Job Information

Job #: 97780 Date: October 4, 2018

Priority: — Authorized OT: No Authorized by:

Customer Information

Name: A.I.M Reason:

Contact: Motor#: PO#:

Application: — Special notes:

Name Plate Information

Manufacturer:	ABB	Enclosure :	Totally Enclosed Fan Cooled
Serial#:	M3AA250SMA-2	Model#:	3GV12109360520 01
Service Factor:	1.15	Frame:	250S
Horsepower/kW:	55	Rated RPM:	3580/3582
Rated Amps:	86/83.5	Rated Voltage:	440/460
Phase:	3	Cycles:	60
Special design:	No		

Enclosure Type image

Nameplate	DE	ODE	F1	F2	Top
			[redacted] Not Available [redacted]	[redacted] Not Available [redacted]	

Mechanical Inspection

Inspect bolt holes and fasteners. Validate correct fasteners.

Does the shaft turn freely?:	No	Contaminant(s):	Other
Shaft rotation:	Bi-directional	Contaminant(s) Amt:	Cup
Shaft grounding device present?:	No	Contaminant Image:	
Type of grounding device:	None		
Shaft runout(TIR-Inbound):			

Bearings DE:	Worn	Bearings DE make:	Other
Insulated:	No	Bearing DE Size:	NU213 ECP
Bearings ODE:	Worn	Bearings ODE make:	Other
Bearing Type:	Cylindrical roller	Bearing ODE Size:	6215 2Z/C4
Bearings Retainer:	Yes	Thermal Protection:	Yes
Retainer condition:	Good	Thermal Protection Type:	—

Bearing Type Image

Bearing Make Image

Bearing Retainer Image

Thermal Protection

[redacted]

Not Available

[redacted]

Mechanical Inspection (Continued)

Lubrication Type:	Oil	Thermal Protection device DE:	—
Lubrication brand inbound:	Unknown	Thermal Protection device ODE:	—
Lubrication brand outbound:	Unknown		
Grease Amt DE:	N/A	Grease Cond. DE:	Other
Grease Amt ODE:	1/2	Grease Cond. ODE:	Charred
Seals DE type:	Isolators	Seals Image:	
Seals DE size:			
Seals DE (inbound) condition :	Worn		
		Seals Image 2:	[redacted]
Seals ODE type:	N/A		Not Available
Seals ODE size:			
Seals ODE (inbound) condition :			[redacted]
Shaft damage cause:	None	Shaft Image:	

Mechanical Inspection (Continued)

Brg. Image:

Bushings/sleeves image:

Water jacket: Ok

[redacted]

Not Available

[redacted]

Fan: Ok

Frame cond.: Good

Motor Mount Position: Horizontal/Foot mount

Endbell type: Single piece

Missing parts?

- ☐ J-Box cover
- ☐ O-rings
- ☐ J-Box
- ☐ HH cover
- ☐ Glands
- ☐ None

Endbell Image:

Other missing parts

Mechanical Inspection (Continued)

Air Gap Meaurements (N/A on Single Piece Endbell)		Does Air Gap Meet Customer or EASA spec(<10% variation)?
DE @ 0	ODE @ 0	—
DE @ 90	ODE @ 90	
DE @ 180	ODE @ 180	
DE @ 270	ODE @ 270	

AC Electrical Inspection

Number of leads: 6

Length of leads: 7’9”

Size of leads:

Lead condition: Good

Lug type:

Lug Condition: Good

Lug size:

Lug Attachment: Acceptable

Terminal Markings:

REF: NEMA Stds. MG 1-2009, Rev. 1-2010, 2.41-Terminal Markings Identified By Color:

1-Blue
2-White
3-Orange
4-Yellow
5-Black
6-No color assigned
7-No color assigned
8-Red
P1-No color assigned
P2-Brown

Connections As Received:

Terminal

Lugs

AC Electrical Inspection (Continued)

Rotor Type: Cast Aluminum

Rotor Condition: Ok

Num rotor bars:	40
Num broken bars:	0

Rotor

Rotor Test Results

Visual: Pass Growler: Pass Single phase: Pass

Stator type: Factory

If other, stator type:

Stator condition: Ok

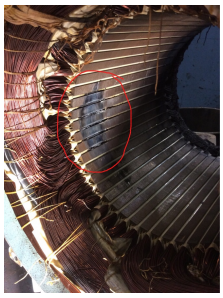
If other, stator condition:

Failure location: In slot

If other, stator failure:

Stator Image:

Failure Image:



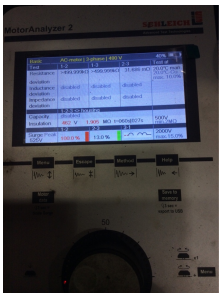
AC Electrical Inspection (Continued)

Winding color:	Dull black	Winding image		Winding Thermal Protection:	No
Winding condition :	Charred			[redacted]	
Winding Thermal Protection DE:	—			Not Available	
Winding Thermal Protection ODE:	—			[redacted]	
Stator test results:	Rewind				

Megs incoming:	Bad	Surge incoming:	Bad	Hi-pot incoming:	Bad

Winding Resistance Incoming

	Phases A to B	Phases B to C	Phases C to A	Resistive imbalance
Incoming	499.99	499.99	31.6	

Leads/jumpers:	Ok	Lead jumper Image. :	
If other, leads/jumpers:			

Mechanical Inspection

Inspect bolt holes and fasteners. Validate correct fasteners.

Shaft Condition:	Damaged	Bearings Retainer:	Yes
Type of grounding device:	None	Bearing DE Size:	NU 213 ECP
Shaft runout(TIR-Inbound):		Bearing ODE Size:	6215/2Z C4
Retainer condition:	Good		

Mechanical Inspection (Continued)

Seals DE condition :	Worn	Brg. Seats DE:	Good
Seals DE type:	Slinger	If DE undersized, amt.:	Worn
Seals DE size:		Brg. Seats ODE:	Good
Seals DE (inbound) condition :	Worn	If ODE undersized, amt.:	Excessive wear
Seals ODE condition :	None	Shaft damage:	OK
Seals ODE type:	N/A		
Seals ODE size:		Bushings/sleeves DE:	Gauled
Seals ODE (inbound) condition :		Bushings/sleeves ODE:	Other
Endbell fits/damage:	Bad	Foot/Flange condition:	Ok
Endbell DE size:	Excessive wear	Foot flatness:	Pass
Endbell DE insulated?:	No		
Endbell ODE size:	Excessive wear	Does Air Gap Meet Customer or EASA spec(<10% variation)?	
Endbell ODE insulated?:	No	—	

Conclusion

Component Failure

Multiple: D.E bearing and O.D.E bearings show catastrophic failure. Fan blade completely broken off.

Cause of Failure

Bearings from what appears to be lack of lubrication. This caused other components to fail as well.

Comments

Initial disassembly showed both bearings completely destroyed. The drive end bearing showed no signs of lubricant on them. The opposite drive end bearing and shaft bearing journal were excessively worn and the end bell housing has multiple cracked areas and needs to be replaced. The motor windings showed an excessive amount of heat stress in the form of broken winding strings. Also the stator iron is damaged from rotor drag and a core check is necessary to check its integrity.

Service Tech name: Terrence Holland

Service Tech signature: