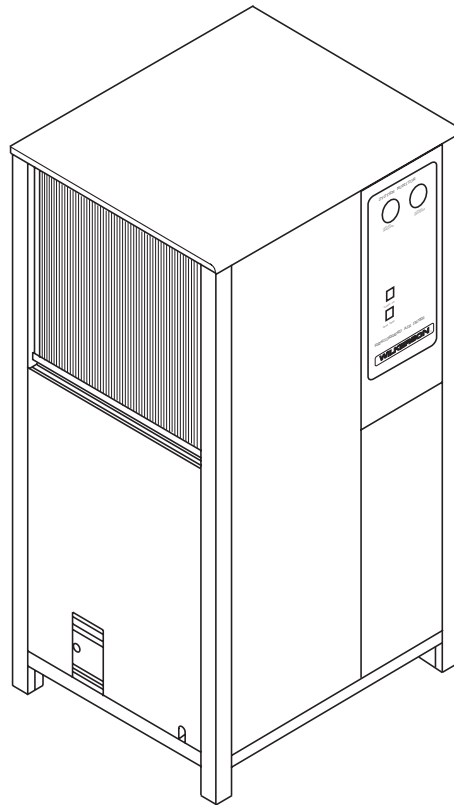


WILKERSON[®]

OPERATIONS

OWNER/OPERATOR MANUAL COMPONENTS, INSTALLATION, OPERATION AND SERVICE INSTRUCTIONS

REFRIGERATED COMPRESSED AIR DRYER WRA 0250-WRA 0500 WRW 0250-WRW 0500



WARNING

READ ALL INFORMATION IN THIS MANUAL BEFORE BEGINNING INSTALLATION OR OPERATION OF THE DRYER. BEFORE STARTING INSTALLATION AND/OR MAINTENANCE PROCEDURES, TURN OFF THE MAIN POWER TO THE DRYER AND COMPLETELY DEPRESSURIZE THE UNIT TO PREVENT PERSONAL INJURY.

DO NOT REMOVE, REPAIR, OR REPLACE ANY ITEM ON THIS DRYER WHILE IT IS UNDER PRESSURE.

THIS DRYER USES REFRIGERANT R-22. COMPLY WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS CONCERNING REFRIGERANT WHEN PERFORMING ANY MAINTENANCE OR SERVICE ON THE REFRIGERATION SYSTEM. ALL REFRIGERATION SYSTEM REPAIRS OR MAINTENANCE NOT DETAILED IN THIS MANUAL SHOULD BE DONE BY A QUALIFIED REPAIR PERSON.

NEVER OPERATE THIS DRYER ABOVE THE RATED OPERATING CONDITIONS. OPERATION ABOVE SPECIFIED CONDITIONS WILL RESULT IN DECREASED PERFORMANCE, POSSIBLE DAMAGE TO THE UNIT AND/OR PERSONAL INJURY.

For further assistance contact:

P.O. Box 1237
1201 W. Mansfield Ave.
Englewood, CO 80150
Phone (269) 629-2550
FAX (269) 629-2475



WILKERSON OPERATIONS
REGISTERED TO ISO 9001
CERTIFICATE NO. A2192

Certificate No. **FM21121**

83-030-000-FL • Rev. A • 9/95
Printed in the U.S.A.

Table of Contents

Why you need a Wilkerson Dryer and recommended Typical Installation	Page 2
Components of a Refrigerated Dryer Compressed Air System	Page 3
Dryer Performance Specifications	Page 4
Installation Instructions and Start-up Procedure	Page 5
Preventive Maintenance, Dryer Dimensions and Recommended Wilkerson Air Accessories	Page 6
Compressed Air Circuit	Page 7
Refrigeration Circuit.....	Page 8
Control Panel Components	Page 9
Electrical Box Components	Page 10
Refrigeration Components	Page 11
Cabinet Components	Page 12
Wiring Diagrams.....	Page 13-14
Trouble Shooting Guide.....	Page 15
Dryer Warranty	Page 16
Service Information	Page 17

WHY YOU NEED A WILKERSON REFRIGERATED AIR DRYER

Untreated compressed air will contain contaminants such as water, compressor oil, rust, chemical contaminants, and bacterial growth.

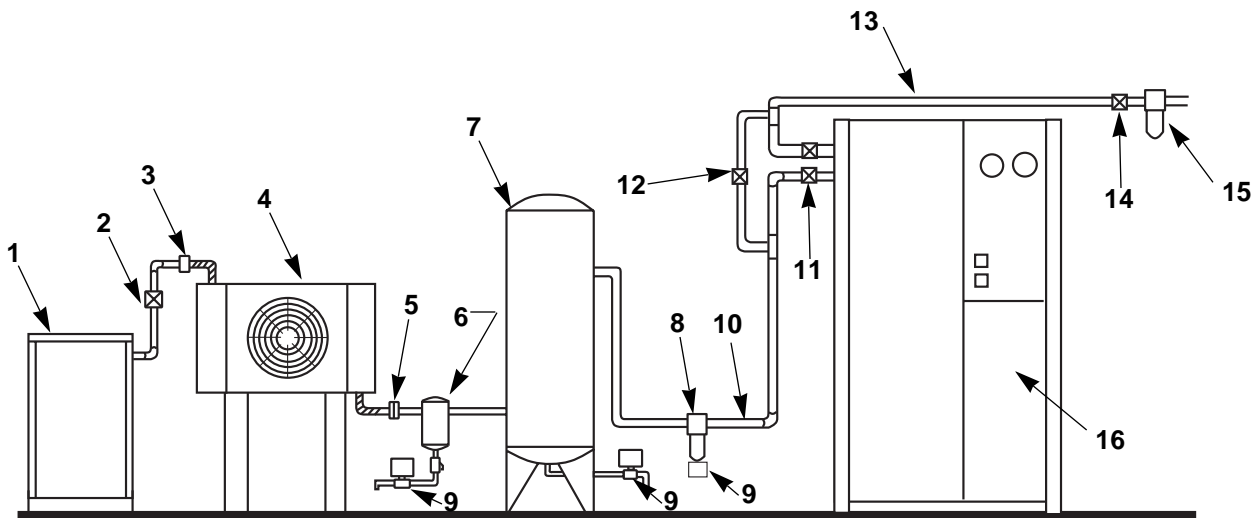
All of these contaminants will cause corrosion and product contamination.

With proper filtration and a Wilkerson refrigerated air dryer in use, contaminants will be reduced to a harmless level.

The end result will be that the equipment which comes in contact with dry, treated, compressed air will stay cleaner, will not corrode, and will last longer.

Rejection rates of your end products will drastically reduce when using dry, treated air in your plant manufacturing operation.

FIGURE 1: TYPICAL COMPRESSOR ROOM LAYOUT:



- | | |
|----|--------------------------------------|
| 1 | Air Compressor |
| 2 | Shut-off Valve |
| 3 | Flex Connector |
| 4 | Compressed Air Aftercooler |
| 5 | Flex Connector |
| 6 | Liquid Separator with Electric Drain |
| 7 | Storage Tank |
| 8 | Prefilter |
| 9 | Electric Drain Valve |
| 10 | Flex Connector |
| 11 | Shut-off Valve |
| 12 | By-pass Valve |
| 13 | Flex Connector |
| 14 | Shut-off Valve |
| 15 | Afterfilter |
| 16 | Refrigerated Air Dryer |

Components Of A Refrigerated Dryer Compressed Air System

The Air Compressor 1

Although there are many types of compressors, all have some type of inlet filtration. If this filtration is not maintained or is not properly designed for ambient conditions (ie. large amounts of coal dust, road dust, fly ash, etc.) the result will be increased compressor maintenance and an additional contamination load on downstream equipment.

Shut-Off Valve 2, 11, 14

Sized in accordance with air flow capacities, to provide the minimum pressure drop.

Flexible Connections 3, 5, 10, 13

Flexible piping between a compressed air system and the air dryer or aftercooler is recommended to eliminate any possible vibration induced damage.

The Aftercooler 4

As the name implies, the aftercooler cools the hot air after compression. This not only reduces the temperature of the air to within acceptable values for downstream equipment, but also condenses out a very large amount of water. This is very important because for approximately every 20°F (11°C) reduction in compressed air temperature, one half of the water is condensed. A separator must be used to actually remove the water from the system.

The Separator 6

The separator removes the large droplets of oil and water from the compressed air stream which condense in the aftercooler, subsequently improving the dryer capacity. Though one of the least expensive components of the compressed air system, the separator is one of the most critical. A difference of only a few percent efficiency in a separator can allow substantial amounts of additional water to pass downstream, both overloading a dryer and causing potential maintenance problems. A properly sized electronic drain should be installed to drain away accumulated liquids.

Storage Tank 7

This acts as a storage vessel which will also remove liquids. Therefore, an electric drain valve should be installed. **(Note: Where possible the receiver should be installed with the inlet near the bottom and the outlet near the top.)**

Prefiltration 8

Wilkerson refrigerated air dryers will operate efficiently and reliably without filtration. But if your system also requires dirt and oil free air, then appropriate particulate or coalescing filtration is required.

Electric Drains 9

Proper drainage of accumulated liquids is essential to proper system operation. Should liquids be allowed to build up in receivers and filters, liquid “slugging” can occur causing loss of performance to downstream components.

Automatic electric drain valves provided on the dryers automatically drain liquid water from the dryer evaporator and separator. They feature full adjustment of drain cycles from 1 to 45 minutes, and valve opening durations from 1 to 15 seconds. Two indicator lights for indicating “power on” and “valve open” status allow for easy visual inspection. Electric drains are also recommended for all other drain points in the compressed air system including separators, filters, receivers, and drip legs.

By-pass Valve System 12

It is strongly recommended that a by-pass valve system be utilized to provide for convenient maintenance and service. Applications which require a continuous supply of dry air should consider installing two dryer systems. This will assure a steady supply of dry air under any conditions.

Afterfiltration 15

For critical applications, to obtain a maximum downstream oil content of .01 ppm/wt and .003 ppm/wt respectively. See the chart below for recommended afterfilters.

The Refrigerated Air Dryer 16

The Wilkerson Refrigerated Air Dryer is the result of unprecedented research and testing. It is subjected to simulated no load, partial load and full load performance examinations to meet our quality standards. As such, it will provide years of reliable service if properly installed and operated within its design specifications. The dryer should be installed in a well ventilated area.

Recommended Filtration

Recommended Coalescing Prefilters/Afterfilters

Dryer Model Number	Dryer/Filter Pipe Size Inlet/Outlet	Type A 5.0 Micron Particulate	Type B1 1.0 Micron Coalescing	Type C (.01 ppm downstream remaining oil content)
WR()-0250	2" NPT	F35-0C-000	M35-0C-S00	M35-0C-000
WR()-0300	2" NPT	F35-0C-000	M35-0C-S00	M35-0C-000
WR()-0400	2" NPT	F35-0C-000	M36-0C-S00	M36-0C-000
WR()-0500	2" NPT	F35-0C-000	M36-0C-S00	M36-0C-000

NOTE: Recommended filters were selected on the basis of flow capacity—not pipe size.

Air-Cooled Performance Specifications (60 Hz)

Model Number	SCFM Flow	Voltage	COMPRESSOR DATA			System Full Load Amps	Fan CFM	Shipping
			HP	Full Load Amps	LRA			
WRA-0250-2	250	230/60/1	2.0	9.9	53	12.1	1700	660
WRA-0250-3	250	230/60/3	2.0	6.6	49	8.8	1700	660
WRA-0250-4	250	460/60/3	2.0	3.3	24	4.4	1700	660
WRA-0300-2	300	230/60/1	2.5	12.7	64	14.9	1700	675
WRA-0300-3	300	230/60/3	2.5	7.7	49	9.9	1700	675
WRA-0300-4	300	460/60/3	2.5	3.9	24	5.0	1700	675
WRA-0400-2	400	230/60/1	3.2	17.2	95	19.4	1870	690
WRA-0400-3	400	440/60/3	3.2	10.8	65	13.0	1870	690
WRA-0400-4	400	460/60/3	3.2	5.3	27	6.4	1870	690
WRA-0500-2	500	230/60/1	3.8	21.5	46	23.7	1870	700
WRA-0500-3	500	230/60/3	3.8	13.3	92	15.5	1870	700
WRA-0500-4	500	460/60/3	3.8	6.6	116	7.7	1870	700

Water-Cooled Performance Specifications (60 Hz)

Model Number	SCFM Flow	Voltage	COMPRESSOR DATA			System Full Load Amps	Shipping
			HP	Full Load Amps	LRA		
WRA-0250-2	250	230/60/1	2.0	9.9	53	9.9	660
WRA-0250-3	250	230/60/3	2.0	6.6	49	6.6	660
WRA-0250-4	250	460/60/3	2.0	3.3	24	3.3	660
WRA-0300-2	300	230/60/1	2.5	12.7	64	12.7	675
WRA-0300-3	300	230/60/3	2.5	7.7	49	7.7	675
WRA-0300-4	300	460/60/3	2.5	3.9	24	3.9	675
WRA-0400-2	400	230/60/1	3.2	17.2	95	17.2	690
WRA-0400-3	400	440/60/3	3.2	10.8	65	10.8	690
WRA-0400-4	400	460/60/3	3.2	5.3	27	5.3	690
WRA-0500-2	500	230/60/1	3.8	21.5	46	21.5	700
WRA-0500-3	500	230/60/3	3.8	13.3	92	13.3	700
WRA-0500-4	500	460/60/3	3.8	6.6	116	6.6	700

Performance Specifications: Flow Capacity (dm³/s) (50Hz)

Model Number	Flows* at 37.7° C Inlet Air Temperature 2-4°C Dew Point** (dm ³ /s/hr)	Voltage	Comp Rating (HP)	Full Load Amps	Shipping Weight
WRA-0250-4	99	380/50/3	2.0	4.4	660
WRA-0300-4	118	380/50/3	2.5	5.2	675
WRA-0400-4	158	380/50/3	3.2	6.4	690
WRA-0500-4	197	380/50/3	3.8	7.7	700

All inlet and outlet air connections are: 2" NPT.
Specifications apply to air-cooled, water-cooled and 50 hertz.

Air flow rates are based on 100 psig (7 bar) inlet pressure and 100°F inlet air temperature.

Installation Instructions

NOTE: ALL ELECTRICAL AND MECHANICAL CONNECTIONS MUST BE MADE BY A QUALIFIED PERSON.

1. The dryer needs to be installed in a well ventilated area. There needs to be 12" (30 cm) clearance for the condenser air inlet of the dryer.
2. In the location the dryer is installed the ambient temperature should not exceed 110°F (43°C) or fall below 40°F (4.4°C).
3. The inlet compressed air should not exceed 120°F (49°C). **NOTE: EXCESSIVE AMBIENT OR INLET AIR TEMPERATURE WILL RESULT IN UNSATISFACTORY PERFORMANCE AND IF NOT REMEDIED CAN RESULT IN PERMANENT DAMAGE TO THE DRYER.**
4. The dryer must be mounted on a suitable structure, on an elevated, or flat and level floor.
5. It is recommended, that the air system be installed similar to the layout shown in **Fig.1 Page 2**. Using shut-off valves and by-pass valves will allow for servicing of the filters, drain valves, and dryer removal without shutting down the compressed air system.
6. Electric drain connections must be made in manner that it will not interfere with the flow. The discharge needs to be treated in accordance with local and national EPA code/regulations.
7. Verify that the "service voltage" is correct and that the dryer is not wired to cycle with the air compressor, the power to the dryer must be continuous.
8. Pressurize the air system, check for leaks and correct.
9. For "water cooled condensers" the water flow rate must not be lower than what is specified on page 4, and the incoming water temperature must not exceed 80°F.

WARNING: NEVER REMOVE THE ELECTRICAL CONTROL PANEL WITHOUT TURNING OFF ELECTRICAL SERVICE DISCONNECT TO THE DRYER

Start-up Procedure

NOTE: THE DRYER HAS A REFRIGERANT CRANKCASE HEATER. PRIOR TO INITIAL START-UP THE CRANKCASE HEATER SHOULD BE ENERGIZED FOR 24 HOURS BEFORE TURNING ON THE DRYER.

POWER TO THE CRANKCASE HEATER IS SUPPLIED WHEN THE MAIN ELECTRICAL SERVICE DISCONNECT IS TURNED ON. THE POWER ON/OFF SWITCH OF THE DRYER HAS NO CONTROL OF THE CRANKCASE HEATER. LEAVE THE POWER ON/OFF SWITCH OFF FOR THE FIRST 24 HOURS.

Do not start the dryer with an air load, bypass the airflow before turning on the dryer.

By pushing the power switch to the on position the green light will illuminate, the red high temperature light will come on briefly and then go off. If the red light remains on for over 3 minutes thru the dryer off and refer to the trouble-shooting guide.

The fan will not come on immediately, it will cycle in accordance with the head pressure. Without any air load through the dryer, the fan may stay off up to 5 minutes before coming on; this is normal.

If the dryer is equipped with a refrigerant suction pressure gauge, it should be indicating between 57-65 psig without any air load.

Open the air by-pass valve and allow full air flow thru the dryer.

Various dryer functions and conditions can be monitored. Temperature at the probe locations will be displayed on digital display (optional) by rotating the selector knob. Simultaneously, pressure, air and refrigerant, can be monitored on the analog gauges.

MAXIMUM INLET AIR TEMPERATURE: 120° F

MAXIMUM INLET AIR PRESSURES: 200 PSIG

MAXIMUM AMBIENT AIR TEMPERATURE: 110° F

MAXIMUM INLET WATER COOLED CONDENSER TEMPERATURE: 80° F

Water Flow Requirements at Various Water Temperatures			
Gallons per hour at the following temperatures			
	60°F	70°F	80°F
WRW-0250	80	100	132
WRW-0300	100	125	165
WRW-0400	120	150	198
WRW-0500	140	175	231

Preventive Maintenance Cont.

A. Weekly Checklist

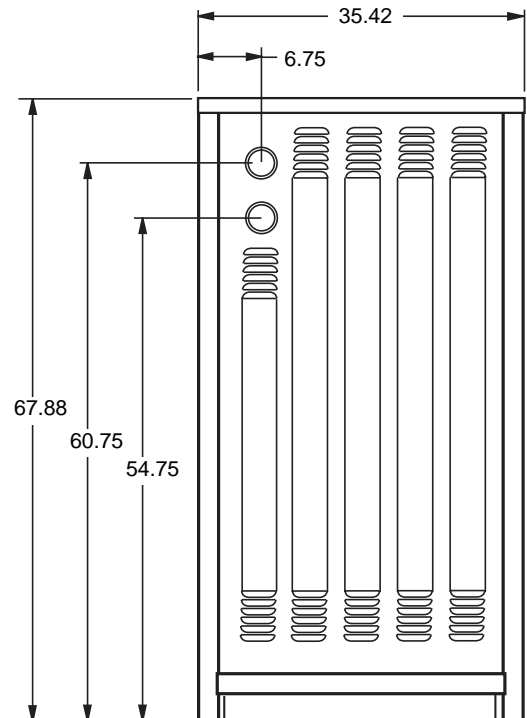
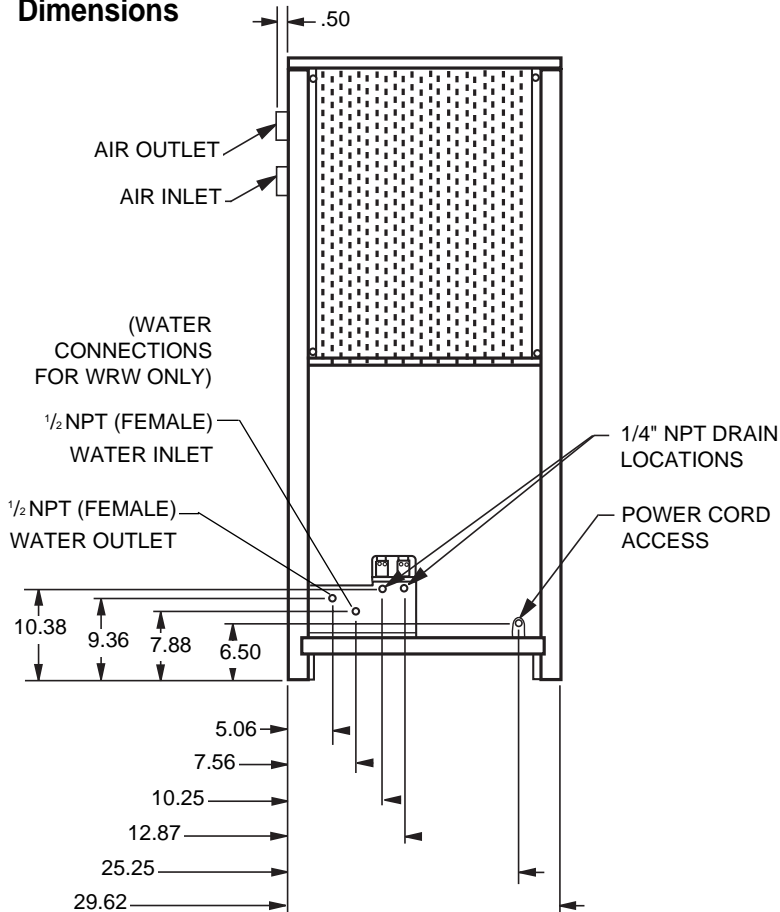
1. Check Air-Cooled condenser coil for contaminants and clean as required. Check Water-Cooled condenser coil for proper water flow.
2. Inspect all electrical drains for operation. Turn off the shut-off valve and depress the manual override switch on the electrical valve, this will depressurize the discharge line, and clean the "Y" strainers.
3. Assure dryer inlet temperature does not exceed 120°F (48°C).
4. Assure dryer ambient temperature does not exceed 110°F (43°C) and there are no ventilation obstructions around the dryer. Ventilate the area and remove obstructions as required.

5. Check separator, receiver, filter drains and strainers. Check filter high differential pressure indicators, and replace fouled elements as needed.

B. Semi-Annual Checklist

1. Remove and inspect all air system filters for excessive particulate loading and physical damage. Replace the filters that show any sign of damage, or if pressure drop exceeds 7 psid (0,5 bar).
2. Shut off drain shut-off valves and clean "Y" strainers. Disassemble solenoid valves if necessary and check for contaminants. Clean as required.

Air-Cooled and Water-Cooled Dryers Dimensions



The Compressed Air Circuit

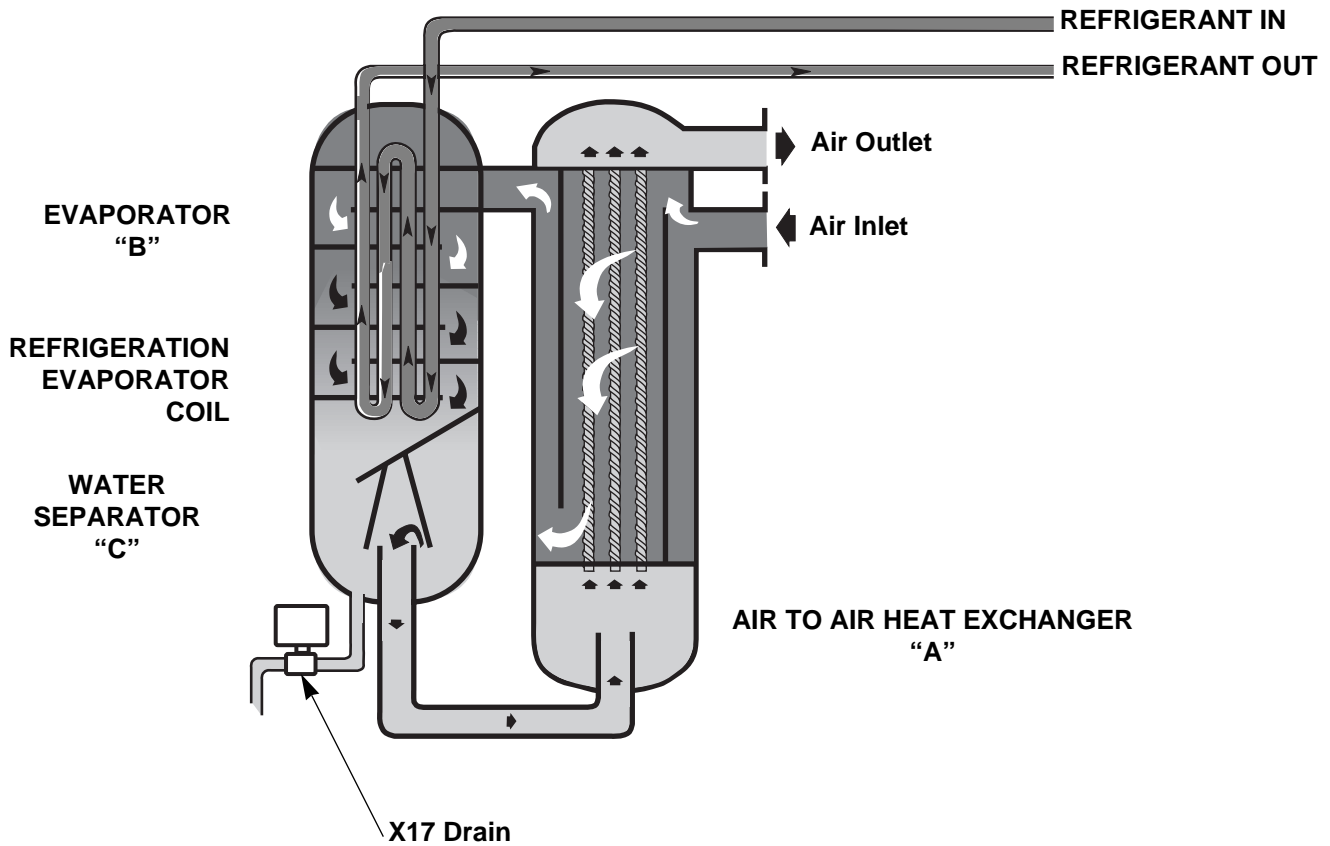
Hot, saturated, compressed air first enters the air-to-air heat exchanger "A", where it is precooled by the exiting dry outlet air. By precooling the incoming air, energy is saved by reducing the heat load imposed on the refrigeration system. As soon as the incoming air comes in contact with the cooler air, condensation begins.

The saturated air then enters the evaporator (section "B") where the air temperature is reduced to 35°F to 39°F (1.6° to 3.8°C). The water vapor is condensed and drained off. The cold air then flows through the separator "C" where, by gravity and vortex action the condensed water and contaminants are collected in a "quiet zone" at the bottom of

the separator and are discharged through an automatic drain valve. Our unique and highly efficient separator design combines centrifugal action, directional flow change, impingement, and velocity reduction to achieve superior performance.

The dry chilled air then reenters the air-to-air exchanger where it precools the incoming air and in turn is reheated. Reheating of the air does not affect its dew point. The chilled air flows in a counter flow thereby assuring high temperature differential throughout the heat exchanger. The reheating of the air prevents moisture condensation on the air system piping.

**AIR TO AIR AND EVAPORATOR
FLOW SCHEMATIC**



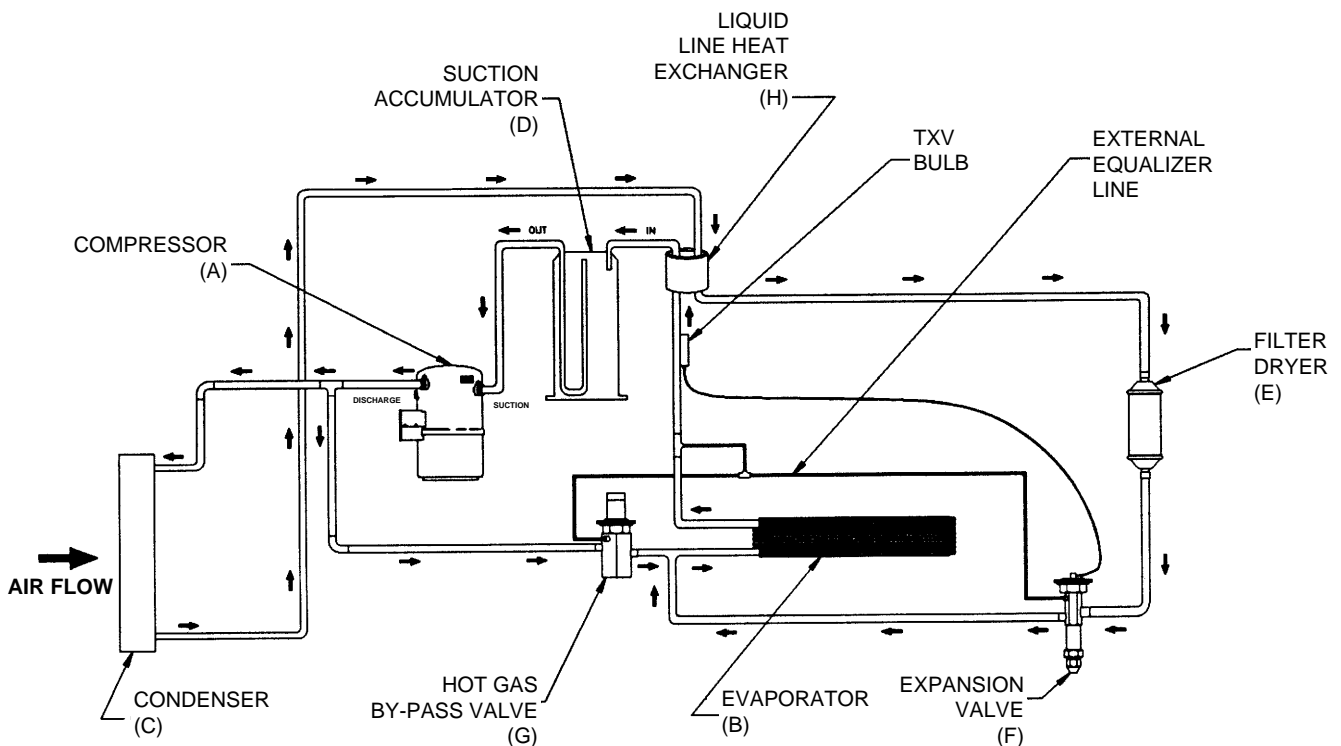
Refrigeration Circuit

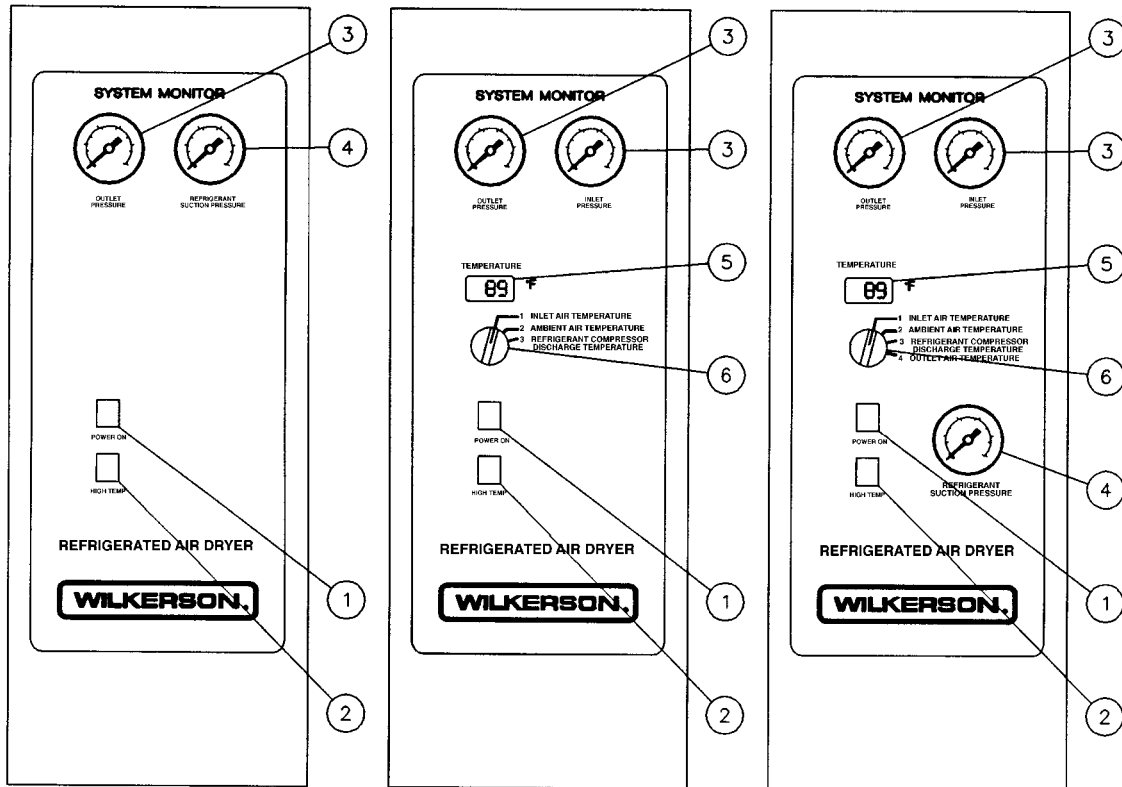
The refrigerant compressor ("A") increases the pressure and the temperature of the returning suction vapor containing the latent heat removed from the air by the evaporator ("B"). This high pressure vapor is then condensed by being cooled in the condenser ("C"). The condenser surrenders the heat to the surrounding ambient.

The liquid refrigerant flows from the receiver through a liquid line heat exchanger located in the suction line ("H"), through the filter/dryer ("E"), and the the thermostatic expansion valve ("F"), which regulate the flow of refrigerant into the evaporator ("B"). The liquid refrigerant removes the heat from the

compressed air by evaporation. The hot-gas bypass valve ("G") controls the temperature of the evaporator by sensing low evaporator pressure and injecting hot discharge gas to be mixed with the liquid refrigerant entering the evaporator, creating an artificial load during low load operation to prevent ice from forming in the evaporator.

The refrigerant now flows to the suction accumulator ("D"), where any liquid refrigerant is intercepted allowing only vapor to return to the compressor completing the refrigeration cycle.





CONTROL PANEL COMPONENTS		
Item	Description	Part Number
1	On/Off Switch	87-379-000
2	High Temperature Light	87-382-000
3	Air Pressure Gauge	49-111-000
4	Refrigerant Pressure Gauge	49-093-000
5	Digital Display	87-508-000
6	Selector Knob	87-470-000

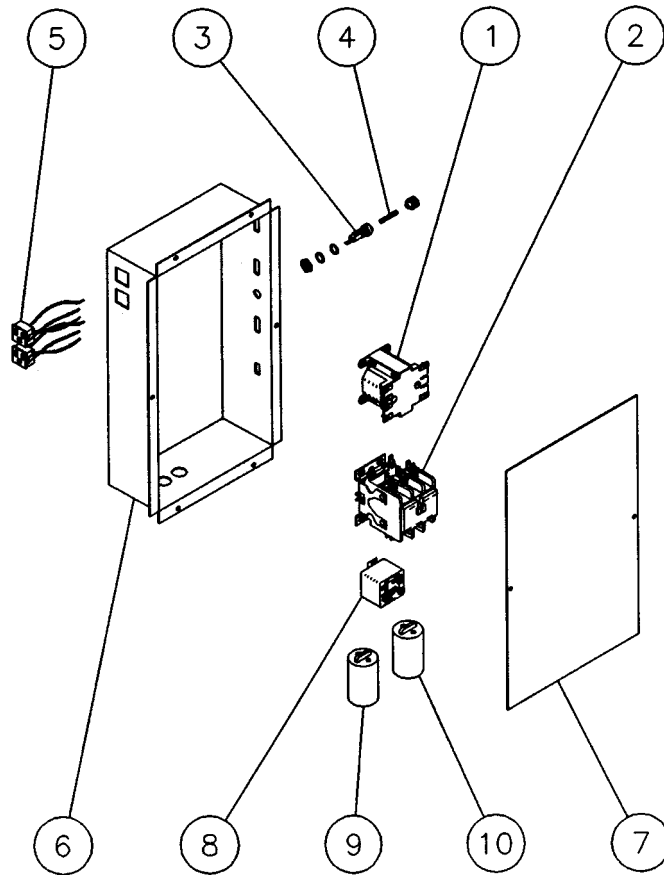
Dryer Indicates “High Inlet Temperature”

Check air compressor aftercooler system. Clogged or fouled heat exchanger surfaces in the aftercooler (water or air cooled) are the principal cause of high inlet air temperatures to dryer.

Check air compressor as well. Lack of lubrication, excessive wear, compressor undersized (i.e. substantial increase in air consumption without adding to compressor capacity: oil cooler malfunction, etc.)

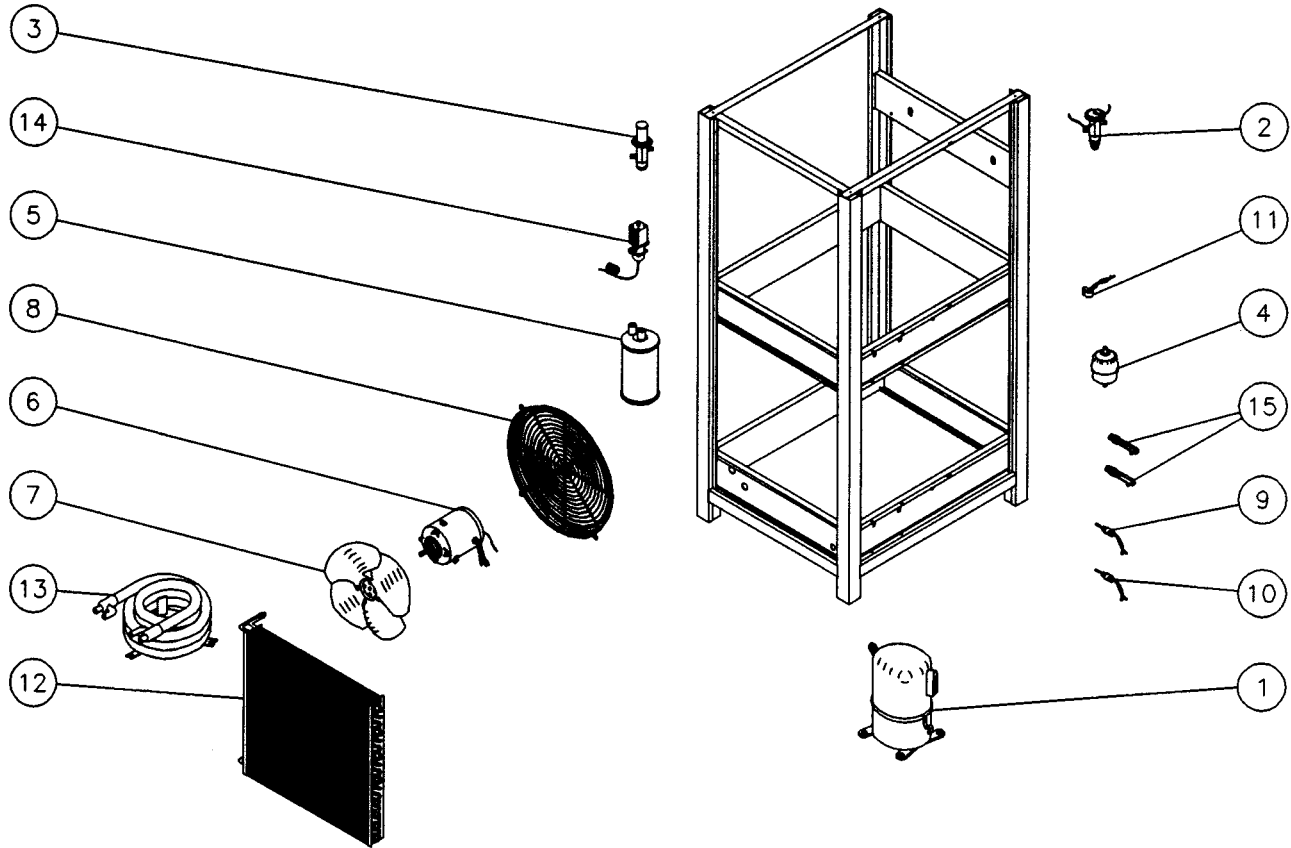
If high ambient temperature is the problem, immediately begin to cool dryer area with ventilating fans, open windows, louvers, etc. Sustained high temperatures will damage dryer.

Electrical Box Components



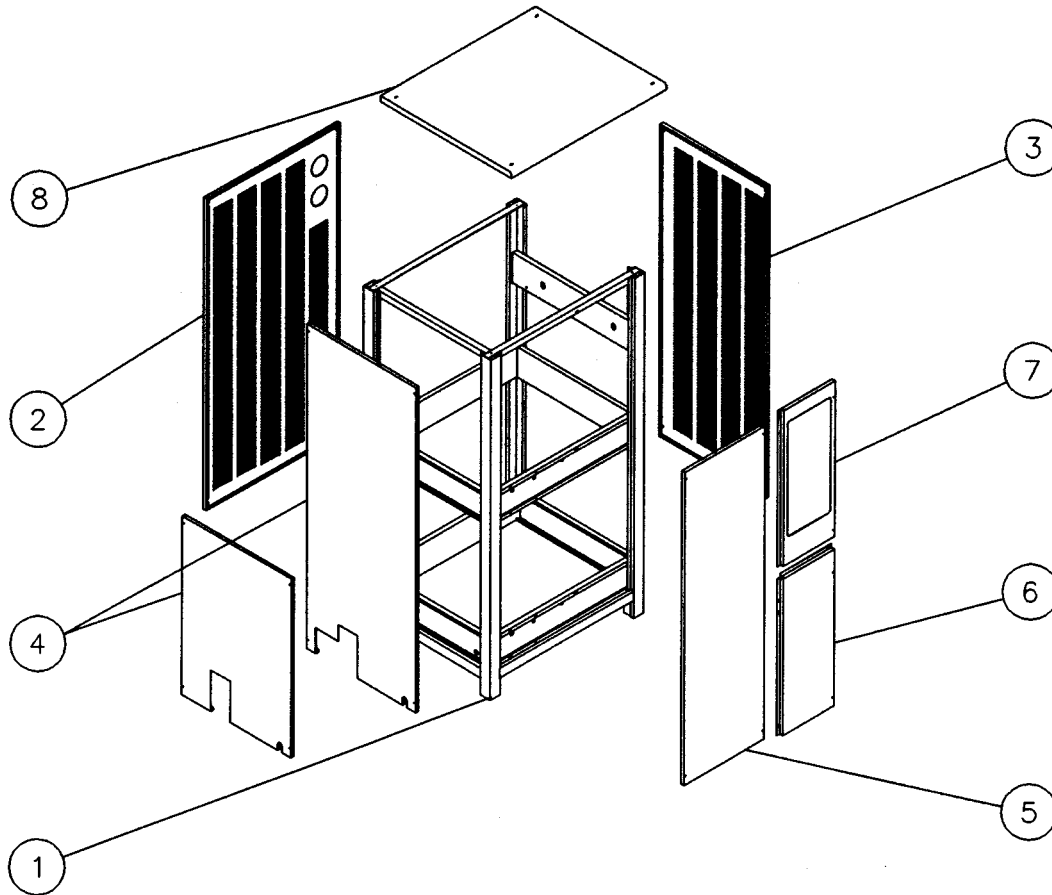
ELECTRICAL COMPONENTS:				
Item	Description	Voltage	Model Number	Part Number
1	Transformer	ALL	ALL	87-044-000
2	Contactor	ALL	ALL	87-063-000
3	Fuse Holder	ALL	ALL	87-209-000
4	Fuse 1.0 AMP	ALL	ALL	87-210-000
5	Electrical Outlet	ALL	ALL	87-246-000
6	Electrical Enclosure	ALL	ALL	87-685-000
7	Cover	ALL	ALL	63-685-000
8	Start Relay (Single Phase Units Only)	230/60/1 230/60/1	WR ()-0250/0300-2 WR ()-0400/0500-2	87-040-000 87-041-000
9	Start Capacitor (Single Phase Units Only)	230/60/1 230/60/1 230/60/1 230/60/1	WR ()-0250-2 WR ()-0300-2 WR ()-0400-2 WR ()-0500-2	87-056-000 87-056-000 87-036-000 87-036-000
10	Run Capacitor (Single Phase Units Only)	230/60/1 230/60/1 230/60/1 230/60/1	WR ()-0250-2 WR ()-0300-2 WR ()-0400-2 WR ()-0500-2	87-039-000 87-614-000 87-039-000 87-074-000

Refrigeration Components



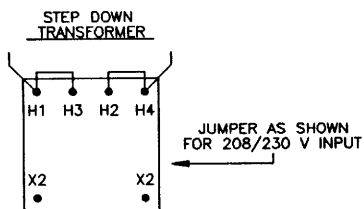
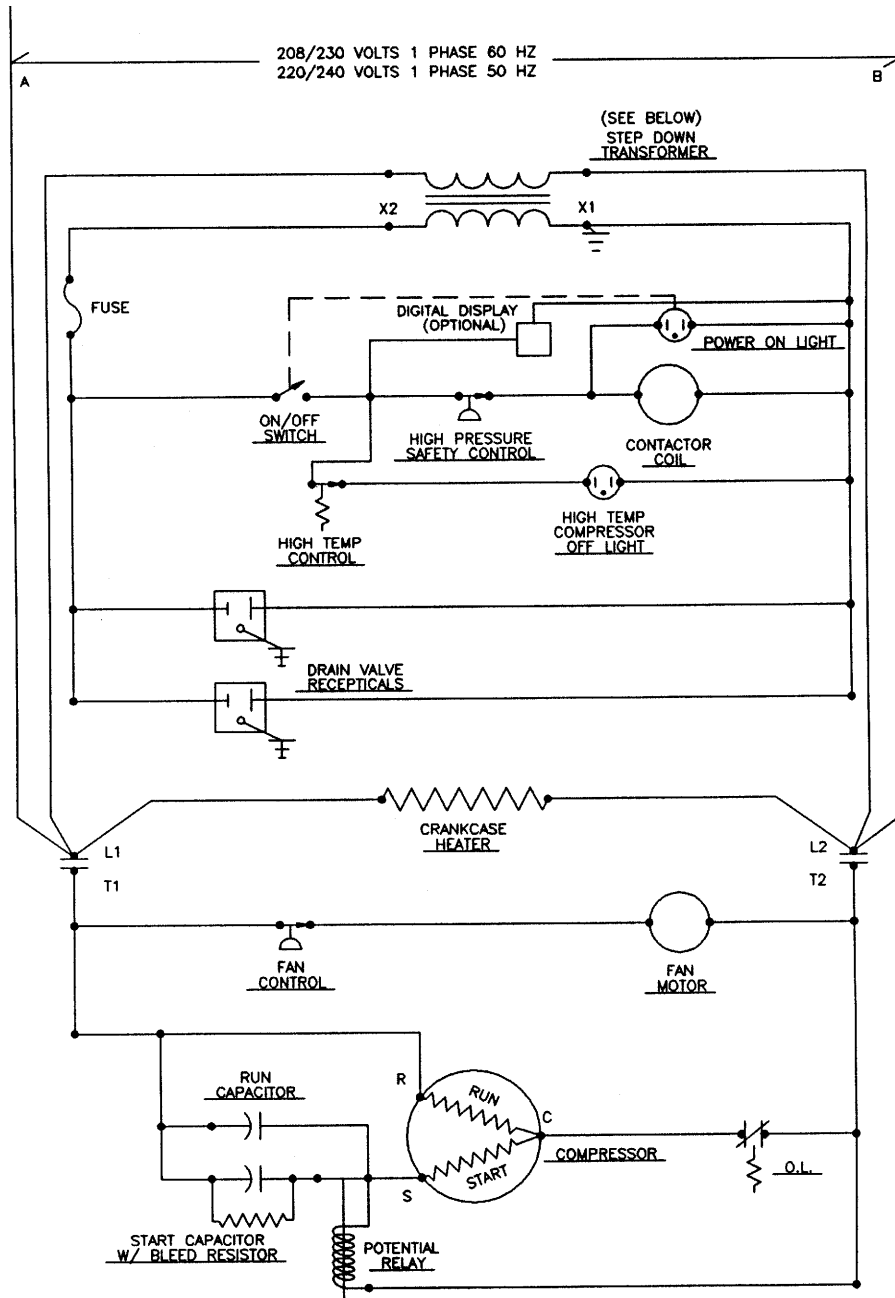
REFRIGERATION COMPONENTS:					REFRIGERATION COMPONENTS:						
Item	Description	Voltage	Model Number	Part Number	Item	Description	Voltage	Model Number	Part Number		
1	Compressor	230/60/1	WR ()-0250-2	51-045-000	4	Filter Dryer	—	ALL	54-072-000		
		230/60/3	WR ()-0250-3	51-046-000							
		460/60/3	WR ()-0250-4	51-047-000							
		230/60/1	WR ()-0300-2	51-048-000			5	Suction Accumulator	—	ALL	54-000-000
		230/60/3	WR ()-0300-3	51-049-000							
		460/60/3	WR ()-0300-4	51-050-000							
		230/60/1	WR ()-0400-2	51-051-000			6	Fan Motor	ALL	ALL	51-040-000
		230/60/3	WR ()-0400-3	51-052-000							
		460/60/3	WR ()-0400-4	51-053-000							
230/60/1	WR ()-0500-2	51-000-000	7	Fan Blade	—	ALL	51-102-000				
230/60/3	WR ()-0500-3	51-001-000									
460/60/3	WR ()-0500-4	51-002-000									
2	Expansion Valve	ALL	WR ()-0250	52-097-000	8	Fan Guard	—	ALL	51-030-000		
		ALL	WR ()-0300	52-098-000							
		ALL	WR ()-0400	52-099-000							
		ALL	WR ()-0500	52-099-000							
3	Hot Gas By-Pass Valve	ALL	WR ()-0250	52-021-000	9	Fan Cycle Control	—	WRA-0250-0400 WRA-0500	87-121-000 87-092-000		
		ALL	WR ()-0300	52-021-000							
		ALL	WR ()-0400	52-024-000							
		ALL	WR ()-0500	52-024-000							
12	Condenser (Air-cooled)	—	WRA-0250/0300 WRA-0400 WRA-0500	59-094-000 59-095-000 59-092-000	10	High Pressure Control	—	ALL	87-120-000		
		—	WRW-0250/0300 WRW-0400 WRW-0500	59-099-000 59-100-000 59-101-000							
		—	ALL WRW	52-060-000							
13	Condenser (Water-cooled)	—	WRW-0250/0300 WRW-0400 WRW-0500	59-099-000 59-100-000 59-101-000	14	Water Control Valve	—	ALL WRW	52-060-000		
14	Water Control Valve	—	ALL WRW	52-060-000							
15	Refrigerant Service Valve	—	ALL	52-090-000	15	Refrigerant Service Valve	—	ALL	52-090-000		

Cabinet Components



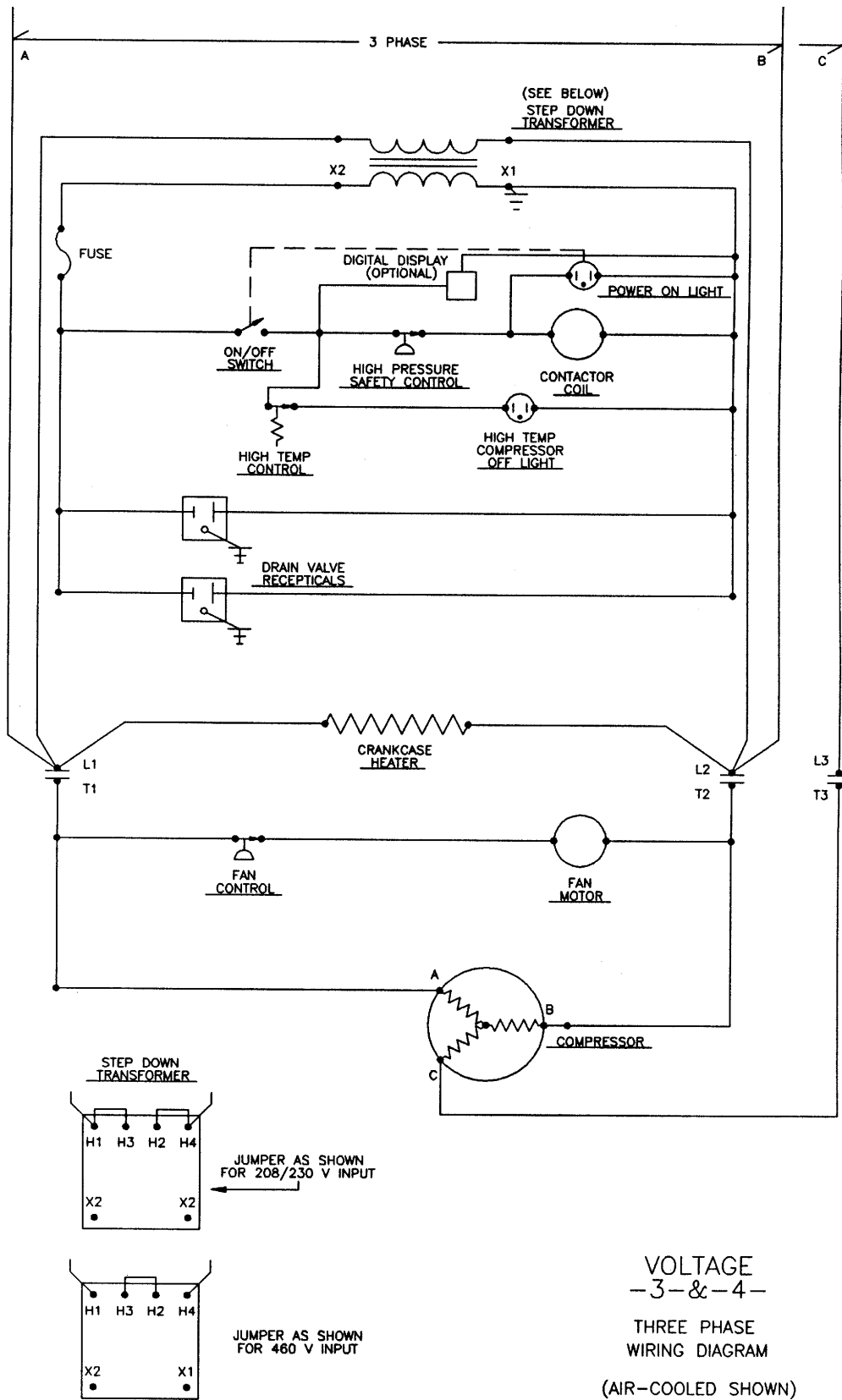
CABINET COMPONENTS			
Item	Description	Model Number	Part Number
1	Frame Assembly	ALL	14-138-000
2	Panel, Back	ALL	63-673-000
3	Panel, Exhaust	ALL	63-674-000
4	Panel, Inlet	ALL WATER-COOLED	63-091-000
		ALL AIR-COOLED	63-672-000
5	Panel, Front Left	ALL	63-774-000
6	Panel, Front, Lower Right	ALL	63-709-000
7	Panel, Front, Top Right	ALL	63-050-000
8	Lid	ALL	63-669-000

Wiring Diagram-Air



VOLTAGE
-2-&-6-
SINGLE PHASE
WIRING DIAGRAM
(AIR-COOLED SHOWN)

Wiring Diagram-Air



TROUBLE SHOOTING GUIDE

Problem, Caused By:	Corrective Action
I. Dryer will not run, caused by:	
1. No power	A. Have qualified technician check main disconnect fuses and wiring (see wiring diagram page 13 & 14).
2. Wrong voltage	B. Voltage should be within +/- 10% of rating on nameplate. Have qualified electrician correct it.
3. Defective "ON/OFF" switch	C. Have qualified technician replace.
4. Compressor overload (protector) open	E. Allow time to cool (2 to 20 minutes); switch will automatically reset. Check for high or low electrical voltage. See I., 2 (B). Have qualified technician check for poor electrical connections. Dryer may be overloaded.
5. Refrigerant compressor motor failure	F. Have qualified technician check if winding is open or shut.
6. Low refrigerant charge	G. Check for and repair refrigerant leaks. Replace filter-dryer, evacuate and charge with recommended type and amount of refrigerant.
7. Dirty condenser	H. Blow out condenser, install furnace filter and clean periodically.
8. Fan motor failure, head pressure control failure	J. Replace defective components.
II. Compressed air leaks, caused by:	
1. Poor connections	A. Check all connections and tighten.
2. Automatic drain malfunctioning	B. Check for constant air leak from drain discharge. Shut off air pressure, remove drain, clean or replace drain and/or drain valve seat.
III. Liquid water in compressed air system, caused by:	
1. Incorrect dryer installation	A. Check for proper inlet/outlet compressed air connections.
2. Compressed air bypass line open	B. Close dryer by-pass valve.
3. Dryer not running	C. See section I. above.
4. Residual liquid water in piping system	D. Drain all drop legs and points and allow time for dry air to purge system.

Problem, Caused By:	Corrective Action
III. Liquid water in compressed air system, caused by cont.:	
5. Automatic drain on dryer not working (electric)	E. 1. Check "Power On" light on drains to verify they have power. 2. Check drain shut-off valve to assure it is open. 3. Clean Y-strainer (be sure shut-off valve is closed before servicing Y-strainer.) 4. Verify that the drain solenoid valves are opening. 5. Adjust cycle time and duration to assure complete draining.
6. Excessive compressed air flow or temperature	F. Check flow and temperature inlet against dryer ratings.
7. Compressed air aftercooler separator malfunction	G. Check separator; drain, replace or repair.
8. Low ambient temperature	H. Check if compressed air outlet piping is routed through an area where ambient temperatures are below the dryer dew point rating.
IV. Excessive noise and vibration, caused by:	
1. Broken or bent condenser fan blades striking housing	A. Check and straighten fan mounting bracket or blades. Replace damaged fan.
2. Damaged parts in air circuits	B. Replace damaged components. Check the air system for "quick" or rapid opening valves that can cause an abrupt traveling pressure front (hammer effect) in the system.
V. Digital Temperature Indicator:	
1. No display	A. Check fuse on the back side of the board, replace if necessary
2. Erroneous reading on some positions	B. Check for constant air leak from drain discharge. Shut off air pressure, remove drain, clean or replace drain and/or drain valve seat. C. Verify the temperature probe making good contact on the surface. D. Plug in another probe knowing to be giving available if the on/off switch is off.
3. Erroneous reading all channels	E. Replace display board.

In an effort to maximize warranty support and minimize confusion concerning the Wilkerson Refrigerated Air Dryer warranty policy, the following is presented as a supplement to the standard Wilkerson warranty policy.

First, please note that Wilkerson is not necessarily responsible for labor costs associated with a warranted part. It has been incorrectly assumed by many customers that Wilkerson would accept labor charges regardless of the claim submitted. This is not the case as indicated by the following clarifications.

Problems such as plugged drains, burned out light bulbs, simple electrical trouble shooting, and minor adjustments will not be covered under warranty. It is our intent to work with the customer over the phone to correct such minor problems.

For example: It is not uncommon for a hot-gas bypass valve to drift slightly out of calibration over a period of time. This simple adjustment can be performed by the customer under most circumstances. It requires no knowledge of refrigeration systems and will be supported by telephone and written documentation. This not only saves the customer time but also educates them on this common procedure so that it can be performed again when the dryer is **not** under warranty.

Naturally, customers will not be expected to perform major repairs such as replacing a compressor or installing a heat exchanger. These tasks must be performed by a qualified technician. Along these lines, a customer may be asked to take ohm or amp readings to determine if a compressor needs to be replaced. At this point, it is not necessary to write down every task a customer may be asked to perform. These issues are better addressed on a case-by-case basis.

Now that the written warranty policy has been reviewed and some examples given, the next step is to review the correct way to file a warranty claim. The following "Warranty Procedure" clearly outlines the obligations of Wilkerson Corporation and the procedure to be followed when processing a warranty claim.

WILKERSON REFRIGERATED AIR DRYER WARRANTY

Wilkerson products are warranted to be free from defects in material and workmanship, under proper use, installation, application and maintenance in accordance with Wilkerson's written recommendations and specification for a period of one year from the date of shipment from the factory (refrigerated dryers are warranted for 2 years). Wilkerson's obligation under this warrant is limited to, and the sole remedy for any such defect shall be, the repair or replacement (at Wilkerson's option) of unaltered products returned to Wilkerson and proven to have such defect, provided such defect is promptly reported to Wilkerson within said one-year period.

This is the only authorized Wilkerson warranty and is in lieu of all other express or implied warranties or representation, including any implied warranties of merchantability or fitness, or of any other obligations on the part of Wilkerson.

Warranty claims must be submitted and shall be processed in accordance with Wilkerson's established warranty claim procedure. In no event will Wilkerson be liable for business interruptions, loss of profits, personal injury, costs of delay or for any other special, indirect, incidental or consequential losses, cost or damages.

NOTE: Routine maintenance and minor adjustments to Wilkerson refrigerated compressed air dryers are not covered under this warranty. Prior to performing any possible warranty service or replacing a possible warranted part, Wilkerson must be notified at (303) 761-7601. Failure to comply with this procedure will result in denial of warranty claim. Please fill in the Service Information Sheet prior to calling Wilkerson.

Service Information Sheet

1. Dryer Model No. _____
2. Dryer Serial No. _____
3. Date Installed and Started Up _____
4. Prefilter Model No(s). (if no prefilters are present, so indicate) _____

5. Nature Of Problem _____

SERVICE INFORMATION

We will be glad to assist with any service problems you may have. However, before contacting us, please have the following information available.

1. MODEL NUMBER _____ 2. SERIAL NUMBER _____

3. What is the nature of the problem? _____

4. What is the Refrigerant Suction Pressure Gauge reading? _____

OTHER INFORMATION NEEDED:

A. AIR TEMPERATURES AND PRESSURES

Inlet air temperature _____ °F (°C)

Outlet air temperature _____ °F (°C)

Inlet air pressure _____ psig (bar)

Outlet air pressure _____ psig (bar)

B. AIR FLOW

What is H.P. of compressor? _____

What is the air flow? _____ scfm (Nm³/h)

C. AMBIENT CONDITIONS AT DRYER INSTALLATION

What is the ambient air temperature? _____ °F (°C)

Is ambient air at dryer installation dusty? _____

Has condenser been cleaned recently? _____