



Fault tracing tree

6 720 643 196 (2010/02)



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1 Symbol explanations and safety instructions

1.1 Symbol explanations



Warnings in the text are always marked by a warning triangle and grey background.

There are different warning levels depending on the damage risk if the warning is not noted.

- Note means that there is a risk of small material damage.
- **Warning** means that there is a risk of personal injury or severe material damage.
- **Danger** means that there is a risk of severe personal injury.



Information in the text is marked by a symbol next to it. It is highlighted by horizontal lines above and below the text.

1.2 Safety instructions

Repairs

- Repairs may only be carried out by an authorised service technician!
- Switch off the main power switch before carrying out work on the unit!
- Switch off the power to the unit (e.g. via fuse, LS switch) before starting work on the electrical part.
- Only use original spare parts!

Instructions to the customer

- Explain that the customer may not modify or repair the installation.
- Recommend that a function check is made regularly.

2 Rectify interference

2.1 General

Before fault tracing commences it is a good idea to establish a picture of the heat pump status:

- Check all temperatures in the main menu.
- Start all components manually and check motor starts.
- Check all settings on the unit that the customer can change. If necessary, correct the settings or reset to the factory settings.

2.2 Instructions on how to use the fault tables

• Use the table from top to bottom and left to right.

- First make a note of the present settings and restore them before leaving the appliance.
- Cover the question at **1**. (check step). Depending on the appropriate answer (yes or no) search in the corresponding line and carry out the actions stated there; ignore the other responses.
- \rightarrow 3. means, later at stage 3, the intermediate stage is not observed.
- If the fault is rectified the unit starts without an error message, fault tracing is complete.
- If the fault remains after the actions have been taken and also after restarting: Continue the work at the next given stages.
- If another fault is revealed, use the relevant fault tables

	Check		Action
1.	Has the miniature circuit-breaker tripped (green fuse)?	yes:	► Reset the fuse.
			Did the remedy not work? \rightarrow 2
		no:	$\rightarrow 2$
2.	 Check that the transformer circuit board has 230V input and 12V output. 	yes:	• Replace the fuse or transformer circuit board.
			Did the remedy not work? \rightarrow 3
		no:	→ 3
3.	Is the green LED (not the on/off LED) on the control board (circuit board) flash-	yes:	$\rightarrow 4$
		no:	• Check the CANbus connections and terminations.
			Did the remedy not work?
			$\rightarrow 6$
4.	Is the LED in the display flashing?	yes:	► Press on/off.
			Did the remedy not work? \rightarrow 5
		no:	$\rightarrow 5$
5.	Fault in the display.		► Replace display.
6.	Logic error in the control board.		► Replace control board.

2.3.1 Display out

2.3.2 Tripped low pressure switch

ALI	ARM
Tripped low p	ressure switch
10-02-01	14:37:43
Ackno	wledge

Description: Too low pressure in the cooling circuit. Automatic resetting of the pressostat, which must be acknowledged in the display. IMPORTANT! The cooling circuit must be frost protected down to at least -15 °C.

	Check		Action
1.	Has the heat pump been stationary for a period or has it just been commissioned	yes:	 Acknowledge the alarm, restart the compressor (restart menu).
	with the compressor?		Does the error message recur? \rightarrow 2
		no:	→ 2
2.	► Manually operate G3.	yes:	Does the error message recur? \rightarrow 9
	Does G3 start? Does G3 run at 30%?	no:	→ 3
3.	• Measure the connection on terminal	yes:	→ 9
	blocks for G3 (Do2 - N). Is there 230V?	no:	 Check glass fuse, if intact replace I/O circuit board.
4.	Does the I/O circuit board transmit 3VDC out on terminal block Ao2?	yes:	 Check wiring, 0-10 V, to the stratos pump. If intact, replace the pump.
	 Ensure that 10V control is selected and that automatic pump control is off. Example of correctly set Stratos in 10V operation running at 2600 rpm. 	no:	→ 5
5.	Is the green LED on the I/O circuit board flashing?	yes:	 ▶ Check wiring between I/O circuit board and pump. → 6
		no:	 Check the CANbus and electrical supply to the I/O circuit board. Does the error message recur? → 6
6.	• Check the dirt filter on the cold side.	yes:	► Clean the filter.
	Is there dirt in it?		Does the error message recur? \rightarrow 7
		no:	→ 7

01.0	DM
Tripped low pr	essure switch
10-02-01	14:37:43
Acknow	vledge

6 720 643 196-01.11

Description: Too low pressure in the cooling circuit. Automatic resetting of the pressostat, which must be acknowledged in the display. IMPORTANT! The cooling circuit must be frost protected down to at least -15 °C.

	Check		Action
7.	• Check the flow in the collector circuit.	yes:	→ 9
	Is it OK?	no:	 Check the filler connector and any AV valves
			Does the error message recur? \rightarrow 8
8.	Is there enough fluid in the collector cir-	yes:	→ 9
	cuit?	no:	 Top up with alcohol mixed fluid.
			Does the error message recur? \rightarrow 9
9.	Air in the collector circuit?		Use a vent barrel.
			 At the same time check the frost protection in the collector circuit fluid.
			Does the error message recur? $ ightarrow$ 10
10.	10. Check that the LP switch trips at the		Does the error message recur? \rightarrow 11
	correct value (1.5 bar).	no:	→ 11
	(Requires refrigeration authorisation and a manometer stand).		
11.	• Check the connection to the LP switch	yes:	Does the error message recur? $ ightarrow$ 12
	(Di1). Measure the ohmage at the same time to see if the connection is closed or broken (tripped).	no:	→ 12
	Did that help?		
12.	Faulty LP switch		► Replace LP switch.

2.3.3 Tripped high pressure switch

ALARM			
Tripped high p	ressure switch		
10-02-01	14:39:39		
Ackno	wledge		
	6 720 643 196-02 11		

Description: Too high pressure in the cooling circuit. Automatic resetting of the pressostat, which must be acknowledged in the display.

	Check		Action
1.	► Manually operate G2	yes:	Does the error message recur? \rightarrow 7
	Does G2 start?	no:	$\rightarrow 2$
2.	 Measure the connection on terminal 	yes:	► Replace G2.
	blocks for G2 (Do1 - N)		Does the error message recur? \rightarrow 3
	Is there 230V?	no:	 Check connection/glass fuse, or if necessary replace I/O circuit board.
			Does the error message recur? \rightarrow 3
3.	Does G2 increase in speed when relay	yes:	$\rightarrow 4$
	HR1 is affected?	no:	► Replace relay.
	 Apply 230V to A1. 		Does the error message recur? \rightarrow 4
4.	► Go to alarm history.	yes:	→ 7
	What did the heat pump do on that occa- sion, was the three-way valve connected?	no:	→ 5
5.	 Check the dirt filter on the hot side. 	yes:	► Clean the filter.
	Is there dirt in it?	no:	Does the error message recur? \rightarrow 6
6.	► Check the flow in the heating circuit.	yes:	\rightarrow 12
	Is it sufficient with the thermostats	no:	 Open the thermostat valves.
	open?		Does the error message recur? $ ightarrow$ 12
7.	Air in the hot water heater.		► Vent the heater.
			Does the error message recur? \rightarrow 8
8.	 Check the hot water setting. Stop temperature in comfort mode = 	yes:	 ▶ Reset the hot water settings to the default values. → 9
63 °C Stop temperature in econo mode = 57 °C Does the error message recur?	63 °C Stop temperature in economy mode = 57 °C Does the error message recur?	no:	At a high incoming heat transfer fluid (collector) tem- perature the hot water temperature must be reduced slightly.
			Does the error message recur? \rightarrow 9



6 720 643 196-02.11

Description: Too high pressure in the cooling circuit. Automatic resetting of the pressostat, which must be acknowledged in the display.

	Check		Action
9.	► Check sensors T3, T8 and T9.	yes:	→ 10
	 Compare the correct table value (ohm measurement) with the measured temperature from an external ther- mometer (accurate). Do they correspond? 	no:	 Check whether the sensor is correctly positioned. Correct if necessary. If that didn't help, replace the sensor. Does the error message recur? → 10
10.	 Manually operate the three-way valve. 	yes:	→ 11
	Does it react?	no:	 Check the connections, Do4 and Do4(L) against zero. In activated mode it must be 230V against zero. Does the error message recur? → 11
11.	 Remove the motor. Use pliers to move the valve stem in and out. 	yes:	 Reinstall the motor (manually operate it to allow the motor to engage in the valve stem)
	Does it move easily?		→ 12
		no:	► Replace valve/insert.
			Does the error message recur?
			→ 12

ALA	IRM
Tripped high pr	essure switch
10-02-01 Acknow	14:39:39 wledge
	6 720 643 196-02.11

Description: Too high pressure in the cooling circuit. Automatic resetting of the pressostat, which must be acknowledged in the display.

	Check		Action
12.	• Check that the HP switch trips at the correct value (31 bar).	yes:	Does the error message recur? \rightarrow 13
		no:	\rightarrow 14
	Requires refrigeration authorisation and a manometer stand.		
13.	 Check the connection to the HP 	yes:	Does the error message recur? $ ightarrow 15$
	switch (terminal blocks 1, 2). Measure the ohmage at the same time to see if the connection is closed or broken (tripped).	no:	→ 15
	Did that help?		
14.	Faulty HP switch		► Replace HP switch.
			Does the error message recur? $ ightarrow$ 16
15.	 Check the connections between the terminals (Di3) and the I/O circuit board 	yes:	► Rectify the fault.
			Does the error message recur? $ ightarrow$ 16
	Was there a fault?	no:	→ 16
16.	Is the LED on the I/O circuit board flash-	yes:	► Replace I/O card.
	ing?		Does the error message recur? $ ightarrow 17$
		no:	 Check the CANbus connections and power con- nections.
			Does the error message recur? $ ightarrow$ 17
17.	Control logic		 Replace I/O circuit board 2. Replace control board Replace transformer circuit board.

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2.3.4 High hot gas temperature T6

ALf	RM
High hot gas ti	emperature T6
10-02-01	14:51:35
Ackna	wledge
	6 720 643 196-03 11

Description: Compressor temperature too high. Automatic resetting, which must be acknowledged in the display.

	Check		Action
1.	 Start the heat pump. 	yes:	$\rightarrow 2$
	 Go to temperatures and look at T6. Use a digital thermometer and measure at the T6 sensor. Do the values correspond? 	no:	 Check the attachment of the T6, replace sensor if necessary. Does the error message recur? → 2
2.	• Go to temperature display of T10 and	yes:	 Troubleshoot on the cold side.
	I 11. Is T10 below -5 or delta 5°K or more than between T10, T11?	no:	 Have a refrigeration technician check the cooling circuit. Does the error message recur? → 3
3.	 Check for overheating. 		Replace expansion valve or compressor if necessary.

2.3.5 High forward flow T1

ALF	RM
High forwa	rd flow T1
10-02-01	15:05:03
Ackno	wledge
	0 700 040 100 04 11

Description: The set value in Max limit heating system temperature +2K.

	Check		Action
1.	► Go to temperatures and look at T1.	yes:	$\rightarrow 2$
	 Use a digital thermometer and meas- ure at the T1 sensor. 	no:	 Check the attachment of the T1, replace sensor if necessary.
	Do the values correspond?		Does the error message recur? \rightarrow 2
2.	• Start the heat pump in heating mode	yes:	$\rightarrow 4$
	 (60 Hz) ▶ Go to temperatures, check T8 and T9. Is delta between 7-10°K? 	no:	 Check that relay HR1 is connected and that G3 has reached maximum speed. Does the error message recur? → 3
3.	 Check the dirt filter on the hot side and clean it. 		Does the error message recur? \rightarrow 4
4.	 Go to alarm history and check what the heat pump did when the alarm was activated. 	yes:	$\rightarrow 5$
		no:	→ 8
	Did the heat pump produce hot water?		
5.	► Go to manual operation and activate	yes:	→ 7
	the three-way valve. Does it start?	no:	→ 6
6.	Three-way valve motor defective.		► Replace the motor.
7.	► Remove the three-way valve motor.	yes:	→ 8
	 Check that the three-way valve goes in and out easily (use pliers). 	no:	► Replace valve/insert.
	Does it move easily?		Does the error message recur? 7 8

ALF	ARM		
High forward flow T1			
10-02-01 15:05:03			
Acknowledge			

6 720 643 196-04.11

Description: The set value in Max limit heating system temperature +2K.

	Check		Action
8.	► Check the temp. setting.	yes:	 Adjust the temperature setting.
	 Check set point value on T1. 		Does the error message recur? \rightarrow 9
	ls it higher than 65 °C?	no:	$\rightarrow 5$
9.	► Go to temperatures and check the	yes:	→ 10
	 value on 12. Use a digital thermometer and measure at the T2 sensor. Do the values correspond? 	no:	 Check the cable to T2, it must not be together with the power cable. Replace the sensor if necessary. Does the error message recur? → 10
10.	Is the room sensor connected?	yes:	→ 11
		no:	→ 13
11.	► Go to temperatures and check the	yes:	→ 12
	 value on T5. Use a digital thermometer and measure at the T5 sensor. Do the values correspond? 	no:	▶ Replace sensor. Does the error message recur? \rightarrow 13
12.	► Check the settings of the room sensor.	yes:	 Adjust to the permitted values.
	Does the room sensor have a high effect or set point value?		Does the error message recur? $ ightarrow$ 13
		no:	→ 13
13.	Logic error.		► Replace control board.
			Does the error message recur?
			► Replace I/O card.

2.3.6 High temperature difference heating system water

High h Desc funct	Warning High temperature difference heating system water Acknowledge 6720 643 196-05.11 Description: The temperature difference between T8 and T9 is greater than X, where X is calculated as a linear function of the compressor frequency. 20Hz=10K and 90Hz=18K.			
	Check		Action	
1.	► Clean the dirt filter on the hot side.		 Remove the filter basket and clean it. Does the error message recur? → 2 	
2.	► Go to temperatures and check the	yes:	→ 3	
	 value on T8 and T9. Use a digital thermometer and measure at the sensor. Do the values correspond? 	no:	• Check the sensors and replace if necessary. Does the error message recur? \rightarrow 4	
3.	► Check the flow in the heating system.		• Check that the thermostat values are open. Does the error message recur? $\rightarrow 4$	
4.	The heating system is not sufficiently large for the relevant heat pump.		• Expand the system volume (volume tank or several radiators).	

2.3.7 Low heat transfer fluid (coll.) in



6 720 643 196-06.11

Description: The heat transfer fluid (coll.) temperature on the incoming heat transfer (coll.) fluid is below the set protection value (-8 °C). Resets automatically when the temperature has risen 1K.

	Check		Action
1.	► Start the heat transfer fluid (coll.)	yes:	$\rightarrow 2$
	 pump in the manual operation menu. Compare the value on T10 in the info menu with one from a separate digital thermometer. Do the values correspond? 	no:	► Replace sensor T10.
2.	Is the value above -7 on T10?	yes:	→ 3
		no:	$\rightarrow 4$
3.	► Replace control board.	yes:	Replace I/O card.
	Does the error message recur?	no:	
4.	There is not enough energy in the heat absorbing system. This can occur in extremely cold weather conditions.		

2.3.8 Low heat transfer fluid (coll.) out

Warn	ing	
Heat transfer fluid too low out		
10-02-01	15:08:04	
Acknowledge		

6 720 643 196-07.11

Description: The temperature on the outgoing heat transfer (coll.) fluid is below the set protection value (-10 °C). Resets automatically when the temperature has risen 1K.

	Check		Action
1.	 Compare the value on T11 in the info menu with one from a separate digital thermometer. 	yes:	$\rightarrow 2$
		no:	► Replace sensor T11.
	Do the values correspond?		
2.	 Perform a quick start of the compres- 	yes:	\rightarrow 3
	sor when the alarm has reset automat- ically. ▶ Check delta, is it between 1 and 6K?	no:	 Too low flow in the heat transfer fluid circuit. Increase the speed of the heat transfer fluid (coll.) pump. Vent the heat transfer fluid circuit for 24 hours. Clean the particle filter. Check the heat transfer fluid's freezing point.
3.	There is not enough energy in the heat absorbing system. This can occur in extremely cold weather conditions.		

2.3.9 T1-T3, T6-T11

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	Check		Action
1.	 Check the sensor's temperature value under Temperatures. 	yes:	Open circuit or short-circuit in the sensor. \rightarrow 2
		no:	→ 3
	Does the display show -52.1 or 160?		
2.	Does the display show -52.1?	yes:	Open circuit in the sensor or connection
			 Check the wiring to the sensor.
			Does the error message recur? \rightarrow 3
		no:	Short circuit in cable or sensor.
			 Check the wiring to the sensor.
			Does the error message recur? \rightarrow 3
3.	 Disconnect the sensor. 	yes:	$\rightarrow 4$
	 Check the resistance and compare with the table. 	no:	► Replace the sensor.
			Does the error message recur? \rightarrow 4
	Do the values correspond?		
4.	 Check conductive pathways on the I/O circuit board. Are the conductive pathways damaged? 	yes:	► Replace I/O card.
			Does the error message recur? $ ightarrow$ 5
		no:	$\rightarrow 5$
5.	 Check the CANbus connections between the circuit boards. Is the wiring OK? 	yes:	$\rightarrow 6$
		no:	► Replace the wiring.
			Does the error message recur? $ ightarrow$ 6
6.	Logic error in the control board.		 Replace control board.

Tab. 9

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2.3.10 T5

	Check		Action
1.	• Check the sensor in the temperatures	yes:	→ 3
	menu.	no:	$\rightarrow 2$
	Does the display show -60 or 160?		
2.	Is the room sensor tab in the control unit or does the LED on the room sensor illu- minate? Info 20,0°C Menu	yes:	Logic error in the control board.
			► Replace control board.
		no:	► Check the CANbus wiring.
			► Reconnect.
			Does the LED still not illuminate? \rightarrow 3
	6 720 643 196-08.11		
3.	Room sensor defective.		► Replace the sensor.

2.3.11 T81 (pool control)

Sh 10 -	ALARM Short circuit on sensor T81 10-02-01 15:14:39 Acknowledge 6720 643 196-09.11			
	Check		Action	
1.	► Check the sensor's temperature value	yes:	Open circuit or short-circuit in the sensor. $ ightarrow$ 2	
	Does the display show -52.1 or 195?	no:	→ 3	
2.	Does the display show -52.1?	yes:	 Open circuit in the sensor or connection. ▶ Check the wiring to the sensor. Does the error message recur? → 3 	
		no:	 Short circuit in cable or sensor. ▶ Check the wiring to the sensor. Does the error message recur? → 3 	
3.	 Disconnect the sensor. 	yes:	$\rightarrow 4$	
	 Check the resistance and compare with the table. Do the values correspond? 	no:	 ▶ Replace the sensor. Does the error message recur? → 4 	
4.	 Check conductive pathways on the pool circuit board. 	yes:	• Replace pool circuit board. Does the error message recur? $\rightarrow 5$	
	Are the conductive pathways damaged?	no:	$\rightarrow 5$	
5.	 Check the CANbus connections between the circuit boards. Is the wiring OK? 	yes: no:	 → 6 ▶ Replace the wiring. Does the error message recur? → 6 	
6.	Logic error in the control board.		 Replace control board. 	

2.3.12 Electric element fault



Description: Electric element fault Reset on the overheat protection and must be acknowledged in the display.

	Check		Action
1.	 Check the supply to the electrical additional heat (measured on the AHB circuit board terminals). 	yes:	$\rightarrow 2$
		no:	 Check the wiring in the heat pump.
	Is it OK?		
2.	 Try to reset the overheat protection again. 	yes:	Does the error message recur? \rightarrow 3
		no:	→ 3
	Was it successful?		
3.	Overheat protection electric element defective.		► Replace the AHB board.

Tab. 12

2.3.13 Heat pump now working at max. permitted temp. (T8)

Description: Value on T8 has exceeded 65 °C. Warning Heat pump now working at max. permitted temp. Acknowledge					
	6 720 643 196-11.11				
	See fault tracing tree High forward flow T1. (\rightarrow Chapter 2.3.5)				

Tab. 13

2.3.14 Electric element now working at max. permitted temp. (T8)

Desc	Description: Value on T8 has exceeded 75 °C.			
	Warning			
Ele	ctric element now working at max, permitted temp.			
	Acknowledge			
	6 720 643 196-12.11			
	See fault tracing tree High forward flow T1. (\rightarrow Chapter 2.3.5)		(Can only occur during additional heat operation).	

2.3.15 Compressor does not reach correct frequency

Description: Gives an alarm if the actual value of the compressor speed deviates by >5Hz for two minutes.			
	See separate fault tracing tree (→Chapter 2.4)		Check the supply to the inverter circuit board in the molex switch on the I/O circuit board.

Tab. 15

2.3.16 Fault in HTF pump G3



Tab. 16

2.3.17 High temperature electric box



6 720 643 196-14.11

Description: High temperature on driver circuit board. The temperature is taken from a sensor mounted on the driver circuit board.

	Check		Action
1.	Is the fan in the electric box running?	yes:	$\rightarrow 2$
		no:	 Check output Do3 on the I/O circuit board. Replace fan or I/O circuit board if necessary.
2.	If there flow through the cooling coil? The hoses to the electric box should feel cold under the insulation.	yes:	Does the error message recur? \rightarrow 3
		no:	 Open the heat transfer fluid circuit and flush through the cooling coil. Then vent properly.
3.	Thermistor in the driver circuit board defective.		► Replace driver circuit board.

2.3.18 Check connection to AHB

Description: No contact with AHB board. ALARM Check connection to AHB board 10-02-02 06:42:54 Acknowledge				
	6 720 643 196-15.11			
	Check		Action	
	Is the green LED on the AHB board flash-	yes:	• Check the CANbus connections and terminations.	
	ing?	no:	• Check the CANbus connections and terminations.	
			Didn't that help?	
			 Replace the AHB board. 	

Tab. 18

2.3.19 Check connection to I/O circuit board

Description: No contact with I/O circuit board.				
	ALARM			
Che	Check connection to I/O board			
10-	10-02-02 06:43:59 Acknowledge			
	6 720 643 196-16.11			
	Check		Action	
	Is the green LED on the I/O circuit board	yes:	• Check the CANbus connections and terminations.	
	flashing?	no:	• Check the CANbus connections and terminations.	
			Didn't that help?	
			► Replace I/O card.	

2.4 Troubleshooting the inverter section

Ine r	The neat pump does not run, troubleshooting the inverter section					
	Check		Action			
1.	Is there 3x400V to the heat pump? L1	yes:	$\rightarrow 2$			
	L2, L1L3, L2L3=400	no:	► Check the main fuse.			
2.	► Is the contactor connected?	yes:	→ 3			
		no:	► Wait for the time relay to end (9 min).			
3.	 Measure voltage on inverter circuit 	yes:	$\rightarrow 4$			
	board: TBL1-TBL2, TBL2-TBL3, TBL3-TBL1=400V OK?	no:	Filter circuit board or contactor defective.			
4.	 Measure voltage between zero and 	yes:	$\rightarrow 5$			
	miniature circuit breaker F3. Is there 230V?	no:	F3 tripped or blown.			
5.	 Measure voltage between zero and 	yes:	$\rightarrow 6$			
	both sides on glass fuse F1 on the transformer circuit board (PSU)	no:	Glass fuse F1 blown.			
	Is there 230V/phase to zero?					
6.	 Measure voltage between zero and both sides on glass fuse F1 on the I/O circuit board (IOB) 	yes:	→ 7			
		no:	Glass fuse defective.			
	Is there 230V/phase to zero?					
7.	► Check that the green LEDs on the I/O	yes:	→ 8			
	circuit board, AHB circuit board and the display circuit board flash (1/sec).	no:	► Check 12V on CANbus.			
			 Check the CANbus connections. 			
8.	Does the red LED on the inverter circuit	yes:	$\rightarrow 10$			
	board illuminate for a few seconds after the contactor has been connected?	no:	→ 9			
9.	Is there 15VDC voltage between terminal 5 and 7 on CN2?	yes:	► Replace inverter circuit board.			
		no:	 Check wiring and transformer circuit board, replace if necessary. 			
			Also see service message regarding I/O circuit board.			
			Didn't that help? \rightarrow 10			
10.	Is the choke coil connected to the inverter circuit board?	yes:	 Compare the connection with the wiring diagram, correct if necessary 			
			Didn't that help? \rightarrow 11			
		no:	 Connect the choke coil according to the wiring diagram. 			
			Didn't that help? \rightarrow 11			

The heat pump does not run, troubleshooting the inverter section

The h	The heat pump does not run, troubleshooting the inverter section			
	Check		Action	
11.	Is a ceramic power resistor connected to relay X52 on the inverter circuit board?	yes:	The resistor should have 16 ohm, replace if necessary. Didn't that help? \rightarrow 12	
		no:	The resistance must be 16 ohm.	
			► Connect the resistor to X52.	
			Didn't that help? \rightarrow 12	
12.	Are the condensers connected to the inverter circuit board?	yes:	Are the condensers connected to TB-P2, TB-C1 and TB-N1.	
	IMPORTANT! The condensers may have voltage left even if the machine is		 Compare the connection with the wiring diagram, correct if necessary. 	
	switched off.		Didn't that help? \rightarrow 13	
		no:	 Connect the condensers on TB-P2, TB-C1 and TB- N1. 	
			Didn't that help? → 13	
13.	ls (TB-N1)(TB-P2) => 450-680VDC.	yes:	→ 14	
	ls (TB-N1)(TB-C1) => 225-340VDC.	no:	Didn't that help? \rightarrow 14	
	ls (TB-C1)(TB-P2) => 225-340VDC.			
14.	 Check the wiring between the inverter circuit board and compressor. 	yes:	→ 15	
		no:	 Replace wiring if burnt. 	
	 Terminal block on inverter circuit board - Cable colour -> Terminal block on compressor. TB-U -> black -> U TB-V -> brown -> V TB-W -> grey -> W 		If the compressor does not run and the wiring is incorrectly installed, the compressor is probably broken.	
15.	Is the voltage between (TB-U)(TB-V),	yes:	→ 16	
	(IB-V)(IB-W) and (IB-W)(IB-U)?	no:	Inverter circuit board defective.	
			 Replace inverter circuit board. 	
			Didn't that help? \rightarrow 16	
16.	If a specific alarm code appears in the rego window, see separate fault tracing tree.			

Code	Alarm text	Check points	
NAK 0-0	Stoppage due to overheated heat sink.	 Check whether the fan runs. Check for contact paste between the heat sink and electronics. 	
NAK 0-1	Stoppage due to overcurrent at start.	 Check whether the inverter circuit board is defective. Check whether the compressor is defective. Check whether the initiation data is incorrect. 	
NAK 0-2	Stoppage due to overcurrent.	 Check whether the inverter circuit board is defective. Check whether the compressor is defective. Check whether the initiation data is incorrect. 	
NAK 0-3	Stoppage due to overvoltage (DC). The com- pressor increases too quickly.	► Check the supply (15V DC).	
NAK 0-4	Current sensor warning.	Current sensor defective. ► Replace inverter circuit board.	
NAK 0-5	Thermistor tripped on inverter circuit board.	Faulty sensor in power transistor.▶ Replace inverter circuit board.	
NAK 0-6	Current sensor tripped.	Current sensor defective. Replace inverter circuit board. 	
NAK 0-7	Data not received.	 Check the 15-supply to the inverter circuit board, 13-18V on terminal block 5-7. 	
NAK 0-8	Stoppage due to undervoltage DC.	Check the supply (15V DC).Check the condensers.	
T 1 01			

2.5 Alarm from driver circuit board

2.6 Alarm from heat transfer fluid (coll.) pump G3

Error message - Interference. - The pump switches itself off, the LED that indicates error messages illuminates red permanently. - After five minutes, the pump starts automatically again. - After the same disturbance occurs six times within 24 hours, the pump switches off permanently, SSM opens and the interface PLR/LON/CAN gives the error message again. The interference must then be reset by hand. Reset the alarm by pressing in the button for five seconds or breaking the current to the circulation pump. EXCEPTION: In the event of a fault with Code-Nrn E10 and E25, the pump switches off immediately after the fault occurs the first time.

Cod	•• • •	-	•
е	Alarm text	Cause	Action
E03	Water temperature >110 °C	Heat regulation incorrectly set	 Set to lower temperature
E10	Blocking pump	E.g. due to deposits	 Unblocking procedure starts automatically. If the blocking is not lifted after 40 seconds, the pump turns off. Contact service.
E20	Overtemperature winding	Motor overloaded	Allow the motor to cool.
			 Check filter and any glycol con- tent.
E21	Motor overloaded	Deposits in the pump	 Contact service
E23	Short circuit/Earth fault	Defective motor.	 Contact service
E25	Contact fault	Module switched on incorrectly	 Switch the module on again. Check the position of the module and for dirt on contact surfaces.
E30	Overtemperature module	Air supply to the module's cool- ing body is restricted.	 Check that there is no armaflex on the heat sinks. Check that the heat sinks are not blocked and that air can pass for cooling.
E31	Overtemperature power section	→ E30	
E36	Defective module	Electronic components defec- tive	► Replace module

Warning messages - Interference (only warning) appears. - LED that indicates error messages and SSM relay not activated. - The pump continues to work. Interference can occur any number of times. - The signalled (incorrect) operating mode may not occur for a longer period of time. The cause must be rectified. Exception: If warnings E04 and E05 occur for longer than 5 minutes in operating mode HW they are sent on as error messages.

Cod			
е	Alarm text	Cause	Action
E03	Water temperature >110 °C	Heat regulation incorrectly set.	► Set to lower temperature.
E04	Grid undervoltage	Grid overloaded.	 Check electrical connections.
E05	Grid overvoltage	Incorrect supply from power company.	 Measure the voltage, contact the power company.
E11	ldle pump	Air in the pump housing	 Vent the heat transfer fluid cir- cuit.
E38	Temperature sensor medium defective		
E54	Connection I/O module	The connection I/O module is interrupted.	 Check that the 0-10V module is mounted in its base.

Notes



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