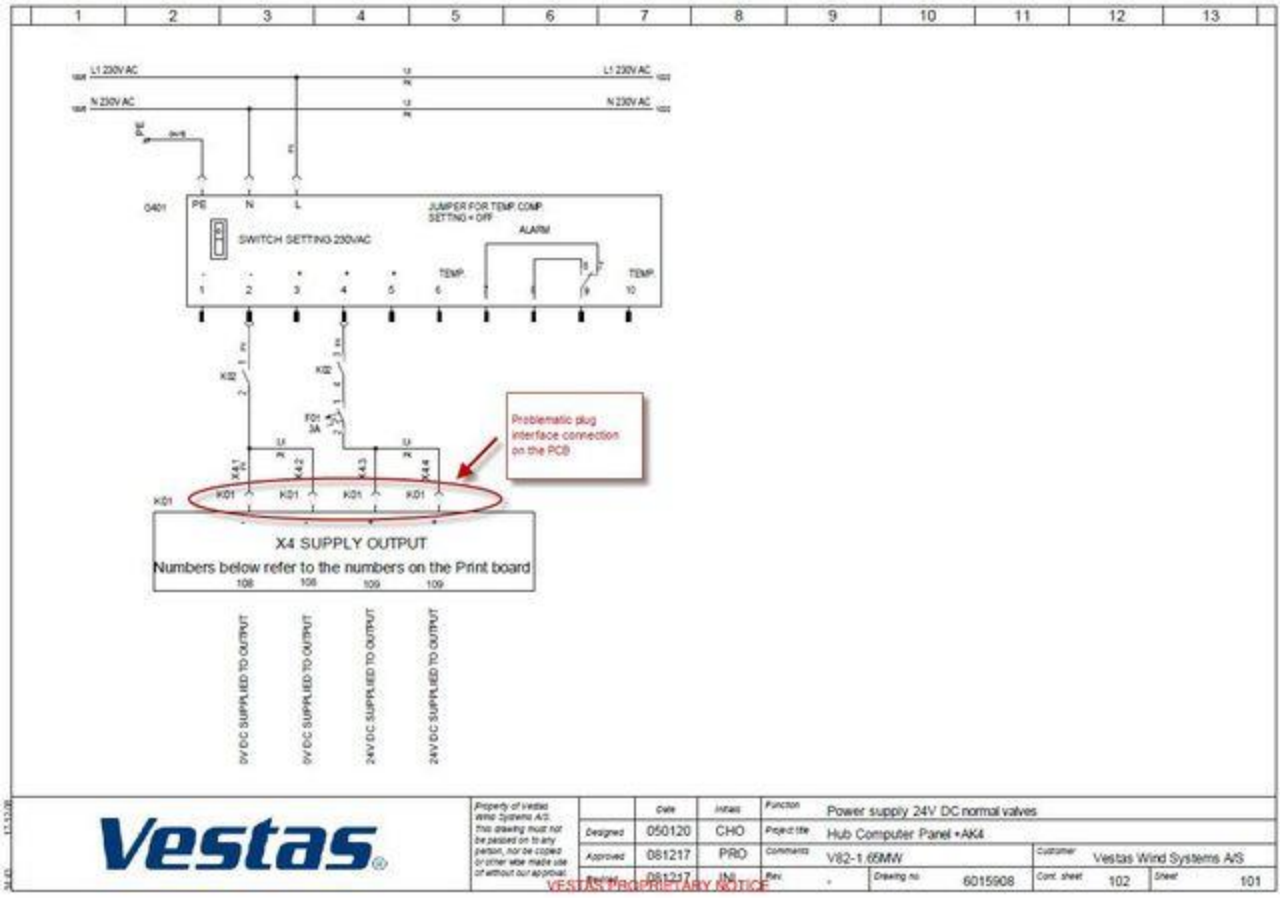
CIM3410

Check 24V DC Power supply plug
The problem is relating to the X4 plug connection where the 24VDC is supplied to the HUB Controller.

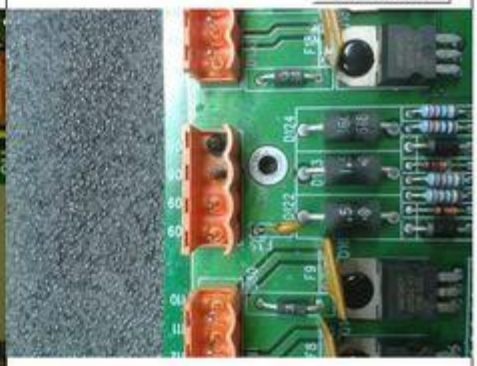


It has in many cases been seen that the plug connection have been overheated and burned as indicated on the below pictures.

1. Insert Picture

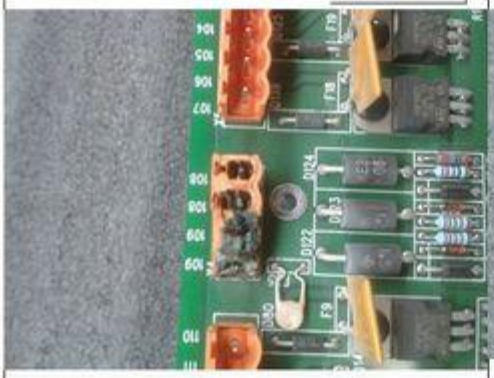
Picture 1 Hub computer shows burnt 108/109 connectors

2. Insert Picture



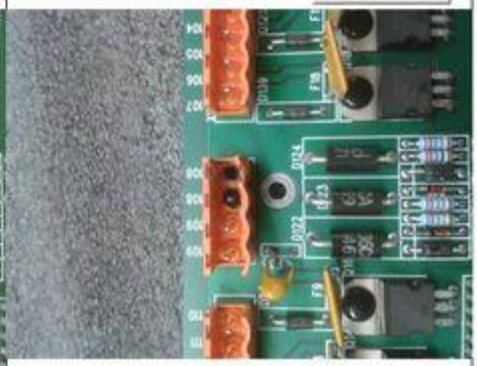
Picture 2 Hub computer shows burnt 108/109 connectors

3. Insert Picture



Picture 3 Hub computer shows burnt 108/109 connectors

4. Insert Picture



Picture 4 Hub computer shows burnt 108/109 connectors

The Minor Component Repair Team, has been requested to implement an improved interface on the PCB, so that the overheated connections could avoided.
Case creator have proposes a simple fix to mitigate the problem. Namelyto install a screw terminal versus the existing pin plug connector.

Picture 5 Existing Plugin type connector

Picture 6 Proposed screw type connector

Relevant spare parts	
Description	**Item No.**
CONN BLZ F 4 LEADED	60001930

picture of a new 4 pin connector (X4:108-109)

The proposed solution by case creator have been forwarded to the Minor Component repair Program, awaiting approval from technology responsible.

Description of action until a solution is in place.

If a HUB Computer fails in the field please replaced it with a new part and return the defective part for repair, under the item number 51701801 DEF SIF HUB COMPUTER CABINET EVOII

The CIM1594 is raised to address the issues with the Hub Computer, and any replacement cost should therefore go to that case.

This case is only to have the proposes repair solution implemented.

Relevant CIM Case		
CIM case	**Description**	**Task list**
3140	Controller - V82 - Hub computer X4 connector 108/109 burnt issue	
1594	Troubleshooting HUB Controller	12511

Relevant spare parts

Description	Item No.
SIF HUB COMPUTER CABINET EVOII	51701801DEF

445 - Hub computer com fault - V82

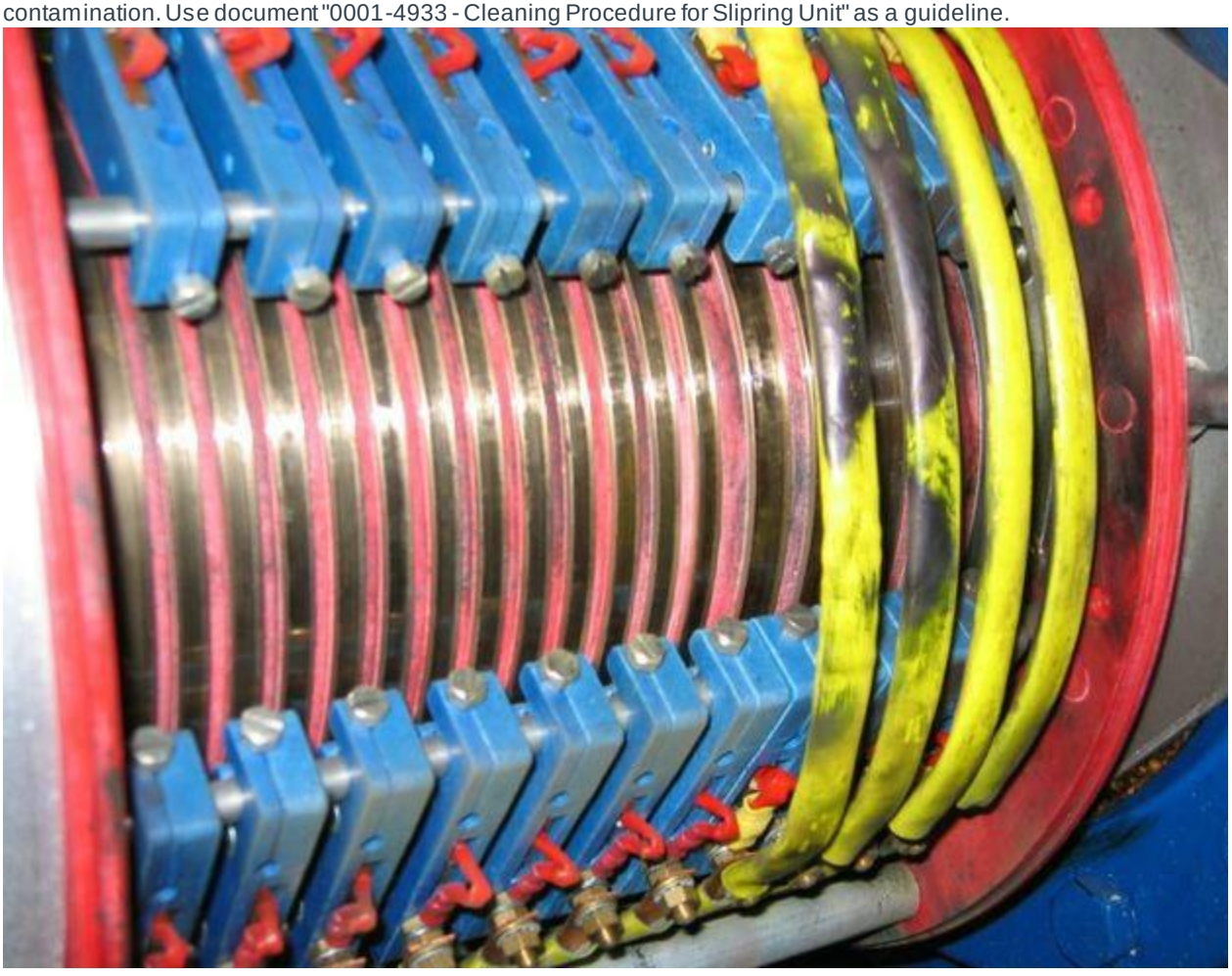
Check for dust or oil in the Slipring

Does this solve the problem?

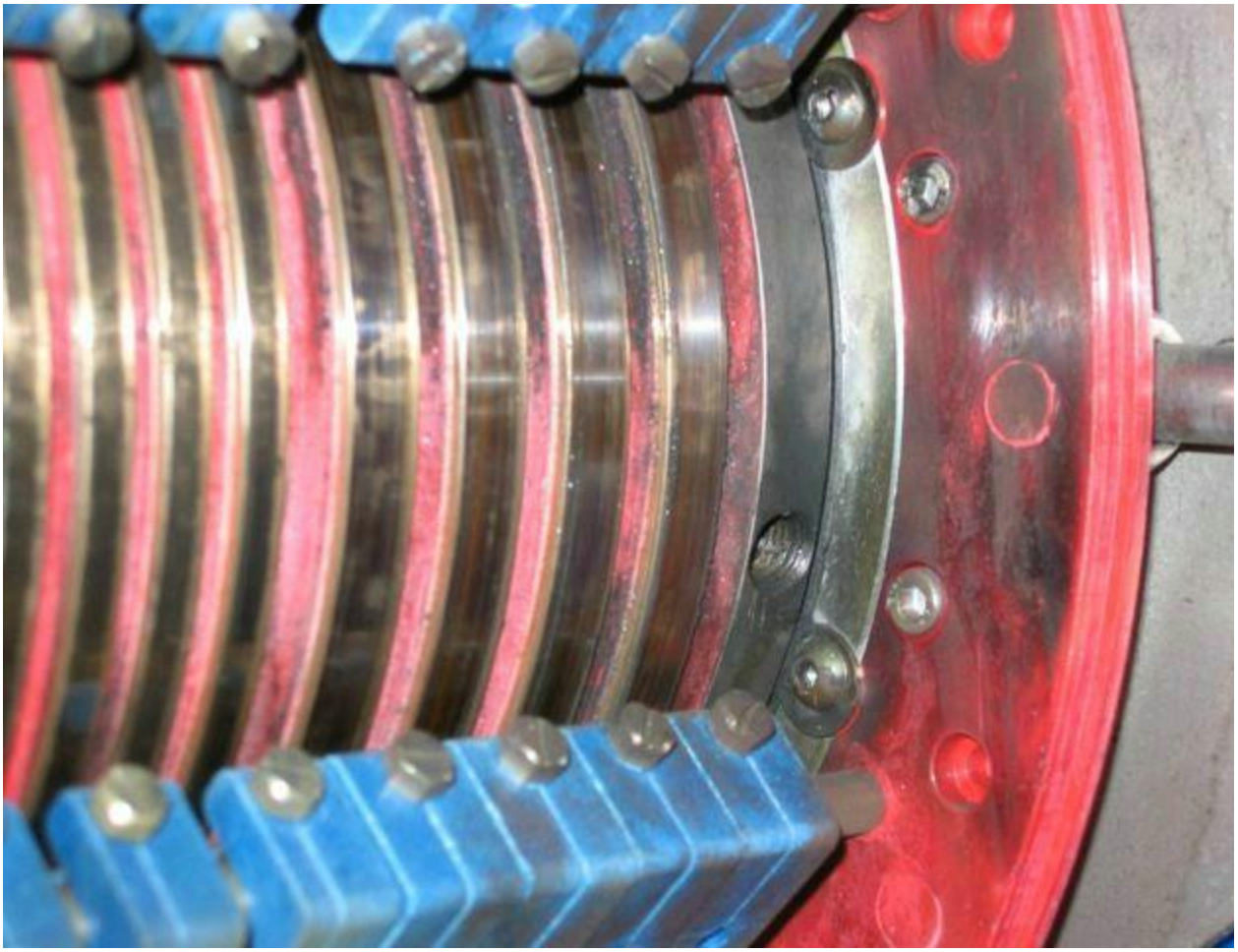
1] Yes
2] No
3] I don't know

- Explanation

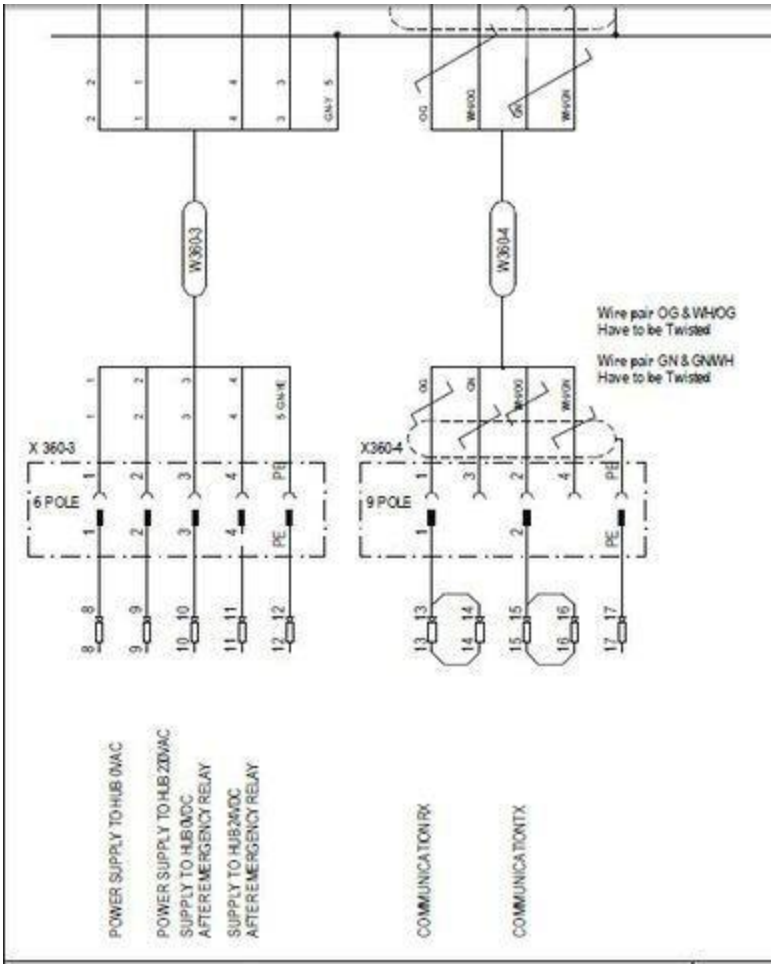
In most instances, a bad connection at the slip ring causes this alarm. Investigate the slip ring for damage, dust or oil contamination. Use document "0001-4933 - Cleaning Procedure for Slipring Unit" as a guideline.



Dust buildup and contamination on spring.



Pay particularly close attention to brushes on rings for 230VAC supply to hub and hub communications:



Relevant documentation	
Description	**DMS No.**
Cleaning Procedure for Slipring Unit V82	0001-4933

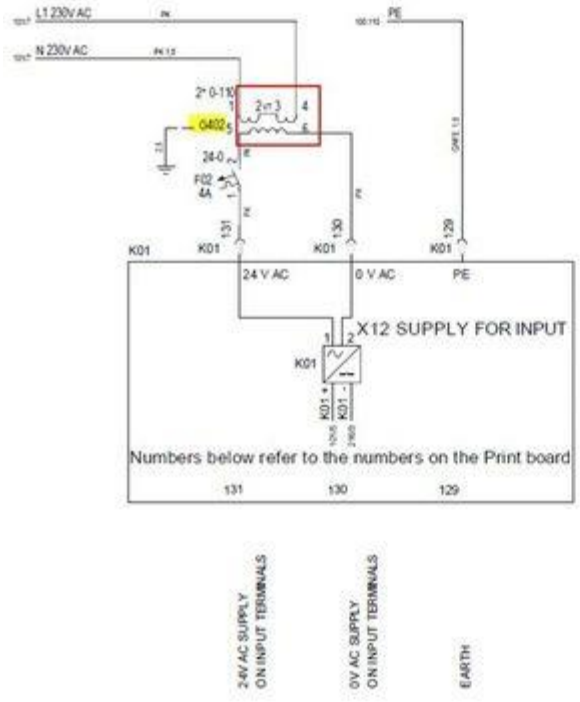
Check Supply Voltage and Replace the defective Power Supply / Transformer

Does this solve the problem?

1] Yes
2] No
3] I don't know

- Explanation

Measure the input and output voltage of Power Supply Transformer (G402) and replace the Transformer, if output voltage of 24V AC is 0V.



Property of Vestas Wind Systems A/S. This drawing must not be passed on to any person, nor be copied or other wise made use		Date	Initials	Function: Power supply for Input X12
	Designed	050120	CHO	Project title: Hub Computer Panel +AK4
	Approved	081217	PRO	Comments: V82-1.65MW

Relevant spare parts	
Description	**Item No.**
TRAFO 2x110/24VAC 70VA	60006942

445 - Hub computer com fault - V82

Trace supply and communication cables between AN1 and AK4

Does this solve the problem?

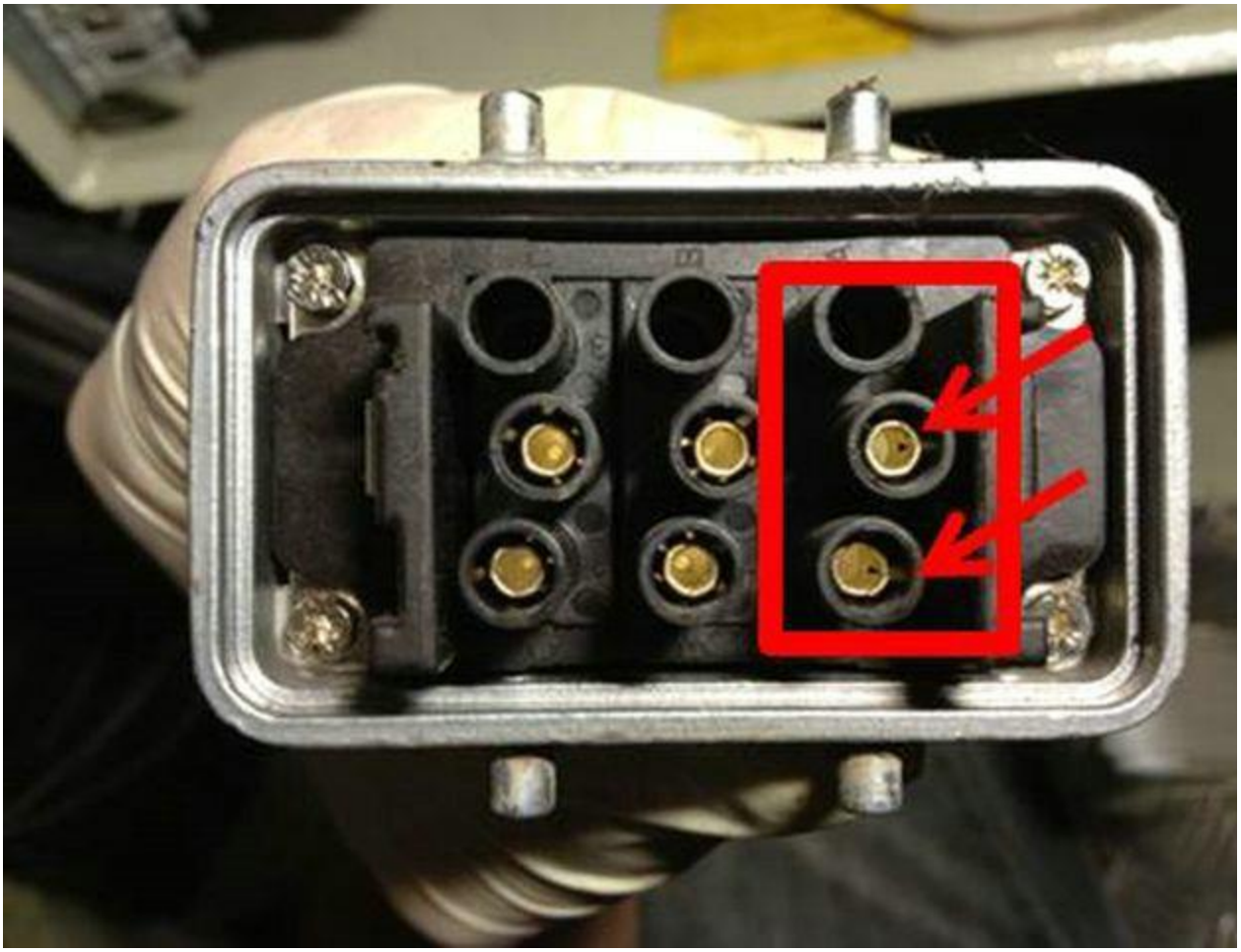
1] Yes
2] No
3] I don't know

- Explanation

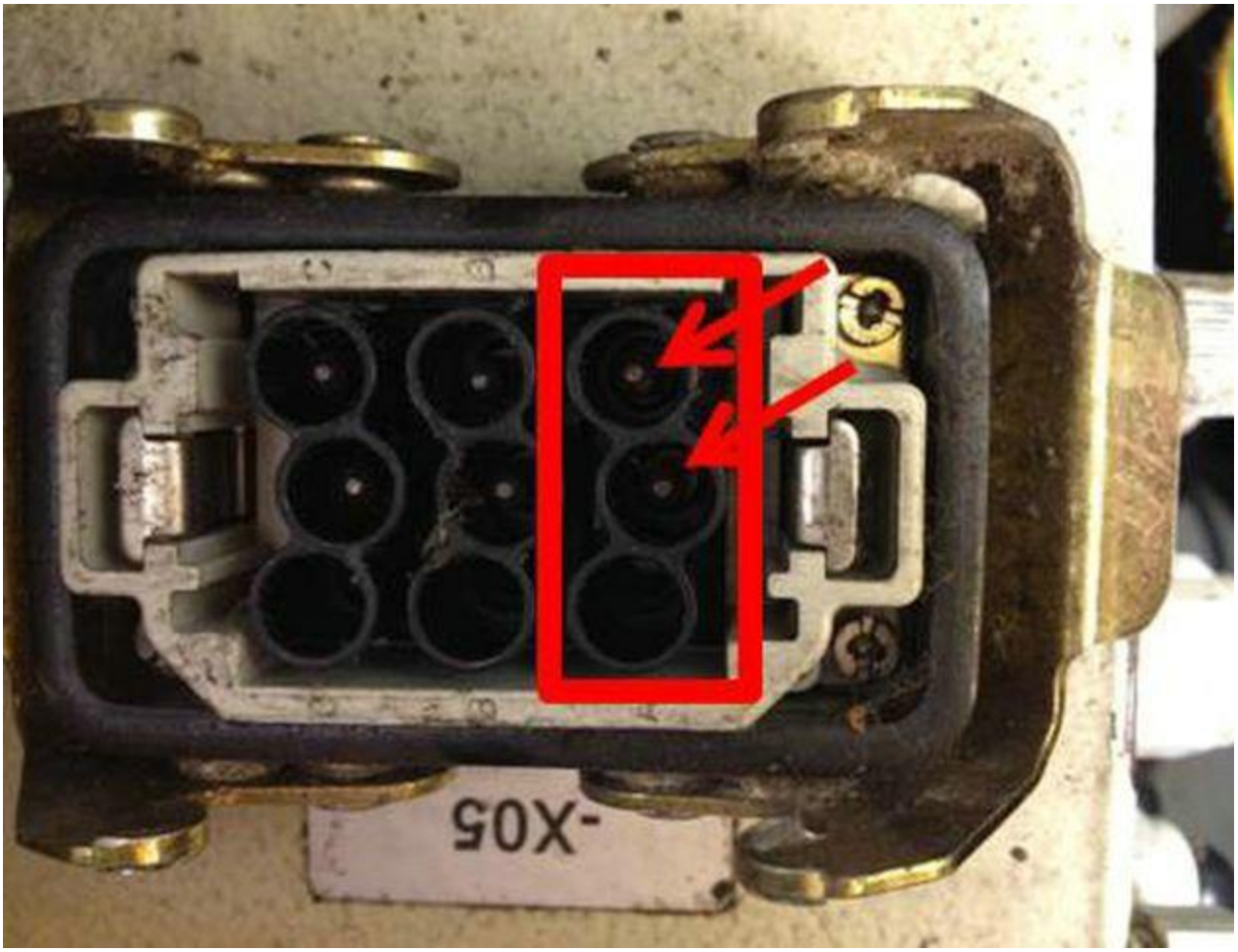
Check the condition of Plugs x05 (supply) and X03 (communication) on the AK4 panel in the hub.

-X05 Amphenol plug (230VAC supply to the hub):

-X05 plug female pins:
Look for corrosion or broken pins on module A pins 1&2.



-X05 Male pins:
Look for corrosion or broken pins on module A pins 1&2.



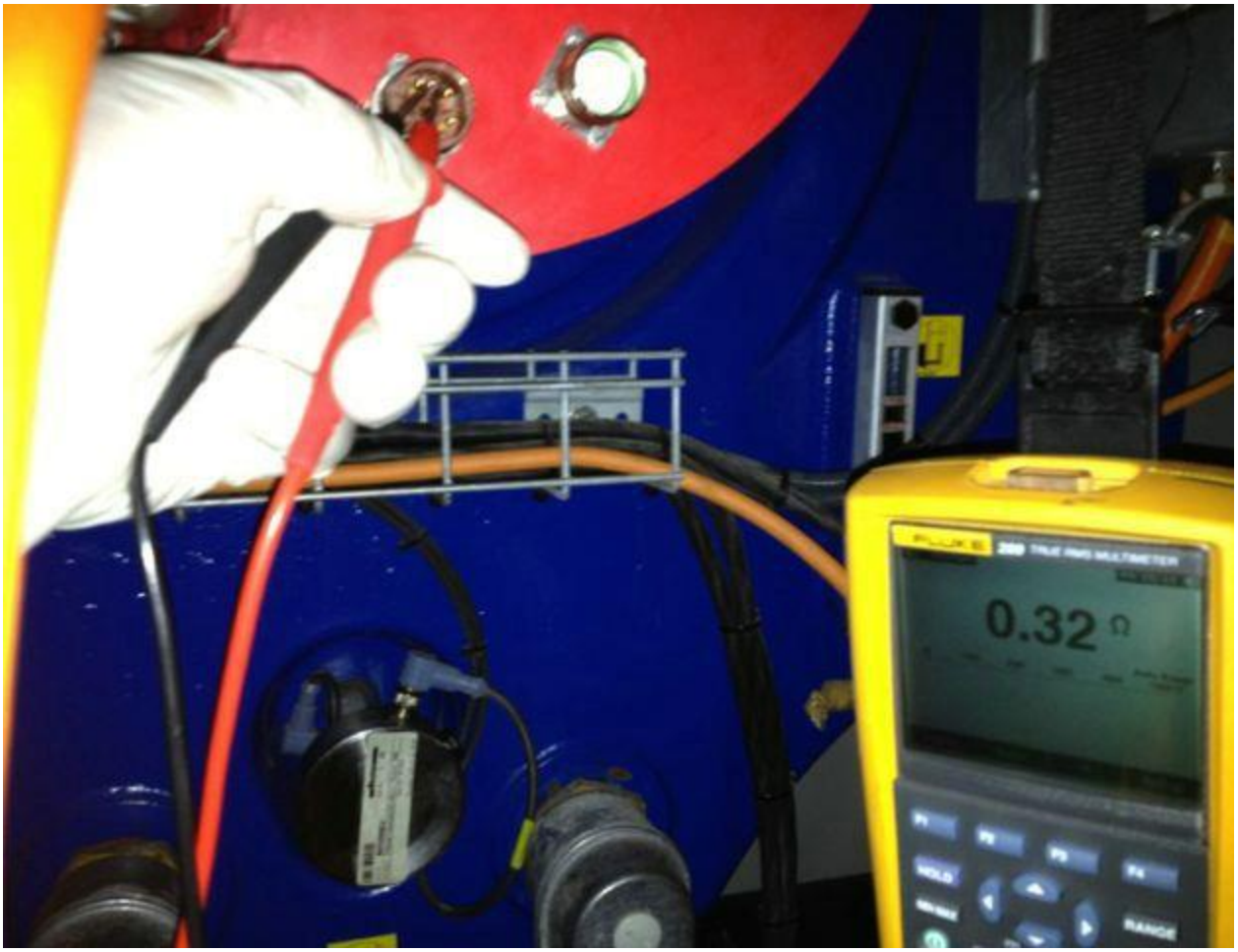
230VAC supplycable from slip ring –W980:
Check the condition of the –W980 cable in the hub. Look for cracks or wear on the cable.

Perform a continuity check on the –W980 cable:
WARNING: Ensure that proper LOTO procedures have been followed and no voltage is present on the 230VAC circuit before testing the cable.
Place a jumper between Pins 1 & 2 in module A of the Amphenol plug on the –W980 cable.

In the Nacelle, remove the –X360-3 plug from the slip ring.

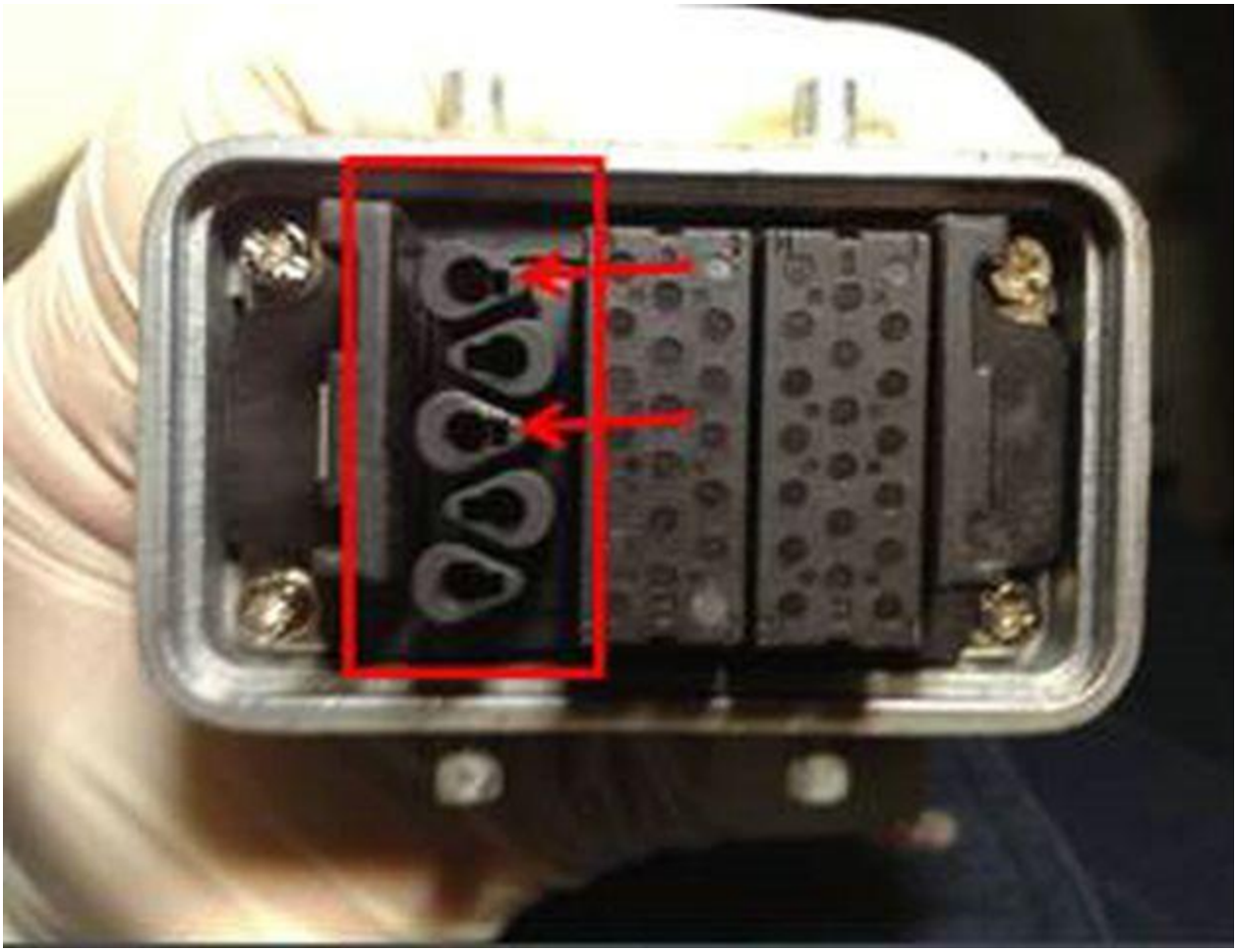
With a multimeter set to read Ω, measure between pins 1 & 2.

With the jumper in the hub, there should be a very low resistance value read by the meter.

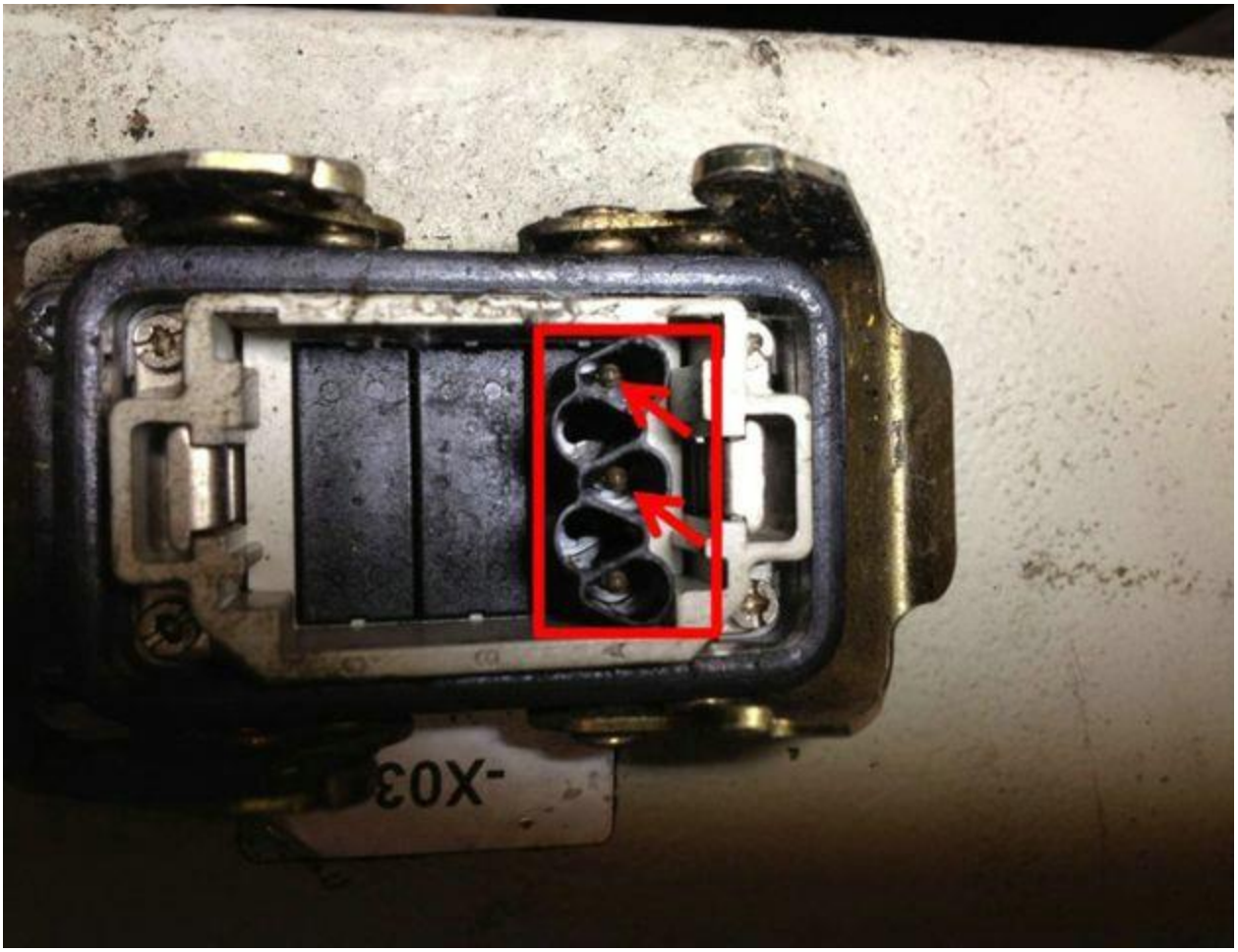


-X03 Amphenol plug (communication):

-X03 plug female pins:
Look for corrosion or broken pins on module A pins 1&3.



-X03 Male pins:
Look for corrosion or broken pins on module A pins 1&3.

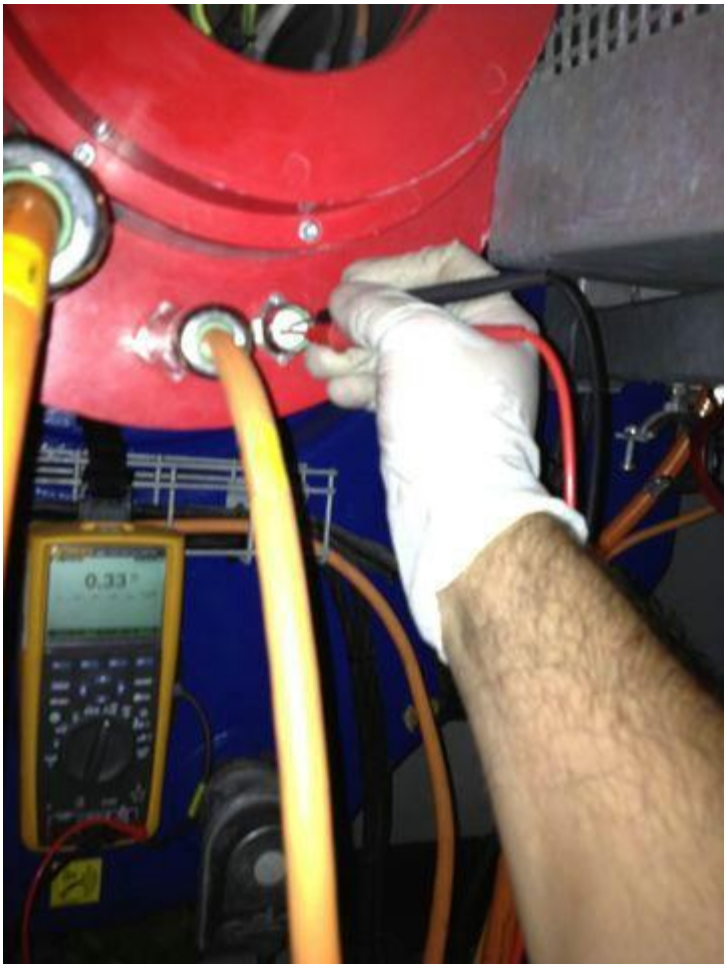


Communication cable from slip ring –W990:
Check the condition of the –W990 cable in the hub. Look for cracks or wear on the cable.

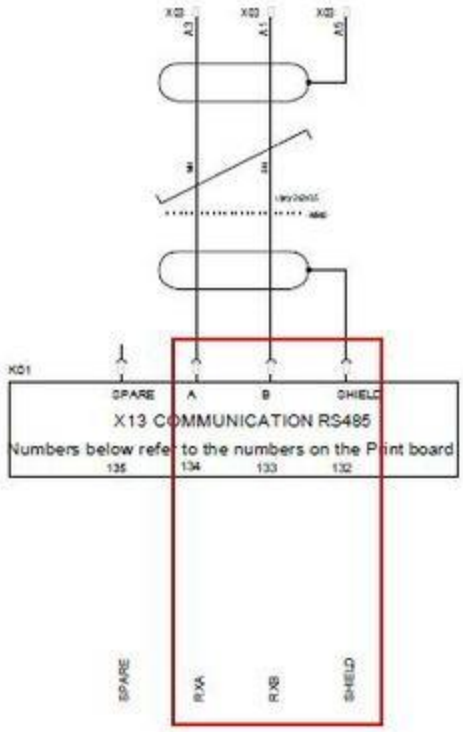
Perform a continuity check on the –W990 cable:
Place a jumper between Pins 1 & 3 in module A of the Amphenol plug on the –W990 cable.

In the Nacelle, remove the –X360-4 plug from the slip ring.
With a multimeter set to read Ω, measure between pins 1 & 2.
With the jumper in the hub, there should be a very low resistance value read by the meter.

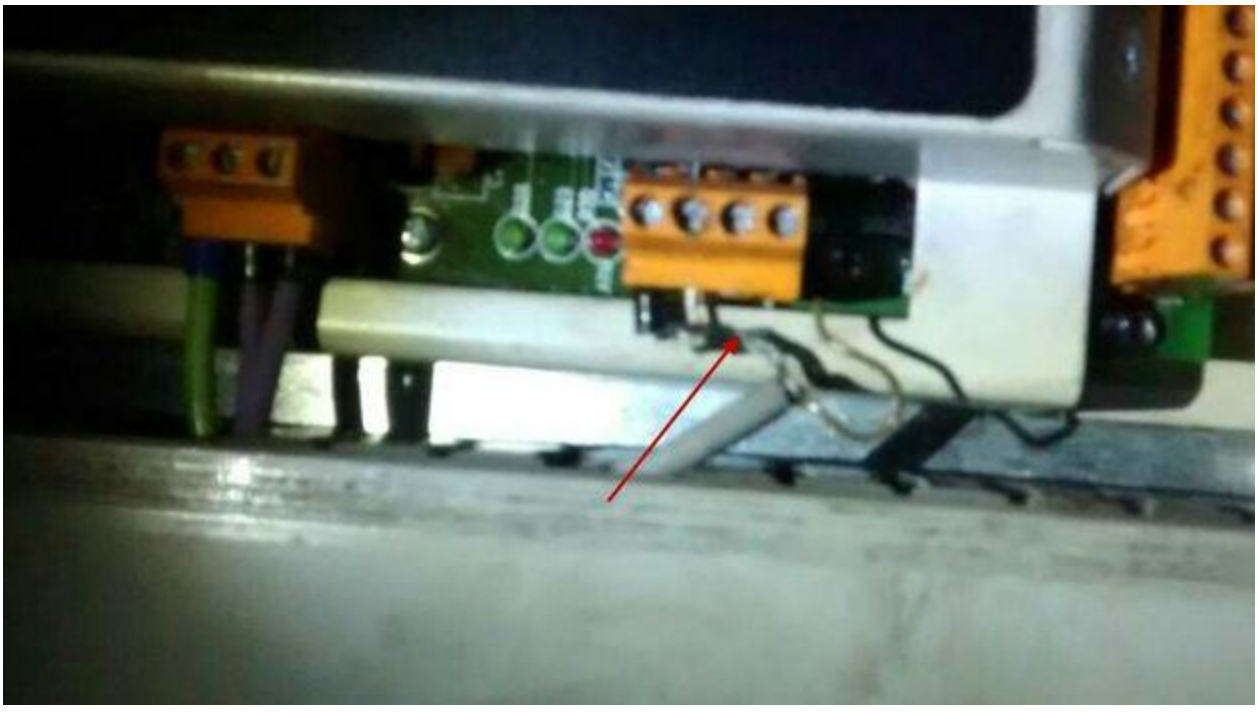
Perform continuity checks on the -W360-3 & -W360-4 cables between the slip ring and AN1 cabinet. Replace faulty cables if found.



Check the cable connection in X13 connector at Hub Computer end and re-terminate, if found loose/cut.



Property of Vestas Wind Systems A/S. This drawing must not be passed on to any person, nor be copied or other wise made use		Date	Initials	Function	Bus communication RS 485
	Designed	020628	KSS	Project title	Hub Computer Panel +AK4
	Approved			Comments	V82 MRK II & NM72/82 EVO II v.1
				Customer	Vestas Wind S



Relevant spare parts	
Description	**Item No.**
CABLE W980 IEC Supply	60021557
CABLE W990 COM CABLE	60021559

445 - Hub computer com fault - V82

Replace the defective pow er net

Does this solve the problem?

1] Yes
2] No
3] I don't know

- Explanation

IN THE HUB:

Check any loose connection and damage in the varistor fixed on G401 and replace if required

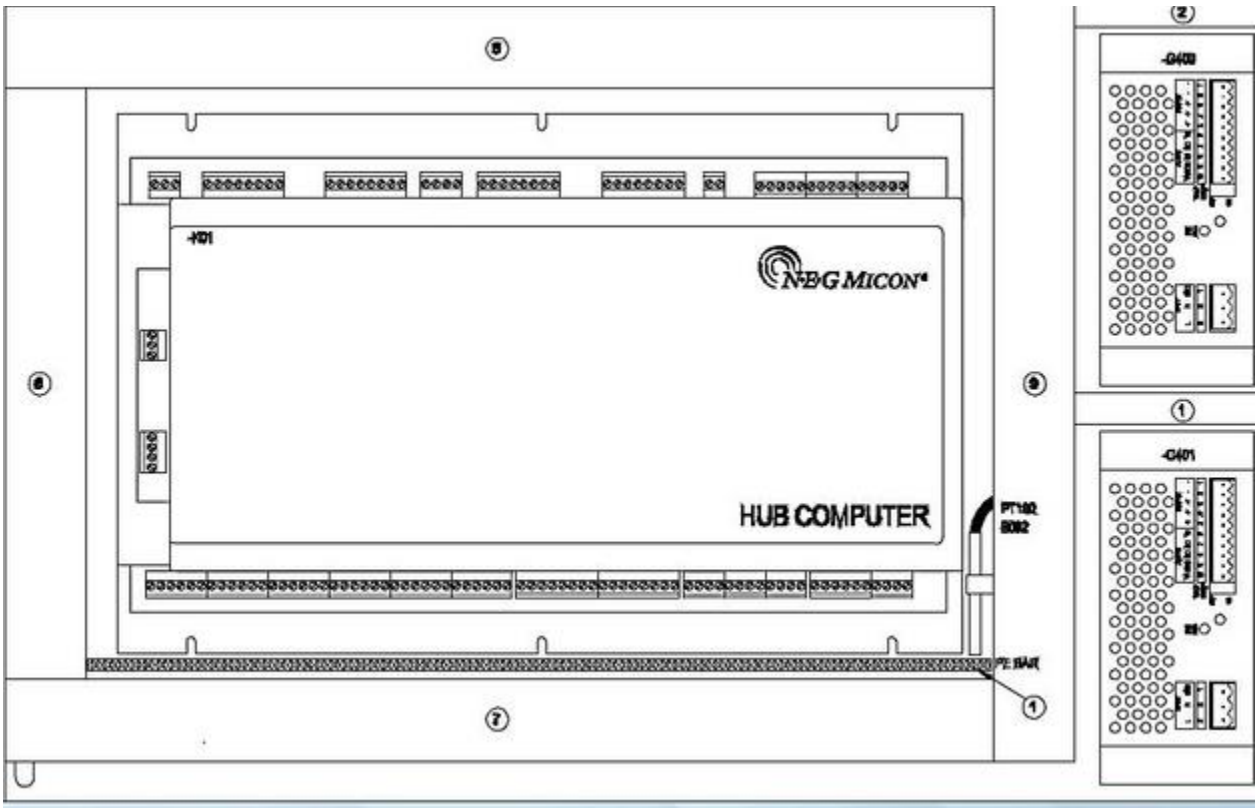
Check for the surge protector upgrade in Power Net as per Doc **0013-3681** or **0033-3872.**

Relevant Documentation	
Description	**DMS No.**
Test Proj Adnl Elec Prot V82	0013-3681
Test Proj Add Elec Prot V82	0033-3872

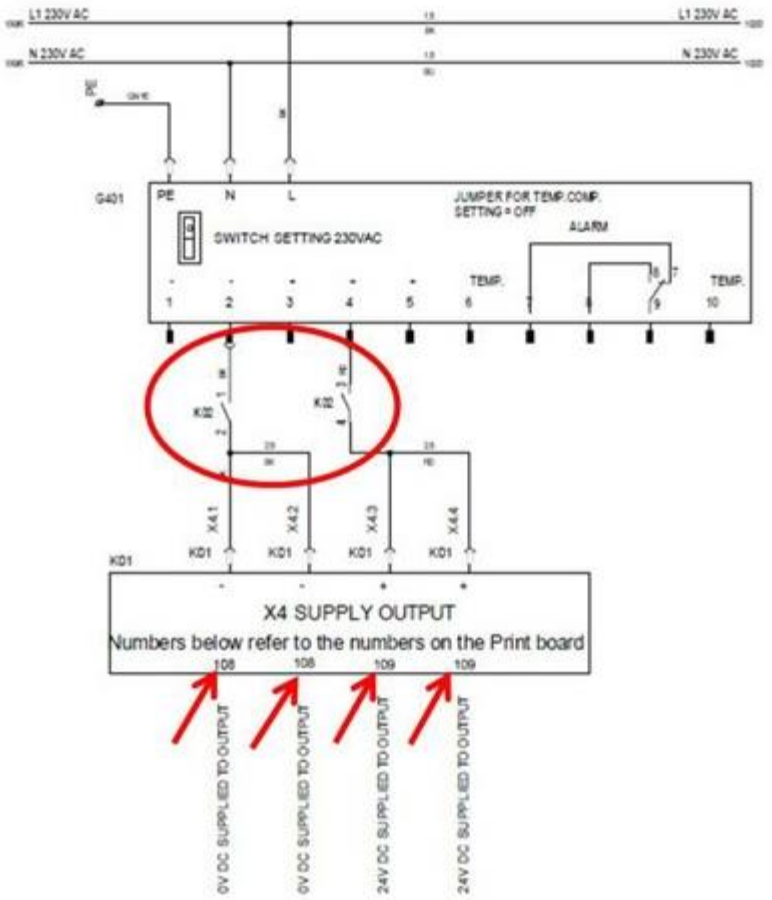
Check for any loose connections at the power net (Pos: G401)
Check the input and output voltage 230/115VAC => 24VDC
Replace the power net if it is defective.

Power supply G401 supplies the shutdown and parking valves (215 & 210) for each of the three blades and is the most common cause for this fault.

Test the output voltage to the valves at the power supply for 24VDC. If the voltage is good, test down the circuit until reaching the valves (failing valve solenoids or shorts in the circuit/plug/cables can drag down the voltage and cause this alarm).


HUB COMPUTER


POWERNET
INPUT
OUTPUT


L1 230V AC
N 230V AC
G401
PE
N
L
JUMPER FOR TEMP.COMP.
SETTING = OFF
SWITCH SETTING 230VAC
ALARM
TEMP.
TEMP.
1
2
3
4
5
6
7
8
9
10
K01
X4.1
X4.2
X4.3
X4.4
KD1
X4 SUPPLY OUTPUT
Numbers below refer to the numbers on the Print board
108
108
109
109
0V DC SUPPLIED TO OUTPUT
0V DC SUPPLIED TO OUTPUT
24V DC SUPPLIED TO OUTPUT
24V DC SUPPLIED TO OUTPUT

Relevant spare parts	
Description	**Item No.**
PS ADC 5483R-3 10A-27,4 NM PIN **(New type)**	188453
VDR SIOV-S20K275 275V **(Old type)**	60000613

Relevant CIM case	
CIM case	**Information from CIM case**
1390	Item no 60000719 at local stocks must be scraped and replaced with 188453