260
Cooling Air Flow CFM	2000	2000	2100	2100
Required Water Flow GPM 80°F (27°C) In, 90°F (32°C) Out, 100°F (38°C) Condensing	3.69	4.74	5.48	6.85
Voltage***	C,D,E	C,D,E	C,D,E	C,D,E
Height (inches) Height (mm)	42 1067	42 1067	42 1067	42 1067
Width (inches) Width (mm)	28 711	28 711	28 711	28 711
Length (inches) Length (mm)	53 1346	53 1346	53 1346	53 1346
Weight (lbs.) Weight (kgs.)	782 355	797 362	831 377	831 377

* Flow ratings based on design conditions of 100°F (38°C) inlet air temperature, 100 PSIG (690kPa) inlet air pressure and 100°F (38 °C) ambient air temperature.

** Maximum heat rejection based on 120°F (49°C) condensing for air-cooled, 100 °F (38°C) condensing for water-cooled.

*** Voltage Code: A - 115/1/60 C - 208-230/3/60 E - 575/3/60
B - 208-230/1/60 D - 460/3/60

Section 3
SPECIFICATIONS

	PSII 800	PSII 1000	PSII 1200	PSII 1600	PSII 2000
Flow Capacity SCFM at 35°F (2°C) Pressure Dewpoint*	800	1000	1200	1600	2000
Flow Capacity M³/hr. at 2°C (35°F) Pressure Dewpoint	1360	1700	2040	2720	3400
Economy Flow SCFM at 50°F (10°C) Pressure Dewpoint	1000	1200	1400	2000	2400
Economy Flow M³/hr. at 10°C (50°F) Pressure Dewpoint	1700	2040	2380	3400	3967
Power Input (KW)	5.0	5.9	5.9	9.28	10.3
Air Inlet/Outlet Connection (FNPT)	3	3	3	4	5 (FLG)
Drain Connection (FNPT)	¾	¾	¾	¾	¾
Refrigerant Compressor HP Rating	4	5	5	7½	10
Maximum Heat of Rejection (BTU/hr.)**					
Air-Cooled	44,690	55,862	67,034	89,379	111,724
Water-Cooled	42,166	52,708	63,250	84,334	105,416
Cooling Air Flow CFM	4200	5000	5000	5220	5220
Required Water Flow GPM 80°F (27°C) In, 90°F (32°C) Out, 100°F (38°C) Condensing	8.43	10.54	12.65	16.87	21.08
Voltage***	C,D,E	C,D,E	C,D,E	D,E	D,E
Water-Cooled					
Height (inches)	57	57	57	57	66
Height (mm)	1448	1448	1448	1448	1676
Air-Cooled					
Height (inches)				85.25	94
Height (mm)				2165	2388
Width (inches)	38	37.5	37.5	37.5	56
Width (mm)	965	953	953	953	1422
Length (inches)	63	63	63	63	71.5
Length (mm)	1600	1600	1600	1600	1816
Weight (lbs.)	1286	1426	1503	1810	2400
Weight (kgs.)	583	647	682	821	1090

* Flow ratings based on design conditions of 100°F (38°C) inlet air temperature, 100 PSIG (690kPa) inlet air pressure and 100°F (38°C) ambient air temperature.

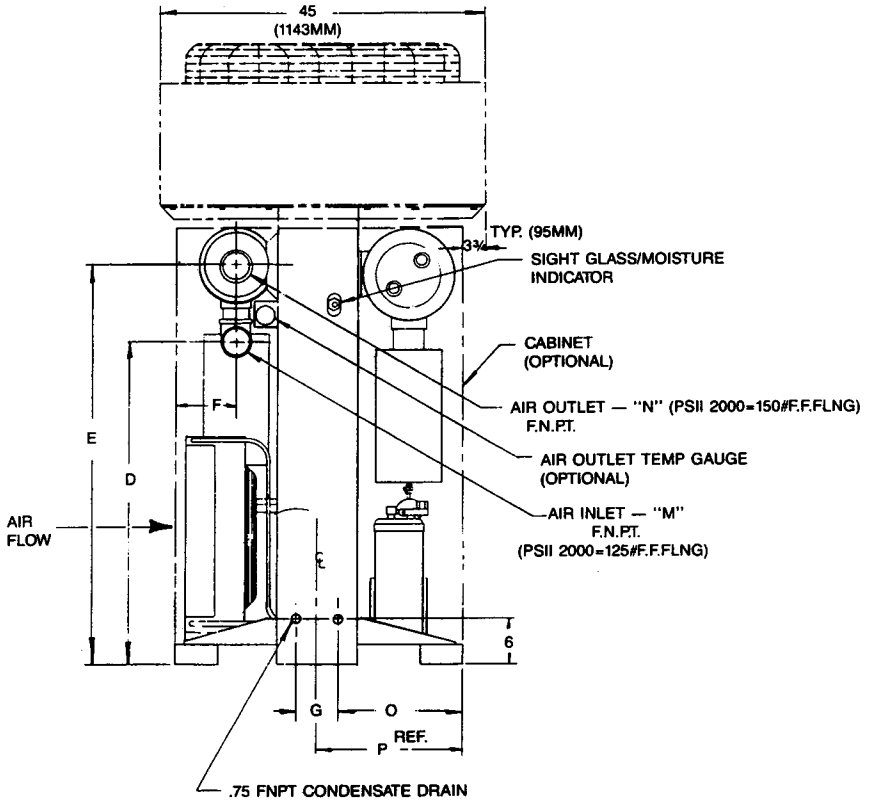
** Maximum heat rejection based on 120°F (49°C) condensing for air-cooled, 100°F (38°C) condensing for water-cooled.

*** Voltage Code: A - 115/1/60 C - 208-230/3/60 E - 575/3/60
B - 208-230/1/60 D - 460/3/60

Figure 3-1 PSII 110-2000 (Air-Cooled)

MODEL		A	B	C	D	E	F	G	H	J	K	L	(F.N.P.T) M	(F.N.P.T) N	O	P	Q	R
PSII 110	in.	45"	25"	42"	32.5"	38"	5.88"	4.19"	4.25"	3.5"	23"	43"	1.5"	1.5"	10.44"	12.5"	1"	1"
	mm	1143	635	1067	826	965	149	106	108	89	584	1092	38	38	265	318	25	25
PSII 170	in.	45"	25"	42"	32.5"	38"	588"	4.19"	4.25"	3.5"	23"	43"	1.5"	1.5"	10.44"	12.5"	1"	1"
	mm	1143	635	1067	826	965	149	106	108	89	584	1092	38	38	265	318	25	25
PSII 240	in.	45"	25"	42"	32"	37"	4.75"	4.19"	5"	2.75"	23"	43"	1.5"	1.5"	10.44"	12.5"	1"	1"
	mm	1143	635	1067	813	940	121	106	127	70	584	1092	38	38	265	318	25	25
PSII 280	in.	45"	25"	42"	32"	37"	4.75"	4.19"	5"	2.75"	23"	43"	1.5"	1.5"	10.44"	12.5"	1"	1"
	mm	1143	635	1067	813	940	121	106	127	70	584	1092	38	38	265	318	25	25
PSII 350	in.	53"	28"	42"	31.25"	38"	6.25"	4.19"	11.5"	9.5"	26"	51"	2.0"	2.0"	11.94"	.14"	1"	1"
	mm	1346	711	1067	794	965	159	106	292	2413	660	1295	51	51	303	356	25	25
PSII 450	in.	53"	28"	42"	31.25"	38"	6.25"	4.19"	11.5"	9.5"	26"	51"	2.0"	2.0"	11.94"	14"	1"	1"
	mm	1346	711	1067	794	965	159	106	292	2413	660	1295	51	51	303	356	25	25
PSII 520	in.	53"	28"	42"	30.5"	38"	5.63"	4.19"	11"	8"	26"	51"	2.0"	2.0"	11.94"	14"	1"	1"
	mm	1346	711	1067	775	965	143	106	279	203	660	1295	51	51	303	346	25	25
PSII 650	in.	53"	28"	42"	30.5"	38"	5.63"	4.19"	11"	8"	26"	51"	3.0"	3.0"	11.94"	14"	1"	1"
	mm	1346	711	1067	775	965	143	106	279	203	660	1295	51	76	303	356	25	25
PSII 800	in.	63"	37.5"	57"	42.5"	52"	8.13"	5.19"	15.75"	13"	35.5"	60.0"	3.0"	3.0"	16.19"	18.75"	1"	1.38"
	mm	1600	953	1448	1080	1321	207	132	400	330	902	1519	76	76	411	476	25	35
PSII 1000	in.	63"	37.5"	57"	42.5"	52"	8.13"	5.19"	15.5"	12.75"	35.5"	60.0"	3.0"	3.0"	16.19"	18.75"	1"	1.38"
	mm	1600	953	1448	1080	1321	207	132	394	324	902	1524	76	76	411	476	25	35
PSII 1200	in.	63"	37.5"	57"	42.5"	52"	8.13"	5.19"	15.5"	12.75"	35.5"	60.0"	3.0"	3.0"	16.19"	18.75"	1"	1.38"
	mm	1600	953	1448	1080	1321	207	132	394	324	902	1524	76	76	411	476	25	35
PSII 1600	in.	63"	37.5"	85.25"	42.5"	52"	8.13"	5.19"	15.5"	12.75"	35.5"	60.0"	4.0"	4.0"	16.19"	18.75"	1"	1.38"
	mm	1600	953	2165	1080	1321	207	132	394	325	902	1524	102	102	411	476	25	35
PSII 2000	in.	71.5"	56"	94"	40.56"	57.81"	11.75"	4.75"	1.75"	1.75"	50"	30"	5"*	5"*	25.5"	28"	3"	20.75"
	mm	1816	1422	2388	1030	1468	298	121	44	44	1270	762	127	127	648	739	76	527

* For PSII-2000 Air In & Out are F.F. Flange Connections

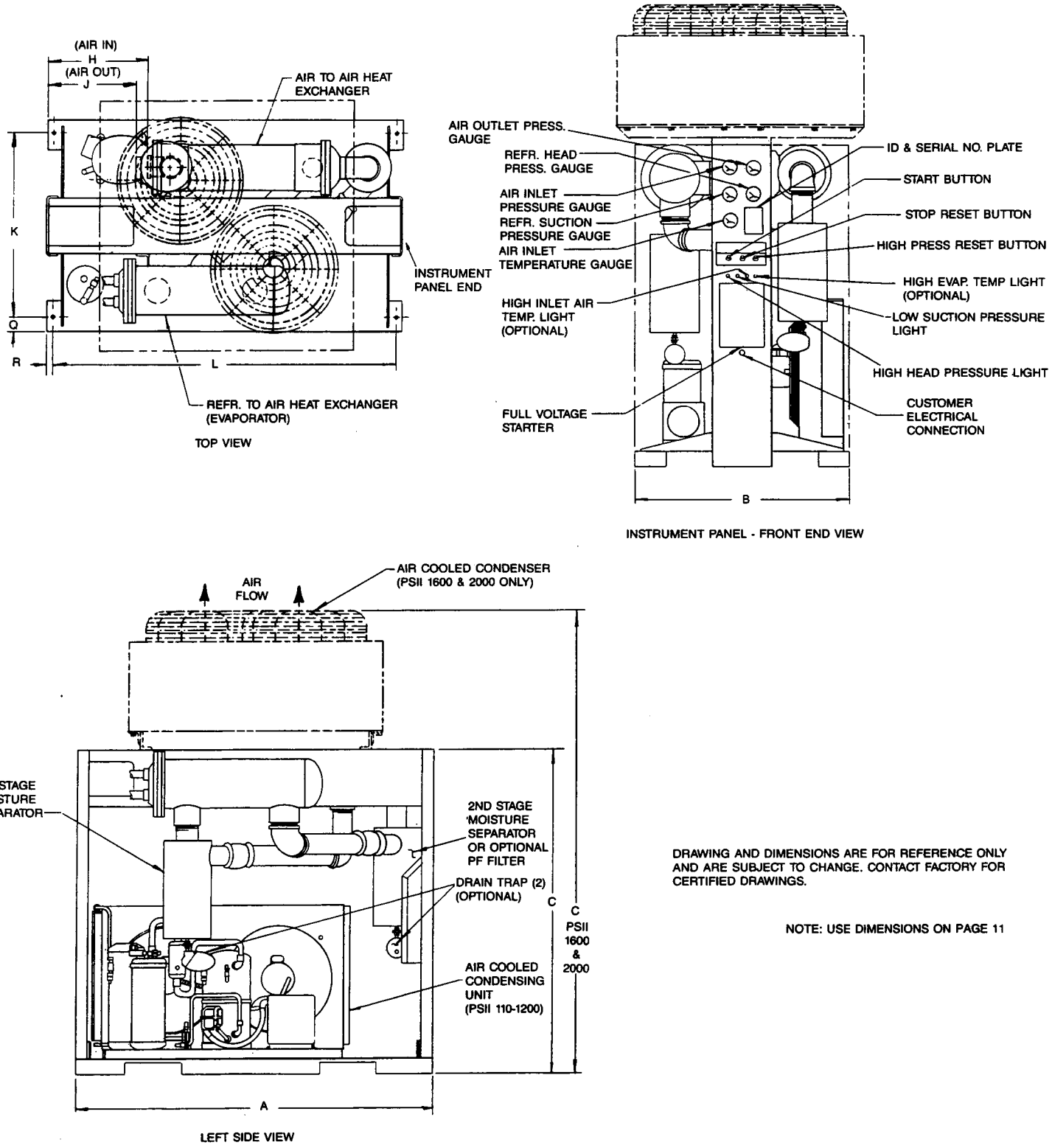


CUSTOMER CONNECTION - BACK END VIEW

DRAWING AND DIMENSIONS ARE FOR REFERENCE ONLY AND ARE SUBJECT TO CHANGE. CONTACT FACTORY FOR CERTIFIED DRAWINGS.

Section 3
SPECIFICATIONS

Figure 3-1 PSII 110-2000 (Air-Cooled)



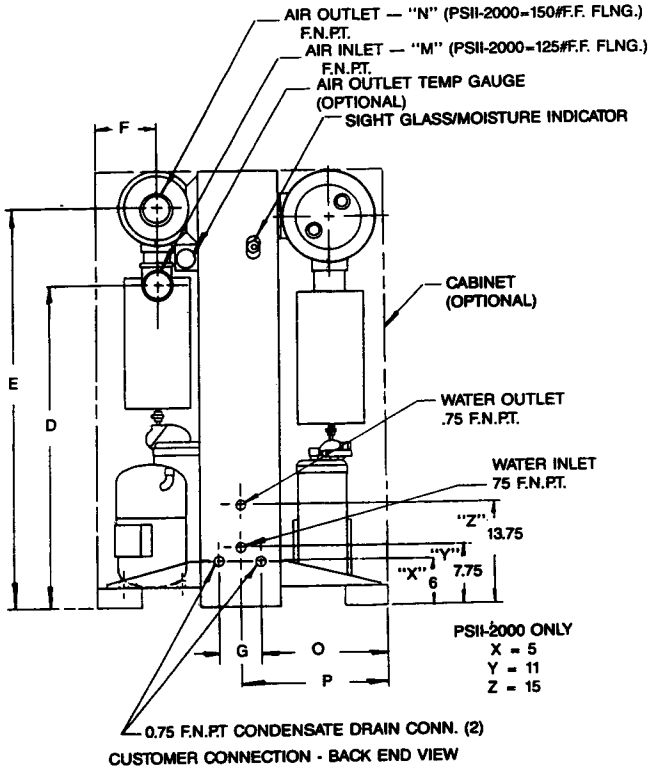
DRAWING AND DIMENSIONS ARE FOR REFERENCE ONLY AND ARE SUBJECT TO CHANGE. CONTACT FACTORY FOR CERTIFIED DRAWINGS.

NOTE: USE DIMENSIONS ON PAGE 11

Figure 3-2 PSII 110-2000 (Water-Cooled)

MODEL		A	B	C	D	E	F	G	H	J	K	L	(F.N.P.T) M	(F.N.P.T) N	O	P	Q	R
PSII 110	in.	45"	25"	42"	32.5"	38"	5.88"	4.19"	4.25"	3.5"	23"	43"	1.5"	1.5"	10.44"	12.5"	1"	1"
	mm	1143	635	1067	826	965	149	106	108	89	584	1092	38	38	265	318	25	25
PSII 170	in.	45"	25"	42"	32.5"	38"	588"	4.19"	4.25"	3.5"	23"	43"	1.5"	1.5"	10.44"	12.5"	1"	1"
	mm	1143	635	1067	826	965	149	106	108	89	584	1092	38	38	265	318	25	25
PSII 240	in.	45"	25"	42"	32"	37"	4.75"	4.19"	5"	2.75"	23"	43"	1.5"	1.5"	10.44"	12.5"	1"	1"
	mm	1143	635	1067	813	940	121	106	127	70	584	1092	38	38	265	318	25	25
PSII 280	in.	45"	25"	42"	32"	37"	4.75"	4.19"	5"	2.75"	23"	43"	1.5"	1.5"	10.44"	12.5"	1"	1"
	mm	1143	635	1067	813	940	121	106	127	70	584	1092	38	38	265	318	25	25
PSII 350	in.	53"	28"	42"	31.25"	38"	6.25"	4.19"	11.5"	9.5"	26"	51"	2.0"	2.0"	11.94"	14"	1"	1"
	mm	1346	711	1067	794	965	159	106	292	2413	660	1295	51	51	303	356	25	25
PSII 450	in.	53"	28"	42"	31.25"	38"	6.25"	4.19"	11.5"	9.5"	26"	51"	2.0"	2.0"	11.94"	14"	1"	1"
	mm	1346	711	1067	794	965	159	106	292	2413	660	1295	51	51	303	356	25	25
PSII 520	in.	53"	28"	42"	30.5"	38"	5.63"	4.19"	11"	8"	26"	51"	2.0"	2.0"	11.94"	14"	1"	1"
	mm	1346	711	1067	775	965	143	106	279	203	660	1295	51	51	303	346	25	25
PSII 650	in.	53"	28"	42"	30.5"	38"	5.63"	4.19"	11"	8"	26"	51"	3.0"	3.0"	11.94"	14"	1"	1"
	mm	1346	711	1067	775	965	143	106	279	203	660	1295	51	76	303	356	25	25
PSII 800	in.	63"	37.5"	57"	42.5"	52"	8.13"	5.19"	15.75"	13"	35.5"	60.0"	3.0"	3.0"	16.19"	18.75"	1"	1.38"
	mm	1600	953	1448	1080	1321	207	132	400	330	902	1519	76	76	411	476	25	35
PSII 1000	in.	63"	37.5"	57"	42.5"	52"	8.13"	5.19"	15.5"	12.75"	35.5"	60.0"	3.0"	3.0"	16.19"	18.75"	1"	1.38"
	mm	1600	953	1448	1080	1321	207	132	394	324	902	1524	76	76	411	476	25	35
PSII 1200	in.	63"	37.5"	57"	42.5"	52"	8.13"	5.19"	15.5"	12.75"	35.5"	60.0"	3.0"	3.0"	16.19"	18.75"	1"	1.38"
	mm	1600	953	1448	1080	1321	207	132	394	324	902	1524	76	76	411	476	25	35
PSII 1600	in.	63"	37.5"	57"	42.5"	52"	8.13"	5.19"	15.5"	12.75"	35.5"	60.0"	4.0"	4.0"	16.19"	18.75"	1"	1.38"
	mm	1600	953	1448	1080	1321	207	132	394	325	902	1524	102	102	411	476	25	35
PSII 2000	in.	71.5"	56"	66"	40.56"	57.81"	11.75"	4.75"	1.75"	1.75"	50"	30"	5"*	5"*	25.5"	30.75"	3"	20.75"
	mm	1816	1422	1676	1030	1468	298	121	44	44	1270	762	127	127	648	768	76	527

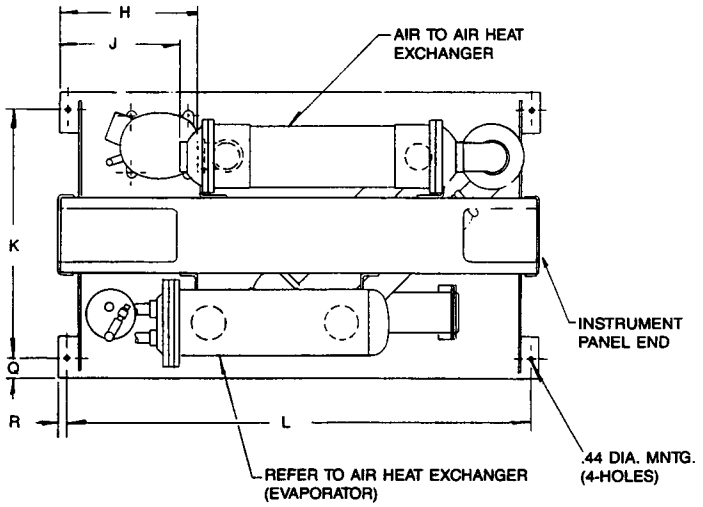
* For PSII-2000 Air In & Out are F.F. Flange Connections



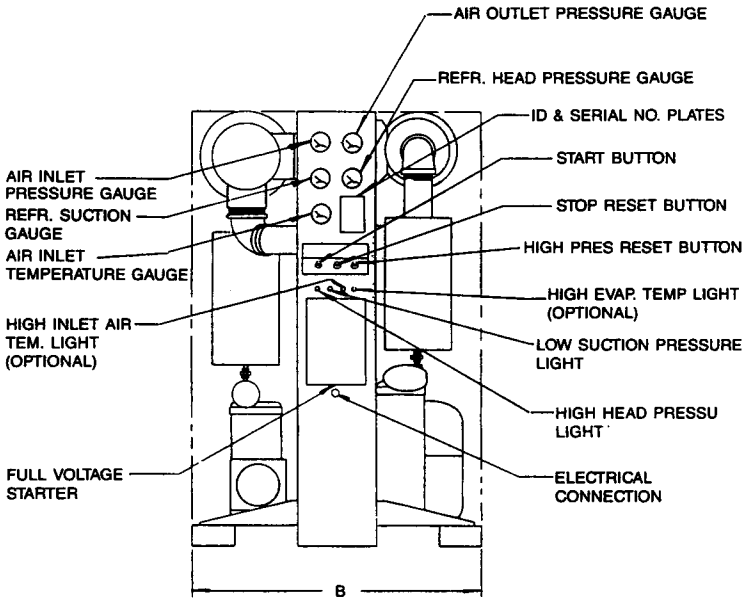
DRAWING AND DIMENSIONS ARE FOR REFERENCE ONLY AND ARE SUBJECT TO CHANGE. CONTACT FACTORY FOR CERTIFIED DRAWINGS.

Section 3
SPECIFICATIONS

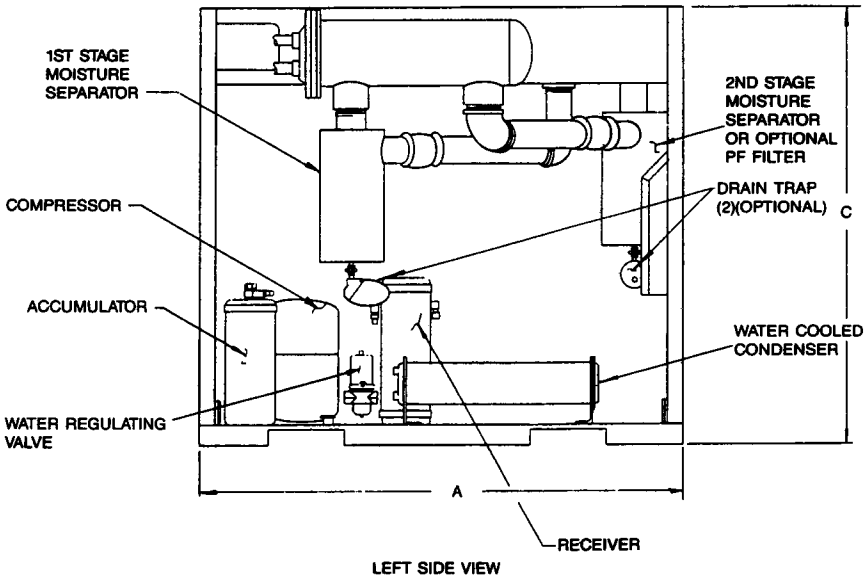
Figure 3-2 PSII 110-2000 (Water-Cooled)



TOP VIEW



INSTRUMENT PANEL FRONT END VIEW



LEFT SIDE VIEW

DRAWING AND DIMENSIONS ARE FOR REFERENCE ONLY AND ARE SUBJECT TO CHANGE. CONTACT FACTORY FOR CERTIFIED DRAWINGS.

NOTE: USE DIMENSIONS ON PAGE 13

Section 4
INSTALLATION

4.1 GENERAL

Each dryer is test run at the factory before shipment. Immediately upon receipt of the equipment, remove the cabinet and check the unit carefully for any physical damage that may have occurred in transit.

If there is any physical damage or a refrigerant leak, please file a claim with the shipper immediately and notify your Sullair Representative or the factory of the nature of the damage. Since the unit is shipped F.O.B. Michigan City, IN., Sullair will assist in every way possible to rectify any problems.

After you are assured that the unit has sustained no shipping damage, the dryer is ready for installation.

4.2 LOCATION OF DRYER

THE DRYER SHOULD BE INSTALLED IN A PROTECTED AREA WHERE THE AMBIENT TEMPERATURE WILL BE ABOVE 35° F (2° C) AND BELOW 100° F (38° C). DRYER EFFICIENCY COULD BE ADVERSELY AFFECTED AT OTHER TEMPERATURES. UNDER NO CIRCUMSTANCE SHOULD THE UNIT BE PLACED IN AN AREA WHERE THE AMBIENT TEMPERATURE WILL BE BELOW FREEZING. It should be ordered for sub-freezing installation and be protected with heat tracing elements in critical areas. If higher ambient temperatures cannot be avoided, order your dryer with a water-cooled condenser.

Allow approximately three (3) feet on all sides for service and connections. This will allow adequate space for walking around the unit for inspection and servicing.

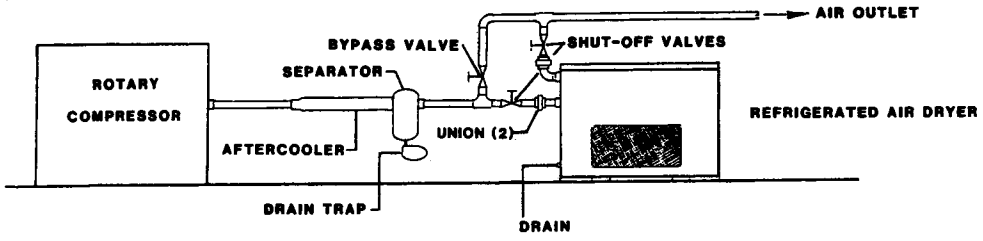
FOR AIR-COOLED UNITS, SUFFICIENT ROOM VENTILATION IS REQUIRED TO MAINTAIN AN ACCEPTABLE AMBIENT TEMPERATURE FOR EFFICIENT OPERATION.

The dryer is complete with a mounting base. Foundation may be any reasonable level and vibration-free floor sufficiently strong for supporting the total weight of the unit.

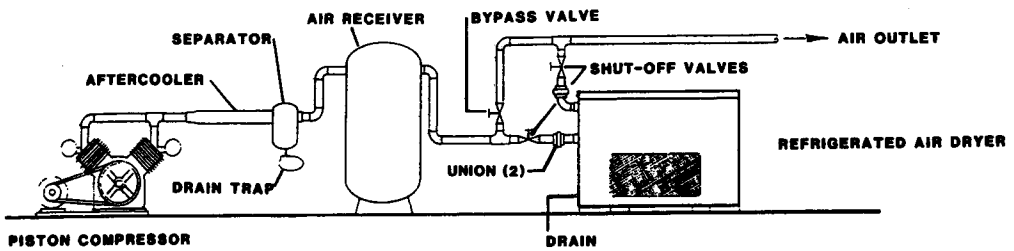
4.3 DRYER PIPING

Refer to Figure 4-1. Compressed air piping should be at least of equal size to that furnished on the inlet and outlet of the dryer. Larger pipes reduced to the inlet/outlet pipe size may be used. It is recommended that shut-off valves be placed at each port, with a valved bypass to permit isolation of the unit for servicing and to eliminate the need of shutting down the plant air system.

Figure 4-1 Typical Rotary and Piston Compressor Air Systems



TYPICAL ROTARY COMPRESSOR AIR SYSTEM



TYPICAL PISTON COMPRESSOR AIR SYSTEM

Section 4
INSTALLATION

In water-cooled units, the maximum amount of water required and the required water line size are shown in Figure 4-2, and is dependent on the temperature and pressure of the water. Connect the water supply line to the piping port marked "water in". Use the same pipe size as the fitting on the unit. DO NOT throttle the volume of water to the unit. The flow is automatically controlled by the water-regulating valve supplied with the unit, and in general this valve will compensate for the varying water conditions. Pipe the port marked "water out" to a drain or to a water recovery system. The factory ships water-cooled units for city water supply application, unless otherwise specified. The 7½ HP and larger condenser has an oversized secondary water outlet connection for use with cooling tower water supply. Changeover may be accomplished at the installation site, if required.

Each cyclone separator should be provided with an automatic drain trap to eliminate blow back. Drain lines should be sloped adequately to drain by gravity any water accumulated after separation. They should be connected directly to the sewer system. If the dryer is purchased without drain traps, it is the responsibility of the customer to supply adequate traps.

Make sure when piping is connected, that undue stress is not applied to the dryer fittings.

4.4 ELECTRICAL PREPARATION

Refer to Figures 4-3, 4-4 and 4-5. The nameplate on the instrument panel of each unit identifies the power supply requirements. A suitable disconnect switch in compliance with the National and Local Electrical Code requirements is recommended.

Connect the power supply lines to the full voltage starter (it provides motor overload and system failure protection). The compressor may rotate in either direction. The fans on air-cooled units rotate only in the correct direction if they are single phase; if they are three phase fans, check for proper rotation. The wiring of the transformers, relays, controls and functional components has been completed at the factory in accordance with the electrical schematic supplied with this manual (except for specially designed units). The dryers are constructed to NEMA 1 standards unless otherwise specified.

Figure 4-2 Water Supply Chart

MODEL	A (FPT)	B (FPT)	C (FPT)	MAXIMUM GPM
PSII 110	⅜"	⅜"	-	1.6
PSII 170	⅜"	⅜"	-	3.1
PSII 240-280	⅜"	⅜"	-	6.2
PSII 350-450	½"	½"	-	9.3
PSII 520-650	¾"	¾"	-	12.4
PSII 800-1200	1"	1"	-	18.6
PSII 1600	1"	1"	1¼"	17.0
PSII 2000	1"	1"	1¼"	20.0

NOTE: Maximum condenser-water flowrate (GPM) is based at 100°F (38°C) condensing temperature, 80°F (27°C) condenser-water inlet temperature, and 90°F (32°C) condenser-water outlet temperature.

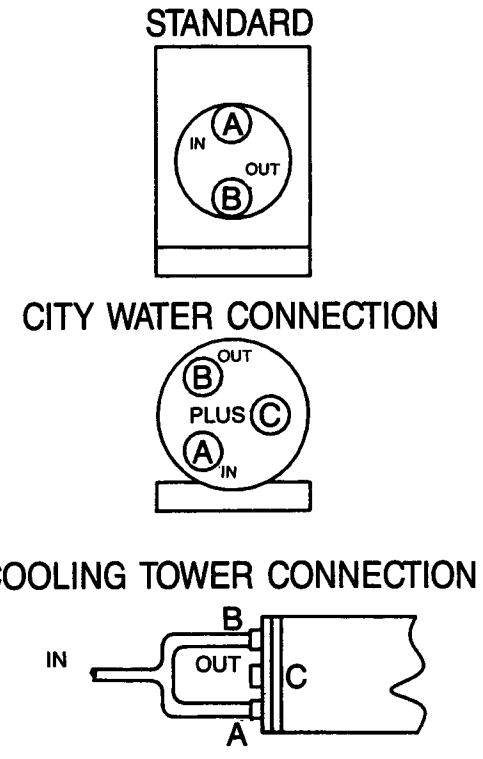
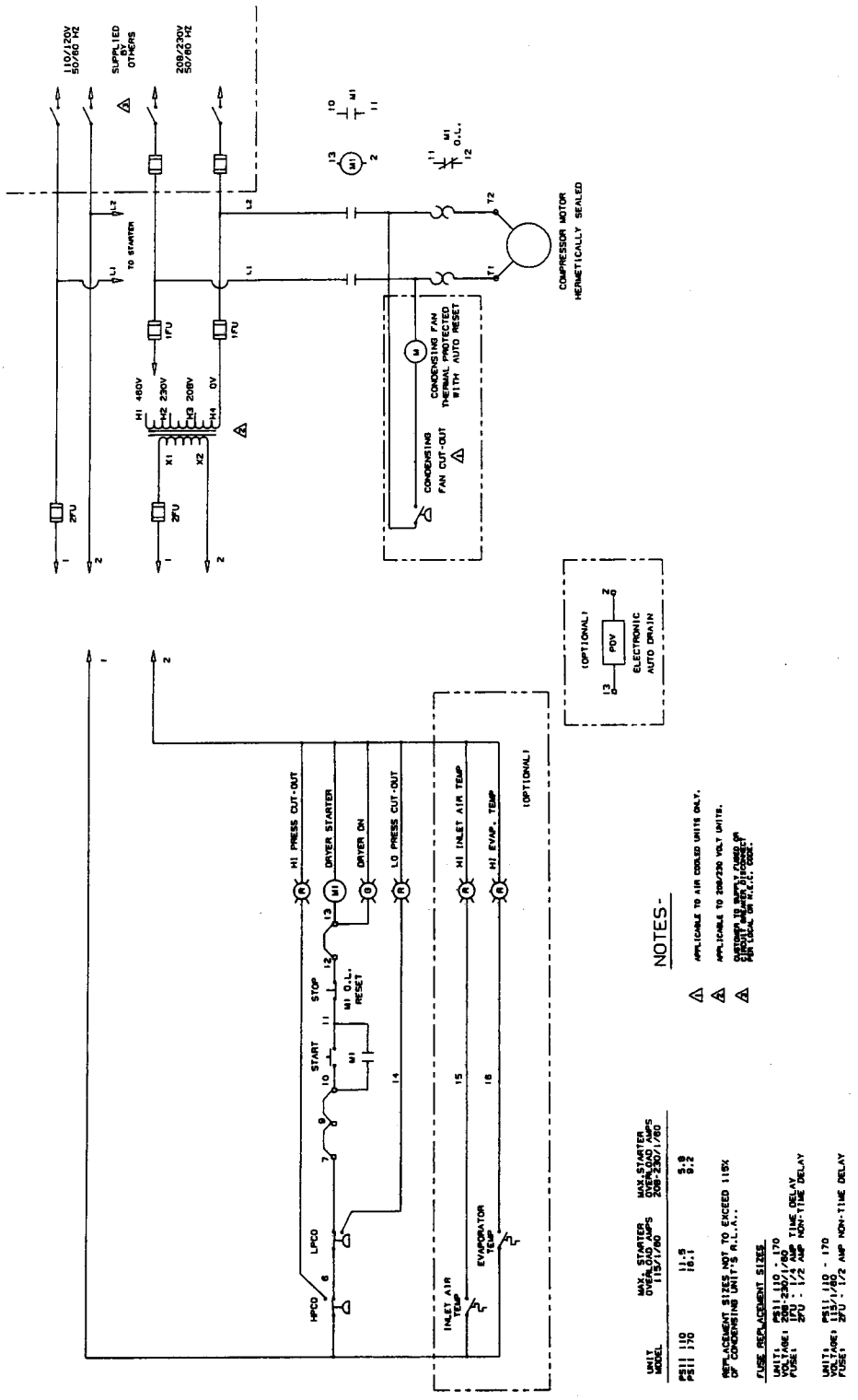


Figure 4-3 Wiring Schematic (PSII 110 & PSII 170)



UNIT MODEL	MAX. STARTER OVERLOAD AMPS 115/1/60	MAX. STARTER OVERLOAD AMPS 208-230/1/60
PSII 110	11.5	5.9
PSII 170	16.1	8.2

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Section 4
INSTALLATION

Figure 4-4 Wiring Schematic (PSII 240-PSII 1200)

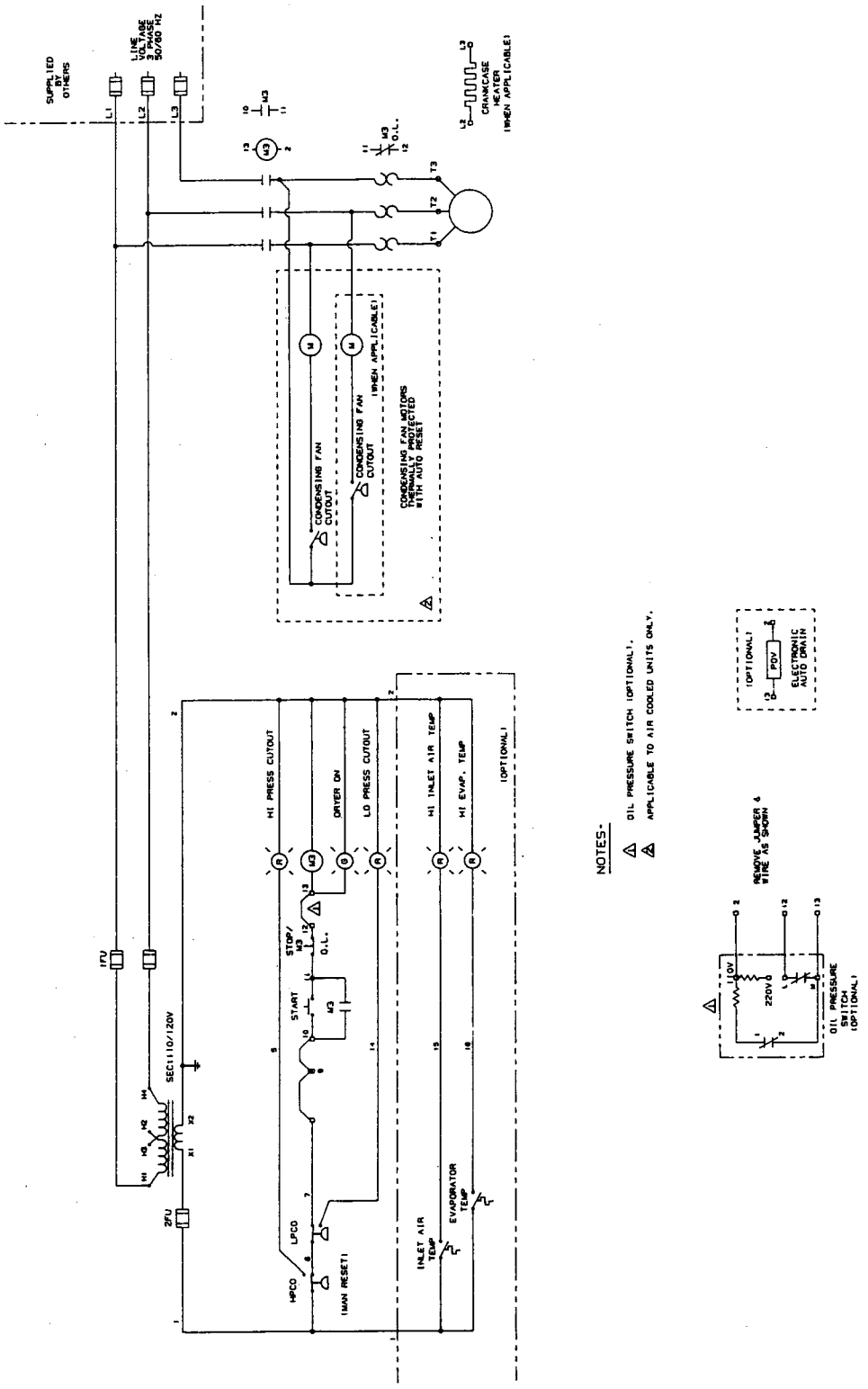

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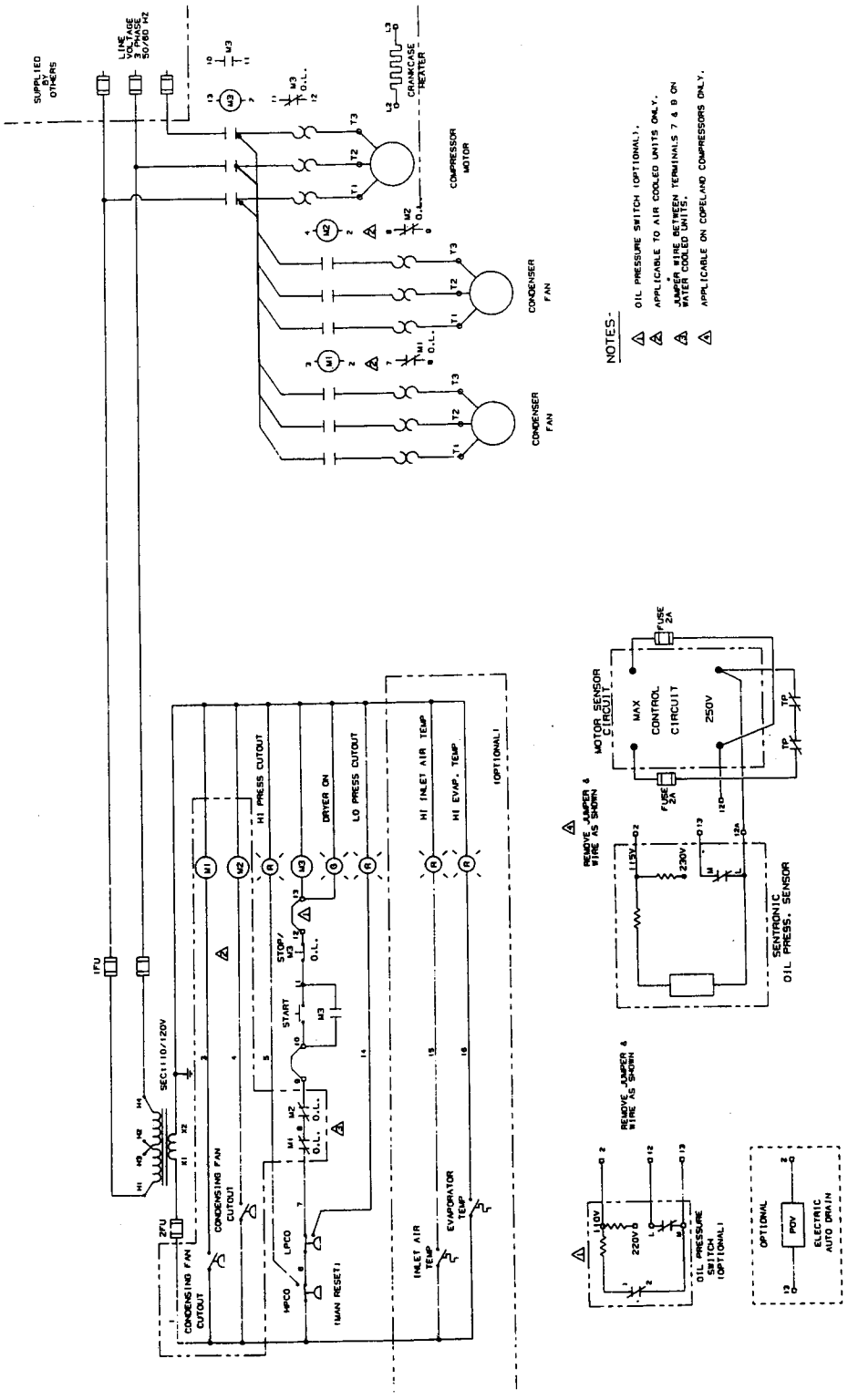
Figure 4-4 Wiring Schematic (PSII 1600-PSII 2000)



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Section 5
OPERATION

5.1 GENERAL

While Sullair has built into dryer an array of controls and indicators to assure you that it is operating properly, you will want to recognize and interpret the reading which will call for service or indicate the beginning of a malfunction. Before starting your Sullair dryer, read this section thoroughly and familiarize yourself with the controls and indicators - their purpose, location and use.

5.2 PURPOSE OF CONTROLS

Control or Indicator	Purpose
AIR INLET PRESSURE GAUGE	Indicates the pressure of the air as it enters the dryer.
AIR OUTLET PRESSURE GAUGE	Indicates the pressure of the air as it leaves the dryer.
AIR INLET TEMPERATURE GAUGE	Indicates the temperature of the air as it enters the dryer.
REFRIGERANT SUCTION PRESSURE GAUGE	Indicates the refrigerant pressure as it enters the compressor.
REFRIGERANT HEAD PRESSURE GAUGE	Indicates the refrigerant pressure as it leaves the compressor.
SIGHT GLASS AND MOISTURE INDICATOR	Indicates the condition of the refrigerant in the system — green when anhydrous, yellow when hydrated.
HOT GAS BYPASS VALVE	Introduces high pressure refrigerant vapor to evaporative heat exchanger to maintain design suction pressure and to prevent freeze up.
THERMO EXPANSION VALVE	Meters high pressure liquid to evaporative heat exchanger, where boiling refrigerant "picks up" heat from compressed air passing through dryer.

5.3 INITIAL START-UP PROCEDURE

After the installation has been completed, the following items should be checked.

1. Check main electrical supply to insure correct voltage and fuses are provided.
2. Check proper connection and support of compressed air lines to the dryer (complete with bypass valving system).
3. In water-cooled units, check water supply connections to the condenser. All manual valves in the system should be open. Check that water supply meets the specification requirements for volume, pressure and temperature.
4. Check that inlet air temperature and pressure to the dryer meets the specification requirements.
5. Check that all manual control valves (shut-off valve, receiver and suction hand valve) in the refrigerant circuit are open.

5.4 SUBSEQUENT START-UP PROCEDURE

1. Turn on the main electrical power to the dryer, making sure the green start button light on the dryer is not on. The dryer must be in this mode for at least twelve (12) hours to allow the compressor crankcase heater to vaporize any liquid refrigerant in the crankcase.
2. Be sure that the bypass valve in the main air line is open and the valves to the dryer are closed.
3. Open the valve on the dryer inlet line sufficiently to pressurize the unit. When the dryer is up to pressure, check all pipework connections for leaks.

4. When checks are complete and the twelve (12) hours have expired, push the START button.

5. Let the dryer run for approximately five (5) minutes before slowly opening the outlet valve and closing the bypass valve. The dryer is designed to run continuously and should not be cycled with the compressor.

5.5 RUNNING OPERATION

After the dryer has been started under rated load, let the dryer run for another thirty (30) minutes to allow stabilization of the system.

The gauge readings are as follows:

AIR INLET PRESSURE GAUGE - air pressure at the inlet of the dryer.

AIR OUTLET PRESSURE GAUGE - Air inlet pressure minus the pressure drop through the dryer.

AIR INLET TEMPERATURE GAUGE - Compressed air temperature leaving the aftercooler and entering the dryer.

AIR OUTLET TEMPERATURE GAUGE - Indicates the temperature of the air as it leaves the dryer.

REFRIGERANT SUCTION PRESSURE GAUGE: R-12 = 25 thru 30 PSIG (172 thru 207kPa)
R-22 = 50 thru 55 PSIG (345 thru 379kPa)

REFRIGERANT HEAD PRESSURE GAUGE: For air-cooled unit, take the ambient temperature and add 25°F to 30°F (-4°C to -1°C). Convert to PSIG reading (check for R-12 or R-22).

For water-cooled units, take water inlet temperature and add 15°F to 20°F (-9°C to -7°C). Convert to PSIG reading (check for R-12 or R-22).

SIGHT GLASS AND MOISTURE GAUGE: It may take up to twelve (12) hours of running before the indicator becomes the proper color indicating a moisture free system. Green color indicates a moisture free system. Yellow indicates a moisture laden system. There should be no bubbles visible.

The non-cycling operation of the dryer is controlled by two (2) modulating valves (the hot gas bypass valve in conjunction with the thermostatic expansion valve) or the optional three (3) modulation valves (the hot gas bypass, desuperheating valve, and the thermostatic expansion valves). These valves will open and close automatically depending on the amount of cooling required, thus maintaining the designed pressure dewpoint of 35°F/39°F (2°C/4°C), or 50°F (10°C).

ATTENTION:

Expansion and hot gas bypass valves are preset at the factory. However, they may require readjustment at initial installation and periodically to help assure the suction pressure remains in the specified range, as stated in your operator's manual. If the suction pressure is too low, icing of the evaporator is possible.

Figure 5-1 Temperature Pressure Chart

TEMPERATURE PRESSURE CHART

TEMPERATURE	PRESSURE R-12	PRESSURE R-22
20°F (-7°C)	21.0	43.0
22°F (-6°C)	22.4	45.3
24°F (-4°C)	23.9	47.6
26°F (-3°C)	25.4	49.9
28°F (-2°C)	26.9	52.4
30°F (-1°C)	28.5	54.9
32°F (0°C)	30.1	57.5
34°F (1°C)	31.7	60.1
36°F (2°C)	33.4	62.8
38°F (3°C)	35.2	65.6
40°F (4°C)	37.0	68.5
45°F (7°C)	41.7	76.0
50°F (10°C)	46.7	84.0
55°F (13°C)	52.0	92.6
60°F (16°C)	57.7	101.6
65°F (18°C)	63.8	111.2
70°F (21°C)	70.2	121.4
75°F (24°C)	77.0	132.2
80°F (27°C)	84.2	143.6
85°F (29°C)	91.8	155.7
90°F (32°C)	99.8	168.4
95°F (35°C)	108.3	181.8
100°F (38°C)	117.2	195.9
105°F (41°C)	126.6	210.8
110°F (43°C)	136.4	226.4
115°F (46°C)	146.8	242.7
120°F (49°C)	157.7	259.9
125°F (52°C)	169.1	277.9
130°F (54°C)	181.0	296.8
140°F (60°C)	206.6	337.3
150°F (66°C)	234.6	381.5
160°F (71°C)	265.1	429.8

To determine proper refrigerant head pressure for Air-Cooled units: take ambient temperature +30°F (-1°C). Using temperature pressure chart above convert temperature to pressure (check for R-12 or R-22). For Water-Cooled units: take water inlet temperature and add +20°F (-7°C). Using temperature pressure chart above convert temperature to pressure (check for R-12 or R-22).

Section 6
MAINTENANCE

6.1 GENERAL
As you proceed in reading this section, it will be easy to see that the Maintenance Program for your dryer is quite minimal. The use of the service indicators will alert you when service maintenance is required. Checks on a regular basis of the dryer will help insure that all items are functioning properly.

6.2 ROUTINE MAINTENANCE
Check automatic condensate traps on a regular basis to insure that they are operating properly, or the emulsion will back up into the compressed air system. Proper drain trap maintenance is the owner's responsibility and is not covered by the warranty.

On air-cooled units, the condenser fins may need to be periodically cleaned to remove dust, lint, etc., to assure efficiency heat transfer. High head pressure or a visual check will ascertain this condition.

Check the gauge readings periodically for good system operation.

The optional 0.3 micron coalescing separator filter element should be changed when the pressure drop through the dryer reaches a differential pressure of 10 PSIG (69kPa) above the pressure drop of a new filter element. Check air inlet and outlet gauges for these readings. Inlet minus outlet pressure = pressure differential. The filter element has a longer life when used with a rotary screw air compressor.

Inspect sight glass and moisture indicator for a continuous stream of bubbles which indicates loss of refrigerant or color change from green to yellow indicating moisture contamination of the refrigerant.

6.3 TROUBLESHOOTING
The dryer consists of three basic systems: Air, Refrigerant and Electrical. An air leak at 100 PSIG (690kPa) will provide an audible signal indicating where there is a problem. R-12 or R-22 has no color or odor, therefore a small refrigerant leak is difficult to find. However, it can be detected by a bubble test, halide torch (with a flame which changes from red-orange to blue on contact with refrigerant), or a electronic detector.

The electrical system consists of transformers, starter, switches, relays, etc. The use of the volt-ohm meter or similar equipment is required for checking continuity, amperage and voltage.

TROUBLESHOOTING

SYMPTOM	*PROBABLE CAUSE AND REMEDY*
1. Unit does not run.	1. No line voltage. a. Follow wiring diagram and check voltage from compressor terminal to the power source to find where the circuit was interrupted. b. Inspect electrical components such as switches, controls, motors, transformers, fuses, etc. c. The supply power voltage, frequency and phase must coincide with unit's nameplate. 2. Improperly wired; check wiring against wiring diagram and tighten any loose connection. 3. Blown fuse; check for reason and replace. 4. Tripped overload. a. Turn unit off, wait for 15 minutes and check for overload condition. b. Be sure that the suction temperature and pressure are within the limitations of the compressor.

SYMPTOM	*PROBABLE CAUSE AND REMEDY*
	5. Safety controls open. a. Inspect the low and high pressure switches, and oil failure switch (if unit is equipped with one) to see if the contact points are closed. b. The low pressure switch can shut down the unit due to loss of refrigerant or hot gas bypass valve being out of adjustment. c. The high pressure switch can shut down the unit due to high ambient air temperature, condenser not receiving proper cooling, hot gas bypass valve out of adjustment, or overcharge of refrigerant.
2. Head pressure too high.	1. Refrigerant overcharge. a. Discharge excess refrigerant; check unit's nameplate for total system refrigerant charge. b. Refrigerant overcharge may cause system not to perform properly and efficiently. 2. Condenser fouled and dirty. a. Dismantle and clean condenser. b. Clogged fins in air-cooled condenser will reduce heat transfer efficiency. Fins should be periodically checked and cleaned. 3. Water flow restricted in a water-cooled condenser. a. Inspect water line to restore free flow and check for water flow requirement. b. Refer to the Section 3, Specifications for required flow and the cooling water connection chart for required line size. 4. Water regulating valve out of adjustment or defective; adjust or replace. 5. Defective fan control; repair or replace. 6. Defective fan motor; replace. 7. Dryer location too hot (high ambient); cool ambient or relocate the unit. 8. Compressed air leaks to refrigerant system. a. Evacuate and recharge with refrigerant. b. Repair or replace evaporator. c. Can be detected by checking the color indicator or bubbles in the glass. 9. Fan operating in wrong direction. a. Reverse any two wires at disconnect. b. Single phase fan will rotate only in correct direction. c. For three phase fans, check for proper rotation (see Wiring Diagram). d. Fans must pull air thru condenser.
3. Head pressure too low.	1. Low ambient temperature (air-cooled). a. Increase ambient temperature. b. If ambient temperature is too low, excessive cooling will take place. 2. Refrigerant shortage. a. Check for leaks in system; repair and recharge until bubbles disappear in the sight glass. b. Turn off the unit for five (5) minutes; restart, watching sight glass. c. Bubbles should appear at first due to the modulating action of the system. d. Sight glass will be "clear" if system is full. e. If no bubbles appear, system has lost charge. See unit's nameplate for total system charge. 3. Faulty compressor.

SYMPTOM	*PROBABLE CAUSE AND REMEDY*
	a. Check for reason; repair or replace. b. If compressor valve, rings, etc. are defective, the unit will not compress properly. 4. Defective fan control; repair, adjust or replace.
4. Suction pressure too low.	1. Hot gas bypass valve out of adjustment or defective. a. Check the power element; adjust or replace. b. Turn clockwise to increase suction pressure. R-12: 25-30 PSIG (170-205kPa). R-22: 50-55 PSIG (345-380kPa). 2. Refrigerant shortage; add enough refrigerant to maintain desired suction pressure. a. Can be detected in the sight glass. b. Also check amperage draw. 3. Thermostatic expansion valve does not feed enough refrigerant to evaporator. a. Adjust TXV by turning stem counterclockwise. b. When adjusting the valve, make no more than one turn at a time, as much as 30 minutes may be required for the new balance to take place after adjustment. 4. Incorrect hot gas bulb installation. a. Relocate and install bulb correctly. b. It is generally recommended that bulb be installed at the 4 or 8 o'clock position on the side of the horizontal line, parallel with respect to the direction of flow. c. Good thermal contact between the bulb and suctionline is essential for satisfactory valve control and performance. 5. Excessive pressure drop in high side. a. Check for any restriction (plugged filter drier or receiver and valve partially closed). b. Suction pressure should normally be steady and vary only 1-3 PSIG (5-20kPa) from high to low. If it varies more than this, a restriction in the system is indicated.
5. Suction pressure too high.	1. Hot gas bypass valve out of adjustment or defective. a. Turn counterclockwise to lower suction pressure to desired reading. b. Compressed air dewpoint will rise as the suction pressure increases. 2. Superheat too low or TXV is out of adjustment. a. Turn TXV clockwise. b. Make sure that adjustment is made one full turn at a time and wait for about 30 minutes to stabilize. 3. TXV bulb location; relocate bulb making sure it is parallel to the direction of flow and of good thermal contact.
6. Suction temperature too high (continuously above 65°F (18°C).	1. Expansion valve out of adjustment or defective. a. Turn stem counterclockwise one full turn at a time and wait for 30 minutes to stabilize. b. Replace if no change. c. Recommended compressor suction temperature should not be more than 65°F (18°C).
7. Water in the compressed air system.	1. Drain traps clogged. a. Disassemble and clean traps to restore free flow of drainage. b. Check drain lines. c. Automatic drain traps are ballfloat type and do not need

TROUBLESHOOTING (Continued)

SYMPTOM	*PROBABLE CAUSE AND REMEDY*
	priming. It should be disassembled and cleaned after two weeks of operation. d. Open manual pet cock weekly. e. Should more than one pint of fluid be discharged, clean traps thoroughly. 2. Air bypass system open; close air bypass valve (see Start-up). 3. Air flow rate exceeds the actual capacity of the dryer. a. Check dryer capacity. b. Air flow rate should meet dryer specification requirement. 4. High inlet air temperature; check actual air temperature entering the dryer. It should not exceed 100°F (38°C). See Specifications Section 3 5. When there is a 20°F (11°C), increase in inlet air temperature, it will double the amount of water vapor suspended in compressed air.
8. High air pressure drop.	1. Excessive air flow; check SCFM through dryer. 2. Restricted air flow or leaks and evaporator frost up; check and repair. a. Check optional filter. b. Filter element may require changing.
9. Bubbles in sight glass.	1. Refrigerant shortage. a. Check for leaks in system. b. Repair and recharge with refrigerant until bubbles disappear. c. The sight glass should be clear. d. The modulating action of the three (3) valves may cause a few bubbles during start-up, but should clear up in 2 to 3 minutes.
10. Sight glass indicator changes to yellow.	1. Moisture in the system; evacuate the charge. a. Replace filter drier and evacuate dryer with the vacuum pump. b. Recharge with refrigerant.
11. High evaporator temperature.	1. Excessive air flow rate; check dryer capacity. 2. Low superheat. a. Adjust TXV clockwise until correct superheat is indicated. b. A minimum of 5°F (3°C) superheat is acceptable. 3. Hot gas bypass valve out of adjustment. a. Turn clockwise to increase and turn counterclockwise to decrease evaporating temperature and pressure. b. Evaporating temperature should be within 29°F to 33°F (-2°C to 1°C).

7.1 PROCEDURE FOR ORDERING PARTS

Parts should be ordered from the nearest Sullair Representative or the Representative from whom the machine was purchased. If for any reason parts cannot be obtained in this manner, contact the factory directly at the address below.

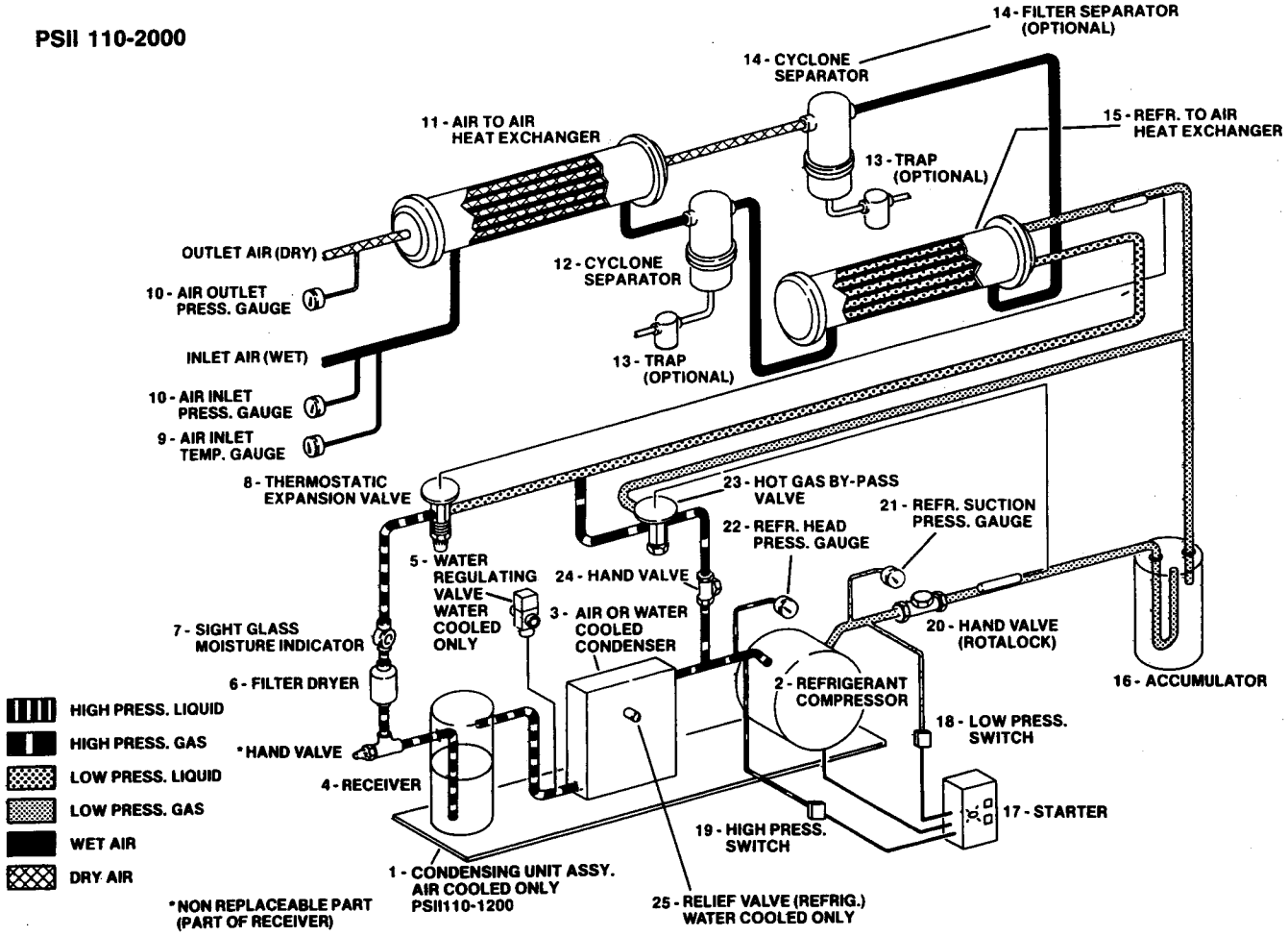
When ordering parts always indicate the **Serial Number** of the machine. This can be obtained from the Bill of Lading for the machine or from the Serial Number Plate located on the machine.

Standard fasteners (capscrews, nuts, washers, etc.) tubing and fittings plus other standard hardware have not been included in the Parts List. Standard Pipe is 150# malleable. These are items which can be obtained quicker and more economically from local sources.

SULLAIR CORPORATION
Subsidiary of Sundstrand Corporation
3700 East Michigan Boulevard
Michigan City, Indiana 46360
Telephone: (219) 879-5451
Telex: 4946922

Customer Service Division
Parts & Service
1625 E. Second St.
Michigan City, Indiana 46360
Telephone: (219) 874-1800
(800) 348-2722
Telex: 4320147

PSII 110-2000



Section 7
PARTS LIST

7.2 PSII 110 Voltage 115 and 230/1/60

ITEM NUMBER	DESCRIPTION	PART NUMBER	QUANTITY
1	condensing unit assembly (air-cooled only) 115V	405518	1
	condensing unit assembly (air-cooled only) 230V	405520	1
2	compressor (air-cooled or water-cooled) 115V	406104	1
	compressor (air-cooled or water-cooled) 230V	406107	1
3	condenser (air-cooled)	Consult Factory	1
	condenser (water-cooled)	405757	1
4	receiver (air-cooled and water-cooled)	406243	1
5	valve, water regulating (water-cooled)	406484-001	1
6	filter/drier, liquid line	406227	1
7	sight glass/moisture indicator	406482	1
8	valve, thermo expansion	406466-001	1
9	gauge, air inlet temperature	405632	1
10	gauge, air inlet and outlet pressure	406047	2
11	exchanger, heat - air to air	406430-332	1
12	separator, moisture - 1st stage	019341	1
13	drain/trap, moisture (optional)	250019-665	2
14	separator, moisture - 2nd stage	019340	1
	separator, filter (optional)	019042	1
	kit, replacement filter element	001380	1
15	exchanger, heat (evaporator)-refrigerant to air	406431-418	1
16	accumulator, suction	406408-001	1
17	starter and misc. electrical parts (contains the following)		
	relay, overload 115V	406450-019	1
	relay, overload 230V	406450-001	1
	contactor	250026-047	1
	contact, auxillary	250026-048	1
	light, indicator	406440	2
	pushbutton, START	406438	1
	base, START pushbutton	406438-001	1
	pushbutton, STOP	406439	1
	pushbutton, RESET	406439-001	1
	fuse, compressor panel	250019-751	2
	motor, fan (air-cooled only) 115V	406105	1
	motor, fan (air-cooled only) 230V	406108	1
	switch, low fan cutout (air-cooled)	N/A	
	switch, high fan cutout (air-cooled)	N/A	
	transformer, control (208/230/460-115V)	250023-356	1
	heater, compressor crankcase	N/A	
18	switch, low pressure cutout	406034-003	1
19	switch, high pressure cutout	406034-005	1
20	valve, shutoff-rotalock	406268	1
21	gauge, refrigerant suction pressure	250017-174	1
22	gauge, refrigerant suction pressure	250017-175	1
23	valve, hot gas bypass	406464-001	1
24	valve, hand control shutoff	406483-001	1
25	valve, relief (water-cooled)	250022-159	1

WHEN ORDERING PARTS, ALWAYS INDICATE SERIAL NUMBER OF MACHINE

7.3 PSII 170 Voltage 115 and 230/1/60

ITEM NUMBER	DESCRIPTION	PART NUMBER	QUANTITY
1	condensing unit assembly (air-cooled only) 115V	405528	1
	condensing unit assembly (air-cooled only) 230V	405530	1
2	compressor (air-cooled or water-cooled) 115V	406110	1
	compressor (air-cooled or water-cooled) 230V	406113	1
3	condenser (air-cooled)	Consult Factory	1
	condenser (water-cooled)	405757	1
4	receiver (air-cooled and water-cooled)	406243	1
5	valve, water regulating (water-cooled)	406484-001	1
6	filter/drier, liquid line	406227	1
7	sight glass/moisture indicator	406482	1
8	valve, thermo expansion	406466-001	1
9	gauge, air inlet temperature	405632	1
10	gauge, air inlet and outlet pressure	406047	2
11	exchanger, heat - air to air	406430-332	1
12	separator, moisture - 1st stage	019341	1
13	drain/trap, moisture (optional)	250019-665	2
14	separator, moisture - 2nd stage	019340	1
	separator, filter (optional)	019042	1
	kit, replacement filter element	001380	1
15	exchanger, heat (evaporator)-refrigerant to air	406431-418	1
16	accumulator, suction	406408-001	1
17	starter and misc. electrical parts (contains the following)		
	relay, overload 115V	406450-005	1
	relay, overload 230V	406450-002	1
	contactor	250026-047	1
	contact, auxillary	250026-048	1
	light, indicator	406440	2
	pushbutton, START	406438	1
	base, START pushbutton	406438-001	1
	pushbutton, STOP	406439	1
	pushbutton, RESET	406439-001	1
	fuse, compressor panel	250019-751	2
	motor, fan (air-cooled only) 115V	406111	1
	motor, fan (air-cooled only) 230V	406114	1
	switch, low fan cutout (air-cooled)	N/A	
	switch, high fan cutout (air-cooled)	N/A	
	transformer, control (208/230/460-115V)	250023-356	1
	heater, compressor crankcase	N/A	
18	switch, low pressure cutout	406034-003	1
19	switch, high pressure cutout	406034-005	1
20	valve, shutoff-rotalock	406268-001	1
21	gauge, refrigerant suction pressure	250017-174	1
22	gauge, refrigerant suction pressure	250017-175	1
23	valve, hot gas bypass	406464-001	1
24	valve, hand control shutoff	406483-001	1
25	valve, relief (water-cooled)	250022-159	1

Section 7
PARTS LIST

7.4 PSII 240 Voltage 230 and 460/3/60

ITEM NUMBER	DESCRIPTION	PART NUMBER	QUANTITY
1	condensing unit assembly (air-cooled only) 230V	405548	1
	condensing unit assembly (air-cooled only) 460V	405550	1
2	compressor (air-cooled or water-cooled) 230V	406116	1
	compressor (air-cooled or water-cooled) 460V	406119	1
3	condenser (air-cooled)	Consult Factory	1
	condenser (water-cooled)	405759	1
4	receiver (air-cooled and water-cooled)	406243	1
5	valve, water regulating (water-cooled)	406484-001	1
6	filter/drier, liquid line	406227	1
7	sight glass/moisture indicator	406482	1
8	valve, thermo expansion	406466-002	1
9	gauge, air inlet temperature	405632	1
10	gauge, air inlet and outlet pressure	406047	2
11	exchanger, heat - air to air	406430-430	1
12	separator, moisture - 1st stage	019352	1
13	drain/trap, moisture (optional)	250019-665	2
14	separator, moisture - 2nd stage	019270-001	1
	separator, filter (optional)	019042	1
	kit, replacement filter element	001380	1
15	exchanger, heat (evaporator)-refrigerant to air	406431-430	1
16	accumulator, suction	406408-005	1
17	starter and misc. electrical parts (contains the following)		
	relay, overload 230V	406450-002	1
	relay, overload 460V	406450-018	1
	contactor	250026-047	1
	contact, auxillary	250026-048	1
	light, indicator	406440	2
	pushbutton, START	406438	1
	base, START pushbutton	406438-001	1
	pushbutton, STOP	406439	1
	pushbutton, RESET	406439-001	1
	fuse, compressor panel	250019-751	2
	motor, fan (air-cooled only) 230	406117	1
	motor, fan (air-cooled only) 460V	406120	1
	switch, low fan cutout (air-cooled)	N/A	
	switch, high fan cutout (air-cooled)	N/A	1
	transformer, control (208/230/460-115V)	250023-356	1
	heater, compressor crankcase 230V	406258-001	1
	heater, compressor crankcase 460V	406258	1
18	switch, low pressure cutout	406034-003	1
19	switch, high pressure cutout	406034-005	1
20	valve, shutoff-rotalock	406264-001	1
21	gauge, refrigerant suction pressure	250017-174	1
22	gauge, refrigerant suction pressure	250017-175	1
23	valve, hot gas bypass	406464-001	1
24	valve, hand control shutoff	406483-001	1
25	valve, relief (water-cooled)	250022-159	1

WHEN ORDERING PARTS, ALWAYS INDICATE SERIAL NUMBER OF MACHINE

7.5 PSII 280 Voltage 230 and 460/3/60

ITEM NUMBER	DESCRIPTION	PART NUMBER	QUANTITY
1	condensing unit assembly (air-cooled only) 230V	405548	1
	condensing unit assembly (air-cooled only) 460V	405550	1
2	compressor (air-cooled or water-cooled) 230V	406116	1
	compressor (air-cooled or water-cooled) 460V	406119	1
3	condenser (air-cooled)	Consult Factory	1
	condenser (water-cooled)	405759	1
4	receiver (air-cooled and water-cooled)	406243	1
5	valve, water regulating (water-cooled)	406484-001	1
6	filter/drier, liquid line	406227	1
7	sight glass/moisture indicator	406482	1
8	valve, thermo expansion	406466-002	1
9	gauge, air inlet temperature	405632	1
10	gauge, air inlet and outlet pressure	406047	2
11	exchanger, heat - air to air	406430-430	1
12	separator, moisture - 1st stage	019352	1
13	drain/trap, moisture (optional)	250019-665	2
14	separator, moisture - 2nd stage	019270-001	1
	separator, filter (optional)	019042	1
	kit, replacement filter element	001380	1
15	exchanger, heat (evaporator)-refrigerant to air	406431-430	1
16	accumulator, suction	406408-005	1
17	starter and misc. electrical parts (contains the following)		
	relay, overload 230V	406450-002	1
	relay, overload 460V	406450-018	1
	contactor	250026-047	1
	contact, auxillary	250026-048	1
	light, indicator	406440	2
	pushbutton, START	406438	1
	base, START pushbutton	406438-001	1
	pushbutton, STOP	406439	1
	pushbutton, RESET	406439-001	1
	fuse, compressor panel	250019-751	2
	motor, fan (air-cooled only) 230V	406117	1
	motor, fan (air-cooled only) 460V	406120	1
	switch, low fan cutout (air-cooled)	N/A	
	switch, high fan cutout (air-cooled)	N/A	
	transformer, control (208/230/460-115V)	250023-356	1
	heater, compressor crankcase 230V	406258-001	1
	heater, compressor crankcase 460V	406258	1
18	switch, low pressure cutout	406034-003	1
19	switch, high pressure cutout	406034-005	1
20	valve, shutoff-rotalock	406264-001	1
21	gauge, refrigerant suction pressure	250017-174	1
22	gauge, refrigerant suction pressure	250017-175	1
23	valve, hot gas bypass	406464-001	1
24	valve, hand control shutoff	406483-001	1
25	valve, relief (water-cooled)	250022-159	1

Section 7
PARTS LIST

7.6 PSII 350 Voltage 230 and 460/3/60

ITEM NUMBER	DESCRIPTION	PART NUMBER	QUANTITY
1	condensing unit assembly (air-cooled only) 230V	405556	1
	condensing unit assembly (air-cooled only) 460V	405558	1
2	compressor (air-cooled or water-cooled) 230V	406121	1
	compressor (air-cooled or water-cooled) 460V	406122	1
3	condenser (air-cooled)	Consult Factory	1
	condenser (water-cooled)	405760	1
4	receiver (air-cooled and water-cooled)	406243	1
5	valve, water regulating (water-cooled)	406484-001	1
6	filter/drier, liquid line	406227	1
7	sight glass/moisture indicator	406482	1
8	valve, thermo expansion	406466-003	1
9	gauge, air inlet temperature	405632	1
10	gauge, air inlet and outlet pressure	406047	2
11	exchanger, heat - air to air	406430-530	1
12	separator, moisture - 1st stage	019285	1
13	drain/trap, moisture (optional)	250019-665	2
14	separator, moisture - 2nd stage	019271-001	1
	separator, filter (optional)	019043	1
	kit, replacement filter element	001381	1
15	exchanger, heat (evaporator)-refrigerant to air	406431-528	1
16	accumulator, suction	406408-005	1
17	starter and misc. electrical parts (contains the following)		
	relay, overload 230V	406450-019	1
	relay, overload 460V	406450-001	1
	contactor	250026-047	1
	contact, auxillary	250026-048	1
	light, indicator	406440	2
	pushbutton, START	406438	1
	base, START pushbutton	406438-001	1
	pushbutton, STOP	406439	1
	pushbutton, RESET	406439-001	1
	fuse, compressor panel	250019-751	2
	motor, fan (air-cooled only) 230V	406117	2
	motor, fan (air-cooled only) 460V	406120	2
	switch, low fan cutout (air-cooled)	406173	1
	switch, high fan cutout (air-cooled)	406169	1
	transformer, control (208/230/460-115V)	250023-356	1
	heater, compressor crankcase 230V	406258-001	1
	heater, compressor crankcase 460V	406258	1
18	switch, low pressure cutout	406034-003	1
19	switch, high pressure cutout	406034-005	1
20	valve, shutoff-rotalock	406264-001	1
21	gauge, refrigerant suction pressure	250017-174	1
22	gauge, refrigerant suction pressure	250017-175	1
23	valve, hot gas bypass	406464-007	1
24	valve, hand control shutoff	406483-003	1
25	valve, relief (water-cooled)	250022-159	1

WHEN ORDERING PARTS, ALWAYS INDICATE SERIAL NUMBER OF MACHINE

7.7 PSII 450 Voltage 230 and 460/3/60

ITEM NUMBER	DESCRIPTION	PART NUMBER	QUANTITY
1	condensing unit assembly (air-cooled only) 230V	405556	1
	condensing unit assembly (air-cooled only) 460V	405558	1
2	compressor (air-cooled or water-cooled) 230V	406121	1
	compressor (air-cooled or water-cooled) 460V	406122	1
3	condenser (air-cooled)	Consult Factory	1
	condenser (water-cooled)	405760	1
4	receiver (air-cooled and water-cooled)	406243	1
5	valve, water regulating (water-cooled)	406484-001	1
6	filter/drier, liquid line	406227	1
7	sight glass/moisture indicator	406482	1
8	valve, thermo expansion	406466-003	1
9	gauge, air inlet temperature	405632	1
10	gauge, air inlet and outlet pressure	406047	2
11	exchanger, heat - air to air	406430-530	1
12	separator, moisture - 1st stage	019285	1
13	drain/trap, moisture (optional)	250019-665	2
14	separator, moisture - 2nd stage	019271-001	1
	separator, filter (optional)	019043	1
	kit, replacement filter element	001381	1
15	exchanger, heat (evaporator)-refrigerant to air	406431-532	1
16	accumulator, suction	406408-005	1
17	starter and misc. electrical parts (contains the following)		
	relay, overload 230V	406450-003	1
	relay, overload 460V	406450-001	1
	contactor	250026-047	1
	contact, auxillary	250026-048	1
	light, indicator	406440	2
	pushbutton, START	406438	1
	base, START pushbutton	406438-001	1
	pushbutton, STOP	406439	1
	pushbutton, RESET	406439-001	1
	fuse, compressor panel	250019-751	2
	motor, fan (air-cooled only) 230V	406117	2
	motor, fan (air-cooled only) 460V	406120	2
	switch, low fan cutout (air-cooled)	406173	1
	switch, high fan cutout (air-cooled)	406169	1
	transformer, control (208/230/460-115V)	250023-356	1
	heater, compressor crankcase 230V	406258-001	1
	heater, compressor crankcase 460V	406258	1
18	switch, low pressure cutout	406034-003	1
19	switch, high pressure cutout	406034-005	1
20	valve, shutoff-rotalock	406264-001	1
21	gauge, refrigerant suction pressure	250017-174	1
22	gauge, refrigerant suction pressure	250017-175	1
23	valve, hot gas bypass	406464-007	1
24	valve, hand control shutoff	406483-003	1
25	valve, relief (water-cooled)	250022-159	1

7.8 PSII 520 Voltage 230 and 460/3/60

ITEM NUMBER	DESCRIPTION	PART NUMBER	QUANTITY
1	condensing unit assembly (air-cooled only) 230V	405977	1
	condensing unit assembly (air-cooled only) 460V	405978	1
2	compressor (air-cooled or water-cooled) 230V	406184	1
	compressor (air-cooled or water-cooled) 460V	406185	1
3	condenser (air-cooled)	Consult Factory	1
	condenser (water-cooled)	405761	1
4	receiver (air-cooled and water-cooled)	406243	1
5	valve, water regulating (water-cooled)	406484-003	1
6	filter/drier, liquid line	406227	1
7	sight glass/moisture indicator	406482	1
8	valve, thermo expansion	406466-004	1
9	gauge, air inlet temperature	405632	1
10	gauge, air inlet and outlet pressure	406047	2
11	exchanger, heat - air to air	406430-630	1
12	separator, moisture - 1st stage	019285	1
13	drain/trap, moisture (optional)	250019-665	2
14	separator, moisture - 2nd stage	019271-001	1
	separator, filter (optional)	019043	1
	kit, replacement filter element	001381	1
15	exchanger, heat (evaporator)-refrigerant to air	406431-538	1
16	accumulator, suction	406408-005	1
17	starter and misc. electrical parts (contains the following)		
	relay, overload 230V	406450-003	1
	relay, overload 460V	406450-002	1
	contactor	250026-047	1
	contact, auxillary	250026-048	1
	light, indicator	406440	2
	pushbutton, START	406438	1
	base, START pushbutton	406438-001	1
	pushbutton, STOP	406439	1
	pushbutton, RESET	406439-001	1
	fuse, compressor panel	250019-751	2
	motor, fan (air-cooled only) 230V	406125	2
	motor, fan (air-cooled only) 460V	406129	2
	switch, low fan cutout (air-cooled)	406174	1
	switch, high fan cutout (air-cooled)	406170	1
	transformer, control (208/230/460-115V)	250023-356	1
	heater, compressor crankcase 230V	406258-001	1
	heater, compressor crankcase 460V	406258	1
18	switch, low pressure cutout	406034-002	1
19	switch, high pressure cutout	406034-001	1
20	valve, shutoff-rotalock	406264-001	1
21	gauge, refrigerant suction pressure	250017-174	1
22	gauge, refrigerant suction pressure	250017-175	1
23	valve, hot gas bypass	406464-002	1
24	valve, hand control shutoff	406483-002	1
25	valve, relief (water-cooled)	250022-159	1

WHEN ORDERING PARTS, ALWAYS INDICATE SERIAL NUMBER OF MACHINE

7.9 PSII 650 Voltage 230 and 460/3/60

ITEM NUMBER	DESCRIPTION	PART NUMBER	QUANTITY
1	condensing unit assembly (air-cooled only) 230V	405977	1
	condensing unit assembly (air-cooled only) 460V	405978	1
2	compressor (air-cooled or water-cooled) 230V	406184	1
	compressor (air-cooled or water-cooled) 460V	406185	1
3	condenser (air-cooled)	Consult Factory	1
	condenser (water-cooled)	405761	1
4	receiver (air-cooled and water-cooled)	406243	1
5	valve, water regulating (water-cooled)	406484-003	1
6	filter/drier, liquid line	406227	1
7	sight glass/moisture indicator	406482	1
8	valve, thermo expansion	406466-004	1
9	gauge, air inlet temperature	405632	1
10	gauge, air inlet and outlet pressure	406047	2
11	exchanger, heat - air to air	406430-630	1
12	separator, moisture - 1st stage	019377	1
13	drain/trap, moisture (optional)	250019-665	2
14	separator, moisture - 2nd stage	019271-002	1
	separator, filter (optional)	019043	1
	kit, replacement filter element	001381	1
15	exchanger, heat (evaporator)-refrigerant to air	406431-630	1
16	accumulator, suction	406408-005	1
17	starter and misc. electrical parts (contains the following)		
	relay, overload 230V	406450-003	1
	relay, overload 460V	406450-002	1
	contactor	250026-047	1
	contact, auxillary	250026-048	1
	light, indicator	406440	2
	pushbutton, START	406438	1
	base, START pushbutton	406438-001	1
	pushbutton, STOP	406439	1
	pushbutton, RESET	406439-001	1
	fuse, compressor panel	250019-751	2
	motor, fan (air-cooled only) 230V	406125	2
	motor, fan (air-cooled only) 460V	406129	2
	switch, low fan cutout (air-cooled)	406174	1
	switch, high fan cutout (air-cooled)	406170	1
	transformer, control (208/230/460-115V)	250023-356	1
	heater, compressor crankcase 230V	406258-001	1
	heater, compressor crankcase 460V	406258	1
18	switch, low pressure cutout	406034-002	1
19	switch, high pressure cutout	406034-001	1
20	valve, shutoff-rotalock	406014-001	1
21	gauge, refrigerant suction pressure	250017-174	1
22	gauge, refrigerant suction pressure	250017-175	1
23	valve, hot gas bypass	406464-002	1
24	valve, hand control shutoff	406483-002	1
25	valve, relief (water-cooled)	250022-159	1

Section 7
PARTS LIST

7.10 PSII 800 Voltage 230 and 460/3/60

ITEM NUMBER	DESCRIPTION	PART NUMBER	QUANTITY
1	condensing unit assembly (air-cooled only) 230V	406393	1
	condensing unit assembly (air-cooled only) 460V	406393-001	1
2	compressor (air-cooled or water-cooled) 230V	406398-001	1
	compressor (air-cooled or water-cooled) 460V	406398	1
3	condenser (air-cooled)	Consult Factory	1
	condenser (water-cooled)	405762	1
4	receiver (air-cooled and water-cooled)	406391	1
5	valve, water regulating (water-cooled)	406484-003	1
6	filter/drier, liquid line	406227-001	1
7	sight glass/moisture indicator	406482-001	1
8	valve, thermo expansion	406466-005	1
9	gauge, air inlet temperature	405632	1
10	gauge, air inlet and outlet pressure	406047	2
11	exchanger, heat - air to air	406430-830	1
12	separator, moisture - 1st stage	250022-375	1
13	drain/trap, moisture (optional)	250019-665	2
14	separator, moisture - 2nd stage	019375	1
	separator, filter (optional)	019044	1
	kit, replacement filter element	001382	1
15	exchanger, heat (evaporator)-refrigerant to air	406431-648	1
16	accumulator, suction	406060	1
17	starter and misc. electrical parts (contains the following)		
	relay, overload 230V	406450-005	1
	relay, overload 460V	406450-002	1
	contactor	250026-047	1
	contact, auxillary	250026-048	1
	light, indicator	406440	2
	pushbutton, START	406438	1
	base, START pushbutton	406438-001	1
	pushbutton, STOP	406439	1
	pushbutton, RESET	406439-001	1
	fuse, compressor panel	250019-751	2
	motor, fan (air-cooled only) 230V	406132	2
	motor, fan (air-cooled only) 460V	406136	2
	switch, low fan cutout (air-cooled)	406174	1
	switch, high fan cutout (air-cooled)	406170	1
	transformer, control (208/230/460-115V)	250023-356	1
	heater, compressor crankcase 230V	406258-003	1
	heater, compressor crankcase 460V	406258-002	1
18	switch, low pressure cutout	406034-002	1
19	switch, high pressure cutout	406034-001	1
20	valve, shutoff-rotalock	406264-001	1
21	gauge, refrigerant suction pressure	250017-174	1
22	gauge, refrigerant suction pressure	250017-175	1
23	valve, hot gas bypass	406464-006	1
24	valve, hand control shutoff	406483-003	1
25	valve, relief (water-cooled)	250022-159	1

WHEN ORDERING PARTS, ALWAYS INDICATE SERIAL NUMBER OF MACHINE

7.11 PSII 1000 Voltage 230 and 460/3/60

ITEM NUMBER	DESCRIPTION	PART NUMBER	QUANTITY
1	condensing unit assembly (air-cooled only) 230V	405979	1
	condensing unit assembly (air-cooled only) 460V	406178	1
2	compressor (air-cooled or water-cooled) 230V	406186	1
	compressor (air-cooled or water-cooled) 460V	406187	1
3	condenser (air-cooled)	Consult Factory	1
	condenser (water-cooled)	405762	1
4	receiver (air-cooled and water-cooled)	406391	1
5	valve, water regulating (water-cooled)	406484-003	1
6	filter/drier, liquid line	406227-001	1
7	sight glass/moisture indicator	406482-001	1
8	valve, thermo expansion	406466-005	1
9	gauge, air inlet temperature	405632	1
10	gauge, air inlet and outlet pressure	406047	2
11	exchanger, heat - air to air	406430-830	1
12	separator, moisture - 1st stage	019374	1
13	drain/trap, moisture (optional)	250019-665	2
14	separator, moisture - 2nd stage	019375	1
	separator, filter (optional)	019044	1
	kit, replacement filter element	001382	1
15	exchanger, heat (evaporator)-refrigerant to air	406431-826	1
16	accumulator, suction	406060	1
17	starter and misc. electrical parts (contains the following)		
	relay, overload 230V	406450-004	1
	relay, overload 460V	406450-019	1
	contactor	250026-047	1
	contact, auxillary	250026-048	1
	light, indicator	406440	2
	pushbutton, START	406438	1
	base, START pushbutton	406438-001	1
	pushbutton, STOP	406439	1
	pushbutton, RESET	406439-001	1
	fuse, compressor panel	250019-751	2
	motor, fan (air-cooled only) 230V	406132	2
	motor, fan (air-cooled only) 460V	406136	2
	switch, low fan cutout (air-cooled)	406174	1
	switch, high fan cutout (air-cooled)	406170	1
	transformer, control (208/230/460-115V)	250023-356	1
	heater, compressor crankcase 230V	406258-003	1
	heater, compressor crankcase 460V	406258-002	1
18	switch, low pressure cutout	406034-002	1
19	switch, high pressure cutout	406034-001	1
20	valve, shutoff-rotalock	406014-001	1
21	gauge, refrigerant suction pressure	250017-174	1
22	gauge, refrigerant suction pressure	250017-175	1
23	valve, hot gas bypass	406464-006	1
24	valve, hand control shutoff	406483-003	1
25	valve, relief (water-cooled)	250022-159	1

Section 7
PARTS LIST

7.12 PSII 1200 Voltage 230 and 460/3/60

ITEM NUMBER	DESCRIPTION	PART NUMBER	QUANTITY
1	condensing unit assembly (air-cooled only) 230V	405979	1
	condensing unit assembly (air-cooled only) 460V	406178	1
2	compressor (air-cooled or water-cooled) 230V	406186	1
	compressor (air-cooled or water-cooled) 460V	406187	1
3	condenser (air-cooled)	Consult Factory	1
	condenser (water-cooled)	405762	1
4	receiver (air-cooled and water-cooled)	406391	1
5	valve, water regulating (water-cooled)	406484-003	1
6	filter/drier, liquid line	406227-001	1
7	sight glass/moisture indicator	406482-001	1
8	valve, thermo expansion	406466-005	1
9	gauge, air inlet temperature	405632	1
10	gauge, air inlet and outlet pressure	406047	2
11	exchanger, heat - air to air	406430-830	1
12	separator, moisture - 1st stage	019374	1
13	drain/trap, moisture (optional)	250019-665	2
14	separator, moisture - 2nd stage	019375	1
	separator, filter (optional)	019044	1
	kit, replacement filter element	001382	1
15	exchanger, heat (evaporator)-refrigerant to air	406431-826	1
16	accumulator, suction	406060	1
17	starter and misc. electrical parts (contains the following)		
	relay, overload 230V	406450-004	1
	relay, overload 460V	406450-019	1
	contactor	250026-047	1
	contact, auxillary	250026-048	1
	light, indicator	406440	2
	pushbutton, START	406438	1
	base, START pushbutton	406438-001	1
	pushbutton, STOP	406439	1
	pushbutton, RESET	406439-001	1
	fuse, compressor panel	250019-751	2
	motor, fan (air-cooled only) 230V	406132	2
	motor, fan (air-cooled only) 460V	406136	2
	switch, low fan cutout (air-cooled)	406174	1
	switch, high fan cutout (air-cooled)	406170	1
	transformer, control (208/230/460-115V)	250023-356	1
	heater, compressor crankcase 230V	406258-003	1
	heater, compressor crankcase 460V	406258-002	1
18	switch, low pressure cutout	406034-002	1
19	switch, high pressure cutout	406034-001	1
20	valve, shutoff-rotalock	406014-001	1
21	gauge, refrigerant suction pressure	250017-174	1
22	gauge, refrigerant suction pressure	250017-175	1
23	valve, hot gas bypass	406464-006	1
24	valve, hand control shutoff	406483-003	1
25	valve, relief (water-cooled)	250022-159	1

WHEN ORDERING PARTS, ALWAYS INDICATE SERIAL NUMBER OF MACHINE

7.13 PSII 1600 Voltage 230 and 460/3/60

ITEM NUMBER	DESCRIPTION	PART NUMBER	QUANTITY
1	condensing unit assembly	N/A	
2	compressor, Tecumseh hermetic	406008	1
	compressor, Copeland semi-hermetic	250028-232	1
3	condenser (air-cooled)	250028-269	1
	condenser (water-cooled)	406402	1
4	receiver (air-cooled)	250022-069	1
5	valve, water regulating (water-cooled)	406484-003	1
6	filter/drier, liquid line	406227-002	1
7	sight glass/moisture indicator	406482-002	1
8	valve, thermo expansion	406466-006	1
9	gauge, air inlet temperature	405632	1
10	gauge, air inlet and outlet pressure	406047	2
11	exchanger, heat - air to air	406430-842	1
12	separator, moisture - 1st stage	019374	1
13	drain/trap, moisture (optional)	250019-665	2
14	separator, moisture - 2nd stage	019333-001	1
	separator, filter (optional)	019044	1
	kit, replacement filter element	001382	1
15	exchanger, heat (evaporator)-refrigerant to air	406431-840	1
16	accumulator, suction	406408-004	1
17	starter and misc. electrical parts (contains the following)		
	relay, overload 460V	406450-005	1
	contactor	250026-047	1
	contact, auxillary	250026-048	1
	light, indicator	406440	2
	pushbutton, START	406438	1
	base, START pushbutton	406438-001	1
	pushbutton, STOP	406439	1
	pushbutton, RESET	406439-001	1
	fuse, compressor panel	250019-751	2
	motor, fan (air-cooled only)	250022-562	2
	switch, low fan cutout (air-cooled)	406174	1
	switch, high fan cutout (air-cooled)	406170	1
	transformer, control	250023-356	1
	heater, compressor crankcase (Tecumseh)	406258-002	1
	heater, compressor crankcase (Copeland)	250026-342	1
	switch, oil pressure (Copeland)	250026-404	1
18	switch, low pressure cutout	406034-002	1
19	switch, high pressure cutout	406034-001	1
20	valve, shutoff-rotalock	406014-001	1
21	gauge, refrigerant suction pressure	250017-174	1
22	gauge, refrigerant suction pressure	250017-175	1
23	valve, hot gas bypass	406464-003	1
24	valve, hand control shutoff	406483-003	1
25	valve, relief (water-cooled)	250024-087	1

Section 7
PARTS LIST

7.14 PSII 2000 Voltage 230 and 460/3/60

ITEM NUMBER	DESCRIPTION	PART NUMBER	QUANTITY
1	condensing unit assembly	N/A	
2	compressor, Tecumseh hermetic	406009	1
	compressor, Copeland semi-hermetic	250028-233	1
3	condenser (air-cooled)	250022-559	1
	condenser (water-cooled)	406012	1
4	receiver (air-cooled)	406488	1
5	valve, water regulating (water-cooled)	406484-003	1
6	filter/drier, liquid line	406227-002	1
7	sight glass/moisture indicator	406482-002	1
8	valve, thermo expansion	406466-007	1
9	gauge, air inlet temperature	405632	1
10	gauge, air inlet and outlet pressure	406047	2
11	exchanger, heat - air to air	250008-747	1
12	separator, moisture - 1st stage	019151	1
13	drain/trap, moisture (optional)	250019-665	2
14	separator, moisture - 2nd stage	250027-623	1
	separator, filter (optional)	019191	1
	kit, replacement filter element	001409	1
15	exchanger, heat (evaporator)-refrigerant to air	250008-748	1
16	accumulator, suction	406408-004	1
17	starter and misc. electrical parts (contains the following)		
	relay, overload 460V	406450-005	1
	contactor	250026-047	1
	contact, auxillary	250026-048	1
	light, indicator	406440	2
	pushbutton, START	406438	1
	base, START pushbutton	406438-001	1
	pushbutton, STOP	406439	1
	pushbutton, RESET	406439-001	1
	fuse, compressor panel	250019-751	2
	motor, fan (air-cooled only)	250028-676	2
	switch, low fan cutout (air-cooled)	406174	1
	switch, high fan cutout (air-cooled)	406170	1
	transformer, control	250023-356	1
	heater, compressor crankcase (Tecumseh)	406258-002	1
	heater, compressor crankcase (Copeland)	250026-342	1
	switch, oil pressure (Copeland)	250026-404	1
18	switch, low pressure cutout	406034-002	1
19	switch, high pressure cutout	406034-001	1
20	valve, shutoff-rotalock	406014-023	1
21	gauge, refrigerant suction pressure	250017-174	1
22	gauge, refrigerant suction pressure	250017-175	1
23	valve, hot gas bypass	406464-004	1
24	valve, hand control shutoff	406483-004	1
25	valve, relief (water-cooled)	250024-087	1

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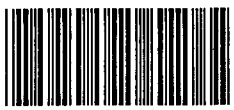

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