



**SriVaru Green Energy**  
Service Private Limited

## **Hoto Inspection Report – V27**

Report No:	HIR/24/ SVGE/043
Date:	13-04-2024
Inspected By:	Mr. RANJITH KUMAR, Abdulla
Site Operator:	Mr. Veeraselvam

## **Turbine Details**

Customer	M/S Kongunadu Air Product (P) LTD		
WEG No	1769	Location	01
Tower Height	50 Meters	HTSC No	039214391229
Capacity	225 kW	Site	Elavanthi
Model	Vestas V27	D.O.C	13.03.2008

## V27 BOTTOM

<b>1</b>	<b>EB Customer Yard System</b>	
1.1	Earth Pit slot	Chamber cove 5 nos not available
1.2	EB, Customer, Control Room Painting	Painting work to be carried
1.3	EB Side Lightning Arrester (KV)	R, B Failed
1.4	Customer Side Lightning Arrester (KV)	R, B Failed
1.5	EB Side, Customer Side Handle Earth	Not available
1.6	All Insulator	Not available
1.7	EB Meter Glass	Damaged
1.8	EB Side, Customer Side AB switch Working Condition	Customer side not open, to be knife alignment work
<b>2</b>	<b>Safety</b>	
2.1	Earth Rod -3 Nos	Not available
2.2	Fire Extinguisher	14/10/23 to 13/10/24
2.3	Fire Bucket Sand – 2 nos With Stand	Ok
2.4	33KV Hand Gloves	Not available
2.5	Rubber Mat	Ok
2.6	Safety Guide Photo	Ok
2.7	First Aid Box	Not available
<b>3</b>	<b>Power Transformer</b>	
3.1	Transformer Oil Level	Ok
3.2	Transformer Temperature Gauge	Ok
3.3	Transformer Oil Leakage	Ok
3.4	Transformer Breather Silica gel	Ok
3.5	Transformer Termination & Cover Bolt	4 nos not available
3.6	Transformer Earth Plate Connection	Ok
3.7	Transformer Gland & Earth Connection	Ok

<b>4</b>	<b>Control Room</b>	
4.1	Tube Light In & Out	Failed
4.2	Light MCB - 2 Pole	Ok
4.3	Room Window Glass	Ok
4.4	Power Cable Stand Platform	Ok
<b>5</b>	<b>Ground To Top Cable System</b>	
5.1	3 Phase Cable 4 Core	Ok
5.2	Auxiliary Cable 5 Core	Ok
5.3	Light Cable 4 Core	1 core failed
5.4	EMC Cable 8 Core	Ok
5.5	Earth Cable Top to Bottom	Ok
5.6	Fiber Optic Cable	Ok
<b>6</b>	<b>Ground Main Panel System</b>	
6.1	Watchdog	Not available, circuit bypass
6.2	Timer	Ok
6.3	Air To Air 4" Cooler Fan (2 No's)	Not available
6.4	Stabilizer 2KVA	Ok
6.5	Dhen Card Surge Arrester	Ok
6.6	63A Fuse	Ok
6.7	2S Relay	Ok
6.8	1B Relay	Ok
6.9	24V Indication Lamp	Failed
6.10	Thyristor	Ok
6.11	EH 250 Contactors	Ok
6.12	HPL 330 Contactors	Ok

6.13	RCC Circuit	Ok
6.14	Generator Breaker Mechanism	Not available
6.15	Controller Switch Mechanism	Handle damaged
6.16	Gen Cable Termination Ground	Ok
6.17	CT Coil	Ok
6.18	Panel Door Hinge	Ok
6.19	Panel Door Lock	Ok
6.20	1.5V Processor Cell Box	Damaged
6.21	Power Cable PG – Gland	PG 21-2 no's & PG 13.5 -6 no's
6.22	Gen 2 contactor	OK
6.23	Gen 2 MCB	OK
6.24	24V Auxiliary DC contactor	OK
6.25	1A Transformer	Ok
6.26	EMC Switch	OK
<b>7</b>	<b>MCCB System</b>	
7.1	Ammeter	Failed
7.2	Voltmeter	Failed
7.3	Ammeter, Voltmeter selector switch	Failed
7.4	230V Indication Lamp (R, Y, B)	Ok
7.7	2A Glass Fuse & 20A Holder	Ok
7.8	MCCB Safety Acrylic Sheet	Not available
7.9	MCCB Current Coil (3No's)	Ok
7.10	MCCB Cable Termination	Ok
7.12	MCCB Working Condition	Ok

7.13	MCCB Door	Ok
<b>8</b>	<b>Additional Panel System</b>	
8.1	200A MCB Mechanism	not available
8.2	Cooling Fan 4"	1 no need
8.3	Dust Filter Cover	Ok
8.4	Danger Cover	Ok
8.5	Door Lock	Ok
8.6	Controller Display Working	Ok
<b>9</b>	<b>Pitch System Checking</b>	
9.1	Balluff Sensor Value 0.041, 9.968	0.027, 9.970
9.2	Hydraulic Pump Holding Time 0 To 90 bar	21 sec
9.3	proportional Valve Holding Time (75 To 90 Bar Time)	255 sec
9.4	Sine Test	Ok
9.5	Pitch Acc Bar	26
9.6	Contactor test	Ok
<b>Pitch control card value</b>		
9.7	9 – (0.05)	0.076
9.8	10 – (-0.05)	0.000
9.9	11 – (8.500)	7.874
9.10	12 – (-9.50)	-9.031
<b>10</b>	<b>All Temperature °c</b>	
10.1	Ambient	36
10.2	Gen 1	51
10.3	Hydraulic	47
10.4	Nacelle	36

10.5	Gear Oil	44
10.6	Gen 2	47
<b>11</b>	<b>Tower system</b>	
11.1	Top to bottom all bolts	Ok
11.2	Tower earth	Ok
11.3	Tower vibration	Ok

<b>12.1 MAIN PANEL CAPACITOR TEST</b>			
	STEP 1 12.5 X 6	STEP 1 12.5 X 3	STEP 2 12.5 X
L1 – V 223	28	28	34
L2 – V 220	27	27	34
L3 – V 220	27	27	35

<b>12.2 ADDITIONAL PANEL CAPACITOR TEST</b>				
	STEP 1 12.5 X 2	STEP 2 12.5 X 2	Grid 12.5 X2	Additional
L1 - V	15	19	15 8	
L2 - V	10	19	15 8	
L3 - V	11	19	15 8	

## GROUND REMARKS

1. Control room outer side light failed.
2. Bottom to top light cable 1 core failed.
3. CT 217 Watchdog failed. Circuit bypass.
4. 24V DC led lamp failed.
5. Generator breaker mechanism set not available.
6. Controller switch handle not available.
7. CT3503 processor cell box damaged.
8. Cable gland PG 21-2 nos, PG 13.5 6 nos not available.
9. Ammeter failed.
10. Voltmeter failed.
11. Ammeter, voltmeter selector switch failed.
12. APFC panel 4" Cooling fan 1 no failed.
13. APFC panel controller failed.
14. Earth pit chamber cover 5 nos not available.
15. Yard DB structure to be painting work carried.
16. Consumer DB structure LA- R, B failed, to be replaced.
17. EB DB structure LA -R, B failed, to be replaced.
18. AB switch handle earth not available.
19. EB meter glass damaged.
20. AB switch consumer side not open, to be knife alignment work.
21. Power transformer terminal cover bolt 4 nos not available.
22. Safety 33KV hand gloves, earth rod, first aid box

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## V27 TOP

13	Hydraulic Unit System	
13.1	Hydraulic Damper	Damaged
13.2	Hydraulic Motor Bearing Noise	Ok
13.3	Hydraulic Motor Cooling Fan Leaf & Cover	Cooling leaf not available, screw M4-2 nos needed
13.4	Hydraulic Oil Level	Low 2ltrs needed
13.5	Hydraulic Oil Condition	Ok
13.6	Oil Level Sensor CT3218 – 3 Led	Ok
13.7	Hydraulic Oil Leakage	Not available
13.8	Pitch Cylinder Oil Leakage	Not available
13.9	Pitch Cylinder Damper	Ok
13.10	17 Bar Pressure Switch	Ok
13.11	Pitch Cylinder Sandwich	Ok
13.12	Pitch & Brake Pressure Relief valve	OK
13.13	Hydraulic Motor Cable	Insulation damaged
13.14	Hydraulic Hose A	Ok
13.15	Hydraulic Hose B	Ok
13.16	Hydraulic Hose C	----
13.17	Hydraulic Hose D	Ok
13.18	Pitch Cylinder Safety Cover	Kept at nacelle
13.19	Pitch Cylinder Safety Block	Ok
13.20	100 Bar Pressure Gauge	Ok
13.21	Hydraulic Filter	Ok
13.22	Break Accumulator	Ok
14	Gear Box System	
14.1	Gear Oil Level	Ok
14.2	Gear Oil Condition	Ok




14.3	Hallow shaft plastic safety cover	Ok
14.4	Caring to Bearing Noise	Ok
14.5	Caring to Bearing Fiber Cover	Ok
14.6	Gear Box Magnetic Rod	Ok
14.7	Radiator Oil Leakage	Ok
14.8	Gear Oil Leakage	Ok
14.9	Gear Oil Hose	Ok
14.10	Gear Box Noise	Ok
14.11	Gear Stay Function	Ok
14.12	Low Speed Oil Seal	Ok
14.13	Z- Clamp	Ok
14.14	Torque Arm Bush	Ok
14.15	Pitch Bearing	Ok
14.16	Gear Box Suspension	Ok
14.17	Gear Oil Level Stick	Ok
14.18	Gear box 'I' Hook	Ok
<b>15</b>	<b>Yawing System</b>	
15.1	Yaw Motor Cable	Ok
15.2	Yaw Motor Leaf & Cover	RHS side motor not available
15.3	Warm Gear Noise & Bearing	RHS side warm gear not available
15.4	Warm Gear Oil Level	Ok
15.5	Warm Gear Oil Leakage	Not available
15.6	Yaw Top Teeth	Ok
15.7	Yaw Top Safety Cover	Ok

15.8	Yaw Top Bed Bolt for Nacelle	Ok
<b>16</b>	<b>Generator System</b>	
16.1	Gen Bearing Noise	Ok
16.2	Gen Cooling Fan Leaf	Ok
16.3	Gen Damper	LHS front & rear failed
16.4	Gen Termination	Ok
16.5	Gen Cable Gland	Ok
16.6	Gen Cable Clamp	Ok
16.7	Gen Nipple	Ok
16.8	Gen Earth	Ok
16.9	Gen 'I' Hook	Not available
<b>17</b>	<b>Brake System</b>	
17.1	Brake Pad Thickness	Approx. 8 mm
17.2	Brake Pad Bypass Box3 (9-10)	Ok
17.3	Brake Pad Signal 2 Set	Ok
17.4	Brake Caliber 2 nos	Ok
17.5	Brake Caliber Metal Hose	Ok
17.6	Brake Disc Thickness	21.0 mm approx..
17.7	Brake Disc Cover	Not available
17.8	Transmission Shaft Play	Ok
17.9	Transmission Shaft Top & Side Cover & Clamp	Ok
17.10	Transmission Shaft M16 Bolt	Ok
<b>18</b>	<b>Battery Box System</b>	
18.1	12V Battery	Not available
18.2	24V Charger	Not available

18.3	Box 230V Cable	Not available
18.4	Box 8 Core 24V Cable	Not available
18.5	Timer Make	Not available
18.6	Relay Make	Not available
18.7	Battery Box Cover	Not available
18.8	Soft Brake Working	Not available
18.9	Soft Brake Modification	Not available
<b>19</b>	<b>Nacelle Light System</b>	
19.1	16 A Switch Box	Ok
19.2	Top Tube Light	Ok
19.3	Tube Light Cable	Ok
<b>20</b>	<b>Top Panel System</b>	
20.1	Contactor Yaw CW	Ok
20.2	Contactor Yaw CCW	Ok
20.3	Contactor Hydraulic	Ok
20.4	Contactor Gear oil	Ok
20.5	Thermal Relay Yaw CW	Ok
20.6	Thermal Relay Yaw CCW	Ok
20.7	Thermal Relay Hydraulic	Ok
20.8	Thermal Relay Gear oil	Ok
20.9	2S Relay	Ok
20.10	1B Relay	Ok
20.11	VOG CT279	Not available circuit bypass
20.12	Top Panel Cooling Fan 4"	Ok

20.13	Main Bearing Emergency Button	Ok
20.14	Top Panel Emergency Button	Ok
20.15	Yaw Top Emergency Button	Ok
20.16	Top Panel Door	Ok
20.17	Top Panel Door Hinge	LHS Side bottom damaged
20.18	Top Panel Damper	Damaged
20.19	SMPS	Ok
20.20	1.5V Processor Cell Box	Ok
20.21	Rectifier	1 no not available
<b>21</b>	<b>Main Shaft System</b>	
21.1	Main Bearing Noise & Play	Ok
21.2	Main Bearing Grease Leakage	Ok
21.3	Main Bearing Front and Back Cover	Ok
21.4	Rotor Sensor	Ok
21.5	VOG Sensor	Ok
21.6	Generator sensor	Ok
21.7	Main Bearing 24V Junction Box	Ok
21.8	Air Breather	Ok
21.9	Nipple Main Bearing	Ok
<b>22</b>	<b>Blade System</b>	
22.1	Blade Crack	Ok
22.2	Blade Arm Bearing	Play
22.3	Blade Bearing Play	Ok
22.4	Blade Breather	Ok

22.5	Nose Cone Crack	Ok
22.6	Nose Cone Clamp	Ok
22.7	Nose cone Ring U Clamp	Ok
22.8	Blade Lip Seal Grease Leakage in and out	Ok
22.9	Connecting Arm Bolt M24	Ok
22.10	Blade Extender	Not available
<b>23</b>	<b>Gear Oil Cooler Motor System</b>	
23.1	Motor Bearing Noise	Ok
23.2	Motor Cable	Insulation damage
23.3	Gear Oil Pump	Ok
23.4	Air Duct Cover	Kept in nacelle
23.5	Cooler Motor Bed Stand	Ok
23.6	Big Fan Leaf	Ok
<b>24</b>	<b>Power Cable Twisting</b>	
24.1	Twist Sensor	Ok
24.2	Power Cable Twist	Ok
24.3	 Clamp	Not available
24.4	Bottom to Top cable laying	Ok
24.5	Power Cable Insulation	Damaged
<b>25</b>	<b>Anemometer</b>	
25.1	Anemometer Bearing	Ok
25.2	Anemometer Cup, Holder & Cable	Ok
25.3	stand	Ok
<b>26</b>	<b>Windvane System</b>	
26.1	Windvane Bearing	Ok






26.2	Windvane Holder & Cable	Ok
26.3	Windvane Cap Nut	Not available
<b>27</b>	<b>Nacelle Door System</b>	
27.1	Nacelle Cover Crack	Ok
27.2	Nacelle Back Door	Ok
27.3	Nacelle Door Mechanism	Ok
27.4	Nacelle Lightning Spike	Ok
27.5	Lightning Spike Earth	Ok
27.6	Vibration Sensor	Ok
27.7	Nacelle Platform Steel Door	Ok
27.8	Nacelle Platform Ladder	Ok
27.9	Nacelle Cable Platform Metal Cover	Not available
27.10	Grease tray 2 nos	1 no not available

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## **TOP REMARKS**

1. Hydraulic unit vibration damper settle down, to be replaced.
2. Hydraulic motor cooling leaf with cotter pin, cover screw m4- 2 nos not available.
3. Hydraulic oil 2L needed.
4. Hydraulic motor cable insulation damaged.
5. pitch cylinder safety cover in nacelle need to be fixed work carried out.
6. Right side yaw motor with worm gear not available, to be provided.
7. Generator vibration damper LHS side front and back failed.
8. Generator 'I' hook not available.
9. Brake pad 8 mm, sensor connection OK.
10. Radiator vibration damper set not available.
11. VOG CT 279 not available circuit bypass, to be provided.
12. Top door hinges LHS side bottom damaged.
13. Top panel vibration damper damaged.
14. Bridge rectifier 1no not available.
15. Blade arm slightly play.
16. Gear oil cooler motor cable insulation damaged, to be replaced.
17. Gear oil cooler air duct cover kept at nacelle.
18. Power cable looping clamp set not available.
19. Generator power cable insulation damaged.
20. Windvane cap nut not available.
21. Nacelle cable metal cover not available
22. Grease collecting tray 1 no not available



Sl.No.	Observation details as of WEG Ltd inspection	Photos showing remarks/ Witness	Sl.No.	Observation details as of WEG Ltd inspection	Photos showing remarks/ Witness
1	CT 217 Watchdog failed, Circuit bypass.		9		
2	Hydraulic unit vibration damper settle down, to be replaced.		10		
3	Right side yaw motor with worm gear not available, to be provided.		11		
4	Generator vibration damper LHS side front and back failed.		12		
5	VOG CT 279 not available circuit bypass, to be provided.		13		
6			14		
7			15		
8			16		

#### **Conclusion:**

In general, various missing components and un-repairable failed components have to be replaced along with the repair / servicing of various defective parts identified in the inspection. It appears that proper preventive maintenance and immediate attention to various issues has to be addressed