



MECH-V

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## Wind Turbine Blade Inspection Report

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### Example Wind Farm

### T02

**Report Number:** MECHV-REP-XXX-XXX

**Report Date:** 30/05/2022

**Client:** Example Client

**Location:** Example Address

**Asset:** T02 - 25035 - Vestas V66

# Wind Turbine Blade Inspection Report

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## General Information

### Client

Client Name	Example Client
Contact Person	Example Contact person

### Inspection Details

Wind Farm Name	Example Wind Farm
Objective	Drone inspection of wind turbine rotor blades for condition assessment and damage classification based on visual observations.
Report Number	MECHV-REP-XXX-XXX
Report Date	30/05/2022
Inspection Date	24/05/2022
Start Time	08:30
End Time	18:30
Weather	15 °C - Slightly cloudy with moderate wind
Inspector(s)	Robert Foley, Stephen O'Keeffe
Report Author	Robert Foley
Report Checked	Stephen O'Keeffe
Support	2x Vestas Technicians

### Asset Details

WTG Park Number	T02
Model	Vestas V66
Asset Serial #	25035
Commission Year	2007
Rated Power KW	1.75MW
Production MWh	-
Run Hrs	-
Tower Type	Steel Tubular
Hub Height (meters)	58m
Location (address)	Example Address
Location (coordinates)	12.12345, 12.12345

### Blade Details

Blade Set #	-
Blade 1/A Serial #:	
Blade 2/B Serial #:	
Blade 3/C Serial #:	
Manufacturer	Vestas
Type	LM
Length (meters)	32
Leading Edge Protection	Painted
Aerodynamic Installations	-

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## Damage Classification

SEVERITY	DESCRIPTION	ACTION	TURBINE STATUS
1	Cosmetic	No intervention required	Continue Operation
2	Minor	Repair only if there are other damages to be repaired. Monitor at next inspection.	Continue Operation
3	Medium	Repair within 6 months	Continue Operation
4	Serious	Repair within 3 months	Continue Operation
5	Very Serious	Immediate intervention required to prevent further damage to blade, wind turbine, or surrounding area.	Stop Operation

## Report Summary

CAT 1 Items: 6  
CAT 2 Items: 23  
CAT 3 Items: 0  
CAT 4 Items: 1  
CAT 5 Items: 1

### Attention!

DN-12 : Blade B has an open trailing edge near the tip. Example Client informed of this at time of inspection. Please consult with Vestas on further action.

DN-11 : Significant longitudinal crack on suction side near trailing edge of blade. Please consult with Vestas on further action.

Excluding the two items above, in general the blades were noted to be in reasonable condition given their age and time in operation. Majority of damages observed are due to erosion however most do not penetrate into the laminate.



**Blade 1/A - Summary**

	Serial #				
<b>Damage Ref.</b>	<b>Damage Cat.</b>	<b>Damage Type</b>	<b>Dist. from root (m)</b>	<b>Blade Surface</b>	<b>Damage Description</b>
DN-01	CAT 2	Out of alignment	0	Leading Edge	Rain deflector not flush with spinner
DN-02	CAT 1	Contamination	17	Pressure Side	Small bit of dirt contamination on blade
DN-03	CAT 1	General observation	24	Pressure Side	Previous repair, all satisfactory
DN-04	CAT 2	Lightning Damage	32	Pressure Side	Lightning receptor partially melted due to lightning strike. Dirt on trailing edge of blade



**Blade 2/B - Summary**

Serial #

Damage Ref.	Damage Cat.	Damage Type	Dist. from root (m)	Blade Surface	Damage Description
DN-05	CAT 2	Erosion	17	Leading Edge	Top coat eroded and some pitting in the same area
DN-06	CAT 1	General observation	23	Leading Edge	Previous repair, minor area of top coat eroded above repair
DN-07	CAT 2	Erosion	32	Leading Edge	Top coat eroded. Gelcoat showing
DN-08	CAT 2	Scratch	0	Pressure Side	Top coat scratched under rain deflector
DN-09	CAT 1	Contamination	15	Pressure Side	Mild dirt contamination on blade
DN-10	CAT 1	General observation	23	Leading Edge	Previous repair, All satisfactory
DN-11	CAT 4	Cracking	26	Suction Side	Significant longitudinal crack on suction side near trailing edge of blade
DN-12	CAT 5	Debonding	32	Trailing Edge	Trailing edge separation near blade tip



**Blade 3/C - Summary**

		Serial #			
Damage Ref.	Damage Cat.	Damage Type	Dist. from root (m)	Blade Surface	Damage Description
DN-13	CAT 2	Erosion	6	Leading Edge	Gelcoat eroded
DN-14	CAT 2	Chipping	16	Leading Edge	Small chip in gelcoat on leading edge. No underlying laminate damage.
DN-15	CAT 2	Erosion	16	Leading Edge	Top coat eroded. Several chips in gelcoat.
DN-16	CAT 2	Erosion	17	Leading Edge	Gelcoat chipped and laminate exposed
DN-17	CAT 2	Erosion	17	Leading Edge	Gelcoat chipped and laminate exposed
DN-18	CAT 2	Erosion	18	Leading Edge	Gelcoat chipped and laminate exposed
DN-19	CAT 2	Erosion	19	Leading Edge	Gelcoat eroded and laminate exposed
DN-20	CAT 2	Erosion	19	Leading Edge	Gelcoat eroded and laminate exposed
DN-21	CAT 2	Erosion	27	Leading Edge	Gelcoat eroded and laminate exposed
DN-22	CAT 2	Erosion	29	Leading Edge	Gelcoat eroded and laminate exposed
DN-23	CAT 2	Erosion	30	Leading Edge	Gelcoat eroded and laminate exposed
DN-24	CAT 2	Erosion	32	Leading Edge	Erosion to top coat
DN-25	CAT 2	Out of alignment	0	Suction Side	Rain deflector not flush with spinner
DN-26	CAT 1	General observation	20	Suction Side	Previous repair. Top coat eroding
DN-27	CAT 2	Erosion	18	Pressure Side	Top coat eroded
DN-28	CAT 2	Erosion	20	Pressure Side	Previous repair - Top coat eroded
DN-29	CAT 2	Erosion	21	Pressure Side	Top coat eroded
DN-30	CAT 2	Erosion	27	Pressure Side	Top coat eroded
DN-31	CAT 2	Chipping	32	Pressure Side	Minor gelcoat chipping around the lightning receptor





# Wind Turbine Blade Inspection Report

Damage Reference	DN-01	
Damage Category	CAT 2	
Damage Type	Out of alignment	
Distance From Root (m)	0	
Blade Surface	Leading Edge	
Blade Letter/Number	A	
Blade SN		
Image Ref.		
Description	Rain deflector not flush with spinner	



# Wind Turbine Blade Inspection Report

Damage Reference	DN-02	
Damage Category	CAT 1	
Damage Type	Contamination	
Distance From Root (m)	17	
Blade Surface	Pressure Side	
Blade Letter/Number	A	
Blade SN		
Image Ref.		
Description	Small bit of dirt contamination on blade	



Wind Turbine Blade Inspection Report

Damage Reference	DN-03	<p>The diagram shows two cross-sections of a wind turbine blade. The top section is labeled 'Pressure Side' and the bottom section is labeled 'Suction Side'. Both sections show the 'Leading Edge' on the left and the 'Trailing Edge' on the right. A red circle is drawn on the upper surface of the pressure side, indicating the location of the damage.</p>
Damage Category	CAT 1	
Damage Type	General observation	
Distance From Root (m)	24	
Blade Surface	Pressure Side	
Blade Letter/Number	A	
Blade SN		
Image Ref.		
Description	Previous repair, all satisfactory	



Wind Turbine Blade Inspection Report

Damage Reference	DN-04	
Damage Category	CAT 2	
Damage Type	Lightning Damage	
Distance From Root (m)	32	
Blade Surface	Pressure Side	
Blade Letter/Number	A	
Blade SN		
Image Ref.		
Description	Lightning receptor partially melted due to lightning strike. Dirt on trailing edge of blade	



Wind Turbine Blade Inspection Report

Damage Reference	DN-05	
Damage Category	CAT 2	
Damage Type	Erosion	
Distance From Root (m)	17	
Blade Surface	Leading Edge	
Blade Letter/Number	B	
Blade SN		
Image Ref.		
Description	Top coat eroded and some pitting in the same area	



Wind Turbine Blade Inspection Report

Damage Reference	DN-06	
Damage Category	CAT 1	
Damage Type	General observation	
Distance From Root (m)	23	
Blade Surface	Leading Edge	
Blade Letter/Number	B	
Blade SN		
Image Ref.		
Description	Previous repair, minor area of top coat eroded above repair	



Wind Turbine Blade Inspection Report

Damage Reference	DN-07	
Damage Category	CAT 2	
Damage Type	Erosion	
Distance From Root (m)	32	
Blade Surface	Leading Edge	
Blade Letter/Number	B	
Blade SN		
Image Ref.		
Description	Top coat eroded. Gelcoat showing	



Wind Turbine Blade Inspection Report

Damage Reference	DN-08	
Damage Category	CAT 2	
Damage Type	Scratch	
Distance From Root (m)	0	
Blade Surface	Pressure Side	
Blade Letter/Number	B	
Blade SN		
Image Ref.		
Description	Top coat scratched under rain deflector	





# Wind Turbine Blade Inspection Report

Damage Reference	DN-09	
Damage Category	CAT 1	
Damage Type	Contamination	
Distance From Root (m)	15	
Blade Surface	Pressure Side	
Blade Letter/Number	B	
Blade SN		
Image Ref.		
Description	Mild dirt contamination on blade	



# Wind Turbine Blade Inspection Report

Damage Reference	DN-10	<p>The diagram shows two views of a wind turbine blade. The top view is labeled 'Pressure Side' and the bottom view is labeled 'Suction Side'. Both views show the 'Leading Edge' and 'Trailing Edge'. A red circle is drawn on the leading edge of the pressure side, indicating the location of the damage.</p>
Damage Category	CAT 1	
Damage Type	General observation	
Distance From Root (m)	23	
Blade Surface	Leading Edge	
Blade Letter/Number	B	
Blade SN		
Image Ref.		
Description	Previous repair, All satisfactory	



# Wind Turbine Blade Inspection Report

Damage Reference	DN-11	
Damage Category	CAT 4	
Damage Type	Cracking	
Distance From Root (m)	26	
Blade Surface	Suction Side	
Blade Letter/Number	B	
Blade SN		
Image Ref.		
Description	Significant longitudinal crack on suction side near trailing edge of blade	



# Wind Turbine Blade Inspection Report

Damage Reference	DN-12	
Damage Category	CAT 5	
Damage Type	Debonding	
Distance From Root (m)	32	
Blade Surface	Trailing Edge	
Blade Letter/Number	B	
Blade SN		
Image Ref.		
Description	Trailing edge separation near blade tip	



# Wind Turbine Blade Inspection Report

Damage Reference	DN-13	
Damage Category	CAT 2	
Damage Type	Erosion	
Distance From Root (m)	6	
Blade Surface	Leading Edge	
Blade Letter/Number	C	
Blade SN		
Image Ref.		
Description	Gelcoat eroded	



# Wind Turbine Blade Inspection Report

Damage Reference	DN-14	
Damage Category	CAT 2	
Damage Type	Chipping	
Distance From Root (m)	16	
Blade Surface	Leading Edge	
Blade Letter/Number	C	
Blade SN		
Image Ref.		
Description	Small chip in gelcoat on leading edge. No underlying laminate damage.	



# Wind Turbine Blade Inspection Report

Damage Reference	DN-15	
Damage Category	CAT 2	
Damage Type	Erosion	
Distance From Root (m)	16	
Blade Surface	Leading Edge	
Blade Letter/Number	C	
Blade SN		
Image Ref.		
Description	Top coat eroded. Several chips in gelcoat.	



Wind Turbine Blade Inspection Report

Damage Reference	DN-16	
Damage Category	CAT 2	
Damage Type	Erosion	
Distance From Root (m)	17	
Blade Surface	Leading Edge	
Blade Letter/Number	C	
Blade SN		
Image Ref.		
Description	Gelcoat chipped and laminate exposed	





# Wind Turbine Blade Inspection Report

Damage Reference	DN-17	
Damage Category	CAT 2	
Damage Type	Erosion	
Distance From Root (m)	17	
Blade Surface	Leading Edge	
Blade Letter/Number	C	
Blade SN		
Image Ref.		
Description	Gelcoat chipped and laminate exposed	



# Wind Turbine Blade Inspection Report

Damage Reference	DN-18	
Damage Category	CAT 2	
Damage Type	Erosion	
Distance From Root (m)	18	
Blade Surface	Leading Edge	
Blade Letter/Number	C	
Blade SN		
Image Ref.		
Description	Gelcoat chipped and laminate exposed	



# Wind Turbine Blade Inspection Report

Damage Reference	DN-19	
Damage Category	CAT 2	
Damage Type	Erosion	
Distance From Root (m)	19	
Blade Surface	Leading Edge	
Blade Letter/Number	C	
Blade SN		
Image Ref.		
Description	Gelcoat eroded and laminate exposed	



# Wind Turbine Blade Inspection Report

Damage Reference	DN-20	
Damage Category	CAT 2	
Damage Type	Erosion	
Distance From Root (m)	19	
Blade Surface	Leading Edge	
Blade Letter/Number	C	
Blade SN		
Image Ref.		
Description	Gelcoat eroded and laminate exposed	



Wind Turbine Blade Inspection Report

Damage Reference	DN-21	
Damage Category	CAT 2	
Damage Type	Erosion	
Distance From Root (m)	27	
Blade Surface	Leading Edge	
Blade Letter/Number	C	
Blade SN		
Image Ref.		
Description	Gelcoat eroded and laminate exposed	



# Wind Turbine Blade Inspection Report

Damage Reference	DN-22	
Damage Category	CAT 2	
Damage Type	Erosion	
Distance From Root (m)	29	
Blade Surface	Leading Edge	
Blade Letter/Number	C	
Blade SN		
Image Ref.		
Description	Gelcoat eroded and laminate exposed	



# Wind Turbine Blade Inspection Report

Damage Reference	DN-23	
Damage Category	CAT 2	
Damage Type	Erosion	
Distance From Root (m)	30	
Blade Surface	Leading Edge	
Blade Letter/Number	C	
Blade SN		
Image Ref.		
Description	Gelcoat eroded and laminate exposed	



# Wind Turbine Blade Inspection Report

Damage Reference	DN-24	
Damage Category	CAT 2	
Damage Type	Erosion	
Distance From Root (m)	32	
Blade Surface	Leading Edge	
Blade Letter/Number	C	
Blade SN		
Image Ref.		
Description	Erosion to top coat	





# Wind Turbine Blade Inspection Report

Damage Reference	DN-25	
Damage Category	CAT 2	
Damage Type	Out of alignment	
Distance From Root (m)	0	
Blade Surface	Suction Side	
Blade Letter/Number	C	
Blade SN		
Image Ref.		
Description	Rain deflector not flush with spinner	



# Wind Turbine Blade Inspection Report

Damage Reference	DN-26	
Damage Category	CAT 1	
Damage Type	General observation	
Distance From Root (m)	20	
Blade Surface	Suction Side	
Blade Letter/Number	C	
Blade SN		
Image Ref.		
Description	Previous repair. Top coat eroding	



# Wind Turbine Blade Inspection Report

Damage Reference	DN-27	<p>The diagram shows two views of a wind turbine blade. The top view is labeled 'Pressure Side' and the bottom view is labeled 'Suction Side'. Both views show the 'Leading Edge' on the left and the 'Trailing Edge' on the right. A red circle is drawn on the trailing edge of the pressure side, indicating the location of the damage.</p>
Damage Category	CAT 2	
Damage Type	Erosion	
Distance From Root (m)	18	
Blade Surface	Pressure Side	
Blade Letter/Number	C	
Blade SN		
Image Ref.		
Description	Top coat eroded	



# Wind Turbine Blade Inspection Report

Damage Reference	DN-28	
Damage Category	CAT 2	
Damage Type	Erosion	
Distance From Root (m)	20	
Blade Surface	Pressure Side	
Blade Letter/Number	C	
Blade SN		
Image Ref.		
Description	Previous repair - Top coat eroded	



# Wind Turbine Blade Inspection Report

Damage Reference	DN-29	
Damage Category	CAT 2	
Damage Type	Erosion	
Distance From Root (m)	21	
Blade Surface	Pressure Side	
Blade Letter/Number	C	
Blade SN		
Image Ref.		
Description	Top coat eroded	



# Wind Turbine Blade Inspection Report

Damage Reference	DN-30	
Damage Category	CAT 2	
Damage Type	Erosion	
Distance From Root (m)	27	
Blade Surface	Pressure Side	
Blade Letter/Number	C	
Blade SN		
Image Ref.		
Description	Top coat eroded	



# Wind Turbine Blade Inspection Report

Damage Reference	DN-31	
Damage Category	CAT 2	
Damage Type	Chipping	
Distance From Root (m)	32	
Blade Surface	Pressure Side	
Blade Letter/Number	C	
Blade SN		
Image Ref.		
Description	Minor gelcoat chipping around the lightning receptor	

