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FAA APPROVED  
AIRPLANE FLIGHT MANUAL SUPPLEMENT

(OR SUPPLEMENTAL AIRPLANE FLIGHT MANUAL FOR  
THOSE AIRCRAFT WITHOUT A BASIC AIRPLANE FLIGHT MANUAL)

EDM-960 PRIMARY TWIN ENGINE DATA MANAGEMENT SYSTEM

Airplane Flight Manual Supplement No. 960-001

For

Twin-Engine Aircraft as listed on STC SA01828SE

REG. NO. \_\_\_\_\_

SER. NO. \_\_\_\_\_

This Supplement must be attached to the FAA Approved Airplane Flight Manual when the J.P. Instruments EDM-960 is installed in accordance with Supplemental Type Certificate SA01828SE. For those airplanes without a basic Airplane Flight Manual, this Supplemental AFM must be in the aircraft when the EDM-960 is installed.

The information contained in this Airplane Flight Manual Supplement/ Supplemental Aircraft Flight Manual supplements or supersedes the basic manual/ placards only in those areas listed. For limitations, procedures and performance information not contained in this supplement, consult the basic manuals, markings, and placards.


FAA APPROVED:



For Manager  
Seattle Aircraft Certification Office  
Federal Aviation Administration  
Transport Aircraft Directorate

Revision A

Date AUG - 3 2010

Revision	Description	Affected Pages	Approval
IR	Complete Flight Manual Supplement for EDM-960	1 thru 5	E. P. Kolano for (signed) Manager Seattle Aircraft Certification Office Federal Aviation Administration
A	Revised to include Front/Rear engine configuration; additional RAD message information.	2-4 <i>FOR</i>	 _____ Manager Seattle Aircraft Certification Office Federal Aviation Administration

## I. GENERAL

The EDM-960 is a combined electronic indicating system which simultaneously displays to the pilot powerplant and aircraft systems operating parameters. It includes the following indicating systems; replacing previous primary digital and/or analog instruments. (The label of the parameter shown on the EDM-960 display message area is indicated in the first parenthesis. The message area is located below the CHT/EGT display. The acronyms shown in the RAD alarm displays are shown in the second parenthesis):

- (Message area) (Remote Display)
1. Engine rotational speed .....(### HI RPM) (HIGH RPM)
  2. Engine Manifold Pressure .....(## # HI MP) (HIGH MP)
  3. Engine Cylinder Head Temperature (### HI CHT 1 TO 9) (HIGH-CHT)
  4. Engine Oil Temperature.....(### HI OIL-TEMP) (OIL-TEMP)
  5. Engine Exhaust Gas Temperature ... (##### HI EGT 1 TO 9) (HIGH-EGT)
  6. Engine Oil Pressure .....(## LO OIL PSI) (OIL-PSI)
  7. Fuel Pressure.....(## LO FUEL PSI) (FUEL-PSI)
  8. Fuel Flow.....(## LO FUEL FLW) (LOW-FF)
  9. Fuel Quantity .....(## LOW FUEL) (LOW-FUEL)
  10. Compressor Discharge Temperature (### HI CDT) (HIGH-CDT).
  11. Turbine Inlet Temperature .....(##### HI TIT) (HIGH TIT)

### Display

Dual indicating needles are provided for Tachometer and Manifold Pressure, one for each engine (labeled L and R or F and R). Vertical columns for Cylinder Head Temperature, Exhaust Gas Temperature and Turbine Inlet Temperature (if equipped) appear in the lower LH part of the display. Digital values appear above these columns (except for EGT). Oil Temperature, Oil Pressure, Fuel Flow, Fuel Pressure, and Fuel Quantity digital values appear in left and right boxes adjacent to the vertical scales for these parameters on the RH side of the display.

The primary engine functions display green and yellow bands for normal and caution ranges and red lines for maximum or minimum limit values. These markings duplicate those of the original equipment instruments as shown in Airplane Flight Manuals (AFMs), Type Certificate Data Sheets (TCDS) and/or other FAA approved documents. Remote Alarm Displays (RADs) (One for each engine) in the instrument panel, in front of the pilot, flash the parameter and its digital value in red whenever that function reaches a limit. Likewise, on the face of the display, the parameter blinks on and off, in red, when the limit is reached/exceeded.

Non-primary functions are Induction air temperature, carburetor inlet temperature, EGT Span, bus voltage (derived from the instrument power source only) and Amps (displayed as a digital load meter), Shock Cooling, Fuel Remaining, Fuel Required, Fuel Reserve, MPG, Endurance, and Fuel Used have programmable alarm limits. CHT, TIT, EGT, F-P, FF, and MAP may not be primary on some installations. Any of these non-primary functions are programmable.

Specific values for each parameter are displayed digitally above the vertical column displays of CHT, and TIT. The highlighted indicator below the columns indicates which cylinder's digital information is presently displayed as an alarm or when manually or automatically stepping through the parameters.

### Programming

Depressing the LF and STEP buttons simultaneously enters the program mode to enter fuel quantities, display scan rate, OAT display to °F or °C, EGT digital display resolution to 1 or 10° and other setup parameters. Exit by pressing the NEXT button until EXIT is displayed, then press EXIT. If either the STEP or LF buttons are not pushed for three minutes, the EDM-960 will revert to automatic scan mode. Depressing the STEP button will stop the automatic mode and revert to manual mode. Refer to the EDM-960 Pilot's Guide Rev. NC or later for additional operating information. This Pilot's Guide must be available to the pilot for all flight operations.

### Remote Alarm Display (RAD)

The RAD is a 0.2" high, 8 character independent display. There is one RAD for each engine. The RAD will still function if the main display LCD screen is inoperable. The RADs are located directly in front of the pilot and display limit exceedances when any of the parameters has reached its preset trigger point. For example, if CHT redline is 460 degrees, and the left engine's actual CHT temperature reaches this, an alarm condition is displayed on the left RAD as **HIGH CHT**. The entire message will extinguish when the temperature returns below the redline temperature or acknowledged by pressing the clear button. Other alarms would be displayed as: **HIGH RPM, LOW FUEL, HIGH MP**. Whenever limit alarms are not triggered, the RADs are blank. Whenever a power up cycle occurs (either when master power is initially applied, or an event such as an engine start, causes the battery voltage to drop too low and then comes back up), three initial display messages will occur. Power up sequence examples are shown below. This allows you to confirm that the displays are properly installed and functional.

1<sup>st</sup> message: **LEFT RIGHT** (Wing mounted engines such as Cessna 310R)

OR

1<sup>st</sup> message: **FRONT REAR** (Centerline thrust engines such as Cessna 337A)

2<sup>nd</sup> message: **PRIMARY C3XXXX** (shows aircraft model and confirms instrument is approved as primary).

3<sup>rd</sup> message: **SAXXXXXX** (If original equipment engines are installed, this message will be blank. If a modification affecting engine limits is installed, the STC number will appear here. For example, **SA432SO** here would refer to the Colemill Continental IO-550-E engine installation in Cessna 310 series aircraft.)

**Always confirm that these messages match your aircraft operational requirements before each flight.**

### Alarm Limits

Primary alarm limits for each specific aircraft model are set by JPI and are not programmable by the pilot. These include some or all of the following: CHT, CDT, EGT, OIL T, OIL P, F-P, FUEL QTY, MAP, RPM, FF, IAT, CARB, and TIT. The primary functions for your installation are shown on the Primary label on the back of the instrument and are identical to those specified in the FAA Approved Airplane Flight Manual/Pilot's Operating Handbook.

Whenever a parameter reaches an alarm limit, the display and the RAD will flash the red colored acronym. Tapping the CLEAR button will acknowledge and extinguish the red display warnings on the main display and on the RAD (however, the main parameter display will always display any exceeded limit as a red exceedance). After pressing CLEAR, if another lower priority alarm exists, it will then be displayed on the RAD. Each press of the CLEAR button will allow any lower priority alarm to be displayed, thus presenting the pilot with the highest priority alarm condition. After a RAD alarm display, the pilot should check the main display to verify that a parameter has reached an alarm limit.

### CAUTION

**Because FUEL-PSI and OIL-PSI, RAD alerts do not indicate high or low, pilots must crosscheck the EDM-960 to determine whether a high limit exceedance has changed to a low limit exceedance or vice versa.**

### Dimming

Automatic dimming is provided to dim both the panel display and the remote alarm display. Dimming can also be accomplished manually. Tapping the third button (labeled DIM) decreases brightness. Continuously holding this button increases brightness. Manual dimming overrides the automatic dimming feature. When switching electrical power off and on, the system defaults to automatic dimming.

## II. OPERATING LIMITATIONS

- A. The EDM-960 may replace any existing RPM, MAP, EGT, CHT, CDT, TIT, OIL T, OIL P, F-P, FF, and Fuel Quantity indicators required by the aircraft type design or operating limits.
- B. The EDM-960 cannot be used as primary if either of the RADs is not working.

## III. EMERGENCY PROCEDURES

- A. Loss of individual display parameter:
  1. Continue normal engine operation by referring to the remaining parameters displayed.
- B. Loss of all displays (Electrical Failure):
  1. Avoid high engine power settings and rapid power changes;
  2. Enrichen mixtures to maintain smooth engine operation;
  3. Arrange to terminate the flight safely and as soon as practicable.
  4. Refer to your original airplane AFM for possible additional engine instrument failure information.

## IV. NORMAL PROCEDURES

**a. PRIMARY FUNCTIONS**

Before each flight, verify that both RADs are working. Whenever main electrical power is turned on the EDM-960 performs a self-test procedure which identifies any inoperative parameters (by the message center, located below the EGT/CHT display). Whenever main electrical power drops below the instruments allowable low voltage threshold, such as an engine start, (this is seen predominantly on 12 volt electrical systems) the system will also conduct a power up re-start sequence. Normal operation will resume in a matter of seconds however.

**b. ENGINE MIXTURE LEANING**

Refer to the 'EDM-960 Pilot's Guide' for detailed instructions on 'rich of peak' and 'lean of peak' operation.

For each engine: After establishing desired cruise-power, depress the LF button to activate the Lean Find Mode. The system is now looking for an increase in EGT indicating which engine is being leaned. Both engines can be leaned simultaneously. As the mixture is leaned, one cylinder's column will begin blinking; indicating the EGT for that cylinder has peaked. Continue with the leaning procedure, enriching as recommended by the aircraft manufacturer while monitoring the primary engine instruments. Once the leaning procedure has been completed, depress the EXIT button briefly to exit the Lean Find Mode and enter the Monitor Mode.

**CAUTION**

**Comply with manufacturer's Airplane Flight Manual leaning procedures.  
Do not exceed applicable engine or aircraft limitations.**