Perform the blade position calibration

Does this solve the problem?

1] Yes

2] No

3] I don't know

- **Explanation**
  IN THE Nacelle:

  Do the blade calibration. Original calibration may be altered during any components replacement. Like position sensors (Balluf), cables, proportional valves and hub computer.

  DMS: 0000-9925 section 5.10.9 Blade Position Calibration during manual pitching in the Nacelle Mode.

Relevant Documentation	
Description	**Doc no**
Commissioning Instruction, V82- 1.65 MW	0000-9925
Blade Pitch System Test for EVO-1 and EVO-2 Hubs	0002-0467

Check & Replace the defective power net

Does this solve the problem?

1] Yes

2] No

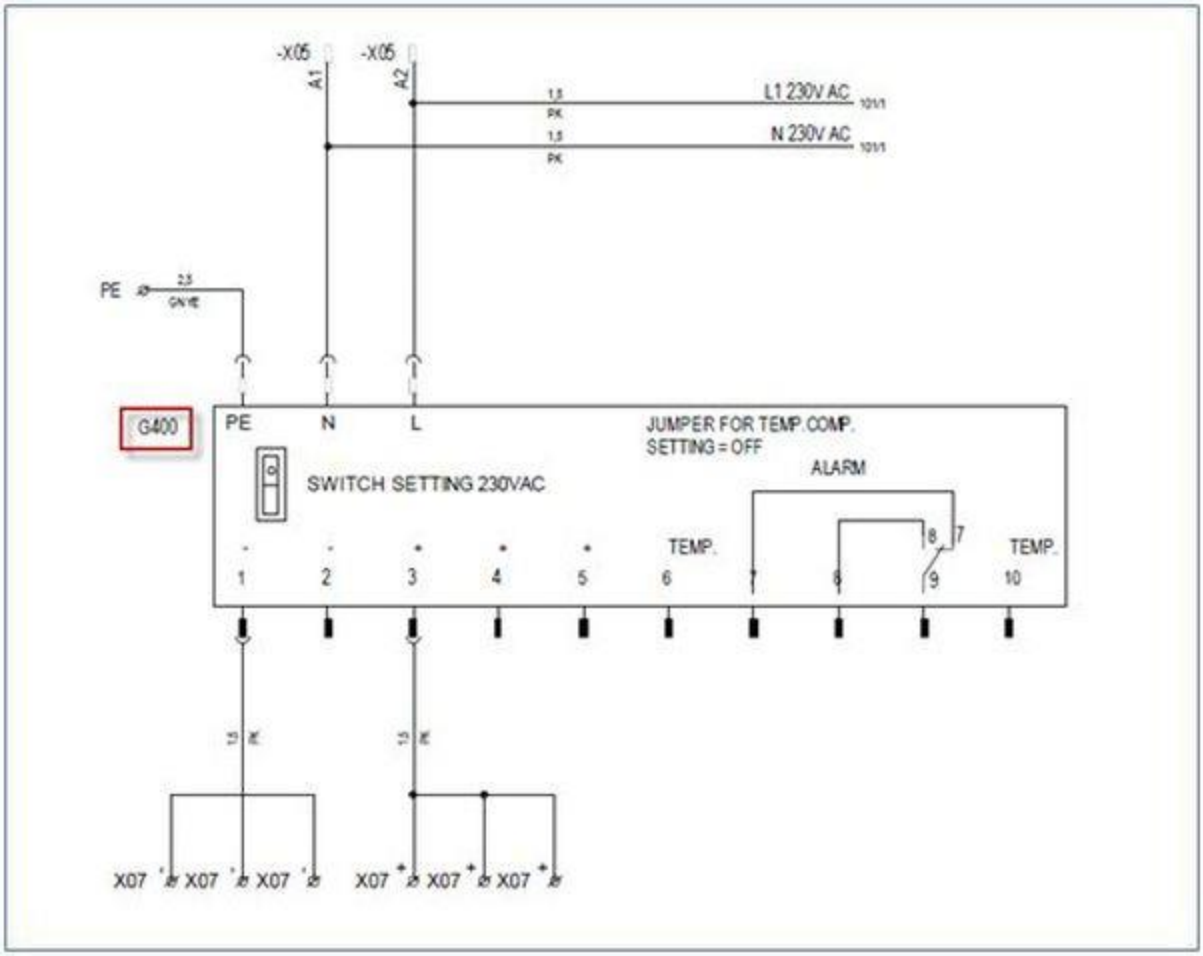
3] I don't know

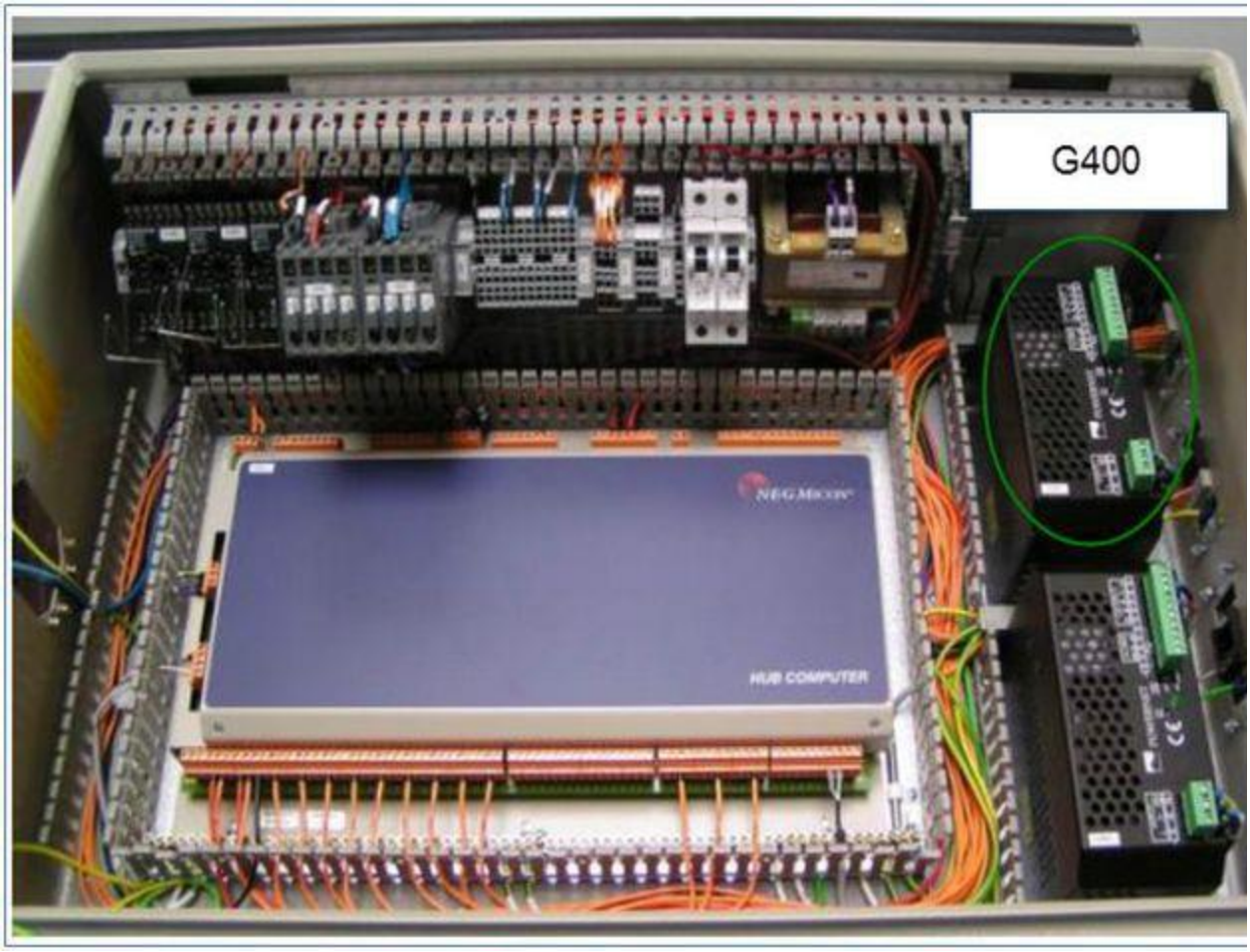
- **Explanation**
  IN THE HUB:

  Check for any loose connections at the power net (Pos: G400)

  Check the input and output voltage 230/115VAC => 24VDC

  Replace the power net if it is defective.


-X05
A1
-X05
A2
L1 230V AC
N 230V AC
PE
G400
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
X07
X07
X07
X07
X07
X07



Relevant Spare parts	
Description	**Item no.**
PS ADC 5483R-3 10A-27,4 NM PIN	188453

CIM Case	
CIM	**Description**

1390	Controller - NM82/72 - 1650kW - Power Supply - Poor performance

Check and Replace the defective Pressure Transmitter

Does this solve the problem?

1] Yes

2] No

3] I don't know

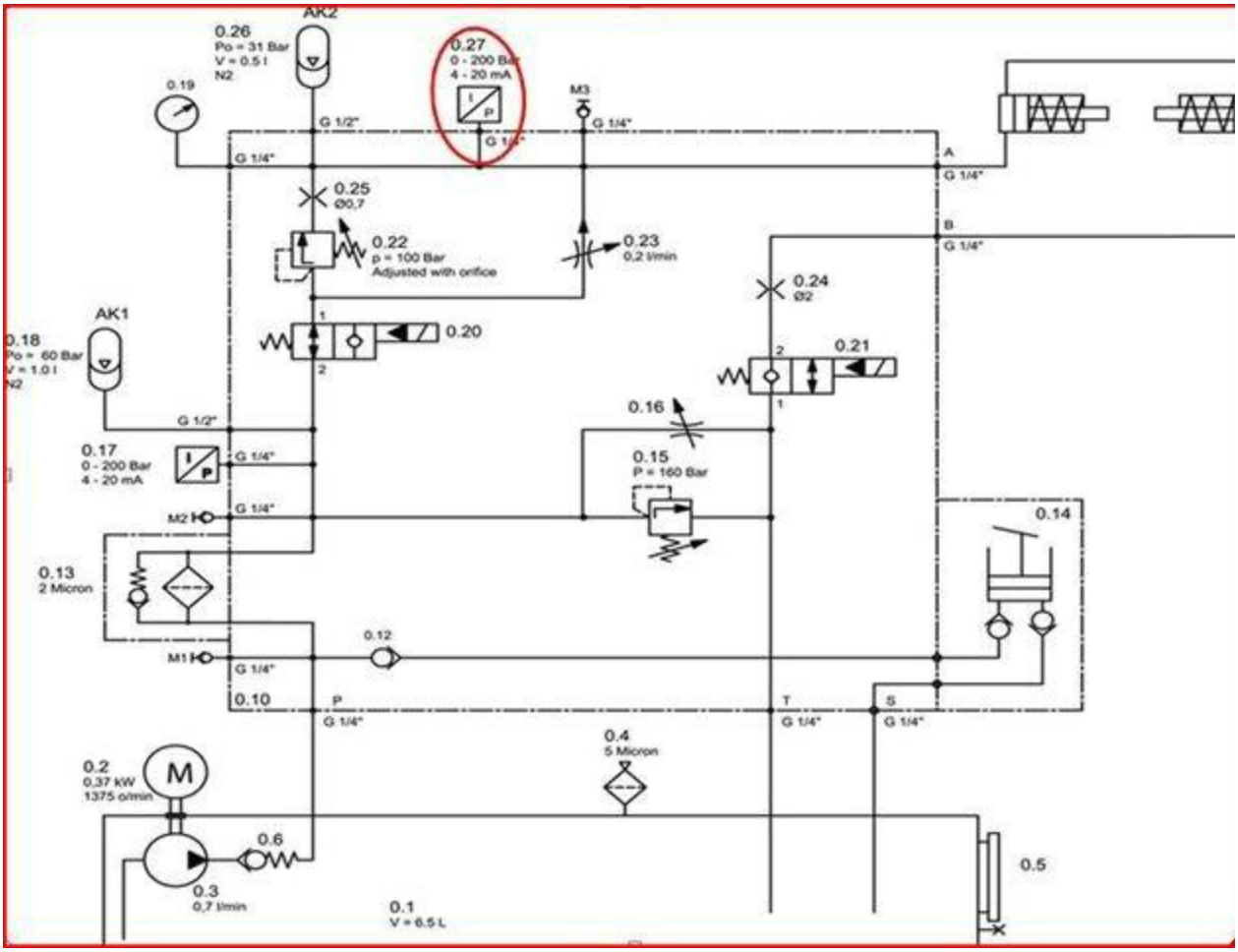
- **Explanation**

IN THE NACELLE:

Check the pressure value through the TAC -II controller,

Status→ Pressure→ Pressure shaft brake.

If the displayed pressure shows as a negative value, the pressure transmitter is may be defective and has to be replaced


AK2
0.26
Po = 31 Bar
V = 0.5 l
N2
0.19
0.27
0 - 200 Bar
4 - 20 mA
M3
G 1/2"
G 1/4"
A
B
0.25
Ø0,7
0.22
p = 100 Bar
Adjusted with orifice
0.23
0,2 l/min
0.24
Ø2
AK1
0.18
Po = 60 Bar
V = 1.0 l
N2
0.20
0.21
0.16
0.17
0 - 200 Bar
4 - 20 mA
0.15
P = 160 Bar
M2
0.14
0.13
2 Micron
0.12
M1
0.10
P
T
S
0.4
5 Micron
0.2
0,37 kW
1375 o/min
M
0.6
0.5
0.3
0,7 l/min
0.1
V = 6.5 L

Relevant spare parts	
Description	**Item No.**
PR TRANSDUCER SCP-200-34-06	60104065

Upload software – TAC II

Does this solve the problem?

1] Yes

2] No

3] I don't know

- **Explanation**

After trying unsuccessfully all possible solutions in this guide, problem was solved by uploading the SW (same version) again to the TAC II controller.

Follow step 1 in VGA guide - How to troubleshoot TAC 2 - V82.

Replace the defect hub computer

Does this solve the problem?

1] Yes

2] No

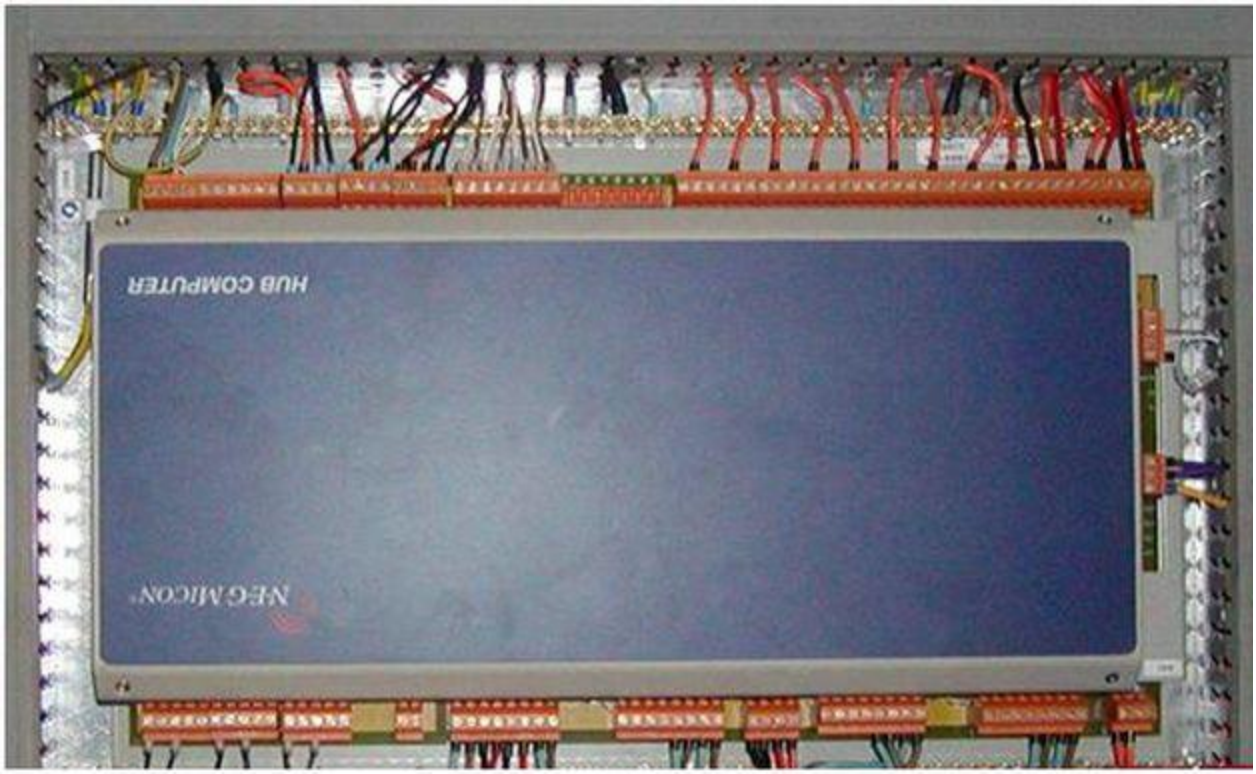
3] I don't know

- **Explanation**
  IN THE HUB:

  After the blade calibration still any pitch angles deviates, Hub computer may defect.

Relevant Spare parts	
Description	**Item no.**
SIF HUB COMPUTER CABINET EVOII	51701801

CIM Case		
CIM	**Description**	**Task list**
1594	Controller - NM82/72 - 1650kW - Power Supply - Poor performance	12511



Replace the defect pitch position sensor

Does this solve the problem?

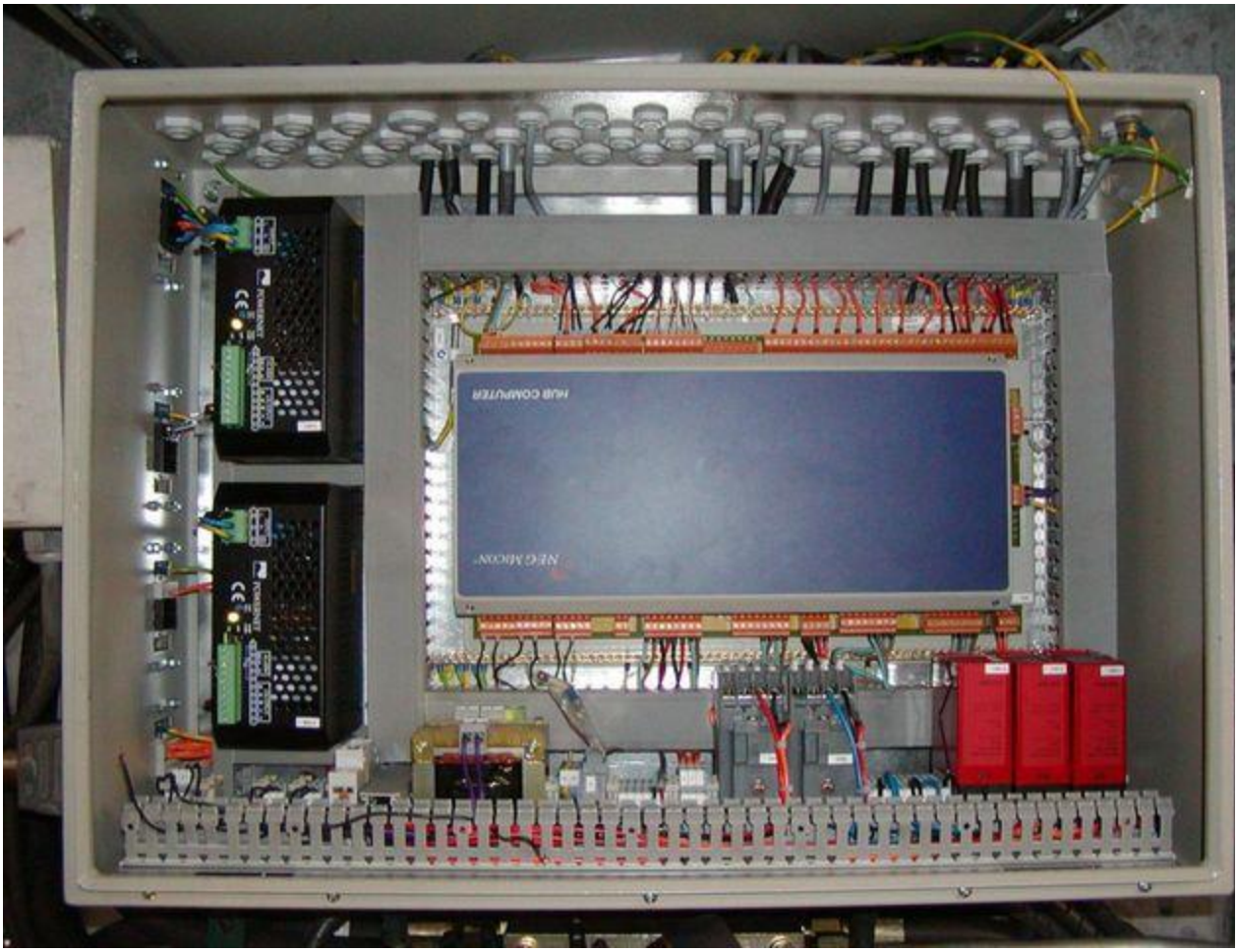
1] Yes

2] No

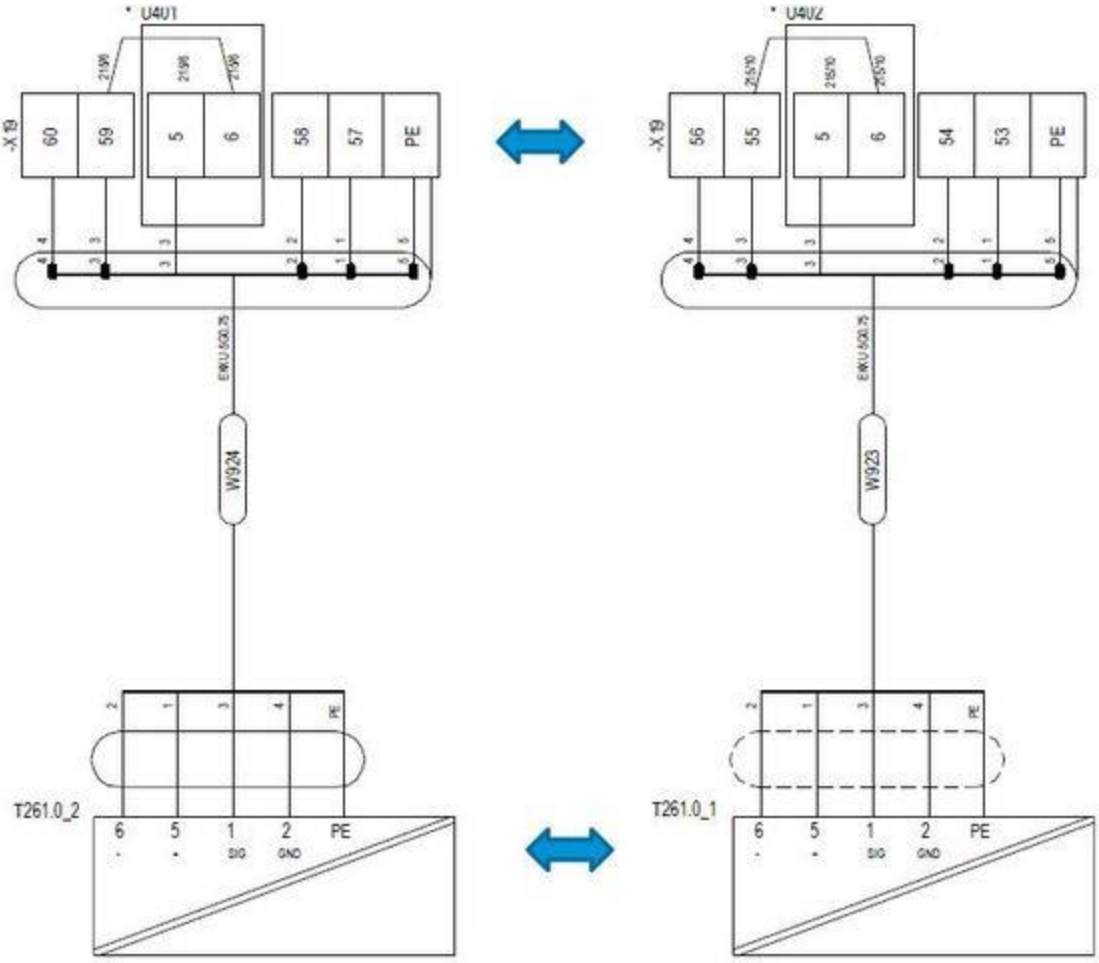
3] I don't know

- **Explanation**

  First swap the signal wire to the position transducer (Balluff) on the hub computer. If the fault follows to the new blade then the fault is either in the position transducer or one of the cables.



In the example below, we are swapping the plugs between blades B and A.



Place the cables back to their original position and then swap pitch position sensor from affected blade to another working blade.

If the alarm follows the valve to the other blade, the pitch position sensor is defective.

If it does not, the pitch position sensor is likely not the cause.

Pitch position sensor Item number :

Relevant Spareparts

Description	Item no.
TRANSDUCER BTL5-E10-M0950-A-S	60098816

Service Module Item Number:

Relevant Spare parts	
Description	**Item no.**
SERVICEMODUL, BTL5 - E10	60102394

Pitch position sensor cable Item Number:

Relevant Spare parts	
Description	**Item no.**

Cable W 923 T261-1Pos.transducer1 Std	60101018
Cable W 924 T261-1Pos.transducer 2 Std	60101148
Cable W 925 T261-1Pos.transducer 3 Std	60101149

Replace the defect proportional valve

Does this solve the problem?

1] Yes

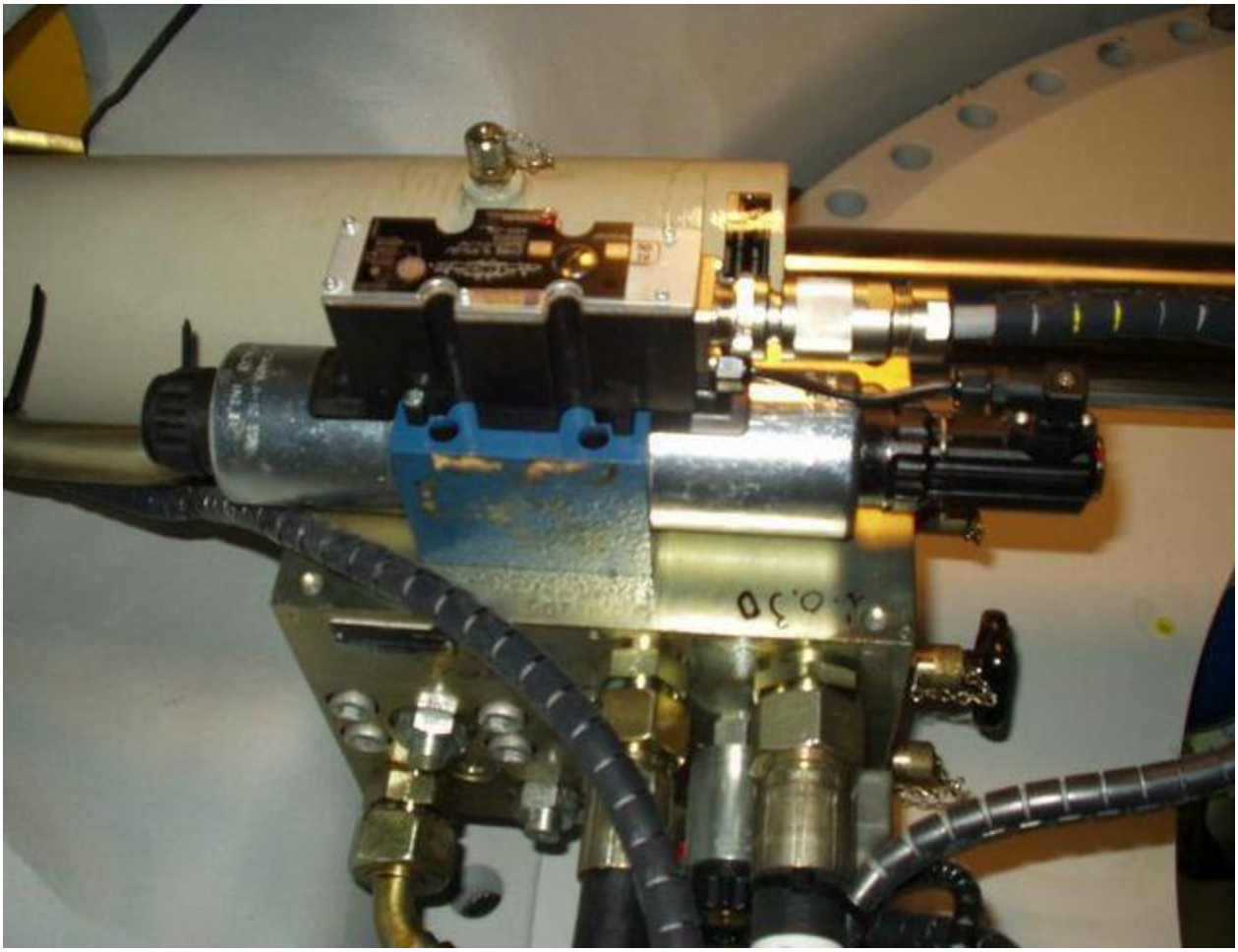
2] No

3] I don't know

- **Explanation**

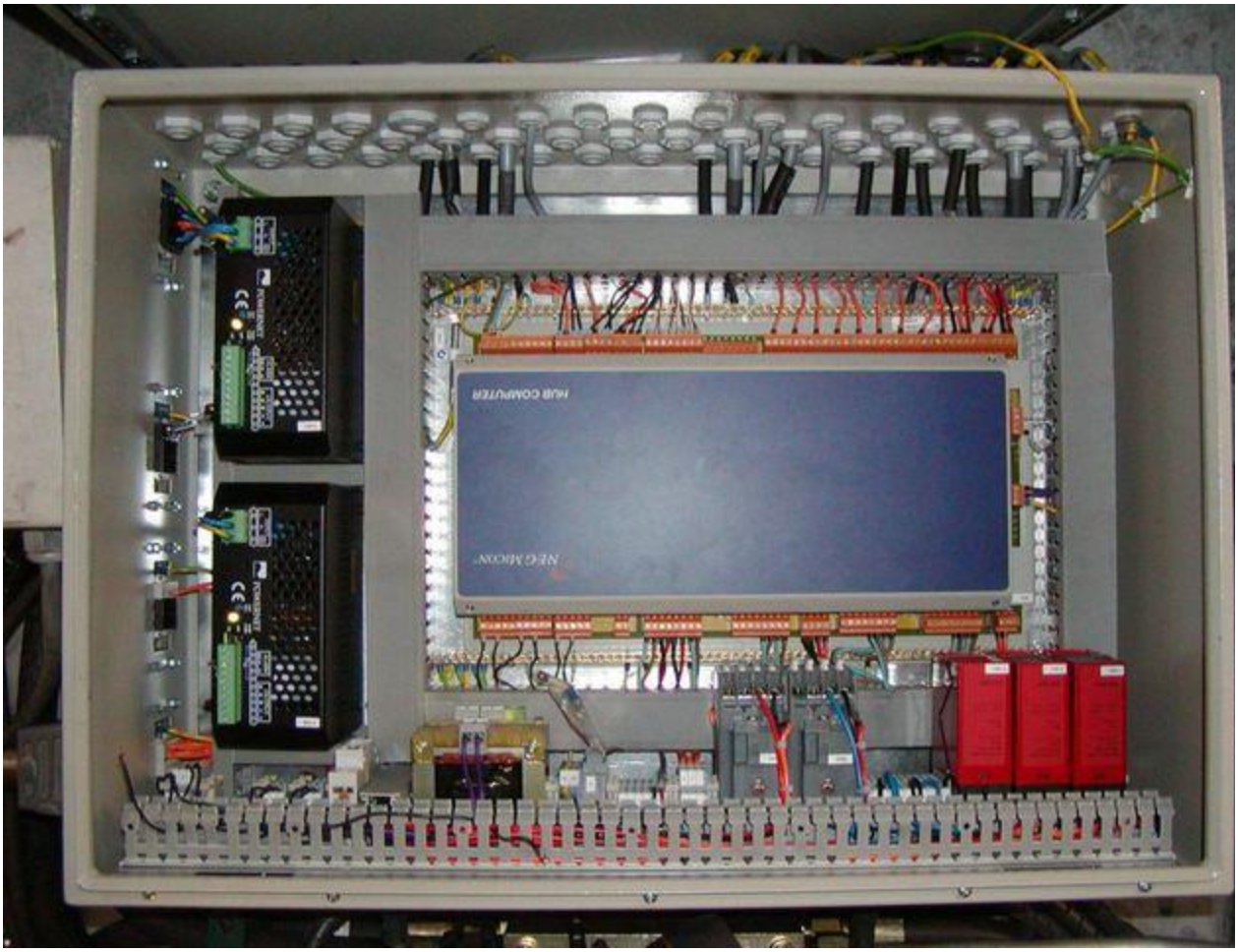
  Replace proportional if defect.

Relevant Documentation	
Description	**Doc no**
Pitch Manifold Proportional Valve Replacement	0016-1690

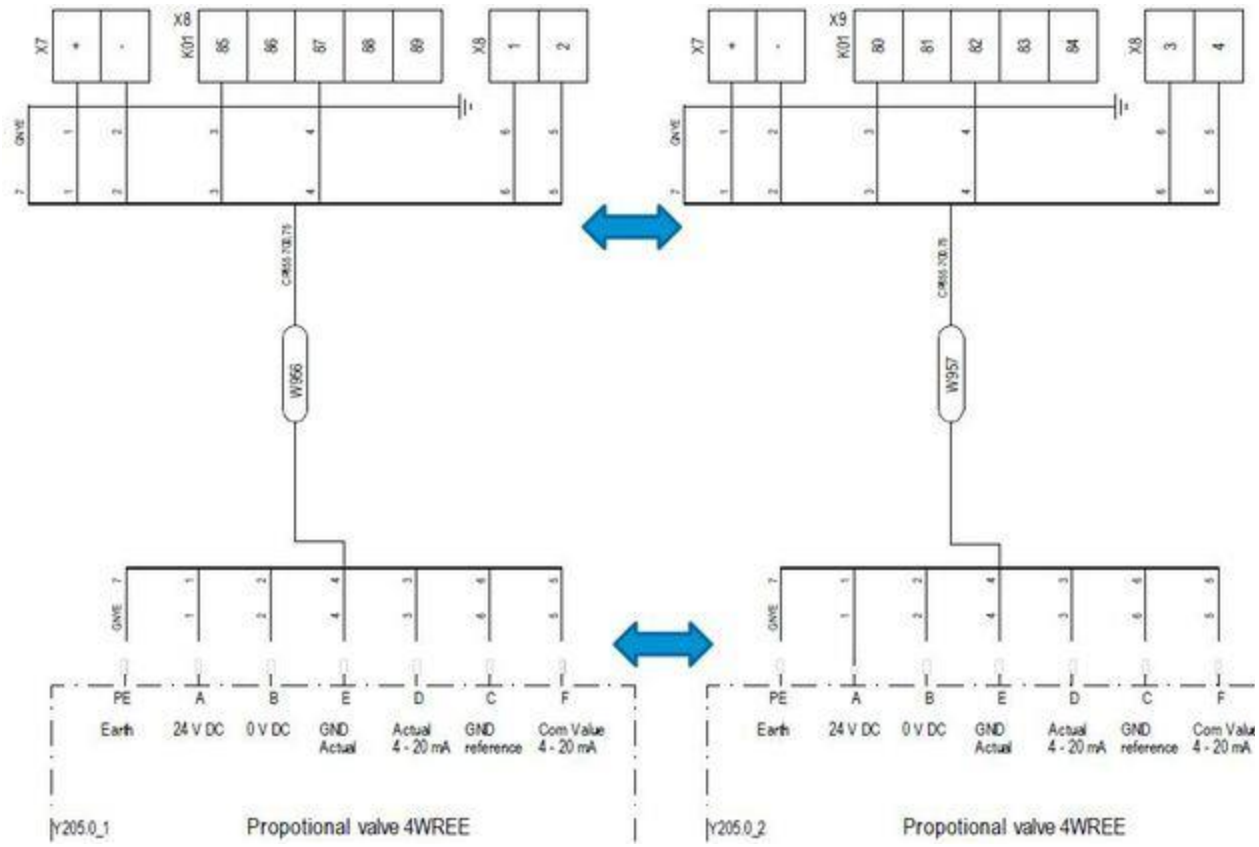


First swap the signal wire to the proportional valve on the hub computer.

If the fault follows to the new blade then the fault is either in the proportional valve or one of the cables.



In the example below, we are swapping the plugs between blades A and B.



Place the cables back to their original position and then swap proportional valve from affected blade to another working blade.

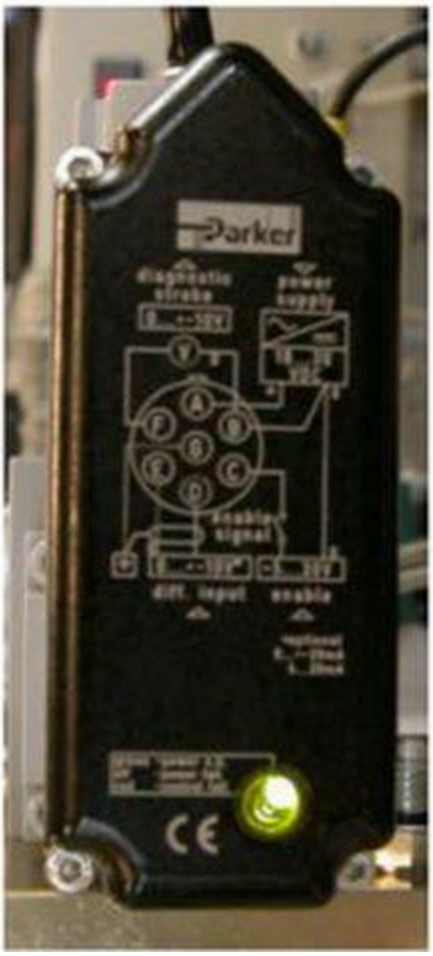
If the alarm follows the valve to the other blade, the proportional valve is defective.

If it does not, the proportional valve is likely not the cause.

For Parker proportional valves check to see the color of the LED on the valve circuit board.

The LED should be green with the pitch system pressurized.

If it is red and there is pressure verified on test port MP, then the valve may also be defective.



Display Color	Indicates
Green	Normal operation
Off	Supply voltage outside permissible range of 18 to 30 VDC
Red	Spool position error / Low pilot pressure

Proportional Valve Item numbers:

Relevant Spare parts	
Description	**Item no.**
PROP. VALVE D31FHE01C -Parker	60112621
PROP VAL 4WREE 10R75-2X/G24K31 -B/R	60078979

Proportional valve Cable Item Numbers:

Relevant Spare parts	
Description	**Item no.**
Cable W 956 Proportional valve Y0205.0-1	60021544
Cable W 957 Proportional valve Y0205.0-2	60021545
Cable W 958 Proportional valve Y0205.0-3	60021546