

REPAIR REPORT

GENERATOR ABB

TIPO HXR 500LN4/6

1300/250 KW 690/690 V 1510/1008 RPM 1219/248 A

N/S: 4564631

CLIENT: VENTOS METODICOS



Review	Date	Modification: page nº, paragraph, description
0	08/07/2024	Issue

Created by:

Jesús Pérez

Dpto. Técnico

08/07/2024

Reviewed by:

Juan A. Rodríguez

Resp. Dpto. EHS & Q

08/07/2024

Approved by:

José Luis Reguera

Resp. Dpto. Técnico

08/07/2024

Indice

1. Repair background	Pág.	3
2. Damage evaluation and repair	Pág.	4
3. Photo report	Pág.	5
4. Tests	Pág.	7
5. Conclusions	Pág.	13

PABLO VEGA SL

PI Cortijo Real, C/ Los Amigos, 8 - 11206 Algeciras (Cádiz)

Tel: 956 603 306 - Fax: 956 604 610

email: info@pablovegasl.es - www.pablovegasl.es



1. Repair background

It is received in the workshop of PABLO VEGA S.L, dated 18/03/24, GENERATOR ABB, Type HXR 500LN4/6 and SN 4564631 to proceed with its repair.

The following damages are appreciated:

- Need overhaul.

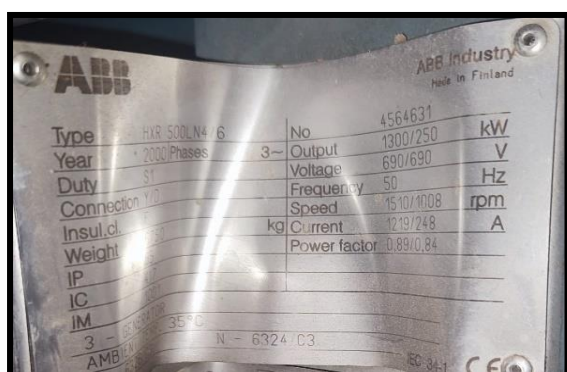


Fig. 1. Nameplate 1.



Fig. 2. Entry into workshop.

PABLO VEGA SL

PI Cortijo Real, C/ Los Amigos, 8 - 11206 Algeciras (Cádiz)

Tel: 956 603 306 - Fax: 956 604 610

email: info@pablovegasl.es - www.pablovegasl.es



2. DAMAGE EVALUATION AND REPAIR

2.1. Evaluation and status report:

- Team visual assessment, reviewing components: housing , stator , rotor , bearings.....
- Dielectrics test.
- Mechanical disassembly of components, including removal of the Rotor from its housing, to review the magnetic package.
- Measurement of mechanical tolerances on housings and shaft.

2.2. Repair and testing:

- Stator Winding Inspection
- Descaling and heating of the stator.
- Verification of temperature probes and heating resistors.
- Descaling and heating of the rotor.
- Supply and installation of new FAG 6326-C3 & 6324-C3 bearings.
- Verification Dynamic balancing of the rotor assembly.
- Assembly of components.
- Repainting of the set and packaging.
- Final Dielectric and Rolling Bench Tests. Issuance of repair report.

PABLO VEGA SL

PI Cortijo Real, C/ Los Amigos, 8' -11206 Algeciras (Cádiz)

Tel: 956 603 306' -Fax: 956 604 610

email: info@pablovegasl.es' -www:pablovegasl.es



3. Photo report

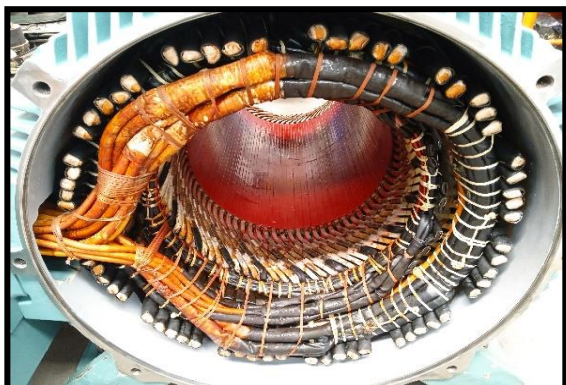


Fig. 1. Stator treatment

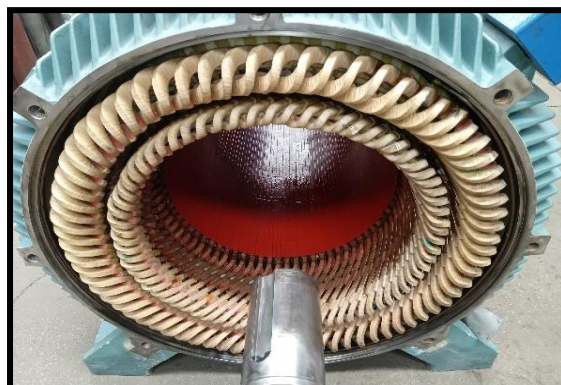


Fig. 2.



Fig. 3. Rotor treatment



Fig. 4. DE Bearing renewal.



Fig. 5. NDE Bearing renewal (Isolated).



Fig. 6. Treatment of mechanical breakdowns.

PABLO VEGA SL

PI Cortijo Real, C/ Los Amigos, 8 - 11206 Algeciras (Cádiz)

Tel: 956 603 306 - Fax: 956 604 610

email: info@pablovegasl.es - www:pablovegasl.es



Fig. 7. Finish

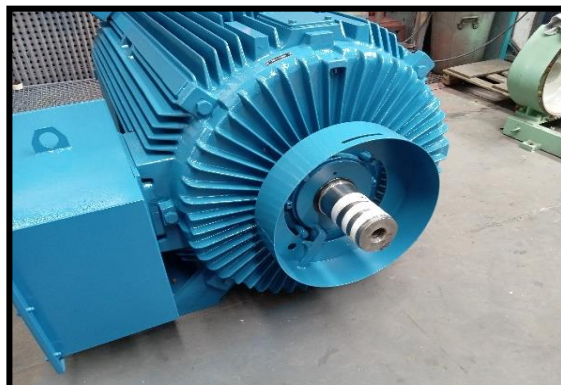


Fig. 8.



Fig. 9.



Fig. 10.



Fig. 11.



Fig. 12.

4. TESTS

4.1. Insulations tests:

TEST PARAMETERS			
TENSION (v)	TIME (s)	TEMPERATURE (°C)	HUMEDITY RELATIVE (%)
500	60	25	33%

WINDING	MEASURE	IR MEASUREMENT (MΩ)
STATOR V1	U1 - GROUND	
	V1 - GROUND	
	W1 - GROUND	
	U1 - V1 - W1 - GROUND	5798
	U1 - V1	
	V1 - W1	
	W1 - U1	
STATOR V2	U2 - GROUND	
	V2 - GROUND	
	W2 - GROUND	
	U2 - V2 - W2 - GROUND	8486
	U2 - V2	
	V2 - W2	
	W2 - U2	

TEST DATE	14/05/2024
-----------	------------

4.2. Winding resistance:

WINDING	MEASURE	R (mΩ)
STATOR V1	U1 - V1	3,10
	V1 - W1	3,10
	W1 - U1	3,10
STATOR V2	U2 - V2	64,10
	V2 - W2	64,10
	W2 - U2	64,10

TEST DATE	14/05/2024
-----------	------------

PABLO VEGA SL

PI Cortijo Real, C/ Los Amigos, 8 - 11206 Algeciras (Cádiz)

Tel: 956 603 306 - Fax: 956 604 610

email: info@pablovegasl.es - www.pablovegasl.es



4.3. Verificación sondas de temperatura y resistencias calefactoras:

SONDA	TIPO	TEMP (°C)	HR (%)	RESISTENCIA
1 - Sonda Pt100 U		20	44	109 Ω
2 - Sonda Pt100 V		20	44	108,9 Ω
3 - Sonda Pt100 W		20	44	108,9 Ω
4 - Sonda PTC		17	39	72,4 Ω
5 - Sonda PTC		17	39	83,6 Ω
6 - Sonda PTC		17	39	72,3 Ω
7 - Sonda PTC		17	39	69,3 Ω
8 - Sonda PTC		17	39	76,9 Ω
9 - Sonda PTC		17	39	78,1 Ω
12 - Resistencia de caldeo				134,1 Ω

FECHA ENSAYO	14/05/2024
--------------	------------

PABLO VEGA SL

PI Cortijo Real, C/ Los Amigos, 8 - 11206 Algeciras (Cádiz)

Tel: 956 603 306 - Fax: 956 604 610

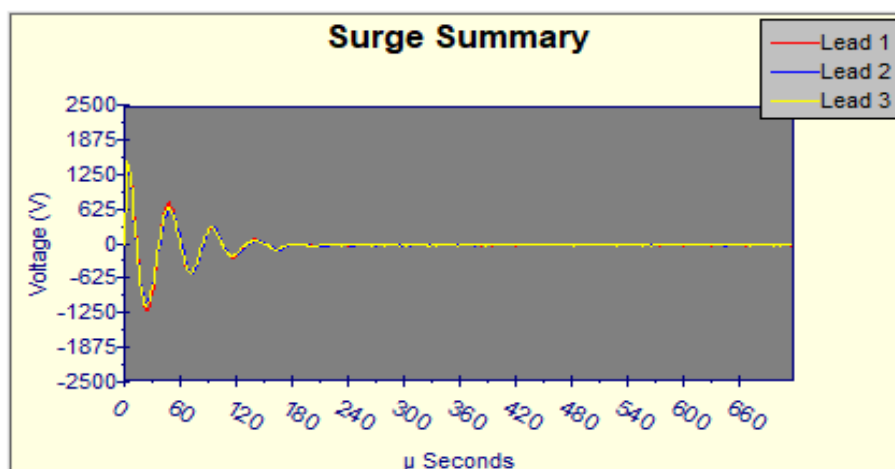
email: info@pablovegasl.es - www.pablovegasl.es



4.4. Stator Baker tests (Long speed):

Nameplate Information		Motor ID S00265 ABB 1300/250 KW LG	
Location	2024	Building	VENTOS METODICOS
Model	ABB	Manufacturer	HXR 500L N4/6
Serial Number	4564631	HP/KW	1300
Volts-Rating	690	Volts-Operating	0
Amps-Rating	1219	Amps-Operating	0
Insulation	F	Enclosure	I
RPM	1510	Service Factor	0
Frame		Freq-Hz	50
Description	ENSAYO ESTATOR ENTRADA		

Results Summary		Test Date/Time 14/05/2024 13:46:06	
Test ID: Default	JPC	Repair/Job #	OVERHAUL
Tested By	JPC	Tested For	VENTOS METODICOS
Temp Status	Tested	PI Status	No Test Performed
Temp	25,0°C 77,0°F RH 33%	Volts (V)	0
Resist Status	PASS	DA Ratio	0,0
L1-L2 (Ohms)	0,0031 Corr: 0,0031	PI Ratio	0,0
L2-L3 (Ohms)	0,0031 Corr: 0,0031	HiPot	PASS
L3-L1 (Ohms)	0,0031 Corr: 0,0031	Volts (V)	1020
Max Delta R %	1,000%	Current(µA)	0,11
Coil 1 (Ohms)	0,0016 Corr: 0,0016	Resist (Mohm)	9357
Coil 2 (Ohms)	0,0016 Corr: 0,0016	Surge Status	Tested
Coil 3 (Ohms)	0,0015 Corr: 0,0015	Peak Volt(V) L1	1500
Megohm Status	PASS	Peak Volt(V) L2	1500
Volts (V)	550	Peak Volt(V) L3	1500
Current(µA)	0,10	Max P-P EAR%	---
Resist (Mohm)	5489	EAR 1-2,2-3,3-1	11%,9%,7%



PABLO VEGA SL

PI Cortijo Real, C/ Los Amigos, 8 - 11206 Algeciras (Cádiz)

Tel: 956 603 306 - Fax: 956 604 610

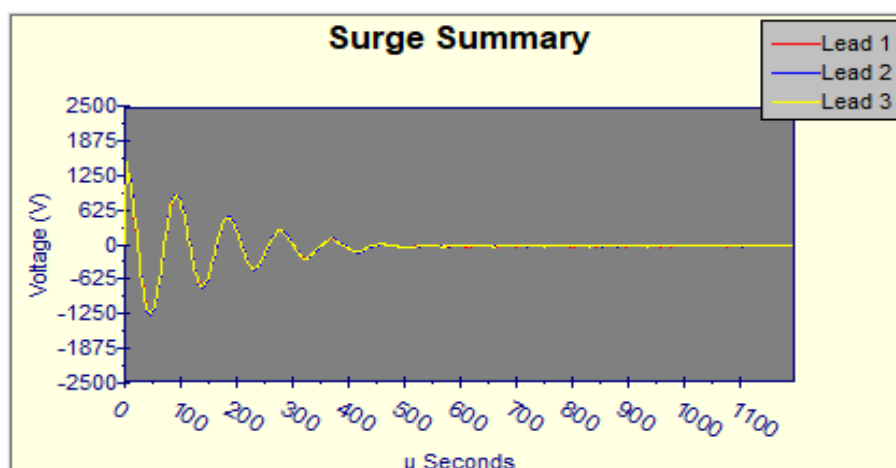
email: info@pablovegasl.es - www.pablovegasl.es



4.5. Stator Baker tests (Slow speed):

Nameplate Information Motor ID S00265 ABB 1300/250KW SG			
Location	2024	Building	VIENTOS METODICOS
Model	ABB	Manufacturer	HXR 500L N4/6
Serial Number	4564631	HP/KW	250
Volts-Rating	690	Volts-Operating	0
Amps-Rating	248	Amps-Operating	0
Insulation	F	Enclosure	I
RPM	1008	Service Factor	0
Frame		Freq-Hz	50
Description	ENSAYO ESTATOR		

Results Summary		Test Date/Time 14/05/2024 13:48:18	
Test ID: Default	JPC	Repair/Job #	OVERHAUL
Tested By	JPC	Tested For	VENTOS METODICOS
Temp Status	Tested	PI Status	No Test Performed
Temp	25,0°C 77,0°F RH 33%	Volts (V)	0
Resist Status	PASS	DA Ratio	0,0
L1-L2 (Ohms)	0,0641 Corr: 0,0641	PI Ratio	0,0
L2-L3 (Ohms)	0,0641 Corr: 0,0641	HiPot	PASS
L3-L1 (Ohms)	0,0641 Corr: 0,0641	Volts (V)	1060
Max Delta R %	0,000%	Current(µA)	0,12
Coil 1 (Ohms)	0,0321 Corr: 0,0321	Resist (Mohm)	9217
Coil 2 (Ohms)	0,0321 Corr: 0,0321	Surge Status	Tested
Coil 3 (Ohms)	0,0321 Corr: 0,0321	Peak Volt(V) L1	1480
Megohm Status	PASS	Peak Volt(V) L2	1500
Volts (V)	550	Peak Volt(V) L3	1500
Current(µA)	0,06	Max P-P EAR%	---,---,---
Resist (Mohm)	9016	EAR 1-2,2-3,3-1	4%,4%,1%



PABLO VEGA SL

PI Cortijo Real, C/ Los Amigos, 8 - 11206 Algeciras (Cádiz)

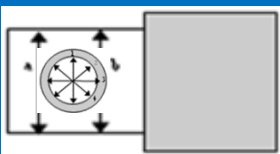
Tel: 956 603 306 - Fax: 956 604 610

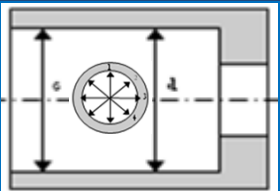
email: info@pablovegasl.es - www.pablovegasl.es



4.6. Metrology shaft and housing bearing

BEARING	ORIGIN	MOUNTED
DE SIDE	6326 C3	FAG 6326 C3
NDE SIDE	6324 C3	FAG 6324 C3
GREASE	-	kluberplex Bem 41-132

Shaft measurement (mm)				
	DE		NDE	
	a	b	a	b
	1	130,015	120,015	120,015
	2	130,015	120,015	120,015
	3	130,015	120,015	120,015
	4	130,015	120,015	120,015
Result measures		OK	OK	

Housing measurement (mm)				
	DE		NDE	
	c	d	c	d
	1	280,020	260,020	260,020
	2	280,020	260,020	260,020
	3	280,020	260,020	260,020
	4	280,020	260,020	260,020
Result measures		OK	OK	

TEST DATE	14/05/2024
-----------	------------

PABLO VEGA SL

PI Cortijo Real, C/ Los Amigos, 8 - 11206 Algeciras (Cádiz)

Tel: 956 603 306 - Fax: 956 604 610

email: info@pablovegasl.es - www.pablovegasl.es



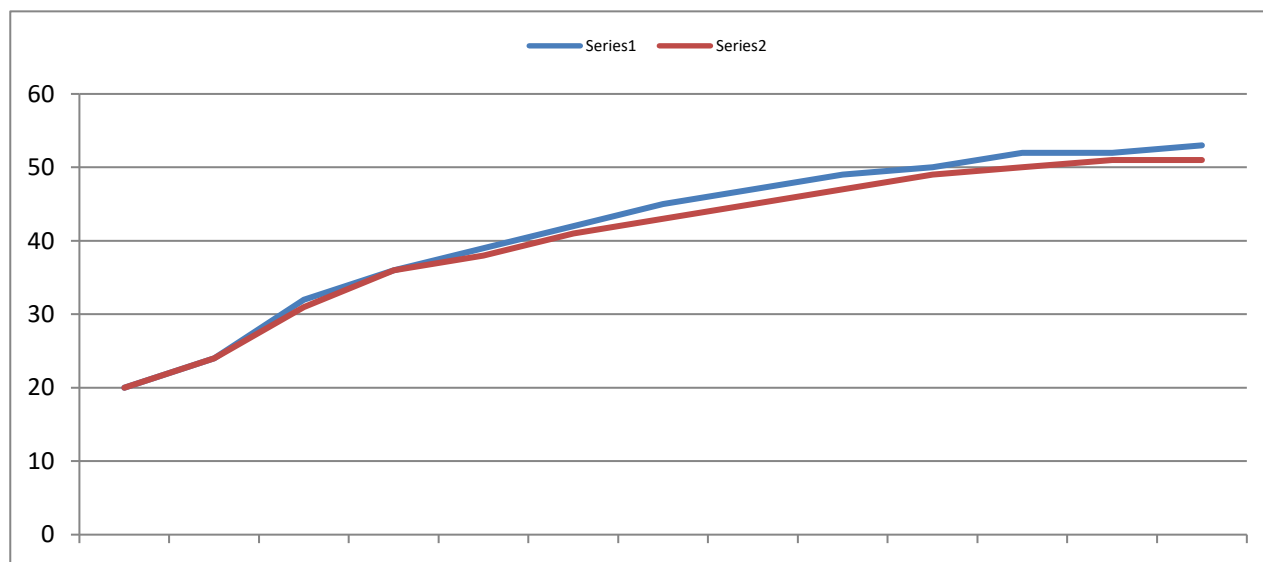
4.7. Rolling test on bench:

VIBRATION VALUES (nominal rpm)					
SYSTEM AMPLITUDE: SPEED (mm/sec) MODE: RMS					
DE side			NDE side		
Vertical	Horizontal	Axial	Vertical	Horizontal	Axial
1,020	1,700	0,417	0,758	1,020	0,430

	Tensión (V)	Connection	IR (A)	IS (A)	IT (A)	Mechanical rotation
V1	690	INT	42	40	39	CW
V2	690	INT	248	248	246	CW

TEST DATE	15/05/2024
-----------	------------

4.8. Bearing temperature on bed:



TEST DATE	15/05/2024
-----------	------------

PABLO VEGA SL

PI Cortijo Real, C/ Los Amigos, 8 - 11206 Algeciras (Cádiz)

Tel: 956 603 306 - Fax: 956 604 610

email: info@pablovegasl.es - www.pablovegasl.es



5. CONCLUSIONES

After the tests and tests the generator is ready to work.