



SriVaru Green Energy
Service Private Limited

Hoto Inspection Report – V47

Report No	HIR /2024-25/SVGE/ 056
Date	10-06-2024
Inspected By	Mr. N. Ranjith Kumar, Mr. Michal
Site Operator	Mr. Selavamanikam

Customer	M/s. Vaishnodevi Durga intrades		
WEG No	149	Location	01
Tower Height	50 Meters	HTSC No	039204340286 / old 337
Capacity	500 kW	Site	Ottamadam village
Model	Vestas V47	D.O.C	16.03.2004

V47 BOTTOM

1	EB Customer Yard System	
1.1	Earth Pit slot	Earth bit cover EB site 3 no's & Customer side 2 no's damaged
1.2	EB, Customer, Control Room Painting	Painting work to be done.
1.3	EB Side Lightning Arrester (KV)	3 no's failed, to be replaced
1.4	Customer Side Lightning Arrester (KV)	3 no's failed, to be replaced
1.5	EB Side, Customer Side Handle Earth	EB side not available
1.6	All Insulator	Ok
1.7	EB Meter Glass	Ok
1.8	EB Side, Customer Side AB switch Working Condition	Customer side pipe clamp damaged.
2	Power Transformer	
2.1	Transformer Oil Level	Ok
2.2	Transformer Temperature Gauge	Temp. Gauge failed and glass damaged
2.3	Transformer Oil Leakage	Ok
2.4	Transformer Breather Silica gel	Expired, to be replaced
2.5	Transformer Termination & Cover Bolt	Bolt set M10- 16 no's not available
2.6	Transformer Earth Plate Connection	Ok
2.7	Transformer Gland & Earth	Ok
3	Safety	
3.1	Earth Rod – 3No's	Not available
3.2	Fire Extinguisher	Expired, to be refilled
3.3	Fire Bucket Sand – 2 No's With stand	Bucket 1 no not available
3.4	33KV Hand Gloves	Not available
3.5	Rubber Mat	Not available
3.6	Safety Guide Photo	Ok
3.7	First Aid Box	Not available

4	Control Room	
4.1	Tube Light In & Out	Yard side 1 No failed
4.2	Light MCB – 2 Pole	Light MCB not used, now directly connected.
4.3	Room Window Glass	Damaged
4.4	Power Cable Stand Platform	Ok
5	Ground To Top Cable System	
5.1	3 Phase Cable 4 Core	Ok
5.2	Auxiliary Cable 5 Core	Ok
5.3	Light Cable 4 Core	Ok
5.4	EMC Cable 10 Core	Ok
5.5	Earth Cable Top to Bottom	Ok
5.6	Fiber Optic Cable	Ok
6	Ground Main Panel System	
6.1	Watchdog	Ok
6.2	Timer	Ok
6.3	Air To Air 6" Cooler Fan (2 No's)	Failed
6.4	Stabilizer 2KVA	Disconnected, to be checked
6.5	Capacitor 4" Cooling Fan (2 No's)	2 no's not available
6.6	Den Card Surge Arrester	Dhen guard 2 no's failed, bypass condition
6.7	63A Fuse	Not available
6.8	2S Relay	Ok
6.9	1B Relay	Ok
6.10	24V Indication Lamp	H944 LED failed
6.11	Thyristor	Ok
6.12	EH 550 Contactor	Ok

6.13	RCC Circuit	Not available
6.14	Generator Breaker Mechanism	Crack observed.
6.15	Controller Switch Mechanism	Ok
6.16	Gen Cable Termination Ground	1 run 35sqmm x 3Core cable failed, to be corrected
6.17	CT Coil (600/1) – 3No's	Ok
6.18	Panel Door Hinge	Ok
6.19	Panel Door Lock	Thread type 2 no's, M6X30 screw 18 no's not available
6.20	1.5V Processor Cell Box	Damaged, need to be replaced.
6.21	Power Cable PG – Gland	PG 16 – 2 no's, PG 21 -2 nos & PG13.5 – 2nos no not available
6.22	1 A Transformer	Ok
6.23	EMC Switch	Ok
6.24	Trip Q8 Test (MENU 13A)	Failed.
7	ACB System	
7.1	Ammeter	Ok
7.2	Voltmeter	Ok
7.3	Ammeter, Voltmeter selector switch	Ok
7.4	230V Indication Lamp (R, Y, B)	2 no's failed R, B
7.5	25VA Transformer	Not available
7.6	350VA Transformer	Failed, output 157V
7.7	2A Glass Fuse & 20A Fuse Holder	1 no failed
7.8	ACB Safety Acrylic Sheet	Not available
7.9	ACB Current Coil (800/1) (3No's)	Ok
7.10	ACB Termination Cable & Bus pare	Ok

7.11	ACB Handle Rod	Ok
7.12	ACB Working Condition	Ok
8	Additional Panel System	
8.1	400A MCB Mechanism	Ok
8.2	Cooling Fan 4"	1 no failed
8.3	Dust Filter Cover	Not available
8.4	Danger Cover	Not available
8.5	Door Lock	Ok
9	Pitch System Checking	
9.1	Balluff Sensor Value 0.041, 9.853	Negative : 0.000 Positive : 9.853
9.2	Hydraulic Pump Holding Time 0 To 200 bar	49 seconds
9.3	proportional Valve Holding Time (180 To 200 Bar Time)	(160-140) setting changed as 20 sec [parameter changed]
9.4	Sine Test	Ok
9.5	Pitch Acc Bar	60 bar
9.6	Alarm Lock Fault Check	Actr voltage, Hyd. Temp high, High gear temp
10	All Temperature °c	
10.1	Ambient	32° C
10.2	Gen 1	73° C
10.3	Nacelle	40° C
10.4	Control	46° C
10.5	Hydraulic	53° C
10.6	Gear Oil	62° C
10.7	Gear Bearing	67° C

11	Tower system	
11.1	Top to bottom all bolts	Ok
11.2	Tower earth	Top to bottom earth not available.
11.3	Tower vibration	Ok

12.1 MAIN PANEL CAPACITOR TEST

	STEP 1 25 X 2	STEP 2 25 X 2	STEP 3 25 X 3	STEP 4 25 X
L1 – V 387	40	41	62	
L2 – V 385	39	41	61	
L3 – V 384	42	43	63	

Remarks:

1. Main panel 4th stage 80A fuse 3 no's not available.
2. Main panel 4th stage contactor 1 no failed, capacitor not available.

12.2 ADDITIONAL PANEL CAPACITOR TEST

	STEP 1 25 X 2	STEP 2 25 X 2	Grid 25 X 1	Additional 25 X 2
L1 – V 378	6.6	20	19	18
L2 – V 379	7	19	19	19
L3 – V 378	7	20	19	19

Remarks:

1. APFC panel 1st stage Capacitor 2 no's failed.
2. APFC panel 2nd stage 1 no failed.
3. APFC panel 3rd stage 1 no failed.
4. Grid contactor CL06 failed.

GROUND REMARKS:

1. EB earth pit cover customer side 3 no's and EB side 2 no's damaged.
2. EB DP structure Lightning arrester 3 no's failed, to be replaced.
3. Customer DP structure Lightning arrester 3 no's failed, to be replaced.
4. EB yard & structure painting to be done.
5. AB switch operating handle earth not available, need to be corrected.
6. AB switch operating handle earth pipe clamp customer side damaged and EB Side knife alignment work to be done.
7. Power transformer silica gel expired, to be replaced.
8. Power transformer terminal cover bolt & nut 16 no's not available.
9. Power transformer temp. gauge failed, also box glass damaged.
10. Power transformer cable one run failed, already removed condition.
11. Earth rod set not available.
12. Fire extinguisher expired.
13. Safety belt, helmet, Electrical gloves, Electrical safety mat, first aid box not available.
14. 230V indicator failed.
15. 350VA lightning transformer failed.
16. Timer not available
17. 2KVA stabilizer not working, to be checked.
18. 2A HRC fuse 1 no failed.
19. Bottom panel 4" cooling fan 1 no failed.
20. APFC panel 4" cooling fan 1 no failed
21. 25 VA transformer 1 no not available
22. Balluff value need to be tuned.
23. APFC panel door lock 3 no's not available.
24. Proportional valve weak, Hydraulic holding time 20 sec. (Parameter changed).
25. Yard side outer tube light 1 no failed.
26. Light MCB disconnected, directly connected.
27. Air to air cooler 6" fan failed.
28. Dhen guard 2 no's failed.
29. 63A fuse 3 no's not available.

- 30. H944 LED 24V DC failed.
- 31. RC link circuit not available.
- 32. Generator breaker mechanism crake observed.
- 33. Generator 3Cx35sqmm power cable 01no failed, already removed condition.
- 34. Panel door lock 2 no's & M6 X 30 screw 18 no's not available.
- 35. Processor cell box damaged and battery failed.
- 36. Power cable gland PG13.5, PG16 & PG21 each 2 no's not available.
- 37. Trip Q8 function failed.
- 38. Main panel gas capacitor used, modification work to be carried out both Main panel and APFC panel.
- 39. Top lightning spike earth not available.



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V47 TOP

13	Hydraulic Unit System	
13.1	Hydraulic Unit Damper	Weak condition
13.2	Hydraulic Motor Bearing Noise	Ok
13.3	Hydraulic Cooling Fan Leaf & Cover	Not available
13.4	Hydraulic Oil Level	Level Low & sensor bypass condition
13.5	Hydraulic Oil Condition	Ok
13.6	Oil Level Sensor CT3218 – 3 Led	Bypass condition
13.7	Hydraulic Oil Leakage	Hyd. top cover various places fixed by 666 Anabond.
13.8	Pitch Cylinder Oil Leakage	Ok
13.9	Balluff Sensor Safety Cover	Not available
13.10	17 Bar Pressure Switch	Bypassed condition, need to be replaced.
13.11	10 Bar Pressure Switch	Ok
13.12	Pitch & Brake Pressure Relief valve	Ok
13.13	Hydraulic Motor Cable	Ok
13.14	Hydraulic Hose A	Ok
13.15	Hydraulic Hose B	Ok
13.16	Hydraulic Hose C	Ok
13.17	Hydraulic Hose D	Ok
13.18	Hydraulic Dummy Hose & Adapter	Ok
13.19	Hydraulic Hose Laying Sandwich	Ok
13.20	Pitch Cylinder Safety Cover	Ok
13.21	Brake Accumulator	Ok
14	Gear Box System	
14.1	Gear Oil Level	Level low, oil level glass need to be changed
14.2	Gear Oil Condition	Need to be changed


14.3	Air Filter	Need to be changed
14.4	Gear Oil Filter	Need to be changed
14.5	Gear Box Magnetic Rod	Observed metal partials
14.6	Gear Box Manifold Oil Leakage	Ok
14.7	Radiator Oil Leakage	Ok
14.8	Gear Oil Hose L	Ok
14.9	Gear Oil Hose S	Ok
14.10	Gear Box Noise	Ok
14.11	Gear Stay Function	Play observed, need to be changed
14.12	Low Speed Oil Seal	Ok
14.13	Hallow Shaft Cover Crack	Ok
14.14	Low Gear Oil Switch CT 3133 – 6 Led (750RPM)	Bypass parameter and thermo static valve bypassed condition, to be changed.
14.15	Pitch Bearing	Ok
14.16	Gear oil leakage	Leakage observed in level glass
14.17	Gear box 'I' Hook	Ok
15	Yawing System	
15.1	Yaw Motor Cable	Ok, PG16 cable gland 2 no's needed.
15.2	Yaw Motor Leaf & Cover	Not available
15.3	Warm Gear Noise & Bearing	Ok
15.4	Warm Gear Oil Level	RHS oil need to be top-up
15.5	Warm Gear Oil Leakage	Ok
15.6	Yaw Top Teeth	Yaw lubrication need to be carried out.
15.7	Yaw Top Safety Cover (Aluminum)	M12X20 bolt 1 no needed
15.8	Yaw Stopper Block M16	1 no bolt broken

15.9	Yaw Top Bed Bolt	Ok
16	Generator System	
16.1	Gen Bearing Noise	Ok
16.2	Gen Cooling Fan Leaf	Ok
16.3	Gen Damper	Ok
16.4	Gen Termination	Ok
16.5	Gen Cable Gland	Ok
16.6	Gen Cable Clamp & Plate	Cable dressing to be done.
16.7	Gen Nipple	Ok
16.8	Gen Bed Earth	Lightening spike to bed earth not available
16.9	Gen, I Hook	Ok
17	Brake System	
17.1	Brake Pad Thickness	3.5 mm only also single pad connection, need to be replaced
17.2	Brake Pad Bypass Box - 4 (1-2)	Bypassed condition
17.3	Brake Pad Signal - 3 Set (Generator Side or Gear Box Side)	1 signal connected (Gen) panel side
17.4	Brake Caliber – 3No's	Ok
17.5	Brake Caliber Metal Hose	Ok
17.6	Brake Disc Thickness	21.4 mm
17.7	Brake disc heat absorb	Ok
17.8	Brake Disc Cover Top and Bottom	Ok
17.9	CD Coupling Disc	Ok
17.10	CD Coupling Cover	Available not fixed
17.11	Fire Safety Sheet	Not available
17.12	CD Coupling Noise	Ok

18	Battery Box System	
18.1	12V Battery	Battery voltage low, 7 V & 7V need to changed
18.2	24V Charger	18V
18.3	Box 230V Cable	Ok
18.4	Box 8 Core 24V Cable	OK
18.5	Timer Make	Caruo
18.6	Battery Box Cover	Screw fixing area damaged.
18.7	Top Panel Loop Check (95-21) (21-12) (11-31)	11 – 13 loop
18.8	Soft Brake Working	Ok
18.9	Soft Brake Modification	Ok
18.20	2S Relay Make	Omron
19	Nacelle Light System	
19.1	16 A Switch Box	Damaged
19.2	Top, Front & Back Tube Light	Failed
19.3	Tube Light Cable	Failed
20	Top Panel System	
20.1	Contactor Yaw CW	Ok
20.2	Contactor Yaw CCW	Ok
20.3	Contactor Hydraulic	Ok
20.4	Contactor Low speed	Ok
20.5	Contactor High Speed	Ok
20.6	Contactor Exhaust Fan	Ok
20.7	Thermal Relay Yaw CW	Ok
20.8	Thermal Relay Yaw CCW	Ok
20.9	Thermal Relay Hydraulic	Ok

20.10	Thermal Relay Low Speed	Ok
20.11	Thermal Relay High Speed	Ok
20.12	Thermal Relay Exhaust Fan	Failed 1 phase
20.13	2S Relay	D307; not available
20.14	1B Relay	K414 not available
20.15	VOG CT279	Not available, bypassed condition.
20.16	Top Panel Cooling Fan	Failed
20.17	Main Bearing Emergency Button	Ok
20.18	Top Panel Emergency Button	Ok
20.19	Yaw Top Emergency Button	Ok
20.20	Top Panel Door	Ok
20.21	Top Panel Door Hinge	Ok
20.22	Top Panel Damper	Ok
20.23	Top Panel stand clamp	Ok
20.24	SMPS	Ok
20.25	1.5V Processor Cell Box	Damaged
20.26	Rectifier	Ok
20.27	Trip Q8 Switch Working	Ok
21	Main Shaft System	
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
22	Blade System	
22.1	Blade Crack	Ok
22.2	Blade Arm Bearing	Failed (weak condition)
22.3	Blade Bearing Play	-5 to 80 blade sensor high
22.4	Blade Inspection Closing Cover- 3	One not available
22.5	Pitch Shaft Sliding shoe	Work out
22.6	Pitch Bolt M12 (8 No's)	Ok
22.7	Blade Flop Cover	2 nos not available
22.8	Hub Entrance Door	Not available
22.9	Blade Breather	Modification to be carried out.
22.10	Nose Cone Crack	Ok
22.11	Nose Cone 'L' Clamp	Ok
22.12	Nose Cone Zig Door	Ok
22.13	Nose cone Ring U Clamp	Ok
22.14	Blade Lip Seal Grease Leakage in and out	Grease full dry condition, need to be lubrication immediately
22.15	Blade Safety Lock Block	Ok
23	Gear Oil Cooler Motor System	
23.1	Motor Bearing Noise	Ok
23.2	Cooler Motor Leaf Cover	Ok
23.3	Motor Cable Slow	Winding failed

23.4	Motor Cable High	Ok
23.5	Air Duct Cover	Not available
23.6	Cooler Motor Bed Stand	Ok
23.7	Big Leaf	Ok
24	Power Cable Twisting	
24.1	Twist Sensor	Ok
24.2	Power Cable Twist	Not available
24.3	Cable Round Ring	4 no not available, cable dressing to be done.
24.4	 Clamp	Not available
24.5	Bottom to Top cable laying	Looping area cable dressing to be done.
24.6	Nacelle Platform Cable Holding Sandwich	Ok
24.7	Power Cable Insulation	Ok
24.8	Nacelle Platform Small Cable Lock Clamp	Not available
25	Hoist System	
25.1	Remote Function	Hoist crane not working
25.2	Hoist 230v Box	Not available
25.3	Chain Bag & Clamp	Not available
25.4	Chain Hook	Not working
25.5	Hoist Noise	Not working
25.6	Hoist 230v Cable	Not working
25.7	Hoist Chain Block	Ok
25.8	Safety Chain & Lock Hook	Not available
25.9	Hoist make	-
26	Anemometer	
26.1	Anemometer Bearing	Ok
26.2	Anemometer Cup, Holder & Cable	Ok

26.3	Stand	Ok
27	Wind vane System	
27.1	Wind vane Bearing	Ok
27.2	Wind vane Holder & Cable	Ok
27.3	Wind vane Cap Nut	Not available
28	Nacelle Door System	
28.1	Nacelle Cover Crack	Ok
28.2	Nacelle Back Door	Ok
28.3	Nacelle Sky Window Top	Ok
28.4	Nacelle Lightning Spike	Damaged
28.5	Lightning Spike Earth	Not available
28.6	Nacelle damper Front & back	Back side failed
28.7	Vibration Sensor	Damaged
28.8	Nacelle Platform Steel Door	Ok
28.9	Nacelle Platform Ladder	Ok
28.10	Nacelle Cover Damper	Damaged
29	Exhaust Fan System	
29.1	Motor Bearing Noise	Exhaust motor not available
29.2	Fan Leaf & Cover	Exhaust motor not available
29.3	Bush, Waser & Bolt	Exhaust motor not available
29.4	Motor Cable	Exhaust motor not available
29.5	Big Fan Leaf	Exhaust motor not available
30	Rotor And Blade Safety System	
30.1	Rotor Lock Bush – 4	Ok
30.2	Rotor Lock Hide Pin -4	Not available

30.3	Rotor Big Plate -1	Ok
30.4	Rotor Small Plate -1	Center bolt nut not available
30.5	86 Rocket – 3	1 no not available
30.6	86 Thread Rod – 3	Ok
30.7	washer -3, Nut -3	Washer not available
30.8	Grease Tray – 3	Not available
30.9	Disc Lock Bolt -1	Not available
31	Gear Box inner components	
31.1	Gear bearing High speed Play	Ok
31.2	Gear bearing Low speed Play	Ok
31.3	Check gear box body damages	Ok
31.4	Check in side of Gear box	Ok
31.5	Gear teeth @ low speed	Ok
31.6	Gear teeth @ high speed	Ok
31.7	Gear teeth @ intermediate	Ok
31.8	Gear intermediate pinion	Ok
31.9	Planetary gear	Ok
31.10	Gear Pump oil circulation	Ok
32	Blade Bearing	
32.1	Every 5 th blade bearing bolts M20 to be check out of 60No's	Ok
32.2	Blade Vertical play to be checked	Ok
32.3	Blade horizontal play to be checked	Ok
33	Transformer and generator	
33.1	Necessary to check Transformer terminal box	Ok
33.2	Necessary to check Generator terminal box	Ok










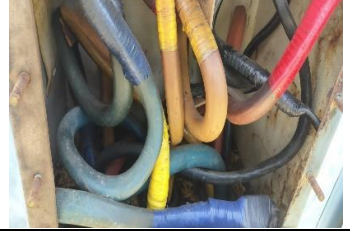





TOP REMARKS:

1. Gear stay 2 no's failed, need to be replaced
2. Brake disc crack observed.
3. Hyd. Vibration damper settle down.
4. Hyd. oil level low, sensor bypass condition.
5. Hyd. unit top gasket oil leakage observed.
6. Hyd. motor cover not available and leaf damaged.
7. Hyd. top cover various places fixed by 666 Anabond.
8. Baluff sensor safety cover with stand available but washer 4 nos not available.
9. 17 bar pressure switch failed, circuit inverted
10. Gear oil level low.
11. Gear oil level glass broken and oil leakage observed.
12. Gear oil condition poor need to be changed.
13. Gear box air filter need to be changed.
14. Gear box magnetic rod observed some metal parts
15. Thermostatic valve failed. Bypassed condition.
16. Yaw motor cable gland PG16 2 nos needed
17. Right side warm gear oil level low.
18. Yaw top teeth and surface rust observed need to be cleaned and lubrication to be done.
19. M12X20 bolt with washer 1 no not available
20. Ladder bolt M16X50 1 no broken
21. Generator cable terminal cove side cable dressing need to be done.
22. Generator bed earth to lightning spic earth cable not available.
23. Brake pad 3.5 mm single sensor used, need to be changed.
24. CD coupling cover kept at nacelle, need to be checked and fixed properly.
25. CD coupling angle iron clamp not available.
26. Battery voltage 7v & 7V, battery charger 18V, soft breaking working, to be checked.
27. 16A switch box damaged.
28. Light cable & light failed.
29. Exhaust fan thermal relay 1 A failed. Exhaust motor not available.
30. D307, K414 RY2S and RH1B relay each 1 not available.

- 31. VOG CT279 not available, circuit bypassed.
- 32. Top panel cooling fan 4" failed.
- 33. Top processor cell box damaged, need to be replaced.
- 34. Blade inspection door 1 no not available.
- 35. Sliding shoe worn out, need to be replaced.
- 36. Blade breather modification work to be done.
- 37. Blade lubrication to be done.



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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	Gear stay 2 no's failed, need to be replaced		9	EB yard & structure painting to be done	
2	Brake disc crack observed. Brake pad signal pad connected in panel side		10	Modification work to be carried out both Main panel and APFC panel.	
3	Hyd. Vibration damper settle down		11	AB switch operating handle earth pipe clamp customer side damaged and EB Side knife alignment work to be done.	
4	Hyd. motor cover not available and leaf damaged		12	Generator breaker mechanism crake observed.	
5	VOG CT279 not available, circuit bypass		13	Transformer terminal cable one run ® removed for failure, Terminated 2R x 400Sqmm instead of 3Rx400Sqmm	
6	Hyd. top cover various places fixed by 666 Anabond		14	Metal practical collected from gear box magnet stick	
7	Power transformer terminal cover bolt & nut 16 nos not available.		15	Generator Power cable 3C x 35Sqmm - 01no failed and removed conditions	
8	Power transformer temp. gauge failed, also box glass damaged			Exhaust motor not available	

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.