

Gearbox Inspection Report

1. Data overview

General Data

Contractor company:	MDE-RVI
Contact person:	Gerwin Sip
Endoscope manufacturer & type:	Waygate Mentor Flex 4mm probe
Approver:	Michel van Beek
Inspector:	Gerwin Sip
Inspection date (dd.mm.yyyy):	07.01.2026
Reason for endoscopy:	CMS event report

Turbine Data & GBX

Wind farm:	
WTG serial number:	
Turbine generation:	
WTG type:	
Hours in operation (h):	119365h
Production (MWh):	91578MWh
Gearbox manufacturer:	Bosch
Gearbox S/N:	7930000002263
Gearbox type:	GPV510D
Gearbox commissioning date:	01.01.2012
GBX template to use:	Bosch_GPV_510_GPV_535

Oil Condition

Oil type:	Mobilgear XMP 320
Last oil change:	12-9-2025
Oil level:	Ok
Oil leakages:	No leakage
GBX housing condition:	Ok
GBX inside condition:	Ok
Oil filter condition:	Not inspected
GBX oil condition:	Not inspected

Gearbox commission: 3-3-2022

Page: 2 of 21
Report written: 10-1-2026

2. Gearbox Drawing - EH0945_6X

	(blank)
Component	
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2. Gearbox Drawing - EH0945_6X

Recommendation on the operational condition:

Regular inspections required

Number of inspected components:

44 of 47

Expert Assessment

This report presents the results of the visual inspection performed on the main gearbox of turbine located [REDACTED] the Netherlands. MDE-RVI was invited by [REDACTED] to carry out the above-mentioned activity to assess the condition of the gearbox.

Where possible, all gear flanks and bearings inside the gearbox were inspected. However, it was not possible to inspect all flanks of the ring gears, planetary wheels, and sun pinions. Several bearings were not accessible for inspection.

The observed wear in the form of (micro-)pitting at bearing PB B.1G (Planet Bearing B1, generator side) is considered to be progressive in nature. Progressive micropitting indicates a reduction in remaining useful life and negatively affects the reliability of the gearbox. If left unmitigated, micropitting may eventually develop into pitting and flaking.

Recommendations

It is recommended to perform a follow-up inspection within six months due to the observed wear inside the gearbox. In addition, the Condition Monitoring System (CMS) data should be closely monitored. If the monitored values increase, an earlier inspection than the planned six-month interval is recommended.

Furthermore, it is recommended to carry out an annual visual inspection of the main gearbox, combined with vibration measurements and oil analysis.

5. Examination Results

Wind Turbine Code



Photo of wind turbine serial number

Gearbox Nameplate



Photo of gearbox nameplate

Magnetic Dipstick



Photo of the magnetic dipstick

Oil Level Glass



Photo of oil level glass

NC2 Turbine data

Turbine Performance Report; 10/01/2025; 6 jan 2001 - 6 jan 2026; Updated 06.01.2026 08:32:37				Export
Description		Subtotal	Total	
Turbine				
From			10/01/2025	
To		06.01.2026	06.01.2026	
Availability of turbine Data		06.01.2026	06.01.2026	
Operation				
Released to operation		06.01.2026	06.01.2026	
Not Released to operation		06.01.2026	06.01.2026	
In operation		06.01.2026	06.01.2026	
Normal operation		06.01.2026	06.01.2026	
Other Power Mode		06.01.2026	06.01.2026	
Production				
Exported energy		06.01.2026	06.01.2026	
Reactive kVArh		06.01.2026	06.01.2026	
Average active power		06.01.2026	06.01.2026	
Reliability				
Availability		98.65 %	98.65 %	
Capacity factor		26.96 %	26.96 %	
Time within rated capacity limits		81.74 %	81.74 %	

6 - Photo Documentation

Foto No. 1



Component
1.1.1 RG A1 - Ring gear
Examination results
09 - Indentations
Defect category
Acceptable
Details, Comments
Indentation has been observed.

Foto No. 2



Component
1.1.2 PW A1.1 - Planetary wheel
Examination results
01 - Good condition
Defect category
Acceptable
Details, Comments
No excessive wear or damage has been observed.

Foto No. 3



Component
1.1.3 PW A1.2 - Planetary wheel
Examination results
01 - Good condition
Defect category
Acceptable
Details, Comments
No excessive wear or damage has been observed.

Foto No. 4



Component

1.1.4 PW A1.3 - Planetary wheel

Examination results

01 - Good condition

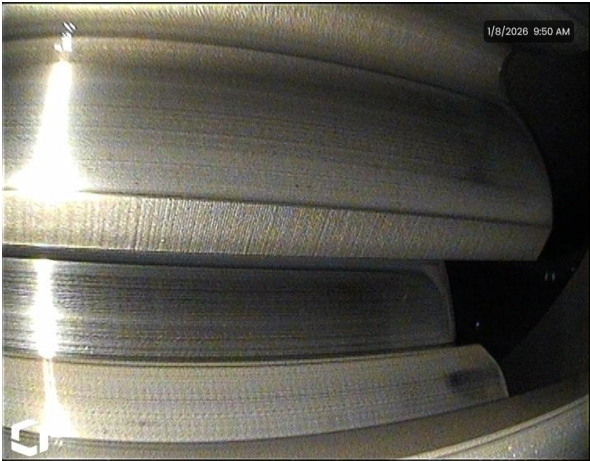
Defect category

Acceptable

Details, Comments

No excessive wear or damage has been observed.

Foto No. 5



Component

1.1.5 SU A1 - Sun pinion

Examination results

01 - Good condition

Defect category

Acceptable

Details, Comments

No excessive wear or damage has been observed.

Foto No. 6



Component

1.2.1 PC A1 R - Planet carrier bearing

Examination results

01 - Good condition

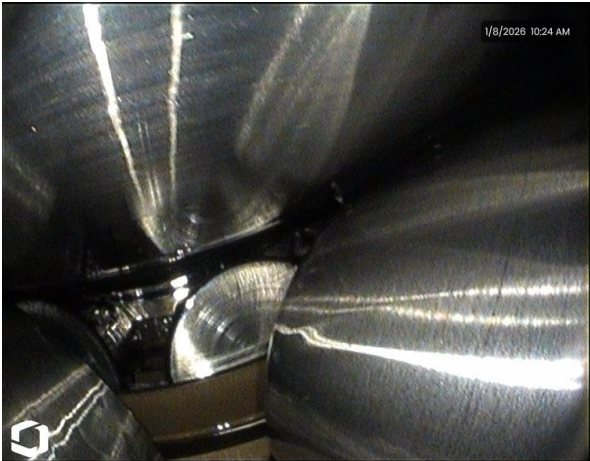
Defect category

Acceptable

Details, Comments

No excessive wear or damage has been observed.

Foto No. 7



Component

1.2.3 PB A1.1 R - Planet bearing

Examination results

01 - Good condition

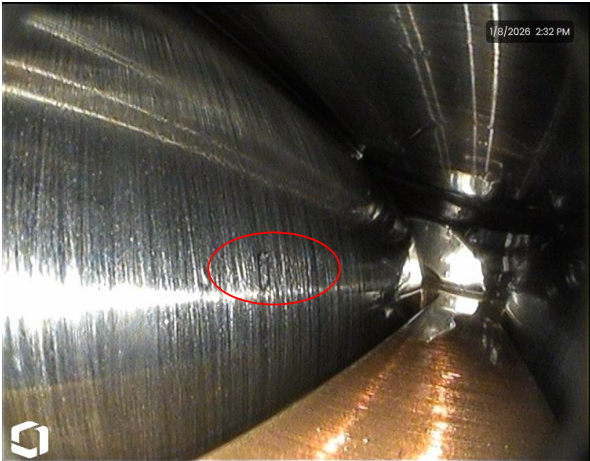
Defect category

Acceptable

Details, Comments

No excessive wear or damage has been observed.

Foto No. 8



Component

1.2.4 PB A1.1 G - Planet bearing

Examination results

11 - Indentations

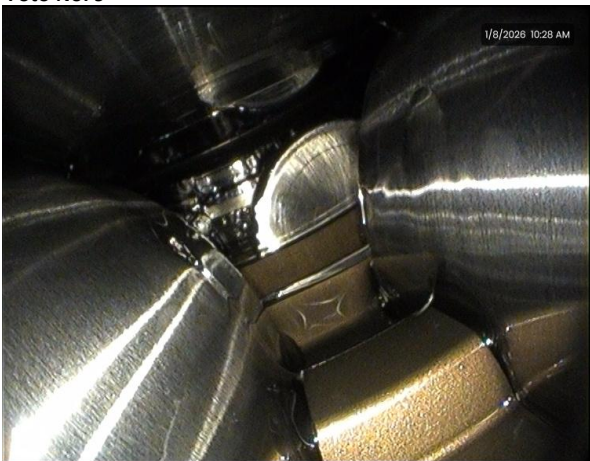
Defect category

Acceptable

Details, Comments

Indentation has been observed.

Foto No. 9



Component

1.2.5 PB A1.2 R - Planet bearing

Examination results

01 - Good condition

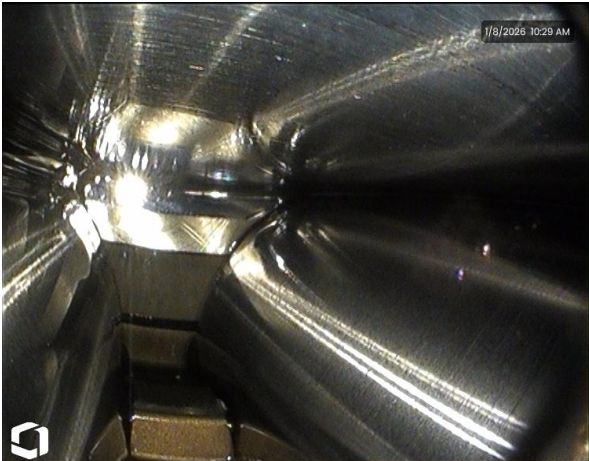
Defect category

Acceptable

Details, Comments

No excessive wear or damage has been observed.

Foto No. 10



Component

1.2.6 PB A1.2 G - Planet bearing

Examination results

01 - Good condition

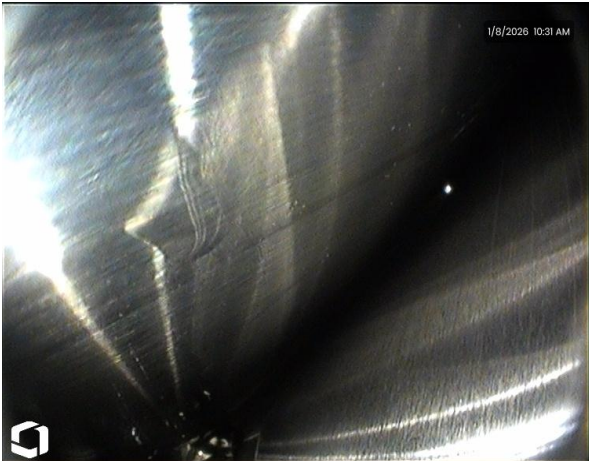
Defect category

Acceptable

Details, Comments

No excessive wear or damage has been observed.

Foto No. 11



Component

1.2.7 PB A1.3 R - Planet bearing

Examination results

01 - Good condition

Defect category

Acceptable

Details, Comments

No excessive wear or damage has been observed.

Foto No. 12



Component

1.2.8 PB A1.3 G - Planet bearing

Examination results

01 - Good condition

Defect category

Acceptable

Details, Comments

No excessive wear or damage has been observed.

Foto No. 13



Component

2.1.1 RG A2 - Ring gear

Examination results

01 - Good condition

Defect category

Acceptable

Details, Comments

No excessive wear or damage has been observed.

Foto No. 14



Component

2.1.2 PW A2.1 - Planetary wheel

Examination results

01 - Good condition

Defect category

Acceptable

Details, Comments

No excessive wear or damage has been observed.

Foto No. 15



Component

2.1.3 PW A2.2 - Planetary wheel

Examination results

01 - Good condition

Defect category

Acceptable

Details, Comments

No excessive wear or damage has been observed.

Foto No. 16



Component

2.1.4 PW A2.3 - Planetary wheel

Examination results

01 - Good condition

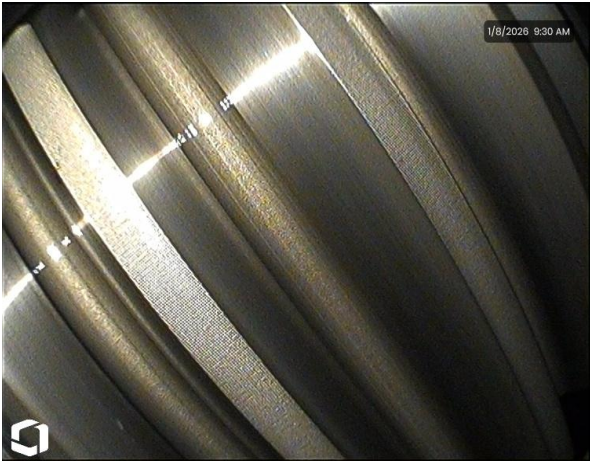
Defect category

Acceptable

Details, Comments

No excessive wear or damage has been observed.

Foto No. 17



Component

2.1.5 SU A2 - Sun pinion

Examination results

01 - Good condition

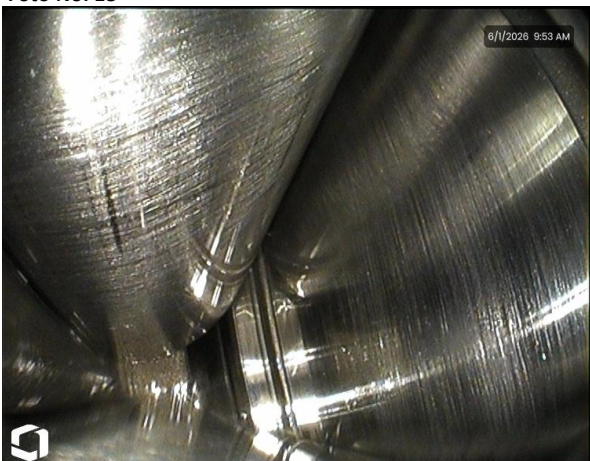
Defect category

Acceptable

Details, Comments

No excessive wear or damage has been observed.

Foto No. 18



Component

2.2.2 PC A2 G - Planet carrier bearing

Examination results

01 - Good condition

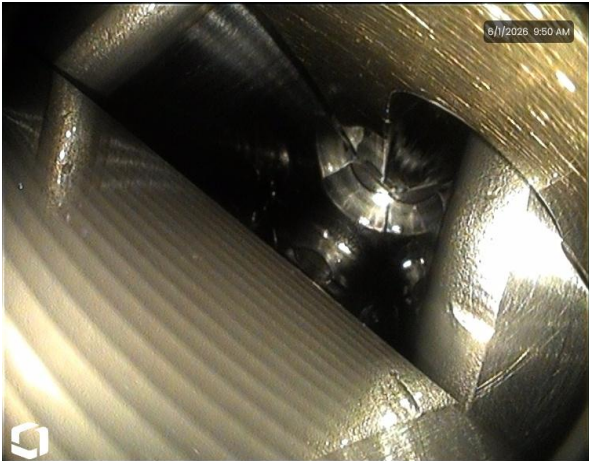
Defect category

Acceptable

Details, Comments

No excessive wear or damage has been observed.

Foto No. 19



Component

2.2.3 PB A2.1 R - Planet bearing

Examination results

01 - Good condition

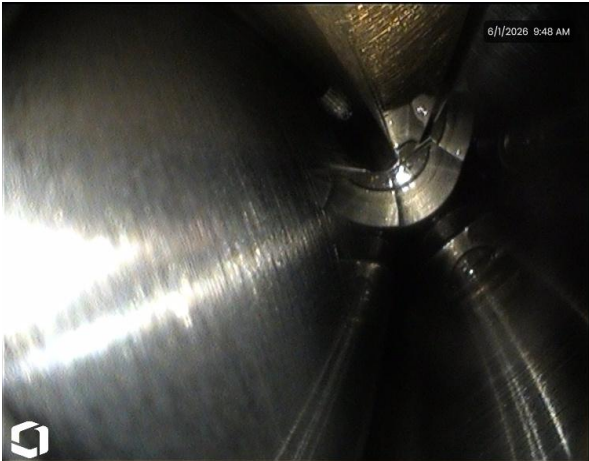
Defect category

Acceptable

Details, Comments

No excessive wear or damage has been observed.

Foto No. 20



Component

2.2.4 PB A2.1 G - Planet bearing

Examination results

01 - Good condition

Defect category

Acceptable

Details, Comments

No excessive wear or damage has been observed.

Foto No. 21



Component

2.2.5 PB A2.2 R - Planet bearing

Examination results

01 - Good condition

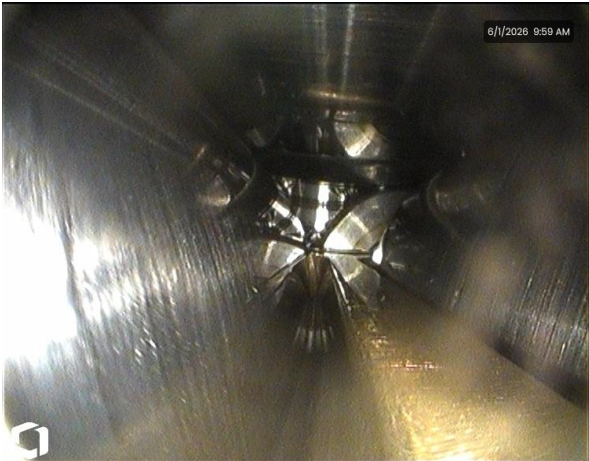
Defect category

Acceptable

Details, Comments

No excessive wear or damage has been observed.

Foto No. 22



Component

2.2.6 PB A2.2 G - Planet bearing

Examination results

01 - Good condition

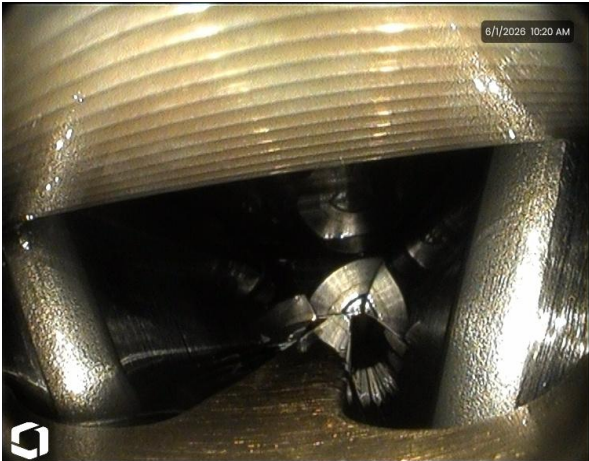
Defect category

Acceptable

Details, Comments

No excessive wear or damage has been observed.

Foto No. 23



Component

2.2.7 PB A2.3 R - Planet bearing

Examination results

01 - Good condition

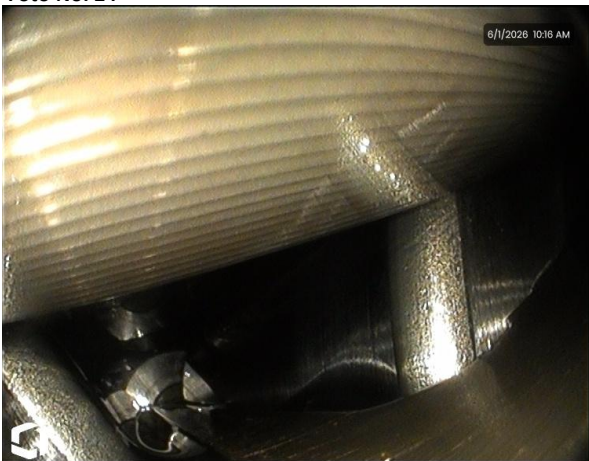
Defect category

Acceptable

Details, Comments

No excessive wear or damage has been observed.

Foto No. 24



Component

2.2.8 PB A2.3 G - Planet bearing

Examination results

01 - Good condition

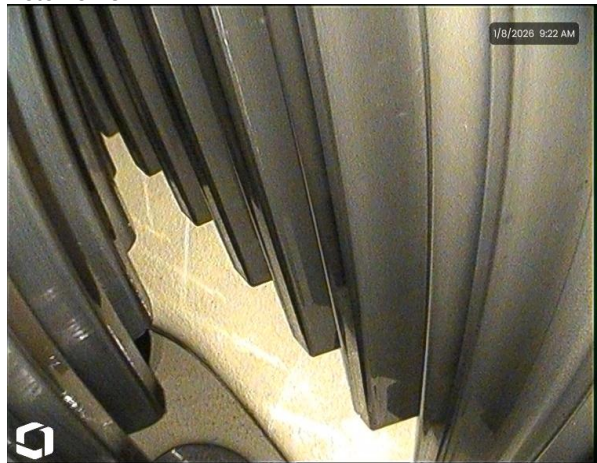
Defect category

Acceptable

Details, Comments

No excessive wear or damage has been observed.

Foto No. 25



Component

3.1.1 RG B - Ring gear

Examination results

01 - Good condition

Defect category

Acceptable

Details, Comments

No excessive wear or damage has been observed.

Foto No. 26



Component

3.1.2 PW B.1 - Planetary wheel

Examination results

01 - Good condition

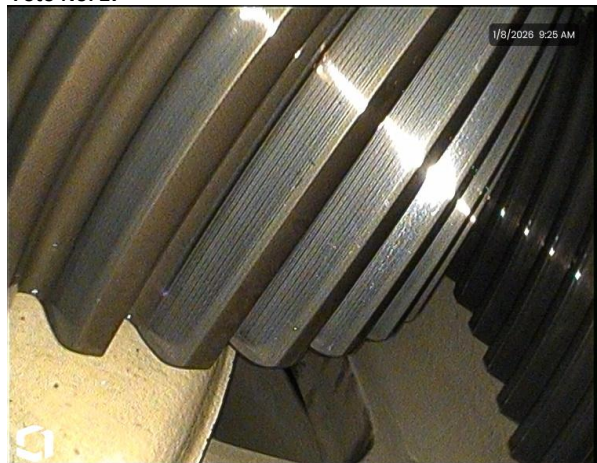
Defect category

Acceptable

Details, Comments

No excessive wear or damage has been observed.

Foto No. 27



Component

3.1.3 PW B.2 - Planetary wheel

Examination results

01 - Good condition

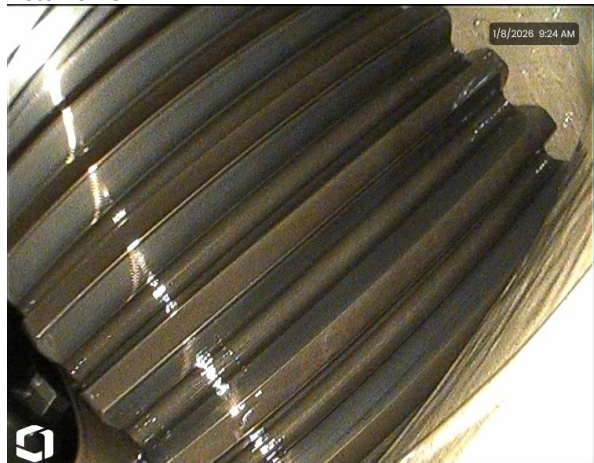
Defect category

Acceptable

Details, Comments

No excessive wear or damage has been observed.

Foto No. 28



Component

3.1.4 PW B.3 - Planetary wheel

Examination results

01 - Good condition

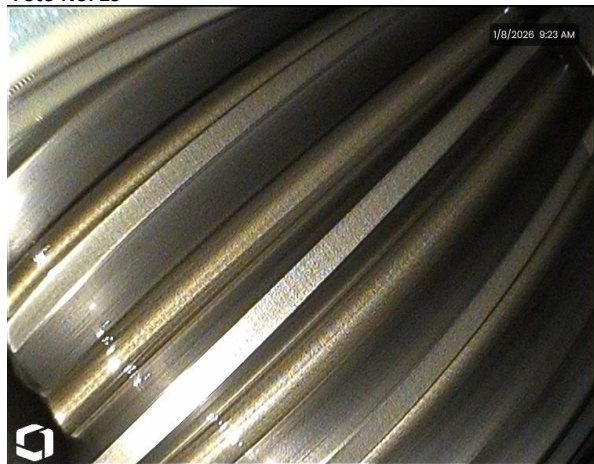
Defect category

Acceptable

Details, Comments

No excessive wear or damage has been observed.

Foto No. 29



Component

3.1.5 SU B - Sun pinion

Examination results

01 - Good condition

Defect category

Acceptable

Details, Comments

No excessive wear or damage has been observed.

Foto No. 30



Component

3.2.2 PC B G - Planet carrier bearing

Examination results

01 - Good condition

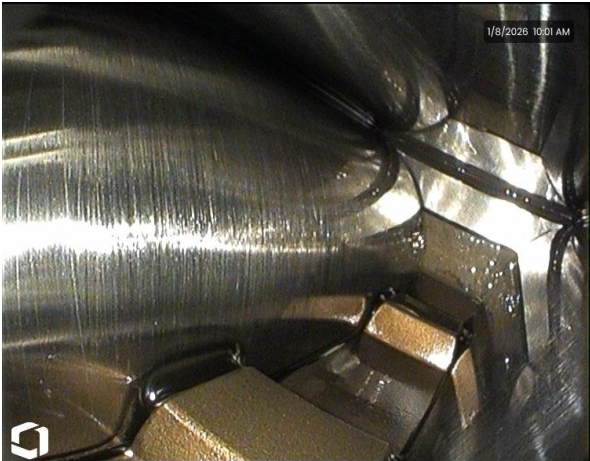
Defect category

Acceptable

Details, Comments

No excessive wear or damage has been observed.

Foto No. 31



Component

3.2.3 PB B.1 R - Planet bearing

Examination results

01 - Good condition

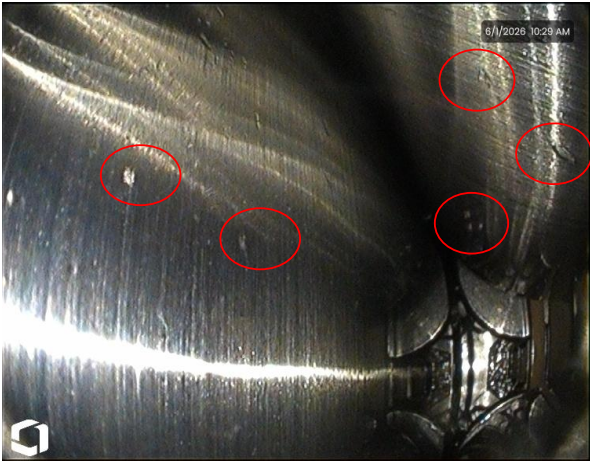
Defect category

Acceptable

Details, Comments

No excessive wear or damage has been observed.

Foto No. 32



Component

3.2.4 PB B.1 G - Planet bearing

Examination results

10 - Micropitting

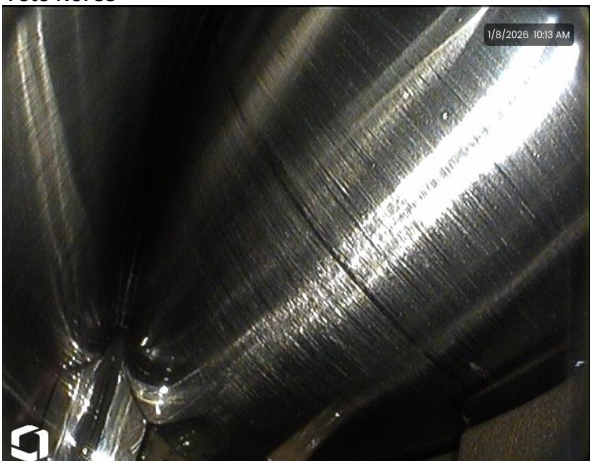
Defect category

Regular inspections required

Details, Comments

(Micro-)pitting has been observed on the outer ring and rolling elements. This type of wear is detected by the accelerometer sensors.

Foto No. 33



Component

3.2.5 PB B.2 R - Planet bearing

Examination results

01 - Good condition

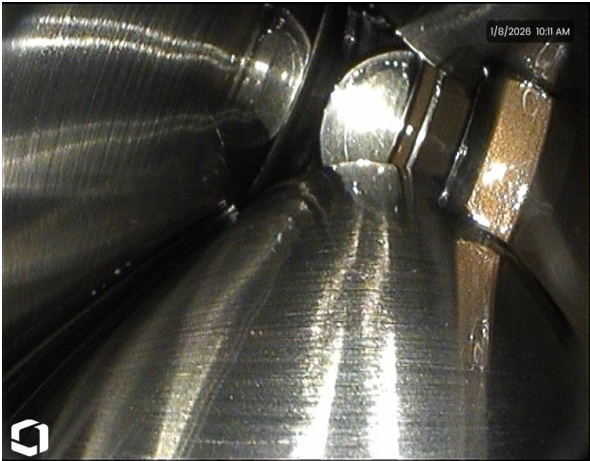
Defect category

Acceptable

Details, Comments

No excessive wear or damage has been observed.

Foto No. 34



Component

3.2.6 PB B.2 G - Planet bearing

Examination results

01 - Good condition

Defect category

Acceptable

Details, Comments

No excessive wear or damage has been observed.

Foto No. 35



Component

3.2.7 PB B.3 R - Planet bearing

Examination results

01 - Good condition

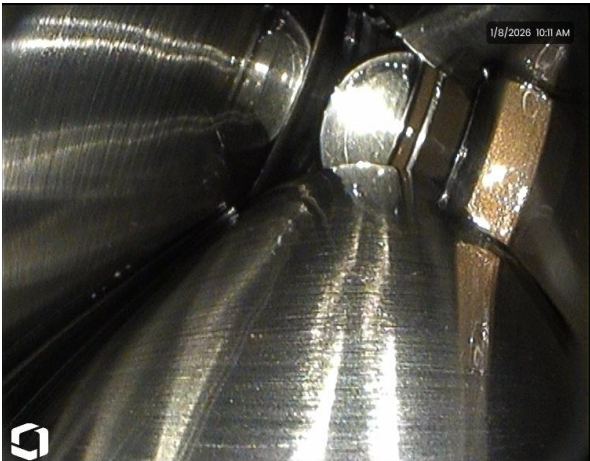
Defect category

Acceptable

Details, Comments

No excessive wear or damage has been observed.

Foto No. 36



Component

3.2.8 PB B.3 G - Planet bearing

Examination results

01 - Good condition

Defect category

Acceptable

Details, Comments

No excessive wear or damage has been observed.

Foto No. 37



Component

4.1.1 LSS - Low speed shaft

Examination results

01 - Good condition

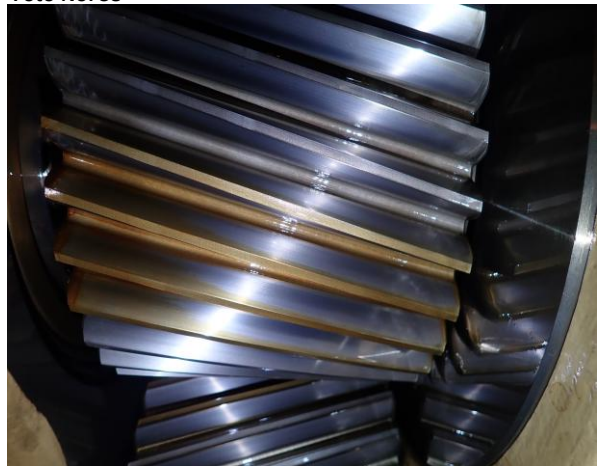
Defect category

Acceptable

Details, Comments

No excessive wear or damage has been observed.

Foto No. 38



Component

4.1.2 HSS - High speed shaft

Examination results

01 - Good condition

Defect category

Acceptable

Details, Comments

No excessive wear or damage has been observed.

Foto No. 39



Component

4.2.1 LSS R - Low speed shaft bearing

Examination results

01 - Good condition

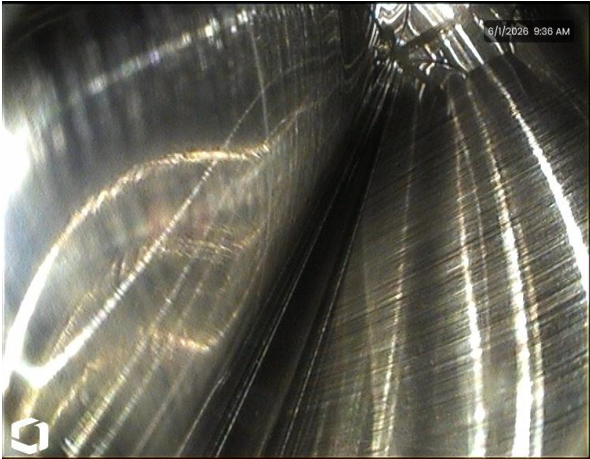
Defect category

Acceptable

Details, Comments

No excessive wear or damage has been observed.

Foto No. 40



Component

4.2.2 LSS GR - Low speed shaft bearing

Examination results

01 - Good condition

Defect category

Acceptable

Details, Comments

No excessive wear or damage has been observed.

Foto No. 41



Component

4.2.4 HSS R - High speed shaft bearing

Examination results

01 - Good condition

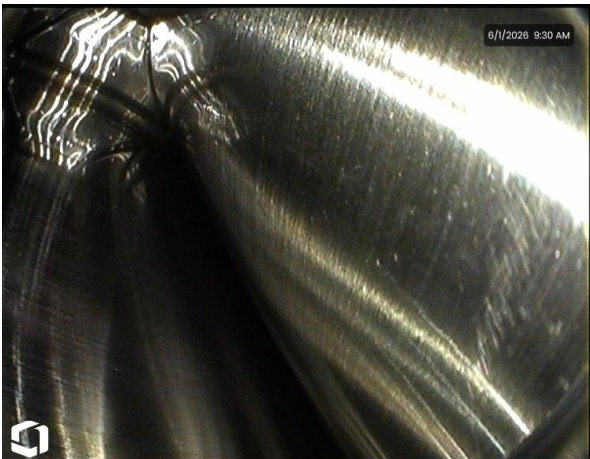
Defect category

Acceptable

Details, Comments

No excessive wear or damage has been observed.

Foto No. 42



Component

4.2.5 HSS GR - High speed shaft bearing

Examination results

01 - Good condition

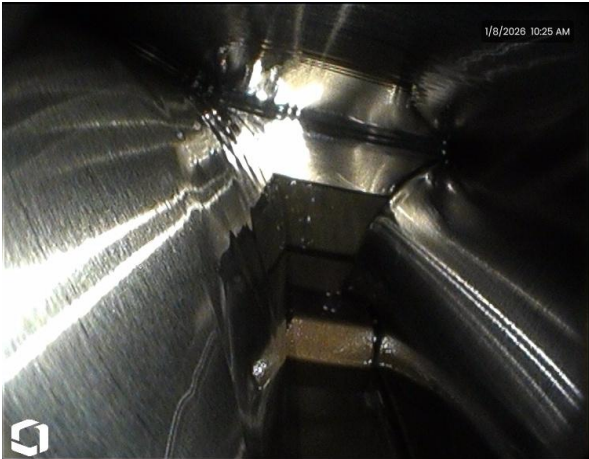
Defect category

Acceptable

Details, Comments

No excessive wear or damage has been observed.

Foto No. 43



Component

1.2.2 PC A1 G - Planet carrier bearing

Examination results

01 - Good condition

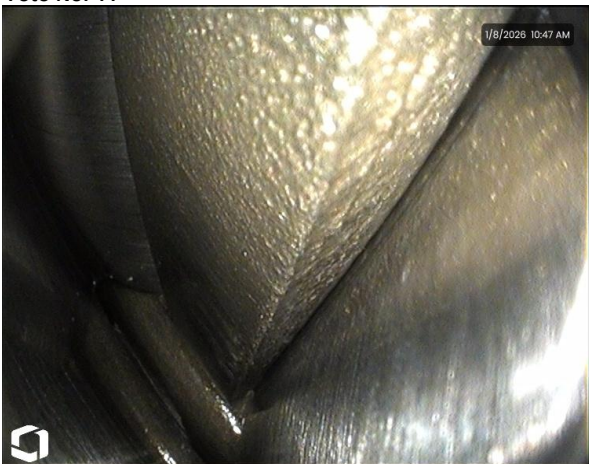
Defect category

Acceptable

Details, Comments

No excessive wear or damage has been observed.

Foto No. 44



Component

3.2.1 PC B R - Planet carrier bearing

Examination results

01 - Good condition

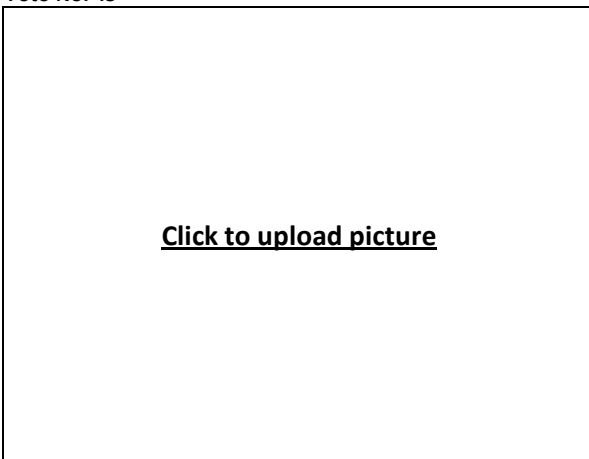
Defect category

Acceptable

Details, Comments

No excessive wear or damage has been observed.

Foto No. 45



Component

Examination results

Defect category

Details, Comments

2. Gearbox Drawing - EH0945_6X

WTG	Wind turbine generator
AX	Axial bearing
M	Middle
G	Generator side
GM	Generator side middle
HSS	High speed shaft
LSS	Low speed shaft
PW	Planetary wheel
PB	Planet bearing
PC	Planet carrier bearing
R	Rotor side
RM	Rotor side middle
RG	Ring gear
SU	Sun pinion
X	Place holder for the specific planet
RE	Rolling element
OR	Outer ring
IR	Inner ring

B - Defect Category

Defect Category

Acceptable

Regular inspections required

Not acceptable

