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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-930 PRIMARY ENGINE DATA MANAGEMENT SYSTEM

**Airplane Flight Manual Supplement No. 930-0001 Rev. C**

**For**

**Single Engine Reciprocating Engine Powered Aircraft as listed on STC SA01435SE**

**REG. NO.** N16422

**SER. NO.** 28R-7335125

This Supplement must be attached to the FAA Approved Airplane Flight Manual when the J.P. Instruments EDM-930 is installed in accordance with Supplemental Type Certificate SA01435SE. For those airplanes without a basic Airplane Flight Manual, this Supplemental AFM must be in the aircraft when the EDM-930 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 Airplane Directorate

Date: DEC 10 2004

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| Revision | Description | Affected Pages | Approval |
|---|---|---|---|
| C | Complete Flight Manual Supplement for EDM-930 | 1 thru 4 | Approval<br>Manager<br>Seattle Aircraft Certification Office<br>Federal Aviation Administration<br>Date DEC 10 2004 |
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FAA APPROVED Date: DEC 10 2004

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## *I. GENERAL*

The EDM-930 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 all previous primary digital and/or analog instruments (The label of the parameter shown on the instrument is indicated in the first parenthesis);[ the acronym shown in the alarm displays is shown in the second parenthesis]:

1. Engine rotational speed (RPM)(RPM)
2. Engine Manifold Pressure (MAP)(MAP)
3. Engine Cylinder Head Temperature (CHT)((CHT)
4. Engine Exhaust Gas Temperature (EGT)(EGT)
5. Engine Oil Temperature(OIL-T) (O-T)
6. Engine Oil Pressure (OIL-P)(O-P)
7. Fuel Pressure(FUEL-P)(F-P)
8. Fuel Flow (FF)(FF)
9. Fuel Quantity (QTY-LF and QTY-RT) (None)
10. Alternator/Generator Output – Volts (VOLTS)(BUS) and Amps(AMPS)(AMP).
11. Outside Air Temperature (OAT)(None)
12. Turbocharger Compressor Discharge Temperature – {Primary on some turbocharged engines} (CDT)(CDT).
13. Turbine Inlet Temperature - {Primary on some turbocharged engines} (TIT)(TIT)
14. Induction Air Temperature (IAT)(IAT) or Carburetor inlet temperature (CARB)(CRB)

### *Display*

Non-primary functions Induction air temperature, carburetor inlet temperature, EGT Span, bus voltage and Amps, 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.

The right hand side of the EDM-930 display has 9 vertical scale columns with a digital value below each column. The nine functions are: OIL-T, OIL-P, FUEL-P, OAT, VOLTS (or CDT, for engine installations having a primary compressor discharge temperature), AMPS, FF, and two fuel tank quantities (QTY-LF, QTY-RT). The engine RPM and MAP are presented in the upper left corner of the instrument. The EGT, CHT and TIT are presented in the lower left corner. Below the EGT/CHT columns is a message center that displays the digital values of the EGT/CHT/TIT and additional functions like shock cooling and caution and limit alarm messages.

Specific values for each parameter are displayed digitally above the vertical scale displays of EGT, CHT, and TIT. The highlighted indicator below the columns indicates which cylinder's digital information is presently displayed as an alarm in the message center 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 depressing STEP. If either the STEP or LF buttons are not pushed for three minutes, the EDM-930 will revert to automatic scan mode. Depressing the STEP button will stop the automatic mode and revert to manual mode. Refer to the EDM-930 Pilot's Guide Rev. B 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. The RAD will still function if the main display is inoperable. An alarm such as the CHT on cylinder number 2 is 480 is displayed as 480CHT2. The label CHT2 will flash whenever an over-temperature exists and will extinguish when the temperature falls below the limit temperature. Other alarms would be displayed as, for example: 2780 RPM, 15 O-P, 34 F-P, 240 O-T.

The RAD is located directly in front of the pilot and displays digital caution and limit excedances when any of the parameters has reached its preset trigger point. Whenever limit alarms are not triggered, the RAD continuously displays MAP and RPM.
On initial startup or whenever power is turned on, the words "EDM-930 PRIMARY" is displayed, followed by the make and model of the aircraft for which the primary limits are set.

### Alarm Limits

Whenever a parameter reaches the programmed *caution* trigger point, the main display will flash the *amber colored* word ALERT and the parameter acronym. Tapping the STEP button extinguishes these warnings.
Similarly, whenever a parameter reaches a programmed *limit* value, the display and the RAD will flash the *red colored* word ALERT and the acronym. Tapping the STEP button will extinguish the red display warnings on the main display but the RAD will also continue to flash the acronym until the parameter is not at or beyond the limit value.
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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, O-T, O-P, F-P, QTY-LF, QTY-RT, 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.

For caution alarms, primary digits and acronyms are flashed in *amber* at the original manufacturer's published caution points or, if none is specified, at a specific temperature below the programmed limit. For example, O-T and CDT alarms will flash 20°F before the actual factory limit. CHT will flash 40°F below, and TIT 50°F below the programmed limits. Fuel and oil pressure caution alarms will only flash if there is a published caution range

When a *caution* range is reached, the pilot can momentarily depress the STEP button to extinguish the particular flashing alarm acronyms. If another parameter has also reached its limit, that label will then begin to flash. The pilot should continue to monitor the affected functions as he would if a conventional analog display had reached a limit. The bar graph functions of CHT, EGT, and TIT remain displayed at all times.

### *Dimming*

Automatic dimming is provided to dim both the panel display and the remote alarm display. Dimming can also be accomplished manually. Tapping the far right hand button (labeled Brightness) 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-930 may replace any existing RPM, MAP, EGT, CHT, CDT, TIT, O-T. O-P, F-P, FF, and Fuel Quantity indicators required by the aircraft type design or operating limits.
b. The EDM-930 cannot be used as primary if the RAD is not working.

## *III. EMERGENCY PROCEDURES*

A. Loss of individual display element:
   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 Mixture to maintain smooth engine operation;
   3. Arrange to terminate the flight safely and as soon as practicable.

## *IV. NORMAL PROCEDURES*

### *a. PRIMARY FUNCTIONS*

Before each flight, verify that the RAD is working. Whenever main electrical power is turned on the EDM-930 performs a self-test procedure which identifies by the message center any inoperative parameters. During engine start, there may be a power interruption to the EDM-930 while the starter is engaged.

### *b. ENGINE MIXTURE LEANING*

After establishing desired cruise-power depress the LF button to activate the Lean Find Mode. 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 STEP button briefly to exit the Lean Find Mode and enter the Monitor Mode.

**CAUTION**

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

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# EDM 900/930
# Instructions for Continued Airworthiness

Supplement No: 905-01
Revision: E

Prepared by:

_____ 05/24/2014
Joe Polizzotto

**Before performing any procedures contained in this manual the user should verify they have the latest ICA revision.**

***Please check web site at www.JPInstruments.com for the latest revision of this manual.***

**The registered owner on file at JPI will also be notified of any changes.**

## Revision History

| Revision | Date | Description | Affected Pages |
|---|---|---|---|
| IR | 12/ 15 /2011 | Complete Document | 1 thru 6 |
| A | 2/07/2012 | Added Penetration of Aircraft Pressure Vessel item 9 | Page 5 |
| B | 4/23/2012 | Revised items 5 and 9 | Page 5 |
| C | 5/16/2012 | Deleted old items 3 and 12. Revised old items 4, 5, 8, and 14 (new items 3, 4, 7, and 13 | Pages 5 and 6 |
| D | 7/15/2012 | Clarified acronyms in item 2. Corrected typographical errors in revision log, items 2, 4, 5, 6, and 7. Reworded items 4 and 14 for clarity. Added Rev. D to all pages. | Pages 1 through 6 |
| E | 5-24-14 | Reorganized and rewrote complete document | All |

## List of Effective Pages

This document is controlled and revised as a complete unit and does not contain pages of various revisions. All pages are of the same revision as indicated on the cover page and also indicated at the bottom of each subsequent page. The effective pages consist of the sections as noted in the Table of Contents.

## Distribution of Revisions

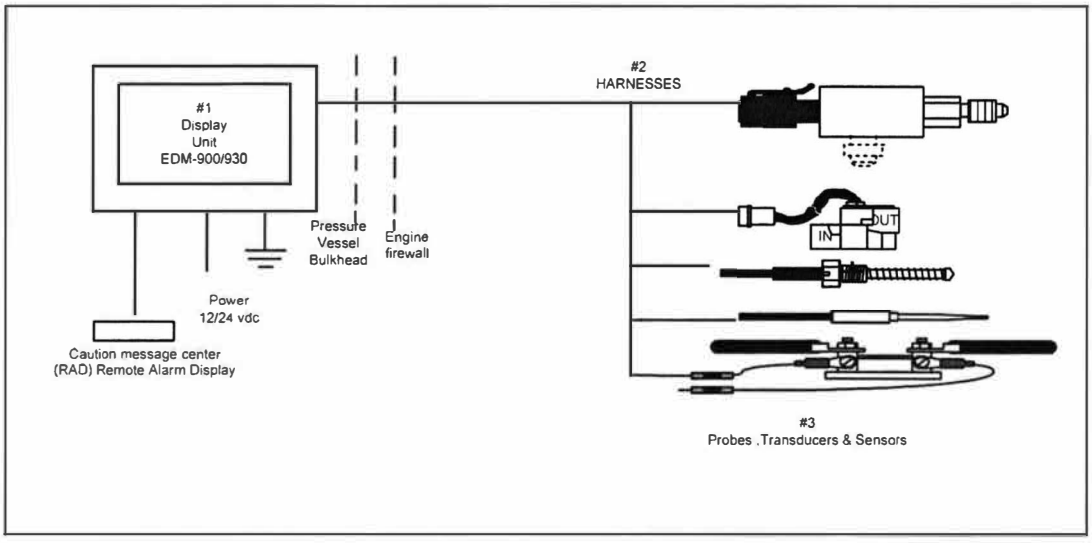
Notification of changes to this ICA will be sent to all EDM-900/930 owners on record. The changed document will be available at JPInstruments.com. Paper copies will be available on request, contact J.P.Instruments at 714-557-3805.

## 1.0 Introduction

This document contains the instructions for continued airworthiness (ICA). This ICAwas written in the format contained in the GAMA Specification No. 2 which was specified by FAA Order 8110.54A. This ICA conforms to the requirements specified by Part 23, Appendix G and FAA Order 8110.54A. The FAA guidance includes sections that are not applicable to the EDM-900/930 system, only applicable sections have been addressed in this document.

## 2.0 System Description

The EDM-900/930 is a combined electronic indicating system which simultaneously displays to the pilot powerplant and aircraft systems operating parameters. It replaces all previous primary digital and/or analog instruments: This system performs monitoring tasks only; it does not perform any engine or aircraft system controlling functions.




## 2.1 Display Unit PNs 790000-A and 790000-C

The EDM-900/930 receives, processes and displays the data on a VGA TFT color display. In addition, the EDM-900/930 receives GPS data. The EDM-900/930 also transmits fuel flow and fuel level data to a GPS and controls the external Master Caution Message Center (RAD) Remote Access Display.

## 2.2 Harnesses

The extension cables route the signals from the probes, transducers and sensors to the Display unit. These extension cables are FAA approved. The installation of these extension cables are per J.P.Instruments Inc. report 908 installation instructions.

## 2.3 Probes, Transducers and Sensors

These components are used to measure pressures, temperatures, fuel flow, volts, amps, fuel levels and many other engine and aircraft system functions. The analog signals produced by the transducers and probes are routed through the extension cables to the various EDM inputs.

These probes, transducers and sensors are TSO approved and currently are used on other J.P.Instruments Inc. STC'd, TSO'd products. The installation of these probes, transducers and sensors are per J.P.Instruments Inc. report 908 installation instructions.

## 2.4 EDM-900/930 System Parts List

See section 29 page 32 Component Parts List in Report 908 Installation Instructions.

# 3.0 Applicable Documents

The following documents are listed for reference only.
Each document is applicable only to the extent specified herein.

Report 908 EDM-900/930 Installation Instructions.

## 4.0 Control & Operation Information

All of the engine and aircraft functions monitored by the EDM-900/930 are displayed on the Display Unit after power-up. There are no other display screens.

Fuel Level calibration is performed during the initial installation of the EDM-900/930 and should not require recalibration. Changing or repairing the EDM-900/930 display will not affect fuel level calibration. However, if a fuel probe is replaced, fuel level calibration will be required.

To calibrate the fuel level for a specific fuel tank, see section 22.4 in the installation Report 908.

## 5.0 Airworthiness Limitations

There are no new or additional airworthiness limitations with installation of the EDM-900/930 system.

The Airworthiness Limitations section is FAA approved and specifies maintenance required under Sections. 43.16 and 91.403 of the Federal Aviation Regulations, unless an alternative program has been FAA approved.

## 6.0 Interior Placards

There are no markings or placards required in conjunction with the EDM-900/930 System.

## 7.0 Charts and Wiring Diagrams

All installation diagrams, schematics and charts are located in the EDM-900/930 Installation Instructions (Report 908).

## 8.0 Overhaul Time Limits

The EDM-900/930 system and accessories have no overhaul time limits.

## 9.0 Maintenance Instructions

Maintenance checks should be performed every 100 hour and/or at the annual inspection. Check all system components for the following: leaks on or around transducers, loose fittings, chafing and/or breakage of any cables or wires and loose connections. Probes must be checked for proper installation. This includes checking all hose clamps and fittings for security. Verify that the unit is operating and functioning properly by performing the appropriate procedures in Sections of the EDM-900/930 Installation Instructions (Report 908). On pressurized aircraft, check the sealant for security where the serial wires pass through the pressure bulkhead to the Display Unit.

## 10.0 Protective Treatment

There are no applications of protective treatments required for the EDM-900/930 system and its components.

## 11.0 Servicing

Servicing is "on condition" only. There are no field adjustments or calibration requirements for the EDM-900/930 system after it has been properly installed, checked off and signed-off by the respective authority. All servicing of the EDM-900/930 system and accessories must be accomplished by J.P.Instruments Inc. (JPI). Probes, transducers, sensors and the display unit are limited to removal and replacement with JPI manufactured new or JPI rebuilt to new components. Location and access to the components are described in the EDM-900/930 Installation Instructions (Report 908).

For servicing information contact J.P.Instruments Inc. at (714) 557-3805 or www.support@jpinstruments.com

## 12.0 Removal

Guidance on removal of the EDM-900/930 system and/or accessories is provided in the EDM-900/930 Installation Instructions (Report 908). Removal must be performed in accordance with applicable airworthiness standards.

## 13.0 Installation and Replacements

Installation of the EDM-900/930 and/or accessories must be performed in accordance with the EDM-900/930 Installation Instructions (Report 908) and in accordance with applicable airworthiness standards.

## 14.0 Troubleshooting

Troubleshooting the EDM-900/930 system and accessories, including probes, transducers and sensors, must be performed in accordance with the Troubleshooting Section found in the EDM-900/930 Installation Instructions (REPORT 908) section 39. Troubleshooting is limited to identification of a defective component. A component's internal workings can only be repaired by J.P.Instruments Inc.

## 15.0 Special Instructions

There are no special instructions required for the EDM-900/930 System.

## 16.0 Special Inspection Requirements

There are no special inspection requirements for the EDM-900/930 System.

## 17.0 Special Tools

There are no special tools required for working on the EDM-900/930 System.

## 18.0 Revisions

These Instructions for Continued Airworthiness have been reviewed and accepted by the FAA. In the event that a revision is required the revision will be submitted to the FAA for review and acceptance. Before performing any procedures contained in the manual the user should verify they have the latest revision by Checking the web site at www.JPInstruments.com for the latest revision of this manual. Owners of record will also be notified by mail or e-mail of a revision update. The revised Instructions for Continued Airworthiness must become a part of the aircraft records and a logbook entry made noting the revision.