



# DIS

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# **TRAINING INTERNAL**

# **DEPARTMENT E & M**

**TASK: MOTOR INSPECTION**


**INTRUCTION BY: BUI HUU NHAT PHONG**

# MOTOR INSPECTION

- Quality check sheet
- Organization chart and manpower
- Risk assessment
- Method statement
- Test Report
- Check sheet
- Equipment testing, list tool and certificate
- PPE

# I- MV MOTOR



- 
- Check permit to work and tag name or KKS.
  - Check the medium voltage by high voltage tester NSETS no have
  - Check fixation, frame corrosion
  - Clean all body and cooling fan using kerosen, steel brush, brush, drag cloth, vacumm machine, prepare paint with same colour or touch paint if require
  - Dismantling cover of coupling, cooling fan and check for free movement of rotor.



Clean all body and cooling fan

Check mark mechanical to the test report

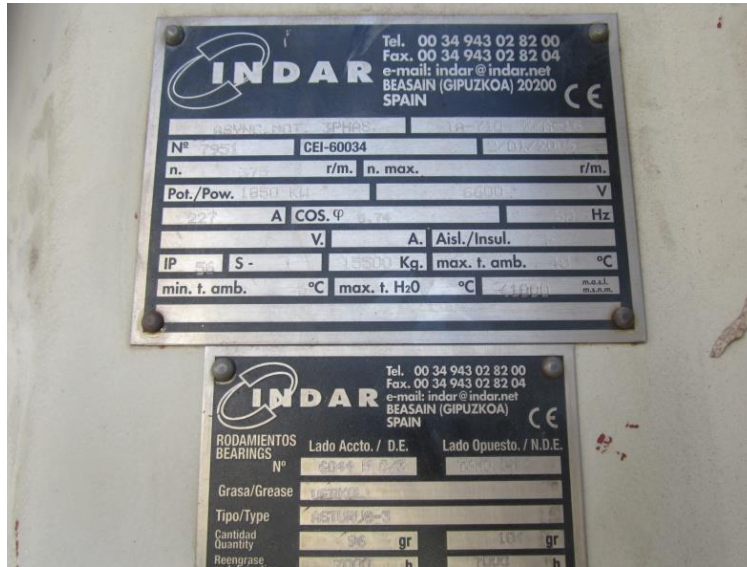


MECHANICAL INSPECTION			Remark
Fixation	<input type="checkbox"/> Checked	<input type="checkbox"/> N/A	.....
Cooling fan	<input type="checkbox"/> Checked	<input type="checkbox"/> N/A	.....
Bearing Condition (DE)	<input type="checkbox"/> Checked	<input type="checkbox"/> N/A	.....
Re-grease	<input type="checkbox"/> Checked	<input type="checkbox"/> N/A	.....
Check for free movement of Rotor	<input type="checkbox"/> Checked	<input type="checkbox"/> N/A	.....
Frame Corrosion	<input type="checkbox"/> Checked	<input type="checkbox"/> N/A	.....
Cleaning	<input type="checkbox"/> Checked	<input type="checkbox"/> N/A	.....
Bearing Condition (NDE)	<input type="checkbox"/> Checked	<input type="checkbox"/> N/A	.....
Amount	<input type="checkbox"/> Checked	<input type="checkbox"/> N/A	.....
SUMMARY .....			
.....			
.....			

Dismantling cover of coupling and cleaning, check coupling.

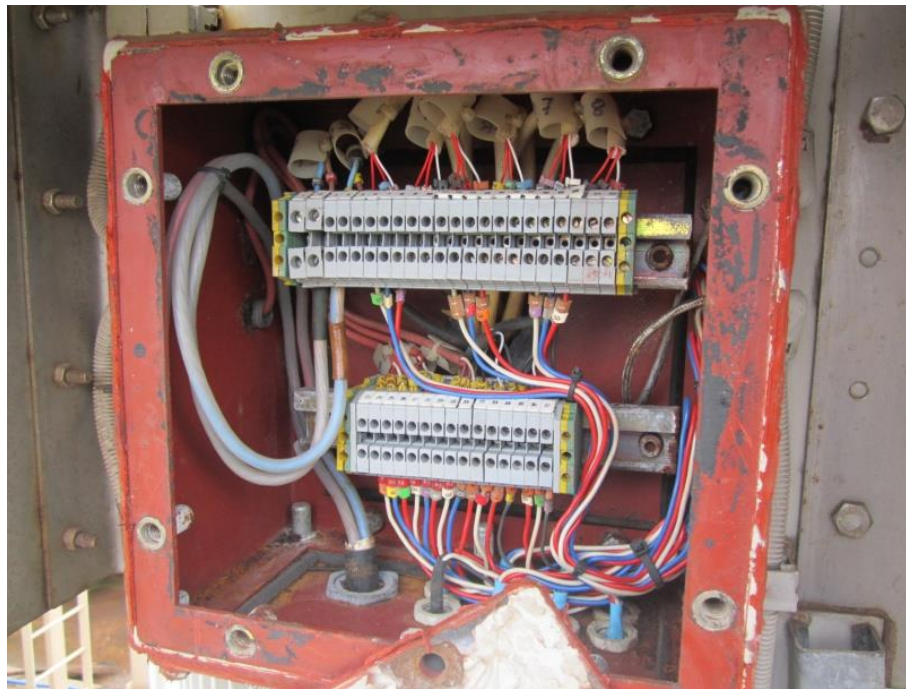


# Record data to the test report and take picture name plate



TEST REPORT NO		MV MOTOR INSPECTION TEST REPORT	
Customer:	PM2.2 BOT POWER PLANT	Inspection Date:	.....
Add.:	TAN THANH – BA RIA VUNG TAU	Report Date:	.....
Tag Name:	.....		
<b>MOTOR DATA</b>			
Equipment name:	.....	Feeder No:	.....
Manufacturer:	.....	Serial No:	.....
Type:	.....	Rated current:	.....
Rated voltage:	.....	Speed:	.....
Rated power:	.....	Power Factor:	.....
Frame size:	.....	Insulation class:	.....
IP:	.....	Connection:	.....
SF:	.....	Bearing NDE:	.....
Bearing DE:	.....	Frequency:	.....
Lubrication type:	.....	Heater:	.....

- Open junction box of heater and take picture, check voltage AC, and mark wire.
- Disconnect cable power and insulation resistance test by megger in mode 250VDC.
- Resistance test coil heater.





Open junction box and take picture, Check wire and cleaning terminal by ethanol



Insulation test resistance by Megger



Check all cable connections are tight  
Re-assembly cover after test









Note: When you insulation resistance test

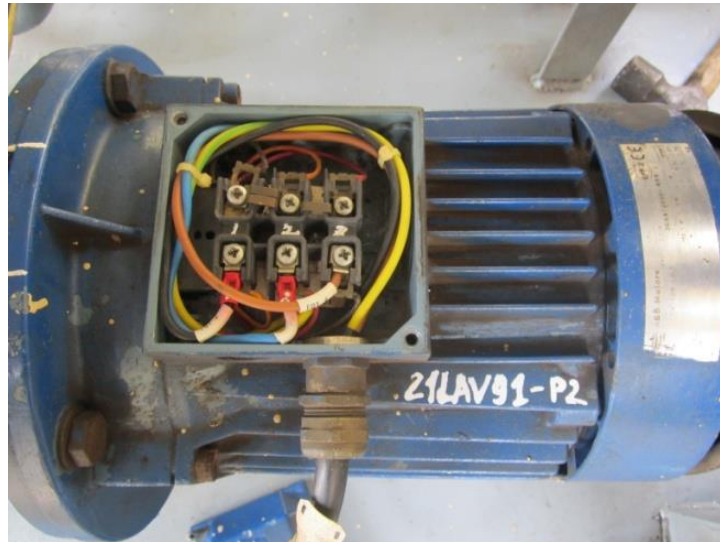
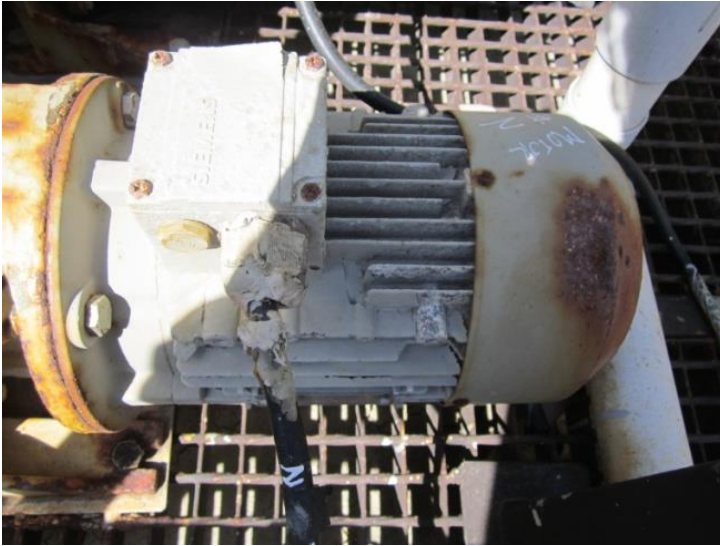
- You must connect phase with earth
- Megger must in mode PI measure
- Set voltage direct of Megger in mode 5000V
- PI condition must high than 1.3
- If insulation resistance high than  $5G\Omega$  => No need check PI

# Record value IR, IR heater... to the test report

WINDING RESISTANCE					HEATER				
Marking	U1-U2	V1-V2	W1-W2		Heater Resistance				
Resistance					Heater Resistance Insulation				
					Min Heater RI Recommend		>=100MΩ		
WINDING INSULATION RESISTANCE					PHASE INSULATION RESISTANCE				
VOLD(DC)	Marking	1minute	10minute	PI	VOLD(DC)	Marking	1minute	10minute	PI
5000V	U-V				5000V	Phase1-2			
	U-W					Phase1-3			
	V-W					Phase2-3			
	U-G					Phase1-G			
	V-G					Phase2-G			
	W-G					Phase3-G			
Connection check		<input type="checkbox"/> Good <input type="checkbox"/> N/A			Termination check		<input type="checkbox"/> Good <input type="checkbox"/> N/A		
Min RI Recommend		>=100MΩ			Min RI Recommend		>=100MΩ		
<u>ROTATION TEST</u>									
Rotation From NDE (Incoming)					Rotation From NDE (Final)				
<input type="checkbox"/> CW 	<input type="checkbox"/> CCW 	<input type="checkbox"/> N/A			<input type="checkbox"/> CW 	<input type="checkbox"/> CCW 	<input type="checkbox"/> N/A		

# II- LV MOTOR

Motors inspection will be work at site



- Check permit to work and tag name or KKS.
- Check fixation, cable gland frame corrosion.
- Clean all body and cooling fan
- Dismantling cover of coupling, cooling fan and check for free movement of rotor.

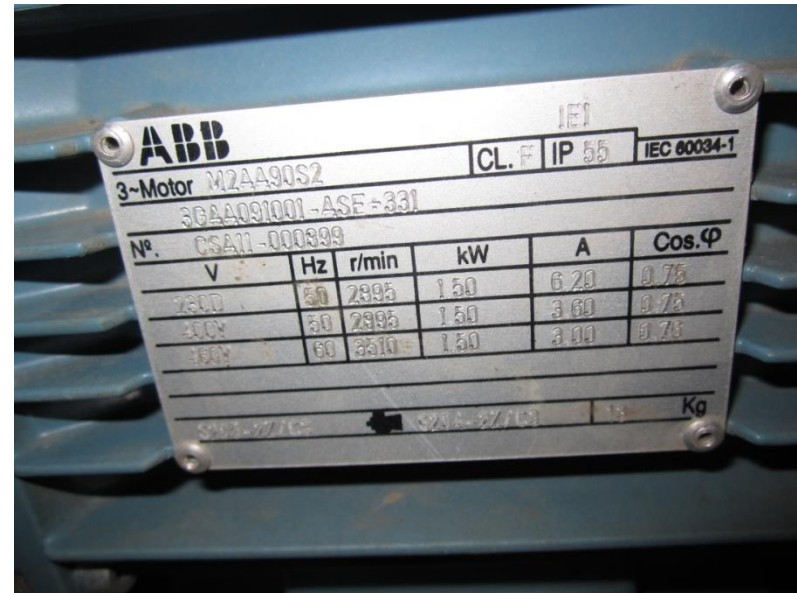





## Check mark mechanical to the test report

MECHANICAL INSPECTION			Remark
Fixation	<input type="checkbox"/> Checked	<input type="checkbox"/> N/A	.....
Cooling fan	<input type="checkbox"/> Checked	<input type="checkbox"/> N/A	.....
Bearing Condition (DE)	<input type="checkbox"/> Checked	<input type="checkbox"/> N/A	.....
Re-grease	<input type="checkbox"/> Checked	<input type="checkbox"/> N/A	.....
Check for free movement of Rotor	<input type="checkbox"/> Checked	<input type="checkbox"/> N/A	.....
Frame Corrosion	<input type="checkbox"/> Checked	<input type="checkbox"/> N/A	.....
Cleaning	<input type="checkbox"/> Checked	<input type="checkbox"/> N/A	.....
Bearing Condition (NDE)	<input type="checkbox"/> Checked	<input type="checkbox"/> N/A	.....
Amount	<input type="checkbox"/> Checked	<input type="checkbox"/> N/A	.....
SUMMARY	.....		
	.....		
	.....		

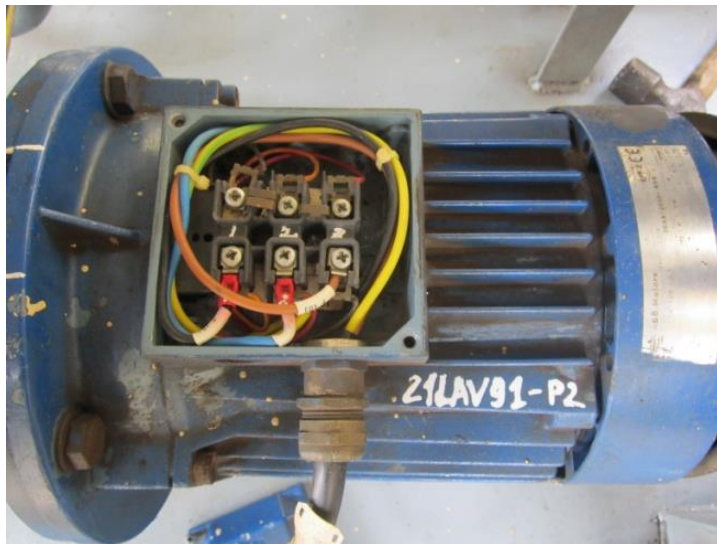


# Record data in name plate



		<b>DRAGON INVESTMENT SOLUTION JOINT STOCK COMPANY</b> Equipment and Technology services Provider		FR-DIS-P.I.C Rev.0/02.07.2023	
<b>TEST REPORT NO.</b>		<b>LV MOTOR OVERHAULS TEST REPORT</b>			
Customer:		Incoming Date:			
Add: Phu My 2 Industrial Zone, Tan Thanh, Bà Rịa - Vũng Tàu, Việt Nam		Final Date:			
Tag Name.:		Report Date:			
<b>MOTOR DATA</b>					
Equipment name		Feeder No			
Manufacturer		Serial No			
Type		Tag Name			
Rated voltage		Rated current			[A]
Rated power		Speed			[rpm]
Frame size		Power Factor			[%]
IP		Insulation Class			
SF		Connection			
Bearing DE		Bearing NDE			
Lubrication type		Frequency			
		Heater			
Rotation from NDE:	<input type="checkbox"/> cw 	<input type="checkbox"/> cww 			
Other					

Open junction box and take picture, check voltage AC, and mark wire, terminal.



Check wire and cleaning terminal by contact cleaner

- Disconnect power and tape. Remove link and measure resistance 3 phase U, V, W by low Ohm meter.
- Insulation resistance test coil stator phase with phase and phase with earth by megger in mode 500VDC. (1min and 10min)
- Insulation resistance test cable power phase with phase and phase with earth by megger in mode 500VDC. (1min and 10min)





- Re-assembly after check.
- Check free movement of rotor ensure cooling fan does not touch fan cowling.







Final check by QC

Rotation test (To be confirmed Operation, Electrical and Contractor)

Complete the maintenance records for the item including any observations and also complete the work order card with the details of any findings.

**THE END**