TPM Americas	GE 2.5 MW WTG Break-in Maintenance Checklist	This is a supplement to the Revision 4 maintenance manual 2.5xl_xxHz_OM_allComp_maintena.ENxxx.04.doc, applicable TIL's, ETCs, or WDIs. All personnel performing maintenance activities must understand the contents of the maintenance manual and have access to a copy

Site Name:	WTG Number:	Date:
Maintenace: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 18 19 Other:		WTG COD Date:
Rev. 02052011		SR#:

Task Description and additional information	Task Performed & No defects found?		Notes, Comments, or Explanations
Color of Paint Pen used for the Break-In Maintenance:			
1.1 Welded Structure			
Visual Inspection: Twist locks, bolted connections, fixing of platform plating, fixing of railings and ladders, spark marks, moisture and insects.	Yes	No	
Function Test: Hatches closing properly	Yes	No	
Grind down corroded areas and restore the original coating.	Yes	No	
1.2 Fire Extinguisher (optional feature)			
Date of the next maintenance:	Yes	No	
2.2 Fan			
Function Test	Yes	No	
7.1 Shell and T-Flange of the Adapter			
Visual inspection: shell deformations (dents, creases), shell material defects (cracks, gouges, delamination), weld seam integrity (cracks, gouges, defects), corrosion (rust, defects in paintwork) flange deformation (gaps between flange and concrete, local bending)	Yes	No	
7.2 Adapter Anchor Bolts			
Visual inspection:flange deformation (gaps between flange and concrete, local bending), material defects (cracks, gouges, delamination), corrosion protection (rust, defects in metallization)	Yes	No	
Pretensioning of T- flange connection adapter/concrete: Do not undo the bolts beforehand! The pre-tightening force and the number of anchor bolts vary depending on the tower height and wind class and the foundation design. Information about the applied pretension force is to be found on a label at the tower adapter and in P-Net.	Yes	No	
Customer will provide specifications from the anchor bolt manufacture stating "MAINTENANCE" criteria. This should include a frequencey, torque spec "KIPS" , and quantity.	Yes	No	
7.3 Tower Shell			
Visual inspection: shell deformations (dents, creases), shell material defects (cracks, gouges, delamination), weld seam integrity (cracks, gouges, defects), corrosion (rust, defects in paintwork)	Yes	No	
Function test: sockets, lamps	Yes	No	
7.4 Tower Flanges			
Visual inspection: flange deformation (gaps between flanges, local bending), material defects (cracks, gouges, delamination), corrosion protection (rust, defects in metallization), weld integrity (defects, gouges, cracks)	Yes	No	

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7.4 Tower Flanges			
100% Torque Check (1st tower flange transformer level)	Yes	No	
100% Torque Check (2nd tower flange)	Yes	No	
100% Torque Check (3rd tower flange)	Yes	No	
100% Torque Check (4th tower flange)	Yes	No	
7.6 Power and Control Cables			
Visual inspection: Fastening, damage to insulation, cable baskets, twist, compression joints, Check the fit of the rubber mat in the opening of platform A and the cable guide in the top section. Check the rubber mat for damages.	Yes	No	
7.7 Twist of Power Cable Loop			
Visual inspection: Twist may not be greater than 2 turns in each direction	Yes	No	
7.9 Railing doors on each platform			
Check of the railing doors: Open the railing door up to 90° and check if it closes automatically. If not, check if the hinges are installed in accordance with the supplier manual. If not, adjust the upper hinge (including spring element) to be parallel to the door and railing. Adjust the lower hinge in exactly the same way as the upper hinge.	Yes	No	
7.10 Winch / Hoist			
Check by authorized/experienced personnel2) and documentation in the inspect and test log book. Follow the instructions of the manufacturer!	Yes	No	
Visual Inspection: Check of the rope - for squeezed or broken wires (DIN 15020 sheet 2), - rust, - condition of the windings.	Yes	No	
Brake: Check of the air gap	Yes	No	
Lubrication of the rope (MoS2 or lithium base grease)	Yes	No	
Electric control: - power cable (squeezed, pulled off) - control box: damage - pendant: damage, proper function, emergency stop, all electric accessories	Yes	No	
7.11 Ladder and Fall Protection			
Check by authorized/experienced personnel2) and documentation in the inspection and test logbook. Follow the instructions of the manufacturer!	Yes	No	
Visual inspection: Damage, fastening Visual inspection while climbing: Alignment of ladder and HACA safety rails or TUFTUG safety wire rope (as applicable), incipient crack, locations of fracture, stability. Inspect all bolted connections fixing the ladder to tower wall, HACA safety climbing system or TUFTUG wire rope fall arrest system (as applicable) to ladder or safety cable stand-offs to ladder for loose or missing parts. Install or tighten as necessary.	Yes	No	
Function test: Function of travelling safety hook or wire grab fall arrestor (as applicable)	Yes	No	
8.2 Yaw Drive			
First maintenance of the bolted connections (yaw drive to mainframe): All bolts (100%) must be torque checked. For wrench size and tightening torque see 2.5xl_WDI_bolts.	Yes	No	

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8.3.1 Connection: Base frame - yaw bearing			
All bolts (100%) For wrench size and tightening torque see 2.5xl_WDI_bolts.	Yes	No	
8.3.2 Connection: Yaw bearing - tower top flange			
All bolts (100%) For wrench size and tightening torque see 2.5xl_WDI_bolts	Yes	No	
9.1 Base frame top section (also bearing housing) and bottom section			
Bolted connection: Cast frame top and bottom section Check 10% without loosening bolts	Yes	No	
9.2 Generator Frame			
Bolted Connection: cast frame - generator frame Check 10% without loosening bolts.	Yes	No	
10.1 Contactors, Sensors			
Visual inspection:Control elements, electrical connections, cable terminals, fastening, gen. condition, wiring, spark marks	Yes	No	
Function test: Control and operating elements	Yes	No	
10.2 Rotational Speed Sensor (IFM)			
Function test: switching function Note: determine or justify the shift point with a frequency generator	Yes	No	
10.3 Speed frequency sensor for IFM			
Visual inspection: Fastening, cleanness, setting	Yes	No	
Function test: speed frequency signal	Yes	No	
10.5 Fire Extinguisher (optional feature)			
Date of the next maintenance:	Yes	No	
11.1 Emergency Stop Switch (PC, Top and central switch cabinet)			
Function test: Switching function	Yes	No	
11.2 Vibration Switch			
Function test: Switching function	Yes	No	
11.3 Rotor Lock Switch			
Function test: Switching function	Yes	No	
Verify 0° Rotor Position: Position rotor so that the rotor position in VisuPro (ANGLE_ROT_POS) is showing 0°. Verify that blade 1 is in a vertical position (pointing up). If not, re-reference the rotor position.	Yes	No	
11.4 Converter Emergency Stop			
Function test: Switching function	Yes	No	
14.3 Pitch Drive			
First maintenance of the screw connections:All bolts (100%) must be torque checked on the first maintenance. For wrench size and tightening torque see 2.5xl_WDI_bolts.	Yes	No	
14.5 Pitch Bearings			
Fastening: hub / pitch bearing First maintenance: 100% bolts	Yes	No	
15.3 Rotorblade / Pitch Bearing			
Connection rotor blade - blade pitch bearing: First inspection - after one month Loosen all bolts individually and re-tighten.	Yes	No	
16.2 Connection rotor shaft/hub			
Fastening hub/rotor shaft first maintenance: All bolts (100%)	Yes	No	

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16.5 Main Bearing Groove Nut			
Check: bearing play, i.e. check installation of the labyrinth cover on the shaft shoulder for gap with a filler gage or cracks in the paintwork No clearance for the lock nuts to the labyrinth rings on the shaft is allowed.	Yes	No	
Check: If gap in between a lock nut and ring is observed: Loosen the 4 axially arranged screws in the lock nut and turn split groove nut up to the end position against the labyrinth ring and re-tension. To tension the groove nut, retighten the 4 axial screws. There are two different lock nut designs with different threads. The tightening torque is depending on the screw size (see 2.5xl_WDI_Bolts). Even it is not necessary to adjust the lock nuts, the screws have to be checked according to these torque values with a torque wrench.	Yes	No	
16.9 Gearbox			
Visual inspection: Leakage, tooth contact pattern / roller bearing document if necessary) - untight places, damage	Yes	No	
Check: Noise, oscillatory characteristics	Yes	No	
Oil samples: Remarks: Oil change is dependent upon the oil analysis Oil type: Optimol Optigear Synthetic A 320 (by Castrol) or Gearmaster Eko 320 (by Fuchs)	Yes	No	
16.14 Alignment of Generator			
Alignment of the generator Remark: Use laser alignment system	Yes	No	

List of Tools, Serial Numbers, and Calibration Dates

TOOL	Model	Serial Number	Calibration Due Date
Pressure Gauge			
Multi Meter			
Slide Caliper			
Torque wrench			
Torque wrench			
Torque wrench			
Laser Alignment			

Comments

BIM Personnel WTG#____

Name	Date	Signature

I hereby confirm the correct performance of the maintenance in accordance with the checklist, manual, and all applicable GE Work Instructions.	Site Manager or Site Lead Name	Date	Site Manager or Site Lead Signature

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Site Name:	WTG Number:	Date:
Maintenace: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 18 19 Other:		WTG COD Date:
Rev. 02052011		SR#:

Task Description and additional information	Task Performed & No defects found?		Notes, Comments, or Explanations
Tech A			
Color of Paint Pen used for the Break-In Maintenance :			
2.2 Fan			
Check the Function of the fan	Yes	No	
Shut Down Turbine	Yes	No	
LOTO GMCB	Yes	No	
Climb Turbine and complete next step	Yes	No	
7.9 Railing doors on each platform			
Check of the railing doors: Open the railing door up to 90° and check if it closes automatically. If not, check if the hinges are installed in accordance with the supplier manual. If not, adjust the upper hinge (including spring element) to be parallel to the door and railing. Adjust the lower hinge in exactly the same way as the upper hinge.	Yes	No	
7.11 Ladder and Fall Protection			
Check and document in the inspection and test logbook. Follow the instructions of the manufacturer!	Yes	No	
Visual inspection: Damage, fastening Visual inspection while climbing: Alignment of ladder and HACA safety rails or TUFTUG safety wire rope (as applicable), incipient crack, locations of fracture, stability. Inspect all bolted connections fixing the ladder to tower wall, HACA safety climbing system or TUFTUG wire rope fall arrest system (as applicable) to ladder or safety cable stand-offs to ladder for loose or missing parts. Install or tighten as necessary.	Yes	No	
Function test: Function of travelling safety hook or wire grab fall arrestor (as applicable)	Yes	No	
7.6 Power and Control Cables			
Visual inspection: Fastening, damage to insulation, cable baskets, twist, compression joints, Check the fit of the rubber mat in the opening of platform A and the cable guide in the top section. Check the rubber mat for damages.	Yes	No	
7.7 Twist of Power Cable Loop			
Visual inspection: Twist may not be greater than 2 turns in each direction	Yes	No	
16.14 Alignment of Generator			
Alignment of the generator Remark: Use laser alignment system (Work with Tech C)	Yes	No	
10.1 Contactors, Sensors			
Visual inspection:Control elements, electrical connections, cable terminals, fastening, gen. condition, wiring, spark marks	Yes	No	
Function test: Control and operating elements	Yes	No	
Work with Tech C to rabbit ear the WTG	Yes	No	
LOTO the rotor lock and prepare tools for next task	Yes	No	

14.5 Pitch Bearings			
Fastening: hub / pitch bearing First maintenance:100% bolts For wrench size and tightening torque see 2.5xl_WDI_bolts.	Yes	No	Hytorc?
16.2 Connection rotor shaft/hub			
Fastening hub/rotor shaft first maintenance: All bolts (100%) For wrench size and tightening torque see 2.5xl_WDI_bolts.	Yes	No	Hytorc?
8.3.2 Connection: Yaw bearing - tower top flange			
Finish the flange so that 100% of the bolts are checked For wrench size and tightening torque see 2.5xl_WDI_bolts	Yes	No	
8.3.1 Connection: Base frame - yaw bearing			
All bolts (100%)	Yes	No	
Stay Up tower until tooling is lowered to the ground	Yes	No	
7.3 Tower Shell			
Visual inspection: shell deformations (dents, creases), shell material defects (cracks, gouges, delamination), weld seam integrity (cracks, gouges, defects), corrosion (rust, defects in paintwork)	Yes	No	
Function test: sockets, lamps	Yes	No	
11.4 Converter Emergency Stop			
Function test: Switching function	Yes	No	
Assist Tech C with the anchor bolts.	Yes	No	

List of Tools, Serial Numbers, and Calibration Dates

TOOL	Model	Serial Number	Calibration Due Date
Pressure Gauge			
Multi Meter			
Slide Caliper			
Slide Caliper			
Torque wrench			
Torque wrench			
Torque wrench			
Laser Alignment			

Comments

Name	Date	Signature

I hereby confirm the correct performance of the maintenance in accordance with the checklist, manual, and all applicable GE Work Instructions	Site Manager or Site Lead Name	Date	Site Manager or Site Lead Signature

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Site Name: **WTG Number:** **Date:**

Maintenace: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 18 19 **Other:** **WTG COD Date:**

Rev. 4 _____**10** **SR#:**

Task Description and additional information	Task Performed & No		Notes, Comments, or Explanations
Tech B			
Color of Paint Pen used for the Break-In Maintenance:			
LOTO GMCB	Yes	No	
Climb Turbine and hoist tools to the Nacelle	Yes	No	
7.10 Winch / Hoist			
Check by authorized/experienced personnel. Follow the instructions of the manufacturer.	Yes	No	
Visual Inspection: Check of the rope - for squeezed or broken wires (DIN 15020 sheet 2), - rust, - condition of the windings.	Yes	No	
Brake: Check of the air gap	Yes	No	
Lubrication of the rope (MoS2 or lithium base grease)	Yes	No	
Electric control: - power cable (squeezed, pulled off) - control box: damage - pendant: damage, proper function, emergency stop, all electric accessories	Yes	No	
16.9 Gearbox			
Oil samples: Remarks: Oil change is dependent upon the oil analysis Oil type: Optimol Optigear Synthetic A 320 (by Castrol) or Gearmaster Eko 320 (by Fuchs)	Yes	No	
9.2 Generator Frame			
Bolted Connection: cast frame - generator frame Check 10% without loosening bolts! For wrench size and tightening torque see 2.5xl_WDI_bolts.	Yes	No	
9.1 Base frame top section (also bearing housing) and bottom section			
Bolted connection: Cast frame top and bottom section Check 10% without loosening bolts For wrench size and tightening torque see 2.5xl_WDI_bolts.	Yes	No	
8.2 Yaw Drive			
First maintenance of the bolted connections (yaw drive to mainframe): All bolts (100%) must be torque checked. For wrench size and tightening torque see 2.5xl_WDI_bolts.	Yes	No	
Reinstall flooring remove to access the yaw drives	Yes	No	
16.5 Main Bearing Groove Nut			
Check: bearing play, i.e. check installation of the labyrinth cover on the shaft shoulder for gap with a filler gage or cracks in the paintwork No clearance for the lock nuts to the labyrinth rings on the shaft is allowed.	Yes	No	
Check: If gap in between a lock nut and ring is observed: Loosen the 4 axially arranged screws in the lock nut and turn split groove nut up to the end position against the labyrinth ring and re-tension. To tension the groove nut, retighten the 4 axial screws. There are two different lock nut designs with different threads. The tightening torque is depending on the screw size (see 2.5xl_WDI_Bolts). Even it is not necessary to adjust the lock nuts, the screws have to be checked according to these torque values with a torque wrench.	Yes	No	

10.2 Rotational Speed Sensor (IFM)			
Function test: switching function Note: determine or justify the shift point with a frequency generator	Yes	No	
10.3 Speed frequency sensor for IFM			
Visual inspection: Fastening, cleanness, setting	Yes	No	
Function test: speed frequency signal	Yes	No	
10.5 Fire Extinguisher (optional feature)			
Date of the next maintenance:	Yes	No	
11.1 Emergency Stop Switch (PC, Top and central switch cabinet)			
Function test: Switching function	Yes	No	
11.2 Vibration Switch			
Function test: Switching function	Yes	No	
11.3 Rotor Lock Switch			
Function test: Switching function	Yes	No	
Verify 0° Rotor Position: Position rotor so that the rotor position in VisuPro (ANGLE_ROT_POS) is showing 0°. Verify that blade 1 is in a vertical position (pointing up). If not, re-reference the rotor position.	Yes	No	
Clean and assist other techs until they return from the hub	Yes	No	
16.9 Gearbox			
Visual inspection: Leakage, tooth contact pattern / roller bearing document if necessary) - untight places, damage	Yes	No	
Check: Noise, oscillatory characteristics	Yes	No	
7.4 Tower Flanges			
Visual inspection: flange deformation (gaps between flanges, local bending), material defects (cracks, gouges, delamination), corrosion protection (rust, defects in metallization), weld integrity (defects, gouges, cracks)	Yes	No	
100% Torque Check (2nd tower flange)	Yes	No	
7.3 Tower Shell			
Visual inspection: shell deformations (dents, creases), shell material defects (cracks, gouges, delamination), weld seam integrity (cracks, gouges, defects), corrosion (rust, defects in paintwork)	Yes	No	
Function test: sockets, lamps	Yes	No	
LOTO MVSG before entering transformer level	Yes	No	
7.1 Shell and T-Flange of the Adapter			
Visual inspection: shell deformations (dents, creases), shell material defects (cracks, gouges, delamination), weld seam integrity (cracks, gouges, defects), corrosion (rust, defects in paintwork) flange deformation (gaps between flange and concrete, local bending)	Yes	No	
100% Torque Check (1st tower flange transformer level)	Yes	No	

List of Tools, Serial Numbers, and Calibration Dates			
TOOL	Model	Serial Number	Calibration Due Date
Pressure Gauge			
Multi Meter			
Slide Caliper			
Slide Caliper			
Torque wrench			
Torque wrench			
Torque wrench			
Laser Alignment			

Comments

Name	Date	Signature

I hereby confirm the correct performance of the maintenance in accordance with the checklist, manual, and all applicable GE Work Instructions.	Site Manager or Site Lead Name	Date	Site Manager or Site Lead Signature

TPM Americas

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Site Name:	**WTG Number:**	**Date:**
Maintenace: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 18 19 **Other:**		**WTG COD Date:**
Rev. 4 _____10		**SR#:**

Task Description and additional information	Task Performed & No defects found?		Notes, Comments, or Explanations
Tech C			
Color of Paint Pen used for the Break-In Maintenance _____			
LOTO GMCB	Yes	No	
Hoist tools to the Nacelle with Tech B	Yes	No	
1.1 Welded Structure			
Visual Inspection: Twist locks, bolted connections, fixing of platform plating, fixing of railings and ladders, spark marks, moisture and insects.	Yes	No	
Function Test: Hatches closing properly	Yes	No	
Grind down corroded areas and restore the original coating.	Yes	No	
1.2 Fire Extinguisher (optional feature)			
Date of the next maintenance: , ...	Yes	No	
Climb Turbine and hoist tools to the Nacelle	Yes	No	
16.14 Alignment of Generator			
Alignment of the generator Remark: Use laser alignment system (Work With Tech A)	Yes	No	
8.2 Yaw Drive			
Remove flooring for access to yaw drives for Tech B	Yes	No	
Work with Tech A to rabbit ear the WTG	Yes	No	
LOTO the rotor lock and enter the hub with tools	Yes	No	
14.3 Pitch Drive			
First maintenance of the screw connections:All bolts (100%) must be torque checked on the first maintenance. For wrench size and tightening torque see 2.5xl_WDI_bolts.	Yes	No	
15.3 Rotorblade / Pitch Bearing			
Connection rotor blade - blade pitch bearing: First inspection - after one month Loosen all bolts individually and re-tighten.	Yes	No	
8.3.2 Connection: Yaw bearing - tower top flange			
All bolts that can be access with the "ETG"Electic torque Gun For wrench size and tightening torque see 2.5xl_WDI_bolts	Yes	No	
7.4 Tower Flanges			
Visual inspection: flange deformation (gaps between flanges, local bending), material defects (cracks, gouges, delamination), corrosion protection (rust, defects in metallization), weld integrity (defects, gouges, cracks)	Yes	No	
100% Torque Check (3rd tower flange) For tightening torque see 2.5xl_WDI_bolts.	Yes	No	
100% Torque Check (4th tower flange) For tightening torque see 2.5xl_WDI_bolts.	Yes	No	

7.2 Adapter Anchor Bolts			
POWER FROM PADMOUNT TRANSFORMER MUST BE OFF (LOTO) FOR ALL INTERIOR WORK PERFORMED UNDER OR AROUND DTA			
Visual inspection:flange deformation (gaps between flange and concrete, local bending), material defects (cracks, gouges, delamination), corrosion protection (rust, defects in metallization)	Yes	No	
Pretensioning of T- flange connection adapter/concrete: Do not undo the bolts beforehand! The pre-tightening force and the number of anchor bolts vary depending on the tower height and wind class and the foundation design. Information about the applied pretension force is to be found on a label at the tower adapter and in P-Net.	Yes	No	
Customer will provide specifications from the anchor bolt manufacture stating "MAINTENANCE" criteria. This should include a frequencey, torque spec "KIPS" , and quantity.	Yes	No	

Comments

List of Tools, Serial Numbers, and Calibration Dates			
TOOL	Model	Serial Number	Calibration Due Date
Pressure Gauge			
Multi Meter			
Slide Caliper			
Slide Caliper			
Torque wrench			
Torque wrench			
Torque wrench			
Laser Alignment			

Name	Date	Signature

I hereby confirm the correct performance of the maintenance in accordance with the checklist, manual, and all applicable GE Work Instructions.	Site Manager or Site Lead Name	Date	Site Manager or Site Lead Signature

Maintenance Checklist

Turbine name:			
Turbine ID:		**Cost unit:**	
Operating hours:		**Date:**	

OK	**not OK**	**n.pre.**	**n.inc.**	**adj./exch.**
in order	not in order	not present	Not included in scope of maintenance	Adjusted or exchanged

1 – Pre-assembled Power Module (PPM)		**OK**	**not OK**	**n.pre**	**n.inc**	**adj./ exch.**	**Completed by**	**Remarks**
1.1 – Welded Structure	Condition, function of the hatches	☐	☐	☐	☐	☐		
1.2 – Fire Extinguisher (optional feature)	Expiration date:	☐	☐	☐	☐	☐		

2 – Transformer Level		**OK**	**not OK**	**n.pre**	**n.inc**	**adj./ exch.**	**Completed by**	**Remarks**
2.1 – Encapsulated-winding dry-type Transformer	Condition	☐	☐	☐	☐	☐		
2.2 – Fan	Function	☐	☐	☐	☐	☐		

3 – Medium Voltage Switch Gears		**OK**	**not OK**	**n.pre**	**n.inc**	**adj./ exch.**	**Completed by**	**Remarks**
Entire	Condition, function	☐	☐	☐	☐	☐		

4 – Converter Cabinets		**OK**	**not OK**	**n.pre**	**n.inc**	**adj./ exch.**	**Completed by**	**Remarks**
4.1 – Cabinet/housing complete	Condition, function	☐	☐	☐	☐	☐		
4.2 – Cable Terminals / Cables	Condition, function	☐	☐	☐	☐	☐		
4.3 – Filter Element	Condition, exchange	☐	☐	☐	☐	☐		
4.4 – Low Voltage Part	Condition, function	☐	☐	☐	☐	☐		
4.5.1 – Converter Cooling Circuit – both *Single* and *Dual Loop Cooling System*	Condition, function	☐	☐	☐	☐	☐		

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4 – Converter Cabinets		OK	not OK	n.pre	n.inc	adj./ exch.	Completed by	Remarks
4.5.2 – Radiator Cooling Circuit – *Dual Loop Cooling System* only	Condition, function	☐	☐	☐	☐	☐		
4.6 – Software	Check fault history	☐	☐	☐	☐	☐		

5 – Power Distribution Panel (PDP)		OK	not OK	n.pre	n.inc	adj./ exch.	Completed by	Remarks
5.1 – Power Circuit Breaker	Condition, function, Switching cycles:	☐	☐	☐	☐	☐		
5.2 – Cable Terminals	Condition	☐	☐	☐	☐	☐		
5.3 – Grounding Conductor	Condition	☐	☐	☐	☐	☐		
5.4 – Filter Element	Condition, exchange	☐	☐	☐	☐	☐		
5.5 – Fuses	Condition	☐	☐	☐	☐	☐		
5.6 - Switches	Condition, function	☐	☐	☐	☐	☐		

6 – Main Control Cabinet (MCC)		OK	not OK	n.pre	n.inc	adj./ exch.	Completed by	Remarks
6.1 – Complete Cabinet	Condition, function	☐	☐	☐	☐	☐		
6.2 – Filter Element	Condition, exchange	☐	☐	☐	☐	☐		
6.3 – Filter Fan and Thermostat	Function	☐	☐	☐	☐	☐		
6.4 – PLC	Check for software update, parameter settings	☐	☐	☐	☐	☐		
6.5 – PC	Check for software update,	☐	☐	☐	☐	☐		
6.6 - UPS	Function	☐	☐	☐	☐	☐		

7 – Tower		OK	not OK	n.pre	n.inc	adj./ exch.	Completed by	Remarks
7.1 – Shell and T-Flange of the Adapter	Condition	☐	☐	☐	☐	☐		
7.2 – Adapter Anchor Bolts	Condition, check pre-tightening	☐	☐	☐	☐	☐		
7.3 – Tower Shell	Condition	☐	☐	☐	☐	☐		
7.4 – Tower Flanges	Condition, check pre-tightening	☐	☐	☐	☐	☐		
7.5 – Tower Interior	Check installations	☐	☐	☐	☐	☐		

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7 – Tower		OK	not OK	n.pre	n.inc	adj./ exch.	Completed by	Remarks
7.6 – Power and Control Cables	Condition	☐	☐	☐	☐	☐		
7.7 – Twist of Power Cable Loop	Condition, function	☐	☐	☐	☐	☐		
7.8 – Platforms, Hatches	Condition, function	☐	☐	☐	☐	☐		
7.9 – Railing doors on each platform	Condition, function	☐	☐	☐	☐	☐		
7.10 – Winch/Hoist	Condition, function	☐	☐	☐	☐	☐		
7.11 – Ladder and Fall Protection	Condition, function	☐	☐	☐	☐	☐		
7.12 – Door / Entrance Area	Condition, function	☐	☐	☐	☐	☐		
7.13 – Emergency Lights	Function, check of batteries	☐	☐	☐	☐	☐		
7.14 – Shadow Sensor (optional feature)	Condition	☐	☐	☐	☐	☐		
7.15 – Oil drain tank underneath tower top flange	Condition	☐	☐	☐	☐	☐		

8 – Yaw System		OK	not OK	n.pre	n.inc	adj./ exch.	Completed by	Remarks
8.1 – Hydraulic Brake	General condition, function	☐	☐	☐	☐	☐		
8.1.1 – Brake Disc	Condition	☐	☐	☐	☐	☐		
8.1.2 – Brake Calipers	Condition, check bolted connections	☐	☐	☐	☐	☐		
8.1.3 – Brake Pads	Condition	☐	☐	☐	☐	☐		
8.1.4 – Hydraulic System	Condition, function	☐	☐	☐	☐	☐		
8.2 – Yaw Drive	Condition, function, oil change, check of bolted connections	☐	☐	☐	☐	☐		
8.3 – Connection of the Yaw Bearing	Check of bolted connections, lubrication	☐	☐	☐	☐	☐		
8.3.1 – Connection base frame – yaw bearing	Check of bolted connections	☐	☐	☐	☐	☐		
8.3.2 – Connection yaw bearing – tower top flange	Check of bolted connections	☐	☐	☐	☐	☐		
8.4 – Yaw bearing and gear-tooth system	Condition, lubrication	☐	☐	☐	☐	☐		
8.5 – Position Sensor	Condition, function	☐	☐	☐	☐	☐		
8.6 – Gear Ring and Driving Pinion	Condition	☐	☐	☐	☐	☐		

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8 – Yaw System		OK	not OK	n.pre	n.inc	adj./ exch.	Completed by	Remarks
8.7.1 – Wind Vanes	Condition, function	☐	☐	☐	☐	☐		
8.7.2 – Anemometer	Condition, function	☐	☐	☐	☐	☐		
8.8 – Ultrasonic Anemometer (FT Tech)	Condition, function	☐	☐	☐	☐	☐		

9 – Base Frame		OK	not OK	n.pre	n.inc	adj./ exch.	Completed by	Remarks
9.1 – Base frame top section (also bearing housing) and bottom section	Condition, check of bolted connections	☐	☐	☐	☐	☐		
9.2 – Generator Frame	Condition, check of bolted connections	☐	☐	☐	☐	☐		
9.3 – Tread of the steps, gratings	Condition	☐	☐	☐	☐	☐		

10 – Top Box		OK	not OK	n.pre	n.inc	adj./ exch.	Completed by	Remarks
10.1 – Contactors, Sensors	Condition, function	☐	☐	☐	☐	☐		
10.2 – Rotational Speed Sensor (IFM)	Function	☐	☐	☐	☐	☐		
10.3 – Speed frequency sensor for IFM	Condition, function	☐	☐	☐	☐	☐		
10.4 – First Aid Kit (optional feature)	Completeness, Expiration date:	☐	☐	☐	☐	☐		
10.5 – Fire Extinguisher (optional feature)	Expiration date:	☐	☐	☐	☐	☐		

11 – Safety Chain		OK	not OK	n.pre	n.inc	adj./ exch.	Completed by	Remarks
11.1 – Emergency Stop Switch (PC, Top and central switch cabinet)	Function	☐	☐	☐	☐	☐		
11.2 – Vibration Switch	Function	☐	☐	☐	☐	☐		
11.3 – Rotor Lock Switch	Function	☐	☐	☐	☐	☐		
11.4 – Converter Emergency Stop	Function	☐	☐	☐	☐	☐		
11.5 – Over Speed Monitor	Condition, function	☐	☐	☐	☐	☐		

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12 – Nacelle		OK	not OK	n.pre	n.inc	adj./ exch.	Completed by	Remarks
12.1 – General	Condition, check of fastenings and bolted connections	☐	☐	☐	☐	☐		
12.2 – Rotor Lock – low-speed shaft	Condition, function, bolted connections	☐	☐	☐	☐	☐		
12.3 – Emergency Lights	Function	☐	☐	☐	☐	☐		
12.4 – Storage net for the height rescue device	Condition, fastening	☐	☐	☐	☐	☐		
12.5 – Obstruction Lights (optional feature)	Condition, function	☐	☐	☐	☐	☐		
12.6 – Ice Sensor (optional feature)	Condition, function	☐	☐	☐	☐	☐		

13 – Hub		OK	not OK	n.pre	n.inc	adj./ exch.	Completed by	Remarks
13 - General	Condition	☐	☐	☐	☐	☐		
13.1 – Emergency Lights	Function	☐	☐	☐	☐	☐		
13.2 – General condition of the spinner	Condition, fastening	☐	☐	☐	☐	☐		
13.3 – Entry to the hub	Condition, function	☐	☐	☐	☐	☐		

14 – Pitch System		OK	not OK	n.pre	n.inc	adj./ exch.	Completed by	Remarks
14.1 – Blade Control Cabinets Battery Cabinets	Condition, function	☐	☐	☐	☐	☐		
14.2 – Test of Battery	Function	☐	☐	☐	☐	☐		
14.3 – Pitch Drive	Condition, function, oil change, lubrication of output bearing, bolted connections	☐	☐	☐	☐	☐		
14.4 – Pitch Motors	Condition, function of fan	☐	☐	☐	☐	☐		
14.5 – Pitch Bearings	Condition, check of bolted connections, lubrication	☐	☐	☐	☐	☐		
14.6 – Gear Rings and Driving Pinions	Condition, check of lubrication, exchange of grease, function of lubrication system	☐	☐	☐	☐	☐		
14.7 – 5° and 89° Position Switch, Camshaft Segment	Condition, function	☐	☐	☐	☐	☐		
14.8 – Pinion Encoder (optional feature)	Condition	☐	☐	☐	☐	☐		

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15 – Blades		OK	not OK	n.pre	n.inc	adj./ exch.	Completed by	Remarks
15.1 – Outer Shell	Condition	☐	☐	☐	☐	☐		
15.2 – Inside	Condition, check of fastenings	☐	☐	☐	☐	☐		
15.3 – Rotorblade/Pitch Bearing	Check of bolted connections	☐	☐	☐	☐	☐		

16 – Drive Train		OK	not OK	n.pre	n.inc	adj./ exch.	Completed by	Remarks
16.1 – Rotor shaft (outside and inside)	Condition	☐	☐	☐	☐	☐		
16.2 – Connection Rotor Shaft/Hub	Condition, check of bolted connections	☐	☐	☐	☐	☐		
16.3 – Main Bearing Seals	Condition	☐	☐	☐	☐	☐		
16.4 – Main Bearing Lubrication System	Condition, function	☐	☐	☐	☐	☐		
16.5 – Main Bearing Groove Nut	Condition, adjustment	☐	☐	☐	☐	☐		
16.6 – Coupling Flange Shaft - Gearbox	Check of bolted connections	☐	☐	☐	☐	☐		
16.7 – Gearbox Fastening	Check of bolted connections	☐	☐	☐	☐	☐		
16.8 – Structure Born Noise Insulation Gearbox	Condition	☐	☐	☐	☐	☐		
16.9 – Gearbox	Condition, oil sample/change, hoses, ventilating filters	☐	☐	☐	☐	☐		
16.10 – Offline Filter	Condition, function, filter/seal kit exchange	☐	☐	☐	☐	☐		
16.11 – Oil Cooler	Condition, check/exchange of hoses	☐	☐	☐	☐	☐		
16.12 – External Oil Heater (if present)	Condition	☐	☐	☐	☐	☐		
16.13 – Coupling	Condition, check of bolted connections, measure leakage current insulation	☐	☐	☐	☐	☐		
16.14 – Generator Alignment	Check	☐	☐	☐	☐	☐		

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17 – Generator		OK	not OK	n.pre	n.inc	adj./ exch.	Completed by	Remarks
17 - General	Condition	☐	☐	☐	☐	☐		
17.1 – Bearings	Condition, function, lubrication system, grease exchange	☐	☐	☐	☐	☐		
17.2 – Fastening	Check of bolted connections	☐	☐	☐	☐	☐		
17.3 – Generator Sound Isolation (Dampener)	Condition	☐	☐	☐	☐	☐		
17.4 – Carbon Brushes for Grounding (optional feature)	Condition	☐	☐	☐	☐	☐		
17.5 – Power Cables	Condition, fixation	☐	☐	☐	☐	☐		
17.6 – Incremental Encoder	Condition, check failure signal	☐	☐	☐	☐	☐		
17.7 – GMCB	Function, settings, bolted cable fastenings, exchange of the fan filter	☐	☐	☐	☐	☐		
17.8 – Cooling System	Function, condition	☐	☐	☐	☐	☐		

18 – Slip Ring Tranformer		OK	not OK	n.pre	n.inc	adj./ exch.	Completed by	Remarks
18 - General	Condition	☐	☐	☐	☐	☐		
18.1 – Slipring Unit	Condition, lubrication	☐	☐	☐	☐	☐		

19 – Active Brake		OK	not OK	n.pre	n.inc	adj./ exch.	Completed by	Remarks
19.1 – Brake Pads	Condition, adjustment, exchange	☐	☐	☐	☐	☐		
19.2 – Brake Disc	Condition	☐	☐	☐	☐	☐		
19.3 – Brake Caliper	Condition, check of bolted connections,	☐	☐	☐	☐	☐		
19.4 – Pad Wear and ON/OFF Indicator Switch	Condition, function	☐	☐	☐	☐	☐		
19.5 – Hydraulic System	Condition, function, oil and filter exchange	☐	☐	☐	☐	☐		

20 – Crane System		OK	not OK	n.pre	n.inc	adj./ exch.	Completed by	Remarks
20 - General	Safety check by authorized person	☐	☐	☐	☐	☐		

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Remarks

Date, Signature .....

Maintenance Personnel

Name	Signature

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