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HERMETIC CENTRIFUGAL LIQUID CHILLER

CENTRAVAC[®]

SCHEMATIC WIRING DIAGRAM – SIMPLEX OR DUPLEX UNIT

DEVICE DESCRIPTIONS

DRAWING NUMBER

2311-0512

PAGE 6 OF 6

NOTE: DEVICES LISTED MAY NOT ALWAYS APPEAR ON SCHEMATIC WIRING DIAGRAM

DEVICE	DESCRIPTION	PAGE
1A1	24VDC POWER SUPPLY NO. 1	2
1A2	24VDC POWER SUPPLY NO. 2	2
1A4	CONDENSER HIGH PRESSURE CUTOUT SWITCH INPUT	2
1A5(1/2)	EVAPORATOR AND CONDENSER WATER PUMP, OIL TANK HEATER AND ICE BUILDING INDICATOR RELAYS	3
1A5 (3)	OIL TANK HEATER CONTROL RELAY	3
1A6	EVAPORATOR AND CONDENSER WATER FLOW SWITCH/INTERLOCK INPUTS	3
1A7	OIL/REFRIGERANT PUMP MOTOR CONTROL RELAY	2
1A8 (1)	NON-LATCHING AND LATCHING ALARM, LIMIT MODE AND RUNNING INDICATOR RELAYS	5
1A8 (2)	OPERATING STATUS PROGRAMMABLE RELAYS	5
1A9 (1)	HEAD RELIEF REQUEST, MAXIMUM CAPACITY AND PURGE ALARM INDICATOR RELAYS	5
1A9(2/3)	OPERATING STATUS PROGRAMMABLE RELAYS	5
1A10	TRACER SC MODULE	5
1A11	FREE COOLING RELAY OUTPUTS	3
1A12	HOT GAS BYPASS VALVE CONTROL RELAY	3
1A13	EXTERNAL AUTO-STOP AND EMERGENCY STOP INPUTS	2
1A15	COMMA OR COMB5 MODULE	5
1A16	% RLA COMPRESSOR AND CONDENSER REFRIGERANT PRESSURE OUTPUTS	5
1A17	EXTERNAL CURRENT LIMIT AND CHILLED WATER SETPOINT INPUTS	5
1A18	EXTERNAL BASE LOADING SETPOINT AND REFRIGERANT MONITOR INPUTS	5
1A19	EXTERNAL BASE LOADING AND EXTERNAL HOT WATER CONTROL ENABLE/DISABLE INPUTS	5
1A20	EXTERNAL ICE BUILDING COMMAND AND INPUT	5
1A21	EXTERNAL FREE COOLING COMMAND AND FREE COOLING VALVES CLOSED INPUTS	3
1A22	EVAPORATOR AND CONDENSER WATER DIFFERENTIAL PRESSURE INPUTS	3
1A23	UC800 UNIT CONTROLLER	2
1A25	STARTER MODULE	1
1A24	STARTER FAULT INPUT	1
1A25	CIRCUIT 1 AND 2 EXTERNAL LOCKOUT INPUTS	3
1A26	MOTOR WINDING TEMPERATURE 1, 2 AND 3 INPUTS	2
1A30	EVAPORATOR LOW WATER TEMPERATURE CUTOUT CONTROL	2
1A31	SERVICE PORT	2
1F1	SERVICE PORT FUSE	2
1K1	BREAKER CONTROL RELAY – CLOSE	1
1K2	BREAKER CONTROL RELAY – OPEN	1
1K8	OIL/REFRIGERANT PUMP MOTOR CONTROL RELAY	2
1K9	OIL TANK HEATER RELAY	3
1K26	PRIMARY EVAPORATOR WATER FLOW DETECTION CONTROLLER	3
1K27	PRIMARY CONDENSER WATER FLOW DETECTION CONTROLLER	3
1O1	STARTER CONTROL CIRCUIT BREAKER	2
1O2	PURGE CONTROL CIRCUIT BREAKER	2
1O3	UNIT CONTROL CIRCUIT BREAKER	2
1O4	OIL/REFRIGERANT CONTROL CIRCUIT BREAKER	2
1O5	OIL/REFRIGERANT PUMP MOTOR CIRCUIT BREAKER	2
1O6	SERVICE PORT CIRCUIT BREAKER	2
1S1	POTENTIAL TRANSFORMER DISCONNECT SWITCH	1
111	CONTROL TRANSFORMER	2
112,3,4	LINE POTENTIAL TRANSFORMERS	1
115,6,7	SECONDARY LINE CURENT TRANSFORMERS	1
1W1	JUMPER BAR	2
1W2,3,4,5,6,7	JUMPER WIRES	1,2,3
1X1,2	MAIN CONTROL PANEL TERMINAL BLOCKS	1,2,3
2A1	STARTER MODULE	1
2A2	ADAPTIVE FREQUENCY DRIVE POWER MODULE	1
2A3	STARTER POWER SUPPLY	1
2A4	SOLID STATE STARTER	1
2A4-K1	STARTER FAULT OR SCR FAULT CONTROL RELAY	1
2A4-K2	AT-SPEED CONTROL RELAY	1
2A5 (1)	STARTER FAULT INPUT	1
2A5 (4)	INPUT INDUCTOR	1
2A6	FILTER CAPACITORS	1
2A7 (4)	LINE SYNC POB	1
2A7 (5)	ENGINE-GENERATOR START/STOP CONTROL RELAY	1
2A8	ENGINE-GENERATOR UP-TO-SPEED/FREQUENCY AND STARTER DRIVE FAULT INPUTS	1
2A9	ENGINE-GENERATOR SPEED SIGNAL OUTPUT	1
2A10	STARTER DRIVE FAULT INPUT	1
2A11	SPEED SIGNAL OUTPUT	1
2A12	ADAPTIVE FREQUENCY DRIVE AC LINE I/O	1
2A32	ADAPTIVE FREQUENCY DRIVE COMMUNICATION CARD	1
2A33	ADAPTIVE FREQUENCY DRIVE GATE-KILL	1
2A34	ADAPTIVE FREQUENCY DRIVE MODBUS COMMUNICATION CARD	1
2A35	ADAPTIVE FREQUENCY DRIVE AUXILIARY POWER	1
2C1	POWER FACTOR CORRECTION CAPACITORS	1
2F1,2,3	CONTROL POWER PRIMARY FUSING	1
2F1,2 (4)	PRIMARY TRANSFORMER FUSING	1
2F3 (4)	CONTROL POWER SECONDARY FUSE	1
2F4	CONTROL POWER SECONDARY FUSE	1
2F4,5,6 (4)	PRIMARY FILTER CAPACITOR FUSING	1
2F7,8,9	PRIMARY LINE SYNC FUSING	1
2F10,11	PRIMARY PRECHARGE RESISTOR FUSING	1
2F13	CONTROL POWER SECONDARY FUSE	1
2F14,15	FIRST STAGE POTENTIAL TRANSFORMER SECONDARY FUSING	1
2F16-2F21	SECOND STAGE POTENTIAL TRANSFORMER SECONDARY FUSING	1
2F22	ADAPTIVE FREQUENCY DRIVE SUPPLEMENTAL FUSE	1
2F23-34	SEMI-CONDUCTOR FUSES	1
2K1	START CONTACTOR	1
2K2	RUN CONTACTOR	1
2K3	SHORTING CONTACTOR	1
2K4	TRANSITION CONTACTOR	1
2K4A,B	PRECHARGE CONTACTOR	1
2K5	CONTROL POWER INTERPOSING RELAY	1
2K6	TRANSITION TIME DELAY RELAY	1
2K7	CONDENSER HIGH PRESSURE CUTOUT CONTROL RELAY	1
2K9	GROUND FAULT RELAY	1
2K10	POWER FACTOR CORRECTION CAPACITOR ISOLATION CONTACTOR	1
2K11	OIL PUMP INTERLOCK RELAY	1
2K12	SAFETY STOP RELAY	1
2M1,2,3,4	COOLING FAN MOTORS	1
2O1	LINE POTENTIAL MAIN CIRCUIT BREAKER	1
2Q2	CONTROL POWER SECONDARY CIRCUIT BREAKER	1
2Q2K1	TEST RUN CONTROL RELAY	1
2R1,2,3	TRANSITION RESISTORS	1
2R4,5	PRECHARGE RESISTORS	1
2S1	LINE POTENTIAL FUSED OR NON-FUSED DISCONNECT SWITCH	1
2S2	CONTROL POWER DISCONNECT SWITCH	1
2S3	COOLING FAN TEMPERATURE CONTROL	1
2S4,5	TRANSFORMER THERMAL SWITCHES	1
211,2,3	LINE CURRENT TRANSFORMERS	1
215	CONTROL POWER TRANSFORMER	1
218,9	LINE POTENTIAL TRANSFORMERS	1
2110,11,12	SECONDARY LINE CURRENT TRANSFORMERS	1
2115	GROUND FAULT TORROID	1
2117,18,19	LINE POTENTIAL TRANSFORMERS	1
2120,21	12-PULSE AUTO-TRANSFORMER	1
2V1,2,3	METAL OXIDE VARISTORS	1
2W1	JUMPER WIRE	1
2X1,2	STARTER PANEL TERMINAL BLOCKS	1
2X3	LINE POTENTIAL TERMINAL BLOCK	1
2X4	SHUNT TRIP TERMINAL BLOCK	1
3A1	PURGE PUMPOUT AND EXHAUST VALVE CONTROL	4
3A2	PURGE CONDENSING UNIT CONTROL RELAY	4

NOTE:

- (1) = AS USED ON CWF, CVHF AND CVHG UNITS.
(2) = AS USED ON LH CIRCUIT OF GDHF AND CGHG UNITS.
(3) = AS USED ON RH CIRCUIT OF GDHF AND CGHG UNITS.
(4) = AS USED WITH UNIT MOUNTED LF2 ADAPTIVE FREQUENCY DRIVES.
(5) = AS USED WITH ENGINE-GENERATOR SET.

WARNING

HAZARDOUS VOLTAGE!
DISCONNECT ALL ELECTRIC POWER INCLUDING REMOTE DISCONNECTS AND FOLLOW LOCK OUT AND TAG PROCEDURES BEFORE SERVING. NEVER SERVICER UNITS WITH DISCHARGED STORED VOLTAGE. UNITS WITH VARIABLE SPEED DRIVE, REFER TO DRIVE INSTRUCTIONS FOR CAPACITOR DISCHARGE. FAILURE TO DO THE ABOVE BEFORE SERVICING COULD RESULT IN DEATH OR SERIOUS INJURY.

AVERTISSEMENT

TENSION DANGEREUSE!
COUPER TOUTES LES TENSIONS ET OUVRIRE LES SECTIONNEMENTS A DISTANCE, PUIS SUIVRE LES PROCEDURES DE VERROUILLAGE ET DES ETIQUETTES. NE PAS SERVICER LES UNITES AVEC DES MOTEURS SONT DECHARGES. DANS LE CAS DES UNITES COMPORTANT DES ENTRETIENEMENTS A DISTANCE, CONSULTER LES INSTRUCTIONS POUR LE DECHARGE DES CONDENSATEURS. NE PAS RESPECTER CES MESURES DE PRECAUTION PEUT ENTRAINER DES BLESSURES GRAVES POUVANT ETRE MORTELLES.

ADVERTENCIA

VOLTAJE PELIGROSO!
DESCONECTE TODA LA ENERGIA ELECTRICA, INCLUSO LAS DESCONECCIONES REMOVIAS Y SIGA LOS PROCEDIMIENTOS DE CIERRE Y ETIQUETADO DE TODOS LOS COMPONENTES. NO SERVICIE EL MOTOR DE QUE TODOS LOS CAPACITORES DEL MOTOR HAYAN DESCARGADO EL VOLTAJE ALMACENADO. PARA LAS UNIDADES CON EJE DE DIRECCION DE ALTA VELOCIDAD, CONSULTE LAS INSTRUCCIONES PARA EL DESMONTAJE DEL CONDENSADOR. EL NO REALIZAR LO ANTERIORMENTE INDICADO, PODRA OCASIONAR LA MUERTE O SERIAS LESIONES PERSONALES.

DEVICE	DESCRIPTION	PAGE
3A3	PURGE PUMPOUT, CARBON TANK HEATER, REGENERATION VALVE AND ALARM RELAYS	4
3A4	PURGE LIQUID LEVEL SWITCH INPUT	4
3C5	PURGE CONDENSING UNIT MOTOR CAPACITOR	4
3E1	PURGE CARBON TANK HEATER	4
3F1	PURGE AUTO-TRANSFORMER FUSE	4
3L1	PURGE EXHAUST VALVE	4
3L2	PURGE PUMPOUT VALVE	4
3L3	PURGE REGENERATION VALVE	4
3M5	PURGE CONDENSING UNIT MOTOR	4
3M6	PURGE PUMPOUT COMPRESSOR MOTOR	4
3M7	PURGE CONDENSING UNIT FAN MOTOR	4
3M8	PURGE PUMPOUT COMPRESSOR MOTOR	4
3R1	PURGE COMPRESSOR REFRIGERANT SUCTION TEMPERATURE SENSOR	4
3R2	PURGE CARBON TANK TEMPERATURE SENSOR	4
3R4	CONDENSER HIGH PRESSURE CUTOUT SWITCH	4
3S1	CONDENSER REFRIGERANT PRESSURE TRANSDUCER	1
3S9	PURGE LIQUID LEVEL SWITCH	4
3X1	PURGE AUTO-TRANSFORMER	4
4A1	PURGE CONTROL PANEL TERMINAL BLOCK	4
4A2	DIFFERENTIAL MOTOR PROTECTION RELAY	1
4B1	ADAPTIVEW DISPLAY MODULE	2
4B2	EVAPORATOR WATER DIFFERENTIAL PRESSURE TRANSDUCER	3
4C1	CONDENSER WATER DIFFERENTIAL PRESSURE TRANSDUCER	3
4E1	OIL/REFRIGERANT PUMP MOTOR CAPACITOR	2
4F1,2	OIL TANK HEATER	3
4F1,2	CONTROL POWER PRIMARY FUSING	2
4F3	CONTROL POWER SECONDARY FUSE	2
4F4,5,6	LIGHTNING ARRESTORS	1
4F7,8,9	SURGE CAPACITORS	1
4H1	CONTROL POWER INDICATOR	1
4K9	GROUND FAULT RELAY	2
4M1	COMPRESSOR MOTOR	1
4M2	INLET GUIDE VANE ACTUATOR – FIRST STAGE	2
4M3	OIL/REFRIGERANT PUMP MOTOR	2
4M4	INLET GUIDE VANE ACTUATOR – SECOND OR THIRD STAGE	2
4M5	HOT GAS BYPASS VALVE	2,3
4M12	FREE COOLING LIQUID LINE VALVE	3
4M13	FREE COOLING GAS LINE VALVE	3
4M1R2,3,4	MOTOR WINDING TEMPERATURE 1, 2 AND 3	2
4R1	INBOARD BEARING TEMPERATURE SENSOR	3
4R2	OUTBOARD BEARING TEMPERATURE SENSOR	3
4R3	OIL PUMP DISCHARGE PRESSURE TRANSDUCER	2
4R4	OIL TANK PRESSURE TRANSDUCER	2
4R5	OIL TANK TEMPERATURE SENSOR	2
4R6	EVAPORATOR ENTERING WATER TEMPERATURE SENSOR	3
4R7	EVAPORATOR LEAVING WATER TEMPERATURE SENSOR	3
4R8	CONDENSER ENTERING WATER TEMPERATURE SENSOR	3
4R9	CONDENSER LEAVING WATER TEMPERATURE SENSOR	3
4R10	EVAPORATOR SATURATED REFRIGERANT TEMPERATURE SENSOR	3
4R11	CONDENSER SATURATED REFRIGERANT TEMPERATURE SENSOR	3
4R13	OUTDOOR AIR TEMPERATURE SENSOR	3
4R14	HEAT RECOVERY CONDENSER ENTERING WATER TEMPERATURE SENSOR	3
4R15	HEAT RECOVERY CONDENSER LEAVING WATER TEMPERATURE SENSOR	3
4R16	COMPRESSOR DISCHARGE REFRIGERANT TEMPERATURE SENSOR	3
4R17	EVAPORATOR WATER FLOW DETECTION SENSOR	3
4R18	CONDENSER WATER FLOW DETECTION SENSOR	3
4R23	EVAPORATOR LOW WATER TEMPERATURE SENSOR	2
4S1	CONTROL POWER DISCONNECT SWITCH	2
4T1,2,3	LINE CURRENT TRANSFORMERS	1
4T5	CONTROL POWER TRANSFORMER	2
416,7,8	DIFFERENTIAL MOTOR PROTECTION CURRENT TRANSFORMERS	1
417,8	GROUND FAULT TORROID	1
4X1	CONTROL POWER TRANSFORMER TERMINAL BLOCK	1
4X2	SUPPLEMENTAL MOTOR PROTECTION TERMINAL BLOCK	1,2
5A10	SOLID STATE STARTER	1
5A10-K1	STARTER FAULT CONTROL RELAY	1
5A10-K2	AT-SPEED CONTROL RELAY	1
5F1,2,3	CONTROL POWER PRIMARY FUSING	1
5F4	CONTROL POWER SECONDARY FUSE	1
5H1	CHILLER LATCHING ALARM INDICATOR	5
5H2	CHILLER NON-LATCHING ALARM INDICATOR	5
5H4	PURGE ALARM INDICATOR	5
5H4 (2)	CIRCUIT 2 PURGE ALARM INDICATOR	5
5H6	CHILLER RUNNING INDICATOR	5
5H7	CHILLER LIMIT MODE INDICATOR	5
5H8	ICE BUILDING INDICATOR	3
5H9	FREE COOLING INDICATOR	3
5H10	CHILLER HEAD RELIEF REQUEST INDICATOR	5
5H11	CHILLER MAXIMUM CAPACITY INDICATOR	5
5H12	CIRCUIT 1 PURGE ALARM INDICATOR	5
5H13	CIRCUIT 1 RUNNING INDICATOR	5
5H14	CIRCUIT 2 RUNNING INDICATOR	5
5H15	CHILLER ALARM INDICATOR	5
5H16	CIRCUIT 1 ALARM INDICATOR	5
5H17	CIRCUIT 2 ALARM INDICATOR	5
5H18	PURGE ALARM INDICATOR	5
5K1	EVAPORATOR WATER PUMP CONTROL RELAY	3
5K2	CONDENSER WATER PUMP CONTROL RELAY	3
5K12	OIL PUMP INTERLOCK RELAY	1
5K13	START CONTACTOR	1
5K31	RUN CONTACTOR	1
5S1	PURGE CHILLER RUNNING RELAY	4
5S2	PRIMARY EVAPORATOR WATER PROOF OF FLOW DEVICE	3
5S3	PRIMARY CONDENSER WATER PROOF OF FLOW DEVICE	3
5S2	EXTERNAL AUTO-STOP SWITCH	2
5S4	EMERGENCY STOP SWITCH	2
5S5	EXTERNAL BASE LOADING ENABLE/DISABLE SWITCH	5
5S6	EXTERNAL HOT WATER CONTROL ENABLE/DISABLE SWITCH	5
5S7	EXTERNAL ICE BUILDING COMMAND SWITCH	5
5S8	EXTERNAL FREE COOLING SWITCH	3
5S9	CIRCUIT 1 EXTERNAL LOCKOUT SWITCH	3
5S10	CIRCUIT 2 EXTERNAL LOCKOUT SWITCH	3
5S11	LINE POTENTIAL FUSED DISCONNECT SWITCH	1
5S12	VACUUM CIRCUIT BREAKER AUXILIARY SWITCH	1
5S13	SECONDARY EVAPORATOR WATER PROOF OF FLOW DEVICE	3
5S14	SECONDARY CONDENSER WATER PROOF OF FLOW DEVICE	3
511,2,3	LINE CURRENT TRANSFORMERS	1
515	CONTROL POWER TRANSFORMER	1
516,7,8	SECONDARY LINE CURRENT TRANSFORMERS	1
519	LINE POTENTIAL TRANSFORMERS	1
5117,18,19	LINE POTENTIAL TRANSFORMERS	1
5X1	TERMINAL BLOCK	1
6K1	ENGINE-GENERATOR START-STOP CONTROL	1
6K2	ENGINE-GENERATOR DRIVE FAULT CONTROL	1
6K3	ENGINE-GENERATOR CIRCUIT BREAKER	1
6G1	ENGINE-GENERATOR CIRCUIT BREAKER	1
6X1,2,6	ENGINE-GENERATOR TERMINAL BLOCKS	1
7K2	RUN CONTACTOR	1
7K3	SHORTING CONTACTOR	1
7R1,2,3	TRANSITION RESISTORS	1

- DEVICE PREFIX CODE
1 = MAIN UNIT CONTROL PANEL DEVICE
2 = STARTER PANEL DEVICE
3 = PURGE DRIVE DEVICE
4 = UNIT MOUNTED DEVICE
5 = CUSTOMER PROVIDED DEVICE
6 = ENGINE DRIVEN GENERATOR DEVICE
7 = REDUCED VOLTAGE PANEL DEVICE

DASHED LINES INDICATE WIRING BY OTHERS
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COPIED OR ITS CONTENTS DISCLOSED TO OUTSIDE
PARTIES WITHOUT THE WRITTEN CONSENT OF TRANE

CAUTION

USE COPPER CONDUCTORS ONLY!

UNIT TERMINALS ARE NOT DESIGNED TO ACCEPT OTHER TYPES OF CONDUCTORS.

FAILURE TO DO SO MAY CAUSE DAMAGE TO THE EQUIPMENT.

ATTENTION

N'UTILISER QUE DES CONDUCTEURS EN CUIVRE!

LES BORNES DE L'UNITÉ NE SONT PAS CONÇUES POUR RECEVOIR D'AUTRES TYPES DE CONDUCTEURS.

L'UTILISATION D'AUTRES TIPIES DE FILS ENDOMMAGERA L'EQUIPEMENT.

PRECAUCIÓN

¡UTILICE ÚNICAMENTE CONDUCTORES DE COBRE!

LAS TERMINALES DE LA UNIDAD NO ESTÁN DISEÑADAS PARA ACEPTAR OTROS TIPOS DE CONDUCTORES.

SI NO SE USAN CONDUCTORES DE COBRE, SE DAÑO AL EQUIPO.

REPLACES: 2311051200N

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PAGE 6 OF 6