



COLUMBUS, OH • BROWNSVILLE, TX

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CUSTOMER: WOOD GROUP – PRATT & WHITNEY

NEC JOB #: 79977-2181

FINAL INSPECTION RESULTS

Date Unit Shipped:

Background Data

Ambient Temperature: 75°F

Iron Temperature: 96°F

Electrical Tests

Winding Resistance: **0.412** Ohms

Insulation Resistance Test with **1000** Volt Megger

One Minute Reading: **3360** MegOhms

Ten Minute Reading: **4520** MegOhms

Polarization Index: **1.35**

Field Winding Impedance: **4.79** Amps @ **115** VAC

Pole No. 1 (IB Collector Ring) **57.6** VAC

Pole No. 2 (OB Collector Ring) **57.7** VAC

High Potential Test:

☒ VDC **3500** for **1** minutes **.06** microamps, Result: ☒ OK

☐ Failed

☐ VAC for minutes milliamps, Result:

☐ OK

☐ Failed

If crossover is not accessible, readings are from the bottom of the last coil on each pole to the collector rings:

IB Ring OB Ring

Pole A (OB Ring Pole) VDC VDC

Pole B (IB Ring Pole) VDC VDC

Final Balance Results

Dynamic Balance @ 3600 RPM:

Coupling End Vibration Levels:

Horizontal: **.134** mils **NA** degrees (phase angle)

Vertical: **.226** mils **270** degrees (phase angle)

Axial: **0** mils **NA** degrees (phase angle)

Opposite Coupling End:

Horizontal: **.134** mils **NA** degrees (phase angle)

Vertical: **.144** mils **NA** degrees (phase angle)

Axial: **.041** mils **NA** degrees (phase angle)

Final Inspection of Retaining Rings after Overspeed

Retaining Rings:

Coupling End:

NDE Results: ☒ OK

☐ Rejected

Opposite Coupling End:

NDE Results: ☒ OK

☐ Rejected

CUSTOMER: WOOD GROUP – PRATT & WHITNEY

NEC JOB #: 79977-2181

FINAL INSPECTION RESULTS

Final Rotating Insulation Resistance Test

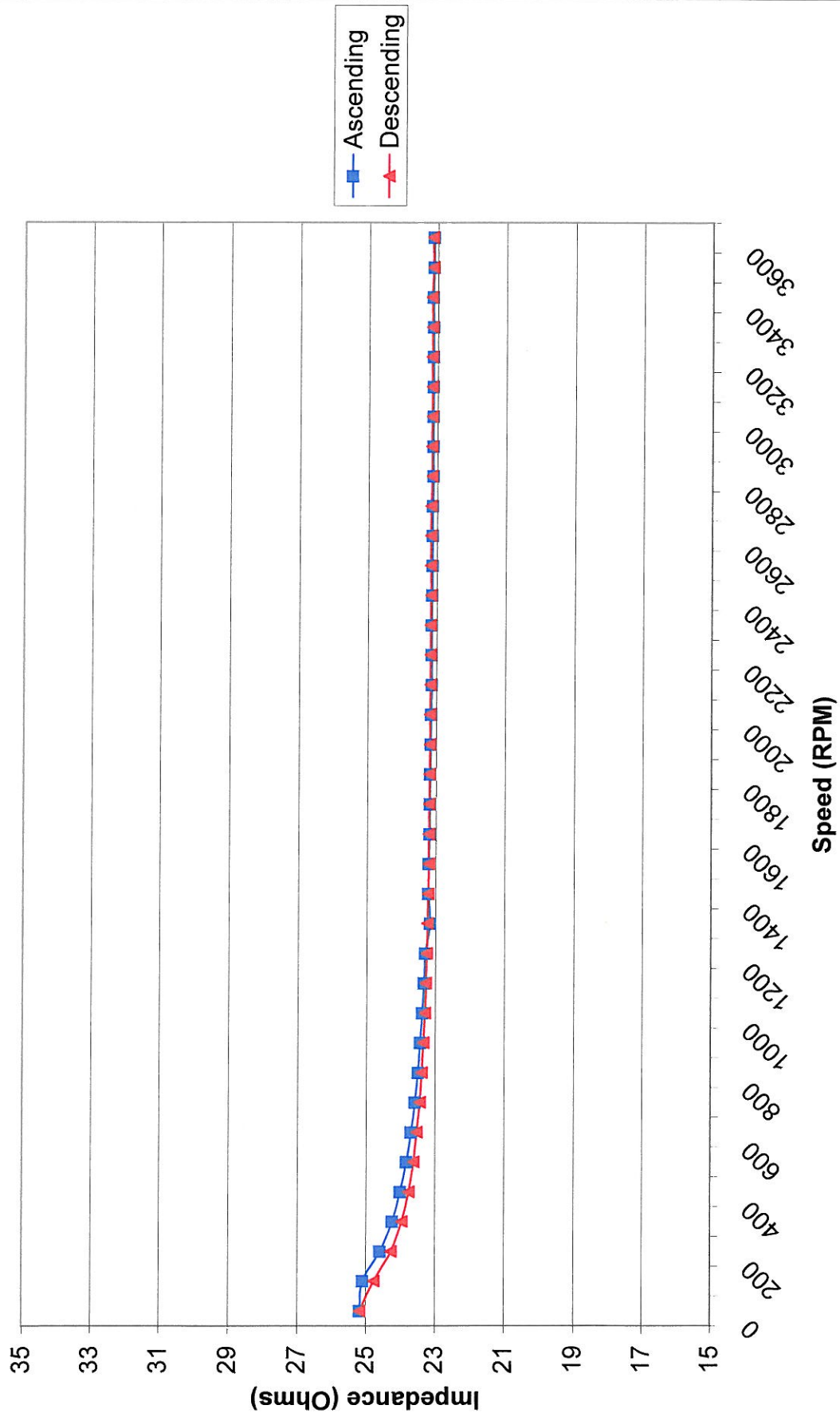
RPM	MegOhms	RPM	MegOhms
0	3800/ 3500	2100	2380/ 1830
300	3180/ 2920	2400	2320/ 1760
600	2800/ 2560	2700	2220/ 1680
900	2640/ 2400	3000	2020/ 1640
1200	2540/ 2240	3300	1910/ 1650
1500	2540/ 2100	3600	1750/ 1700
1800	2480/ 1950	(Ascending/Descending)	

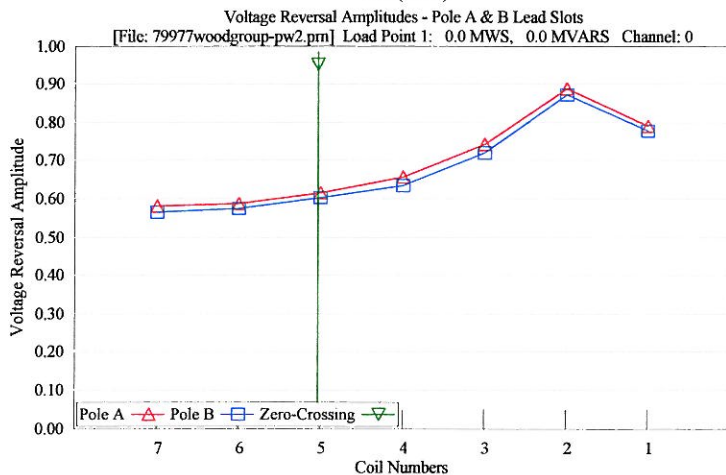
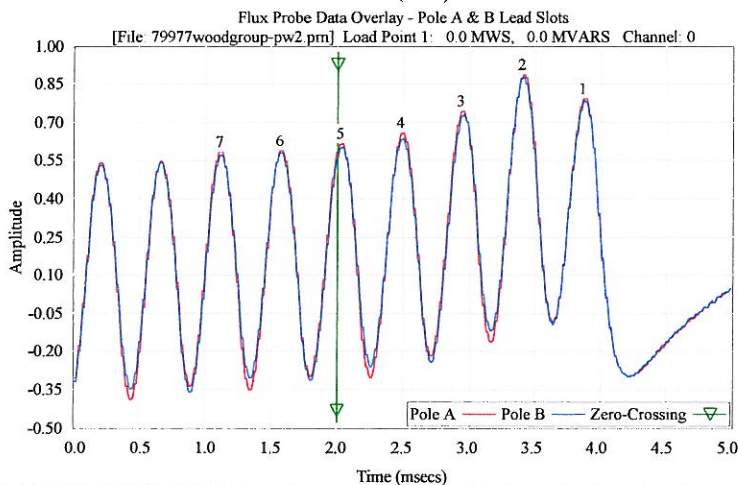
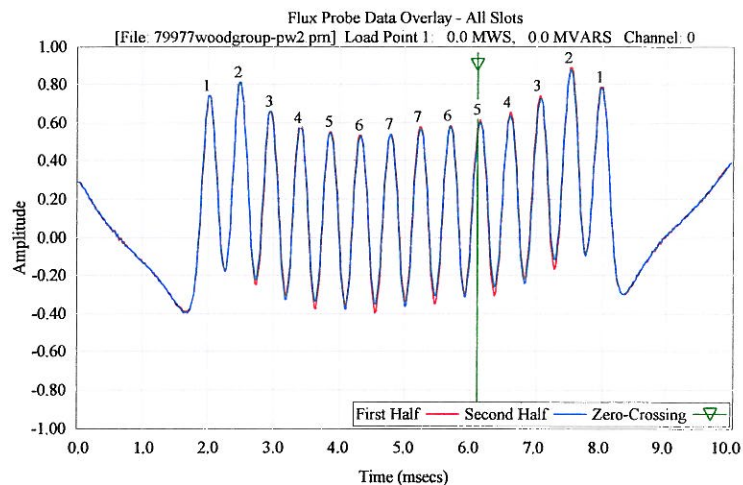
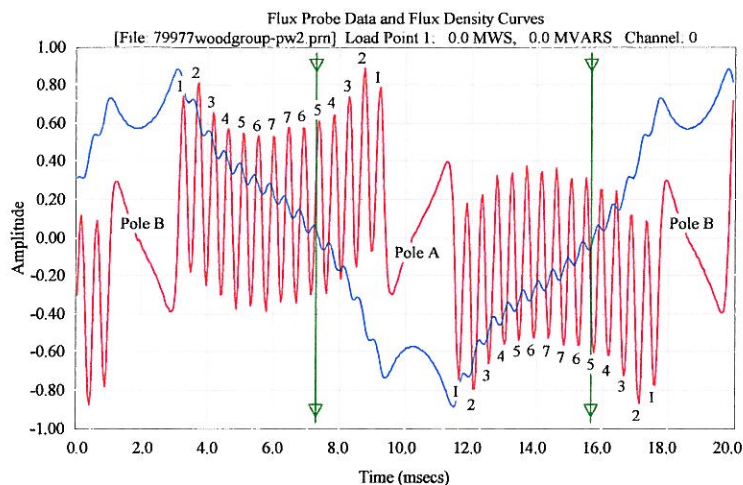
Final Running Impedance Rest

RPM	Impedance (Ohms)	RPM	Impedance (Ohms)	RPM	Impedance (Ohms)
0	25.177	1300	23.158	2600	23.126
100	25.087	1400	23.211	2700	23.125
200	24.585	1500	23.203	2800	23.111
300	24.230	1600	23.182	2900	23.119
400	24.003	1700	23.175	3000	23.119
500	23.823	1800	23.169	3100	23.117
600	23.688	1900	23.154	3200	23.117
700	23.577	2000	23.151	3300	23.123
800	23.493	2100	23.136	3400	23.134
900	23.428	2200	23.139	3500	23.112
1000	23.375	2300	23.139	3600	23.115
1100	23.324	2400	23.132		
1200	23.288	2500	23.128		

Running Impedance

Wood Group 79977-
2181 12/23/09





Generatortech Shorted-Turn Data Table

File: 79977woodgroup-pw2.prm Date: December 23, 2009 5:40:11 pm

Path: C:\Documents and Settings\Balance\My Documents\79977woodgroup-pw2.prm

Company: Wood Group-2 Station: 79977

Comments:

Number of poles= 2 Coils/pole= 7 Max Load MWS= 0.0

Turns/Coil: 1=17, 2=22, 3=22, 4=22, 5=22, 6=22, 7=22,

Load Point= 1 MWS= 0.0 MVARs= 0.0 Field Amps= 0.0 Field Volts= 0.0

Flux Density Zero-Crossing= 5.0, Filter=none, Rotor RPM=3600.0 Peak Height=Modified

Coil	Pole A Peak Size	Pole B Peak Size	Ratio of Sizes A/B	Ratio of Sizes B/A	Pole A Shorted Turn Indication	Pole B Shorted Turn Indication
1	0.799	0.788	1.013	0.987	---	---
2	0.899	0.885	1.016	0.984	---	---
3	0.750	0.729	1.029	0.972	---	---
4	0.665	0.643	1.034	0.967	---	---
5	0.622	0.609	1.022	0.979	---	---
6	0.594	0.582	1.020	0.980	---	---
7	0.588	0.573	1.026	0.975	---	---

Generatortech, Inc. Shorted-Turn Detection System

Analysis System V3.1

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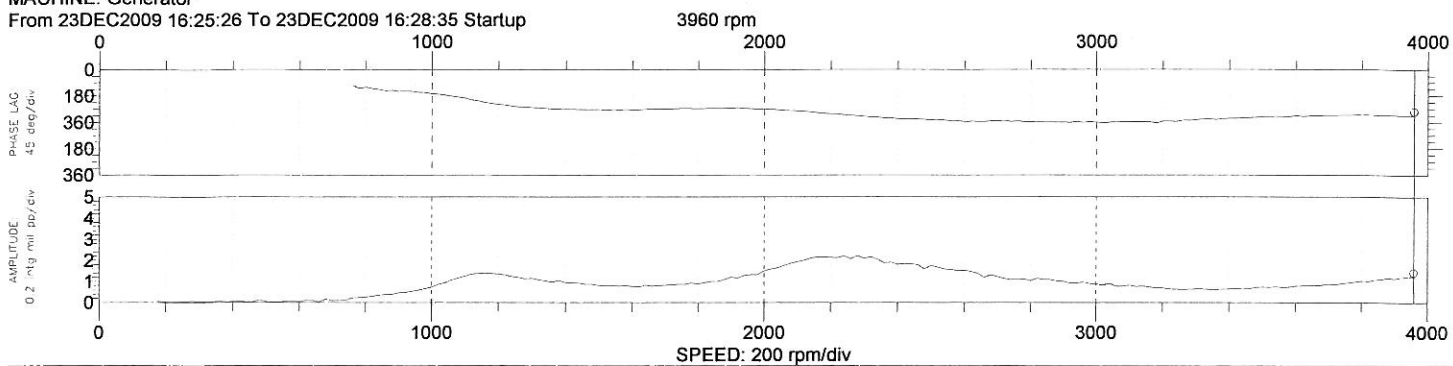
Modified Peak Calculations

BODE PLOT
COMPANY: Wood Group Station
MACHINE TRAIN: TURBO ROTOR

PLOT NO. _____
PLANT: N.E.C.
JOB REFERENCE: 79977-2181

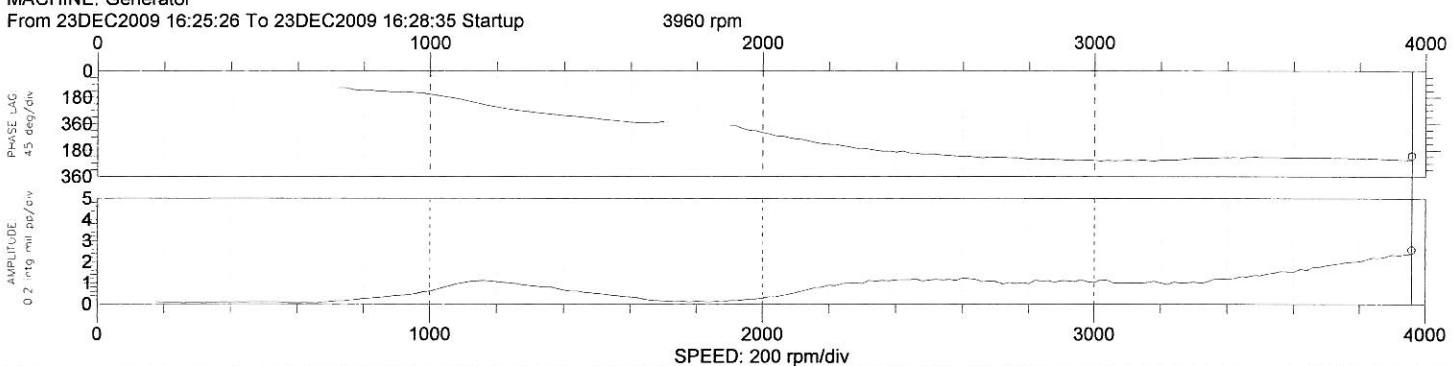
POINT: Near Horizontal $\angle 90^\circ$ Right 1X UNCOMP 1.23/316°
MACHINE: Generator

From 23DEC2009 16:25:26 To 23DEC2009 16:28:35 Startup



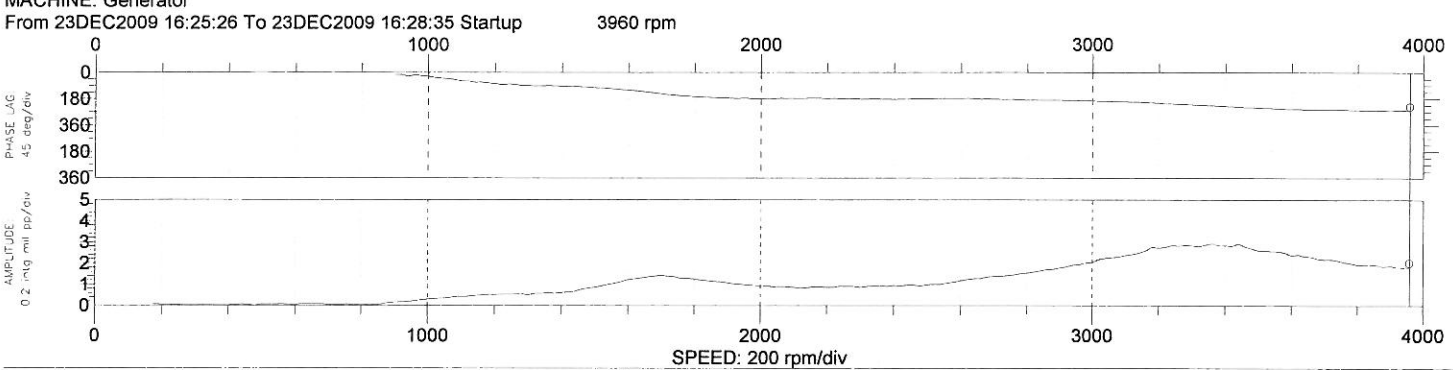
POINT: Far Horizontal $\angle 90^\circ$ Right 1X UNCOMP 2.38/245°
MACHINE: Generator

From 23DEC2009 16:25:26 To 23DEC2009 16:28:35 Startup



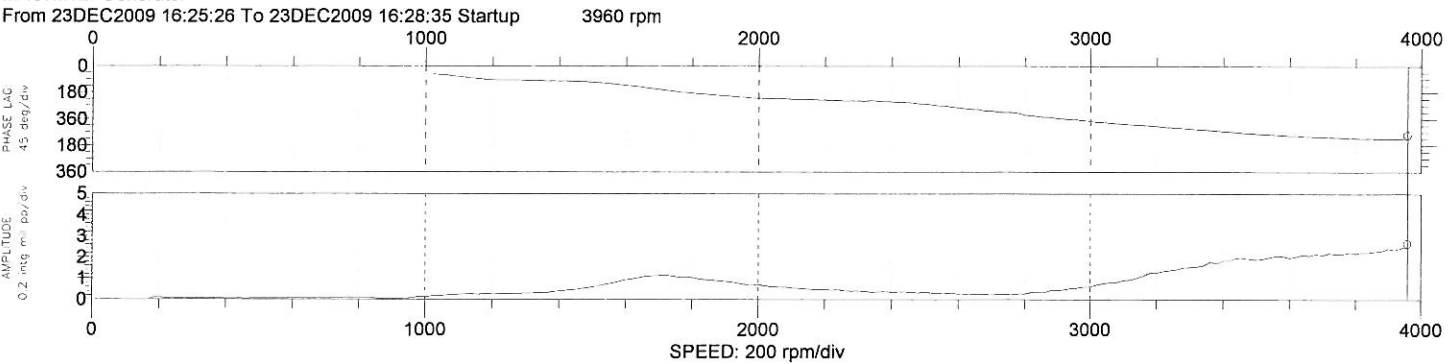
POINT: Near Vertical $\angle 0^\circ$ 1X UNCOMP 1.82/260°
MACHINE: Generator

From 23DEC2009 16:25:26 To 23DEC2009 16:28:35 Startup



POINT: Far Vertical $\angle 0^\circ$ 1X UNCOMP 2.46/137°
MACHINE: Generator

From 23DEC2009 16:25:26 To 23DEC2009 16:28:35 Startup



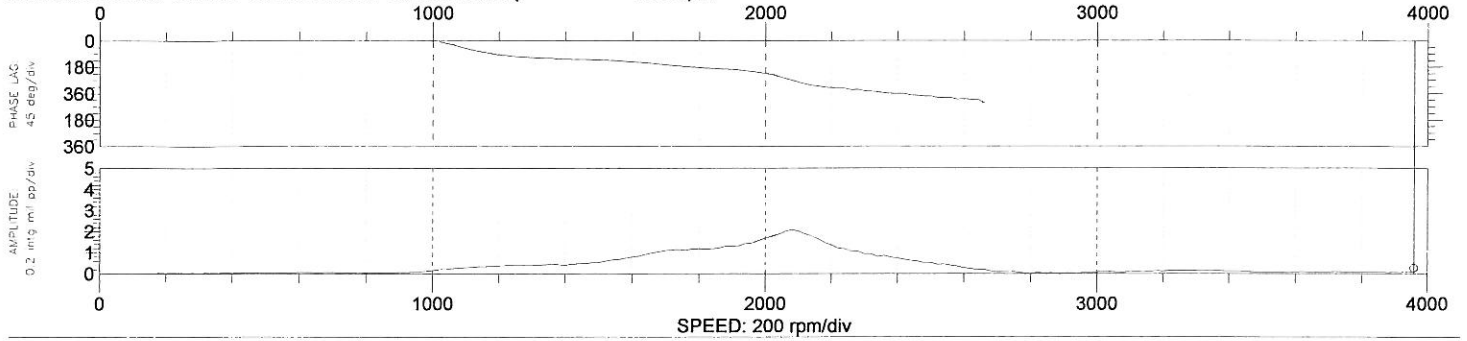
COMMENTS

10% Over Speed. Held For 1 Minute.

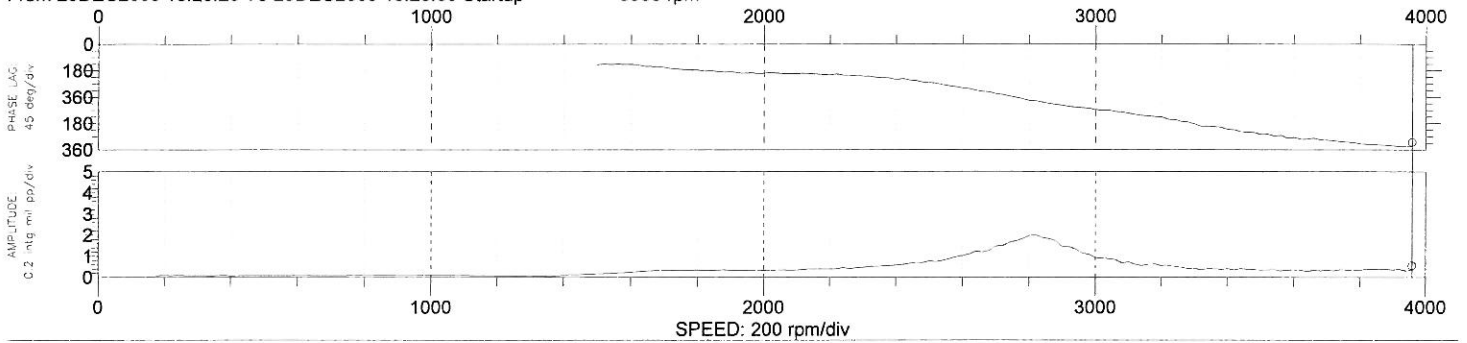
BODE PLOT
COMPANY: Wood Group Station
MACHINE TRAIN: TURBO ROTOR

PLOT NO. _____
PLANT: N.E.C.
JOB REFERENCE: 79977-2181

POINT: Near Axial $\angle 90^\circ$ Right 1X UNCOMP 0.093 $\angle NA^\circ$
MACHINE: Generator
From 23DEC2009 16:25:26 To 23DEC2009 16:28:35 Startup 3960 rpm



POINT: Far Axial $\angle 90^\circ$ Right 1X UNCOMP 0.360 $\angle 336^\circ$
MACHINE: Generator
From 23DEC2009 16:25:26 To 23DEC2009 16:28:35 Startup 3960 rpm



COMMENTS

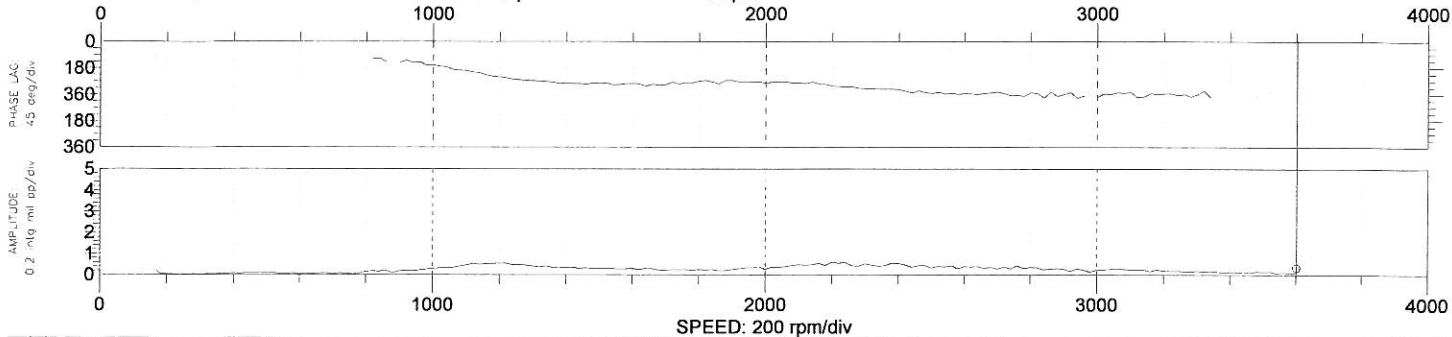
10% Over Speed. Held For 1 Minute.

BODE PLOT
COMPANY: Wood Group Station
MACHINE TRAIN: TURBO ROTOR

PLOT NO. _____
PLANT: N.E.C.
JOB REFERENCE: 79977-2181

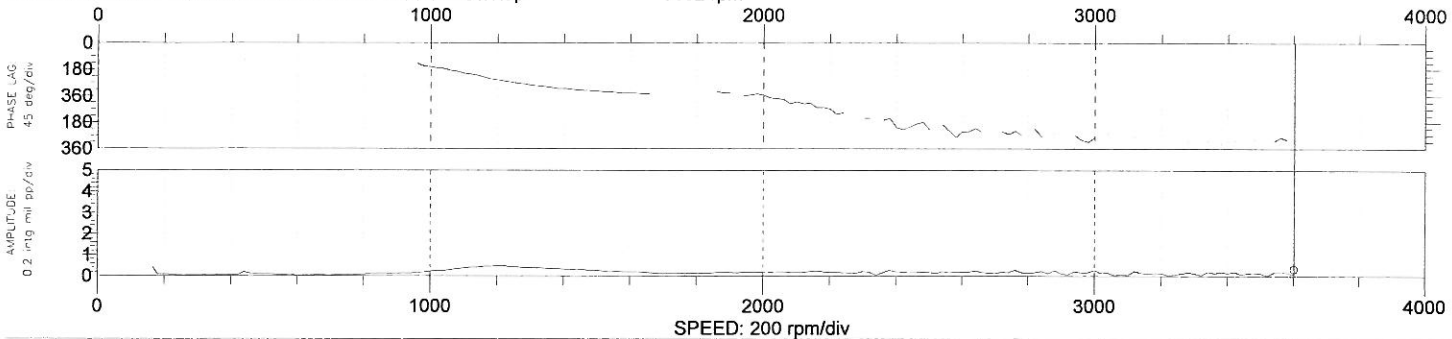
POINT: Near Horizontal $\angle 90^\circ$ Right 1X UNCOMP 0.134/NA $^\circ$
MACHINE: Generator

From 27DEC2009 17:23:53 To 27DEC2009 17:25:46 Startup



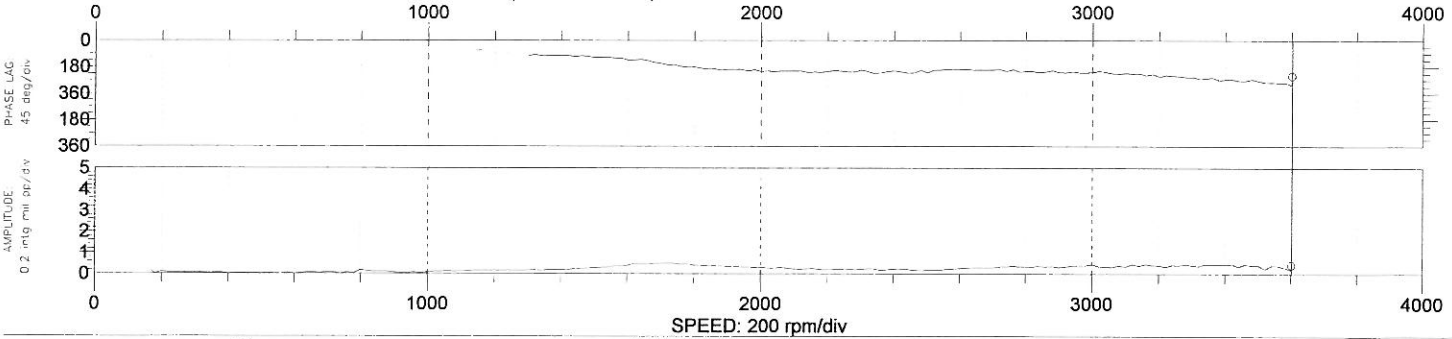
POINT: Far Horizontal $\angle 90^\circ$ Right 1X UNCOMP 0.134/NA $^\circ$
MACHINE: Generator

From 27DEC2009 17:23:53 To 27DEC2009 17:25:46 Startup



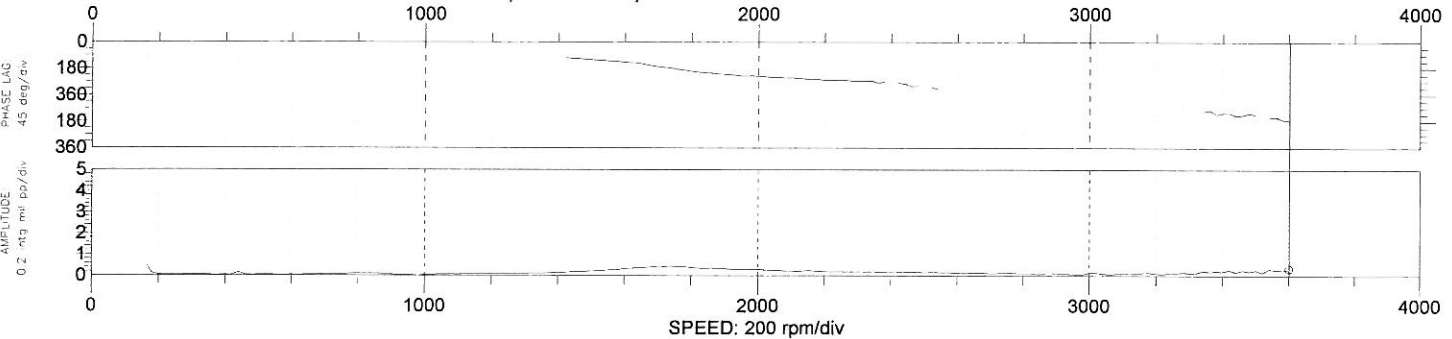
POINT: Near Vertical $\angle 0^\circ$ 1X UNCOMP 0.226/270 $^\circ$
MACHINE: Generator

From 27DEC2009 17:23:53 To 27DEC2009 17:25:46 Startup



POINT: Far Vertical $\angle 0^\circ$ 1X UNCOMP 0.144/NA $^\circ$
MACHINE: Generator

From 27DEC2009 17:23:53 To 27DEC2009 17:25:46 Startup



COMMENTS

Repeat Final Balance With Exciter/Diode Wheel Assembly.

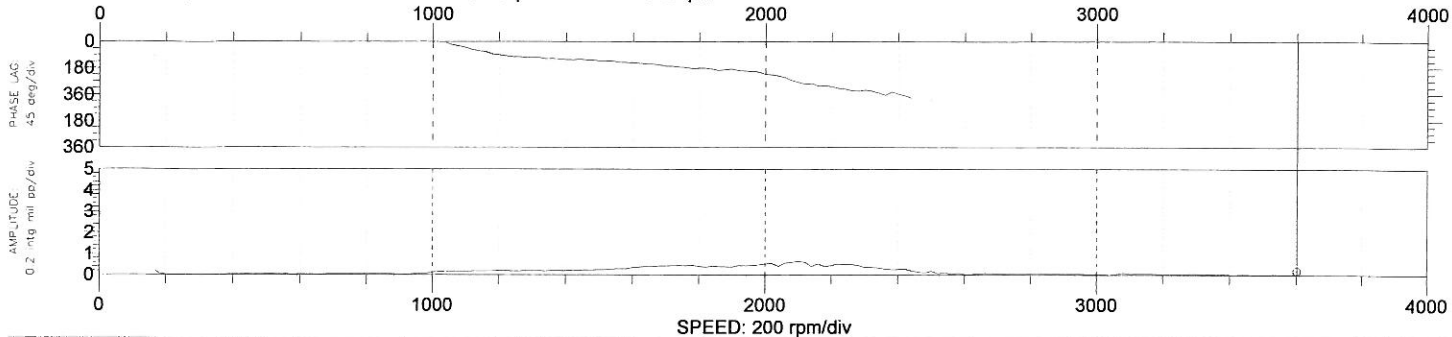
BODE PLOT
COMPANY: Wood Group Station
MACHINE TRAIN: TURBO ROTOR

PLOT NO. _____
PLANT: N.E.C.
JOB REFERENCE: 79977-2181

POINT: Near Axial $\angle 90^\circ$ Right 1X UNCOMP
MACHINE: Generator
From 27DEC2009 17:23:53 To 27DEC2009 17:25:46 Startup

0/NA⁰

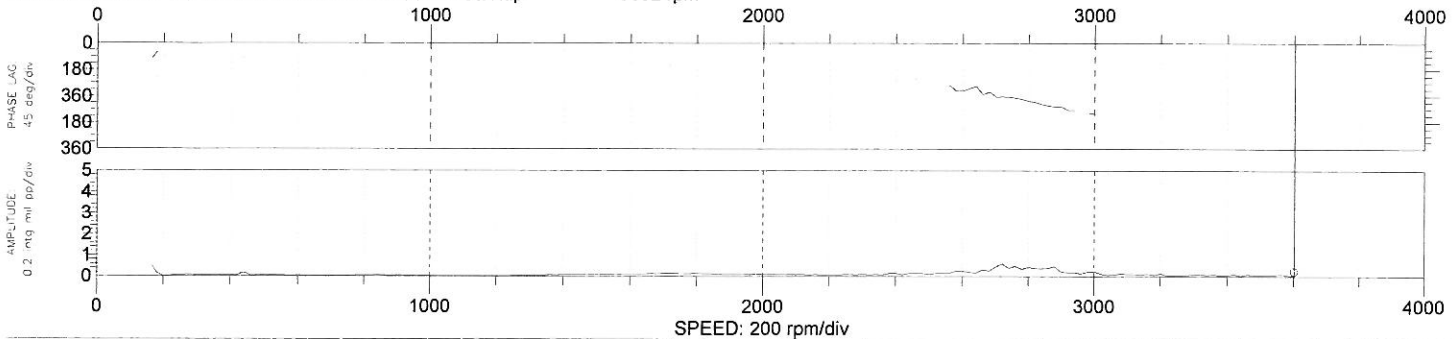
3602 rpm



POINT: Far Axial $\angle 90^\circ$ Right 1X UNCOMP
MACHINE: Generator
From 27DEC2009 17:23:53 To 27DEC2009 17:25:46 Startup

0.041/NA⁰

3602 rpm



COMMENTS

Repeat Final Balance With Exciter/Diode Wheel Assembly.