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# INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

## FOR

### 28 to 14 VDC POWER CONVERTER



## FOR

### EUROCOPTER MODEL EC135 HELICOPTERS

**Report No.: ICA203-4**

**STC No.: SRXXXXSE**

APPROVED BY: C. Bonar

Rev. N/C      DATE: 07/02/2013

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<b>SUBJECT</b>	<b>REF.DRAWING NO.</b>	<b>REPORT NO.</b>
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### DETAILS OF REVISIONS

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### RECORD OF SERVICE BULLETINS

<u>S/B NO.</u>	<u>DATE</u>	<u>DESCRIPTION</u>
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None



SUBJECT

REF.DRAWING NO.

REPORT NO.

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

GA203

ICA203-4  
Rev. N/C  
07/02/2013

## LIST OF EFFECTIVE PAGES

<u>Title</u>	<u>Page</u>	<u>Revision No.</u>
Cover	1	N/C
Details of Revisions	2	N/C
Record of Service Bulletins	2	N/C
List of Effective Pages	3	N/C
Table of Contents	4	N/C
List of Figures	5	N/C
List of Applicable Documents	5	N/C
Section 1.0 <u>Introduction</u>	6-7	N/C
Section 2.0 <u>Airworthiness Limitations</u>	8	N/C
Section 3.0 <u>Inspection Requirements and Overhaul Schedule</u>	8	N/C
Section 4.0 <u>Power Converter Removal, Inspection and Re-Installation</u>	9-10	N/C
Section 5.0 <u>Cable Maintenance</u>	11-13	N/C
Section 6.0 <u>System Testing</u>	14	N/C
Section 7.0 <u>Weight and Balance</u>	14	N/C



SUBJECT	REF.DRAWING NO.	REPORT NO.
INSTRUCTIONS FOR CONTINUED AIRWORTHINESS	GA203	ICA203-4 Rev. N/C 07/02/2013

## TABLE OF CONTENTS

SECTION 1.0	INTRODUCTION.....	6
1.1	SCOPE .....	6
1.2	PURPOSE .....	6
1.3	REVISION CONTROL PROCEDURE .....	6
1.4	SERVICE DIFFICULTY REPORTING .....	6
1.5	APPLICABILITY .....	6
1.6	ABBREVIATIONS AND UNITS OF MEASURE .....	6
1.7	ORIENTATION .....	6
1.8	PRECAUTIONS .....	7
1.9	DISTRIBUTION.....	7
1.10	DESCRIPTION.....	7
SECTION 2.0	AIRWORTHINESS LIMITATIONS .....	8
SECTION 3.0	INSPECTION REQUIREMENTS AND OVERHAUL SCHEDULE .....	8
3.1	INSPECTION REQUIREMENTS .....	8
3.2	OVERHAUL SCHEDULE .....	8
SECTION 4.0	POWER CONVERTER REMOVAL, INSPECTION AND RE-INSTALLATION.....	9
4.1	POWER CONVERTER REMOVAL .....	9
4.2	POWER CONVERTER INSPECTION .....	9
4.3	POWER CONVERTER REINSTALLATION.....	9
SECTION 5.0	CABLE MAINTENANCE.....	11
5.1	CABLE MAINTENANCE .....	11
5.2	GROUND WIRE INSTALLATION.....	12
5.3	PIN DESIGNATION .....	13
SECTION 6.0	SYSTEM TESTING .....	14
6.1	SYSTEM TESTING.....	14
SECTION 7.0	WEIGHT AND BALANCE.....	14



SUBJECT

REF.DRAWING NO.

REPORT NO.

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

GA203

ICA203-4  
Rev. N/C  
07/02/2013

## LIST OF FIGURES

<b>Identification and Title</b>	<b>PAGE</b>
Figure 1: Chassis Footprint Dimensions .....	10
Figure 2: Chassis Profile Dimensions .....	10
Figure 3: Cable Wiring .....	11
Figure 4: Ground Detail .....	12
Figure 5: Pin Designation .....	13

## LIST OF APPLICABLE DOCUMENTS

<b>Document Number</b>	<b>Description</b>
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None



SUBJECT

REF.DRAWING NO.

REPORT NO.

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

GA203

ICA203-4  
Rev. N/C  
07/02/2013

## **Section 1.0      Introduction**

### **1.1      Scope**

This manual provides description, operation, removal, inspection, and installation, for the 28 - 14 VDC Power Converter.

### **1.2      Purpose**

The purpose of this manual is to maintain the 28 - 14 VDC Power Converter in peak operating efficiency with the greatest service life.

### **1.3      Revision Control Procedure**

All revisions to this document shall be identified in the Details of Revisions. All pages will be summarized on page 2, "List of Effective Pages."

### **1.4      Service Difficulty Reporting**

A record of sales shall be maintained by Geneva Aviation. Any changes to these instructions resulting from service difficulties (ref: 14 CFR § 21.3) shall be distributed to all previous recipients.

### **1.5      Applicability**

This manual shall be used to maintain the 28 - 14 VDC Power Converter for Eurocopter EC135 series Helicopters.

### **1.6      Abbreviations and Units of Measure**

in	=	inches
lbs	=	pounds
P/N	=	part number
I/N	=	item number
LH	=	left hand
RH	=	right hand

### **1.7      Orientation**

All references to direction, such as left, right, up, down, forward and aft, are in reference to the airframe. Forward is toward the nose of the aircraft, etc.



SUBJECT	REF.DRAWING NO.	REPORT NO.
INSTRUCTIONS FOR CONTINUED AIRWORTHINESS	GA203	ICA203-4 Rev. N/C 07/02/2013

## 1.8 Precautions

The following precaution definitions will be used to indicate the seriousness of the hazard or condition.

**WARNING:** May be a maintenance procedure, practice, condition, etc., which could result in personal injury or loss of life.

**CAUTION:** May be a maintenance procedure, practice, condition, etc., which could result in damage or destruction of equipment.

**NOTE:** May be a maintenance procedure, practice, condition, etc., or a statement that needs to be highlighted

## 1.9 Distribution

This manual will be distributed to end users (or their mechanics or maintenance departments). A copy of this ICA shall be provided by Geneva Aviation with each kit sold.

## 1.10 Description

The Geneva Aviation 28 - 14 VDC Power Converter comes in two amperage ratings: The P168 (G12980) 20 Amp Power Converter and the P174 (G13053) 27 Amp Power Converter. Both the P168 and P174 are identical in form factor, weight and installation instructions.

The Power Converter is used to provide power to non-essential 12 VDC devices (accessories). This STC does not approve the installation of these other devices and it is the installer's responsibility to obtain the proper approval for their installation.

The Power Converter includes a trim pot that may be adjusted through an access hole in the side in order to adjust the output voltage from 12 – 15.5 VDC to suit the device that is being powered.

There are no restrictions as to the quantity of power converters installed. However, it is the installer's responsibility to verify that the installation of this device does not interfere with other equipment installed and to perform an electrical analysis to verify that the aircraft accessory buss can support the installation of the power converter.



SUBJECT

REF.DRAWING NO.

REPORT NO.

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

GA203

ICA203-4  
Rev. N/C  
07/02/2013

## **Section 2.0 Airworthiness Limitations**

There are no Airworthiness Limitations associated with the STC.

The Airworthiness Limitation Section is FAA approved and specifies inspections and other maintenance required under 14 CFR Part 43.16 and 91.403 of the Federal Aviation Regulations unless an alternative program has been FAA approved.

## **Section 3.0 Inspection Requirements and Overhaul Schedule**

### **3.1 Inspection Requirements**

#### **3.1.1 500 Hour Inspection**

Inspect all cable connectors, fasteners and hardware for security and condition.

#### **3.1.2 2 year / 2000 hour Inspection**

- a. Remove the 28 - 14 VDC Power Converter from the aircraft. See Section 4.0.
- b. Inspect all metal components for damage and corrosion. If damage or excessive corrosion is found, replace the affected parts per Section 4.0  
Corrosion that has penetrated more than 0.01" is cause for replacement of sheet metal components.
- c. Inspect system cabling for damage, loose connectors and chafing. If damaged refer to Section 5.0 for instructions for repairing cabling.

### **3.2 Overhaul Schedule**

There is no Overhaul Schedule for this kit.





SUBJECT

REF.DRAWING NO.

REPORT NO.

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

GA203

ICA203-4  
Rev. N/C  
07/02/2013

## **Section 4.0      Power Converter Removal, Inspection and Re-Installation**

### **4.1      Power Converter Removal**

- a. Disconnect cable connector from the Power Converter.
- b. Disconnect (4) #8-32 screws securing the Power Converter to the mounting structure.

### **4.2      Power Converter Inspection**

- a. Carefully inspect the Power Converter for signs of damage, cracks, or corrosion. Any corrosion that has penetrated the base metal by more than .01 inches is cause for replacement.
- b. The Power Converter contains no user serviceable internal components. Do not disassemble Power Converter or the factory warranty will be voided. Return the unit to Geneva Aviation for service.

### **4.3      Power Converter Reinstallation**

- a. The Power Converter is designed to be mounted in a variety of locations within the airframe, provided it is protected from the environment. It may be mounted to a deck, bulkhead, tray, avionics shelf or other structure rated to carry a 1.50 lb load. The exact mounting location is left to the installer's discretion provided that the installation of the Power Converter does not interfere with other equipment installed.
- b. Mount the Power Converter using (4) #8-32 screws, washers and locknuts or nutplates. When mounting into composite structure, #8-32 potted inserts should be used.
- c. Unless otherwise specified, follow aircraft manufacturer's standard practices and maintenance manuals for installation of all hardware.
- d. Maintain a minimum 2 e/d edge margin for all installed fasteners.

SUBJECT

REF.DRAWING NO.

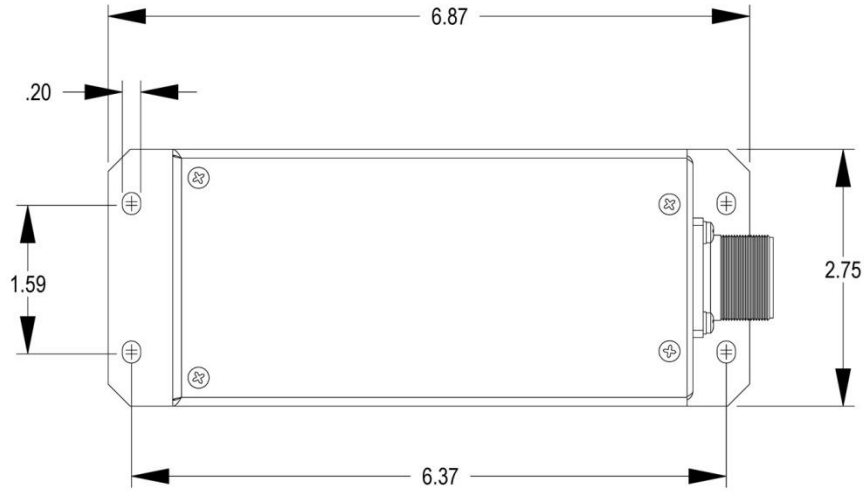
REPORT NO.

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

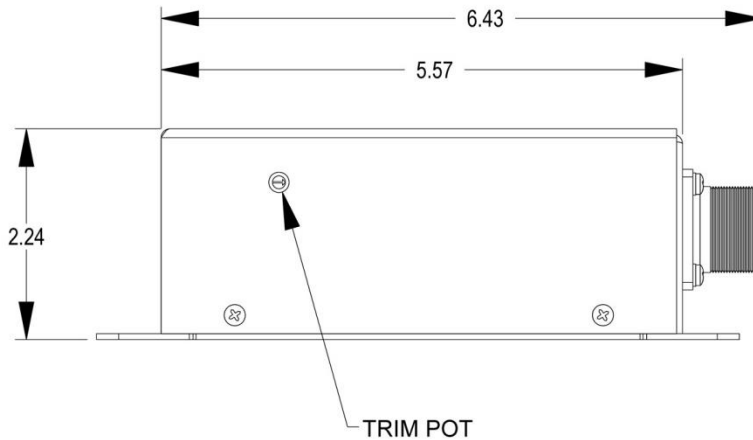
GA203

ICA203-4  
Rev. N/C  
07/02/2013

- e. Refer to Figure 1 and Figure 2 and for Power Converter reference dimensions that may be used when planning the installation.



**Figure 1: Chassis Footprint Dimensions**



**Figure 2: Chassis Profile Dimensions**

SUBJECT

REF.DRAWING NO.

REPORT NO.

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

GA203

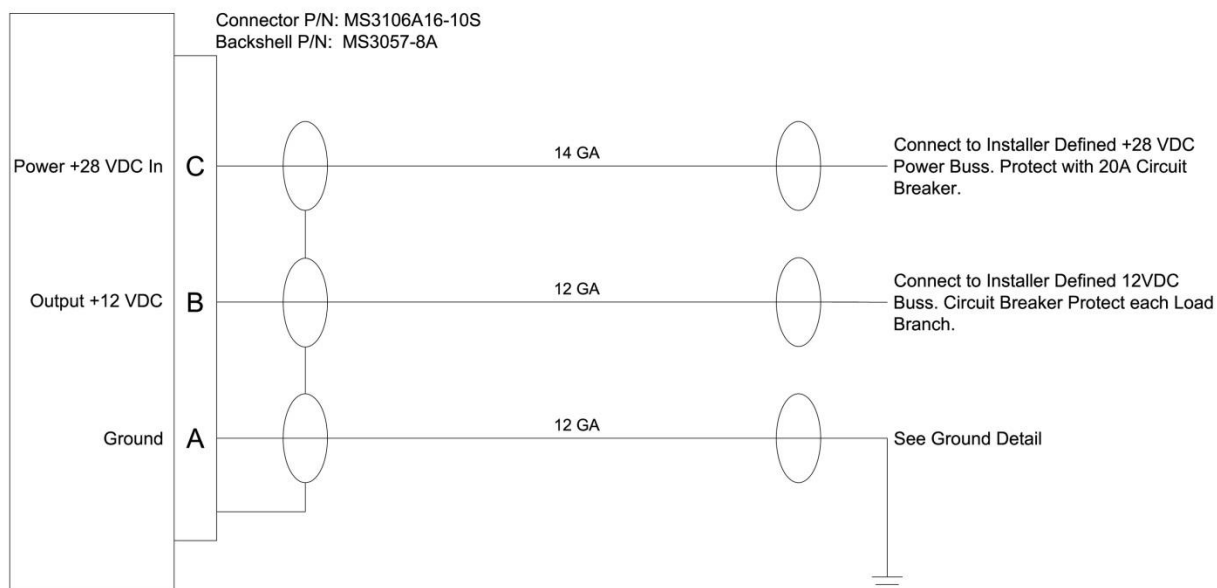
ICA203-4  
Rev. N/C  
07/02/2013

## Section 5.0 Cable Maintenance

### 5.1 Cable Maintenance

- a. Unless otherwise specified, follow the aircraft manufacturer's electrical wiring practices and maintenance manuals for installation of all system wiring.
- b. Refer to Figure 3 for cable harness fabrication instructions.
- c. Unless otherwise noted, all shielded wire is M27500-(ga)TG(n)T14 and all unshielded wire is M22759/16-(ga)-9, where (ga) is the wire gauge and (n) is the number of wires inside the shield.
- d. Unless otherwise noted, all wire is 22 GA.
- e. Route all system cabling through existing cable runs.
- f. Secure all cabling using nylon cable ties and/or cable clamps using standard practices.

Geneva Aviation G12980 or G13053  
28 to 14 VDC Voltage Converter



**Figure 3: Cable Wiring**

SUBJECT

REF.DRAWING NO.

REPORT NO.

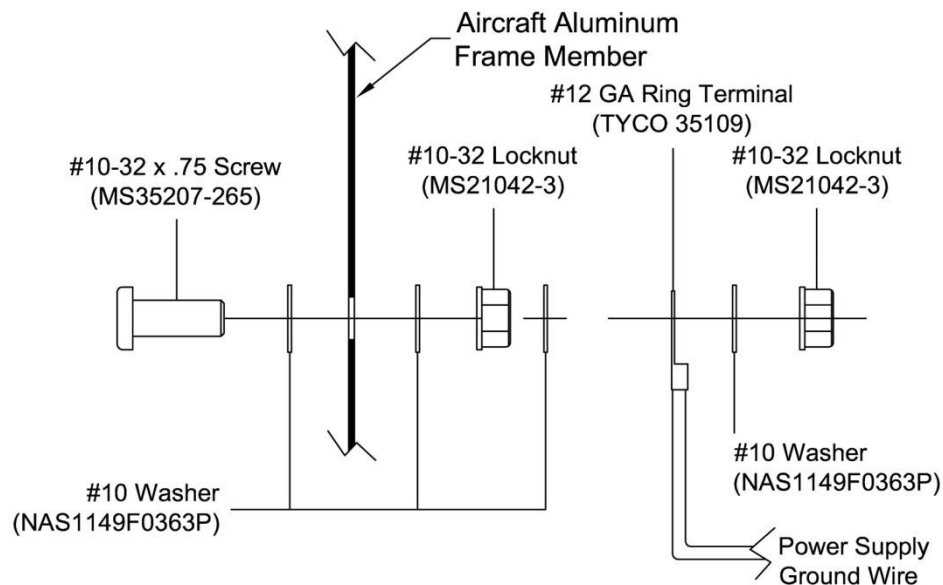
INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

GA203

ICA203-4  
Rev. N/C  
07/02/2013

## 5.2 Ground Wire Installation

- a. Refer to Figure 4 for Ground wire installation. All Bonding and Grounding will be In accordance with AC 43.13-1B, Chapter 11, Section 15.
- b. Locate the nearest Factory Ground Block at a location that is clear of all riveted webbing by a minimum of 3" and mark this location.
- c. Drill a hole  $\varnothing.201$  through the frame. Maintain minimum 2 e/d edge margin.
- d. Burnish both sides of frame at hole.
- e. Etch Alodine both burnished surfaces to prevent corrosion.
- f. After assembly of ground point and connection of terminal, apply a coating of Vernilac or other suitable lacquer to ensure corrosion protection.



**Figure 4: Ground Detail**

SUBJECT

REF.DRAWING NO.

REPORT NO.

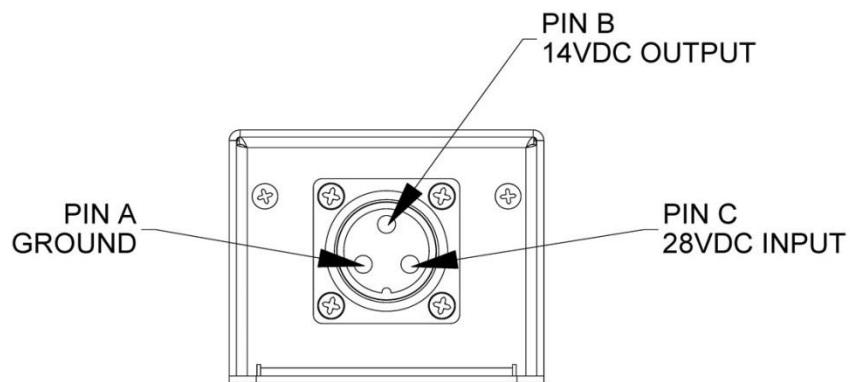
INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

GA203

ICA203-4  
Rev. N/C  
07/02/2013

### 5.3 Pin Designation

- a. Refer to Figure 5 for Power Converter pin designation.



**Figure 5: Pin Designation**



SUBJECT

REF.DRAWING NO.

REPORT NO.

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

GA203

ICA203-4  
Rev. N/C  
07/02/2013

## **Section 6.0**      **System Testing**

### **6.1**      System Testing

- a. Before applying power, perform a continuity check of all power and ground leads to confirm they are connected properly.
- b. Test power output of Power Converter by applying input power to Pin C and measuring voltage level output on Pin B using a voltage meter.
- c. Adjust voltage level to desired value by turning trim pot on side of converter.
- d. Connect to 12VDC device and test for proper operation. Re-adjust voltage if required under load.

## **Section 7.0**      **Weight and Balance**

Weight of the power converter and mounting hardware = 1.50 lbs.

The arm will depend on the exact location that it is installed.

The installer will record the location for the power converter along with its installed weight on the aircraft's weight and balance record.