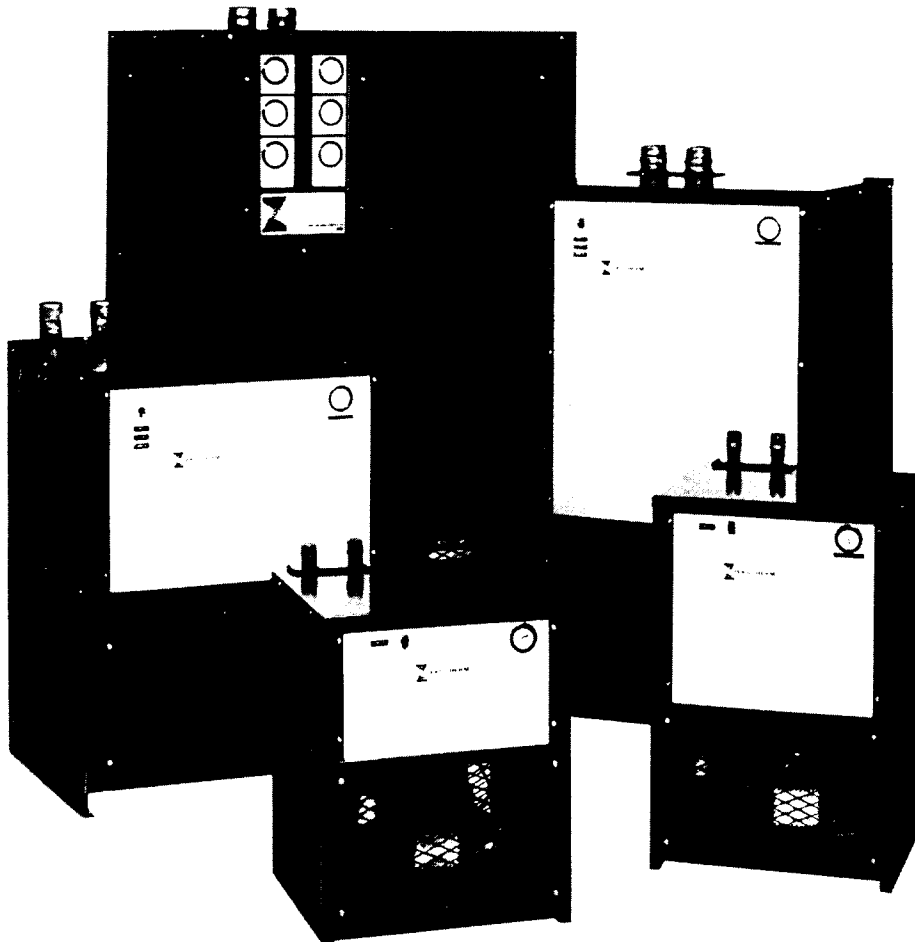


PERMEA ™
A M O N S A N T O C O M P A N Y

**REFRIGERATED
AIR DRYERS
for
compressed
air systems**

**TECHNICAL
MANUAL**

MODELS 500-2400 HS



ZEKS Compressed Air Solutions

1302 Goshen Parkway
West Chester, PA 19380
610-692-9100 800-888-2323
Fax 610-692-9192
www.zeks.com

ZEKS - THERM HEAT/SINK CYCLING REFRIGERATED AIR DRYERS

PERFORMANCE SPECIFICATIONS

MODEL		500	600	700
CAPACITY	35° DEWPOINT	500	600	700
	50° DEWPOINT	625	750	875

MAX. WORKING PRESSURE	*200	*200	*200
*T-1 TRAP	170	170	170

CONNECTIONS	IN & ØUT	2-1/2" M.P.T.	2-1/2" M.P.T.	3" M.P.T.
	DRAIN	1/4" F.P.T.	1/4" F.P.T.	1/4" F.P.T.

REFRIG. COMPRESSOR H.P.	3	3	3
-------------------------	---	---	---

**REFRIGERANT	TYPE	R-22	R-22	R-22
	AIR COOLED	5 lbs. 0 oz.	5 lbs. 12 oz.	6 lbs. 8 oz.
	WATER COOLED	4 lbs. 8 oz.	5 lbs. 3 oz.	5 lbs. 8 oz.

230-3-60				
COMPRESSOR	R.L.A.	12.5	12.5	12.5
	L.R.A.	72.0	72.0	72.0
FAN MOTOR	R.L.A.	2 @ 1.7	2 @ 1.7	2 @ 1.7
	L.R.A.	--	--	--

440-3-60				
COMPRESSOR	R.L.A.	6.2	6.2	6.2
	L.R.A.	35.0	35.0	35.0
FAN MOTOR	R.L.A.	2 @ .85	2 @ .85	2 @ .85
	L.R.A.	--	--	--

575-3-60				
COMPRESSOR	R.L.A.	5.3	5.3	5.3
	L.R.A.	30.0	30.0	30.0
FAN MOTOR	R.L.A.	2 @ .85	2 @ .85	2 @ .85
	L.R.A.	--	--	--

ZEKS - THERM HEAT/SINK CYCLING REFRIGERATED AIR DRYERS

PERFORMANCE SPECIFICATIONS

MODEL		800	1000	1200
CAPACITY	35° DEWPOINT	800	1000	1200
	50° DEWPOINT	1000	1250	1500

MAX. WORKING PRESSURE	*200	*200	*200
*T-1 TRAP	170	170	170

CONNECTIONS	IN & OUT	4" M.P.T.	4" M.P.T.	4" M.P.T.
	DRAIN	1/4" F.P.T.	1/4" F.P.T.	1/4" F.P.T.

REFRIG. COMPRESSOR H.P.	4	4	5
-------------------------	---	---	---

**REFRIGERANT	TYPE	R-22	R-22	R-22
	AIR COOLED	7 lbs. 5 oz.	10 lbs. 4 oz.	11 lbs. 0 oz.
	WATER COOLED	6 lbs. 3 oz.	7 lbs. 8 oz.	9 lbs. 6 oz.

230-3-60				
COMPRESSOR	R.L.A.	15.5	15.5	20.2
	L.R.A.	103.0	103.0	135.0
FAN MOTOR	R.L.A.	2 @ 1.9	2 @ 1.9	3 @ 1.9
	L.R.A.	--	--	--

440-3-60				
COMPRESSOR	R.L.A.	7.8	7.8	9.5
	L.R.A.	54.0	54.0	62.0
FAN MOTOR	R.L.A.	2 @ .95	2 @ .95	3 @ .95
	L.R.A.	--	--	--

575-3-60				
COMPRESSOR	R.L.A.	6.0	6.0	7.0
	L.R.A.	30.1	30.1	39.0
FAN MOTOR	R.L.A.	2 @ .95	2 @ .95	3 @ .95
	L.R.A.	--	--	--

*TIMED DRAIN - OPTIONAL

TABLE 1 ** See "Trouble Guide"

ZEKS - THERM HEAT/SINK CYCLING REFRIGERATED AIR DRYERS

PERFORMANCE SPECIFICATIONS

MODEL		1400	1600	
CAPACITY	35° DEWPOINT	1400	1600	
	50° DEWPOINT	1750	2000	

MAX. WORKING PRESSURE	*200	*200	
*T-1 TRAP	170	170	

CONNECTIONS	IN & OUT	4" M.P.T.	4" M.P.T.	
	DRAIN	1/4" F.P.T.	1/4" F.P.T.	

REFRIG. COMPRESSOR H.P.	7-1/2	7-1/2	
-------------------------	-------	-------	--

**REFRIGERANT	TYPE	R-22	R-22	
	AIR COOLED	12 lbs. 0 oz.	13 lbs. 0 oz.	
	WATER COOLED	10 lbs. 4 oz.	11 lbs. 1 oz.	

230-3-60				
COMPRESSOR	R.L.A.	30.1	30.1	
	L.R.A.	183.0	183.0	
FAN MOTOR	R.L.A.	3 @ 1.9	3 @ 1.9	
	L.R.A.	--	--	

440-3-60				
COMPRESSOR	R.L.A.	15.8	15.8	
	L.R.A.	91.1	91.1	
FAN MOTOR	R.L.A.	3 @ .95	3 @ .95	
	L.R.A.	--	--	

575-3-60				
COMPRESSOR	R.L.A.	12.4	12.4	
	L.R.A.	73.3	73.3	
FAN MOTOR	R.L.A.	3 @ .95	3 @ .95	
	L.R.A.	--	--	

ZEKS - THERM HEAT/SINK CYCLING REFRIGERATED AIR DRYERS

PERFORMANCE SPECIFICATIONS

MODEL		1800	2100	2400
CAPACITY	35° DEWPOINT	1800	2100	2400
	50° DEWPOINT	2250	2625	3000

MAX. WORKING PRESSURE	*200	*200	*200
*T-1 TRAP	170	170	170

CONNECTIONS	IN & OUT	6" FLG.	6" FLG.	6" FLG.
	DRAIN	1/4" F.P.T.	1/4" F.P.T.	1/4" F.P.T.

REFRIG. COMPRESSOR H.P.	10	10	12
-------------------------	----	----	----

**REFRIGERANT	TYPE	R-22	R-22	R-22
	AIR COOLED	14 lbs. 0 oz.	14 lbs. 10 oz.	22 lbs. 0 oz.
	WATER COOLED	12 lbs. 0 oz.	12 lbs. 12 oz.	16 lbs. 9 oz.

230-3-60				
COMPRESSOR	R.L.A.	42.1	42.1	48.8
	L.R.A.	207.0	207.0	267.0
FAN MOTOR	R.L.A.	4 @ 1.9	4 @ 1.9	4 @ 1.9
	L.R.A.	--	--	--

440-3-60				
COMPRESSOR	R.L.A.	21.1	21.1	27.6
	L.R.A.	104.0	104.0	135.0
FAN MOTOR	R.L.A.	4 @ .95	4 @ .95	4 @ .95
	L.R.A.	--	--	--

575-3-60				
COMPRESSOR	R.L.A.	16.9	16.9	25.8
	L.R.A.	82.8	82.8	108.0
FAN MOTOR	R.L.A.	4 @ .95	4 @ .95	4 @ .95
	L.R.A.	--	--	--

*TIMED DRAIN - OPTIONAL

TABLE 1 **See "Trouble Guide"

INSTRUCTIONS

GENERAL

The Zeks-Therm air dryer removes moisture, and oil from the compressed air. This is accomplished by cooling the air with a refrigeration unit to below its dewpoint causing the moisture to condense. This dependable, highly efficient dryer can be easily installed in any pneumatic system in which dry air is required.

INSTALLATION

Inspection - The unit should be inspected upon receipt for any signs of damage during transit. Any signs of damage should be reported immediately to the carrier.

Locating and Mounting - The dryer should not be located in an area where ambient temperature is likely to exceed 113°F (45°C) or be less than 50°F (10°C).

For locations where this maximum ambient temperature is exceeded for prolonged period of time, a watercooled refrigeration unit must be furnished.

On installations with relative steady flow rate, the dryer is normally connected after the air receiver. But if loads fluctuate widely as in sand blasting, sufficient storage capacity downstream of the dryer should be available to prevent excessive airflow through the dryer.

The dryer must be mounted on any substantial floor that is free of excessive vibration. In floor mount, make certain that the dryer is level before anchoring the unit to the floor. If necessary, insert shims under the mounting rails to level.

The dryer must be sufficiently clear of walls and adjoining equipment so that the access panels may be easily removed, and also to provide a free circulation of air through the ventilating louvers and grills. A minimum of 18 in. (457mm) should be allowed on the condenser inlet and outlet side.

Electrical Connection - Connect wires located inside electrical junction box on dryer to power source. The nameplate on the dryer identifies the voltage requirements. A suitable fused disconnect switch in accordance with national and local code requirements is recommended. See Table 1 for full load amps requirement of unit.

Zeks Therm air dryers are designed to have electrical power connected continuously to maintain power to the crankcase heater.

Disconnecting the power source from the dryer for extended periods is not recommended. The possibility of refrigerant compressor damage due to insufficient warm up time on the crankcase heater prior to putting the unit on line exists. Because of this, power should be applied to the unit for a minimum of four (4) hours prior to putting the switch into the on position.

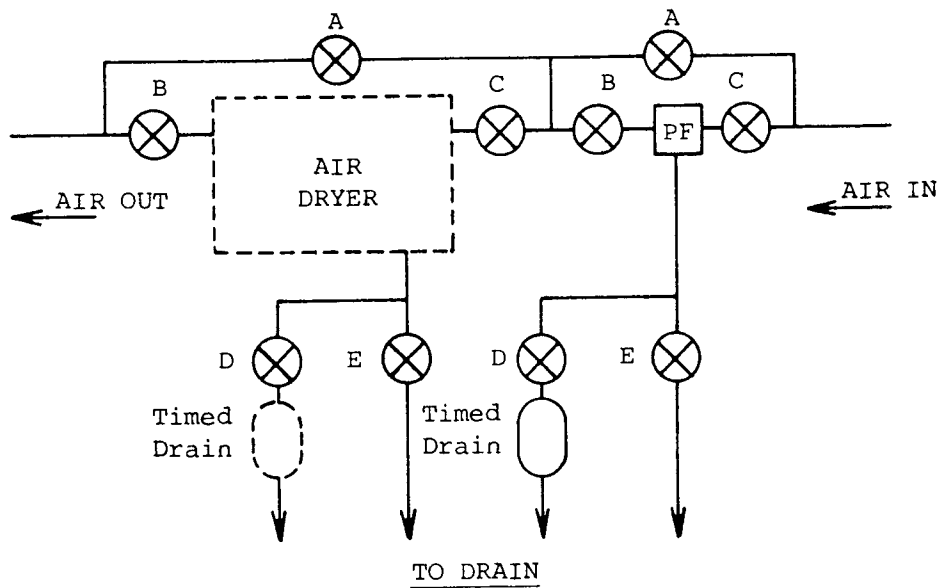
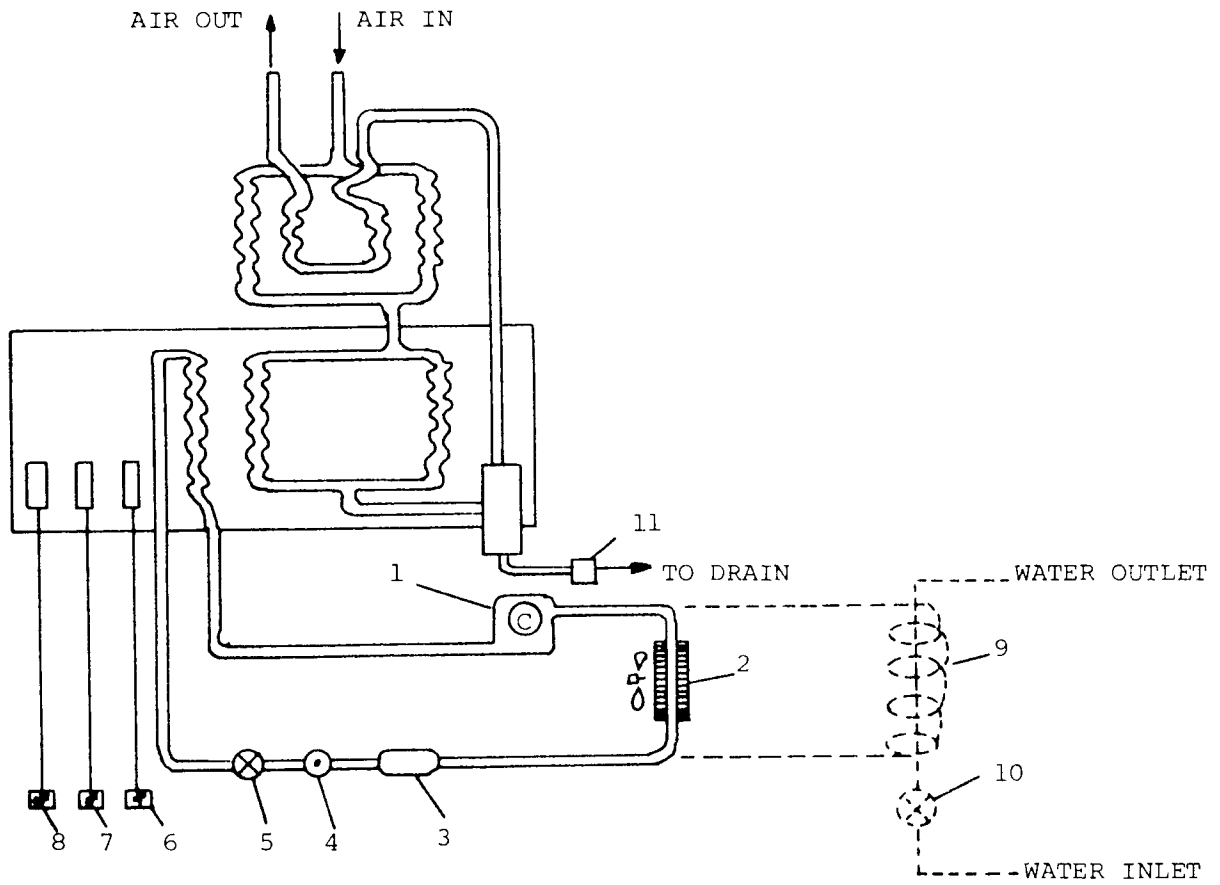


FIGURE 1 - TYPICAL PIPING ARRANGEMENT

- PF Prefilter (available factory installed).
 - X Recommended installation both air by-pass and trap by-pass (available as factory installed options).
 - Unit as delivered.
- NOTE: Drain piping must not rise or be connected to excessively long pipe runs which may create back pressures. Connection to open floor drain is recommended.

FIGURE 1 AIR PIPING



LEGEND

1. Compressor (Hermetic)
2. Condenser (Air Cooled)
3. Liquid Filter
4. Sight Glass
5. Expansion Valve
6. Thermostat (Control)
7. Thermostat (Safety)
8. Thermostat (Hi Temp.)
9. Condenser (Water Cooled)
10. Water Valve (Water Cooled Units Only)
11. Timed Drain (As Delivered)

FIGURE 2 SYSTEM SCHEMATIC

INSTALLATION cont'd:

Electrical Connection cont'd:

The on-off switch may be used for night time or weekend shutdown periods.

If the unit has not been in service for over seven (7) days, power should be applied for a minimum of twelve (12) hours prior to putting the unit on line.

Once the unit is switched on, allow the exchanger temperature to reach 40°F before applying any air load.

IMPORTANT: Maximum allowable voltage variation is $\pm 10\%$ from rated voltage.

Piping - Install piping, fittings and accessory items as indicated in Figure 1. For bypass and isolating purposes, valves A, B, and C are recommended (not furnished). An automatic timed drain is standard on these models. For testing/isolating this trap for servicing purposes, valves D and E are recommended (not furnished).

Filtration - For ultra clean air, and to protect the air dryer from residual compressor oil, a pre filter is recommended. Highly efficient pre filters and after filters can be provided by Zeks, sized to your drying application (available factory installed). Refer to Figure 1 for pre filter location and piping.

Select the filter that best suits your filter requirement.

To remove:

Oil -	Zeks coalescing filter
Aerosols -	Zeks coalescing filter
Solids, dirt -	Zeks particulate filter

Valves - To operate dryer all valves shown in Figure 1 are to be closed except valves (B), (C), and (D). Valves (A) used for bypass purposes; valve (E) is for test and drain purposes.

OPERATION (Refer to Figure 2)

Initial Start Up - On initial start up, or after extended periods of dryer shut down, energize dryer before applying air load. Excessively high exchanger temperatures, (above 100°F), may cause refrigeration compressor to cycle on high pressure cut out. Allow exchanger temperature to come down to 40°F, before introducing air load.

Compressed Air System - Compressed air entering dryer goes first to the precooler/reheater where it is cooled by the cool air leaving the chiller. The air then goes into the evaporator where it is further cooled to the desired dewpoint by the refrigerant in the refrigeration circuit. The air continues to the separator where the condensed moisture is separated from the air by centrifugal force and the condensate goes out the drain while dry compressed air goes to the precooler/reheater where it is reheated by the incoming hot moist air. The air then goes back into the compressed air system.

Cooling in the refrigeration system is accomplished by the continuous circulation and evaporation of a fixed supply of refrigerant. The hermetically sealed compressor delivers the gas thru the discharge tube under pressure to the

OPERATION continued:

Compressed Air System cont'd:

condenser. Here the combined action of the fan and the finned tubes releases the heat to the air. When the compressed gas loses heat it reverts to a liquid.

The flow of liquid refrigerant into the evaporator is controlled by the expansion valve. As the refrigerant enters the evaporator it is subject to much lower pressure due to the suction of the compressor. Therefore it will boil and evaporate picking up heat from the compressed air, thus lowering air temperature.

The refrigerant also lowers the temperature of the heat sink material surrounding the air tubes. When a preset temperature is achieved, the thermostat cycles the refrigeration unit off. The compressed air continues to be chilled by the heat sink material; when the heat sink rises to a preset temperature, the thermostat again cycles the refrigeration unit on.

ROUTINE INSPECTION AND MAINTENANCE

The Zeks Thermo refrigerated air dryer requires little maintenance. These dryers utilize hermetically sealed motor compressors that do not require any additional lubrication over that installed at the factory. Fan motor bearings on air cooled units are prepacked and sealed. The areas requiring periodic attention to obtain the maximum benefit from the dryer are as follows:

1. Inspect Refrigerant Condenser - For proper operation, it is essential that the condenser fins are free of dirt and dust. Regular cleaning is therefore required. If the dryer is located in an area where dust is excessive, a condenser ambient air filter should be fitted (available factory installed).

2. Blow Down and Test Condensate Drainage System - Refer to Figure 1 - Open test valve (E) occasionally to test operation of the automatic Timed Drain. A small amount of water may discharge immediately when the valve is opened. The amount will be dependent upon the amount of vertical pipe ahead of the valve. If an excessive amount of water discharges, it would indicate that the Drain may be inoperative and should be removed and cleaned. Be careful to ensure there is no pressure on the Drain before removing it. Isolate it from the system by closing valve (D). Re-check the operation of the drain trap after several days of operation.

If removal of the valve is required, this should be carried out by a qualified electrician.

TROUBLE GUIDE FOR REFRIGERANT SYSTEM (S)

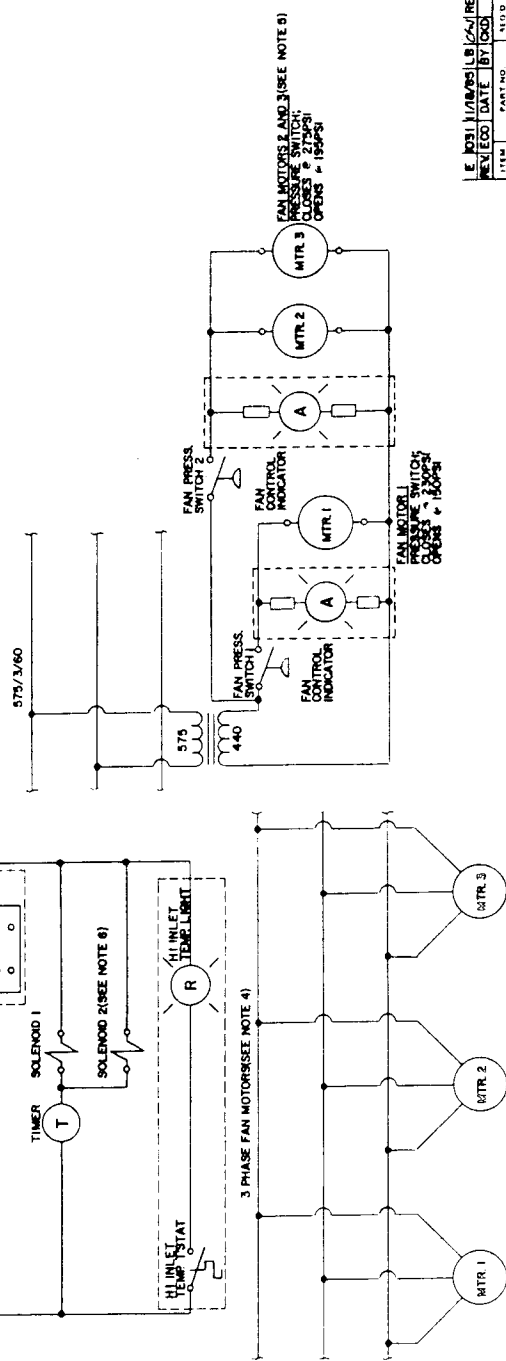
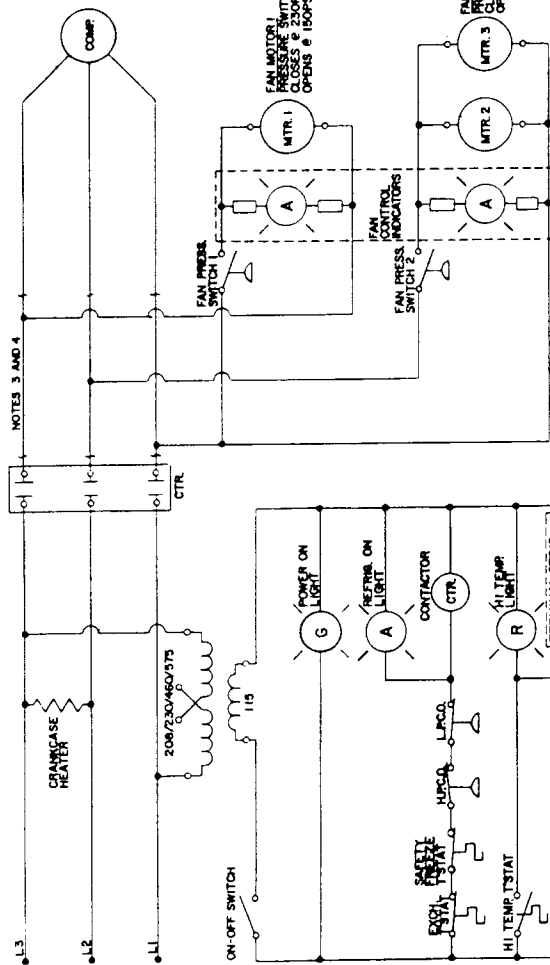
COMPLAINT	POSSIBLE CAUSE	REPAIR
Compressor will not START - no hum.	<ol style="list-style-type: none"> 1. Line disconnect switch open. 2. Fuse removed or blown 3. Overload protector tripped. 4. Control stuck in open position. 5. Wiring improper or loose. 	<ol style="list-style-type: none"> 1. Close start or disconnect. 2. Replace fuse. 3. Refer to electrical section. 4. Repair or replace control. 5. Check wiring against diagram.
Compressor will not start - hums but trips on overload protector.	<ol style="list-style-type: none"> 1. Improperly wired. 2. Low voltage to unit. 3. Compressor motor has a winding open or shorted. 4. Internal mechanical trouble in compressor. 	<ol style="list-style-type: none"> 1. Check wiring. 2. Determine reason and correct. 3. Replace compressor. 4. Replace compressor.
Compressor starts and runs, but short cycles on high pressure cut out.	<ol style="list-style-type: none"> 1. Excessively high exchange temperature (above 100 °F) at initial start up. 	<ol style="list-style-type: none"> 1. Start air dryer and allow exchange temperature to come down to 40°F before applying air load to dryer.
Compressor starts and runs, but short cycles on overload protector.	<ol style="list-style-type: none"> 1. Excessive discharge pressure. 2. Compressor too hot - return gas hot. 3. Compressor motor has a winding shorted. 	<ol style="list-style-type: none"> 1. Check condenser for dirt. Clean. 2. Check refrigerant charge (fix leak) add if necessary. 3. Replace compressor.
Unit runs OK, but short cycles on.	<ol style="list-style-type: none"> 1. High pressure cut-out due to: <ol style="list-style-type: none"> a. Insufficient air flow across condenser. b. Overcharge c. Air in system. 	<ol style="list-style-type: none"> 1a. Check condenser for dirt - clean. 1b. Reduce refrigerant charge. 1c. Purge.
Unit operates long or continuously.	<ol style="list-style-type: none"> 2. Low pressure cut-out due to: <ol style="list-style-type: none"> a. Compressor valve leak. b. Undercharge. c. Restriction in expansion valve. 1. Shortage of refrigerant. 2. Control contacts stuck or frozen closed. 3. System inadequate to handle load. 4. Restriction in refrigerant system. 5. Dirty condenser. 	<ol style="list-style-type: none"> 2a. Replace compressor. 2b. Fix leak, add refrigerant. 2c. Replace valve. 1. Fix leak, and charge. 2. Clean contacts or replace control. 3. Replace with larger system. 4. Determine location and remove. 5. Clean condenser.

TROUBLE GUIDE FOR REFRIGERANT SYSTEM(S)

- | | | |
|---|--|---|
| Suction line
frosted or
sweating. | <ol style="list-style-type: none"> 1. Expansion valve passing excess refrigerant. 2. Expansion valve stuck open. 3. Overcharge of refrigerant. | <ol style="list-style-type: none"> 1. Readjust valve. (NOTE: It is unusual to have to adjust this valve. Do this only if all else fails.) 2. Clean valve of foreign particles, replace if necessary. 3. Correct charge per manual. |
| Liquid line
frosted or
sweating. | <ol style="list-style-type: none"> 1. Restriction in filter dryer or condenser. | <ol style="list-style-type: none"> 1. Replace part. |
| Unit noisy. | <ol style="list-style-type: none"> 1. Loose parts or mountings. 2. Tubing rattle. 3. Bent fan blade causing vibration. 4. Fan motor bearings worn. | <ol style="list-style-type: none"> 1. Find and tighten. 2. Reform to be free of contact. 3. Replace blade. 4. Replace motor. |

**NOTE: From Table 1

Due to design modifications and component variations, actual charge may vary. Check the charge listed on the serial data nameplate located on the side panel of the unit for correct charge.



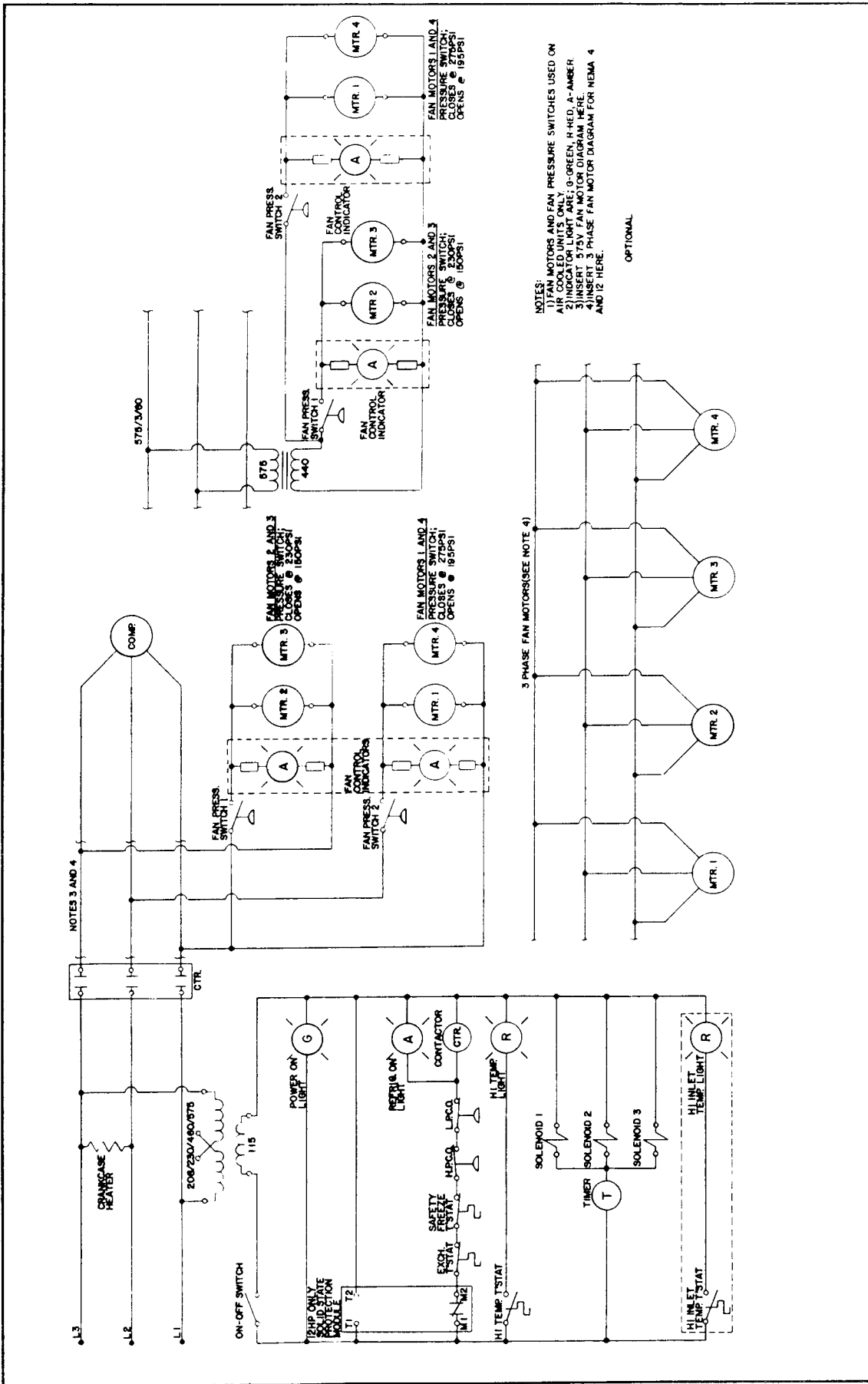
NOTES:
 1) FAN MOTORS AND FAN PRESSURE SWITCHES USED ON ALL FAN MOTOR TYPES.
 2) INDICATOR LIGHTS: G - GREEN, R - RED, A - AMBER.
 3) INSERT 57V FAN MOTOR DIAGRAM HERE.
 4) INSERT 3 PHASE FAN MOTOR DIAGRAM FOR NEMA 4.
 5) FAN MOTOR 3 USED ON MODELS 1400 AND 1600 ONLY.
 6) SOLENOID 2 USED ON MODELS 900 THRU 1600 ONLY.

----- OPTIONAL

DIMENSIONAL TOLERANCE UNLESS OTHERWISE SPECIFIED	
Castings & Weldments	±
Other Fractions	±
Decimal .XXX	±
Decimal .XX	±
Angularity	±

REVISED	DATE	BY	DESCRIPTION
1	11/18/65	LN	REWORKED AND MADE TIMER AND SOLENOIDS STD.
ZEKS AIR DRIER CORP. MALVERN, PA.			
SUBJECT WIRING DIAGRAM 500-1600HSB			
TOLERANCES (FRAC DIMENSIONS 1/16" UNLESS OTHERWISE SPECIFIED)			
MATERIAL / / ROUGH MCH FIN / / SMOOTH FIN / / GRIND OR LAP			
DRWNG	LB	CHECKED	SCALE NONE
DATE	11/18/65	DATE	11/18/65
REV.	321962	REV.	E

NOTES: THIS DRAWING, INCLUDING ALL CONNECTIONS, IS THE PROPERTY OF ZEKS AIR DRIER CORP. AND IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM. THIS DRAWING AND ALL CONNECTIONS, INCLUDING ALL DIMENSIONS, SHALL BE THE PROPERTY OF ZEKS AIR DRIER CORP. AND SHALL NOT BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM. THIS DRAWING AND ALL CONNECTIONS, INCLUDING ALL DIMENSIONS, SHALL BE THE PROPERTY OF ZEKS AIR DRIER CORP. AND SHALL NOT BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM.



D 10341/20/85/LB DE REDRAWN AND TIMER AND SOLENOIDS MADE STD

REV ECO DATE BY EXL DESCRIPTION

PART NO. REVISED DESCRIPTION

SUBJECT: **ZEKS AIR DRIER CORP.**
MALVERN, PA

WIRING DIAGRAM 1800-2400H8B

TOLERANCES: FRACTIONAL DIMENSIONS: 1/16 UNLESS OTHERWISE SPECIFIED

MATERIAL: / ROUGH MCH FIN / SMOOTH FIN / GRIND OR LAY / POLISH

DRAWN: L B CHECKED: JF

DATE: 11/20/85 SCALE: NONE

DRWG PART NO: **322090 D**

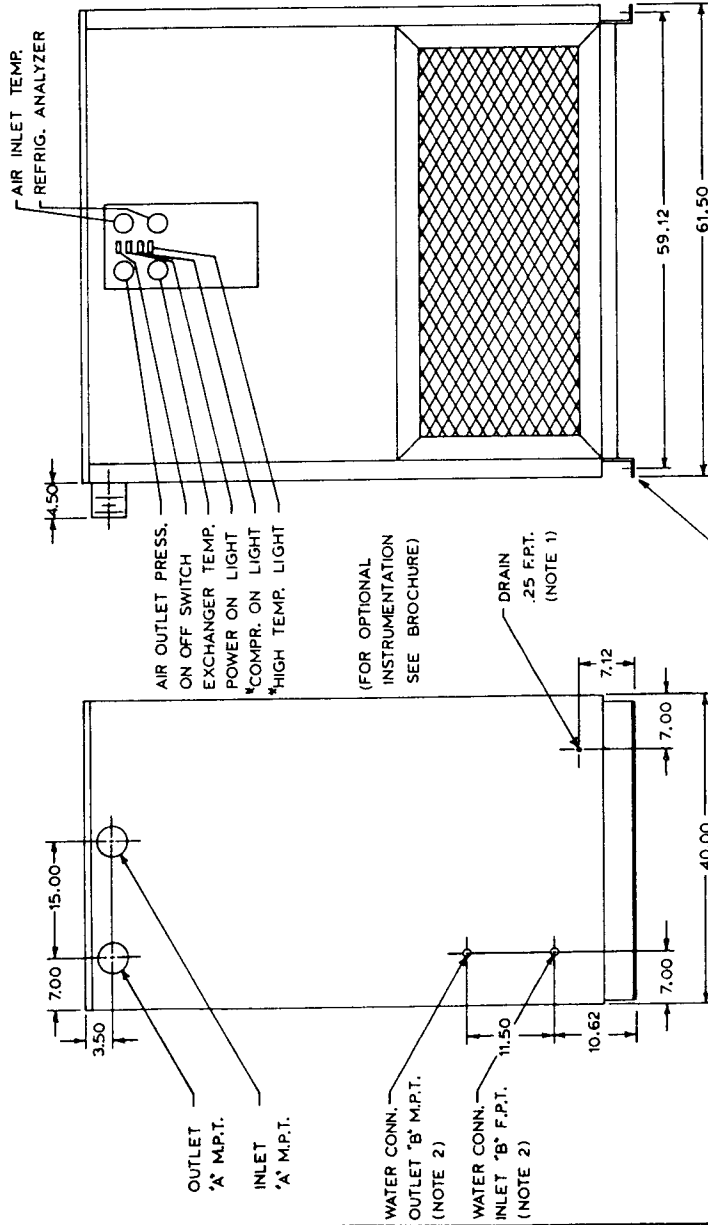
REV: D

DIMENSIONAL TOLERANCE UNLESS OTHERWISE SPECIFIED

Castings & Weldments	±
Other Fabrications	±
Decimal XXX	±
Decimal XX	±
Angularity	±

NOTE: THIS DRAWING IS A REVISION OF A PREVIOUS DRAWING AND SHOULD BE USED IN CONJUNCTION WITH THE PREVIOUS DRAWING. THIS DRAWING IS A REVISION OF A PREVIOUS DRAWING AND SHOULD BE USED IN CONJUNCTION WITH THE PREVIOUS DRAWING. THIS DRAWING IS A REVISION OF A PREVIOUS DRAWING AND SHOULD BE USED IN CONJUNCTION WITH THE PREVIOUS DRAWING.

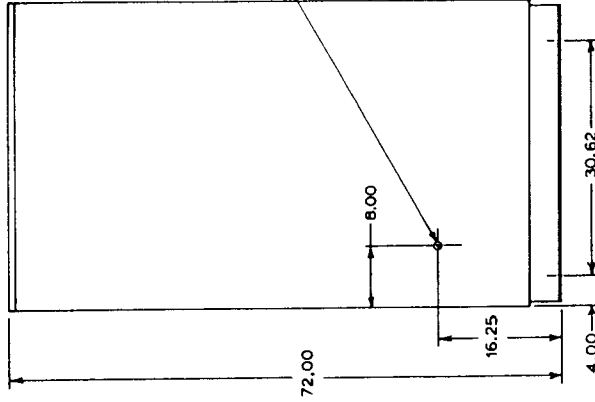
'B'	'A'	MODEL
.75	4.00	800
.75	4.00	1000
1.00	4.00	1200



FRONT

(4) MTG. HOLES
.75 DIA.

ELECT. CONN.
.87 DIA.



ALL DIMENSIONS IN INCHES

DIMENSIONAL TOLERANCE UNLESS OTHERWISE SPECIFIED

Castings & Weldments	±
Other Fractions	±
Decimal .XXX	±
Decimal .XX	±
Angularity	±

NOTES:

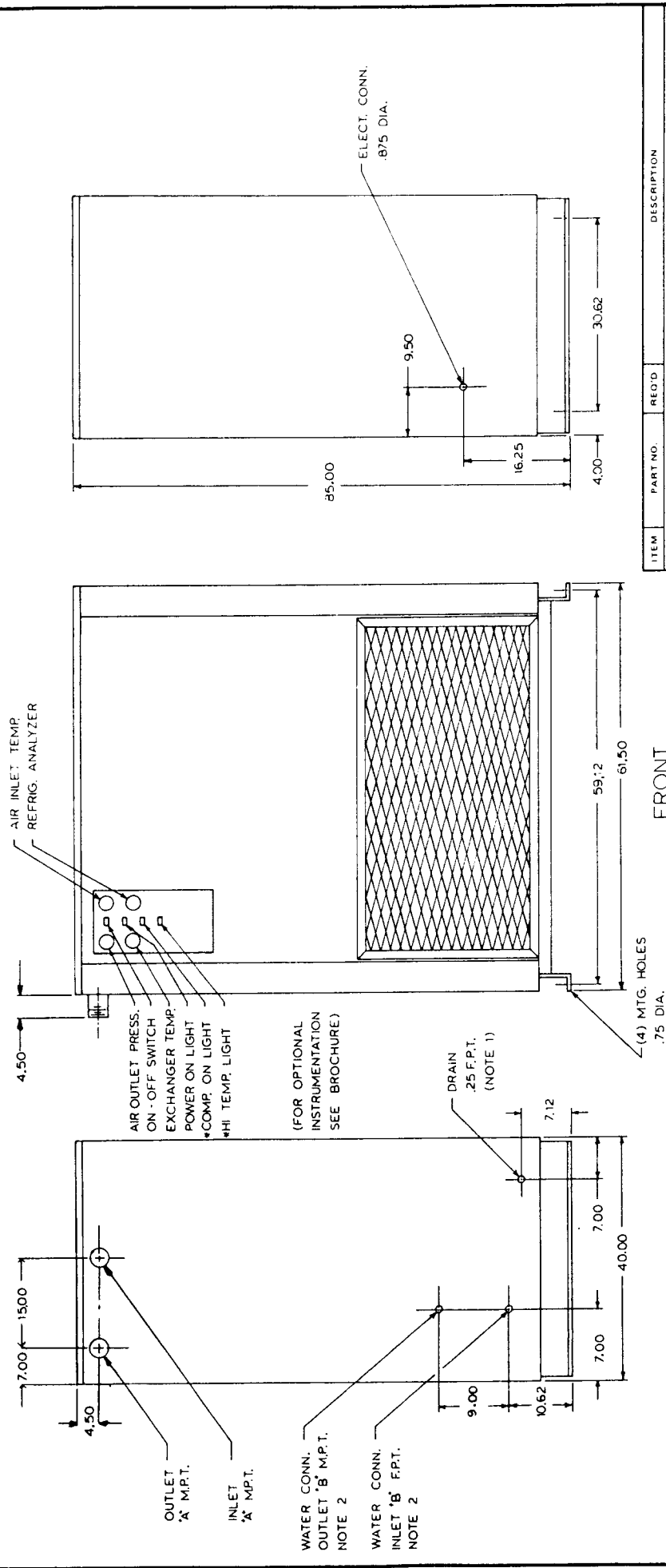
1. CUSTOMER IS TO CONNECT DRAIN DISCHARGE PIPING TO TRAP DISCHARGE.
2. WATER COOLED UNITS ONLY.
3. SCREEN SIZE IS 27" x 56" FOR CUSTOMER DUCT WORK CONNECTION.
* HEAT SINK UNITS ONLY.

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ITEM	PART NO.	REQ'D.	DESCRIPTION
REQ'D.			ZEK'S AIR DRIER CORP. MALVERN, PA.
NEXT ASSEM			SUBJECT: OUTLINE DIMENSIONS 800, 1000 & 1200 H/S-N/C
MODEL			TOLERANCES: FRAC. DIMENSIONS ± 1/64 UNLESS OTHERWISE SPECIFIED
			f. ROUGH MCH. FIN. f. SMOOTH FIN. f. GRIND OR LAP f. POLISH
			MATERIAL
			DRAWN LN CHECKED <i>[Signature]</i> DRWG. & PART NO.
			DATE FEB. 8, 84 SCALE 1/16 222087

ECO REV	DESCRIPTION	DATE	BY
333	B	1-3-83	LN
	MODEL 1600 DIM. "B" 1.00		
	WAS .75		

"B"	MODEL
1.00	1400
4.00	1600



ITEM	PART NO.	REO'D	DESCRIPTION
ZEKS AIR DRIER CORP. MALVERN, PA			
SUBJECT OUTLINE DIMENSIONS 1400 - 1600 HSB & NCA			
TOLERANCES FRAC. DIMENSIONS ± 1/64 UNLESS OTHERWISE SPECIFIED			
F. ROUGH MCH. FIN. F. SMOOTH FIN. F. GRIND OR LAP F. POLISH			
MATERIAL			
DRAWN LN CHECKED / C 82 DRWG. & PART NO.			
DATE 7-1-82 SCALE NONE 221991			

MODEL	REO'D
NEXT ASSEMBLY	

FRONT	
ALL DIMENSIONS IN INCHES	
DIMENSIONAL TOLERANCE UNLESS OTHERWISE SPECIFIED	±
Castings & Weldments	±
Other Fractions	±
Decimal .XXX	±
Decimal .XX	±
Angularity	±

NOTES:

- CUSTOMER IS TO CONNECT DRAIN DISCHARGE PIPING TO TRAP DISCHARGE.
- WATER COOLED UNITS ONLY.
- SCREEN SIZE IS 27 $\frac{1}{2}$ 56" FOR CUST. DUCT WORK CONN.

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RECOMMENDED SPARE PARTS LIST HSB

X

ITEM #	DESCRIPTION	500	600	700	800
1.	Blade, Fan	698156	698156	698156	698156
2.	Compressor, Refrig. 230-3-60	697209	697209	697209	697211
3.	Compressor, Refrig. 440-3-60	697210	697210	697210	697212
4.	Compressor, Refrig. 575-3-60	600045	600045	600045	697213
5.	Condenser, Air Cooled	698275	698275	698275	698477
6.	**Condenser, Water Cooled	600558	600558	600558	600560
7.	Contactora	697290	697290	697290	697290
8.	Distributor, Refrigerant	698130	698046	698120	698048
9.	Drain - See Note 6.	600569	600569	600569	600569
10.	Dryer, Filter (Refrig.)	600386	600386	600386	600386
11.	*Filter, Ambient	600526	600526	600526	***
12.	*Gauge, Air Inlet Pressure	698127	698127	698127	698127
13.	Gauge, Air Inlet Temperature	698123	698123	698123	698123
14.	Gauge, Air Outlet Pressure	698127	698127	698127	698127
15.	*Gauge, Air Outlet Temperature	698123	698123	698123	698123
16.	Gauge, Exchanger Temperature	698124	698124	698124	698124
17.	Gauge, Refrig. Analyzer	698126	698126	698126	698126
18.	*Gauge, Refrig. Discharge	698125	698125	698125	698125
19.	Guard Fan	702815	702815	702815	702815
20.	Hi Pressure Cut Out	600925	600925	600925	600925
21.	Hi Pressure Fan Control	697363	697363	697363	697363
22.	Light, Power On	697299	697299	697299	697299
23.	Light, Refrig. On	697298	697298	697298	697298
24.	Light, Hi Temp	697297	697297	697297	697297
25.	Low Pressure Cut Out	600924	600924	600924	600924
26.	Low Pressure Fan Control	697362	697362	697362	697362
27.	Motor, Fan 230 V.	698151	698151	698151	698151
28.	Motor, Fan 440 V.	698152	698152	698152	698152
29.	Sight Glass (Refrig.)	600392	600392	600392	600392
30.	Switch, On-Off	698142	698142	698142	698142
31.	Thermostat, Exchanger	697277	697277	697277	697277
32.	*Thermostat, Hi Inlet Temp.	697277	697277	697277	697277
33.	Thermostat, Hi Temperature	697277	697277	697277	697277
34.	Thermostat, Safety	697277	697277	697277	697277
35.	Transformer 440V.	697359	697359	697359	697359
36.	Transformer (575 V. only)	600183	600183	600183	600183
37.	Transformer (575 - 400 V.)Fan	600837	600837	600837	600837
38.	Valve, Expansion	601270	601270	601270	601270
39.	**Valve, Water	600562	600562	600562	600562

- NOTES:
1. *Optional Equipment.
 2. **Water cooled units only.
 3. ***Two Filters required, part #600522 and #600524.
 4. Spare parts not listed are available, consult factory.
 5. When ordering spare parts, please specify:
 - A. Model Number
 - B. Serial Number
 - C. Item Number
 - D. Complete description
 - E. Quantity
 - F. Tech manual form number
 6. 500 - 700HS EZZ-1
 800 - 1600HS EZZ-1 + (1)699324
 1800 - 2400HS EZZ-1 + (2)699324

*Obsolete Parts: See attached for replacement information

RECOMMENDED SPARE PARTS LIST HSB

ITEM #	DESCRIPTION	1000	1200	1400	1600
1.	Blade, Fan	698156	698156	698156	698156
2.	Compressor, Refrig. 230-3-60	697211	697419	698157	698157
3.	Compressor, Refrig. 440-3-60	697212	697740	698158	698158
4.	Compressor, Refrig. 575-3-60	697213	697415	698163	698163
5.	Condenser, Air Cooled	698478	698478	698149	698149
6.	**Condenser, Water Cooled	600560	600560	698202	698202
7.	Contactator	697290	697290	697290	697290
8.	Distributor, Refrigerant	698130	698046	698120	698048
9.	Drain - See Note 6.	600569	600569	600569	600569
10.	Dryer, Filter (Refrig.)	600386	600386	600388	600388
11.	*Filter, Ambient	***	***	***	***
12.	*Gauge, Air Inlet Pressure	698127	698127	698127	698127
13.	Gauge, Air Inlet Temperature	698123	698123	698123	698123
14.	Gauge, Air Outlet Pressure	698127	698127	698127	698127
15.	*Gauge, Air Outlet Temperature	698123	698123	698123	698123
16.	Gauge, Exchanger Temperature	698124	698124	698124	698124
17.	Gauge, Refrig. Analyzer	698126	698126	698126	698126
18.	*Gauge, Refrig. Discharge	698125	698125	698125	698125
19.	Guard Fan	702815	702815	702815	702815
20.	Hi Pressure Cut Out	600925	600925	600925	600925
21.	Hi Pressure Fan Control	697363	697363	697363	697363
22.	Light, Power On	697299	697299	697299	697299
23.	Light, Refrig. On	697298	697298	697298	697298
24.	Light, Hi Temp	697297	697297	697297	697297
25.	Low Pressure Cut Out	600924	600924	600924	600924
26.	Low Pressure Fan Control	697362	697362	697362	697362
27.	Motor, Fan 230 V.	698151	698151	698151	698151
28.	Motor, Fan 440 V.	698152	698152	698152	698152
29.	Sight Glass (Refrig.)	600392	600392	600389	600389
30.	Switch, On-Off	698142	698142	698142	698142
31.	Thermostat, Exchanger	697277	697277	697277	697277
32.	*Thermostat, Hi Inlet Temp.	697277	697277	697277	697277
33.	Thermostat, Hi Temperature	697277	697277	697277	697277
34.	Thermostat, Safety	697277	697277	697277	697277
35.	Transformer 440V.	697359	697359	697359	697359
36.	Transformer (575 V. only)	600183	600183	600183	600183
37.	Transformer (575 - 400 V.)Fan	600837	600837	600837	600837
38.	Valve, Expansion	601270	601270	601270	601270
39.	**Valve, Water	600563	600563	698204	698204

- NOTES:
1. *Optional Equipment.
 2. **Water cooled units only.
 3. ***Two Filters required, part #600522 and #600524.
 4. Spare parts not listed are available, consult factory.
 5. When ordering spare parts, please specify:

A. Model Number	D. Complete description
B. Serial Number	E. Quantity
C. Item Number	F. Tech manual form number
 6. 500 - 700HS EZD-1
 800 - 1600HS EZD-1 + (1)699324
 1800 - 2400HS EZD-1 + (2)699324

RECOMMENDED SPARE PARTS LIST HSB

ITEM #	DESCRIPTION	1800	2100	2400
1.	Blade, Fan	698156	698156	698156
2.	Compressor, Refrig. 230-3-60	698159	698159	698161
3.	Compressor, Refrig. 440-3-60	698160	698160	698162
4.	Compressor, Refrig. 575-3-60	698164	698164	698165
5.	Condenser, Air Cooled	698150	698150	698150
6.	**Condenser, Water Cooled	698203	698203	698375
7.	Contactoer	697290	697290	698343
8.	Distributor, Refrigerant	698131	698120	698334
9.	Drain - See Note 6.	600569	600569	600569
10.	Dryer, Filter (Refrig.)	600388	600388	600388
11.	*Filter, Ambient	600522	600522	600522
12.	*Gauge, Air Inlet Pressure	698127	698127	698127
13.	Gauge, Air Inlet Temperature	698123	698123	698123
14.	Gauge, Air Outlet Pressure	698127	698127	698127
15.	*Gauge, Air Outlet Temperature	698123	698123	698123
16.	Gauge, Exchanger Temperature	698124	698124	698124
17.	Gauge, Refrig. Analyzer	698126	698126	698126
18.	*Gauge, Refrig. Discharge	698125	698125	698125
19.	Guard Fan	702815	702815	702815
20.	Hi Pressure Cut Out	600925	600925	600925
21.	Hi Pressure Fan Control	697363	697363	697363
22.	Light, Power On	697299	697299	697299
23.	Light, Refrig. On	697298	697298	697298
24.	Light, Hi Temp	697297	697297	697297
25.	Low Pressure Cut Out	600924	600924	600924
26.	Low Pressure Fan Control	697362	697362	697362
27.	Motor, Fan 230 V.	698151	698151	698151
28.	Motor, Fan 440 V.	698152	698152	698152
29.	Sight Glass (Refrig.)	600389	600389	600389
30.	Switch, On-Off	698142	698142	698142
31.	Thermostat, Exchanger	697277	697277	697277
32.	*Thermostat, Hi Inlet Temp.	697277	697277	697277
33.	Thermostat, Hi Temperature	697277	697277	697277
34.	Thermostat, Safety	697277	697277	697277
35.	Transformer 440V.	697359	697359	697359
36.	Transformer (575 V. only)	600183	600183	600183
37.	Transformer (575 - 400 V.) Fan	600837	600837	600837
38.	Valve, Expansion	601270	601270	601270
39.	**Valve, Water	698204	698204	680181

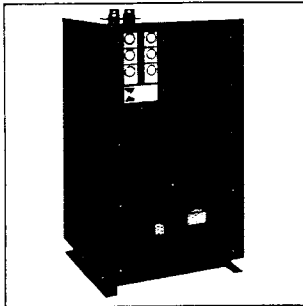
- NOTES:
1. *Optional Equipment.
 2. **Water cooled units only.
 3. ***Two Filters required, part #600522 and #600524.
 4. Spare parts not listed are available, consult factory.
 5. When ordering spare parts, please specify:

A. Model Number	D. Complete description
B. Serial Number	E. Quantity
C. Item Number	F. Tech manual form number
 6. 500 - 700HS EZD-1
 800 - 1600HS EZD-1 + (1)699324
 1800 - 2400HS EZD-1 + (2)699324

Refrigerated Air Dryers

(Cabinet Style) Heat Sink Cycling Air Dryers in sizes 10-2400 SCFM. Cycles the refrigeration system thermostatically to save you utility dollars during low load conditions. Freeze-free operation is assured during low or intermittent air load.

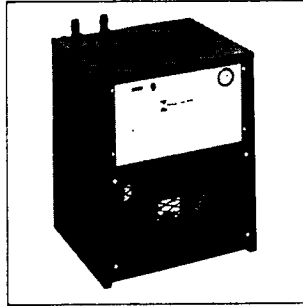
(Series Designation HSB)



Non-Cycling Refrigeration Dryers (Cabinet Style)

Complete range of hotgas valve controlled units from 25-2400 SCFM. Ideally suited for constant, full load applications. Available in all NEMA classes, completely packaged and wired. Low pressure drop exchangers, made of smooth bore tube.

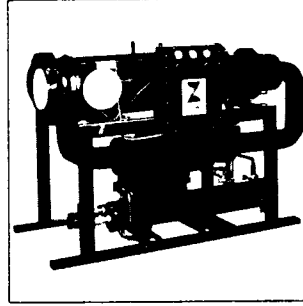
(Series Designation NCA)



Direct Expansion Dryers

(Open-frame Style) Available in a range of sizes from 2000-12,000 SCFM. Watercooled or air cooled condensers. Utilize low pressure drop shell and tube heat exchangers. Rated for 35 and 50°F pressure dewpoint.

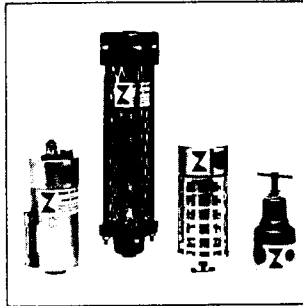
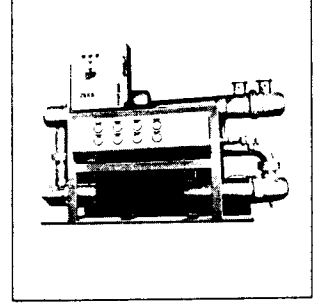
(Series Designations ZAC & ZWC)



Chiller Dryers

(Open-frame Style) Optimum quality, high capacity, water cooled compressed air dryers. Eleven sizes ranging from 2000-25,000 SCFM. Completely assembled, wired, piped and tested. No direct air to refrigerant heat exchange required with this unique thermal storage system.

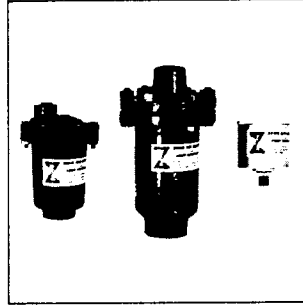
(Series Designation ZCD)



Compressed Air Filters

Complete line of filters for removal of particulate, liquid aerosols, and oil. Sizes range from 5-20,000 SCFM, for large or fine micron filtration, and 99% plus removal capabilities. Special application, and high inlet temperature filters also available.

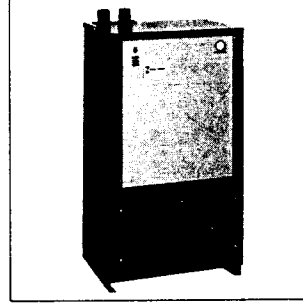
(Series Designation ZCF)



Automatic Condensate Traps/Drains

Offered is a complete line of automatic traps for pressure requirements from 150-500 psig. Automatic timed solenoid drain. Assemblies are available for high pressure requirements up to 6000 psig as well as standard applications of 100 psig.

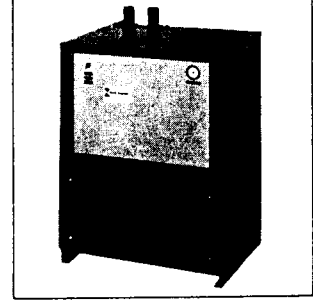
(Series Designations ZCT & ZTS)



High Pressure Refrigerated Dryers (Cabinet Style)

Complete range of dryers from 10-2400 SCFM with operating pressure capabilities up to 6000 psig. All internal air piping constructed of seamless, stainless tubing. Also suited for numerous types of contaminated atmospheres.

(Series Designation ZHP)

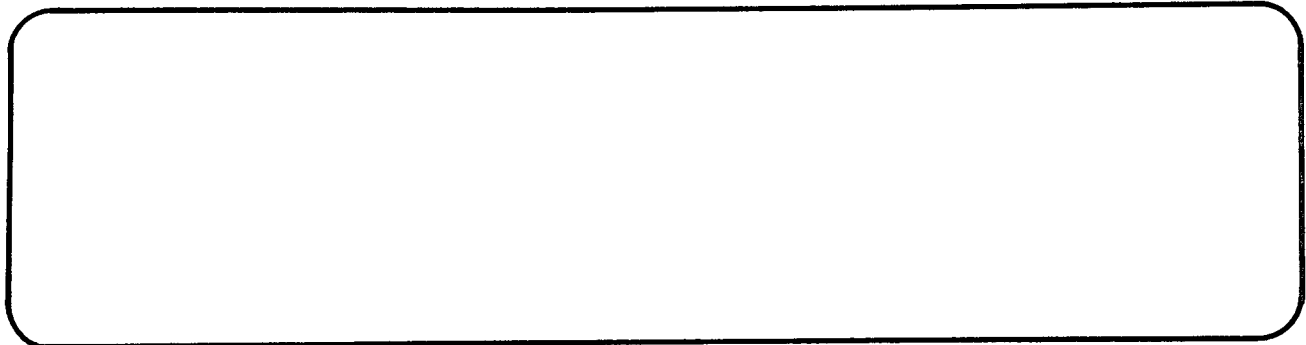


Low Pressure Refrigerated Dryers (Cabinet Style)

Dryers/coolers capable of drying and condensing in air or gas atmosphere at inlet pressures of 1 psig or less. Dewpoint ratings of 35° and 50°F available.

(Series Designation ZGC)

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