



19717 62nd Ave. South
Suite E-101, Kent, WA 98032
PH: (800) 546-2210 FAX: (800) 546-2220
Website: www.genevaaviation.com/

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

FOR

28 to 14 VDC POWER CONVERTER



FOR

AIRBUS HELICOPTERS DEUTSCHLAND BK-117 (EC145) SERIES HELICOPTERS

Report No.: ICA204-2

APPROVED BY: C. Bonar

Rev. N/C DATE: 06/03/2014

This technical data package being provided to the FEDERAL AVIATION ADMINISTRATION (FAA)
It includes, but is not limited to drawings, specifications and other technical data attached hereto and are the
Property of Geneva Aviation (GA) and constitute trade secrets for the purpose of the Trade Secrets and Freedom of Information Act.
Disclosures to any party for any reason without the permission of GA is prohibited, except that disclosures may be made within the
FAA's organization consistent with the need to evaluate GA's technical data.



SUBJECT	REF.DRAWING NO.	REPORT NO.
INSTRUCTIONS FOR CONTINUED AIRWORTHINESS	GA204	ICA204-2 Rev. N/C 06/03/2014

DETAILS OF REVISIONS

<u>REV.</u>	<u>DATE</u>	<u>PAGE</u>	<u>DESCRIPTION</u>	<u>APPROVED</u>
N/C	06/03/2014	All	Initial Release	C. Bonar

RECORD OF SERVICE BULLETINS

<u>S/B NO.</u>	<u>DATE</u>	<u>DESCRIPTION</u>
----------------	-------------	--------------------

None



SUBJECT	REF.DRAWING NO.	REPORT NO.
INSTRUCTIONS FOR CONTINUED AIRWORTHINESS	GA204	ICA204-2 Rev. N/C 06/03/2014

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>	11-12	N/C
Section 6.0 <u>System Testing</u>	13	N/C
Section 7.0 <u>Weight and Balance</u>	13	N/C



SUBJECT	REF.DRAWING NO.	REPORT NO.
INSTRUCTIONS FOR CONTINUED AIRWORTHINESS	GA204	ICA204-2 Rev. N/C 06/03/2014

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	PIN DESIGNATION	12
SECTION 6.0	SYSTEM TESTING	13
6.1	SYSTEM TESTING.....	13
SECTION 7.0	WEIGHT AND BALANCE.....	13



SUBJECT	REF.DRAWING NO.	REPORT NO.
INSTRUCTIONS FOR CONTINUED AIRWORTHINESS	GA204	ICA204-2 Rev. N/C 06/03/2014

LIST OF FIGURES

Identification and Title	PAGE
Figure 1: Chassis Footprint Dimensions	10
Figure 2: Chassis Profile Dimensions	10
Figure 3: Cable Wiring	11
Figure 4: Pin Designation	12

LIST OF APPLICABLE DOCUMENTS

Document Number	Description
------------------------	--------------------

None



SUBJECT

REF.DRAWING NO.

REPORT NO.

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

GA204

ICA204-2
Rev. N/C
06/03/2014

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 Airbus Helicopters Deutschland BK-117 (EC145) 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	GA204	ICA204-2 Rev. N/C 06/03/2014

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

GA204

ICA204-2
Rev. N/C
06/03/2014

Section 2.0 Airworthiness Limitations

There are no Airworthiness Limitations associated with the STC.

The Airworthiness Limitation Section is FAA approved and specifies maintenance required under Part 43.16 and 91.403 of Federal Regulations unless an alternate 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

GA204

ICA204-2
Rev. N/C
06/03/2014

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

GA204

ICA204-2
Rev. N/C
06/03/2014

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

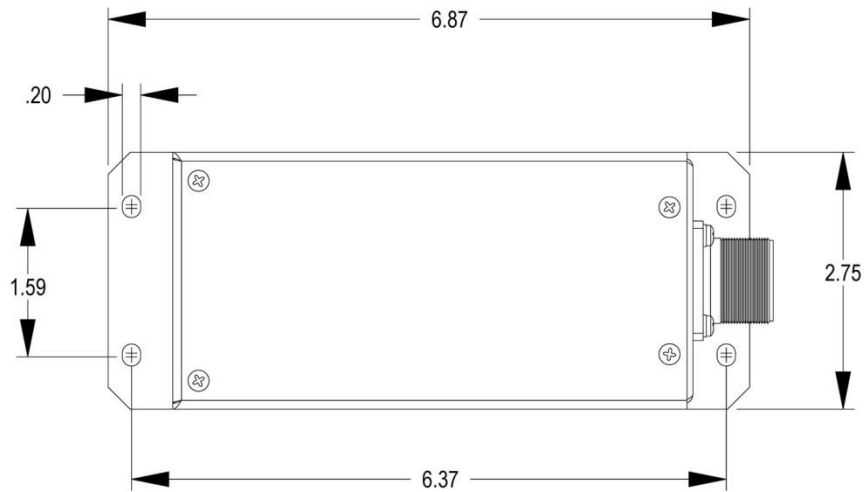


Figure 1: Chassis Footprint Dimensions

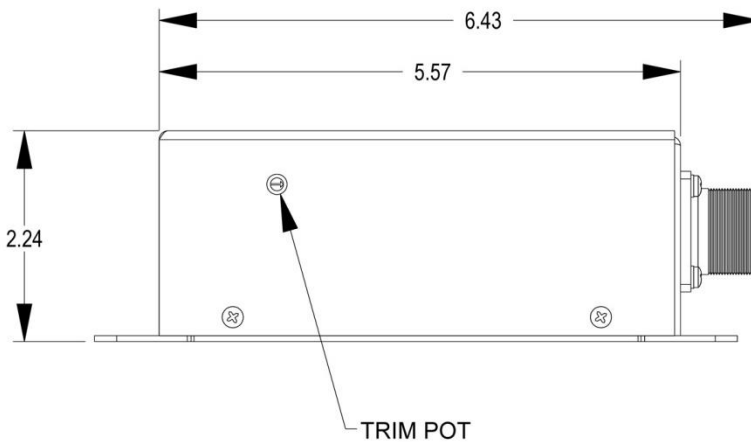


Figure 2: Chassis Profile Dimensions

SUBJECT

REF.DRAWING NO.

REPORT NO.

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

GA204

ICA204-2
Rev. N/C
06/03/2014

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. The circuit breaker must have a 20 amp rating. Use MS3320-20 or refer to the Aircraft Maintenance Manual for the appropriate circuit breaker part number for the bus that the power supply is being connected to.
- f. Route all system cabling through existing cable runs.
- g. 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

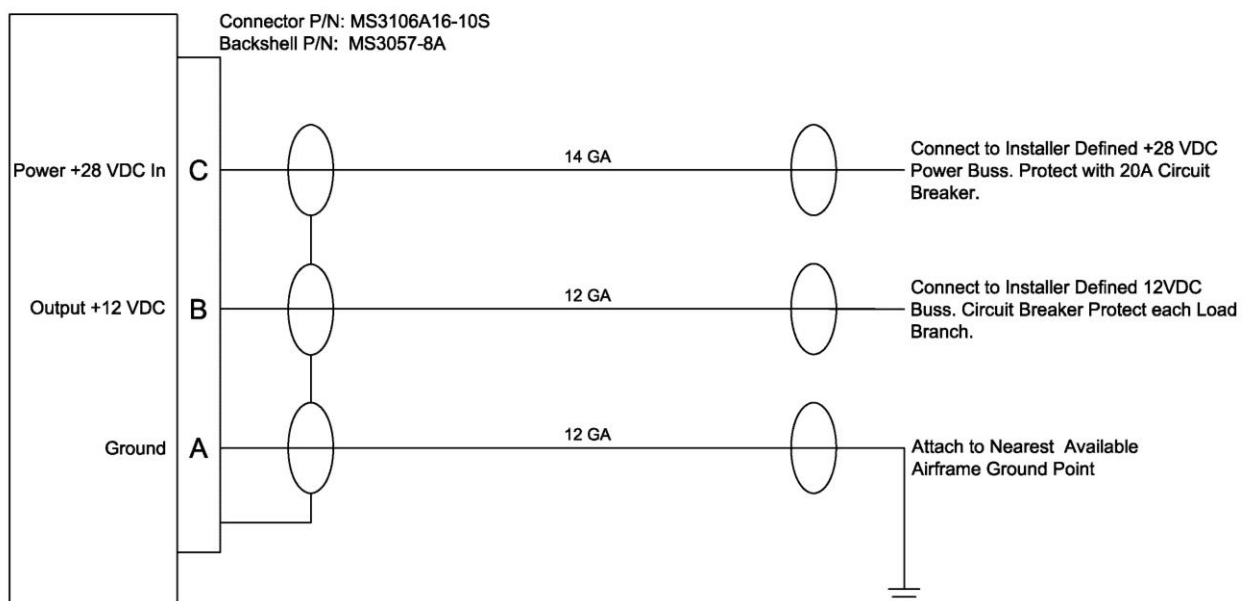


Figure 3: Cable Wiring

SUBJECT

REF.DRAWING NO.

REPORT NO.

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

GA204

ICA204-2
Rev. N/C
06/03/2014

5.2 Pin Designation

- a. Refer to Figure 4 for Power Converter pin designation.

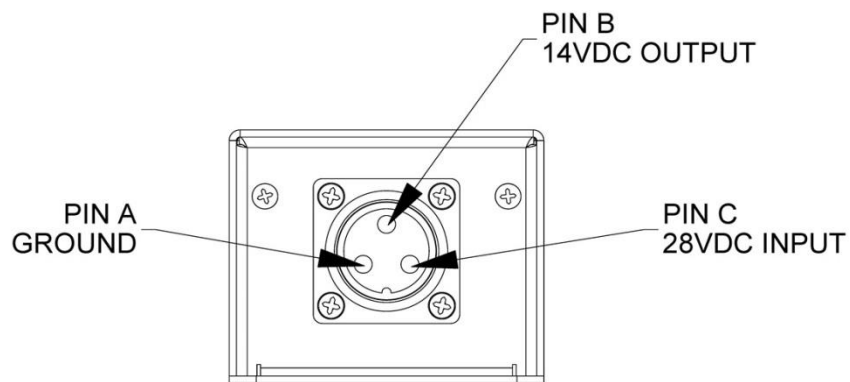


Figure 4: Pin Designation



SUBJECT

REF.DRAWING NO.

REPORT NO.

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

GA204

ICA204-2
Rev. N/C
06/03/2014

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.