



**SriVaru Green Energy**  
Service Private Limited

## **Hoto Inspection Report – V27**

Report No	HIR /24-25/SVGE/060
Date	02-09-2024
Inspected By	Mr.Rajkumar, Mr.Iniyan & Mr.Ranjithkumar
Site Operator	Mr.Kanagaraj

## **Turbine Details**

Customer Name	M/s. Shanthi Precision Instruments India Private Limited		
WEG No	1737	Location No.	01
Tower Height	50Mtr	HTSC No	472
Capacity	225 kW	Site	Anuppatti
Model	V27	D.O.C	13-09-2006

## V27 BOTTOM

<b>1</b>	<b>EB Customer Yard System</b>	
1.1	Earth Pit slot	6nos slot not available, 3nos damaged
1.2	EB, Customer, Control Room Painting	Need to be painted
1.3	EB Side Lightning Arrester (33KV)	3nos failed
1.4	Customer Side Lightning Arrester (33KV)	3nos failed
1.5	EB Side, Customer Side Handle Earth	Ok
1.6	All Insulator	Customer side "R" phase pin insulator 2no's and PT insulator 01no damaged
1.7	EB Meter Glass	Ok
1.8	EB Side, Consumer Side AB switch Working Condition	Consumer DP structure fuse horn in PT bind jumper
<b>2</b>	<b>Safety</b>	
2.1	Earth Rod – 3No's	Ok
2.2	Fire Extinguisher	Need to be refilled
2.3	Fire Bucket Sand – 2 No's With stand	Not available
2.4	33KV Hand Gloves	Not available
2.5	Rubber Mat	Damaged
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	Need to be replaced
3.5	Transformer Termination & Cover Bolt	Ok
3.6	Transformer Earth Plate Connection	Ok
3.7	Transformer Gland & Earth	Ok

<b>4</b>	<b>Control Room</b>	
4.1	Tube Light In & Out	Outer light 1no failed
4.2	Light MCB – 2 Pole	Ok
4.3	Room Window Glass	1no damaged
4.4	Power Cable Stand Platform	Stand not available
<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	Ok
5.4	EMC Cable 10 Core	Ok
5.5	Earth Cable Top to Bottom	Not available
5.6	Fiber Optic Cable	At looping area need to be corrected
<b>6</b>	<b>Ground Main Panel System</b>	
6.1	Watchdog	Ok
6.2	Timer	Ok
6.3	Air To Air 6" Cooler Fan (2 No's)	Not working
6.4	Stabilizer 2KVA	Not available
6.5	Dhen Card Surge Arrester	3nos failed
6.6	63A Fuse	Ok
6.7	2S Relay	Ok
6.8	1B Relay	Ok
6.9	24V Indication Lamp	Ok
6.10	Thyristor	Ok
6.11	EH 250 Contactor	EH 300 Bypass contactor weak & PCB failure condition
6.12	HPL 330 contactor	Used for G1

6.13	RCC Circuit	Ok
6.14	Generator Breaker Mechanism	Ok
6.15	Controller Switch Mechanism	Ok
6.16	Gen Cable Termination Ground	Ok
6.17	CT Coil	Ok
6.18	Panel Door Hinge	Ok
6.19	Panel Door Lock	Damaged
6.20	1.5V Processor Cell Box	Damaged
6.21	Power Cable PG – Gland	Ok
6.22	Gen 2 contactor	Ok
6.23	Gen 2 MCCB	Cover not available
6.24	24V Auxiliary DC contactor	Ok
6.25	1 A Transformer	Ok
6.26	EMC Switch	Ok
<b>7</b>	<b>MCCB System</b>	
7.1	Ammeter	Not working
7.2	Voltmeter	Ok
7.3	Ammeter, Voltmeter selector switch	Ok
7.4	230V Indication Lamp (R, Y, B)	Ok
7.5	2A Glass fuse & 20A holder	Ok
7.6	MCCB Safety Acrylic Sheet	Not available
7.7	MCCB Current Coil (3No's)	Ok
7.8	MCCB Cable Termination	"Y" phase melted

7.9	MCCB Working Condition	Ok
7.10	MCCB Door	Ok
<b>8</b>	<b>Additional Panel System</b>	
8.1	200A MCB Mechanism	Ok
8.2	Cooling Fan 4"	Ok
8.3	Dust Filter Cover	Ok
8.4	Danger Cover	Ok
8.5	Door Lock	Ok
8.6	Controller display working	Disconnected for failure
<b>9</b>	<b>Pitch System Checking</b>	
9.1	Balluff Sensor Value 0.041, 9.853	0.019, 9.921
9.2	Hydraulic Pump Holding Time 0 To 100 bar	5.10mts
9.3	proportional Valve Holding Time (75 To 90 Bar Time)	-
9.4	Sine Test	Ok
9.5	Pitch Acc Bar	22bar
9.6	Contactortest	Ok
<b>Pitch control card value</b>		
	9 – (0.05)	0.03
	10 – (-0.05)	0.00
	11 – (8.500)	10.37
	12 – (-9.05)	-8.431

10	All Temperature °c	
10.1	Ambient	32
10.2	Gen 1	66
10.3	Hydraulic	37
10.4	Nacelle	31
10.5	Gear Oil	50
10.6	Gear Bearing	68
11	Tower system	
11.1	Top to bottom all bolts	Ok
11.2	Tower earth	Not in proper
11.3	Tower vibration	Ok

12.1 MAIN PANEL CAPACITOR TEST				
	STEP 1 12.5 X 5	STEP 2 12.5 X 3	STEP 3 12.5 X	STEP 4 12.5 X
L1 – V	57	32		
L2 - V	57	33		
L3 - V	57	32		

12.2 ADDITIONAL PANEL CAPACITOR TEST				
	STEP 1 12.5 X 5	STEP 2 25 X 3	Grid 12.5 X 1	Additional
L1 - V	29	20.9	10	
L2 - V	27	20.8	9.8	
L3 - V	28	20.9	9.7	

**REMARKS:**

1. Grid contactor failed
2. 1<sup>st</sup> stage capacitor cable 1 no melted

## **GROUND REMARKS**

1. Earth pit slot 6nos not available, 3no damaged.
2. Both of DP structure Lightning arrester EB & customer side 3nos failed.
3. Fire bucket 1 no and stand not available.
4. Power transformer breather need to be changed.
5. Power transformer cable Y phase, B phase insulation damage.
6. Customer side 33KV pin insulator 2nos broken.
7. Fire extinguisher need to be refilled.
8. 33 kV hand gloves, safety mat and first aid box not available.
9. Safety mat damage and First aid box nil.
10. Outdoor tube light 1 no failed.
11. Room window glass 1 no damaged.
12. Power cable stand not available.
13. Air to air cooler not function.
14. 2kva stabilizer not available.
15. Surge protection Dhen guard failed conditions.
16. EH300 bypass contactor kit weak & PCB melted condition.
17. Gen1 to bypass connecting Bus bar Y phase and B phase heading issue.
18. Panel door lock full damaged.
19. 1.5V Battery cell box damaged.
20. Gen 2 MCCB cover not available.
21. Ammeter failed.
22. Wall mounded MCCB termination cable "Y" phase melted.
23. WM MCCB bus bar rusted to be re termination.
24. Grid contactor failed, circuit bypass.
25. APFC panel 1<sup>st</sup> stage capacitor cable 1 no melted.
26. APFC panel modification work need to be carried.
27. Control room trench need to be closed.



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## V27 TOP

<b>13</b>	<b>Hydraulic Unit System</b>	
13.1	Hydraulic Unit Damper	Ok
13.2	Hydraulic Motor Bearing Noise	Ok
13.3	Hydraulic Cooling Fan Leaf & Cover	Ok
13.4	Hydraulic Oil Level	Ok
13.5	Hydraulic Oil Condition	Ok
13.6	Oil Level Sensor CT3218 – 3 Led	Ok
13.7	Hydraulic Oil Leakage	Ok
13.8	Pitch Cylinder Oil Leakage	Ok
13.9	Balluff Sensor Safety Cover	Ok
13.10	17 Bar Pressure Switch	Ok
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	Not available
13.18	Pitch Cylinder Safety Cover	Ok
13.19	Pitch Cylinder Safety Block	Ok
13.20	100 bar pressure gauge	Failed
13.21	Hydraulic filter	Argo hytes
13.22	Brake Accumulator	Ok
<b>14</b>	<b>Gear Box System</b>	
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 oil leakage	Ok
14.17	Gear box 'I' Hook	2nos not available
<b>15</b>	<b>Yawing System</b>	
15.1	Yaw Motor Cable	Ok
15.2	Yaw Motor Leaf & Cover	Ok
15.3	Warm Gear Noise & Bearing	LHS yaw unit noise observed
15.4	Warm Gear Oil Level	Not visible
15.5	Warm Gear Oil Leakage	NIL
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	Ok
16.4	Gen Termination	Ok
16.5	Gen Cable Gland	Ok
16.6	Gen Cable Clamp & Plate	Ok
16.7	Gen Nipple	Ok
16.8	Gen Bed Earth	Ok
16.9	Gen, I Hook	Ok
<b>17</b>	<b>Brake System</b>	
17.1	Brake Pad Thickness	Ok
17.2	Brake Pad Bypass Box - 4	Ok
17.3	Brake Pad Signal - 2 Set	Single pad connection
17.4	Brake Caliber – 2 No's	Ok
17.5	Brake Caliber Metal Hose	Ok
17.6	Brake Disc Thickness	Ok
17.7	Brake Disc Cover	Not available
17.8	Transmission shaft play	NIL
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	Nil (To be provided)
18.2	24V Charger	Nil (To be provided)
18.3	Box 230V Cable	Nil (To be provided)

18.4	Box 8 Core 24V Cable	Nil (To be provided)
18.5	Timer Make	Nil (To be provided)
18.6	Battery Box Cover	Nil (To be provided)
18.7	Top Panel Loop Check (95-21) (21-12) (11-31)	Nil
18.8	Soft Brake Working	To be provided
18.9	Soft Brake Modification	To be provided
18.20	2S Relay Make	To be provided
<b>19</b>	<b>Nacelle Light System</b>	
19.1	16 A Switch Box	Not fixed need to be corrected
19.2	Top, Front & Back 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	Ok
20.12	Top Panel Cooling Fan 4"	Failed

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	Damaged
20.17	Top Panel Door Hinge	Damaged
20.18	Top Panel Damper	Settled down, need to be replaced
20.19	SMPS	Ok
20.20	1.5V Processor Cell Box	Ok
20.21	Rectifier	Ok
<b>21</b>	<b>Main Shaft System</b>	
21.1	Main Bearing Noise & Play	Ok
21.2	Main Bearing Grease Leakage	Observed
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	Ok
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	Inner grease leakage
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	Ok
23.3	Gear oil pump	Ok
23.4	Air Duct Cover	Not available
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	Not available
24.3	 Clamp	Ok
24.4	Bottom to Top cable laying	Ok
24.5	Power Cable Insulation	All power cable re-joint in contrler
<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>Wind vane System</b>	
26.1	Windvane Bearing	Ok
26.2	Windvane Holder & Cable	Cable dressing need to be laying
26.3	Windvane Cap Nut	Ok
<b>27</b>	<b>Nacelle Door System</b>	
27.1	Nacelle Cover Crack	Ok
27.2	Nacelle Back Door	Lock damage
27.3	Nacelle Sky Window Top	Ok
27.4	Nacelle Lightning Spike	Ok
27.5	Lightning Spike Earth	Ok
27.6	Nacelle damper Front & back	Ok
27.7	Vibration Sensor	Ok
27.8	Nacelle Platform Steel Door	Ok
27.9	Nacelle Platform Ladder	Ok
27.10	Nacelle Cover Damper	Ok


  
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## **TOP REMARKS**

1. All power cable already re-joint work done
2. Tower ladder support clamp bolt and nut M16 X 50 1 no not available
3. Tower bolt M22 X 100 mm 1 no not available
4. OFC lopping area cable need to be corrected
5. Tower bed earth not properly connected
6. Bottom to looping area earth cable not available
7. Nacelle light with holder not available
8. Hyd. Motor cooling leaf not available
9. Hyd. Oil minimum level, need to be Topped up
10. Gear box "I" bolt 2nos not available
11. 100 bar pressure gauge failed
12. Transmission shaft boot cover weak condition
13. Break pad sensor connected single only instead of 2no of pad's – Need to connect 2no's for safety precautions.
14. Vickers card & stick not connect properly- Need to be carried.
15. 4" cooling fan not function
16. Top panel vibration damper found crack.
17. 16A switch box not fixed.
18. Top panel door hinges 2nos damaged
19. Capacitor filter failed
20. Main bearing grease leakage
21. Blade inner lip seal grease leakage
22. Wind van anemometer cable need to be laying
23. Nacelle back door lock damaged
24. Pitch cylinder coil din connector damaged
25. Radiator vibration set not available.

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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	Lightning arrester both EB and customer side 3nos failed		9	Tower bed earth not properly connected.	
2	Power transformer breather need to be changed		10	Bottom to looping area earth cable not available	
3	Customer side 11KV pin insulator 2nos broken.		11	Hyd. Motor cooling leakage not available	
4	Power cable jointed for burnt in bottom cable		12	Transmission shaft boot cover weak condition	
5	EH300 bypass contactor weak condition.		13	Vickers card & Vickers Disc not proper connection need to be carried.	
6	MCCB termination cable "Y" phase melted		14	4" cooling fan not function	
7	Grid contactor failed, circuit bypassed condition		15	Top panel door hinges 2nos damaged	
8	Tower bolt M22 X 100 mm 1 no not available		16	Radiator vibration set 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