



KNUKNN

OIL COOLER

REGULATOR MANUAL

KO-4PTS

NO 12, Lane 412, Wu-Fu Road, Wu-Fong-Shiang

Taichung Shian, Taiwan

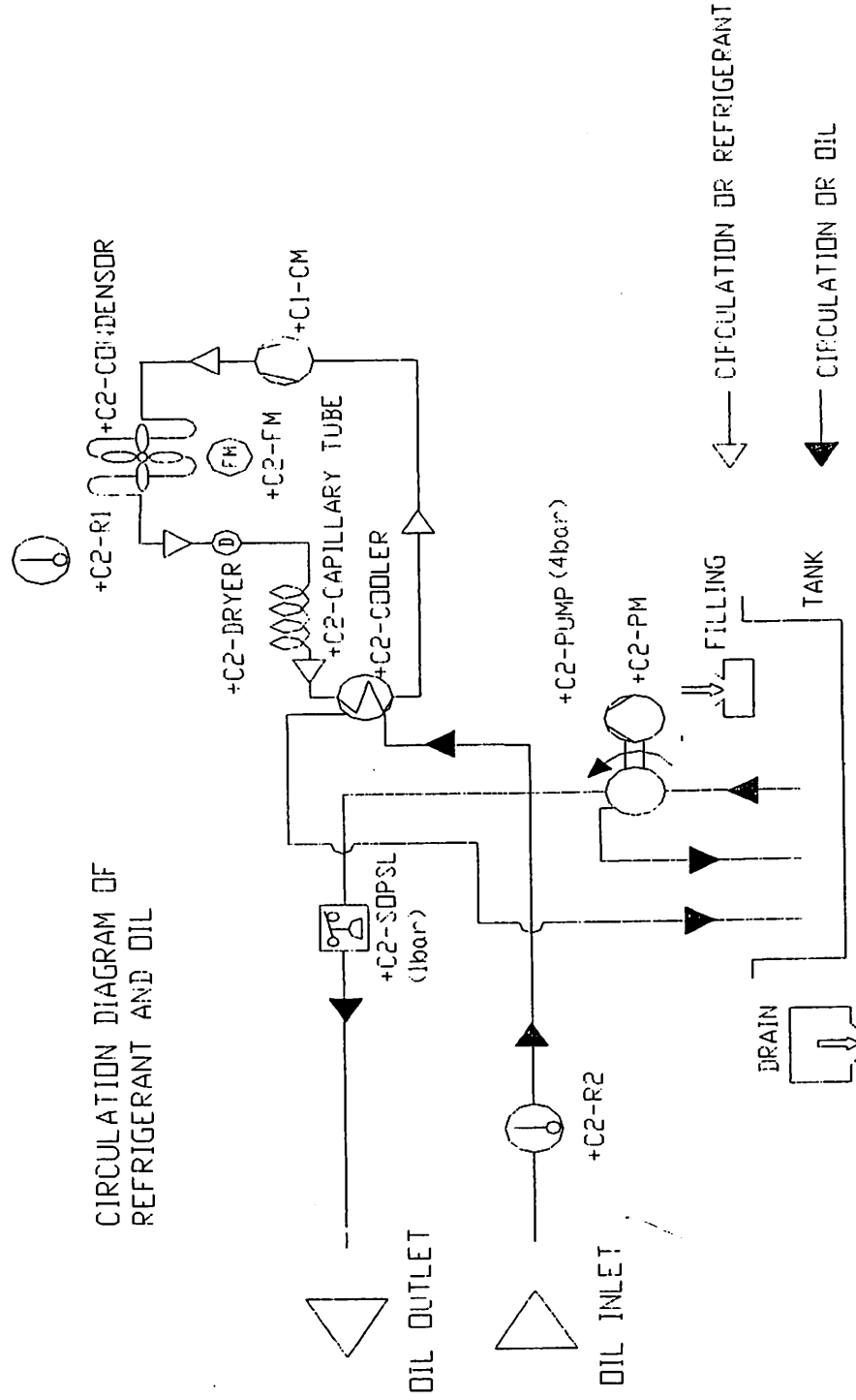
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MODEL	KO-4PTS	
AMBIENT TEMPERATURE (WHEN THE OIL TEMPERAYURE IS UNDER 15 ⁰ C,THE COMPRESSOR DOES NOT WORK,AND THE OIL PUMP STILL WORKS)	-10⁰C~45⁰C	
COOLING CAPACITY (kcal/hr)	873-1048	
REFRIGERATOR	R-134a	
POWER SOURCE	3 PHASE , 220V , 50/60Hz	
POWER CONSUMPTION (VA)	1,105	
COMPRESSOR POWER (WATTS)	550	
OIL PUMP POWER (WATTS)	200	
OIL PUMP DISCHARGE RATE (l/mim)	4.5/7.2	
TYPE OF CONDENSER	AIR COOLING	
CONDENSERCAPACITY(kcal/hr)	1048~1258	
COOLER	DOUBLE TUBE SCREWED	
COOLER CAPACITY (kcal/hr)	873-1048	
TEMPERATURE CONTROLLER	DIFFERENTIAL TEMP CONTROL	
RANGE OF TEMPERATURE ADJUSTING	ROOM TEMPERATURE <u>+15⁰C</u>	
RANGE OF OIL TEMPERATURE	15⁰C~45⁰C	
ALARM OUTPUT	TWO CONNECTOR :A&B	
SAFE PROTECTION	1.OVER-LOAD PROTECTION 2.PRESSURE SWITCH FOR OIL	
PIPING SIZE IN/OUT (INCH)	PT1/2"/PT1/2"	
DIMENSIONS	D (mm)	450
	W(mm)	390
	H (mm)	985
WEIGHT (KG)	80	
TANK (LITTER)	18	

Circulation diagram of refrigerant and oil





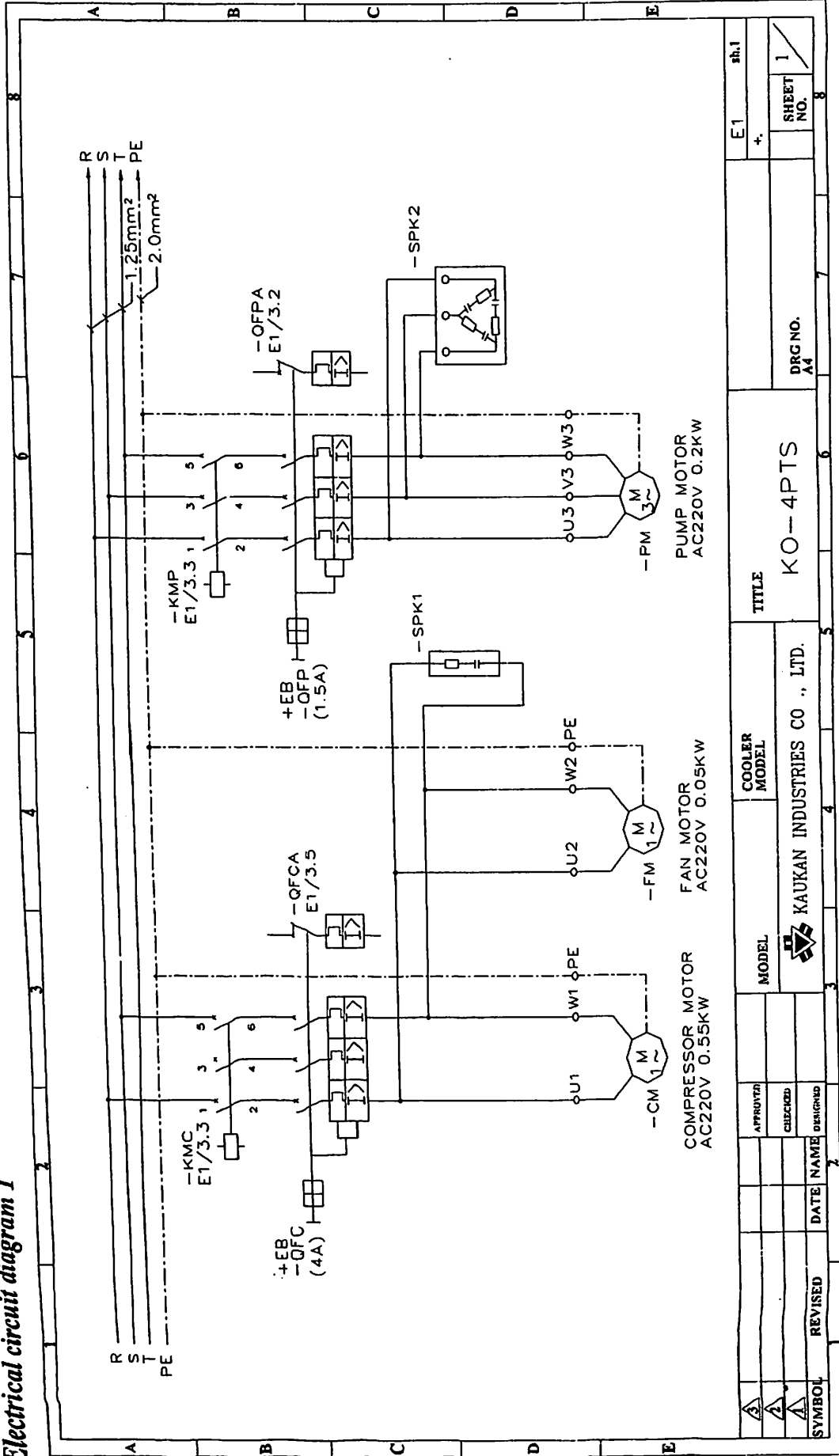
Refrigerant parts list : KO-4PST

Item	Location	Description	Maker	Type	Technical Data	Part Number	Qty	Remark
-CM	+C1	COMPRESSOR	TECUMSEH ELECTROLUX	220VAC 50/60Hz		CAE-4440Y	1	
	+C2	CONDENSER	SHENG-FO	1048~1258kcal/hr		GP12TG	1	
-FM	+C2	CONDENSER FAN	SHENG-FO	1PH 220VAC 50/60Hz		CO-0214	1	
	+C2	DRIER	GUGY	SAFE PRESSURE: 35bar TEMPERATURE RANG: -40~+50°C		C-50	1	
	+C2	CAPILLARY TUBE	KAUKAN	LENGHT:800MM CALIBER(INLET) :0.75MM		D-134A	1	
-R1	+C2	ROOM TEMPERATURE SENSOR	KAUKAN	5VDC 1mA (NTC)		CT-800	1	
	+C2	COOLER	KAUKAN	DOUBLE TUBE.SCREWED		CB-R1	1	
						CO-040	1	

Item	Location	Description	Maker	Type	Technical Data	Part Number	Qty	Remark
-PM	+C2	PUMP MOTOR	TSWU-KWAN	3PH 220VAC 50/60Hz		AM6	1	
	+C2	PUMP	TSWU-KWAN	PRESSURE:5KG/C M ² DISCHARGE: 7.2L/MIN		AM6	1	
-R2	+C2	OIL TEMPERATURE SENSOR	KAUKAN	5VDC 1mA (NTC)		CB-R1	1	
-SOPSL	+C2	OIL PRESSURE SWITCH (LOW)	PACIFIC	240VAC 5A MP: H:4KGF/CM ² L:0.5KGF/CM ²		C103	1	
	+C2	TANK	KAUKAN	18l		OT-18	1	
	+C2	FILLING	SONG PYNG			SY-08	1	
	+C2	DRAIN	KAUKAN	CONNECTOR 3/8"		3/8PT*3/8PT	1	
	+C2	COOLER	KAUKAN	DOUBLE TUBE.SCREWED		CO-040	1	



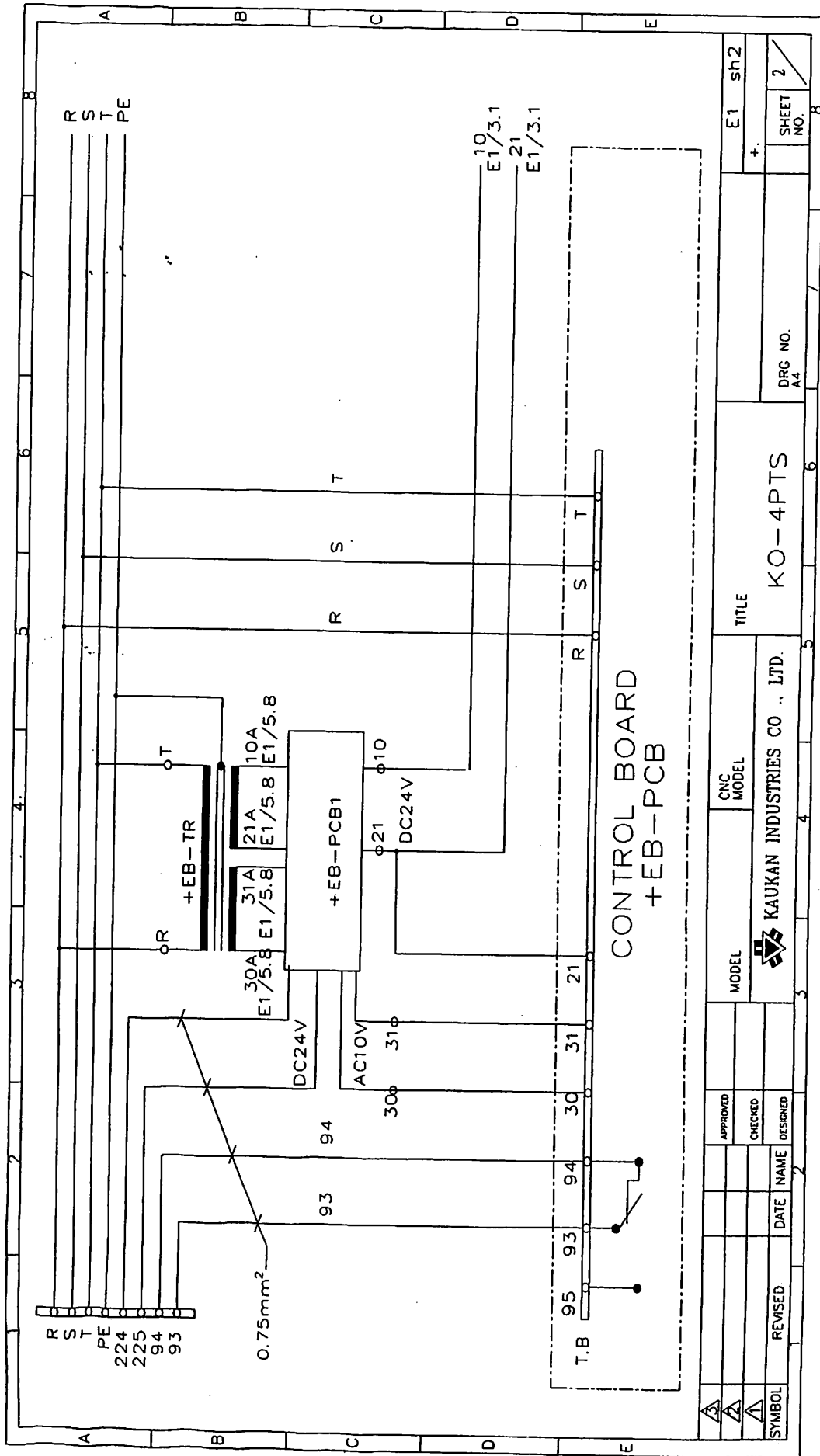
Electrical circuit diagram 1



SYMBOL	REVISED	DATE	NAME	DESIGNED	MODEL	COOLER MODEL	TITLE	DRG NO.	SHEET NO.
					KAUKAN INDUSTRIES CO., LTD.		KO-4PTS	A4	1
									8



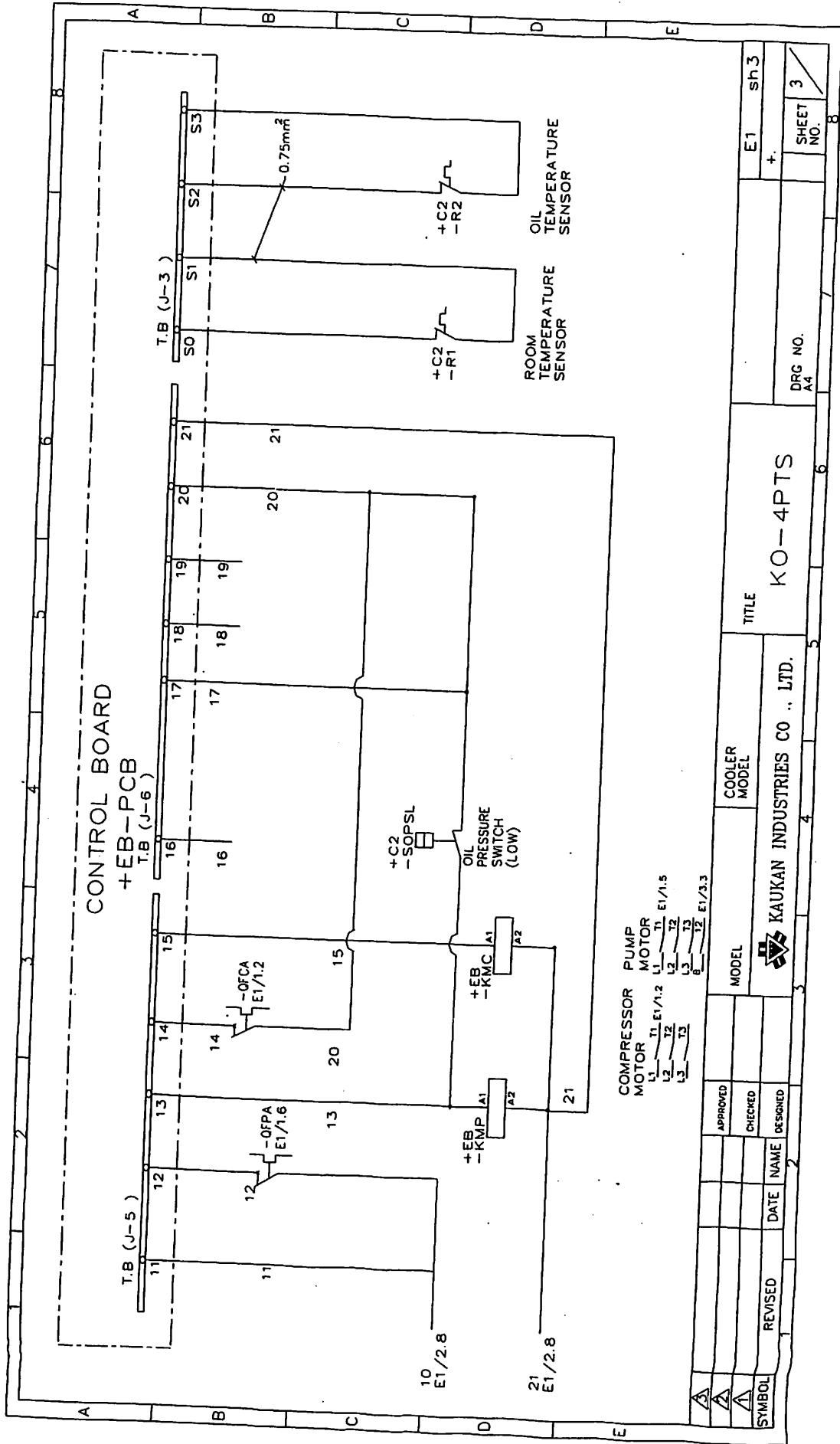
Electrical circuit diagram 2



SYMBOL	REVISION	DATE	NAME	DESIGNED	CHECKED	APPROVED	MODEL	CNC MODEL	TITLE	DRG NO.	E1 sh2	SHEET NO.
									KO-4PTS	A4	+	2



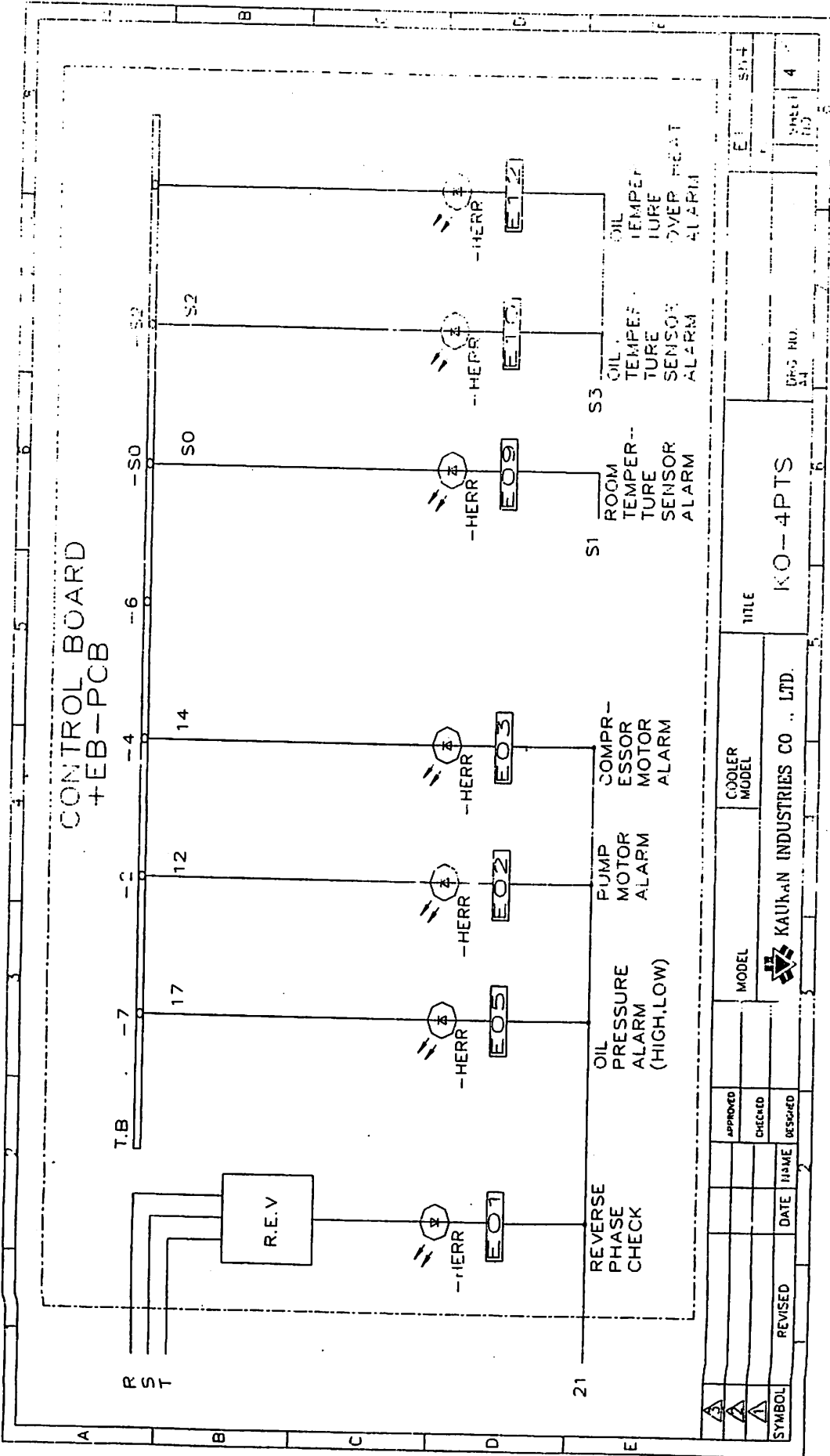
Electrical circuit diagram 3



SYMBOL	REVISED	DATE	NAME	DESIGNED	MODEL	COOLER MODEL	TITLE	E1	sh 3
							KO-4PTS	+	
					KAUKAN INDUSTRIES CO., LTD.			DRG NO.	SHEET NO.
								A4	3



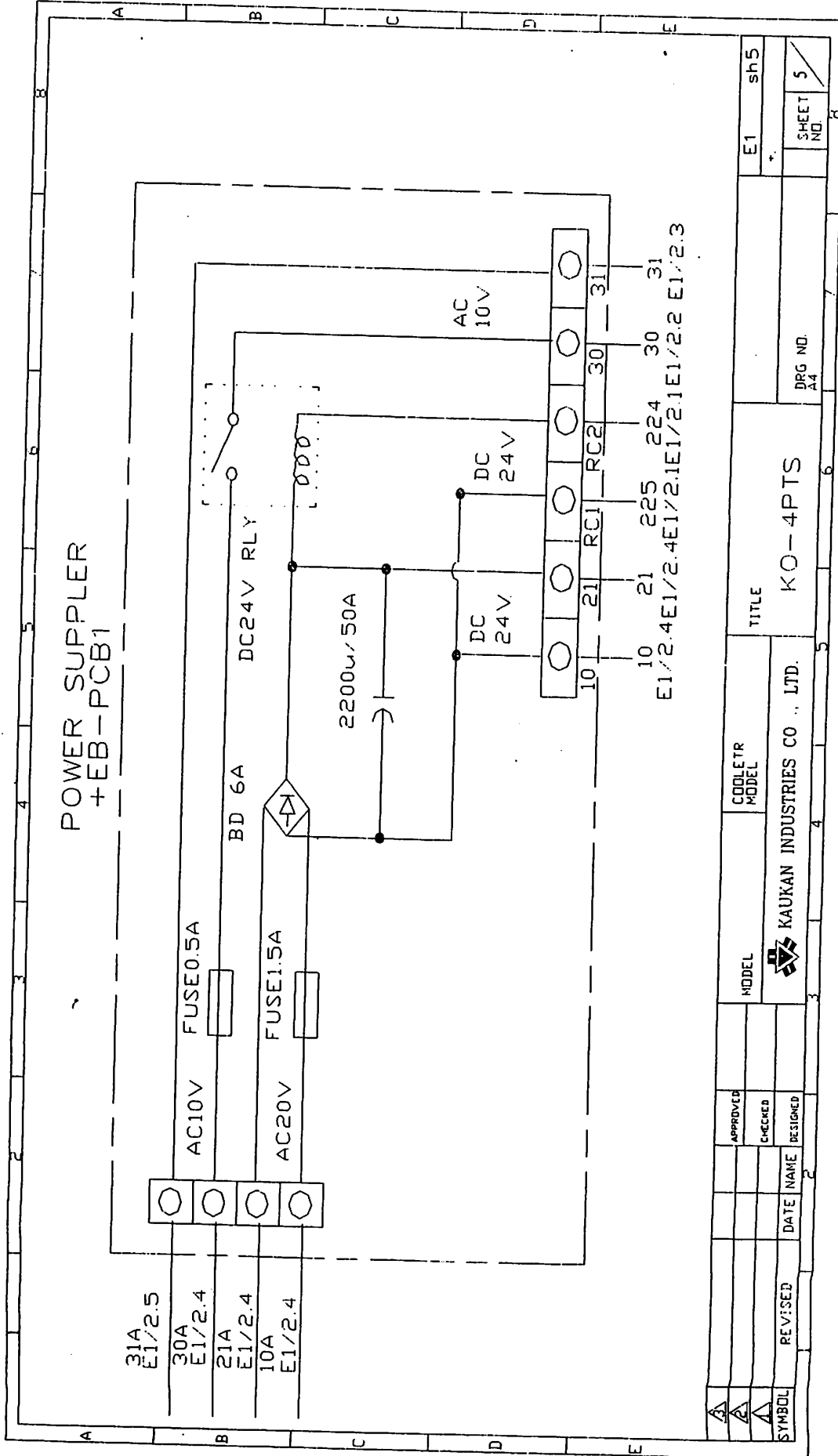
Electrical circuit diagram 4



SYMBOL	REVISED	DATE	BY NAME	APPROVED	MODEL	COOLER MODEL	TITLE	DRWG NO.	Sheet NO.
							KO-4PTS		4
							KAUKNN INDUSTRIES CO., LTD.		



Electrical circuit diagram 5





Electrical parts list : KO-4PTS

Item	Location	Description	Maker	Type	Technical Data	Part Number	Qty	Remark
-CM	+C1	COMPRESSOR	TECUMSEH ELECTROLUX	220VAC 50/60Hz		CAE-4440Y	1	
-XT1	+C1	TERMINAL BLOCKS	WAGO	600V 20A	VDE 0611	GP12TG	8	
-PM	+C2	PUMP MOTOR	TSWU-KWAN	3PH 220VAC 50/60Hz		T-264 AM6	1	
-FM	+C2	CONDENSER FAN	SHENG-FO	1PH 220VAC 50/60Hz		C-50	1	
-SOPSL	+C2	OIL PRESSURE SWITCH (LOW)	PACIFIC	240VAC 5A MP; H:4KGF/CM ² L:0.5KGF/CM ²		C103	1	
-R1	+C2	ROOM TEMPERATURE SENSOR	KAUKAN	5VDC 1mA (NTC)		CB-R1	1	
-R2	+C2	OIL TEMPERATURE SENSOR	KAUKAN	5VDC 1mA (NTC)		CB-R1	1	



Item	Location	Description	Maker	Type	Technical Data	Part Number	Qty	Remark
-KMC	+EB	MAGNETIC CONTROL	MOELLER	AUX.CONTACT 1a 24VDC	CE	DIL EM-10(G)	1	
-KMP	+EB	MAGNETIC CONTROL	MOELLER	AUX.CONTACT 1a 24VDC	CE	DIL EM-10(G)	1	
-QFC	+EB	THERMAL RELAY	MOELLER	AUX.CONTACT 1a SETTING RANG: 4-6A	IEC947-4-1	ZE 4-6	1	
-QFP	+EB	THERMAL RELAY	MOELLER	AUX.CONTACT 1a SETTING RANG: 1~1.6A	IEC947-4-1	ZE 1-1.6	1	
-F1	+EB	MAIN FUSE	SEIMANS	500V 30A 10A	IEC269-2 IEC269-2-1	VLC 10*38 130-10	1 1	
-T.R	+EB	TRANSFORMER	SANLI	220VAC TO 20VAC, 10VAC 30VA		TC-2410	1	
-SPK1	+EB	SPARK KILLER	CAP.TECH	1PH 0.1uf 120 ohm 250VAC		SK-1250	1	
-SPK2	+EB	SPARK KILLER	CAP.TECH	3PH 0.4uf 47 ohm 250VAC		SK-3250	1	
-PCB	+EB	CONTROL BOARD	KAUKAN	24VDC, 10VAC		SMCC-220P	1	
-PCB1	+EB	POWER SUPPLIER	KAUKAN	24VDC, 10VAC		SMCC-223	1	

6. TROUBLE SHOOTING

Check the follow table if the cooler does not function properly. [Alarm will indicate on the panel.]

If the cooler still does not function properly, contact our office or agent and give the following particulars: (1) model [on the nameplate] , (2) condition of the cooler [as much detail as possible].

Item	Condition	Cause	Remedy
1	No any light was on, but the main power was supplied.	<ol style="list-style-type: none"> 1) PCB is malfunction. 2) The fuse (A1) on the power supply (SMCC-233) was broken 3) The power supply (SMCC-233) was broken. 4) The transformer was broken [no 10 VDC on the (30A, 31A)] 	<ol style="list-style-type: none"> 1) Replaced the PCB. 2) Replaced the fuse (1.5 A). 3) Replaced the power supply SMCC-223). 4) Replaced the transformer.
2	Alarm light was on, the display show (E01).	<ol style="list-style-type: none"> 1) Main power was connecting to the reverse phase. 2) Missing one phase on the main power [three phases]. 3) Main power was out of rang 400 VAC $\pm 10\%$. 	<ol style="list-style-type: none"> 1) Inverted the two phases from the cable. 2) Made sure the main power is normal and checked cable that shall be tightening on the terminal block. 3) Checked the main power.
3	Alarm light was on, the display show (E02).	<ol style="list-style-type: none"> 1) Pump motor overload breaker [QFP] had triggered. 2) Cannot press reset button on the QFP. 3) Pump motor is malfunction [checked the resistance on the U3, V3, W3 and with ground, the standard is on the test report]. 	<ol style="list-style-type: none"> 1) Pressing the reset button that is on the QFP (blue button). Please check the current adsorption of the motor and compare to its ratings show on the test report and correct the value on the QFP after pressing the button. 2) Replaced the QFP. 3) Replaced the motor
4	Alarm light was on, the display show (E03).	<ol style="list-style-type: none"> 1) Pump motor overload breaker [QFC] had triggered. 2) Cannot depress reset button on the QFC. 3) Pump motor was malfunction [checked the resistance on the U1, V1, W1 and with ground, the standard is on the test report]. 	<ol style="list-style-type: none"> 1) Pressing the reset button that is on the QFC (blue button). Please check the current adsorption of the motor and compare to its ratings show on the test report and correct the value on the QFC after pressing the button. 2) Replaced the QFC. 3) Replaced the motor
5	Alarm light was on, the display show (E04).	<ol style="list-style-type: none"> 1) Excessive air temperature (over + 45°C). 2) The air filter was clogged. 	<ol style="list-style-type: none"> 1) Pressing the reset button (red) after the air temperature was decreased to and under + 45°C.

Item	Condition	Cause	Remedy
5		3) The condenser was clogged. 4) The refrigerant pressure switch (S63H) was malfunction [checking the (13, 16) in the S63H, resistance shall be 0 when the main power is off].	2) Pressing the reset button (red) after the air filter was cleaned. 3) Pressing the reset button (red) after the condenser was clean 4) Replace the switch.
6	Alarm light was on, the display show (E05).	1) The piping on input side is loose. 2) Input/output piping are connected backwards. 3) Tank oil level is too low. 4) Pump woodruff key or motor rotorshaft is malfunction 5) Pump pressure adjustment is malfunction. 6) Oil pressure switch is malfunction. 7) Hoses or liquid filter is clogged. 8) The pump pressure is too high.(If it installed the high pressure switch for oil.)	1) Tighten if it is loose. 2) Disconnect and tighten. 3) Eliminate the cause of the drop in liquid level and add liquid. 4) Replace the pump or motor. 5) Replace the pump. 6) Replace the switch. 7) Clear the hoses, replace the oil filter(if it install). 8) Lose the pump pressure adjustment or check the oil circuit is clear.
7	Alarm light was on, the display show (E07).	1) Refrigerant is not enough for system (it may has leakage). 2) The refrigerant pressure switch (S63L) was malfunction [checking the (16, 19) in the S63L, resistance shall be 0 when the main power is off].	1) Checking the refrigerant pressure and finding out the leakage [if leakage] for the system after added the refrigerant [only for the engineer who has the ability]. 2) Replaced the switch.
8	Alarm light was on, the display show (E08).	1) The oil circuit was clogged or the piping was loose. 2) The oil flowing switch (FL) was malfunction [checking the (19, 20) in the FL, resistance shall be 0 when the main power is on].	1) Cleaning the oil circuit or tighten the loose piping. 2) Replaced the switch
9	Alarm light was on, the display show (E09).	The fluid sensor was malfunction.	Replaced the sensor.
10	Alarm light was on, the display show (E11).	Oil temperature was over + 45 °C.	Replaced the bigger cooling capacity oil cooler.
11	Alarm light was on, the display show (E12).	Oil temperature has not decrease 1°C during two hours when the compressor operated.	Replaced the bigger cooling capacity oil cooler.

WARNING

Before adding the refrigerant, must consult a professional and understand what refrigerant should be used [on the nameplate].