

7.0 FREE TURBINE RECORD OF TEST, DATA SHEET

JOB ORDER NUMBER: 12990A

CUSTOMER: WGPW

MODEL: FT4C-1

FT SERIAL NUMBER: 600528

ROTATION: CW_X__ CCW__

| POINT | LIMITS | Initial Testing Sequence | | | | Final Acceptance Test | | |
|---------------------------|----------------|--|---|--|--|--|--------------------------------------|--|
| | | GG IDLE OR 6000 N2 +/- 50 RPM | RATED SPEED 3600 +/- 50 RPM | OVER SPEED 3800 +/- 50 RPM | GG IDLE OR 6000 N2 +/- 50 RPM | OVER SPEED 3800 +/- 50 RPM | RATED SPEED 3600 +/- 50 RPM | GG IDLE OR 6000 N2 +/- 50 RPM |
| TIME | N/A | 11:41 | 11:44 | 11:48 | 11:51 | 11:54 | 11:59 | 12:02 |
| <i>Free Turbine Data</i> | | | | | | | | |
| N3 CONTL. RPM | N/A | 2705 | 3012 | 3660 | 3836 | 3000 | 3660 | 3836 |
| N3 CUST. RPM | N/A | 2705 | 3012 | 3660 | 3836 | 3000 | 3660 | 3836 |
| N3 SPARE RPM | N/A | 2705 | 3012 | 3660 | 3836 | 3000 | 3660 | 3836 |
| (PMOP) PSIA | 35 -50 PSIA | 37 | 38 | 41 | 43 | 38 | 41 | 43 |
| (POILS) PSIA | 35 - 50 PSIA | 35 | 37 | 39 | 41 | 36 | 39 | 41 |
| (DPMOP) PSID | 0 - 5 PSID | 15 | 15 | 17 | 17 | 16 | 17 | 18 |
| (TORET) °F | 120 - 220 °F | 186 | 185 | 184 | 188 | 182 | 187 | 181 |
| (TOSUPT) °F | 120 - 220 °F | 169 | 161 | 140 | 157 | 145 | 140 | 136 |
| (PFTBP) PSIA | 2.0" Hg. | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| (PS3UP) PSIA | 12 - 26 PSIA | 20.4 | 21.3 | 22.6 | 23.3 | 21.4 | 22.6 | 23.4 |
| FRONT (VF90) mils p/p | 1.4 mils p/p | 0.6 | 0.4 | 0.9 | 0.5 | 0.4 | 0.8 | 0.7 |
| REAR (VR45) mils p/p | 1.4 mils p/p | 0.2 | 0.7 | 1.0 | 0.9 | 0.8 | 0.7 | 1.1 |
| N3 CONTL. VOLTS | 2 - 8 volts AC | 3.5 | 3.8 | 4.6 | 4.8 | 3.8 | 4.5 | 4.8 |
| N3 CUST. VOLTS | 2 - 8 volts AC | 4.9 | 5.4 | 6.5 | 6.8 | 5.4 | 6.5 | 6.8 |
| N3 SPARE VOLTS | 2 - 8 volts AC | 4.0 | 4.4 | 5.3 | 5.6 | 4.4 | 5.3 | 5.6 |
| <i>Gas Generator Data</i> | | | | | | | | |
| N2 RPM | | 5959 | 6250 | 6700 | 6872 | 6250 | 6700 | 6872 |
| Oil Pressure In (PSIG) | 50 | 46 | 47 | 48 | 49 | 48 | 49 | 49 |
| Oil Temperature (°F) | 220 | 189 | 172 | 185 | 173 | 174 | 176 | 174 |
| Tt7 (°F average) | | 568 | 580 | 611 | 624 | 584 | 614 | 625 |
| PS4 (psig) | | 20.4 | 21.3 | 22.6 | 23.3 | 21.4 | 22.6 | 23.4 |

Operator 1 Tim Jones_____ Operator 2 Art Prandato_____

RECORD RUN DOWN TIME (from 1200 N3 RPM): 8 MINUTES

RECORD #8 REAR CARBON SEAL LEAKAGE TRACE AMOUNT_____CC

(LIMIT 4 CC/HOUR)

CHECK OIL FILTER: OK_X_YES__X__ CONTAMINATION

FOUND_NONE_X__

TEST ACCEPTANCE: PASS_X__ FAIL_____ William T. Barnett

Digitally signed by William T. Barnett
DN: cn=William T. Barnett, ou=Wood Group Pratt and
Whitney LLC, ou=Engineering Manager,
email=wbarnett@wgpwllc.com, c=US
Date: 2009.12.16 14:38:06 -0500

AUTHORIZED BY: William T. Barnet TITLE: Engineering Manager DATE: 20 July 2008

CUST. APPROVAL:

TITLE:

DATE:

7.0 FREE TURBINE RECORD OF TEST, DATA SHEET

JOB ORDER NUMBER: 12891P1

CUSTOMER: WGPW

MODEL: FT4C-1

FT SERIAL NUMBER: 600496

ROTATION: CW X CCW

| POINT | LIMITS | Initial Testing Sequence | | | | Final Acceptance Test | | |
|---------------------------|----------------|--|---|--|--|--|--------------------------------------|--|
| | | GG IDLE OR 6000 N2 +/- 50 RPM | RATED SPEED 3600 +/- 50 RPM | OVER SPEED 3800 +/- 50 RPM | GG IDLE OR 6000 N2 +/- 50 RPM | OVER SPEED 3800 +/- 50 RPM | RATED SPEED 3600 +/- 50 RPM | GG IDLE OR 6000 N2 +/- 50 RPM |
| TIME | N/A | 20:54 | 20:59 | 21:04 | 21:08 | 21:21 | 21:39 | 21:40 |
| <i>Free Turbine Data</i> | | | | | | | | |
| N3 CONTL. RPM | N/A | 2731 | 3585 | 3795 | 2723 | 3784 | 3619 | 2715 |
| N3 CUST. RPM | N/A | 2731 | 3585 | 3795 | 2723 | 3784 | 3619 | 2715 |
| N3 SPARE RPM | N/A | 2731 | 3585 | 3795 | 2723 | 3784 | 3619 | 2715 |
| (PMOP) PSIA | 35 -50 PSIA | 40 | 44 | 45 | 40 | 45 | 44 | 40 |
| (POILS) PSIA | 35 - 50 PSIA | 39 | 43 | 45 | 39 | 45 | 43 | 39 |
| (DPMOP) PSID | 0 - 5 PSID | 1 | 1 | 0 | 1 | 0 | 1 | 1 |
| (TORET) °F | 120 - 220 °F | 175 | 183 | 189 | 175 | 188 | 187 | 180 |
| (TOSUPT) °F | 120 - 220 °F | 138 | 158 | 146 | 136 | 147 | 140 | 139 |
| (PFTBP) PSIA | 2.0" Hg. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| (PS3UP) PSIA | 12 - 26 PSIA | 20.1 | 22.8 | 23.6 | 20.1 | 23.6 | 23.0 | 20.1 |
| FRONT (VR90) mils p/p | 1.4 mils p/p | 0.06 | 0.30 | 0.32 | 0.04 | 0.64 | 0.48 | 0.05 |
| REAR (VR45) mils p/p | 1.4 mils p/p | 0.02 | 0.04 | 0.03 | 0.02 | 0.02 | 0.03 | 0.04 |
| N3 CONTL. VOLTS | 2 - 8 volts AC | 3.0 | 4.4 | 4.7 | 3.0 | 4.6 | 4.4 | 3.0 |
| N3 CUST. VOLTS | 2 - 8 volts AC | 3.0 | 4.4 | 4.7 | 3.0 | 4.6 | 4.4 | 3.0 |
| N3 SPARE VOLTS | 2 - 8 volts AC | 3.0 | 4.4 | 4.7 | 3.0 | 4.6 | 4.4 | 3.0 |
| <i>Gas Generator Data</i> | | | | | | | | |
| N2 RPM | | 5941 | 6670 | 6809 | 5941 | 6807 | 6695 | 5938 |
| Oil Pressure In (PSIG) | 50 | 49 | 50 | 50 | 49 | 50 | 49 | 47 |
| Oil Temperature (°F) | 220 | 171 | 174 | 171 | 187 | 172 | 178 | 174 |
| Tt7 (°F average) | | 563 | 601 | 614 | 568 | 616 | 602 | 570 |
| Ps4 (psig) | | 20.1 | 22.8 | 23.6 | 20.1 | 23.6 | 23.0 | 20.1 |

Operator 1 Todd Munsell

Operator 2 Eric Rohver

RECORD RUN DOWN TIME (from 1200 N3 RPM): 8:32 min

RECORD #8 REAR CARBON SEAL LEAKAGE <2 CC (LIMIT 4 CC/HOUR)

CHECK OIL FILTER: OK Good CONTAMINATION FOUND None

TEST ACCEPTANCE: PASS X FAIL William T. Barnett

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AUTHORIZED BY: William T Barnett TITLE: Engineering Manager DATE: 16 July 2008

CUST. APPROVAL:

TITLE:

DATE:



WOOD GROUP PRATT AND WHITNEY
GG4C-1D PERFORMANCE EVALUATION



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PAGE 1 OF 7

ACCEPTANCE TEST LIMITS

CUSTOMER: WGPW
ENGINE MODEL: GG4
SUB-MODEL: C-1D
E/S/N: 686656

DATE: 05-Sep-08
TEST SITE: Plattsburgh
WG TEST REP.: Todd Munsell

| PARAMETER | | OBSERVED VALUES | OEM LIMITS | |
|---------------------------------|--------------|--------------------|----------------|----------|
| | | | OEM MAX. | OEM MIN. |
| Maximum EGT: | Steady State | 1240 °F obs | 1250 °F obs | N/A |
| | Idle Spread | 182 °F | 200 °F | N/A |
| | EGT Delta | 130 °F obs | 135 °F obs | N/A |
| N1 | | 6334 rpm obs | 7160 rpm obs | N/A |
| N2 | | 8476 rpm obs | 9350 rpm obs | N/A |
| Idle Main Oil Pressure | | 36 psig | N/A | 35 psig |
| Maximum Continuous Oil Pressure | | 44 psig | 50 psig | 40 psig |
| Oil Consumption | | 0.0 gal/hr | 0.2 gal/hr | N/A |
| Oil Temperature-Stabilized | | 199 °F | 215 °F | 185 °F |
| Breather Pressure-Stabilized | | 0.35 in. Hg | 3.0 in. Hg | N/A |
| Fuel Inlet Pressure | | 34.44 psia | 50 psia | 5 psig |
| VIBRATION LIMITS-INLET: | | | | |
| All Pick-ups above 6300 N2 obs. | | 1.32 mils (p/p) | 2.0 mils (p/p) | N/A |
| All Pick-ups upto 6300 N2 obs. | | 0.3 mils (p/p) | 4.0 mils (p/p) | N/A |
| VIBRATION LIMITS-DIFFUSER: | | | | |
| All Pick-ups above 6300 N2 obs. | | 0.83 mils (p/p) | 2.0 mils (p/p) | N/A |
| All Pick-ups upto 6300 N2 obs. | | 0.18 mils (p/p) | 4.0 mils (p/p) | N/A |
| VIBRATION LIMITS-EXHAUST: | | | | |
| All Pick-ups above 6300 N2 obs. | | 0.50 mils (p/p) | 2.0 mils (p/p) | N/A |
| All Pick-ups upto 6300 N2 obs. | | 0.5 mils (p/p) | 4.0 mils (p/p) | N/A |
| BLEED VALVE LIMITS-CLOSING | | | | |
| Bleed Valve Right | | 80 psig | 80 psig | 75 psig |
| Bleed Valve Top | | 99 psig | 100 psig | 95 psig |
| Bleed Valve Left | | 117 psig | 120 psig | 115 psig |
| BLEED VALVE LIMITS-OPENING | | | | |
| Bleed Valve Right | | 78 psig | 80 psig | 74 psig |
| Bleed Valve Top | | 97 psig | 99 psig | 93 psig |
| Bleed Valve Left | | 115 psig | 117 psig | 111 psig |

William J. Barnett

September 8, 2008

Engineering Analysis Approval: _____

Date: _____



WOOD GROUP PRATT AND WHITNEY
GG4C-1D PERFORMANCE EVALUATION



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A United Technologies Company

FULL ACCEPTANCE TEST DATA

PAGE 2 OF 7

| WGPW | | MODEL: GG4C-1D | | E/S/N: 686656 | | DATE: 05-Sep-08 | |
|--------------------|--------|----------------|--------|---------------|--------|-----------------|--------|
| PARAMETER | EPR | 1.113 | 2.894 | 2.779 | 2.680 | 2.573 | 2.477 |
| Time | hr:min | 18:07 | 17:50 | 17:52 | 17:55 | 17:58 | 18:00 |
| Dry Bulb | F | 84 | 84 | 84.25 | 84 | 85 | 85 |
| Wet Bulb | F | 79 | 79 | 79.25 | 79 | 80 | 80 |
| Baro | inHg | 29.85 | 29.85 | 29.85 | 29.85 | 29.85 | 29.85 |
| Cell Dep. | insH2O | -0.360 | -3.158 | -2.853 | -3.075 | -2.825 | -2.908 |
| P ref | psia | 14.66 | 14.58 | 14.59 | 14.59 | 14.59 | 14.59 |
| T2 | °C | 28.89 | 28.89 | 29.02 | 28.89 | 29.30 | 29.44 |
| T2 | °F | 84 | 84 | 84.25 | 84 | 85 | 85 |
| PT2 | psia | 14.66 | 14.56 | 14.57 | 14.56 | 14.57 | 14.57 |
| Ps3 | psia | 17.16 | 58.08 | 56.59 | 55.29 | 53.59 | 52.19 |
| Ps4 | psia | 38.46 | 174.58 | 168.29 | 162.49 | 155.99 | 150.39 |
| PT7 | psia | 16.32 | 42.13 | 40.48 | 39.02 | 37.48 | 36.08 |
| PT7 | in Hg | 33.21 | 85.73 | 82.38 | 79.41 | 76.27 | 73.42 |
| Fuel Press | psig | 34 | 8 | 7 | 8 | 10 | 11 |
| Fuel Tmp | °F | 82 | 79 | 79 | 79 | 79 | 80 |
| N1 | rpm | 2967 | 6334 | 6224 | 6123 | 6017 | 5921 |
| N2 | rpm | 6035 | 8476 | 8407 | 8341 | 8274 | 8208 |
| Main Oil Temp | °F | 181 | 190 | 198 | 199 | 199 | 198 |
| Main Oil Press | psig | 36.20 | 44.10 | 43.60 | 43.10 | 42.90 | 42.50 |
| Breather Press | in Hg | 0.12 | 0.35 | 0.35 | 0.33 | 0.31 | 0.31 |
| Inlet Vibration | p/p | 0.30 | 0.53 | 1.15 | 0.91 | 1.01 | 1.32 |
| Diffuser Vibration | p/p | 0.18 | 0.37 | 0.83 | 0.83 | 0.71 | 0.72 |
| Exhaust Vibration | p/p | 0.50 | 0.44 | 0.40 | 0.33 | 0.39 | 0.44 |
| Fuel Flow Uncorr | pph | 594 | 3817 | 3583 | 3368 | 3155 | 2957 |
| EGT Avg. | °F | 685 | 1240 | 1198 | 1163 | 1142 | 1090 |
| EGT Spread | °F | 182 | 130 | 123 | 116 | 112 | 111 |
| EGT 1 | °F | 601 | 1219 | 1171 | 1141 | 1107 | 1072 |
| EGT 2 | °F | 644 | 1216 | 1182 | 1146 | 1108 | 1072 |
| EGT 3 | °F | 681 | 1218 | 1182 | 1145 | 1202 | 1071 |
| EGT 4 | °F | 780 | 1332 | 1285 | 1249 | 1211 | 1174 |
| EGT 5 | °F | 783 | 1250 | 1205 | 1164 | 1122 | 1088 |
| EGT 6 | °F | 623 | 1202 | 1162 | 1133 | 1099 | 1063 |

CORRECTED, CALCULATED DATA

| | | | | | | | |
|----------------------------------|-----|-------|-------|-------|-------|-------|-------|
| EPR | | 1.113 | 2.894 | 2.779 | 2.680 | 2.573 | 2.477 |
| N1 | rpm | 2899 | 6189 | 6080 | 5982 | 5875 | 5780 |
| N2 | rpm | 5896 | 8282 | 8212 | 8150 | 8079 | 8012 |
| FUEL FLOW | pph | 599 | 3880 | 3639 | 3423 | 3205 | 3005 |
| EGT | °C | 334 | 628 | 605 | 587 | 575 | 547 |
| EGT | °R | 1093 | 1621 | 1581 | 1549 | 1526 | 1477 |
| P _{S3} /P _{T2} | | 1.17 | 3.99 | 3.88 | 2.94 | 2.91 | 2.88 |
| P _{S4} /P _{T2} | | 2.62 | 11.99 | 11.55 | 11.16 | 10.71 | 10.33 |



WOOD GROUP PRATT AND WHITNEY GG4C-1D PERFORMANCE EVALUATION



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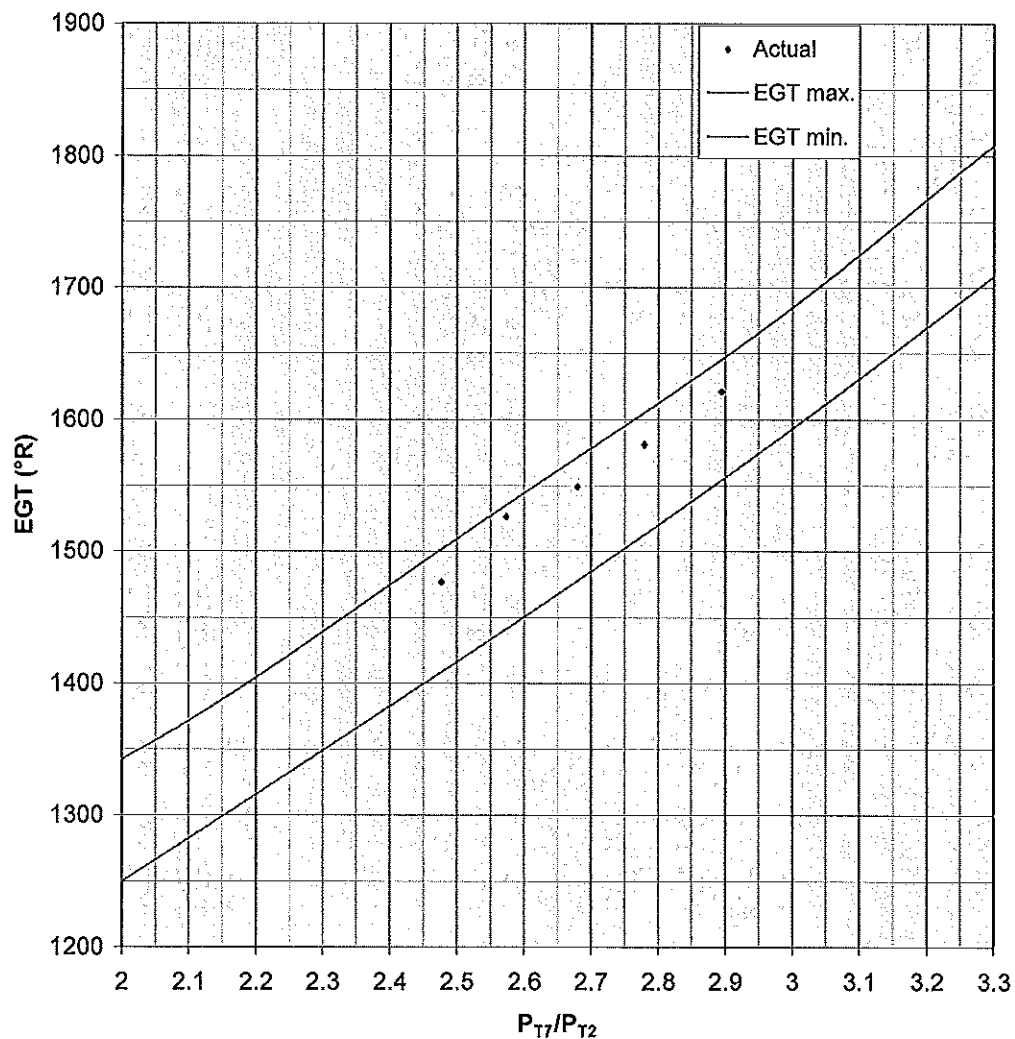
WGPW

MODEL: GG4C-1D

E/S/N: 686656

DATE: 05-Sep-08

Generator Match Limits (GG4C-1D)



Reference: Pratt & Whitney GG4C Overhaul Manual P/N 729003, Section 1-00-1 Figure 703A



WOOD GROUP PRATT AND WHITNEY GG4C-1D PERFORMANCE EVALUATION



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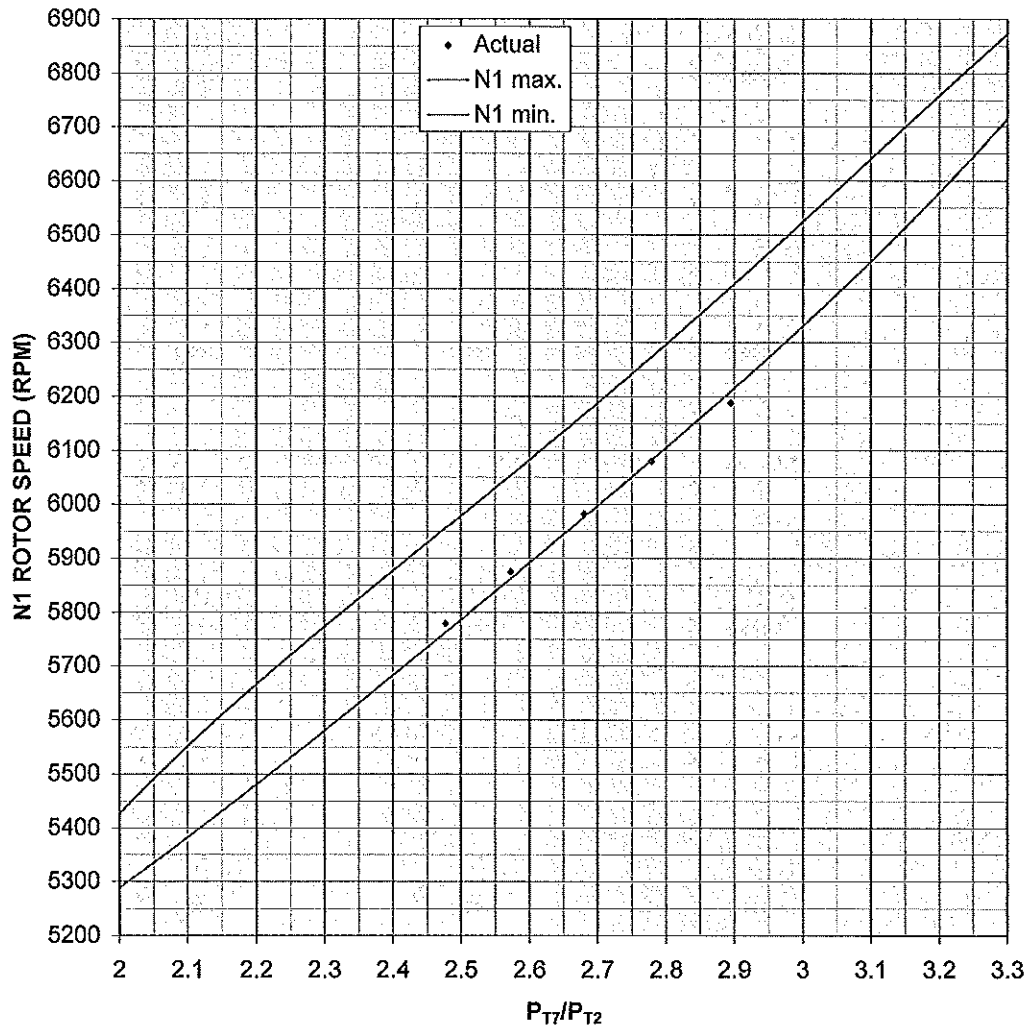
WGPW

MODEL: GG4C-1D

E/S/N: 686656

DATE: 05-Sep-08

Generator Match Limits (GG4C-1D)



Reference: Pratt & Whitney GG4C Overhaul Manual P/N 729003, Section 1-00-1 Figure 703A



WOOD GROUP PRATT AND WHITNEY GG4C-1D PERFORMANCE EVALUATION



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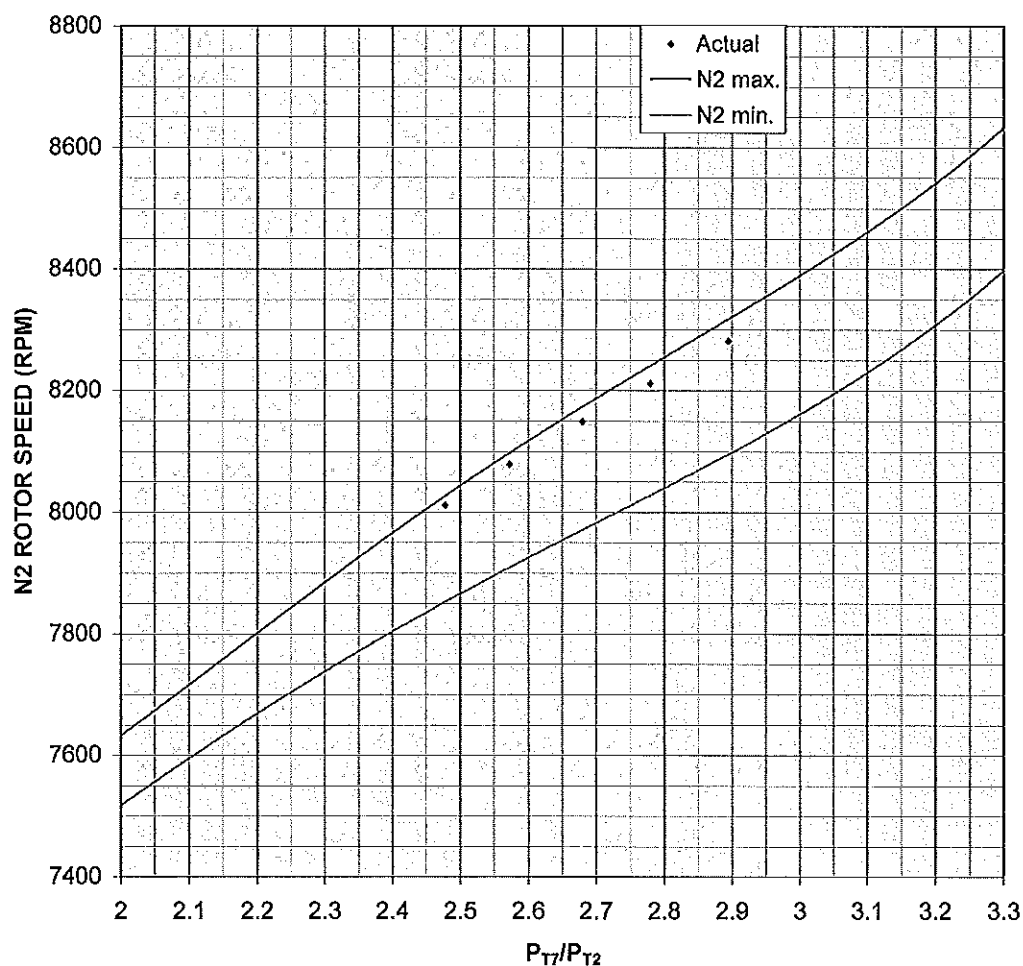
WGPW

MODEL: GG4C-1D

E/S/N: 686656

DATE: 05-Sep-08

Generator Match Limits (GG4C-1D)



Reference: Pratt & Whitney GG4C Overhaul Manual P/N 729003, Section 1-00-1 Figure 703



WOOD GROUP PRATT AND WHITNEY
GG4C-1D PERFORMANCE EVALUATION



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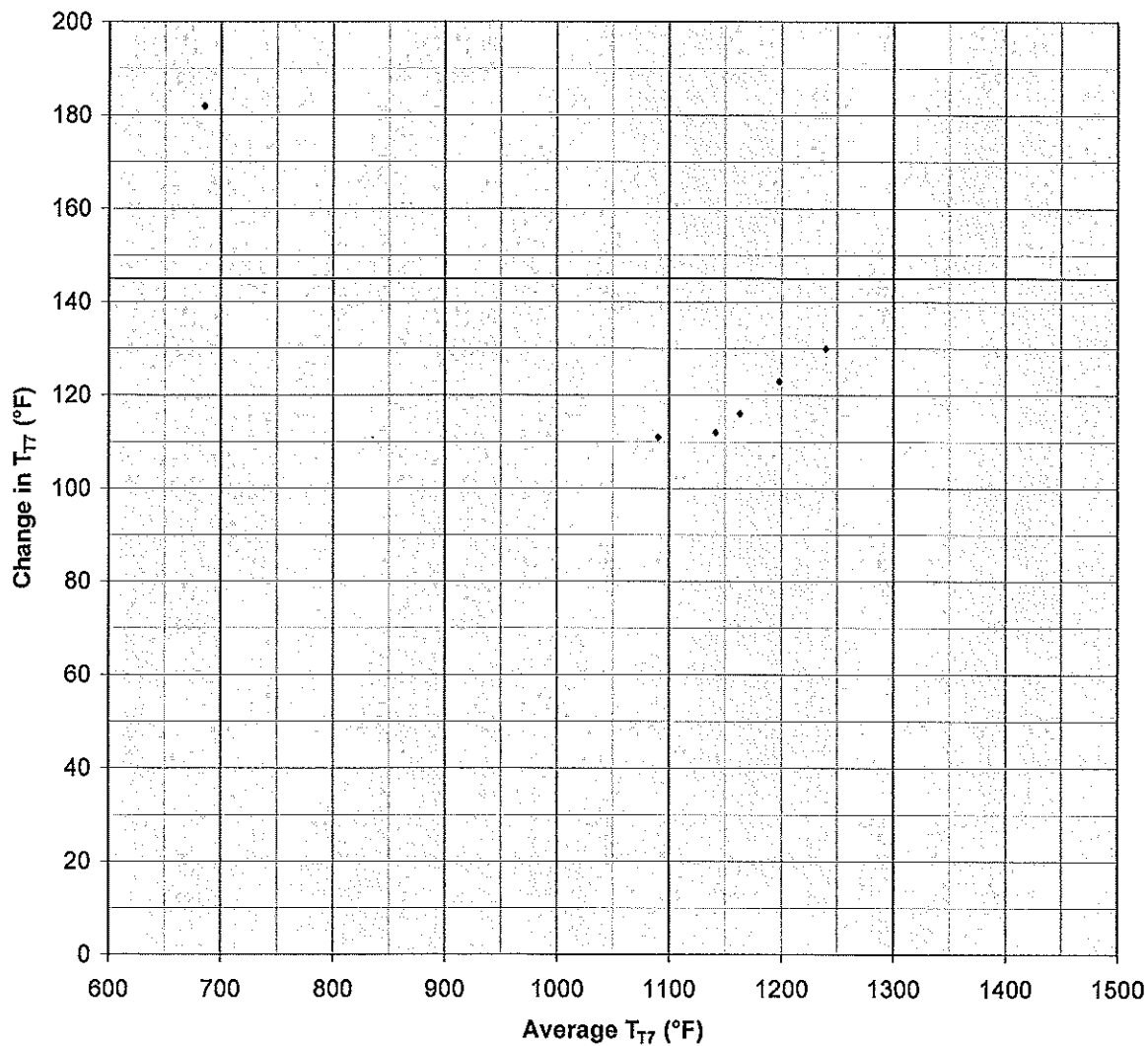
WGPW

MODEL: GG4C-1D

E/S/N: 686656

DATE: 05-Sep-08

Exhaust Gas Temperature Spread Check



Reference: Pratt & Whitney GG4C Overhaul Manual P/N 729003, Section 1-00-1 Figure 707



WOOD GROUP PRATT AND WHITNEY GG4C-1D PERFORMANCE EVALUATION



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WGPW

MODEL: GG4C-1D

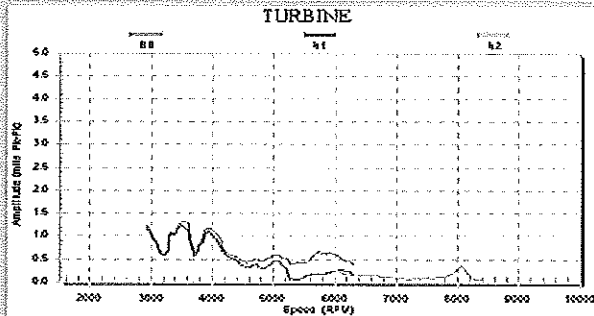
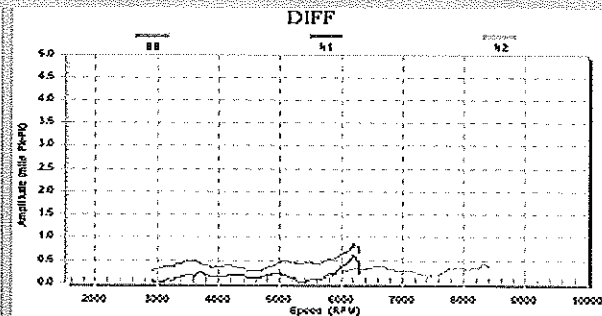
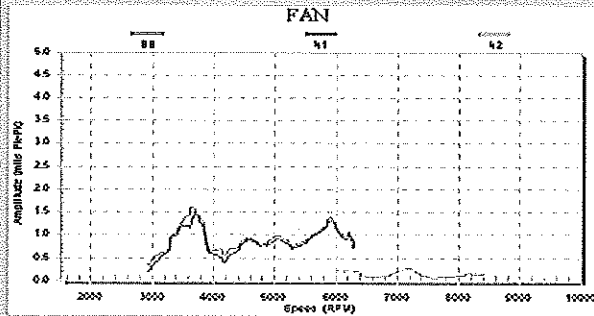
E/S/N: 686656

DATE: 05-Sep-08

GG4C
12910B / 686656

Accel Vibration Survey

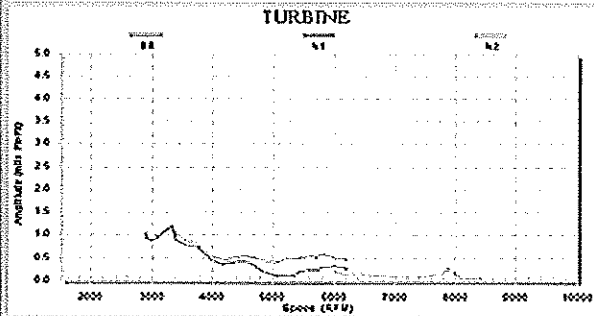
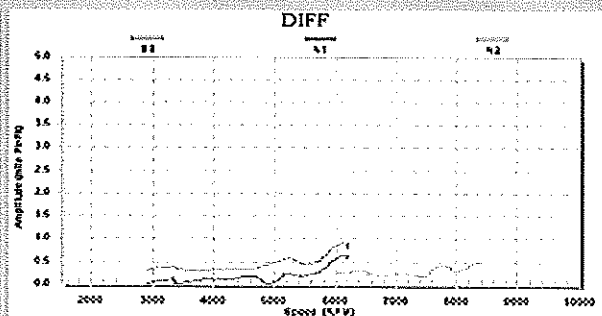
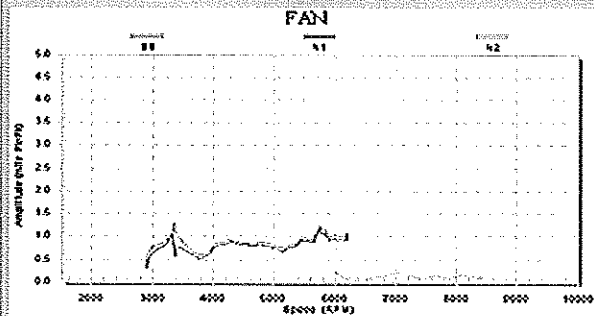
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GG4C
12910B / 686656

Decel Vibration Survey

09/05/2008
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**WOOD GROUP PRATT AND WHITNEY
GG4C-1D PERFORMANCE EVALUATION**

PAGE 1 OF 6

ACCEPTANCE TEST LIMITS

CUSTOMER: WGPW **DATE:** 17-Sep-08
ENGINE MODEL: GG4 **TEST SITE:** Plattsburgh
SUB-MODEL: C-1D **WG TEST REP.:** Tim Jones
E/S/N: 686663

| PARAMETER | | OBSERVED VALUES | OEM LIMITS | |
|---------------------------------|--------------|--------------------|----------------|----------|
| | | | OEM MAX. | OEM MIN. |
| Maximum EGT: | Steady State | 1225 °F obs | 1250 °F obs | N/A |
| | Idle Spread | 130 °F | 200 °F | N/A |
| | EGT Delta | 130 °F obs | 135 °F obs | N/A |
| N1 | | 6520 rpm obs | 7160 rpm obs | N/A |
| N2 | | 8486 rpm obs | 9350 rpm obs | N/A |
| Idle Main Oil Pressure | | 39 psig | N/A | 35 psig |
| Maximum Continuous Oil Pressure | | 47 psig | 50 psig | 40 psig |
| Oil Consumption | | 0.0 gal/hr | 0.2 gal/hr | N/A |
| Oil Temperature-Stabilized | | 201 °F | 215 °F | 185 °F |
| Breather Pressure-Stabilized | | 0.39 in. Hg | 3.0 in. Hg | N/A |
| Fuel Inlet Pressure | | 33.38 psia | 50 psia | 5 psig |
| VIBRATION LIMITS-INLET: | | | | |
| All Pick-ups above 6300 N2 obs. | | 1.64 mils (p/p) | 2.0 mils (p/p) | N/A |
| All Pick-ups upto 6300 N2 obs. | | 0.33 mils (p/p) | 4.0 mils (p/p) | N/A |
| VIBRATION LIMITS-DIFFUSER: | | | | |
| All Pick-ups above 6300 N2 obs. | | 0.51 mils (p/p) | 2.0 mils (p/p) | N/A |
| All Pick-ups upto 6300 N2 obs. | | 0.25 mils (p/p) | 4.0 mils (p/p) | N/A |
| VIBRATION LIMITS-EXHAUST: | | | | |
| All Pick-ups above 6300 N2 obs. | | 0.44 mils (p/p) | 2.0 mils (p/p) | N/A |
| All Pick-ups upto 6300 N2 obs. | | 0.26 mils (p/p) | 4.0 mils (p/p) | N/A |
| BLEED VALVE LIMITS-CLOSING | | | | |
| Bleed Valve Right | | 80 psig | 80 psig | 75 psig |
| Bleed Valve Top | | 99 psig | 100 psig | 95 psig |
| Bleed Valve Left | | 117 psig | 120 psig | 115 psig |
| BLEED VALVE LIMITS-OPENING | | | | |
| Bleed Valve Right | | 78 psig | 80 psig | 74 psig |
| Bleed Valve Top | | 97 psig | 99 psig | 93 psig |
| Bleed Valve Left | | 115 psig | 117 psig | 111 psig |

Engineering Analysis Approval: William T. Barnett Digitally signed by William T. Barnett
DN: cn=William T. Barnett, o=Wood
Group Pratt and Whitney LLC,
ou=Engineering Manager,
email=wbarnett@wgpwllc.com, c=US
Date: 2009.12.16 15:42:55 -0500 Date: September 18, 2008



WOOD GROUP PRATT AND WHITNEY GG4C-1D PERFORMANCE EVALUATION

FULL ACCEPTANCE TEST DATA

PAGE 2 OF 6

| WGPW | | MODEL: GG4C-1D | | E/S/N: 686663 | | DATE: 17-Sep-08 | |
|----------------------------|--------|----------------|--------|---------------|--------|-----------------|--------|
| PARAMETER | EPR | 1.116 | 3.178 | 3.054 | 2.946 | 2.852 | 2.771 |
| Time | hr:min | 9:29 | 8:48 | 8:52 | 9:20 | 9:22 | 9:25 |
| Dry Bulb | F | 58 | 54 | 54.75 | 57 | 57 | 57 |
| Wet Bulb | F | 53 | 49 | 49.75 | 52 | 52 | 52 |
| Baro | inHg | 30.14 | 30.14 | 30.14 | 30.14 | 30.14 | 30.14 |
| Cell Dep. | insH2O | -0.277 | -2.936 | -2.659 | -2.798 | -2.770 | -2.327 |
| P ref | psia | 14.80 | 14.73 | 14.73 | 14.73 | 14.73 | 14.74 |
| T2 | °C | 14.44 | 12.22 | 12.64 | 13.89 | 13.89 | 13.89 |
| T2 | °F | 58 | 54 | 54.75 | 57 | 57 | 57 |
| PT2 | psia | 14.80 | 14.70 | 14.71 | 14.71 | 14.71 | 14.73 |
| Ps3 | psia | 17.60 | 63.73 | 61.73 | 60.63 | 59.13 | 57.94 |
| Ps4 | psia | 40.00 | 195.53 | 188.13 | 181.63 | 176.23 | 171.34 |
| PT7 | psia | 16.52 | 46.73 | 44.93 | 43.33 | 41.96 | 40.80 |
| PT7 | in Hg | 33.62 | 95.10 | 91.43 | 88.18 | 85.39 | 83.03 |
| Fuel Press | psig | 33 | 6 | 6 | 7 | 9 | 11 |
| Fuel Tmp | °F | 68 | 60 | 61 | 62 | 62 | 65 |
| N1 | rpm | 2972 | 6520 | 6370 | 6276 | 6181 | 6102 |
| N2 | rpm | 6036 | 8486 | 8404 | 8356 | 8297 | 8249 |
| Main Oil Temp | °F | 188 | 191 | 201 | 188 | 194 | 196 |
| Main Oil Press | psig | 39.20 | 47.30 | 46.60 | 46.90 | 46.50 | 46.10 |
| Breather Press | in Hg | 0.12 | 0.39 | 0.37 | 0.37 | 0.35 | 0.35 |
| Inlet Vibration | p/p | 0.33 | 1.33 | 1.62 | 1.64 | 1.27 | 0.95 |
| Diffuser Vibration | p/p | 0.25 | 0.51 | 0.48 | 0.47 | 0.25 | 0.30 |
| Exhaust Vibration | p/p | 0.26 | 0.33 | 0.38 | 0.44 | 0.35 | 0.33 |
| Fuel Flow Uncorr | pph | 612 | 4456 | 4126 | 3938 | 3711 | 3546 |
| EGT Avg. | °F | 582 | 1225 | 1174 | 1154 | 1112 | 1083 |
| EGT Spread | °F | 130 | 108 | 101 | 98 | 106 | 97 |
| EGT 1 | °F | 516 | 1173 | 1128 | 1103 | 1056 | 1031 |
| EGT 2 | °F | 581 | 1211 | 1160 | 1144 | 1102 | 1074 |
| EGT 3 | °F | 583 | 1281 | 1229 | 1201 | 1162 | 1128 |
| EGT 4 | °F | 646 | 1230 | 1176 | 1157 | 1114 | 1086 |
| EGT 5 | °F | 607 | 1253 | 1199 | 1186 | 1147 | 1115 |
| EGT 6 | °F | 561 | 1203 | 1151 | 1134 | 1090 | 1061 |
| CORRECTED, CALCULATED DATA | | | | | | | |
| EPR | | 1.116 | 3.178 | 3.054 | 2.946 | 2.852 | 2.771 |
| N1 | rpm | 2976 | 6554 | 6399 | 6290 | 6195 | 6116 |
| N2 | rpm | 6044 | 8530 | 8441 | 8375 | 8316 | 8268 |
| FUEL FLOW | pph | 608 | 4451 | 4119 | 3934 | 3707 | 3539 |
| EGT | °C | 307 | 674 | 640 | 628 | 604 | 587 |
| EGT | °R | 1045 | 1705 | 1648 | 1621 | 1579 | 1549 |
| Ps3/P12 | | 1.19 | 4.33 | 4.20 | 3.00 | 2.98 | 2.96 |
| Ps4/P12 | | 2.70 | 13.30 | 12.79 | 12.35 | 11.98 | 11.64 |



WOOD GROUP TURBINE PRATT AND WHITNEY GG4C-1D PERFORMANCE EVALUATION

PAGE 3 OF 6

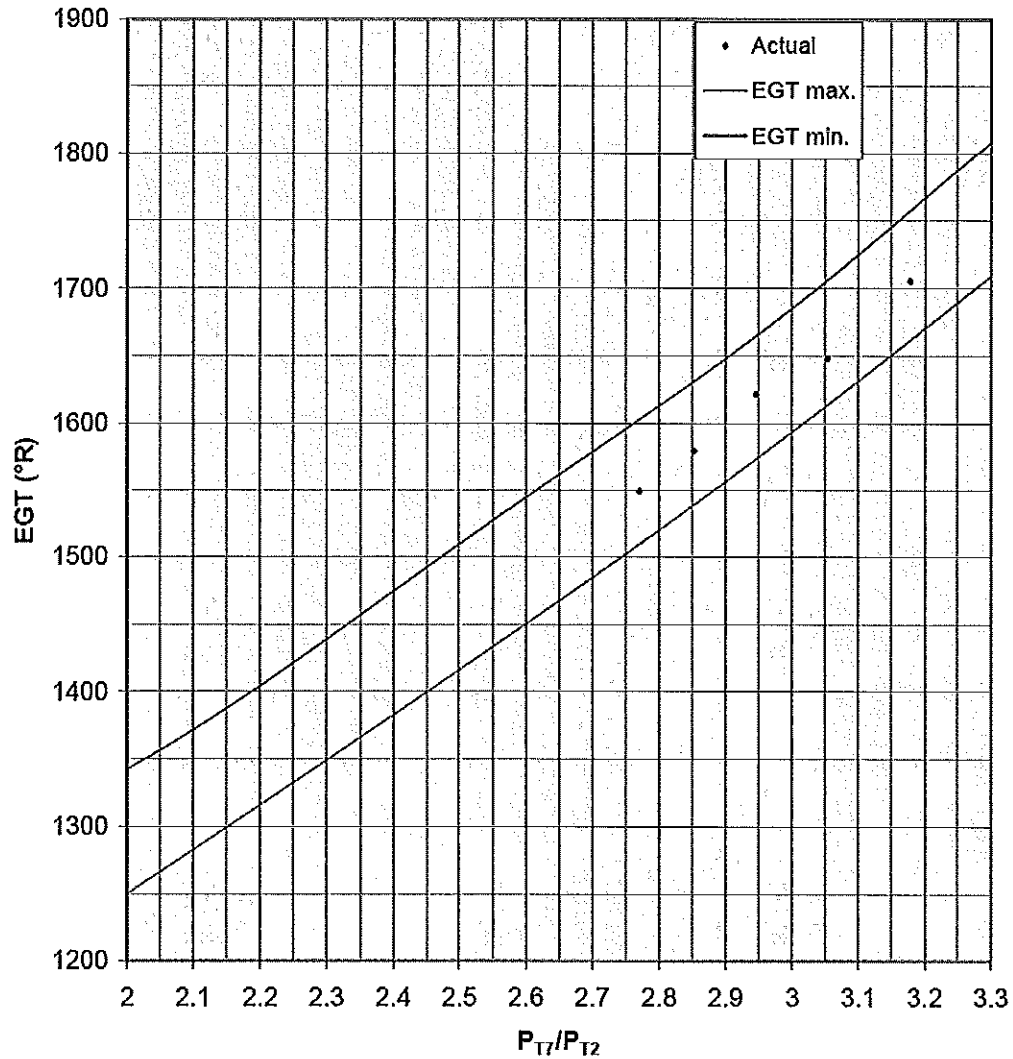
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MODEL: GG4C-1D

E/S/N: 686663

DATE: 17-Sep-08

Generator Match Limits (GG4C-1D)



Reference: Pratt & Whitney GG4C Overhaul Manual P/N 729003, Section 1-00-1 Figure 703A



WOOD GROUP PRATT AND WHITNEY GG4C-1D PERFORMANCE EVALUATION

Page 4 of 6

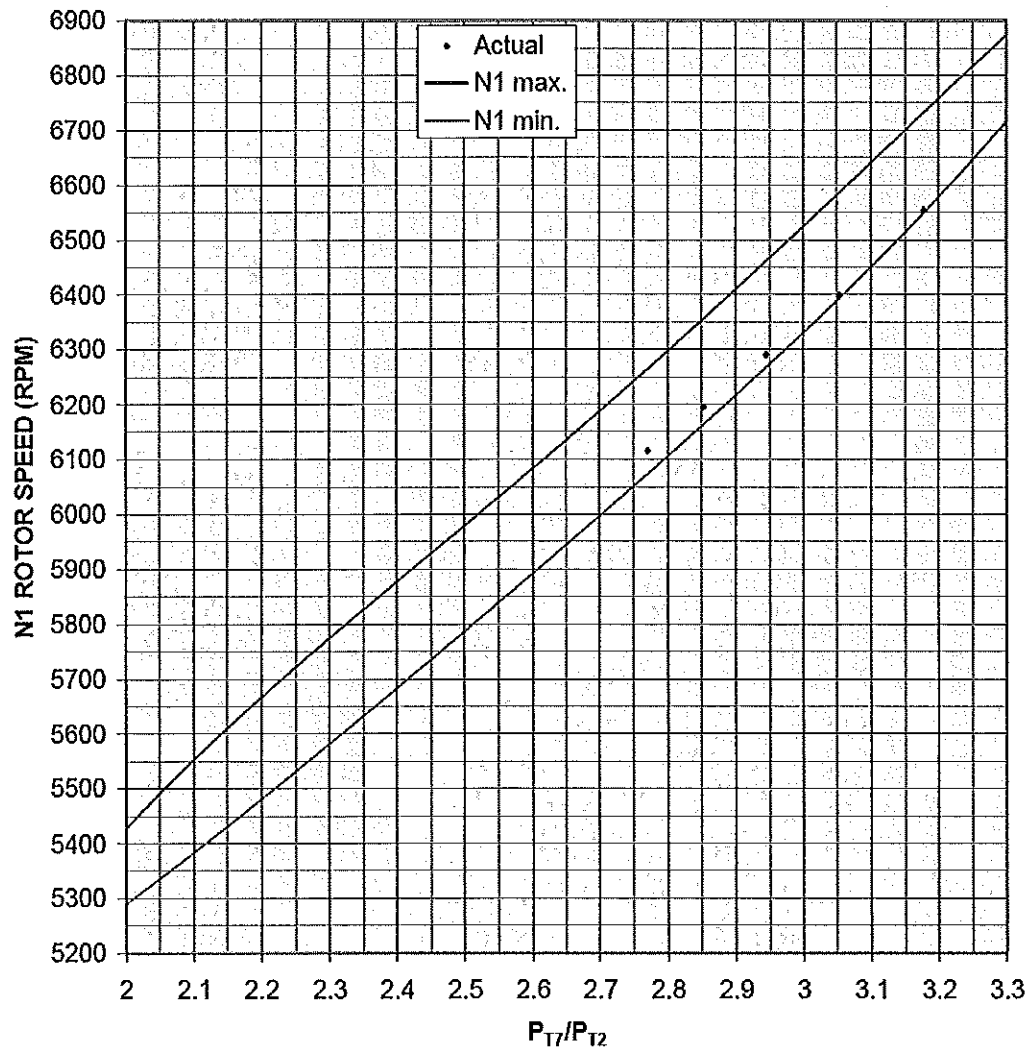
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MODEL: GG4C-1D

E/S/N: 686663

DATE: 17-Sep-08

Generator Match Limits (GG4C-1D)



Reference: Pratt & Whitney GG4C Overhaul Manual P/N 729003, Section 1-00-1 Figure 703A



WOOD GROUP PRATT AND WHITNEY GG4C-1D PERFORMANCE EVALUATION

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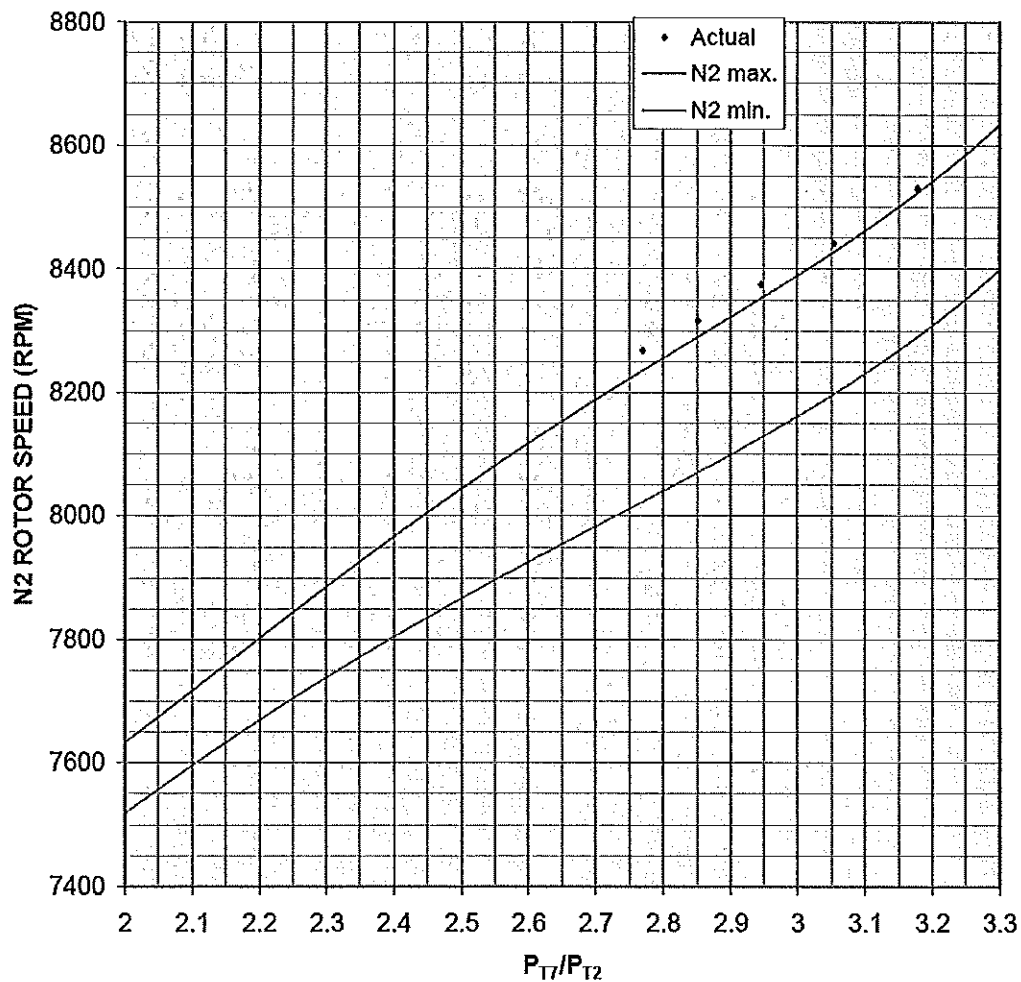
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MODEL: GG4C-1D

E/S/N: 686663

DATE: 17-Sep-08

Generator Match Limits (GG4C-1D)



Reference: Pratt & Whitney GG4C Overhaul Manual P/N 729003, Section 1-00-1 Figure 703



WOOD GROUP PRATT AND WHITNEY GG4C-1D PERFORMANCE EVALUATION

Page 6 of 6

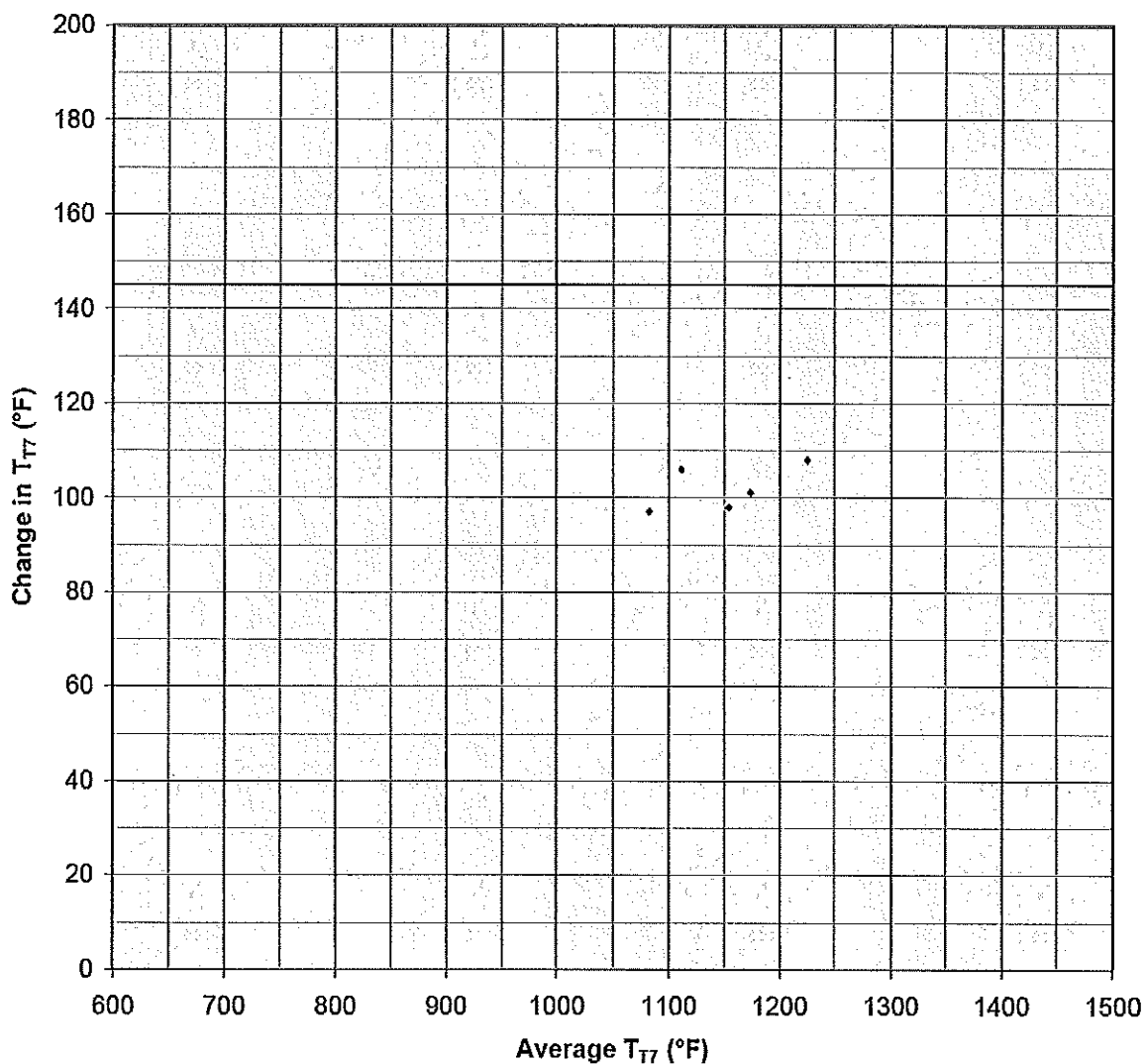
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MODEL: GG4C-1D

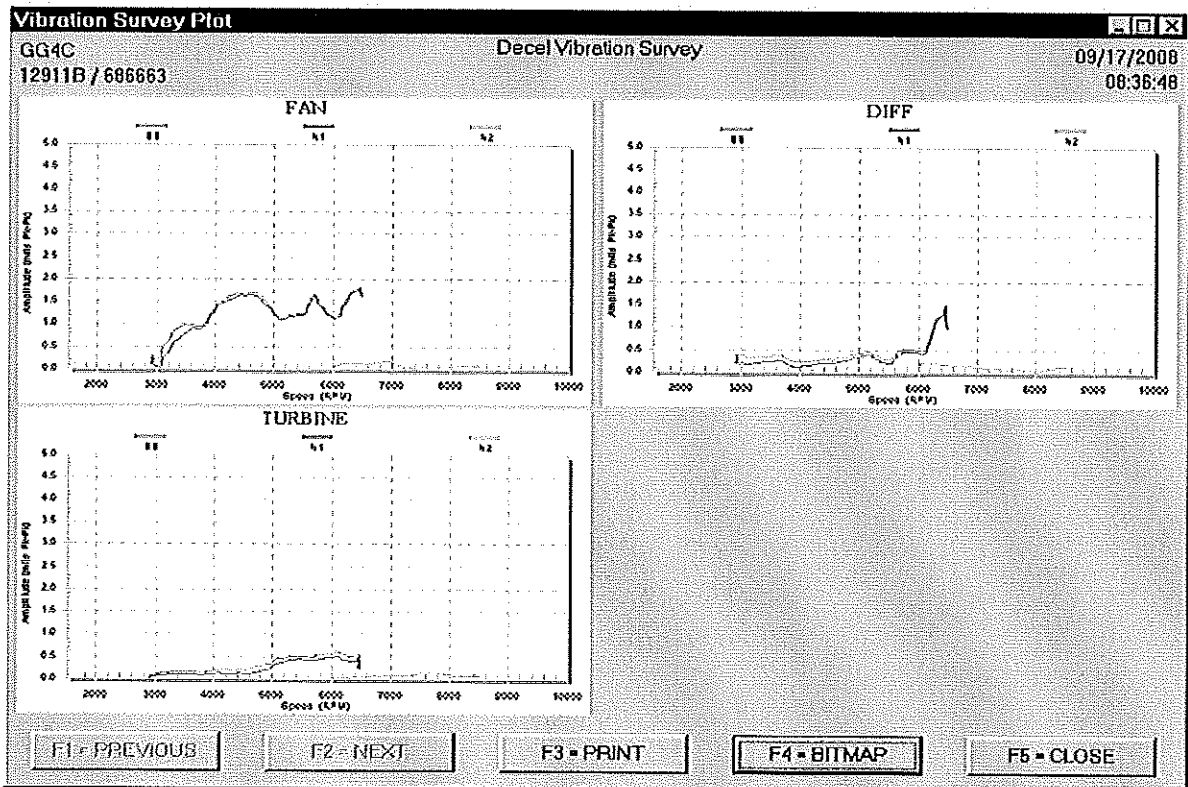
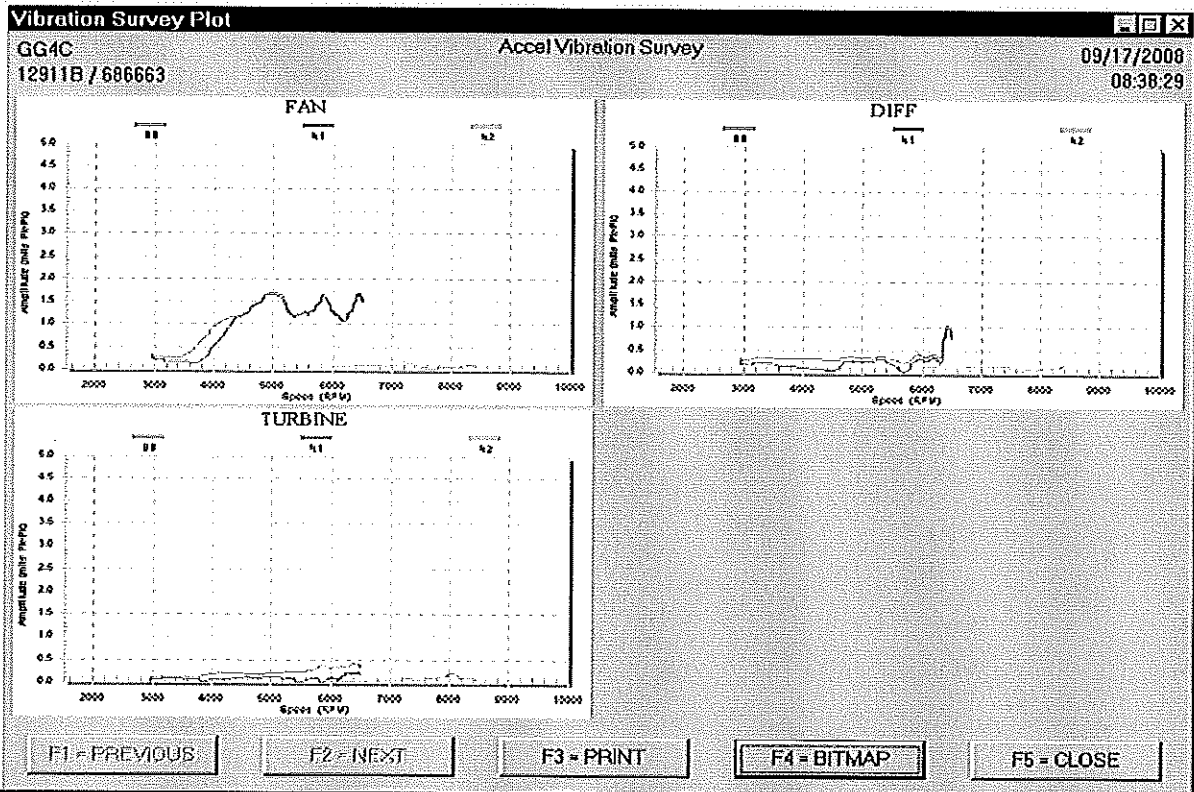
E/S/N: 686663

DATE: 17-Sep-08

Exhaust Gas Temperature Spread Check



Reference: Pratt & Whitney GG4C Overhaul Manual P/N 729003, Section 1-00-1 Figure 707





WOOD GROUP PRATT AND WHITNEY
GG4C-1D PERFORMANCE EVALUATION



Pratt & Whitney
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PAGE 1 OF 7

ACCEPTANCE TEST LIMITS

CUSTOMER: WGP&W DATE: 13-Aug-08
ENGINE MODEL: GG4 TEST SITE: Plattsburgh
SUB-MODEL: C-1D WG TEST REP.: Todd Munsell
E/S/N: 686625

| PARAMETER | | OBSERVED VALUES | OEM LIMITS | |
|---------------------------------|--------------|--------------------|----------------|----------|
| | | | OEM MAX. | OEM MIN. |
| Maximum EGT: | Steady State | 1228 °F obs | 1250 °F obs | N/A |
| | Idle Spread | 97 °F | 200 °F | N/A |
| | EGT Delta | 120 °F obs | 135 °F obs | N/A |
| N1 | | 6433 rpm obs | 7160 rpm obs | N/A |
| N2 | | 8338 rpm obs | 9350 rpm obs | N/A |
| Idle Main Oil Pressure | | 42 psig | N/A | 35 psig |
| Maximum Continuous Oil Pressure | | 47 psig | 50 psig | 40 psig |
| Oil Consumption | | 0.0 gal/hr | 0.2 gal/hr | N/A |
| Oil Temperature-Stabilized | | 213 °F | 215 °F | 185 °F |
| Breather Pressure-Stabilized | | 0.33 in. Hg | 3.0 in. Hg | N/A |
| Fuel Inlet Pressure | | 27.39 psia | 50 psia | 5 psig |
| VIBRATION LIMITS-INLET: | | | | |
| All Pick-ups above 6300 N2 obs. | | 1.33 mils (p/p) | 2.0 mils (p/p) | N/A |
| All Pick-ups upto 6300 N2 obs. | | 0.57 mils (p/p) | 4.0 mils (p/p) | N/A |
| VIBRATION LIMITS-DIFFUSER: | | | | |
| All Pick-ups above 6300 N2 obs. | | 1.46 mils (p/p) | 2.0 mils (p/p) | N/A |
| All Pick-ups upto 6300 N2 obs. | | 0.86 mils (p/p) | 4.0 mils (p/p) | N/A |
| VIBRATION LIMITS-EXHAUST: | | | | |
| All Pick-ups above 6300 N2 obs. | | 0.53 mils (p/p) | 2.0 mils (p/p) | N/A |
| All Pick-ups upto 6300 N2 obs. | | 0.24 mils (p/p) | 4.0 mils (p/p) | N/A |
| BLEED VALVE LIMITS-CLOSING | | | | |
| Bleed Valve Right | | 80 psig | 80 psig | 75 psig |
| Bleed Valve Top | | 100 psig | 100 psig | 95 psig |
| Bleed Valve Left | | 119 psig | 120 psig | 115 psig |
| BLEED VALVE LIMITS-OPENING | | | | |
| Bleed Valve Right | | 75 psig | 80 psig | 74 psig |
| Bleed Valve Top | | 98 psig | 100 psig | 94 psig |
| Bleed Valve Left | | 116 psig | 119 psig | 113 psig |

Engineering Analysis Approval: William T. Barnett

Digitally signed by William T. Barnett
DN: cn=William T. Barnett, o=Wood
Group Pratt and Whitney LLC,
ou=Engineering Manager,
email=wbarnett@wgpwllc.com, c=US
Date: 2009.12.16 15:00:07 -0500

Date: August 15, 2008



WOOD GROUP PRATT AND WHITNEY
GG4C-1D PERFORMANCE EVALUATION



Pratt & Whitney
A United Technologies Company

FULL ACCEPTANCE TEST DATA

PAGE 2 OF 7

| WGP&W | | MODEL: GG4C-1D | | E/S/N: 686625 | | DATE: 13-Aug-08 | |
|----------------------------|--------|----------------|--------|---------------|--------|-----------------|--------|
| PARAMETER | EPR | 1.117 | 2.985 | 2.877 | 2.776 | 2.667 | 2.575 |
| Time | hr:min | 19:22 | 19:07 | 19:09 | 19:11 | 19:14 | 19:16 |
| Dry Bulb | F | 67 | 67 | 67 | 67 | 67 | 67 |
| Wet Bulb | F | 62 | 62 | 62 | 62 | 62 | 62 |
| Baro | inHg | 29.77 | 29.77 | 29.77 | 29.77 | 29.77 | 29.77 |
| Cell Dep. | insH2O | -0.388 | -2.548 | -2.604 | -2.631 | -2.133 | -2.382 |
| P ref | psia | 14.62 | 14.56 | 14.56 | 14.56 | 14.57 | 14.56 |
| T2 | °C | 19.44 | 19.44 | 19.44 | 19.44 | 19.44 | 19.30 |
| T2 | °F | 67 | 67 | 67 | 67 | 67 | 67 |
| PT2 | psia | 14.62 | 14.54 | 14.54 | 14.54 | 14.55 | 14.54 |
| Ps3 | psia | 17.62 | 61.76 | 60.06 | 58.66 | 57.07 | 55.66 |
| Ps4 | psia | 41.02 | 186.96 | 180.26 | 173.86 | 167.57 | 161.76 |
| PT7 | psia | 16.32 | 43.39 | 41.82 | 40.35 | 38.81 | 37.45 |
| PT7 | in Hg | 33.21 | 88.30 | 85.10 | 82.11 | 78.98 | 76.21 |
| Fuel Press | psig | 27 | 2 | 2 | 3 | 3 | 4 |
| Fuel Tmp | °F | 70 | 68 | 68 | 68 | 68 | 68 |
| N1 | rpm | 3055 | 6433 | 6314 | 6204 | 6097 | 6001 |
| N2 | rpm | 6036 | 8338 | 8269 | 8203 | 8139 | 8077 |
| Main Oil Temp | °F | 188 | 209 | 212 | 213 | 213 | 213 |
| Main Oil Press | psig | 41.90 | 47.50 | 47.00 | 46.70 | 46.50 | 46.40 |
| Breather Press | in Hg | 0.14 | 0.33 | 0.33 | 0.33 | 0.31 | 0.31 |
| Inlet Vibration | p/p | 0.57 | 0.83 | 0.84 | 0.91 | 0.62 | 1.33 |
| Diffuser Vibration | p/p | 0.86 | 1.46 | 1.33 | 1.01 | 0.81 | 1.01 |
| Exhaust Vibration | p/p | 0.24 | 0.44 | 0.41 | 0.40 | 0.53 | 0.43 |
| Fuel Flow Uncorr | pph | 598 | 3937 | 3700 | 3476 | 3267 | 3075 |
| EGT Avg. | °F | 637 | 1228 | 1187 | 1149 | 1113 | 1079 |
| EGT Spread | °F | 97 | 120 | 115 | 117 | 112 | 108 |
| EGT 1 | °F | 598 | 1186 | 1145 | 1105 | 1072 | 1041 |
| EGT 2 | °F | 618 | 1211 | 1173 | 1131 | 1094 | 1059 |
| EGT 3 | °F | 640 | 1256 | 1215 | 1178 | 1141 | 1106 |
| EGT 4 | °F | 695 | 1306 | 1260 | 1222 | 1184 | 1149 |
| EGT 5 | °F | 628 | 1223 | 1180 | 1145 | 1106 | 1072 |
| EGT 6 | °F | 643 | 1187 | 1150 | 1113 | 1078 | 1046 |
| CORRECTED, CALCULATED DATA | | | | | | | |
| EPR | | 1.117 | 2.985 | 2.877 | 2.776 | 2.667 | 2.575 |
| N1 | rpm | 3033 | 6386 | 6268 | 6159 | 6053 | 5959 |
| N2 | rpm | 5992 | 8277 | 8209 | 8143 | 8080 | 8019 |
| FUEL FLOW | pph | 603 | 3990 | 3750 | 3523 | 3308 | 3115 |
| EGT | °C | 327 | 651 | 627 | 606 | 588 | 570 |
| EGT | °R | 1080 | 1663 | 1620 | 1583 | 1549 | 1517 |
| Ps3/P _{T2} | | 1.21 | 4.25 | 4.13 | 2.96 | 2.94 | 2.91 |
| Ps4/P _{T2} | | 2.81 | 12.86 | 12.40 | 11.96 | 11.51 | 11.12 |
| | | | | | | | |



WOOD GROUP PRATT AND WHITNEY GG4C-1D PERFORMANCE EVALUATION



PAGE 3 OF 7

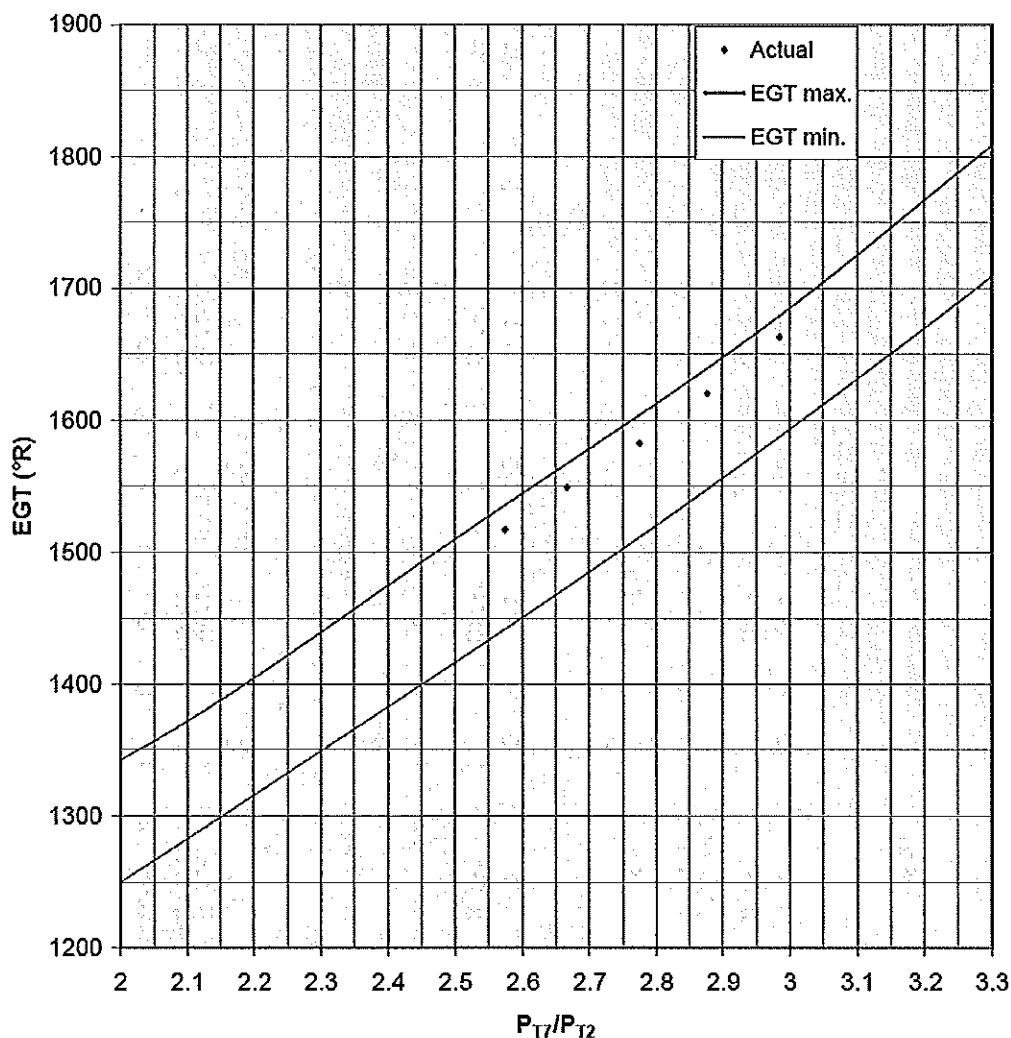
WGP&W

MODEL: GG4C-1D

E/S/N: 686625

DATE: 13-Aug-08

Generator Match Limits (GG4C-1D)



Reference: Pratt & Whitney GG4C Overhaul Manual P/N 729003, Section 1-00-1 Figure 703A



WOOD GROUP PRATT AND WHITNEY GG4C-1D PERFORMANCE EVALUATION



Pratt & Whitney
A United Technologies Company

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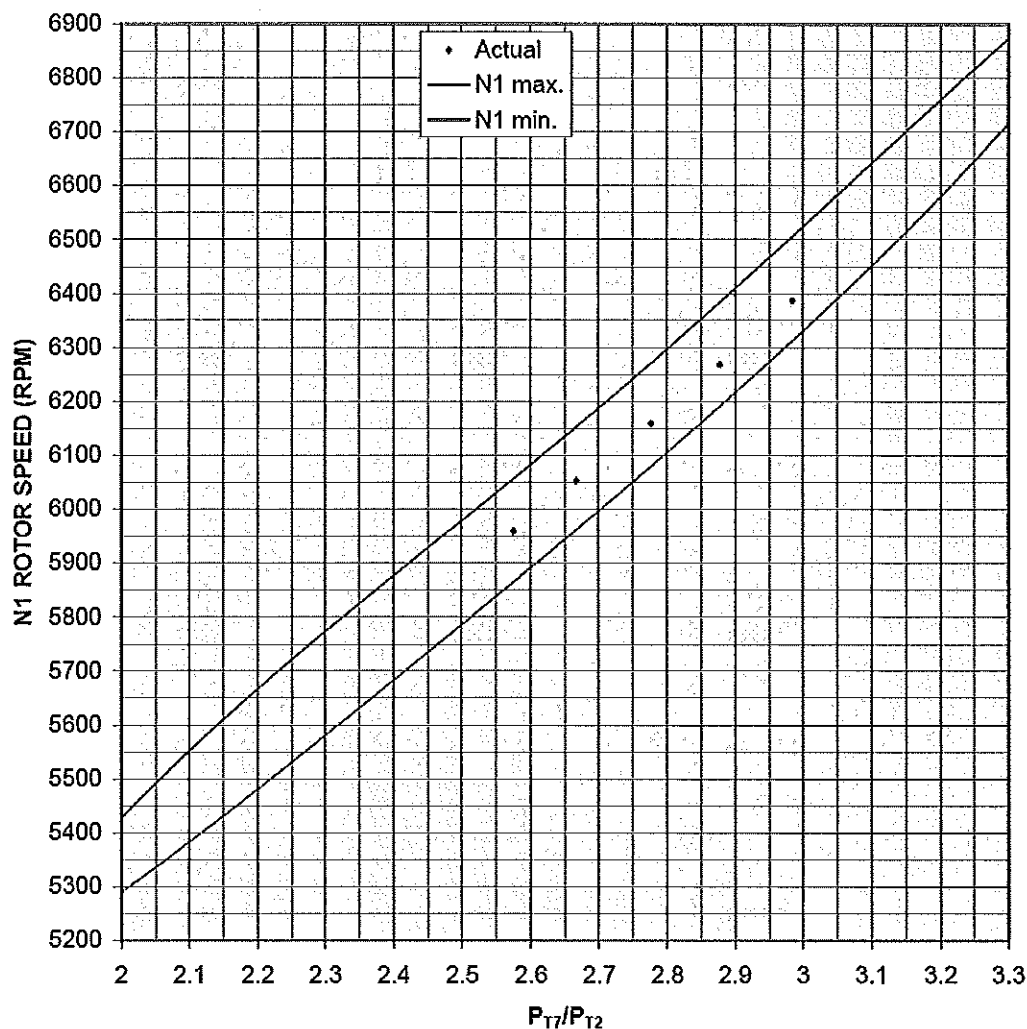
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MODEL: GG4C-1D

E/S/N: 686625

DATE: 13-Aug-08

Generator Match Limits (GG4C-1D)



Reference: Pratt & Whitney GG4C Overhaul Manual P/N 729003, Section 1-00-1 Figure 703A



WOOD GROUP PRATT AND WHITNEY GG4C-1D PERFORMANCE EVALUATION



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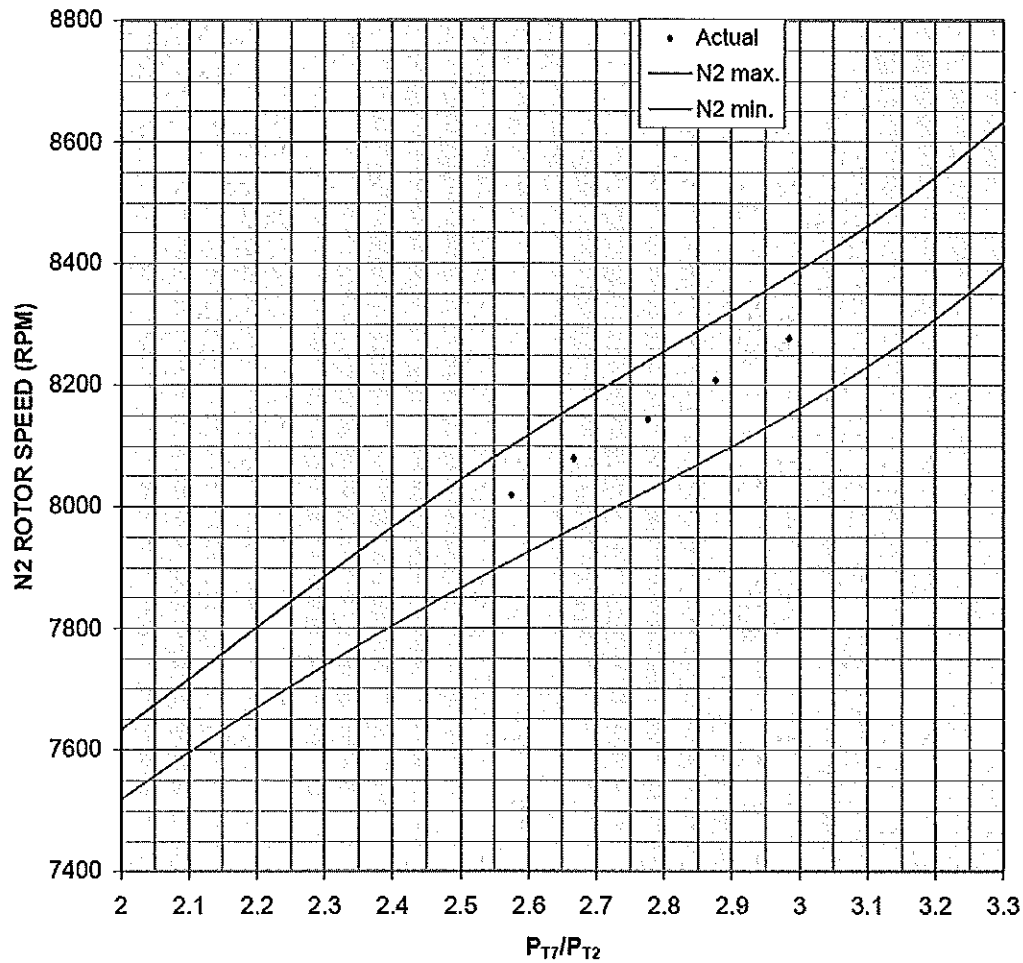
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MODEL: GG4C-1D

E/S/N: 686625

DATE: 13-Aug-08

Generator Match Limits (GG4C-1D)



Reference: Pratt & Whitney GG4C Overhaul Manual P/N 729003, Section 1-00-1 Figure 703



WOOD GROUP PRATT AND WHITNEY GG4C-1D PERFORMANCE EVALUATION



Pratt & Whitney
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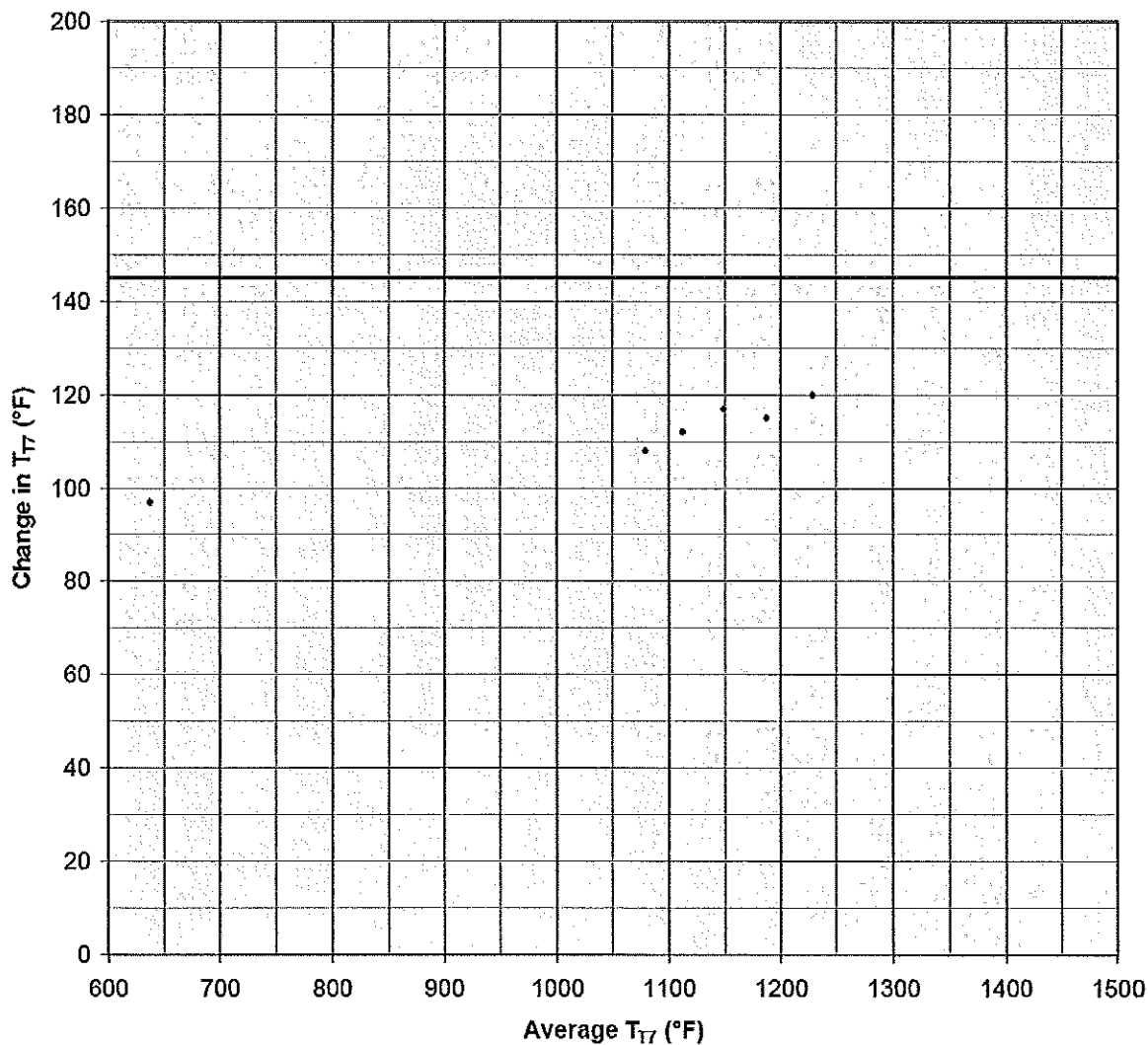
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MODEL: GG4C-1D

E/S/N: 686625

DATE: 13-Aug-08

Exhaust Gas Temperature Spread Check



Reference: Pratt & Whitney GG4C Overhaul Manual P/N 729003, Section 1-00-1 Figure 707



WOOD GROUP PRATT AND WHITNEY GG4C-1D PERFORMANCE EVALUATION



Pratt & Whitney
A United Technologies Company

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WGP&W

MODEL: GG4C-1D

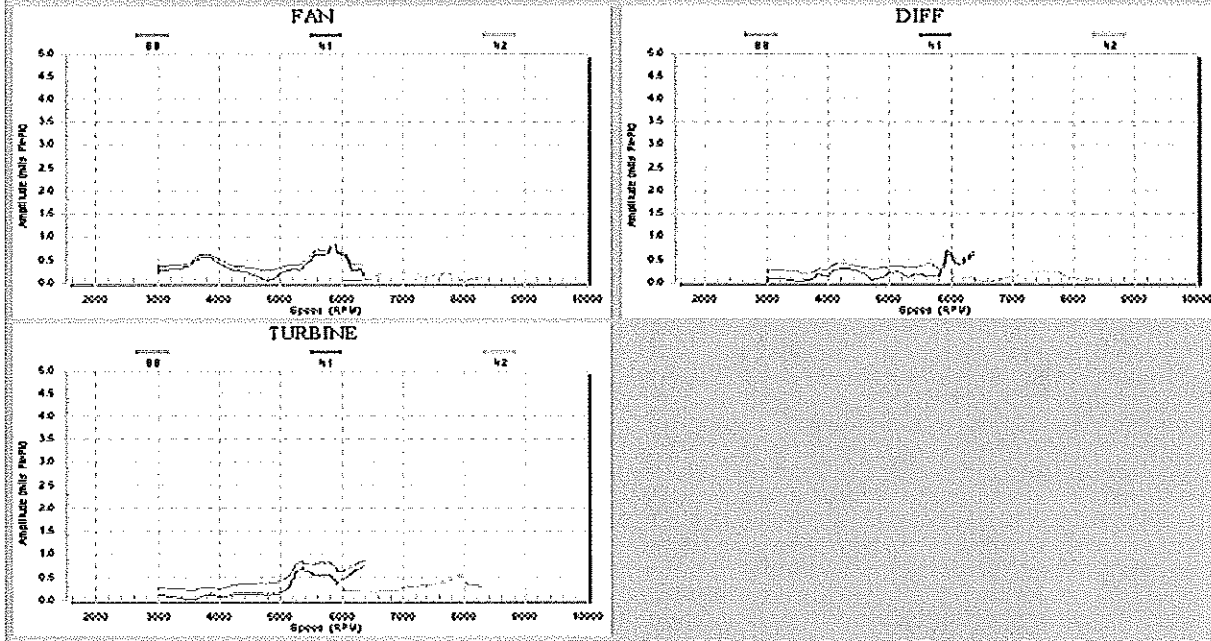
E/S/N: 686625

DATE: 13-Aug-08

GG4C
12988 / 686625

Accel Vibration Survey

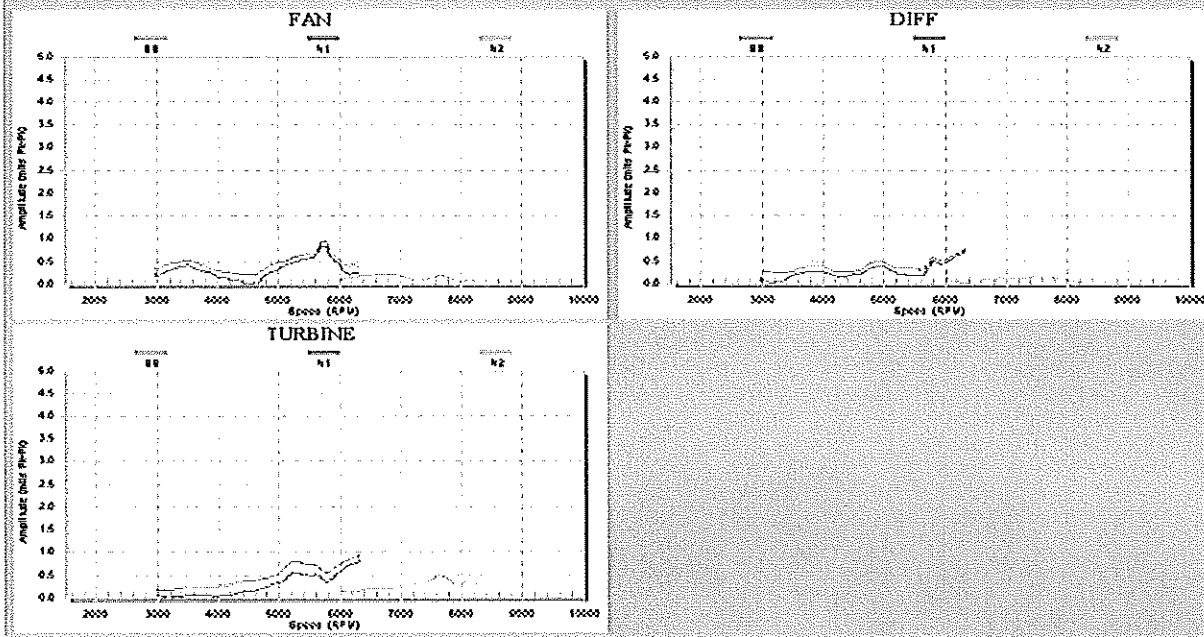
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GG4C
12988 / 686625

Decel Vibration Survey

08/13/2008
18:16:26





WOOD GROUP PRATT AND WHITNEY GG4C-1D PERFORMANCE EVALUATION

PAGE 1 OF 7

ACCEPTANCE TEST LIMITS

CUSTOMER: WGP&W **DATE:** 08-Aug-08
ENGINE MODEL: GG4 **TEST SITE:** Plattsburgh
SUB-MODEL: C-1D **WG TEST REP.:** Tim Jones
E/S/N: 686626

| PARAMETER | | OBSERVED VALUES | OEM LIMITS | |
|---------------------------------|--------------|--------------------|----------------|----------|
| | | | OEM MAX. | OEM MIN. |
| Maximum EGT: | Steady State | 1232 °F obs | 1250 °F obs | N/A |
| | Idle Spread | 145 °F | 200 °F | N/A |
| | EGT Delta | 145 °F obs | 200 °F obs | N/A |
| N1 | | 6481 rpm obs | 7160 rpm obs | N/A |
| N2 | | 8343 rpm obs | 9350 rpm obs | N/A |
| Idle Main Oil Pressure | | 38 psig | N/A | 35 psig |
| Maximum Continuous Oil Pressure | | 46 psig | 50 psig | 40 psig |
| Oil Consumption | | 0.0 gal/hr | 0.2 gal/hr | N/A |
| Oil Temperature-Stabilized | | 213 °F | 215 °F | 185 °F |
| Breather Pressure-Stabilized | | 0.37 in. Hg | 3.0 in. Hg | N/A |
| Fuel Inlet Pressure | | 31.36 psia | 50 psia | 5 psig |
| VIBRATION LIMITS-INLET: | | | | |
| All Pick-ups above 6300 N2 obs. | | 1.23 mils (p/p) | 2.0 mils (p/p) | N/A |
| All Pick-ups upto 6300 N2 obs. | | 0.45 mils (p/p) | 4.0 mils (p/p) | N/A |
| VIBRATION LIMITS-DIFFUSER: | | | | |
| All Pick-ups above 6300 N2 obs. | | 0.59 mils (p/p) | 2.0 mils (p/p) | N/A |
| All Pick-ups upto 6300 N2 obs. | | 0.38 mils (p/p) | 4.0 mils (p/p) | N/A |
| VIBRATION LIMITS-EXHAUST: | | | | |
| All Pick-ups above 6300 N2 obs. | | 1.14 mils (p/p) | 2.0 mils (p/p) | N/A |
| All Pick-ups upto 6300 N2 obs. | | 1.14 mils (p/p) | 4.0 mils (p/p) | N/A |
| BLEED VALVE LIMITS-CLOSING | | | | |
| Bleed Valve Right | | 80 psig | 80 psig | 75 psig |
| Bleed Valve Top | | 98 psig | 100 psig | 95 psig |
| Bleed Valve Left | | 118 psig | 120 psig | 115 psig |
| BLEED VALVE LIMITS-OPENING | | | | |
| Bleed Valve Right | | 78 psig | 80 psig | 74 psig |
| Bleed Valve Top | | 95 psig | 98 psig | 92 psig |
| Bleed Valve Left | | 114 psig | 118 psig | 112 psig |

William T. Barnett

Engineering Analysis Approval: _____

Digitally signed by William T. Barnett
DN: cn=William T. Barnett, o=Wood Group Pratt and
Whitney LLC, ou=Engineering Manager,
email=wbarnett@wgpwllc.com, c=US
Date: 2008.08.12 14:17:38 -04'00'

Date: _____



WOOD GROUP PRATT AND WHITNEY GG4C-1D PERFORMANCE EVALUATION

FULL ACCEPTANCE TEST DATA

PAGE 2 OF 7

| WGP&W | | MODEL: GG4C-1D | | | E/S/N: 686626 | | DATE: 08-Aug-08 | |
|----------------------------|--------|----------------|--------|--------|---------------|--------|-----------------|--|
| PARAMETER | EPR | 1.121 | 3.058 | 2.955 | 2.849 | 2.741 | 2.647 | |
| Time | hr:min | 13:06 | 12:49 | 12:52 | 12:54 | 12:56 | 12:59 | |
| Dry Bulb | F | 62 | 61.5 | 61 | 62 | 62 | 62 | |
| Wet Bulb | F | 57 | 56.5 | 56 | 57 | 57 | 57 | |
| Baro | inHg | 29.65 | 29.65 | 29.65 | 29.65 | 29.65 | 29.65 | |
| Cell Dep. | insH2O | -0.277 | -2.327 | -2.521 | -2.299 | -2.022 | -2.659 | |
| P ref | psia | 14.56 | 14.50 | 14.50 | 14.50 | 14.51 | 14.51 | |
| T2 | °C | 16.67 | 16.39 | 16.11 | 16.67 | 16.67 | 16.67 | |
| T2 | °F | 62 | 61.5 | 61 | 62 | 62 | 62 | |
| PT2 | psia | 14.56 | 14.49 | 14.48 | 14.49 | 14.50 | 14.47 | |
| Ps3 | psia | 17.46 | 62.20 | 61.00 | 59.50 | 57.91 | 56.41 | |
| Ps4 | psia | 40.96 | 189.30 | 183.90 | 177.30 | 170.81 | 164.31 | |
| PT7 | psia | 16.32 | 44.30 | 42.79 | 41.28 | 39.74 | 38.31 | |
| PT7 | in Hg | 33.21 | 90.15 | 87.08 | 84.00 | 80.87 | 77.96 | |
| Fuel Press | psig | 31 | 5 | 5 | 7 | 7 | 9 | |
| Fuel Tmp | °F | 68 | 68 | 68 | 68 | 68 | 68 | |
| N1 | rpm | 3065 | 6481 | 6393 | 6287 | 6175 | 6077 | |
| N2 | rpm | 6045 | 8343 | 8295 | 8235 | 8165 | 8106 | |
| Main Oil Temp | °F | 186 | 202 | 211 | 213 | 212 | 209 | |
| Main Oil Press | psig | 37.90 | 46.10 | 45.70 | 45.40 | 45.30 | 45.10 | |
| Breather Press | in Hg | 0.12 | 0.37 | 0.35 | 0.35 | 0.33 | 0.31 | |
| Inlet Vibration | p/p | 0.45 | 0.78 | 0.63 | 0.65 | 1.23 | 1.15 | |
| Diffuser Vibration | p/p | 0.38 | 0.54 | 0.48 | 0.54 | 0.59 | 0.43 | |
| Exhaust Vibration | p/p | 1.14 | 0.37 | 0.41 | 0.43 | 0.34 | 0.32 | |
| Fuel Flow Uncorr | pph | 2331 | 15767 | 15073 | 14192 | 13202 | 12472 | |
| EGT Avg. | °F | 621 | 1232 | 1199 | 1164 | 1126 | 1093 | |
| EGT Spread | °F | 145 | 132 | 132 | 129 | 127 | 124 | |
| EGT 1 | °F | 547 | 1177 | 1141 | 1108 | 1074 | 1037 | |
| EGT 2 | °F | 600 | 1221 | 1191 | 1157 | 1120 | 1088 | |
| EGT 3 | °F | 652 | 1273 | 1239 | 1203 | 1168 | 1132 | |
| EGT 4 | °F | 692 | 1292 | 1261 | 1224 | 1184 | 1151 | |
| EGT 5 | °F | 663 | 1269 | 1234 | 1197 | 1153 | 1123 | |
| EGT 6 | °F | 570 | 1160 | 1129 | 1095 | 1057 | 1027 | |
| CORRECTED, CALCULATED DATA | | | | | | | | |
| EPR | | 1.121 | 3.058 | 2.955 | 2.849 | 2.741 | 2.647 | |
| N1 | rpm | 3058 | 6468 | 6383 | 6271 | 6159 | 6061 | |
| N2 | rpm | 6029 | 8326 | 8282 | 8213 | 8144 | 8085 | |
| FUEL FLOW | pph | 2356 | 16015 | 15315 | 14415 | 13401 | 12680 | |
| EGT | °C | 324 | 663 | 645 | 624 | 603 | 585 | |
| EGT | °R | 1075 | 1685 | 1653 | 1614 | 1577 | 1545 | |
| Ps3/P _{T2} | | 1.20 | 4.29 | 4.21 | 2.98 | 2.95 | 2.91 | |
| Ps4/P _{T2} | | 2.81 | 13.07 | 12.70 | 12.24 | 11.78 | 11.35 | |



WOOD GROUP TURBINE PRATT AND WHITNEY GG4C-1D PERFORMANCE EVALUATION

PAGE 3 OF 7

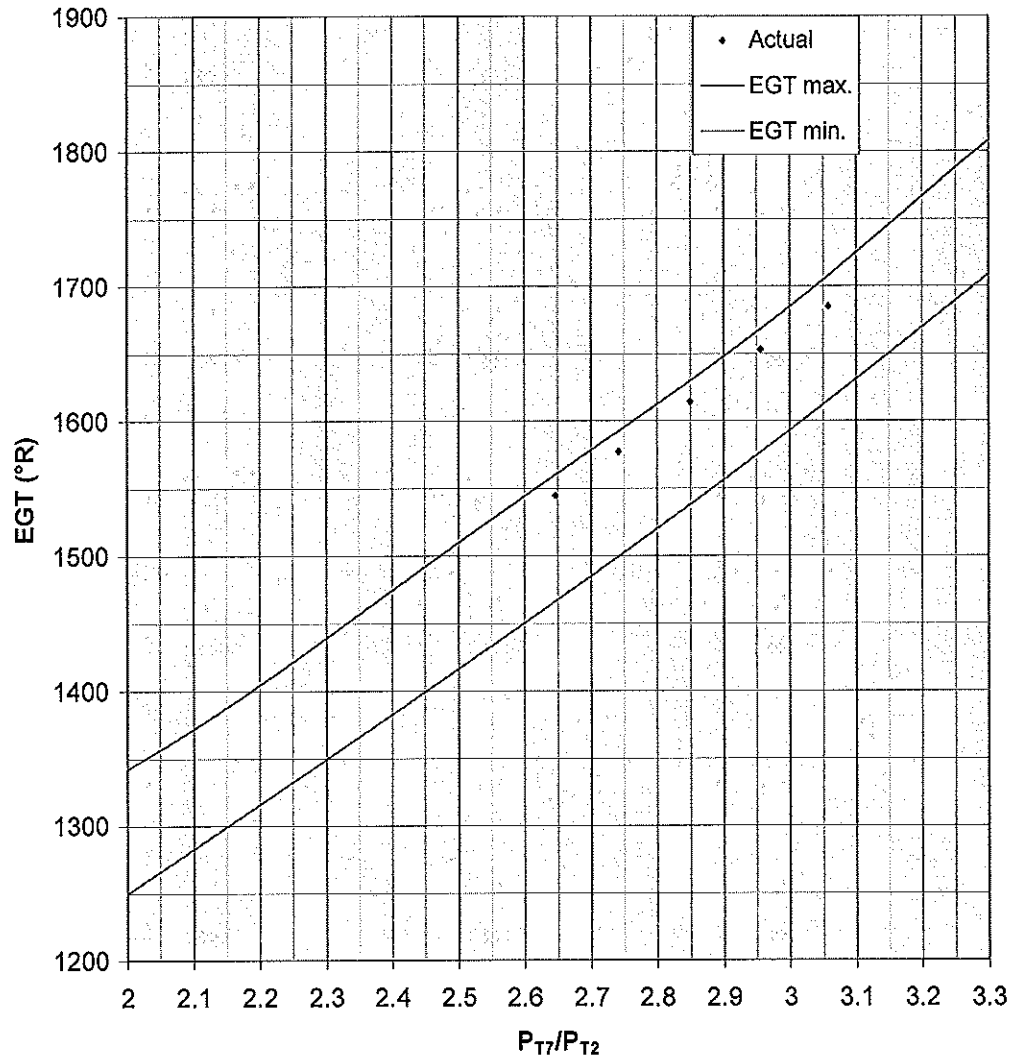
WGP&W

MODEL: GG4C-1D

E/S/N: 686626

DATE: 08-Aug-08

Generator Match Limits (GG4C-1D)



Reference: Pratt & Whitney GG4C Overhaul Manual P/N 729003, Section 1-00-1 Figure 703A



WOOD GROUP PRATT AND WHITNEY GG4C-1D PERFORMANCE EVALUATION

Page 4 of 7

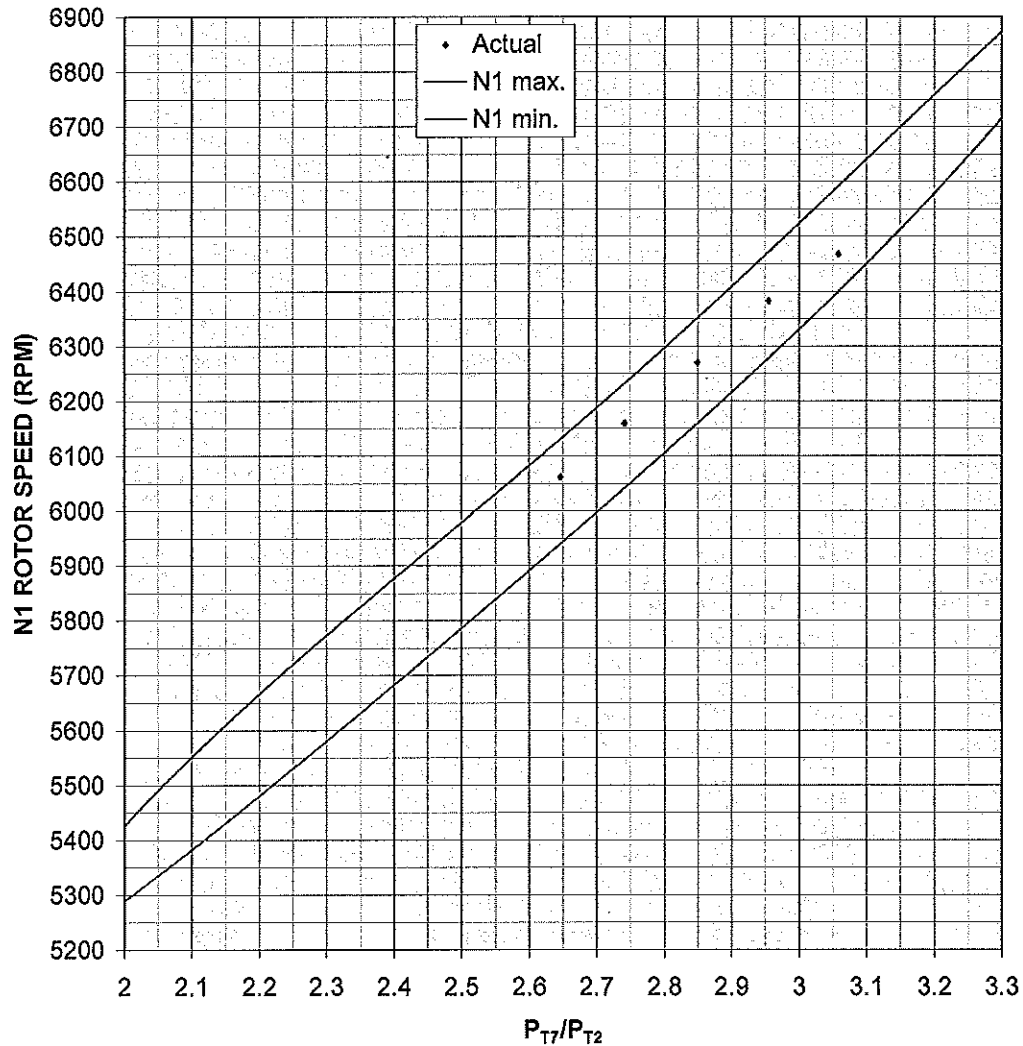
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MODEL: GG4C-1D

E/S/N: 686626

DATE: 08-Aug-08

Generator Match Limits (GG4C-1D)



Reference: Pratt & Whitney GG4C Overhaul Manual P/N 729003, Section 1-00-1 Figure 703A



WOOD GROUP PRATT AND WHITNEY GG4C-1D PERFORMANCE EVALUATION

Page 5 of 7

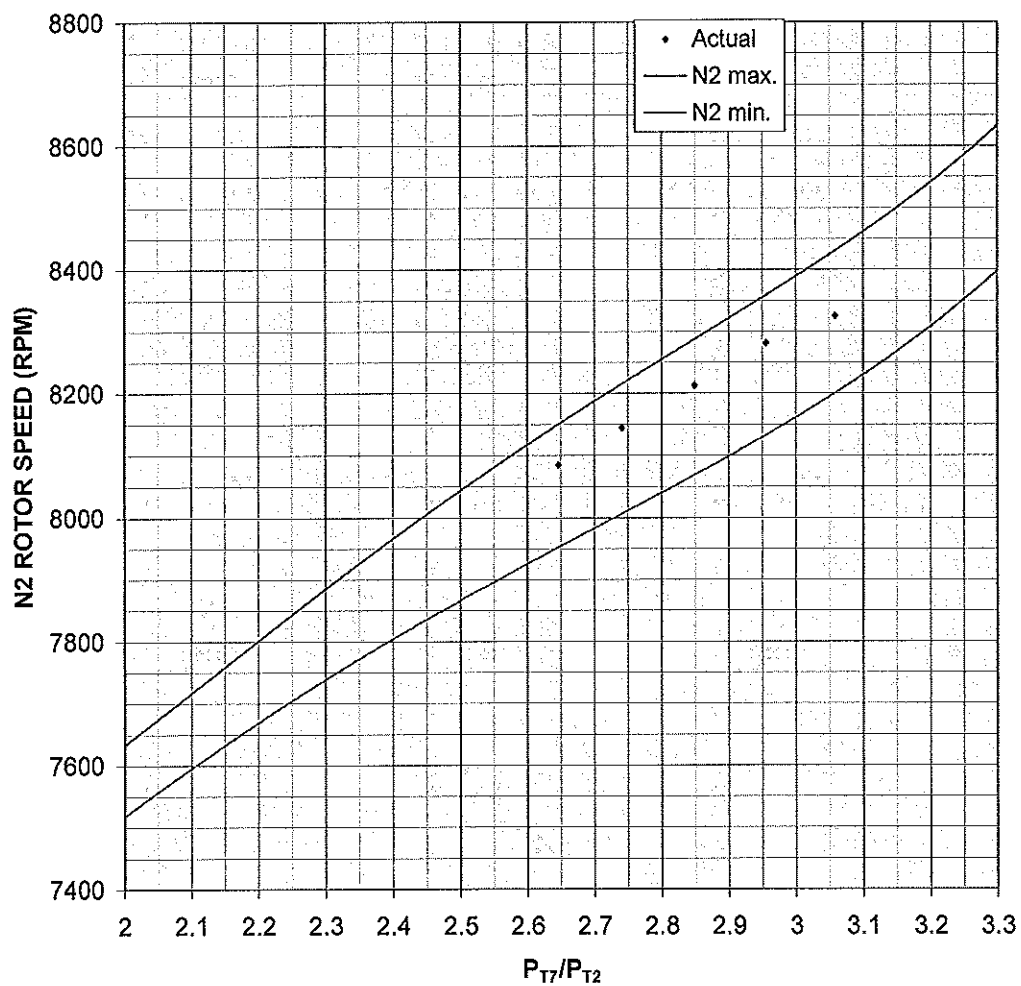
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MODEL: GG4C-1D

E/S/N: 686626

DATE: 08-Aug-08

Generator Match Limits (GG4C-1D)



Reference: Pratt & Whitney GG4C Overhaul Manual P/N 729003, Section 1-00-1 Figure 703



WOOD GROUP PRATT AND WHITNEY GG4C-1D PERFORMANCE EVALUATION

Page 6 of 7

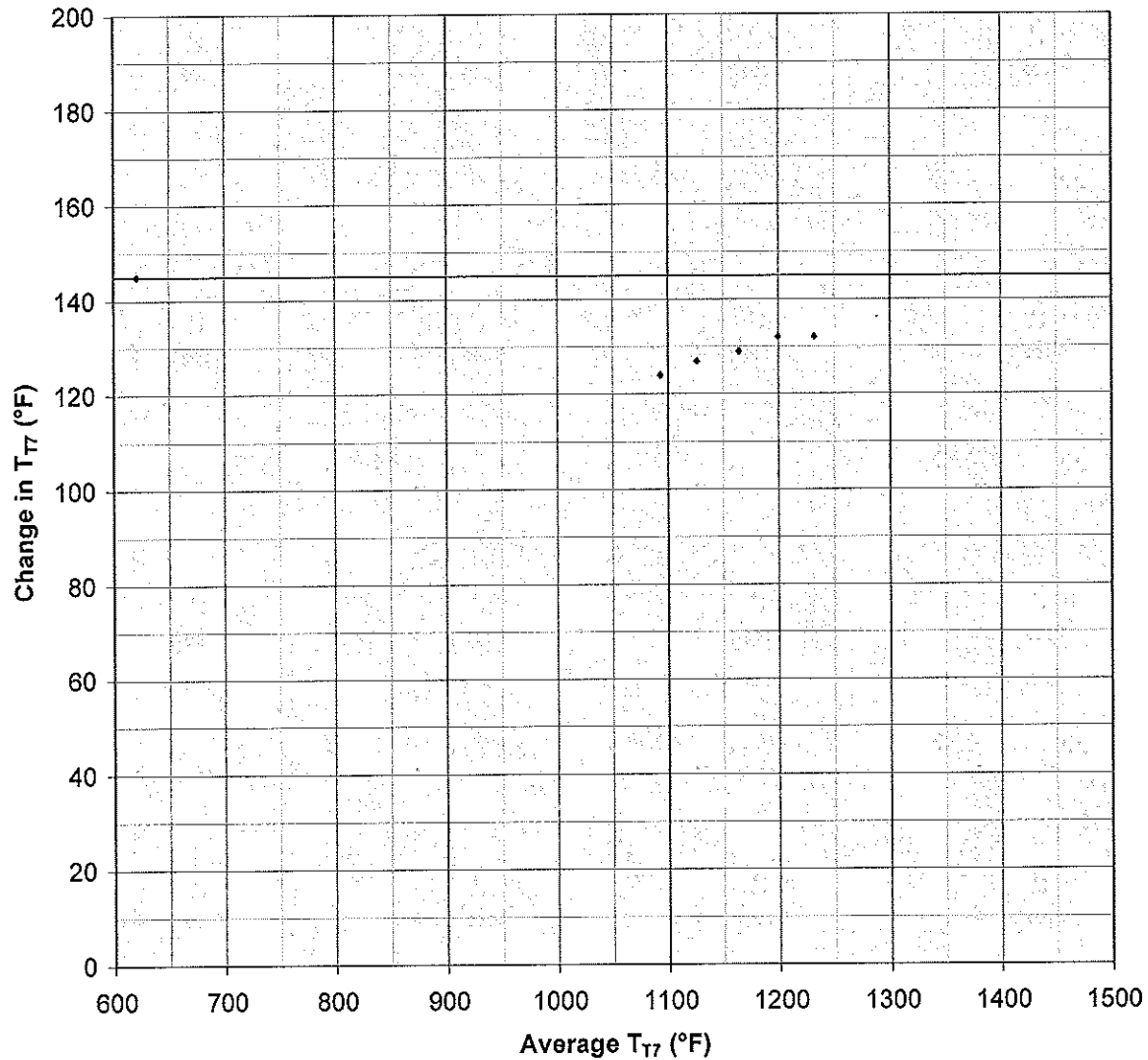
WGP&W

MODEL: GG4C-1D

E/S/N: 686626

DATE: 08-Aug-08

Exhaust Gas Temperature Spread Check



Reference: Pratt & Whitney GG4C Overhaul Manual P/N 729003, Section 1-00-1 Figure 707



WOOD GROUP PRATT AND WHITNEY GG4C-1D PERFORMANCE EVALUATION

Page 7 of 7

WGP&W

MODEL: GG4C-1D

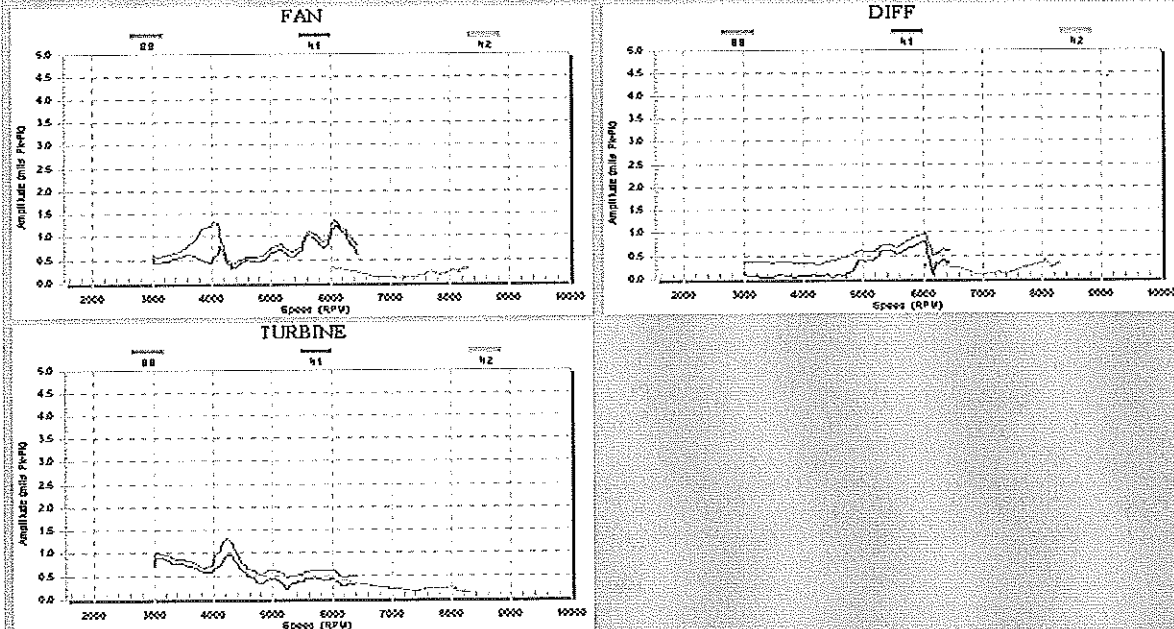
E/S/N: 686626

DATE: 08-Aug-08

GG4C
686626

Accel Survey

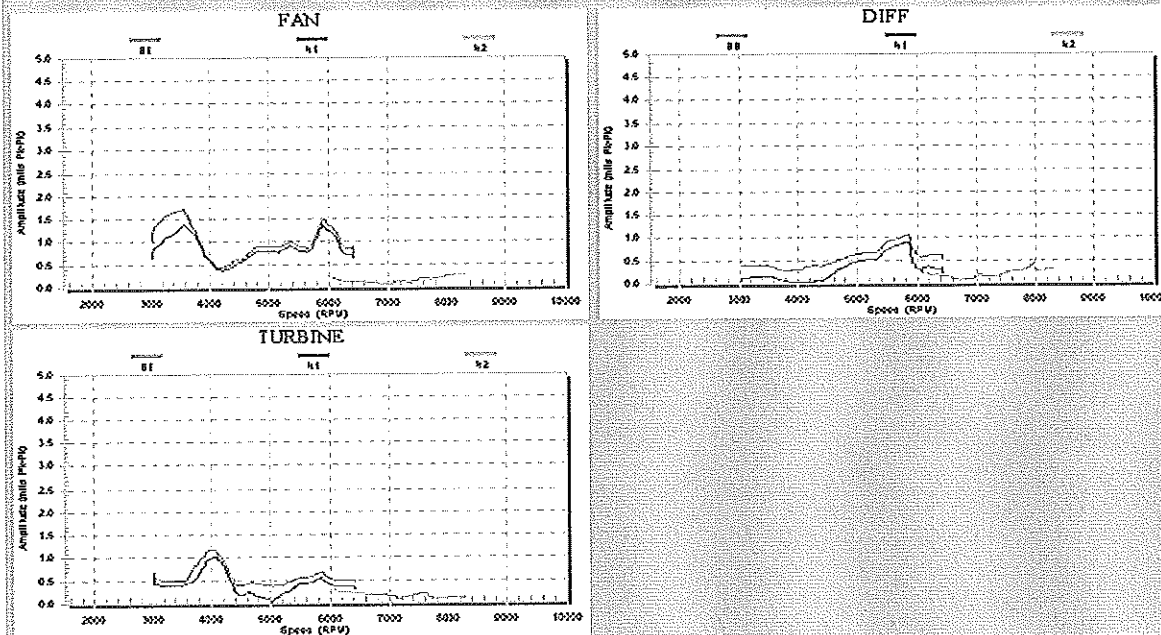
08/08/2008
12:45:05



GG4C
686626

Decel Survey

08/08/2008
12:43:21



7.0 FREE TURBINE RECORD OF TEST, DATA SHEET

JOB ORDER NUMBER: 12991

CUSTOMER: WGPW

MODEL: FT4C-1D

FT SERIAL NUMBER: 600530

ROTATION: CW___ CCW X

| POINT | LIMITS | Initial Testing Sequence | | | | Final Acceptance Test | | |
|---------------------------|----------------|--|---|--|--|--|--------------------------------------|--|
| | | GG IDLE OR 6000 N2 +/- 50 RPM | RATED SPEED 3600 +/- 50 RPM | OVER SPEED 3800 +/- 50 RPM | GG IDLE OR 6000 N2 +/- 50 RPM | OVER SPEED 3800 +/- 50 RPM | RATED SPEED 3600 +/- 50 RPM | GG IDLE OR 6000 N2 +/- 50 RPM |
| TIME | N/A | 17:53 | 17:57 | 18:02 | 18:07 | 18:11 | 18:27 | 18:31 |
| <i>Free Turbine Data</i> | | | | | | | | |
| N3 CONTL. RPM | N/A | 2732 | 2993 | 3589 | 3797 | 3012 | 3600 | 3788 |
| N3 CUST. RPM | N/A | 2732 | 2993 | 3589 | 3797 | 3012 | 3600 | 3788 |
| N3 SPARE RPM | N/A | 2732 | 2993 | 3589 | 3797 | 3012 | 3600 | 3788 |
| (PMOP) PSIA | 35 -50 PSIA | 36 | 37 | 38 | 39 | 37 | 38 | 39 |
| (POILS) PSIA | 35 - 50 PSIA | 35 | 36 | 38 | 39 | 36 | 38 | 39 |
| (DPMOP) PSID | 0 - 5 PSID | 1 | 1 | 0 | 0 | 1 | 0 | 0 |
| (TORET) °F | 120 - 220 °F | 163 | 172 | 190 | 189 | 188 | 189 | 187 |
| (TOSUPT) °F | 120 - 220 °F | 128 | 151 | 147 | 149 | 147 | 147 | 150 |
| (PFTBP) PSIA | 2.0" Hg. | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| (PS3UP) PSIA | 12 - 26 PSIA | 20.0 | 20.6 | 22.5 | 23.2 | 20.7 | 22.6 | 23.2 |
| FRONT (VF90) mils p/p | 1.4 mils p/p | 0.16 | 0.24 | 0.48 | 0.42 | 0.22 | 0.26 | 0.55 |
| REAR (VR45) mils p/p | 1.4 mils p/p | 0.10 | 0.14 | 0.23 | 0.22 | 0.22 | 0.27 | 0.19 |
| N3 CONTL. VOLTS | 2 - 8 volts AC | 3.8 | 4.2 | 4.9 | 5.1 | 4.1 | 4.8 | 5.1 |
| N3 CUST. VOLTS | 2 - 8 volts AC | 3.5 | 3.8 | 4.5 | 4.7 | 3.7 | 4.4 | 4.7 |
| N3 SPARE VOLTS | 2 - 8 volts AC | 3.5 | 3.8 | 4.4 | 4.7 | 3.7 | 4.4 | 4.6 |
| <i>Gas Generator Data</i> | | | | | | | | |
| N2 RPM | | 6007 | 6275 | 6765 | 6905 | 6306 | 6777 | 6908 |
| Oil Pressure In (PSIG) | 50 | 47 | 48 | 49 | 49 | 47 | 48 | 49 |
| Oil Temperature (°F) | 220 | 172 | 173 | 180 | 180 | 175 | 182 | 185 |
| Tt7 (°F average) | | 576 | 585 | 618 | 631 | 588 | 618 | 632 |
| Ps4 (psig) | | 20.0 | 20.6 | 22.5 | 23.2 | 20.7 | 22.6 | 23.2 |

Operator 1: Todd Munsell

Operator 2: Eric Rohver

RECORD RUN DOWN TIME (from 1200 N3 RPM): 9:35 min.

RECORD #8 REAR CARBON SEAL LEAKAGE: < 2.0 CC (LIMIT 4 CC/HOUR)

CHECK OIL FILTER: OK X CONTAMINATION FOUND: None

TEST ACCEPTANCE: PASS X FAIL _____

William T. Barnett

AUTHORIZED BY: William T. Barnett TITLE: Engineering Manager DATE: 30 July, 2008

CUST. APPROVAL:

TITLE:

DATE:

Digitally signed by William T. Barnett
DN: cn=William T. Barnett, o=Wood Group Pumps and Turbines LLC,
ou=Engineering Manager, email=wtbarnett@wgpw.com, c=US
Date: 2008.07.30 16:40:17 -0500

7.0 FREE TURBINE RECORD OF TEST, DATA SHEET

JOB ORDER NUMBER: 13143

CUSTOMER: WGPW

MODEL: FT4 A-11

FT SERIAL NUMBER: 600425

ROTATION: CW___ CCW X

| POINT | LIMITS | Initial Testing Sequence | | | | Final Acceptance Test | | |
|-----------------------------|----------------|--|---|--|--|--|--------------------------------------|--|
| | | GG IDLE OR 6000 N ₂ +/- 50 RPM | RATED SPEED 3600 +/- 50 RPM | OVER SPEED 3800 +/- 50 RPM | GG IDLE OR 6000 N ₂ +/- 50 RPM | OVER SPEED 3800 +/- 50 RPM | RATED SPEED 3600 +/- 50 RPM | GG IDLE OR 6000 N ₂ +/- 50 RPM |
| TIME | N/A | 19:47 | 19:51 | 19:56 | 19:59 | 20:04 | 20:20 | 20:22 |
| <i>Free Turbine Data</i> | | | | | | | | |
| N ₃ CONTL. RPM | N/A | 2831 | 3013 | 3597 | 3813 | 3013 | 3609 | 2817 |
| N ₃ CUST. RPM | N/A | 2831 | 3013 | 3597 | 3813 | 3013 | 3609 | 2817 |
| N ₃ SPARE RPM | N/A | 2832 | 3015 | 3599 | 3815 | 3015 | 3611 | 2819 |
| (PMOP) PSIA | 35 -50 PSIA | 39 | 40 | 45 | 48 | 41 | 45 | 40 |
| (POILS) PSIA | 35 - 50 PSIA | 38 | 40 | 44 | 47 | 40 | 45 | 39 |
| (DPMOP) PSID | 0 - 5 PSID | 1 | 0 | 1 | 1 | 1 | 0 | 1 |
| (TORET) °F | 120 - 220 °F | 151 | 158 | 183 | 183 | 174 | 179 | 168 |
| (TOSUPT) °F | 120 - 220 °F | 121 | 140 | 162 | 143 | 155 | 156 | 133 |
| (PFTBP) PSIA | 2.0" Hg. | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| (PS3UP) PSIA | 12 - 26 PSIA | 20.3 | 20.7 | 22.5 | 23.3 | 20.7 | 22.5 | 20.2 |
| FRONT (VF90) mils p/p | 1.4 mils p/p | 0.06 | 0.12 | 0.67 | 0.78 | 0.08 | 0.85 | 0.06 |
| REAR (VR45) mils p/p | 1.4 mils p/p | 0.09 | 0.10 | 0.34 | 0.41 | 0.08 | 0.22 | 0.06 |
| N ₃ CONTL. VOLTS | 2 - 8 volts AC | 4.0 | 4.2 | 4.9 | 5.2 | 4.2 | 5.0 | 3.9 |
| N ₃ CUST. VOLTS | 2 - 8 volts AC | 4.0 | 4.2 | 4.9 | 5.2 | 4.2 | 5.0 | 3.9 |
| N ₃ SPARE VOLTS | 2 - 8 volts AC | 4.2 | 4.5 | 5.4 | 5.7 | 4.5 | 5.2 | 4.2 |
| <i>Gas Generator Data</i> | | | | | | | | |
| N ₂ RPM | | 6007 | 6180 | 6639 | 6777 | 6185 | 6647 | 5995 |
| Oil Pressure In (PSIG) | 50 | 48 | 48 | 49 | 49 | 48 | 49 | 47 |
| Oil Temperature (°F) | 220 | 174 | 177 | 172 | 177 | 171 | 176 | 171 |
| Tt7 (°F average) | | 549 | 556 | 585 | 596 | 555 | 584 | 547 |
| PS4 (psig) | | 20.3 | 20.7 | 22.5 | 23.3 | 20.7 | 22.5 | 20.2 |

Operator 1 Todd Munsell

Operator 2 Eric Rohver

RECORD RUN DOWN TIME (from 1200 N₃ RPM): 8:45

RECORD #8 REAR CARBON SEAL LEAKAGE: 2.0 CC (LIMIT 4 CC/HOUR)

CHECK OIL FILTER: OK: OK CONTAMINATION FOUND: None

TEST ACCEPTANCE: PASS X FAIL_____

William T. Barnett

Digitally signed by William T. Barnett
DN: cn=William T. Barnett, o=Wood Group First and Priority LLC,
ou=Engineering Manager, email=wbarnett@wgpwfc.com, c=US
date.2008.12.11 15:20:06 -0500

AUTHORIZED BY: William T. Barnett TITLE: Engineering Manager DATE: 15 August, 2008

CUST. APPROVAL:

TITLE:

DATE: