Hi-Speed Industrial Service
7030 Ryburn Dr
Millington, Tn 38053
901-873-5300

AC Inspection as Found

FUTURE FUEL CHEMICAL
2800 GAP RD HWY 394 SO
BATESVILLE, AR 72501

FolderID: 104323
FormID: 23804439

AC Inspection - Rev. 2

Location:	LR MOTOR SHOP
Serial Number:	TYPE-CT TE
Description:	50 HP U.S ELECTRIC

Hi-Speed Job Number:	104323
Manufacturer:	Other
Product Number:	6311-2ZJC3
Spec/ID #:	F212-50-S06S066R102M
Serial Number:	TYPE-CT-TE
HP/kW:	50 (HP)
RPM:	1775 (RPM)
Frame:	326T
Voltage:	230 / 460
Current:	117 / 58.3 (Amps)
Phase:	Three
Hz:	60 (Hz)
Service Factor:	1.15
Enclosure:	TEFC
# of Leads:	9
J-box Included:	Complete
Coupling/Sheave:	None
Date Received:	03/19/2025
Bearing RTDs:	No
Stator RTDs:	No
Repair Stage:	Final
Rewind:	Yes
Shaft Machined Fit Repairs Required:	No
Bearing Housing Machined Fit Repairs Required:	Yes
Heaters:	No
Winding Type :	Random Wound
Bearing Type:	Rolling Element

Priorities Found: **4 - High** **8 - Good**

Overall Condition

1.	Report Date	**03/25/2025**

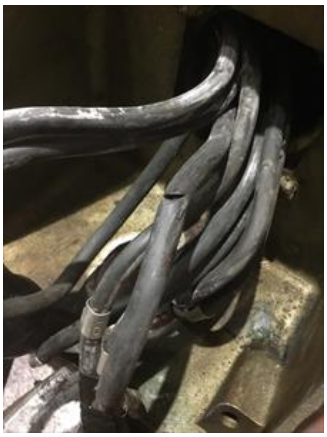
2. Nameplate Picture P37

3. Photos of all six sides of the machine. P45

	4.	Describe the Overall Condition of the Equipment as Received ***Serviceable***	

Initial Mechanical/Electrical

●	5.	Does Shaft Turn Freely?	**(Y) Yes**	
●	6.	Does the shaft require T.I.R in Lathe to identify additional repairs?	**(No) No**	
	7.	Does Shaft Have Visible Damage?	**(No) No**	
●	8.	Assembled Shaft Runout	**0.004 Inches**	
	9.	Assembled Shaft End Play	**0 inches**	
	10.	Air Gap Variation <10%		
●	11.	Lead Condition	**(F) Fail**	P69



Insulation cut on lead #2

	12.	Lead Length	**8.5 Inches**

13.	Does it have Lugs?, If so what is the Stud Size?	**(Yes) Yes**	P93

14.	Lead Numbers	**1-9**	
15.	Frame Condition	**pass**	
16.	Fan Condition	**(F) Fail**	P115

Destroyed. Sn: 362254

17.	Does motor have internal fan?	**(No) No**
18.	Broken or Missing Components	**Fan assembly**

Initial Electrical Inspection

19.	Insulation Resistance/Megger	**Megohms**
20.	Winding Resistance	

1-2	1-3	2-3

21.	Perform Surge Test	**(NA) Not Applicable**
22.	Number of Stator Slots	**48**

23.	Stator Condition	**rewind**	P84

24.	Stator Thermistors/Ohms		
25.	Stator Overloads/Ohms		

Mechanical Inspection

26.	Drive End Bearing Brand	**FAG**	
27.	Drive End Bearing Number-	**6311 C3**	P32

28.	Drive End Bearing Qty.	**1**
29.	Drive End Bearing Type	**(Ball) Ball Bearing**
30.	Drive End Lubrication Type	**(Grease) Grease Lubricated**
31.	Drive End Bearing Insulation or Grounding Device?	**none**
32.	Drive End Wavy Washer/Snap-Ring Other Retention Device?	**none**
33.	Drive End Bearing Condition	**worn**
34.	Opposite Drive End Bearing Brand	**unknown**

35.	Opposite Drive End Bearing Number-	**6211 C3**	P99

36.	Opposite Drive End Bearing Qty.	**1**	P103

37.	Opposite Drive End Bearing Type	**(Ball) Ball Bearing**
38.	Opposite Drive End Lubrication Type	**(Grease) Grease Lubricated**
39.	Opposite Drive End Bearing Insulation or Grounding Device?	**none**
40.	Opposite Drive End Wavy Washer/Snap-Ring Other Retention Device?	**none**
41.	Opposite Drive End Bearing Condition	**destroyed**
42.	Drive End Seal	
43.	Opposite Drive End Seal	

Rotor Inspection

44.	Rotor Type/Material	**(Squirrel Aluminum) Squirrel Cage Aluminum Die Cast**
45.	Growler Test	**(Pass) Pass**
46.	Number of Rotor Bars	**56**
47.	Rotor Condition	**pass**
48.	List the Parts needed for the Repair Below	

Bearings: (1) 6211 C3 (1) 6311 C3
Fan assembly # 362254
Sleeve ODE housing fit.
Rewind stator / minor core repair

49.	Signature of Technician that Disassembled Motor		**Terrence Holland**

Co sign:

Mechanical Fits- Rotor

50.	Shaft Runout		
51.	Rotor Runout		
	Drive End Bearing Fit	Rotor Body	Opposite Drive End Bearing
52.	Coupling Fit Closest to Bearing Housing		
	0 Degrees	90 Degrees	120 Degrees
53.	Coupling Fit Closest to the end of the Shaft		
	0 Degrees	60 Degrees	120 Degrees
54.	Drive End Bearing Shaft Fit		
	0 Degrees	60 Degrees	120 Degrees
	2.1658	**2.1657**	**2.1656**
55.	Drive End Bearing Shaft Fit Condition		**(P) Pass**
56.	Opposite Drive End Bearing Shaft Fit		
	0 Degrees	60 Degrees	120 Degrees
	2.1656	**2.1655**	**2.1656**
57.	Opposite Drive End Bearing Shaft Fit Condition		**(P) Pass**
58.	Shaft Air Seal Fits		
	Drive End Air Seal	Opposite Drive End Air Seal	

Mechanical Fits- Bearing Housings

59.	Drive End - Endbell Bearing Fit		
	0 Degrees	60 Degrees	120 Degrees
	4.725	**4.7251**	**4.7251**
60.	Drive End - Endbell Bearing Fit Condition		**(P) Pass**
61.	Opposite Drive End - Endbell Bearing Fit		
	0 Degrees	60 Degrees	120 Degrees

Lip worn in.

62.	Opposite Drive End - Endbell Bearing Fit Condition	**(F) Fail**
63.	Bearing Cap Condition	
	Drive End Bearing Cap	Opposite Drive End Bearing Cap
64.	End Bell Air Seal Fits	
	Drive End Air Seal	Opposite Drive End Air Seal
65.	List Machine Work Needed Below	

Sleeve ODE housing fit.

66. Technician **Terrence Holland**

Root Cause of Failure

67. Failure locations

ODE housing fit, due to catastrophic bearing failure.

68. Root cause of failure P18

Poorly lubricated bearings on both ends caused the ODE bearing to fail .

Dynamic Balance Report

69. Rotor Weight and Balance Grade

Rotor Weight	Balance Grade

70. Initial Balance Readings

Drive End	Opposite Drive End

71. Final Balance Readings

Drive End	Opposite Drive End

72. Technician

Rewind

73.	Core Test Results - Watts loss per Pound		
	Pre-Burnout	Post Burnout	
74.	Core Hot Spot Test		
	Pre-Burnout	Post-Burnout	
75.	Post Rewind Electrical Test- Insulation Resistance		
76.	Post Rewind Polarization Index		
77.	Post Rewind Winding Resistance		
	1-2	1-3	2-3
78.	Post Rewind Surge Test		
79.	Post Rewind Hi-Pot		
80.	Technician		
Mechanical Fits- Bearing Housings - Post Repair			
81.	Drive End - Endbell Bearing Fit Post Repair		
	0 Degrees	60 Degrees	120 Degrees
82.	Opposite Drive End - Endbell Bearing Fit Post Repair		
	0 Degrees	60 Degrees	120 Degrees
83.	Bearing Cap Condition Post Repair		
	Drive End Bearing Cap	Opposite Drive End Bearing Cap	
84.	End Bell Air Seal Fits Post Repair		
	Drive End Air Seal	Opposite Drive End Air Seal	
85.	End Bell Repair Sign-off		
Assembly			
86.	QC Check All Parts for Cleanliness Prior to Assembly		
87.	Photograph All Major Components prior to assembly		
88.	Final Insulation Resistance Test		
89.	Assembled Shaft Endplay		
90.	Assembled Shaft Runout		
91.	Test Run Voltage		
	Volts	Volts	Volts
92.	Test Run Amperage		
	Amps	Amps	Amps
93.	Drive End Vibration Readings - Inches Per Second		
	Horizontal	Vertical	Axial
94.	Opposite Drive End Vibration Readings - Inches Per Second		
	Horizontal	Vertical	Axial
95.	Ambient Temperature - Fahrenheit		

96.	Drive End Bearing Temps - Fahrenheit		
	5 Minutes	10 Minutes	15 Minutes
97.	Opposite Drive End Bearing Temps - Fahrenheit		
	5 Minutes	10 Minutes	15 Minutes
98.	Document Final Condition with Pictures after paint		
99.	Final Pics and QC Review		