

INSIGHT

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Issue 1

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

For

**Insight Graphic Engine Monitor (GEM) 1200C-001
(GEM G4-001 and GEM G4-002)**

<p>COMPLIANCE WITH CHAPTER 4.0, "AIRWORTHINESS LIMITATIONS", OF THESE INSTRUCTIONS FOR CONTINUED AIRWORTHINESS IS MANDATORY</p>

This document must be attached to the aircraft Approved Maintenance Manual when the above instruments are installed in the subject aircraft.

The information contained herein supplements the Maintenance Manual only in those areas listed herein. For limitations and maintenance procedures not contained in this supplement, consult the Maintenance Manual.

LOG OF AMENDMENTS

Revision No.	Revised Pages	Approval Date	Entered By:
Issue 1			<i>Debbie Margettie</i>

LIST OF EFFECTIVE PAGES

Page No.	Date:	Page No.	Date:
1	April 22, 2012		
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CHAPTER 1 – INTRODUCTION

A. General

The Insight Instrument GEM 610C is primary engine instrument for display of the EGT, CHT and TIT parameters. It may also be used as additional, non-required indicator for those parameters.

Make	Unit	P/N	Description
Insight Instrument Corporation	GEM G4-001 Single	1200C-001	Single-engine primary EGT, CHT, TIT instrument
Insight Instrument Corporation	GEM G4-002 Twin	1200C-001	Twin-engine EGT, CHT, TIT instrument

The GEM G4 instrument is installed in the aircraft instrument panel. The installation is permitted only on eligible aircraft models equipped with compatible engine types.

The associated probes and transducers are installed as per Insight Doc. No. 070906, Installation Manual for GEM 610C-001, G4-001 and G4-002 and the respective aircraft installation manuals.

The temperature values are displayed numerically and as bar graphs. The displays dim automatically with the intensity of ambient light.

The instrument senses temperatures through thermocouple-type probes.

The GEM G4 is powered typically from the avionics bus and protected by a dedicated, trip-free, re-settable 1A circuit breaker. The instrument automatically adapts to either 14 or 28 V electrical systems.

The GEM G4 weight is 0.22 kg.

The GEM G4 instrument does not have adjustments or field-serviceable components. There is no scheduled maintenance prescribed by the manufacturer. For service the instruments must be returned to an authorized repair facility.

The following documents supplement information in this manual concerning the installation, use and removal of the components:

Document	Document No.	Title
Installation Manual	070906 Latest Revision	Installation Manual for GEM 610C-001, G4-001 and G4-002
Operation Instructions	070907 Latest Revision	Operating Instructions for GEM 610C-001, G4-001 and G4-002

B. ICA Distribution

This document and any revisions hereto, shall be distributed to the authorized users of the STC data or repair stations required to perform work on this aircraft. They will be distributed by courier, in electronic or paper format. The revisions will be distributed to responsible Transport Canada and FAA offices.

The STC holder is responsible for making these instructions available to any person required to comply with the terms of the instructions.

C. Aircraft/ Engine Applicability

These instruments may be used as EGT/CHT/TIT indicators instead of original factory installed systems, and those original systems may be removed.

The standard model instruments are intended for use with engines that have 450 – 475°F CHT red lines. This covers nearly all common Continental and Lycoming engines.

D. Supplement Identities: Chapter, Page, Paragraph Numbers

The supplement format follows the general requirements of specification ATA-100 with respect to Chapter and Title. However, since the extent of the supplement information is relatively small in scope, the page numbering for each chapter is consecutive. Reference can be made to the following Chapter/Subject Listing:

<u>Subject</u>	<u>Page Number</u>
Title page, Log of Amendments, List of Effective Pages and Table of Contents and Content page(s)	1, 2, 3, 4, etc
Paragraph or component titles are listed via	A., B., C., D. etc.

Sub-paragraphs are listed according to:

<u>Subject</u>	<u>Sub-Para. Number</u>
Description	1.0
Fault Isolation	101
(Reserved)	201
Servicing	301
Removal/Installation	401
Adjustment/Test	501
Inspection/Check	601
Cleaning/Painting	701
Approved Repairs	801
Storage	901

E. Abbreviations:

AMM	Aircraft Maintenance Manual
CB	Circuit Breaker
CHT	Cylinder Head Temperature
EGT	Exhaust Gas Temperature
TIT	Turbine Inlet Temperature
P/N	Part Number
STC	Supplemental Type Certificate
TCCA	Transport Canada Civil Aviation
TSO	Technical Standard Order
FAA:	Federal Aviation Authority

CHAPTER 4 – AIRWORTHINESS LIMITATIONS

General

The specified instrument is installed in the aircraft instrument panel. The installation is permitted only on eligible aircraft models equipped with compatible engine types.

The instrument is intended for use with engines that have 450 – 475°F CHT red lines. For the eligible aircraft/ engines refer to the STC-approved model list.

The GEM G4 instrument may be used as follows:

- a) As additional, non-required EGT/CHT/TIT indicators, or
- b) As primary EGT/CHT/TIT indicators instead of original factory-installed instruments, installed in the original instruments' locations (or another acceptable/ approved locations).

FAA Approval

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

CANADA	
DEPARTMENT OF TRANSPORT	
AIRCRAFT CERTIFICATION	
BRANCH	
OCT 26 2012	
APPROVED	
BY	<i>[Signature]</i>
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CHAPTER 5 – PERIODIC INSPECTIONS

SCHEDULED MAINTENANCE CHECKS

There are no scheduled maintenance checks of the GEM G4 instrument.

The instrument features a built-in test, which is started automatically on power-up. The built-in test will detect instrument's malfunctions. The malfunction of a probe or sensor is indicated by the digital numerical value being replaced by dashes: "---" and the corresponding bar graph is removed from the display.

Maintenance of the installation including temperature probes/ transducers should be accomplished as per the AMM, in accordance with applicable airworthiness standards.

No additional maintenance requirements are defined. Maintenance shall be on a "Condition Monitoring" basis; refer to FAA Procedures 8310.4, par. 3033. Any required maintenance must be accomplished by Insight Instrument Corporation maintenance staff. All maintenance functions will be accomplished using Maintenance Instructions for GEM G4 document number MI-1200C, latest revision.

CHAPTER 11 – PLACARDS AND MARKINGS

INTERIOR PLACARDS

No markings or placards are required.

CHAPTER 24 – ELECTRICAL POWER

DC ELECTRICAL LOAD DISTRIBUTION

A. General

The power supply in GEM G4 instrument offers normal operation from 8-33 VDC input so the instrument may be used interchangeably in either 14V or 28V airplanes.

(The GEM G4 Display automatically accommodates both 14 and 28 Volt electrical systems.)

The power is supplied as follows:

Equipment	Load	Circuit Breaker Rating	Power
GEM G4	2 W	1 A	14/ 28 VDC Bus

B. Removal

Refer to Insight document No. 070906, Installation Manual for GEM 610C-001, G4-001 and G4-002.

Removal should be accomplished as per the AMM, in accordance with applicable Airworthiness Standards.

C. Installation

Refer to Insight document No. 070906 – Installation Manual for GEM 610C-001, G4-001 and G4-002.

Installation including temperature probes/ transducers should be accomplished as per the AMM, in accordance with applicable airworthiness standards.

D. Troubleshooting

Troubleshooting of the installation including temperature probes/ transducers should be done as per Insight document No. 070906 – Installation Manual for GEM 610C-001, G4-001 and G4-002.

CHAPTER 77 – ENGINE INDICATION

A. General

The GEM G4 instrument is installed in the aircraft instrument panel. The installation is permitted only on eligible aircraft models equipped with compatible engine types. The instrument should be installed in place of the original factory-installed instruments, or another acceptable front panel location.

The GEM G4 instrument may be used as follows:

- As additional, non-required EGT/CHT/TIT indicators, or
- As primary EGT/CHT/TIT indicators (replacing the original factory-installed instruments)

The instruments are intended for use with engines that have 450 – 475°F CHT red lines. For the eligible aircraft/ engines refer to the STC-approved model list.

The temperature values are displayed numerically and as bar-graphs. The display dims automatically with the intensity of ambient light.

The GEM G4 engine instrument does not have adjustments or field-serviceable components. There is no scheduled maintenance prescribed by the manufacturer. For service the instruments must be returned to an authorized repair facility.

B. Removal

Refer to Insight document No. 070906 – Installation Manual for GEM 610C-001, G4-001 and G4-002.

Removal should be accomplished as per the AMM, in accordance with applicable airworthiness standards.

C. Installation

Refer to Insight document No. 070906 – Installation Manual for GEM 610C -001, G4-001 and G4-002.

Installation including temperature probes/ transducers should be accomplished as per the AMM, in accordance with applicable airworthiness standards.

D. Troubleshooting

Troubleshooting of the installation including temperature probes/ transducers should be done as per Insight document No. 070906 – Installation Manual for GEM 610C -001, G4-001 and G4-002.

Appendix A

Insight drawings –

Included in Insight document No. 070906 – Installation Manual for GEM 610C-001,
G4-001 and G4-002.