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**CGR-30P & CGR-30C**  
**Instructions for Continued Airworthiness**

Document No: 06211301  
Revision: E, March 28, 2014

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06/21/13

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## 1.0 Revision History

REVISIONS			
Rev.	Reason/Description	Requested/ Changed By	Date
New		N/A	06/21/13
A	Added reference to procedures on verifying proper functioning instrument.	FAA	07/17/13
B	In Section 12 clarified which sections in the Installation Instructions are to be performed.	FAA	07/18/13
C	Added references to CGR-30C, which has identical hardware as the CGR-30P	EI	11/15/13
D	Added additional CGR-30C references and added description of differences between the CGR-30C and CGR-30P	FAA	3/20/14
E	Clarified instructions on removal of instruments	FAA	3/28/14

## 2.0 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.

## 3.0 Distribution of Revisions

Notification of changes to this ICA will be sent to all CGR-30P & CGR-30C owners on record. The changed document will be available at [www.Buy-Ei.com](http://www.Buy-Ei.com). Paper copies will be available on request, contact Electronics International at (541) 318-6060 or [www.buy-ei.com](http://www.buy-ei.com)

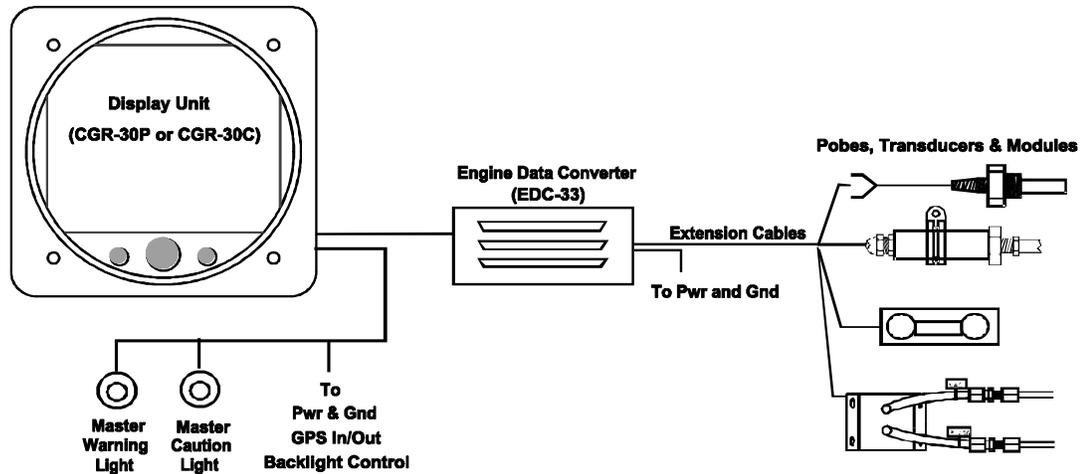
## 4.0 Introduction

This document contains the instructions for continued airworthiness (ICA). This ICA was 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 CGR-30P or CGR-30C system, only applicable sections have been addressed in this document.

## 5.0 System Description

The CGR-30P & CGR-30C are engine monitoring systems for aircraft equipped with piston engine(s). These systems perform monitoring tasks only; they do not perform any engine or aircraft system controlling functions.

The CGR-30 System consists of four major components: the Display Unit (CGR-30P and/or CGR-30C), the Engine Data Converter (EDC-33); the probes; transducers and modules; and the wiring and extension cables.



### 5.1 Probes, Transducers and Modules

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 EDC-33 inputs.

These probes, transducers and modules are TSO approved and currently are used on other Electronics International STC'd, PMA'd and/or TSO'd products. The installation of these probes, transducers and modules are identical to the installation methods use on EI's other FAA approved products.

### 5.2 Extension Cables

The extension cables route the signals from the probes, transducers and modules to the EDC-33. These extension cables have been approved on many other Electronics International STC'd, PMA'd and/or TSO'd products. The installation of these extension cables are identical to the installation methods used on EI's other FAA approved products.

### 5.3 Engine Data Converter (EDC-33)

The EDC-33 is a 4.5" x 3.5" x 2.2" module that incorporates three 37-pin D-sub connectors. The EDC-33 incorporates 17-temperature channels (all of which also can be used for monitoring other functions), 6-high impedance pressure channels (which also can be used for monitoring other functions), 1-amp channel, 2-RPM channels, 4-capacitive fuel level channels, 4-resistive fuel level channels and a fuel flow channel. The EDC-33 channels convert signals from the probes, transducers and modules to a digital format. This data is transmitted to the CGR display via one wire 5V-Serial Bus.

The EDC-33 is FAA TSO and STC approved and is currently used on other Electronics International STC'd, PMA'd and/or TSO'd products. The installation of the EDC-33 is identical to the installation method used on EI's other FAA approved products.

### 5.4 CGR-30 Display Units (CGR-30P and CGR-30C)



The CGR-30P and CGR-30C systems are identical in hardware, installation and maintenance. The difference between the two models is the configuration of the user screens. The CGR-30P incorporates two arcs at the top of the display, a bargraph display for monitoring EGTs & CHTs and strip gages for other functions. The CGR-30C only displays strip gages.

Both CGR-30 systems receive, process and display the 5V-Serial data on a TFT color display. In addition, they also receive GPS data, transmit fuel flow data to a GPS and control the external Master Caution and Warning Lights.

## 5.5 CGR-30 System Parts List

CGR-30P	Display Unit
CGR-30C	Display Unit
EDC-33	Engine Data Converter
RFLM-4-xx	Resistive Fuel Level Module
P-110	EGT Probe
P-100	CHT Probe
P-128	OAT Temperature Probe
P-120	Oil Temperature Probe
S-50	100 Amp Shunt
AL-1R	Red External Warning Light
AL-1Y	Yellow External Caution Light
PT-30GA	Fuel Pressure Transducer
PT-100GA	Oil Pressure Transducer
FT-60	Fuel Flow Transducer
P-300C	Capacitive Fuel Level Probe
P-300M	Magnetic Float Sensor

## 6.0 Applicable Documents

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

II 02151301	CGR-30P Installation Instructions
II 10291301	CGR-30C Installation Instructions

## 7.0 Control & Operation Information

All of the engine and aircraft functions monitored by the CGR-30P and CGR-30C are displayed on the Main Screen. The Main Screen is displayed after power-up. All other screens display advisory information only.

Fuel Level calibration is performed during the initial installation of the CGR-30P and CGR-30C and should not require recalibration. Changing or repairing the CGR-30P or CGR-30C display and/or EDC-33 will not affect fuel level calibration. However, if a fuel probe is replaced, fuel level calibration will be required. Fuel tank calibration and recalibration are both covered in detail in the CGR-30P and CGR-30C Installation Instructions.

To calibrate the fuel level for a specific fuel tank, perform the following:

1. The fuel tank must be calibrated with the wings level and the aircraft set for level flight pitch. Start with only the unusable fuel in the tank.
2. While viewing the Main Screen on the CGR-30P or CGR-30C press and hold the Select Knob to enter the Setup Screen. Select the "System Configuration Screens Menu" at the bottom of the screen. When you select this screen it will prompt you for the Maintenance Password.

3. If the Password has not previously been changed, enter "00200"
  4. Select the "Function Configuration" screen.
  5. At the top of the screen select the fuel tank to be calibrated.
  6. Enter the "MAP" field and select "EDIT."
  7. Wait for the "CURRENT CNTS" to settle. Select the # 1 calibration point. Set the "VALUE" field to 0. Transfer the "Current Cnts" to the "COUNTS" field by selecting "YES" in the "Use Current CNTS" field.
  8. Perform step 7 above for the  $\frac{1}{4}$ ,  $\frac{1}{2}$ ,  $\frac{3}{4}$  and full fuel levels (placed in the "VALUE" field). Use calibration points 2, 3 and 4 respectively.
- Note: "CURRENT CNTS" should increase about +5 count or more for each gallon of fuel added to the tank. As you approach full the count may stop increasing.
9. Set calibration point 5 "VALUE" field for the full fuel level (same as step 4) but set the "COUNTS" field for "9000000." This will insure the tank never reads more than the full fuel level.
  10. Once the calibration is completed select the "Save This Map Data" field at the bottom of the Function Mapping screen. Then press the "EXIT" button to exit the Function Mapping screen and again to exit the Function Configuration screen. Be sure to save the changes when exiting this last screen.

## **8.0 Airworthiness Limitations**

There are no new or additional airworthiness limitations when installing the CGR-30P or CGR-30C 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.

## **9.0 Interior Placards**

There are no markings or placards required in conjunction with the CGR-30P or CGR-30C System.

## **10.0 Charts and Wiring Diagrams**

All installation diagrams, schematics and charts are located in the Installation Instructions (CGR-30P II 02151301, CGR-30C II 10291301).

## **11.0 Overhaul Time Limits**

Neither the CGR-30P or CGR-30C system and accessories have overhaul time limits.

## **12.0 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, chaffing and/or breakage of any cables or wires and loose connections. Probes must be checked for proper installation. This includes tightening any hose clamps or fittings. Verify that the unit is operating and functioning properly by performing the procedures in Section 5.1 and 5.3 of the appropriate Installation Instructions (CGR-30P II 02151301, CGR-30C II 10291301).

## **13.0 Protective Treatment**

There are no applications of protective treatments required for the CGR-30P or CGR-30C system and components.

## **14.0 Servicing**

Servicing is "on condition" only. There are no field adjustments or calibration requirements for the CGR-30P or CGR-30C system after they have been properly installed, checked off and signed-off by the respective authority. All servicing of the CGR-30P and CGR-30C system and accessories must be accomplished by Electronics International (EI). Probes, transducers, modules and the display unit are limited to removal and replacement with EI manufactured new or EI repaired components. Location and access to the components are described in the appropriate Installation Instructions (CGR-30P II 02151301, CGR-30C II 10291301).

For servicing information contact Electronics International Inc. at (541) 318-6060 or [www.Buy-Ei.com](http://www.Buy-Ei.com).

## **15.0 Removal**

Guidance on removal (in reverse of installation) of the CGR-30P and CGR-30C system and/or accessories is provided in the Installation Instructions (CGR-30P II 02151301, CGR-30C II 10291301). Removal must be performed in accordance with applicable airworthiness standards.

## **16.0 Installation and Replacements**

Installation of the CGR-30P and CGR-30C and/or accessories must be performed in accordance with the appropriate Installation Instructions (CGR-30P II 02151301, CGR-30C II 10291301) and in accordance with applicable airworthiness standards.

## **17.0 Troubleshooting**

Troubleshooting the CGR-30P and CGR-30C system and accessories, including probes, transducers and modules, must be performed in accordance with the Troubleshooting Section found in the appropriate Installation Instructions (CGR-30P II 02151301, CGR-30C II 10291301). Troubleshooting is limited to identification of a defective components. Any components internal workings should only be repaired by Electronics International Inc.

## **18.0 Special Instructions**

There are no special instructions required for the CGR-30P or CGR-30C System.

## **19.0 Special Inspection Requirements**

There are no special inspection requirements required for the CGR-30P or CGR-30C System.

## **20.0 Special Tools**

There are no special tools required for working on the CGR-30P or CGR-30C System.