

**Turbine No./Id:** 243679  
**Service Order:** 61114030

**PAD No.**  
CHOUY E6

**Turbine Type:** V100  
**Start Date:** 08.11.2023  
**End Date:** 08.11.2023

**Customer's Ref./P.O.No.:**  
**Vestas Ref.:** IP1020230313  
**Date & Time of Receipt**  
13.03.2023 00:54:14

**Customer's Address:**

WPD ENERGIE 21 N 16  
32-36 rue de Bellevue  
F-92100 BOULOGNE-BILLANCOURT

**Site's Address:**

F-

**Reason for Call Out: V100 2.0MW Mk10D Trafo inspection 1 Year**

V100 2.0MW Mk10D Trafo inspection 1 Year

**Work Performed**

Date :08/12/2023-Pause : 12 :40-Run : 14 :11 #Descriptif du travail  
réalisé : SERVICE TRAFO Service type 1 yearE-SIF TrafoDone via  
turbine I&IE-SIF ICPEDone via turbine I&I Pour les documentations de  
format PDF, merci de les joindre a ce mail et ajouté l adresse mail :  
MEDCservFranceCserv@vestas.com 2. Infos Trafo Fabricant: VESTASSerial  
Number: 1110070692 3. Statut de fin d intervention RUN

**Specification of Item Consumption**

Item	Description	Serial Number	Quantity	UoM
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**Specification of Time Consumption**

Person Name	Date	Start	End	Hours	Activity type
EITIL	08.11.2023	14:30:00	17:00:00	2.50	Work Time
JUBOL	08.11.2023	14:30:00	17:00:00	2.50	Work Time

**Total Time Consumption:** 5.00

**Service Inspection Form****0010 C - Service 1 Year****0 eSIF**

0.01 0. DMS: 0057-9101 V08

**14 To examine the fan for the cooling syste**

- |       |   |    |
|-------|---|----|
| 14.01 | Listen for any dissonance from the fan.   | OK |
| 14.02 | Do an inspection of the fan for signs of wear and tear (surface, fixture, plug, and bolts). | OK |
| 14.03 | Examine for leakage between the fan and the air distribution box.                           | OK |
| 14.04 | Clean the fan and the surroundings for dirt and dust.                                       | OK |

**15 Switchgear**

- |       |   |    |
|-------|---|----|
| 15.01 | To examine the voltage presence indicator system (VPIS/VDS):<br>Examine that the VPIS/VDS on the CBP and on all the SDPs work.  | OK |
| 15.02 | To examine the SF6 pressure level: Examine the SF6 pressure level.  | OK |
| 15.03 | To examine the circuit breaker operation counter: Do a check of the<br>circuit breaker operation counter.   | OK |
| 15.04 | To examine the protection relay: Examine the protection relay internally.   | OK |
| 15.05 | To inspect the HV cable in the basement: Do a check of the HV cable<br>for all the visible damage caused by wear and tear.  | OK |
| 15.06 | To prepare the HV switchgear for the trip test: Make sure that the HV<br>switchgear is prepared for the trip test.  | OK |
| 15.07 | To test the trip and blocking function on the switchgear: Do a check to<br>make sure that the WTG Trip signal lamp on the switchgear CBP is lit<br>(red) and that the switchgear trips. | OK |

# Service Report

**Turbine No./Id:**  
243679

**Service order**  
61114030

- |       |   |    |
|-------|---|----|
| 15.08 | Make sure that the circuit breaker does not close.  | OK |
| 15.09 | Do a check to make sure that the WTG Trip signal lamp on the switchgear CBP is lit (red).                       | OK |
| 15.10 | To examine the HV switchgear functions: Examine the functions of the HV switchgear (ABB or Ormazabal).          | OK |
| 15.11 | To do the inspection for water condensation: Do an inspection for water condensation inside the LV compartment. | OK |
| 15.12 | State the average condensation condition of all panels: No visible condensation                                 | OK |
| 15.13 | State the average condensation condition of all panels: Visible condensation                                    |    |
| 15.14 | State the average condensation condition of all panels: Heavy condensation                                      |    |
| 15.15 | To inspect for corrosion: Do an inspection for corrosion inside the LV compartment.                             | OK |
| 15.16 | State the average corrosion condition of all the panels: No visible corrosion                                   | OK |
| 15.17 | State the average corrosion condition of all the panels: Beginning corrosion                                    |    |
| 15.18 | State the average corrosion condition of all the panels: Moderate corrosion                                     |    |
| 15.19 | State the average corrosion condition of all the panels: Heavy corrosion  |    |

Not Applicable

Not Applicable

Not Applicable

Not Applicable

Not Applicable

Turbine No./Id:  
243679

Service order  
61114030

**16 To test the arc detection and smoke dete**

- |       |  |    |
|-------|--|----|
| 16.01 | To test the arc detection sensor in the busbar section: Do a check to make sure that the sensor input LED 3 flashes green on the front of the arc detection relay. | OK |
| 16.02 | Do a check to make sure that the WTG Trip signal lamp on the switchgear CBP is illuminated (red).  | OK |
| 16.03 | Make sure that there is no alarm on the protection relay or on the front of the CBP.   | OK |
| 16.04 | To prepare the transformer room for the test of arc detection sensors: Prepare the transformer room for the test of arc detection sensors.                         | OK |
| 16.05 | To test the arc detection sensors in the transformer room: Make sure that sensor inputs LED 1 and LED 2 flash green on the front of the arc detection relay.       | OK |
| 16.06 | Make sure that the LED WTG Trip on the front of the CBP on the HV switchgear is turned on.   | OK |
| 16.07 | To do a test of the smoke detection sensor in the nacelle section: Do a test of the -700-02-01-BR1 smoke detection sensor in the nacelle.                          | OK |
| 16.08 | Make sure that sensor input LED 4 flashes green on the front of the arc detection relay.   | OK |
| 16.09 | Make sure that the LED WTG Trip on the HV switchgear front is on.  | OK |
| 16.10 | To examine the smoke detection sensor, spray Solo Aerosol (item no. 231082) into the smoke detection sensor.   | OK |
| 16.11 | Make sure that sensor input LED 4 flashes green on the front of the arc detection relay.   | OK |
| 16.12 | Make sure that the LED WTG Trip on the HV switchgear front is on.  | OK |
| 16.13 | Clean the smoke detection sensor with a damp cloth and a solution of dish-washing detergent.   | OK |
| 16.14 | To do a test of the smoke detection sensor in the switchgear section:  | OK |

Turbine No./Id:  
243679Service order  
61114030

Do a test of the -700-02-03-BR1 smoke detection sensor in the nacelle.

16.15 Make sure that the sensor input LED 5 on the front of the arc detection relay flashes green. OK

16.16 Make sure that the LED WTG Trip on the HV switchgear front is on. OK

16.17 Spray Solo Aerosol (item no. 231082) into the smoke detection sensor to examine the smoke detection sensor. OK

16.18 Make sure that the sensor input LED 5 on the front of the arc detection relay flashes green. OK

16.19 Make sure that the LED WTG Trip on the HV switchgear front is on. OK

16.20 Clean the smoke detection sensor with a damp cloth and a solution of dish-washing detergent. OK

## 17 Condition of the transformer room in gen

17.01 Make sure that the transformer room is clean and without dust and dirt. OK

## 18 To examine the cooling system in the tra

18.01 To examine the PT100 sensors: Make sure that the PT100 sensor cables are secure and kept away from the transformer windings. OK

## 19 To inspect the HV cables

19.01 Examine the HV cable terminations for signs of damage. OK

19.02 Do a check of the HV end terminals for cracks or other damages. OK

19.03 Examine the connection to the transformer terminal. OK

## 20 Mechanical inspection of the transformer

20.01 To examine the support blocks: Examine the support blocks for signs of displacement of the top and bottom support blocks or windings. OK

Turbine No./Id:  
243679Service order  
61114030

20.02 Make sure that the rubber inserts between the windings and the support OK  
blocks are in their initial positions, if any.

20.03 Examine the surface of the top and bottom support blocks for signs of OK  
arcing and tracking.

20.04 To examine the foundation: Make sure that the insulation plate below OK  
the iron core is in the initial position with no signs of displacement.

## 21 Electrical inspection of the transformer

21.01 To do the inspection of the HV windings: Examine the surface of the HV OK  
windings for burns, tracking, pollution, cracks, and other irregularities.

21.02 Examine the appearance of the lightning arresters. OK

21.03 Examine the lower HV terminal for cracks or other signs of weakness OK  
caused by the load of the lightning arrester.

21.04 Make sure that the HV busbars, which connect the top and bottom of OK  
the HV winding, are not unintentionally bent in any direction.

21.05 Carefully examine the full length of the HV busbars for signs of fatigue OK  
and cracks.

21.06 To do an inspection of the LV windings and connections: Make sure that OK  
all the cables connected to the transformer and to the cable rails in the  
transformer room are correctly attached with the LV bolts.

21.07 Do a visual examination to make sure that there are no defective cable OK  
lugs or signs of hot spots at the connection points.

21.08 Examine the cables for wear. OK

21.09 Examine the clearance (minimum 30 mm) between the top support OK  
bracket and the cables.

21.10 Examine the LV terminals attached to the iron core with the insulators. OK

21.11 Examine the LV windings for cracks. OK

Turbine No./Id:  
243679Service order  
61114030**22 To clean the transformer**

- 22.01 To clean the outer surface of the HV windings: Examine the HV windings for signs of discharge activity on the surface. OK
- 22.02 To clean the lightning arresters: Clean the lightning arresters for dirt and dust. OK
- 22.03 To clean the cooling system: Clean the cooling system on the LV and HV connection side of the transformer. OK
- 22.04 Clean the cooling hoses for dirt and dust, both outside and inside the duct. OK
- 22.05 Clean the air-distribution box surface. OK
- 22.06 To clean the HV busbars: Clean the HV busbars for dirt and dust. OK
- 22.07 To clean the support blocks: Clean the bottom HV support blocks for dirt and dust. OK
- 22.08 Clean the top HV support blocks for dirt and dust. OK
- 22.09 To clean the cable end terminations: Clean the cable end terminations for dirt and dust. OK
- 22.10 To clean the inside of the HV winding: Clean the inside of the HV winding with a cloth and a line. OK
- 22.11 To clean the LV winding: Clean the space between the LV winding and the barrier. OK

**23 End of inspection**

- 23.01 Make sure that no tools or other loose parts are left behind in the transformer room. OK

**25 Final condition assessment of the HV tra**

- 25.01 Transformer room: Has there been any sign of water ingress or severe

**Turbine No./Id:**  
243679

**Service order**  
61114030

condensation in the transformer room? Yes:

Not Applicable

25.02 Transformer room: Has there been any sign of water ingress or severe condensation in the transformer room? No: OK

25.03 Have there been mechanical damages in the transformer room? Yes:

Not Applicable

25.04 Have there been mechanical damages in the transformer room? No: OK

25.05 HV transformer: Has the transformer surface been dirty (for example layer of dust, dirt, or salt, and such like) during the inspection? Yes:

Not Applicable

25.06 HV transformer: Has the transformer surface been dirty (for example layer of dust, dirt, or salt, and such like) during the inspection? No: OK

25.07 Have there been any issues related to the electrical connections, or terminations in the transformer room? Yes:

Not Applicable

25.08 Have there been any issues related to the electrical connections, or terminations in the transformer room? No: OK

25.09 Have there been signs of electrical discharges on the HV windings and winding support blocks (discharges notices as black marks or traces on surfaces)? Yes:

Not Applicable

25.10 Have there been signs of electrical discharges on the HV windings and winding support blocks (discharges notices as black marks or traces on surfaces)? No: OK

25.11 Have there been signs of hot spots on the iron core during the inspection? Yes:

Not Applicable

25.12 Have there been signs of hot spots on the iron core during the inspection? No: OK



Turbine No./Id:  
243679Service order  
61114030

25.13 Have there been mechanical damages on HV transformer during the inspection (broken delta connections and displacement of: windings, support blocks, spacers in LV winding, and such like)? Yes:

Not Applicable

25.14 Have there been mechanical damages on HV transformer during the inspection (broken delta connections and displacement of: windings, support blocks, spacers in LV winding, and such like)? No: OK

25.15 HV switchgear and surroundings: Has there been a need for HV switchgear repairs/maintenance/troubleshooting during the inspection (for example, if the switchgear did not trip as intended during the arc detection test, repair/maintenance/troubleshooting of the HV switchgear is required)? Yes:

Not Applicable

25.16 HV switchgear and surroundings: Has there been a need for HV switchgear repairs/maintenance/troubleshooting during the inspection (for example, if the switchgear did not trip as intended during the arc detection test, repair/maintenance/troubleshooting of the HV switchgear is required)? No: OK

25.17 Are there other aggravating circumstances relating to HV systems in general? Yes:

Not Applicable

25.18 Are there other aggravating circumstances relating to HV systems in general? No: OK

## 26 General information of the transformer

26.01 Transformer manufacturer (as a comment):

Vestas

26.02 Transformer series no. (as a comment):

1110070692

26.03 Repairs carried out (as a comment):

No