FLIGHT MANUAL SUPPLEMENT
ADAS-T-250-1

For Part 23 Aircraft

Pratt & Whitney Engine Services, Inc.
Aircraft Data Acquisition System Plus (ADAS+)

AIRCRAFT MAKE: ____________________

AIRCRAFT MODEL: __________

AIRCRAFT REGISTRATION NO.: __________

AIRCRAFT SERIAL NO.: __________

This document must be carried in the aircraft at all times. It describes the operating procedures for the Pratt & Whitney Engine Services, Inc. ADAS+ engine monitoring system when it has been installed in accordance with STC SA00171BO.

For aircraft with an FAA Approved Airplane Flight Manual, this document serves as the FAA Approved Flight Manual Supplement for the Pratt & Whitney Engine Services, Inc. ADAS+. For aircraft that do not have an approved flight manual, this document serves as the FAA Approved Supplemental Flight Manual for the Pratt & Whitney Engine Services, Inc. ADAS+.

The Information contained herein supplements or supersedes the basic Airplane Flight Manual only in those areas listed herein. For limitations, procedures, and performance information not contained in this document, consult the basic Airplane Flight Manual.

FAA APPROVED:

[Signature]

Date: OCT 2 2 2007

Manager, Aircraft Certification Office
Federal Aviation Administration:
## LOG OF REVISIONS

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I. GENERAL

The Aircraft Data Acquisition System Plus (ADAS+) has been developed to provide the aircraft owner and/or operator with engine and airframe operational data. The ADAS+ is a recording device and exceedance monitor. It is designed as a tool for the maintenance staff and owner to monitor the overall health of the aircraft as well as to document any abuse while in service. The system records the date, time, duration, maximum value and average value of any exceedance. It counts cycles, records flight times, identifies and measures hot starts and records the maximum value observed by each sensor during flight. The system will also perform the data collection requirement of the P&WC ECTM® trending program.

The ADAS+ has been designed to reduce pilot workload and provide the maintenance staff with additional engine and airframe data. The ADAS+ will monitor single and dual engine aircraft and provide status, trending, and exceedance information using a single cockpit mounted lamp.

With the exception of the TRENDS or ETM/ENGINE switch/fault lamp, the ADAS+ has no interface with the aircraft pilot or crew. Communication with the system processor is done using a Windows™ based computer and Pratt & Whitney Engine Services, Inc. Monitor Link Program (MLP). All features of the Pratt & Whitney Engine Services, Inc. system are set using MLP. A complete description of the capabilities of MLP and detailed instructions on its use can be found in the Pratt & Whitney Engine Services, Inc. MLP Users Guide.

II. LIMITATIONS

Required engine maintenance, as prescribed in the applicable airframe or engine Instructions for Continued Airworthiness, shall not be predicated on the data obtained from the Pratt & Whitney Engine Services, Inc. engine monitoring/recording system.

CAUTION

This system shall not be used to supersede or replace the pilot's responsibility to monitor and record engine exceedance information.

Because the ADAS+ may be programmed with engine operating limits different from those in the Aircraft Flight Manual, the aircraft’s existing engine instruments shall be used to ensure that the engine is operated within the limits specified in the Aircraft Flight Manual, and shall also be used to identify exceedances of these limits.

III. EMERGENCY PROCEDURES

No Change
IV. NORMAL PROCEDURES

The ADAS+ can be equipped with either a TRENDS switch/fault lamp or a split ETM/ENGINE switch/fault lamp.

The TRENDS lamp is white in color and can be configured to display an exceedance or sensor fault to the pilot as well as an automatic trend sample. The TRENDS lamp is also a switch which when depressed, will take a trend sample of specific engine parameters.

The split ETM/ENGINE lamp is comprised of two segments, a white ETM segment and an amber ENGINE segment. The white ETM segment of the lamp will display exceedance pre-limits, airframe exceedances, and automatic trend samples. The amber ENGINE segment of the split lamp will illuminate only when an engine limit occurs or is exceeded. The ETM/ENGINE lamp is also a switch which when depressed, will take a trend sample of specific engine parameters.

1. Single TRENDS Lamp Operation

When power is first applied to the processor, the TRENDS switch/fault lamp will illuminate for approximately 5 seconds while the system performs self-tests. If any of these tests fail, the lamp will remain on.

If the test passes, the lamp will extinguish and the processor will enter a system state as described below:

**Lamp Out – Normal State:**

This is the normal condition of the ADAS+ when all systems checks have passed and there are no previous flight exceedances recorded.

**Lamp Flashing (pressing lamp will turn lamp off) – Maintenance State:**

When the ADAS+ is in Maintenance State, either a previous flight exceedance has occurred, or the system has detected a minor fault condition that will not affect its ability to function as an exceedance monitor.

**Lamp Flashing (pressing lamp will NOT turn lamp off) – Caution State:**

When the ADAS+ is in Caution State, either a previous flight exceedance has occurred, or the system has detected a fault condition that may affect its ability to function as an exceedance monitor.

**Lamp Solid – Fault State:**

When the ADAS+ is in Fault State, either a previous flight exceedance has occurred, or the system has detected a fault condition that WILL affect its ability to function as an exceedance monitor.
Note: The ADAS+ will extinguish any of the above lamp conditions once an engine has started.

Once the engine has been started, or either engine has started in a dual engine aircraft, the ADAS+ lamp is used to display trend and exceedance information to the pilot and/or crew as follows:

Trend Mode:

The ADAS+ can be configured to take an automatic trend sample whenever certain engine/flight conditions are met. Once the trend criteria are met, the system will collect a sample of data for later review by maintenance personnel. During this trend sample the ADAS+ lamp will flash at a slow (1 Hz) rate. Pressing the TREND switch will manually initiate the same trend data sample.

Exceedance Mode:

Exceedance Mode is defined as anytime the aircraft or engine has met the criteria defined for an exceedance and where the pilot and/or crew should be alerted. These exceedances are typically torque or temperature exceedances. If configured, Exceedance Mode is displayed to the pilot via a 2 HZ lamp flash or a solid lamp.

The exceedance can be configured such that Exceedance Mode can be acknowledged by pressing the TREND switch. If configured this way, the Exceedance Mode lamp display will extinguish when the TREND switch is pressed.

CAUTION

The ADAS+ is an advisory system only. Exceedance annunciations are based on user-programmed powerplant limits that may not reflect Aircraft Flight Manual limits. If an exceedance is noted, in all cases refer to the aircraft’s existing instruments for proper powerplant operation.

Single/Dual Engine Functions:

The ADAS+ monitoring system will monitor and record engine run, trend, cycle, and exceedance information for both single and dual engine aircraft. All interface to the pilot and/or crew is done through a single cockpit mounted TREND switch/fault lamp. If the pilot and/or crew are notified by the lamp during flight that an exceedance occurred, the pilot and/or crew must use standard aircraft/engine instrumentation to determine the cause of the exceedance and take corrective action as appropriate.
2. **Split Lamp Operation**

When power is first applied to the processor, the ETM/ENGINE switch/fault lamp will illuminate for approximately 5 seconds while the system performs self-tests. If any of these tests fail, the lamp will remain on.

If the test passes, the lamp will extinguish and the processor will enter a system state as described below:

**Lamps Out – Normal State:**

This is the normal condition of the ADAS+ when all systems checks have passed and there are no previous flight exceedances recorded.

**ETM Lamp Flashing (pressing lamp will turn lamp off) – Maintenance State:**

When the ADAS+ is in Maintenance State, either a previous flight exceedance has occurred, or the system has detected a minor fault condition that will not affect its ability to function as an exceedance monitor.

**ETM Lamp Flashing (pressing lamp will NOT turn lamp off) – Caution State:**

When the ADAS+ is in Caution State, either a previous flight exceedance has occurred, or the system has detected a fault condition that may affect its ability to function as an exceedance monitor.

**ETM Lamp Solid – Fault State:**

When the ADAS+ is in Fault State, either a previous flight exceedance has occurred, or the system has detected a fault condition that WILL affect its ability to function as an exceedance monitor.

**ENGINE Lamp Solid:**

When the ENGINE lamp is illuminated, a previous engine flight exceedance has occurred.

Note: The ADAS+ will extinguish any of the above lamp conditions once an engine has started.

Once the engine has been started, or either engine has started in a dual engine aircraft, the ADAS+ lamp is used to display trend and exceedance information to the pilot and/or crew as follows:
Trend Mode:

The ADAS+ can be configured to take an automatic trend sample whenever certain engine/flight conditions are met. Once the trend criteria are met, the system will collect a sample of data for later review by maintenance personnel. During this trend sample the ETM segment of the split lamp will flash at a slow (1 Hz) rate. Pressing the ETM/ENGINE lamp will manually initiate the same trend data sample.

Exceedance Mode:

Exceedance Mode is defined as anytime the aircraft or engine has met the criteria defined for an exceedance and where the pilot and/or crew should be alerted.

ENGINE Lamp:

The amber ENGINE segment of the split lamp will illuminate only when an engine limit occurs or is exceeded. Monitored parameters may consist of engine torque, temperature (ITT, etc.), engine gas producer RPM, and/or propeller speed.

When an engine limit occurs, the amber lamp will illuminate solid in flight and will extinguish when the lamp is pressed.

ETM Lamp:

The white ETM segment of the lamp will display pre-limits and airframe exceedances. Exceedance Mode is displayed to the pilot via a 2 HZ lamp flash or a solid lamp.

CAUTION

The ADAS+ is an advisory system only. ENGINE and ETM exceedance annunciations are based on Maintenance Manual criteria that may not reflect Aircraft Flight Manual limits. If an exceedance is noted, in all cases refer to the aircraft’s existing instruments for proper powerplant operation.

Single/Dual Engine Functions:

The ADAS+ monitoring system will monitor and record engine run, trend, cycle, and exceedance information for both single and dual engine aircraft. All interface to the pilot and/or crew is done through a single cockpit mounted ENGINE/ETM switch/fault lamp. If the pilot and/or crew are notified by the lamp during flight that an exceedance occurred, the pilot and/or crew must use standard aircraft/engine instrumentation to determine the cause of the exceedance and take corrective action as appropriate.

V. PERFORMANCE

VI. No change.

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