

TROUBLESHOOTING MANUAL

INTEGRAL POWER 3200 / 2000
Manual - Automatic

TROUBLESHOOTING

ERROR CODES LIST

E0

E6

Lb

UNIT DOES NOT START

UNIT DOES NOT WORK




UNIT WORKS BUT DOES NOT START WITH THE REMOTE CONTROL

UNIT STARTS BUT DOES NOT WORK

CONTROL PANEL DOES NOT RESPOND

CONTROL PANEL EMITS AN INTERMITTENT BEEPING

UNIT WORKS BUT DOES NOT COOL PROPERLY

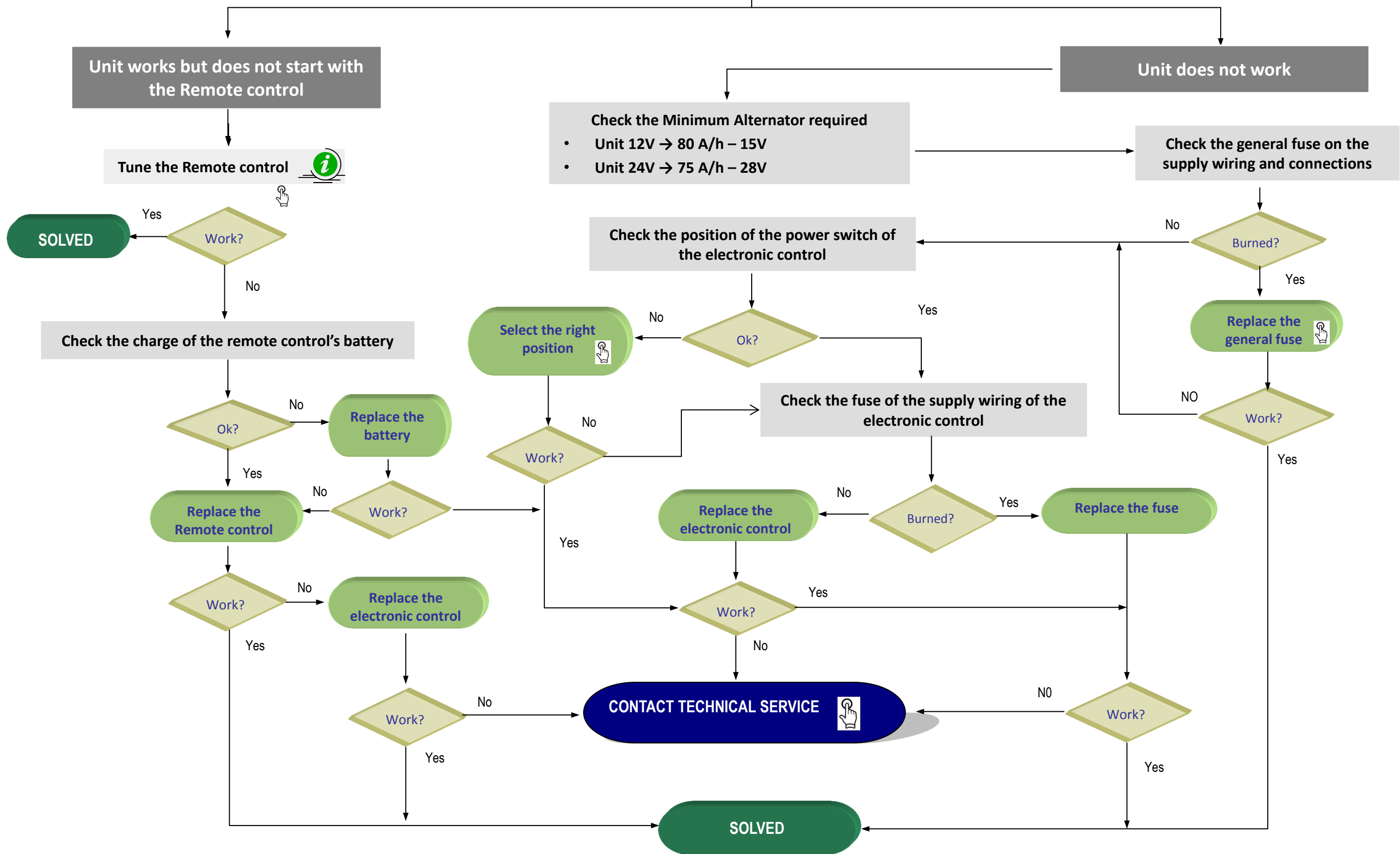
ERROR CODES LIST				
ERROR CODE	SYMPTOMS	Diagnosis		SOLUTION
E0	Display flashing E0 error code	Check the temperature sensor	Recirculation sensor damaged 	Replace sensor
			Poor contact of connection sensor	Repair the connection and wiring contacts
			If the sensor is ok	Replace the electronic control
E6	Display flashing E6 error code	Error at the frost protection sensor)	Frost protection sensor not connected, poor contact or defective. 	Test cables for continuity, short circuit and check for damage, renew if necessary. Connect frost protection sensor correctly or renew.
Lb	Display shows Lb	Poor supply power of the unit	Low battery	Charge or replace battery
			Check the Minimum Alternator required <ul style="list-style-type: none"> • Unit 12V → 80 A/h – 15V • Unit 24V → 75 A/h – 28V 	Change or repair the alternator according to the requirements
			Poor contact of probe cables or terminals	Check and correct possible bad electrical connections
If the error continues contact technical service				

INTEGRAL POWER 3200 / 2000

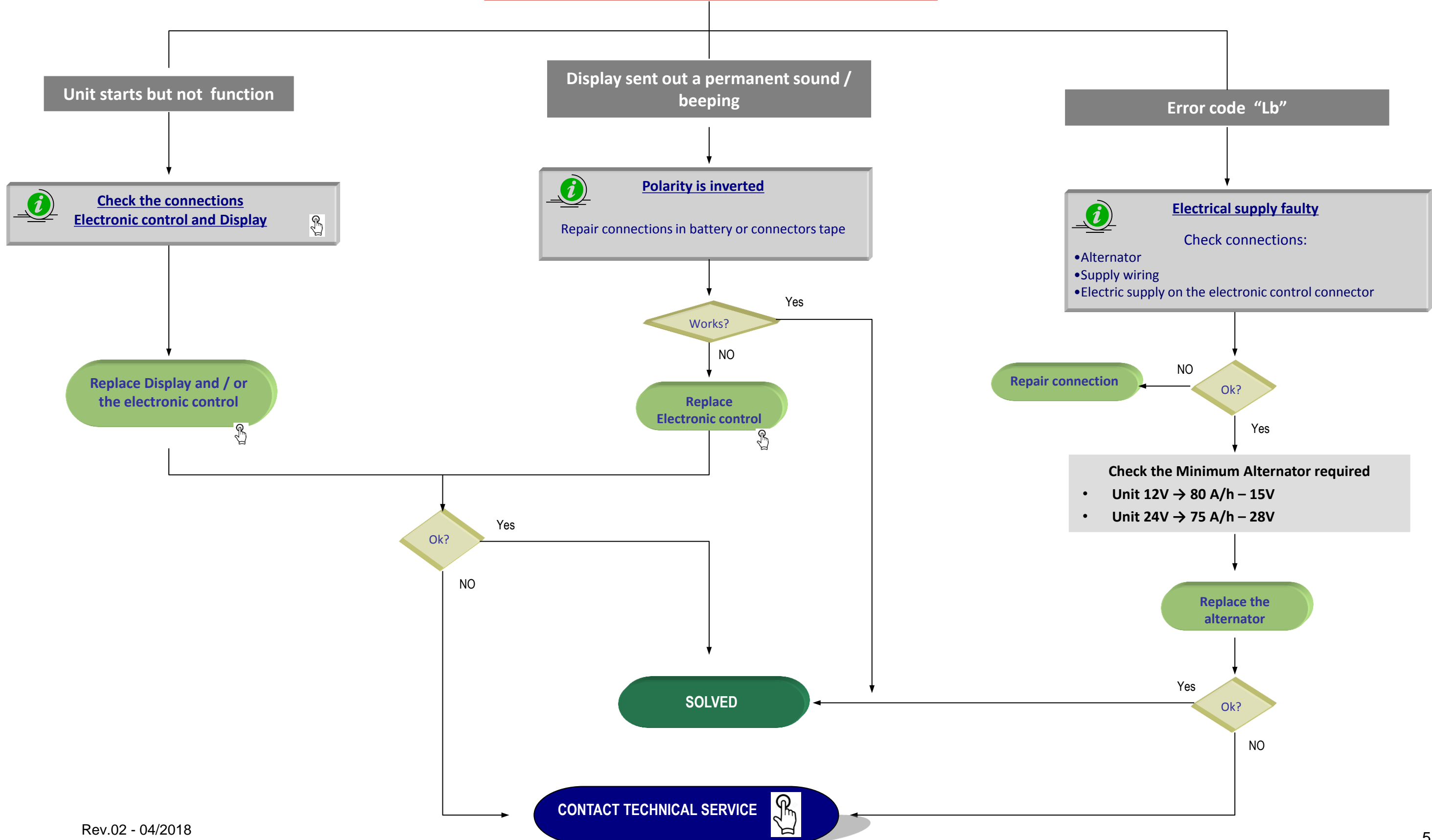
Manual - Automatic



UNIT DOES NOT START



UNIT START BUT DOES NOT WORK



INTEGRAL POWER 3200 / 2000

Manual - Automatic



UNIT WORKS BUT DOES NOT COOL PROPERLY

Check temperature according to Efficiency Diagnosis Chart

Ok?

No

Yes

Unit works properly

To Check:

- Blower wheels are on the same position and direction.
- Air outlet are not blocked / foam air duct is well placed
- Motor connection
- Evaporator cover is well sealed with the exterior cover

Ok?

Yes

No

Repair or adjust the ventilation system

Solved?

Yes

SOLVED

Check the recirculation area is not closed with the roof of the cabin

Ok?

Yes

No

Repair

Check condenser coil / Electro fan

Condenser Dirty

Electro-fan connection

Electro-fan defective

Fuse burned (E2)

Polarity inverted

Clean

Replace

Repair

Yes

Solved?

No

- Check the Compressors consumption at 22 ÷ 25°C:
- 1.- Check the connector of the compressor
 - 2.- Check the signal received at the compressor module
 - 3.- Check the pressure switch
 - 4.- Check the signal (voltage) from the electronic control

Yes

Ok?

No

CONTACT TECHNICAL SERVICE



IMPORTANT

Manipulation of the gas circuit without previous authorization to the Dirna Technical Service cancels the unit warranty



IMPORTANT

After replacing the electro-fan fuse, it's necessary to reset the unit disconnecting the general box connector

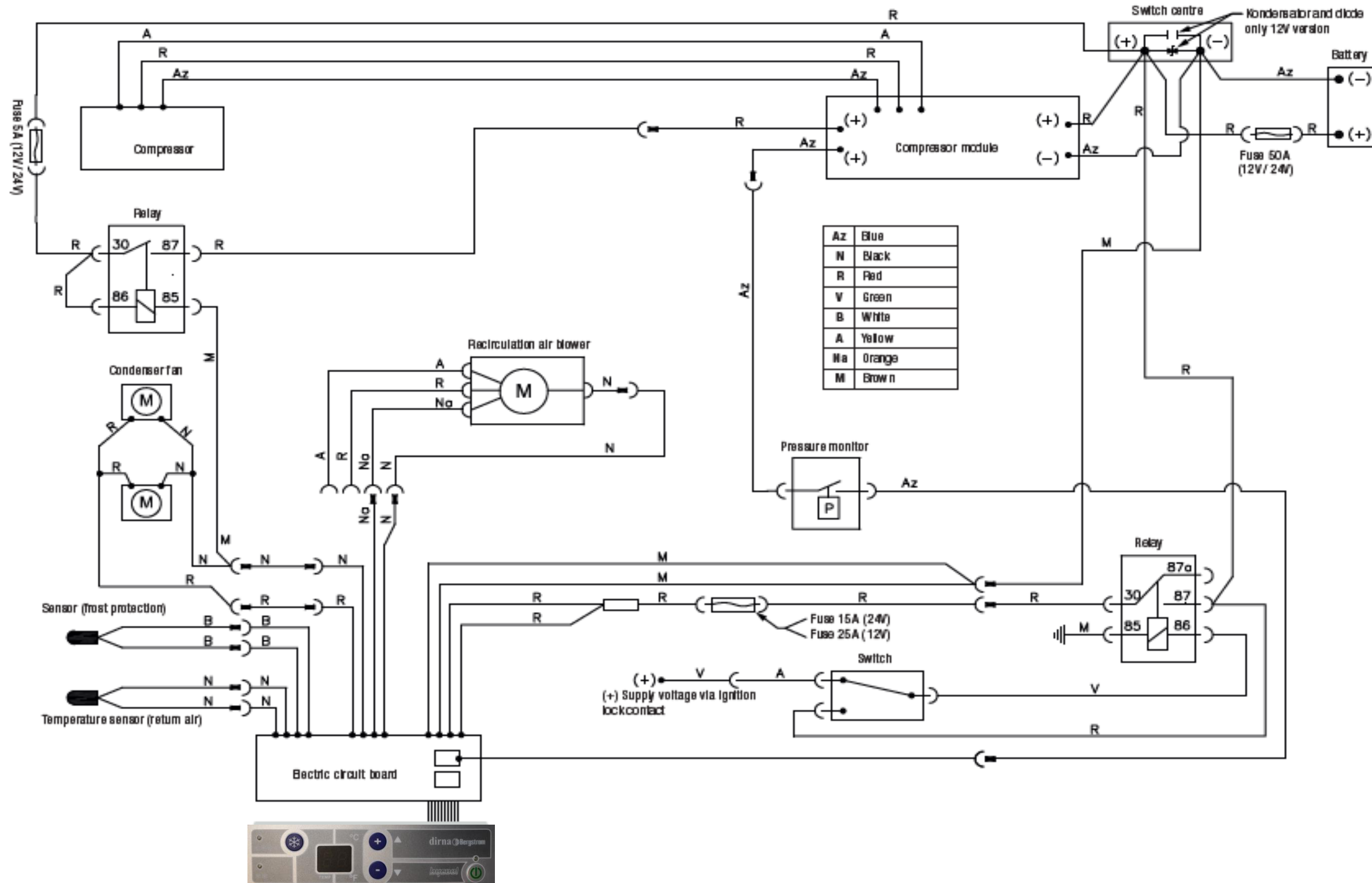


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Manual - Automatic



CIRCUIT DIAGRAM FOR INTEGRAL POWER 2000 AUTOMATIC 12 V / INTEGRAL POWER 3200 AUTOMATIC 24 V



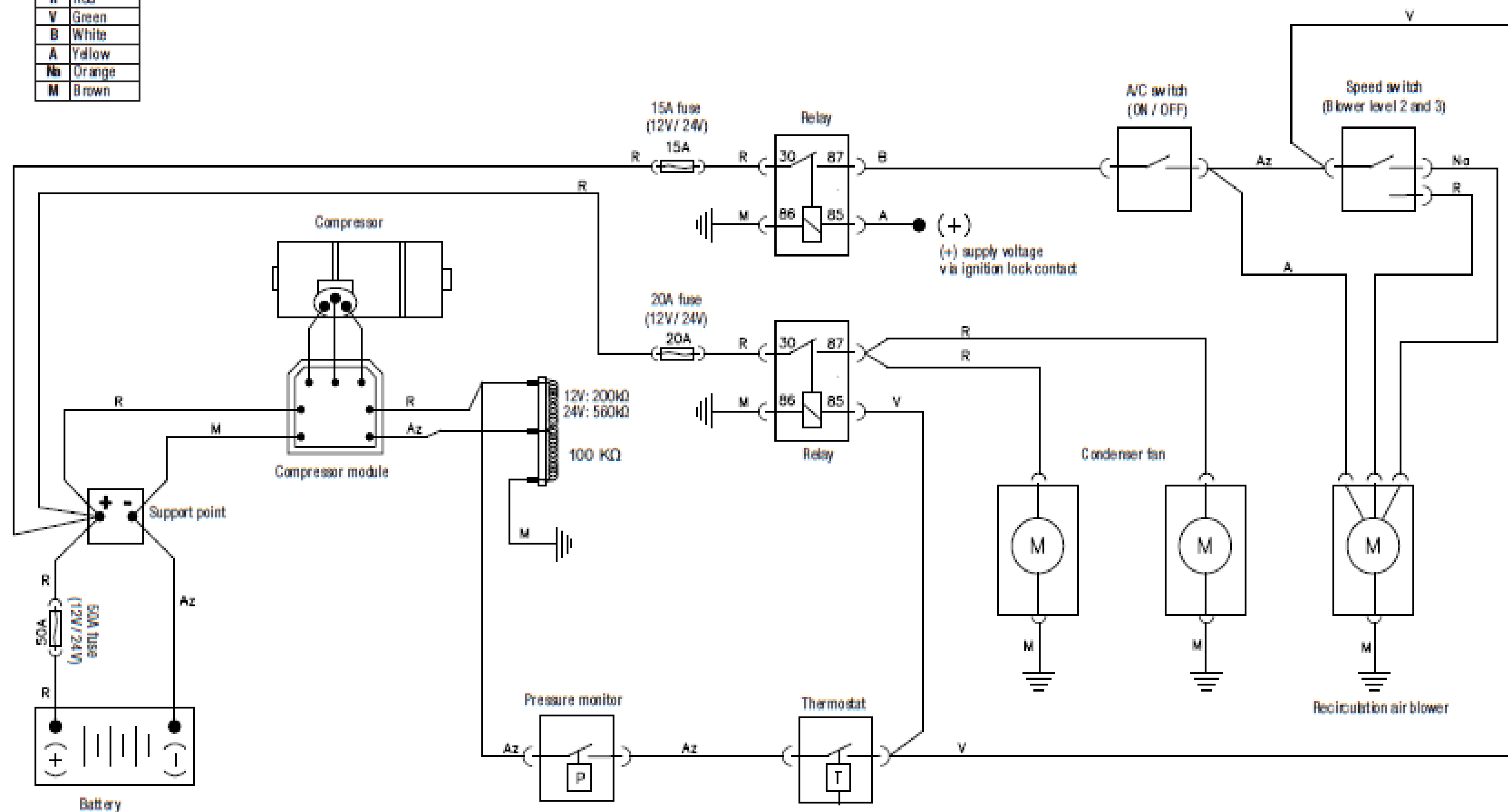
INTEGRAL POWER 3200 / 2000

Manual - Automatic



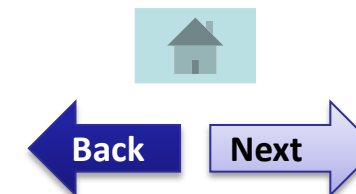
CIRCUIT DIAGRAM FOR INTEGRAL POWER 2000 MANUAL 12 V / INTEGRAL POWER 3200 MANUAL 24 V

Az	Blue
N	Black
R	Red
V	Green
B	White
A	Yellow
Na	Orange
M	Brown



INTEGRAL POWER 3200 / 2000

Manual - Automatic



FUNCTIONAL DIAGRAM: IP 2000 AUTOMATIC / MANUAL 12 V

CONDITIONS

- Do not expose the driver's cab to direct sunlight.
- Battery is fully charged. At least 12 volt are applied at the voltage input.
- The doors and windows are closed during the whole test.
- Vehicle engine is running.
- System run time 15 minutes at max. cooling and blower output.

Settings at the control panel:

Automatic

- Function mode F0 (manual operation)
- Temperature value 15 °C
- Blower level U5

Manual

- Main switch: ON
- Rocker switch: level 3 (max.)

- Data capture after 15 minutes.
- Temperatures in °C.
- Only one person in the cab.
- Do not smoke or carry out physical activities during the test.
- Outside temperature maximum 35 °C.

Data: Register with dual digital thermometer.

T1: Intake temperature (return air = inside temperature) at recirculation inlet.

T2: Blow out temperature at the outlet.

T2 (°C) > blowout temperature

	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6
35	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
34	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
33	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
32	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
30	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
29		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
28			0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
27				0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
26					0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
25						0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
24							0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
23								0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
22									0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
21										0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
20											0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
19												0	1	2	3	4	5	6	7	8	9	10	11	12	13
18													0	1	2	3	4	5	6	7	8	9	10	11	12
17														0	1	2	3	4	5	6	7	8	9	10	11
16															0	1	2	3	4	5	6	7	8	9	10
15																0	1	2	3	4	5	6	7	8	9
14																	0	1	2	3	4	5	6	7	8

Difference between intake / blowout temperature

■ very good
 ■ good
 ■ moderate
 ■ poor
 ■ As per JIS standard

INTEGRAL POWER 3200 / 2000

Manual - Automatic



FUNCTIONAL DIAGRAM: IP 3200 AUTOMATIC / MANUAL 24 V

CONDITIONS

- Do not expose the driver's cab to direct sunlight.
- Battery is fully charged. At least 12 volt are applied at the voltage input.
- The doors and windows are closed during the whole test.
- Vehicle engine is running.
- System run time 15 minutes at max. cooling and blower output.

Settings at the control panel:

Automatic

- Function mode F0 (manual operation)
- Temperature value 15 °C
- Blower level U5

Manual

- Main switch: ON
- Rocker switch: level 3 (max.)

- Data capture after 15 minutes.
- Temperatures in °C.
- Only one person in the cab.
- Do not smoke or carry out physical activities during the test.
- Outside temperature maximum 35 °C.

Data: Register with dual digital thermometer.

T1: Intake temperature (return air = inside temperature) at recirculation inlet.

T2: Blow out temperature at the outlet.

T2 (°C) > blowout temperature

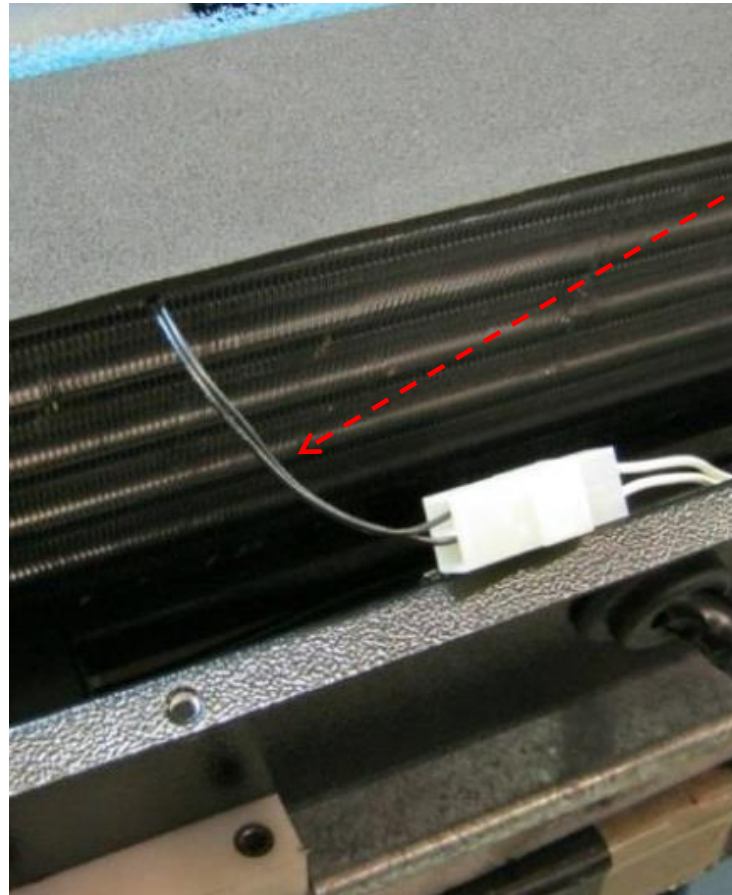
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34	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
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25						0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
24							0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
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21										0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
20											0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
19												0	1	2	3	4	5	6	7	8	9	10	11	12	13
18													0	1	2	3	4	5	6	7	8	9	10	11	12
17														0	1	2	3	4	5	6	7	8	9	10	11
16															0	1	2	3	4	5	6	7	8	9	10
15																0	1	2	3	4	5	6	7	8	9
14																	0	1	2	3	4	5	6	7	8

Difference between intake / blowout temperature

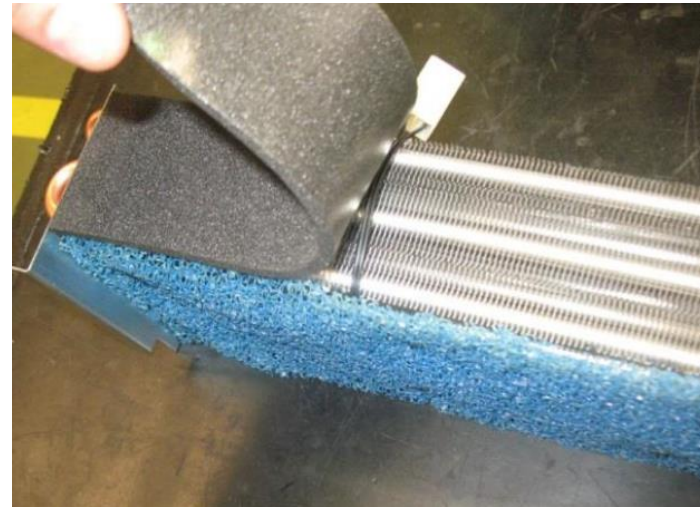


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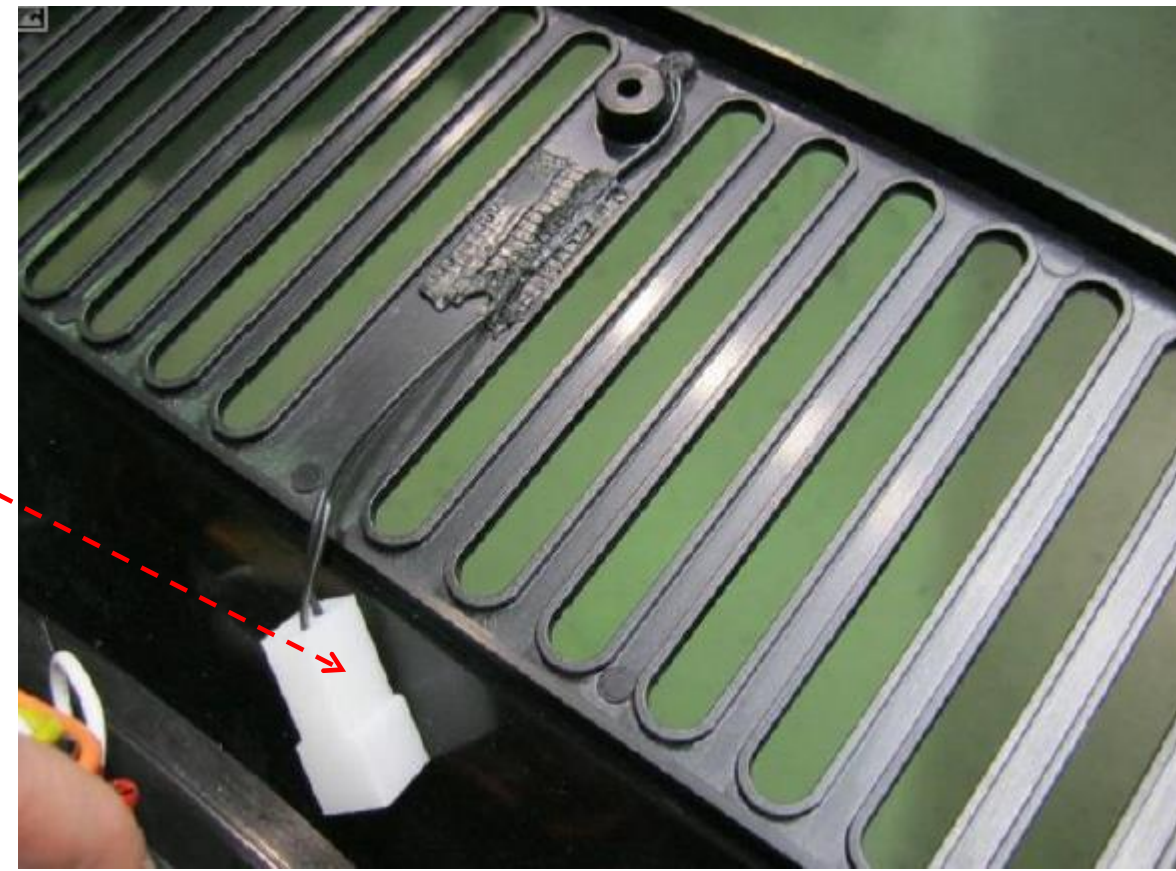


Frost protection sensor



PRESS HERE TO SEE THE TEMPERATURE VALUES 

Recirculation sensor





Temperature Sensor values

-9	44826.5	49619.1	54864.7	10.17	9.46	1.91	1.78
-8	42741.8	47133.4	51846.3	10.00	9.32	1.89	1.78
-7	40674.1	44784.5	49187.1	9.83	9.18	1.87	1.75
-6	38716.7	42564.4	46677.5	9.66	9.04	1.85	1.73
-5	36863.3	40465.4	44308.3	9.50	8.90	1.83	1.72
-4	35107.9	38480.3	42071.2	9.33	8.76	1.81	1.70
-3	33444.7	36602.4	39958.0	9.17	8.63	1.79	1.69
-2	31868.7	34825.5	37961.5	9.00	8.49	1.77	1.67
-1	30374.8	33143.7	36074.7	8.84	8.35	1.75	1.65
0	28958.3	31551.5	34291.0	8.68	8.22	1.73	1.64
1	27615.0	30043.7	32604.3	8.52	8.08	1.71	1.62
2	26340.6	28615.4	31009.0	8.36	7.95	1.69	1.60
3	25131.4	27262.2	29499.6	8.21	7.82	1.67	1.59
4	23983.8	25979.7	28071.2	8.05	7.68	1.65	1.57
5	22894.3	24763.8	26719.1	7.90	7.55	1.62	1.55
6	21859.7	23611.0	25438.8	7.74	7.42	1.60	1.54
7	20877.0	22517.5	24226.2	7.59	7.29	1.58	1.52
8	19943.4	21480.1	23077.4	7.44	7.15	1.56	1.50
9	19056.2	20495.7	21988.8	7.29	7.02	1.54	1.48
10	18212.9	19561.2	20956.9	7.13	6.89	1.51	1.46
11	17411.0	18674.0	19978.5	6.99	6.76	1.49	1.44
12	16648.5	17831.5	19050.8	6.84	6.63	1.47	1.43
13	15923.2	17031.1	18170.7	6.69	6.51	1.45	1.41
14	15233.1	16270.7	17335.5	6.54	6.38	1.42	1.39
15	14578.3	15548.0	16542.9	6.40	6.25	1.40	1.37
16	13951.1	14860.9	15790.5	6.26	6.12	1.38	1.35
17	13355.8	14207.6	15076.0	6.11	6.00	1.35	1.33
18	12788.9	13586.3	14397.4	5.97	5.87	1.33	1.31
19	12248.8	12995.2	13752.7	5.83	5.74	1.31	1.29
20	11734.2	12432.8	13140.0	5.69	5.62	1.28	1.27
21	11243.8	11897.5	12557.6	5.55	5.49	1.26	1.25
22	10776.3	11387.8	12003.9	5.41	5.37	1.24	1.23
23	10330.6	10902.5	11477.4	5.27	5.25	1.21	1.21
24	9905.5	10440.3	10976.5	5.14	5.12	1.19	1.18
25	9500.0	10000.0	10500.0	5.00	5.00	1.13	1.13
26	9089.7	9580.4	10072.4	5.14	5.12	1.20	1.20
27	8699.1	9180.5	9664.3	5.27	5.24	1.24	1.23
28	8327.2	8799.2	9274.7	5.40	5.36	1.28	1.27
29	7973.1	8435.7	8902.8	5.54	5.48	1.32	1.31
30	7635.7	8088.9	8547.6	5.67	5.60	1.36	1.34
31	7314.3	7758.1	8208.3	5.80	5.72	1.40	1.38
32	7008.0	7442.5	7884.1	5.93	5.84	1.44	1.42
33	6716.0	7141.2	7574.4	6.07	5.95	1.48	1.45
34	6437.5	6853.6	7278.3	6.20	6.07	1.52	1.49
35	6172.0	6579.0	6995.3	6.33	6.19	1.56	1.53
36	5918.8	6316.7	6724.6	6.46	6.30	1.60	1.56
37	5677.1	6066.2	6465.8	6.59	6.41	1.64	1.60
38	5446.5	5826.8	6218.1	6.72	6.53	1.69	1.64
39	5226.4	5598.1	5981.2	6.84	6.64	1.73	1.68
40	5016.3	5379.4	5754.4	6.97	6.75	1.77	1.72
41	4815.6	5170.3	5537.4	7.10	6.86	1.81	1.75
42	4623.9	4970.4	5329.5	7.23	6.97	1.86	1.79
43	4440.8	4779.2	5130.5	7.35	7.08	1.90	1.83
44	4265.8	4596.2	4939.9	7.48	7.19	1.94	1.87
45	4098.5	4421.2	4757.3	7.60	7.30	1.99	1.91



At 25°C → 10000,0 Ω



The value of the resistor will change according to the temperature

Only for automatic version



REMOTE CONTROL


FUNCTIONS OF THE REMOTE CONTROL



- 1 Switching on and off (ON / OFF)
- 2 Blower speed control.
- 3 Temperature control.



STARTING UP THE REMOTE CONTROL:



With the air-conditioning system switched off, press the  button of the control unit and keep it pressed until  appears flashing on the display.

As soon as  is no longer flashing press the ON / OFF (1) button within 30 sec.

If the time is exceeded repeat the process.

SHUTTING DOWN THE REMOTE CONTROL:

Keep the  button of the control unit pressed until  flashes on the display.

As soon as  is no longer flashing, press the  button within 30 sec.

If the time is exceeded repeat the process.



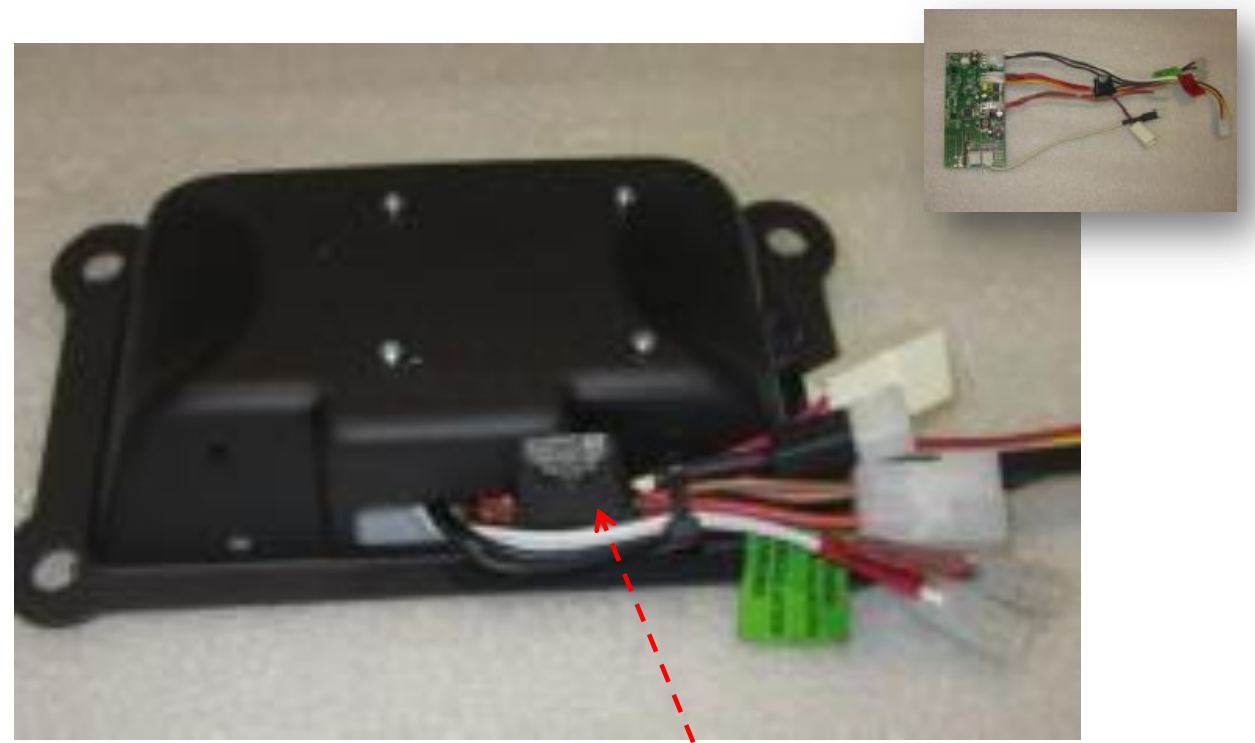
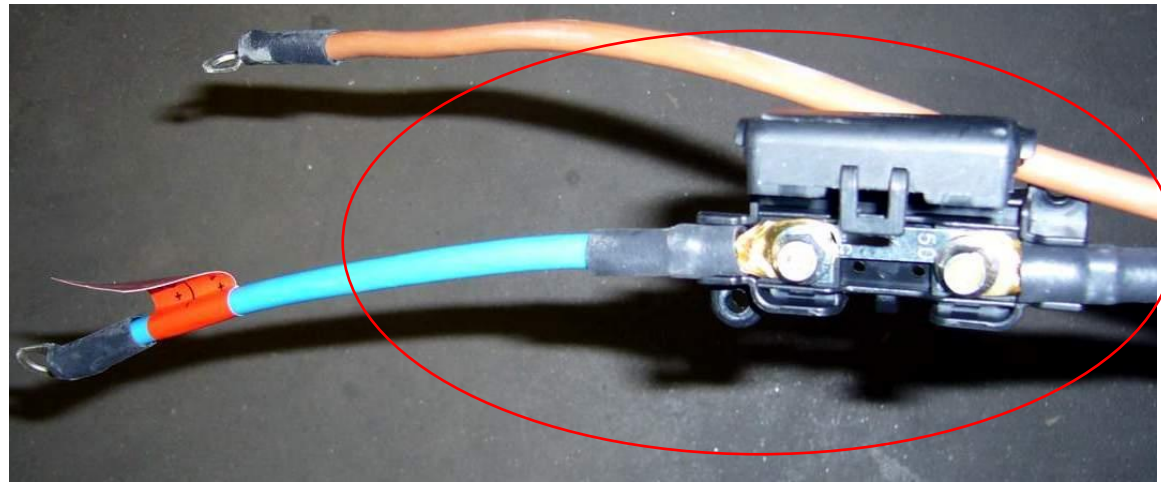
INTEGRAL POWER 3200 / 2000

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Before to repair, disconnect to the battery Only for automatic version

To check the general fuse

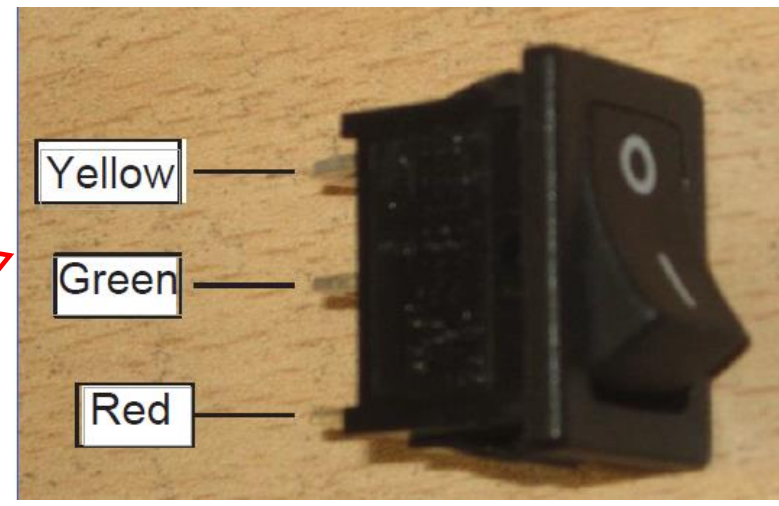


Supply wiring Fuse



Select the right position according to the type of vehicle:
Trucks → **O**
Machines → **I**

Check the right position of the wirings:



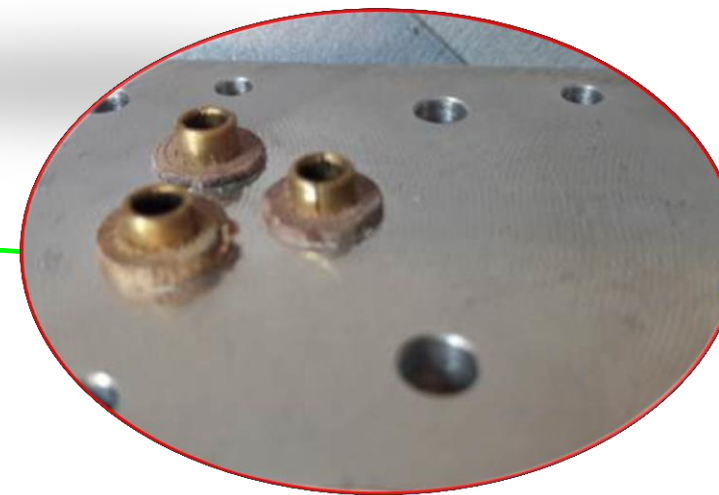
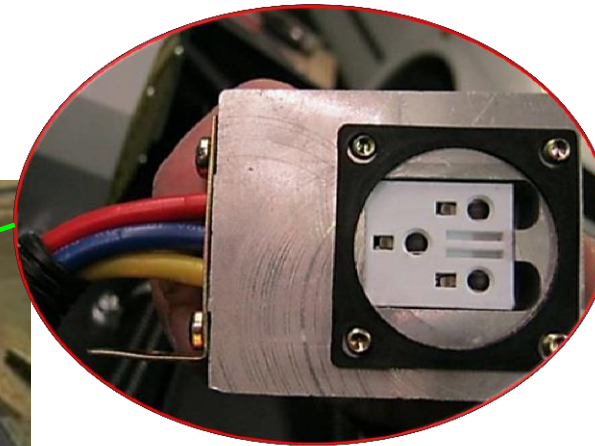
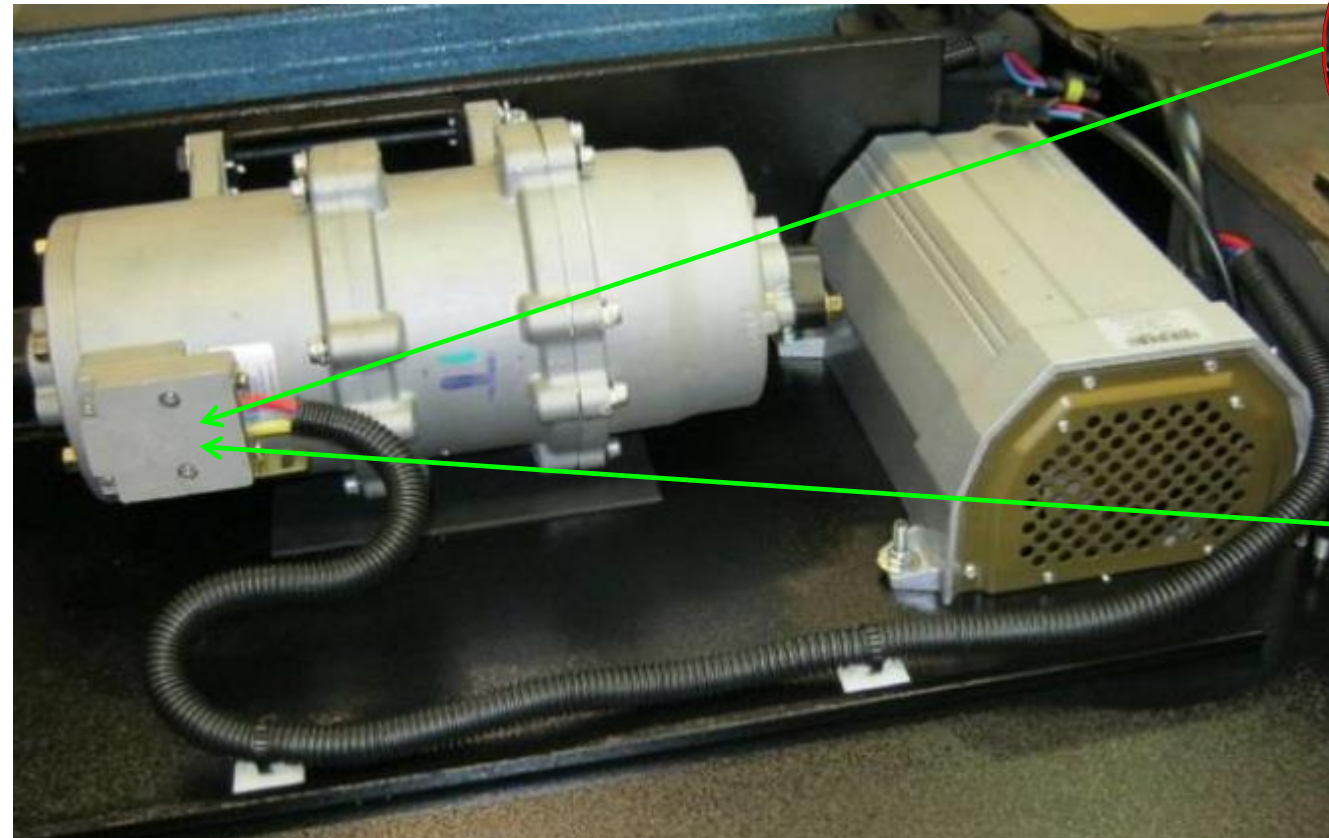
INTEGRAL POWER 3200 / 2000

Manual - Automatic



Don't switch on the engine of the truck during the unit is running, swith off the unit and start the engine

Check the connector and wires conditions



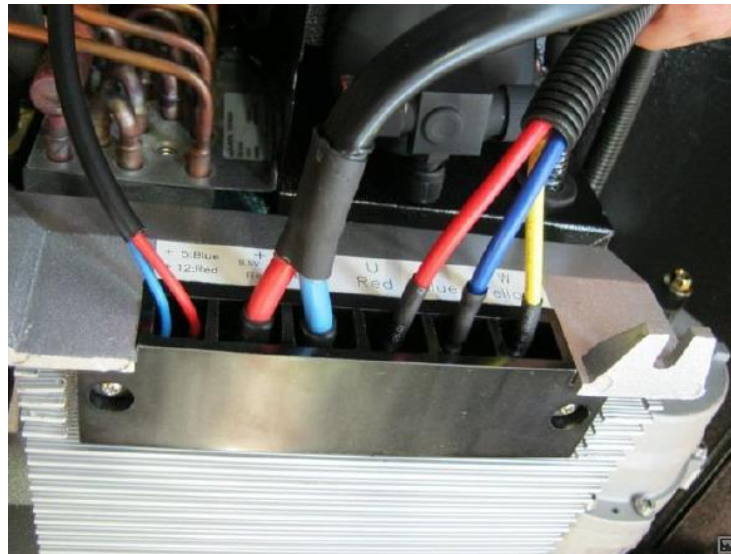
Look for the root causes of this failure

**PRESS HERE FOR
NEXT**



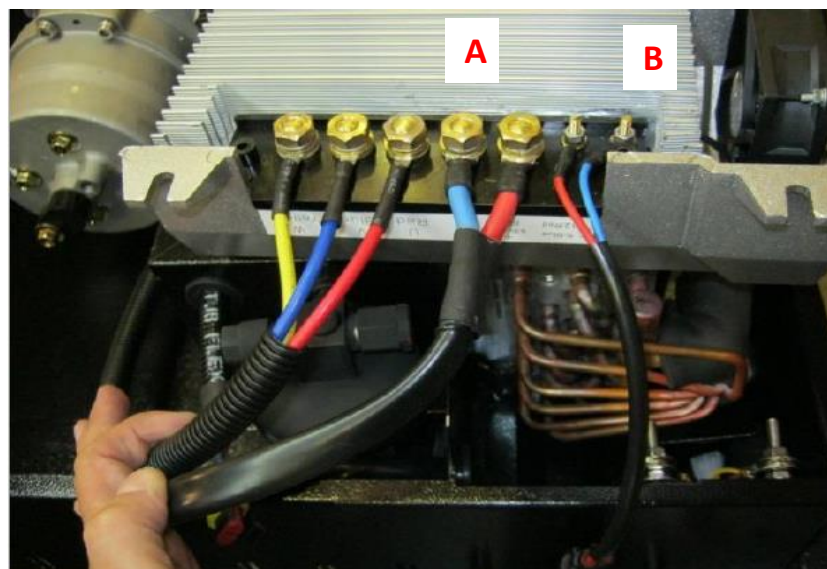
Before to repair, disconnect to the battery

1.- Check the position of the wires at the compressor module (controller)

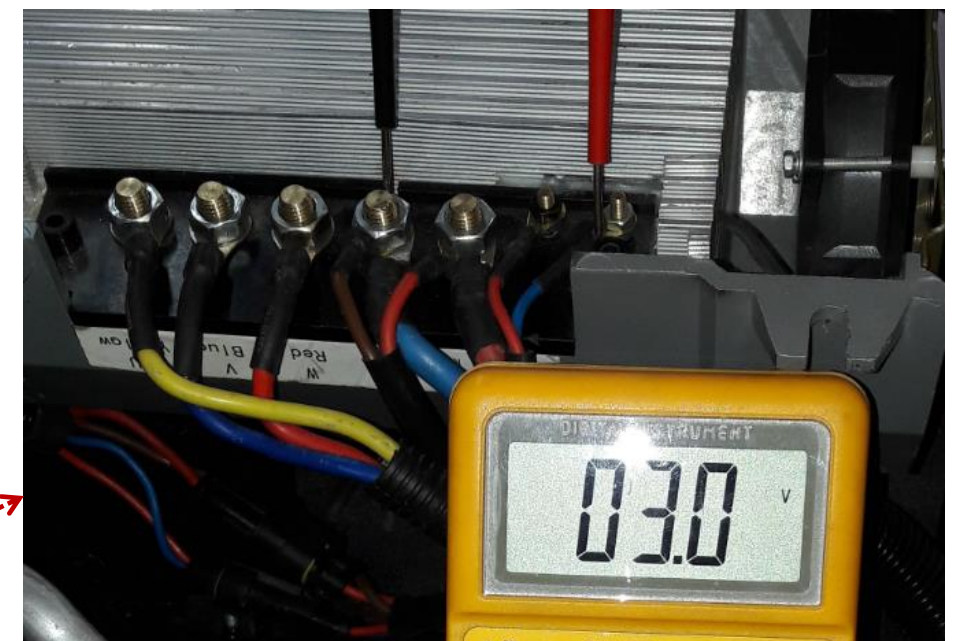


2.- ONLY FOR MANUAL VERSION With the unit "On" check the voltage between the compressor module connections **A – B (Blue ground – Blue +)**. The voltage should be **12V / 24V** the voltage is ok, then replace the compressor module , if the voltage is $\approx 0V$ then check THE PRESOST - REFRIGERANT GAS LOAD - THERMOSTATE.

2.1.- ONLY FOR AUTOMATIC VERSION: if the voltage is between **2.5V – 5 V** the voltage is ok, then replace the compressor module: if the voltage is $\approx 0V$ then CHECK THE PRESOST - REFRIGERANT GAS LOAD – ELECTRONIC CONTROL . **If not go to the next step.**



Automatic version



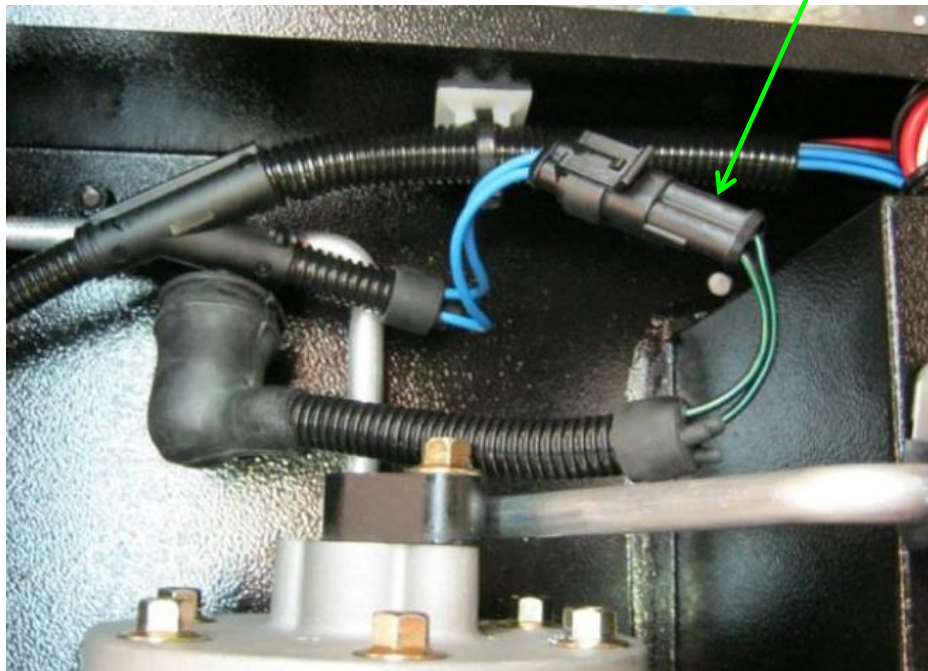
PRESS HERE FOR NEXT

INTEGRAL POWER 3200 / 2000

Manual - Automatic



3.- With the unit "Off" check the continuity on the pressure switch, we are going to rule out a problem with the gas load . If there is not continuity, it is because the pressure of the gas circuit is below the range of the pressure switch so, the compressor does not start because there is not gas pressure. Check the gas load.



There is continuity

PRESS HERE FOR NEXT

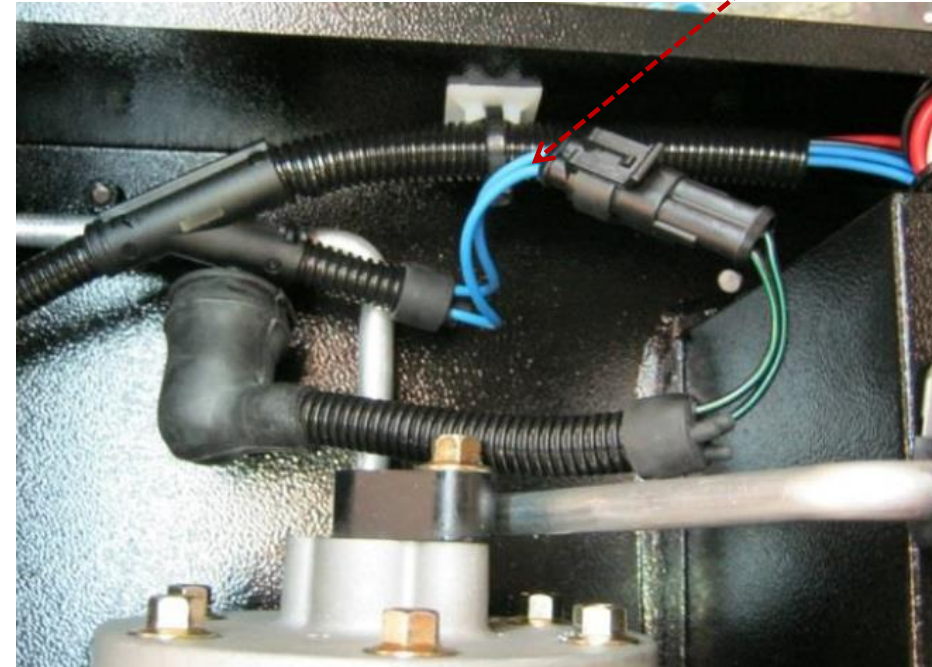


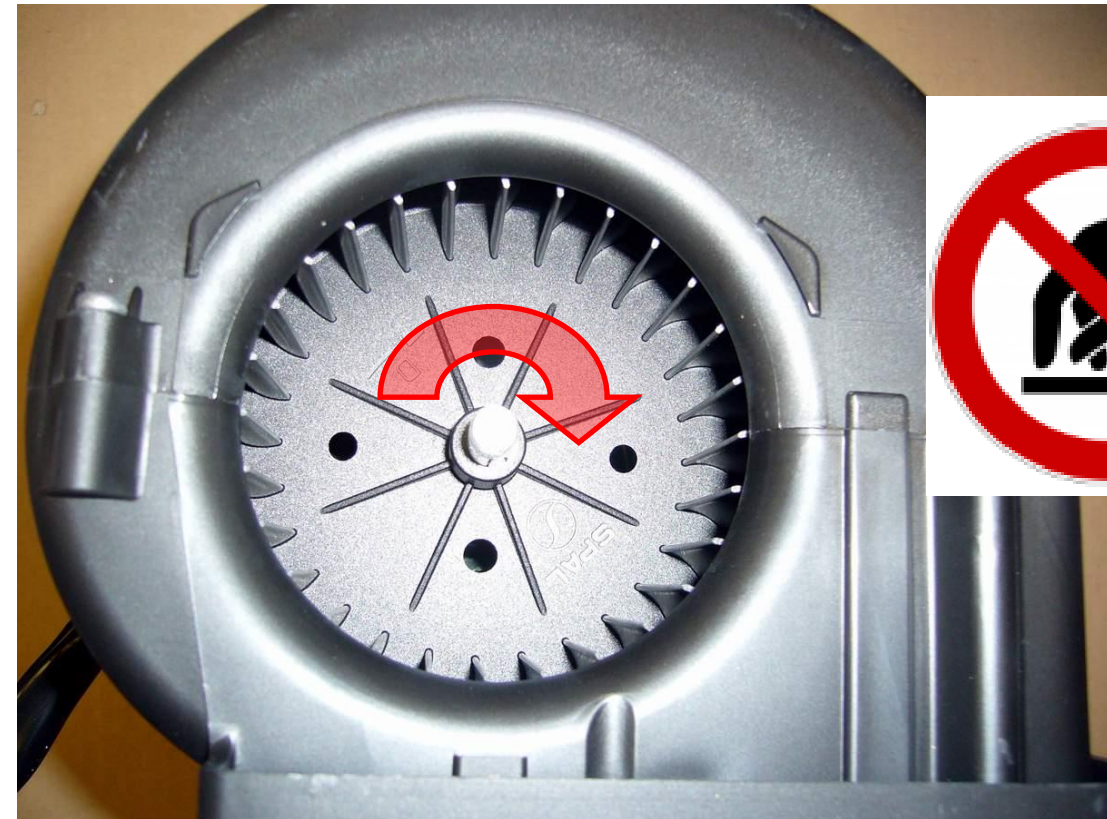
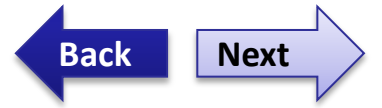
Before to repair, disconnect to the battery

4.- ONLY FOR MANUAL VERSION: With the unit “On” check if the thermostat works well and sends signal. For that, check the voltage received on the connector (blue-blue). The voltage should be between **12V – 24V**. If there is not signal review the connections and / or replace the thermostat.

4.1.- ONLY FOR AUTOMATIC VERSION: With the unit “On” check if the electronic control works well and sends signal. For that, check the voltage received on the connector (blue-blue). The voltage should be between **2.5V – 5V**. If there is not signal review the connections and / or replace the electronic control.

Only for automatic version




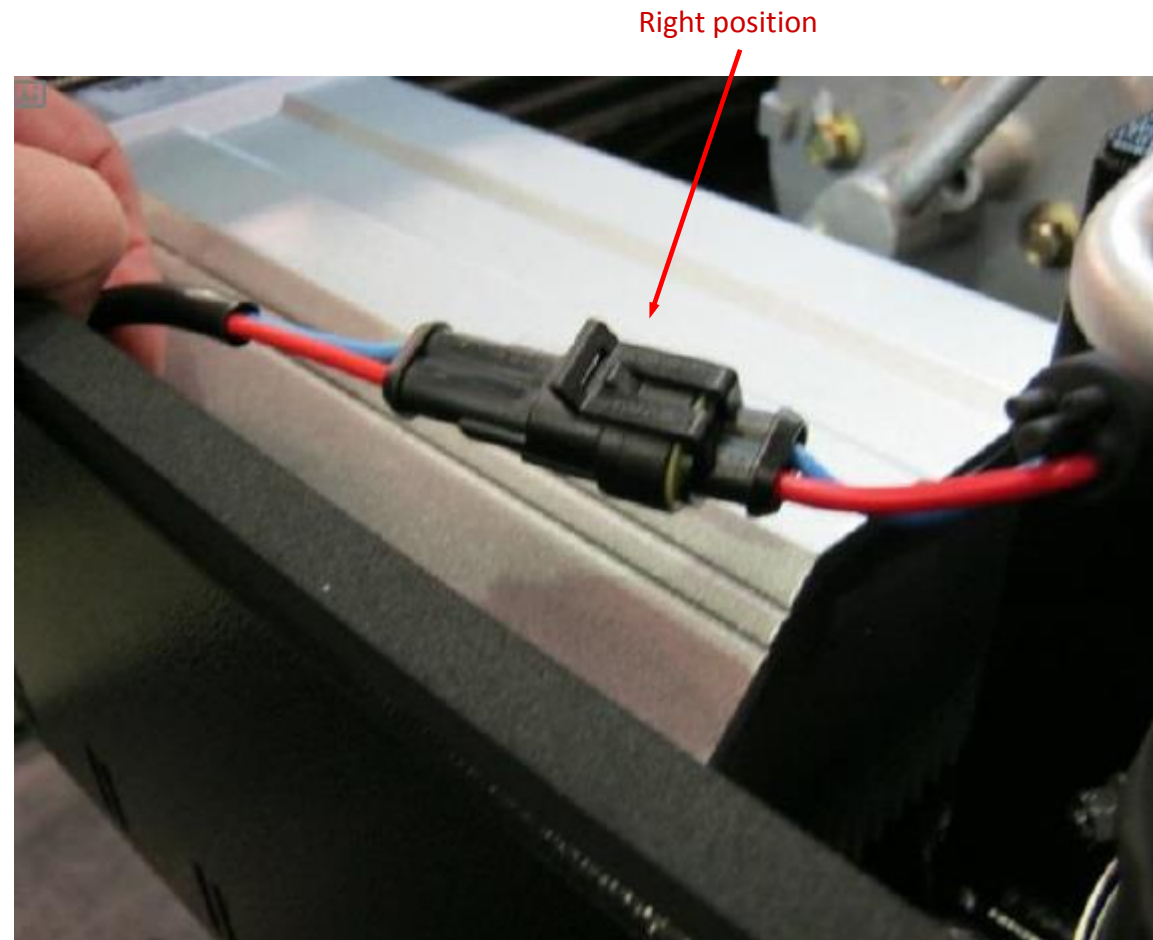


1.- Check the presence of the seal





 **IMPORTANT**
After replacing the electro-fan fuse, it's necessary to reset the unit disconnecting the general box connector





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