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

AC Inspection as Found

Reynolds Metals company
1333 highway 270
Malvern, AR 72104

FolderID: 102134
FormID: 18546997

AC Inspection - Rev. 2

Location:	Shop
Serial Number:	
Description:	100 hp

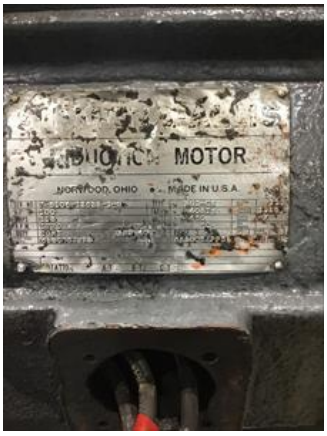
Hi-Speed Job Number:	102134
Manufacturer:	Siemens
Product Number:	7-5106-13633-1-2
HP/kW:	100 (HP)
RPM:	1770 (RPM)
Frame:	405TS
Voltage:	460
Current:	112
Phase:	Three
Hz:	60 (Hz)
Service Factor:	1.15
Enclosure:	TEFC
# of Leads:	3
J-box Included:	None
Coupling/Sheave:	None
Date Received:	11/27/2023
Bearing RTDs:	No
Stator RTDs:	No
Repair Stage:	Final
Rewind:	Yes
Shaft Machined Fit Repairs Required:	Yes
Bearing Housing Machined Fit Repairs Required:	Yes
Heaters:	No
Winding Type :	Random Wound
Bearing Type:	Rolling Element

Priorities Found: **4 - High** **3 - Good**

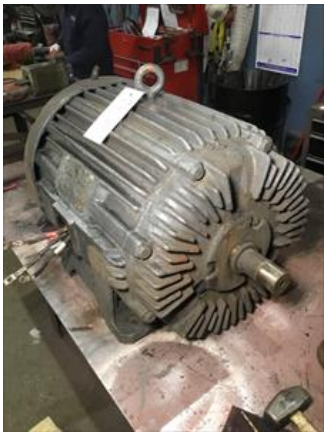
Overall Condition

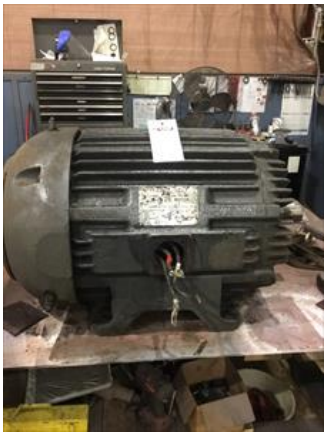
1. Report Date

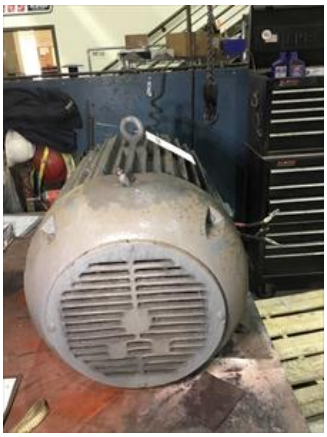
2. Nameplate Picture P37

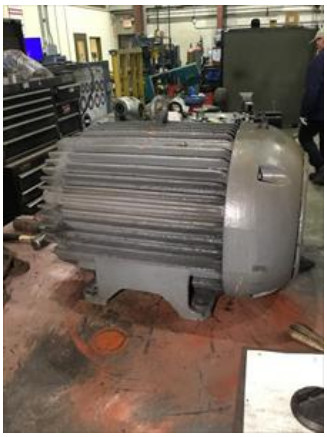


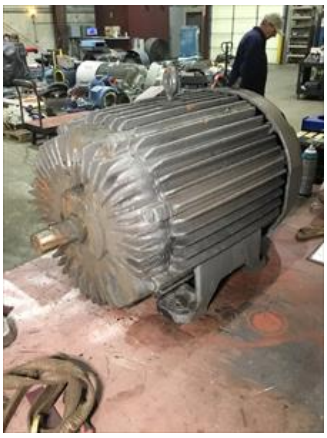
3. Photos of all six sides of the machine. P45

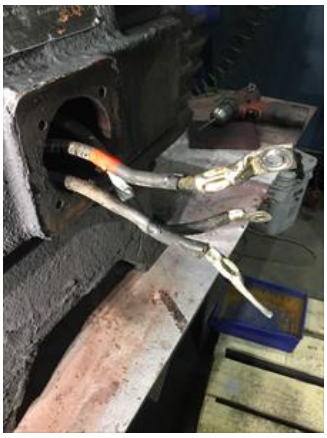


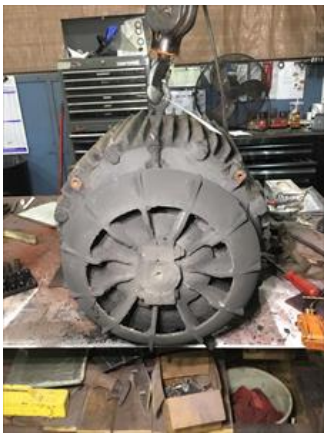


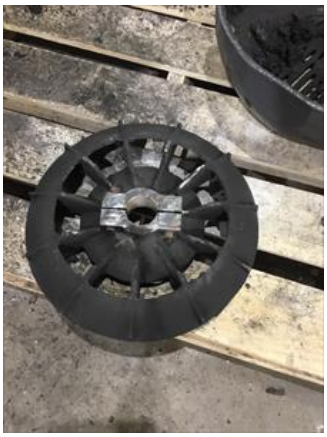


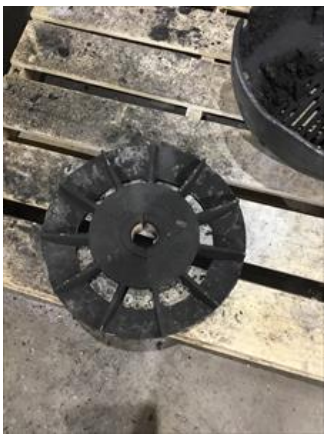


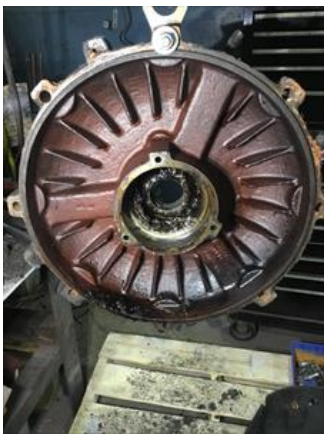


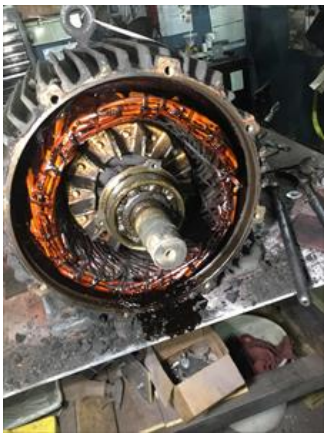


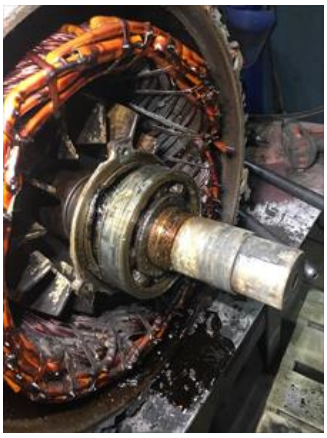


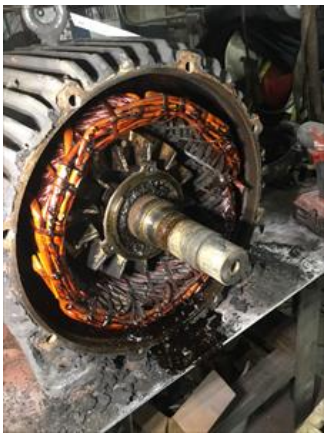


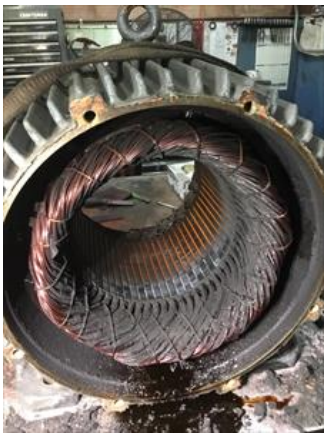


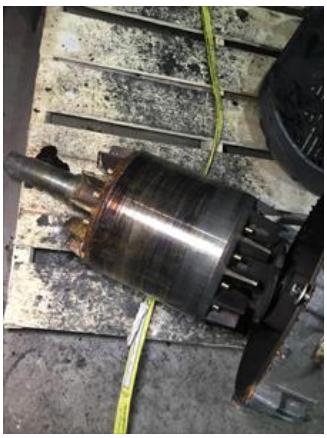


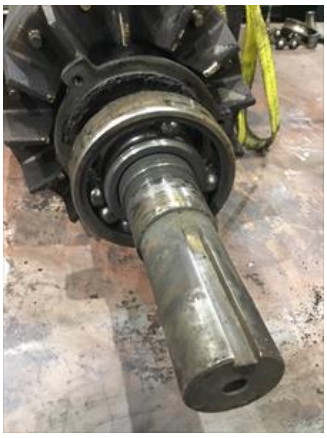


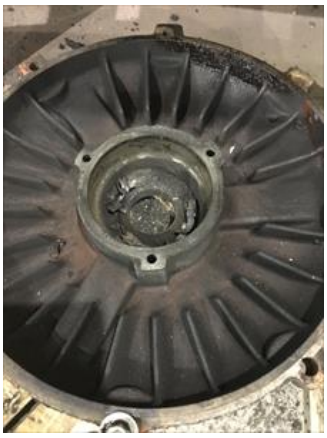




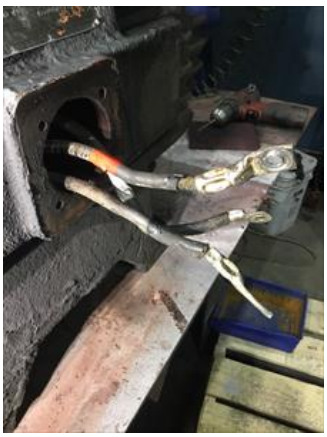




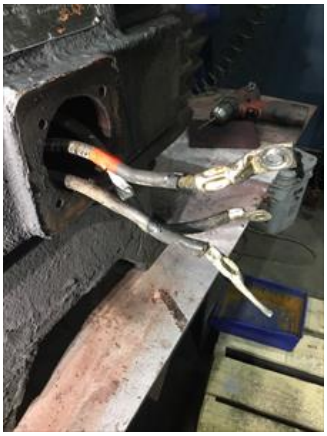




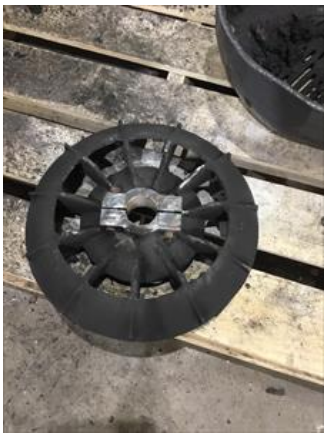
	4.	Describe the Overall Condition of the Equipment as Received ***Serviceable***		
Initial Mechanical/Electrical				
	5.	Does Shaft Turn Freely?	**(No) No**	
	6.	Does Shaft Have Visible Damage?	**(No) No**	
	7.	Assembled Shaft Runout ***Shaft will not rotate.***	**Inches**	
	8.	Assembled Shaft End Play	**inches**	
	9.	Air Gap Variation <10%		
	10.	Lead Condition ***Insulation cracked and worn***	**(F) Fail**	P56

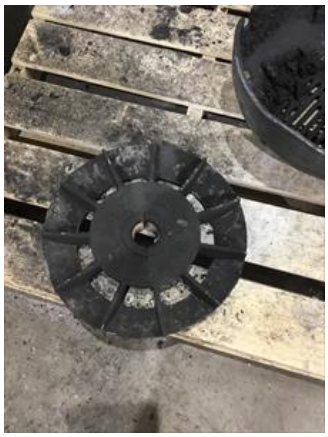


11.	Lead Length	**7 Inches**	P81
	Lugged		



12.	Lead Numbers	**1-3**	
13.	Frame Condition	**pass**	
14.	Fan Condition	**(P) Pass**	P109





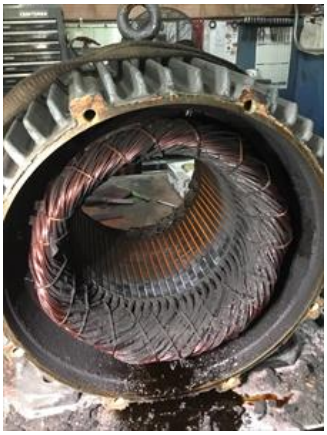
15.	Broken or Missing Components	**no connection box**	

Initial Electrical Inspection

16.	Insulation Resistance/Megger	**Megohms**	
17.	Winding Resistance		

1-2	1-3	2-3

18.	Perform Surge Test	**(NA) Not Applicable**	P58

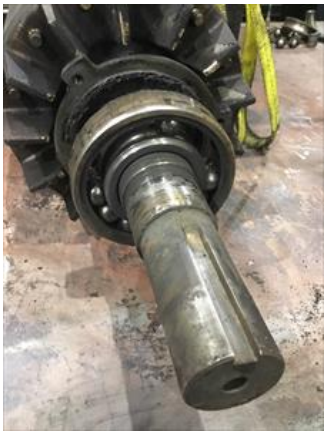


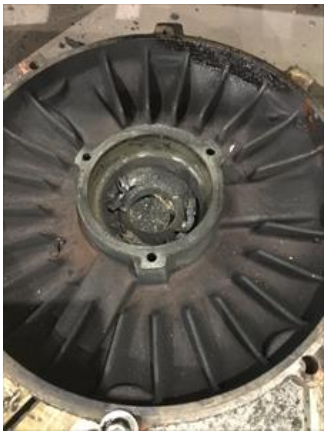
19.	Number of Stator Slots	**60**
20.	Stator Condition	**rewind**
21.	Stator Thermistors/Ohms	
22.	Stator Overloads/Ohms	

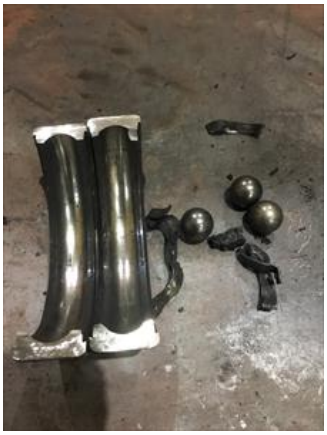
Mechanical Inspection

23.	Drive End Bearing Brand	**unreadable**
24.	Drive End Bearing Number-	**6313**
25.	Drive End Bearing Qty.	**1**
26.	Drive End Bearing Type	**(Ball) Ball Bearing**
27.	Drive End Lubrication Type	**(Grease) Grease Lubricated**
28.	Drive End Bearing Insulation or Grounding Device?	**none**
29.	Drive End Wavy Washer/Snap-Ring Other Retention Device?	**none**

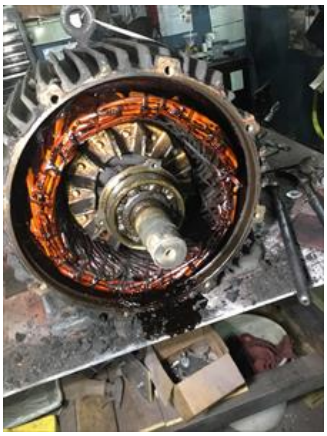
30.	Drive End Bearing Condition	**destroyed**	P80

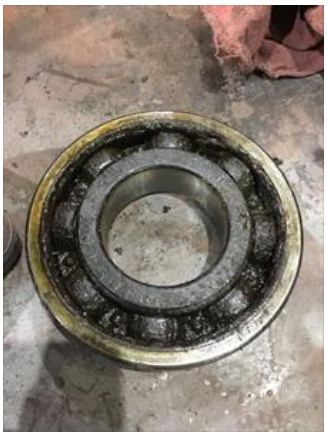


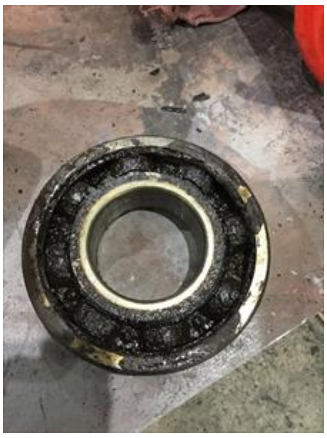


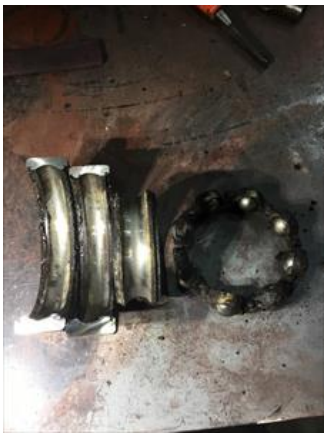


31.	Opposite Drive End Bearing Brand	**unreadable**	
32.	Opposite Drive End Bearing Number-	**6313**	
33.	Opposite Drive End Bearing Qty.	**1**	
34.	Opposite Drive End Bearing Type	**(Ball) Ball Bearing**	
35.	Opposite Drive End Lubrication Type	**(Grease) Grease Lubricated**	P108





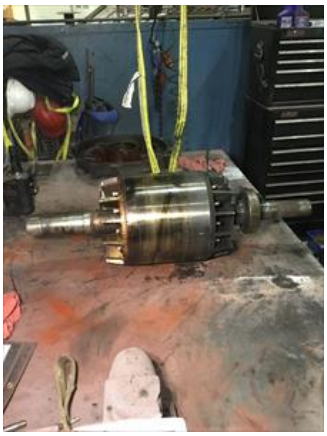




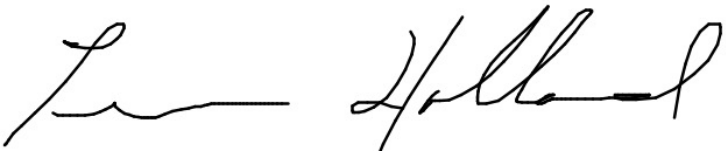
36.	Opposite Drive End Bearing Insulation or Grounding Device?	**none**
37.	Opposite Drive End Wavy Washer/Snap-Ring Other Retention Device?	**none**
38.	Opposite Drive End Bearing Condition	**replace.**
39.	Drive End Seal	
40.	Opposite Drive End Seal	

Rotor Inspection

41.	Rotor Type/Material	**(Squirrel Aluminum) Squirrel Cage Aluminum Die Cast**	P3



42.	Growler Test	**(Pass) Pass**
43.	Number of Rotor Bars	**46**
44.	Rotor Condition	**pass**
45.	List the Parts needed for the Repair Below	
46.	Signature of Technician that Disassembled Motor	**Terrence Holland**



Mechanical Fits- Rotor

47.	Shaft Runout	**0.002 inches**
48.	Rotor Runout	

Drive End Bearing Fit	Rotor Body	Opposite Drive End Bearing

49. Coupling Fit Closest to Bearing Housing

0 Degrees	90 Degrees	120 Degrees

50. Coupling Fit Closest to the end of the Shaft

0 Degrees	60 Degrees	120 Degrees

51. Drive End Bearing Shaft Fit

0 Degrees	60 Degrees	120 Degrees
2.5596	**2.5596**	**2.5597**

52. Drive End Bearing Shaft Fit Condition **(P) Pass**

53. Opposite Drive End Bearing Shaft Fit

0 Degrees	60 Degrees	120 Degrees
2.5593	**2.5594**	**2.5594**

54. Opposite Drive End Bearing Shaft Fit Condition **(P) Pass**

55. Shaft Air Seal Fits

Drive End Air Seal	Opposite Drive End Air Seal
needs polishing	

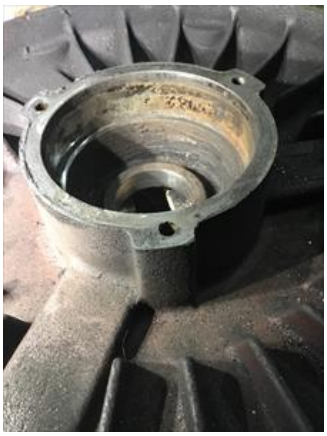
Mechanical Fits- Bearing Housings

56. Drive End - Endbell Bearing Fit

0 Degrees	60 Degrees	120 Degrees

Bad from excessive wear.

57. Drive End - Endbell Bearing Fit Condition **(F) Fail** P12



58. Opposite Drive End - Endbell Bearing Fit

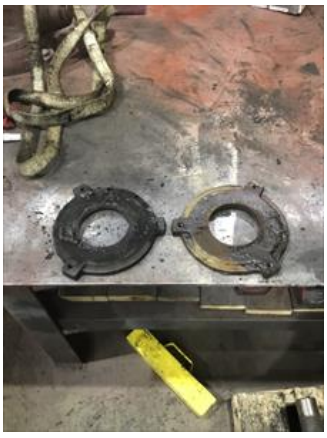
0 Degrees	60 Degrees	120 Degrees

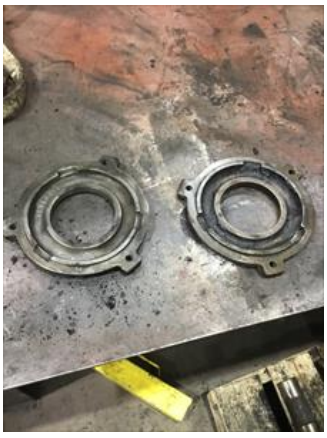
Failed due to excessive wear.

59. Opposite Drive End - Endbell Bearing Fit Condition **(F) Fail** P38

60. Bearing Cap Condition P52

Drive End Bearing Cap	Opposite Drive End Bearing Cap
pass	**pass**





61. End Bell Air Seal Fits

Drive End Air Seal	Opposite Drive End Air Seal

62. List Machine Work Needed Below

Sleeve both end bell housing fits. Repair O.D.E shaft bearing journal. Polish rough shaft seal area on DE.

63. Technician **Terrence Holland**

Dynamic Balance Report

64. Rotor Weight and Balance Grade

Rotor Weight	Balance Grade

65. Initial Balance Readings

Drive End	Opposite Drive End

66. Final Balance Readings

Drive End	Opposite Drive End

67. Technician

Rewind

68. Core Test Results - Watts loss per Pound

Pre-Burnout	Post Burnout

69. Core Hot Spot Test

Pre-Burnout	Post-Burnout

70. Post Rewind Electrical Test- Insulation Resistance

71. Post Rewind Polarization Index

72. Post Rewind Winding Resistance

1-2	1-3	2-3

73. Post Rewind Surge Test

74. Post Rewind Hi-Pot

75. Technician

Root Cause of Failure

76. Failure locations

D.E bearing cage failed, due to excessive grease contamination on both bearings.

77. Root cause of failure

Mechanical Fits- Rotor - Post Repair

78. Shaft Runout Post Repair

79. Rotor Runout Post Repair

Drive End Bearing Fit	Rotor Body	Opposite Drive End Bearing

80. Coupling Fit Closest to Bearing Housing Post Repair

0 Degrees	90 Degrees	120 Degrees

81. Coupling Fit Closest to the end of the Shaft Post Repair

0 Degrees	60 Degrees	120 Degrees

82. Drive End Bearing Shaft Fit Post Repair

0 Degrees	60 Degrees	120 Degrees

83. Opposite Drive End Bearing Shaft Fit Post Repair

0 Degrees	60 Degrees	120 Degrees

84. Shaft Air Seal Fits Post Repair

Drive End Air Seal	Opposite Drive End Air Seal

85. Shaft Repair Sign-off

Mechanical Fits- Bearing Housings - Post Repair

86.	Drive End - Endbell Bearing Fit Post Repair		
	0 Degrees	60 Degrees	120 Degrees
87.	Opposite Drive End - Endbell Bearing Fit Post Repair		
	0 Degrees	60 Degrees	120 Degrees
88.	Bearing Cap Condition Post Repair		
	Drive End Bearing Cap	Opposite Drive End Bearing Cap	
89.	End Bell Air Seal Fits Post Repair		
	Drive End Air Seal	Opposite Drive End Air Seal	
90.	End Bell Repair Sign-off		
Assembly			
91.	QC Check All Parts for Cleanliness Prior to Assembly		
92.	Photograph All Major Components prior to assembly		
93.	Final Insulation Resistance Test		
94.	Assembled Shaft Endplay		
95.	Assembled Shaft Runout		
96.	Test Run Voltage		
	Volts	Volts	Volts
97.	Test Run Amperage		
	Amps	Amps	Amps
98.	Drive End Vibration Readings - Inches Per Second		
	Horizontal	Vertical	Axial
99.	Opposite Drive End Vibration Readings - Inches Per Second		
	Horizontal	Vertical	Axial
100.	Ambient Temperature - Fahrenheit		
101.	Drive End Bearing Temps - Fahrenheit		
	5 Minutes	10 Minutes	15 Minutes
102.	Opposite Drive End Bearing Temps - Fahrenheit		
	5 Minutes	10 Minutes	15 Minutes
103.	Document Final Condition with Pictures after paint		
104.	Final Pics and QC Review		