

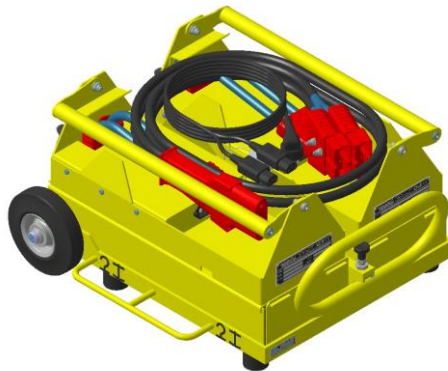
GB713-045-650

TECHNICAL MANUAL

**GROUND POWER UNIT PORTABLE
GB2700QC 26 VDC - TWIN PACK**

P/N GB713-045-650

TECHNICAL MANUAL



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THE ANNEX: "Lithium SDS Rev Jan 2017 Start Pac" safety data sheet IS AN INTEGRAL PART OF THIS MANUAL

Upon receipt of the second and subsequent changes to this manual, personnel responsible for maintaining this publication in current status will ascertain that all previous changes have been received and incorporated. Action should be taken promptly if the publication is incomplete.

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! WARNING !

HIGHT VOLTAGE

Prior connecting power supply electrical cables

To a power source, be sure all electrical switches Are in OFF position

Do not insert any metal object into any receptacle of this unit, as severe injury may result



In the distribution of electricity for civil or industrial use, such as in electrical systems of aircraft, lethal levels of voltage are present. When an operator is in contact with the Ground Power Unit or parts to which a voltage is applied, there is a danger of electric shock. An example could be any cable with damaged insulation.

Do not attempt to access the interior of the Unit while power is applied.

SAFETY MEASURES:

- Connect the test equipment to an electrical source equipped with power circuit braker and is properly grounded.
- Use only the original connection cables, and check that the insulation is not damaged
- Be sure the test unit is grounded before connect the Ground Power Unit .
- In case of Maintenance all power supply cables must be disconnected.

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SECTION I

INTRODUCTION

1.1 GENERAL

This technical manual provides operations, service and repair instructions for the GROUND POWER UNIT PORTABLE GB2700QC 26 VDC - TWIN PACK, identified by **P/N GB713-045-650**, (in the following only **GPU**) designed and manufactured by: GB. BARBERI s.r.l. - Via Rosselli N° 30 – Sesto Calende (Va) – ITALY.

This manual is composed of Five sections:

SECTION I - Introduction

In this section the GPU is shortly described, specifying its purpose and main characteristics.

SECTION II – Preparation for the use – Shipment

This section contains all the instructions to prepare the GPU for use, and all the information necessary for a proper shipment.

SECTION III – Operation Instructions

This section contains all the operation instructions for personnel and operators.

SECTION IV - Safety

This section contains the safety devices of the GPU.

SECTION V – Maintenance and Troubleshooting

This section contains instructions for a correct maintenance, procedures for calibration and troubleshooting.

1.2 PURPOSE

The purpose of this Manual is to inform about the correct use of the GPU, identified by **P/N GB713-045-650**, to indicate its main technical characteristics, to allow managing its scheduled and not scheduled maintenance, and enable an easy troubleshooting. It can also be used for training personnel responsible for performing operational, organizational, direct support, and general support maintenance of the Ground Power Unit.

1.2.1 Who this Manual is addressed to

Individuals installing, operating and providing maintenance to the Ground Power Unit, should read and follow the steps outlined within this manual, Read the Preparation for use chapter, before installation. Before operating the unit read the entire chapters of this manual.

1.2.2 Limits

By considering the skills needed in the operational field of the GPU, the operating personnel must have an adequate and specific training, that this manual cannot replace, but only integrate.

This Manual contains indications and instructions relating the employment of the GPU, those instructions doesn't replace any standards and prescriptions, decrees or laws, both general and specific, in force in the Country where the equipment is in use.

It's anyway appropriate, that operators follow the instructions contained in this manual.

Company GB BARBERI s.r.l. it's free of any responsibility in case this product isn't employed in conformity with the instructions of this manual or in case of incorrect use, maintenance or installation.

1.2.3. Where and How to keep this Manual

The Manual must be always at disposal of personnel during the employment of the GPU.

It must be kept in a well identifiable and easily accessible position, in the documents box or near the product, well protected from the atmospheric agents, which could deteriorate it.

1.2.4. Updating

The Manual is handed along with the GPU, and refers to the product in the original configuration.

In case of replace of components and improvements, this manual cannot be considered inadequate, but it must be updated with the additional pages supplied by the manufacturer.

1.3 CE Marking

The CE marking is placed to guarantee that the design, engineering and manufacture of this product has been carried out in compliance with 42/2006/EEC Machines Standards.

1.3.1 CE Marking Plate.

Along with the "CE" symbol, a plate is applied, which identifies both the manufacturer, by indicating its logo and address, and the product, by indicating the P/N, the S/N, and the date of manufacture.

1.3.2 Position of the Plate

The CE marking must be in a well visible place on the equipment. In the case of the GPU, the “CE” marking is located on the identification plate of the product; this plate indicates the P/N and the S/N.

1.4 GENERAL INFORMATIONS

1.4.1. Purpose

The GPU is composed by advanced technology lithium batteries. These batteries are designed to deliver high amperage for starting turbine and piston engines. In particular, the GPU provides Ground Power for aircraft or equipment with a peak current of 2400 AMPS at a voltage of 26 V DC.

1.4.2 Description

The GPU is a completely self contained and portable unit, which require only an external electrical power source for recharging the batteries.

The GPU (Fig. 1.1) is composed by:

1 – NR 1 trolley with telescopic handle	P/N GB263-400-316
2 – NR 2 lithium batteries mod: Li2700QC	P/N GB713-045-932
3 – NR 1 power supply cable with double plug	P/N GB732-770-870
4 – NR 1 Input cable with double plug	P/N GB732-770-472
5 – NR 1 Protective cover	P/N GB269-500-064

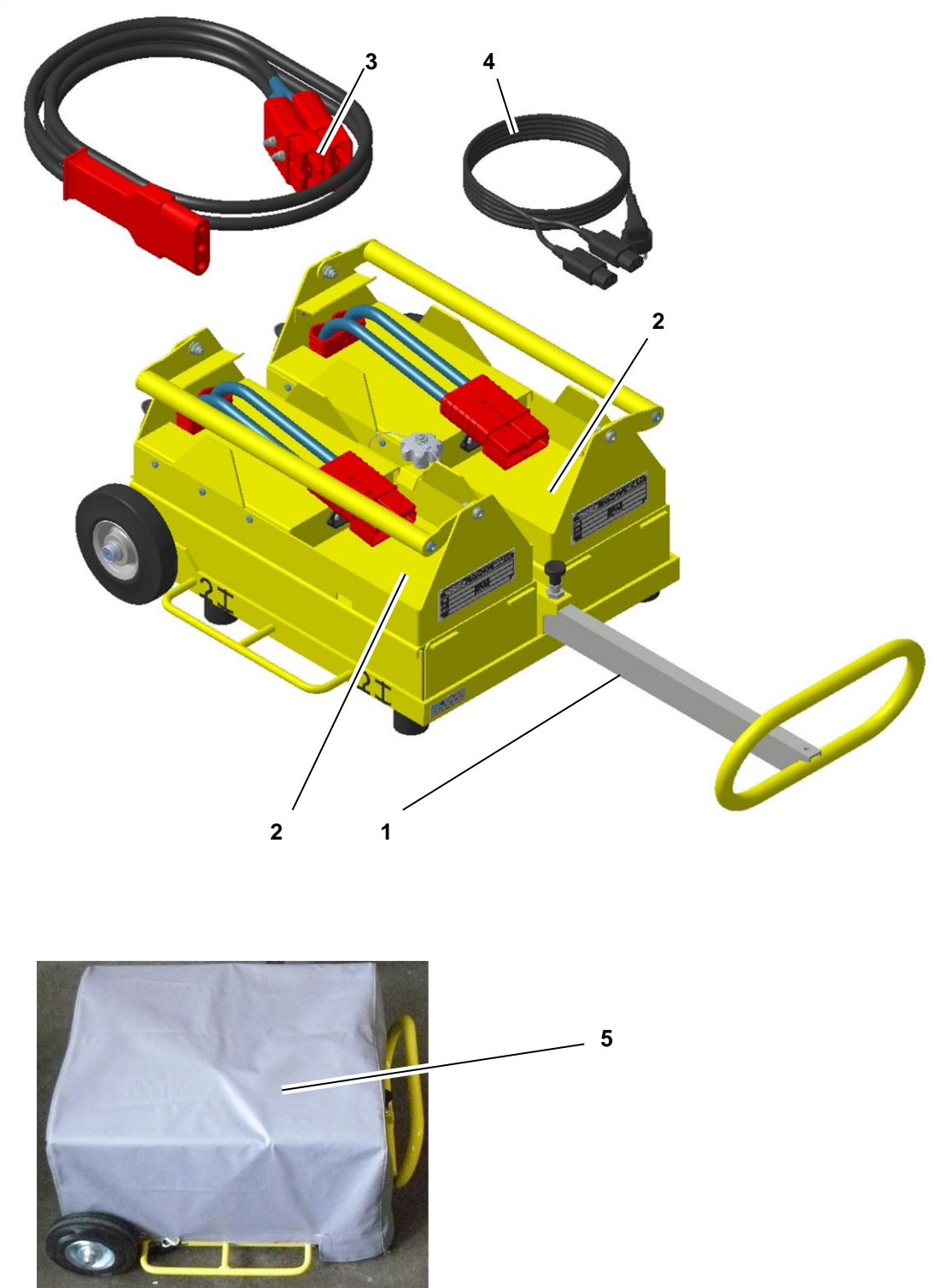


Fig. 1.1 GROUND POWER UNIT PORTABLE GB2700QC 26 VDC - TWIN PACK

1.5 MAIN CHARACTERISTICS

The main characteristics of the GPU are listed in Table 1.1.

Table 1.1 - Main Characteristics

DIMENSIONS

Length	563 mm
Width	528 mm
Height	279 mm
Weight	46 Kg

ELECTRICAL DATA:

Capacity.....	31 AMP hours @ 10 Hour rate X 2
Voltage	26 V DC
Peak current	2400 AMPS

ENVIRONMENTAL DATA

Temperature Range.....	0°C to +40°C
Relative Humidity	10 – 95 %

STANDARD EQUIPMENT

Power cable (INPUT).....	2,5 mt – socket 230V
Power supply cable (OUTPUT).....	2 mt

SECTION II

PREPARATION FOR USE - SHIPMENT

2.1 PREPARATION FOR USE

2.1.1 Unpacking

The GPU is supplied complete with standard equipment and is delivered in a suitable condition to be moved and stored. The packaging and protection against weather conditions vary from time to time according to the contract of supply.

2.1.2 Preliminary inspections

Check that the GPU has not been damaged during transportation, particularly ascertain that:

- **Perform a visual** inspection of the GPU and check no damages have been occurred during transport and / or storage;
- **Check** the electrical cables to assure the correct conditions;

2.1.3 Preliminary operations

The workplace of the GPU must have sufficient natural light or must be provided with adequate artificial light and ventilation to ensure the health and safety of the users.

The lighting must comply with the laws in force in the country where using the GPU. The lighting must provide good visibility of the area of use and do not create dangerous reflection. Therefore, we recommend a value of illumination no less than 250-300 Lux/mt.

The work area must be kept dry, clean and free of obstructions.

2.2 PREPARATION FOR STORAGE

The temperature range for a correct storage is +0°C to +40°C.

Prepare the GPU for storage as follows:

- Carefully clean GPU and protect it with a suitable cover.
- Attach to the GPU, in a visible place, a plate with all necessary information which may assist personnel.
- Once that the above operations have been performed the GPU can be stored
- **Please Note:** Lithium Ion Batteries can be damaged by deep discharges. To avoid damages, do not run batteries down 23 Volts, and keep batteries in charge during storage.

2.3 PREPARATION FOR SHIPMENT

Prepare the GPU for shipment as follows:

- Carry out procedures as per par. 2.2.
- If necessary, place the GPU in a suitable wood box. Be sure to block the wheels with wheel chocks.

SECTION III

OPERATION INSTRUCTIONS

3.1 PRELIMINARY OPERATIONS

Before operating the GPU, perform all required checks detailed in paragraph 2.1.2 and 2.1.3.

Before Every use, also check that the periodic maintenance program defined in paragraph 5.2, has been followed.

3.2 AIRCRAFT STARTING (REF. FIG. 3.1)

- Ensure that the GPU is fully charged.

- Ensure that all aircraft systems are offline.

- Connect the outlets of the 2 batteries (Fig. 3.1 pos. 1) to the plugs of the output cable (Fig. 3.1 pos. 2).

- Connect the Output Plug (Fig. 3.1 pos. 3) of the GPU to the Aircraft receptacle

- Go through start procedure normally.

- Disconnect the GPU from the aircraft and recharge.

3.3 GPU CHARGING (REF. FIG. 3.1 AND FIG. 3.2)

- Recharge the GPU: connect the sockets of the 2 batteries (Fig. 3.1 pos. 4) with the plugs of the input cable (Fig. 3.1 pos. 5), then plug the input cable into AC wall source.

- check the 2 Leds on the sides of the 2 lithium batteries (Fig. 3.2 pos. 1): If the leds are orange the batteries are charging; if the leds are green the batteries are recharged.

NOTE

When fully charged all the 4 leds should be green!

NOTE

Recharge batteries after each use. It is recommended that the GPU remain plugged into the AC wall source at all times when not being used.

! ATTENTION !

Powering avionics for extended periods can cause deep discharge and damage the battery. Do not allow the GPU voltage to go below 23 VDC if performing these functions.

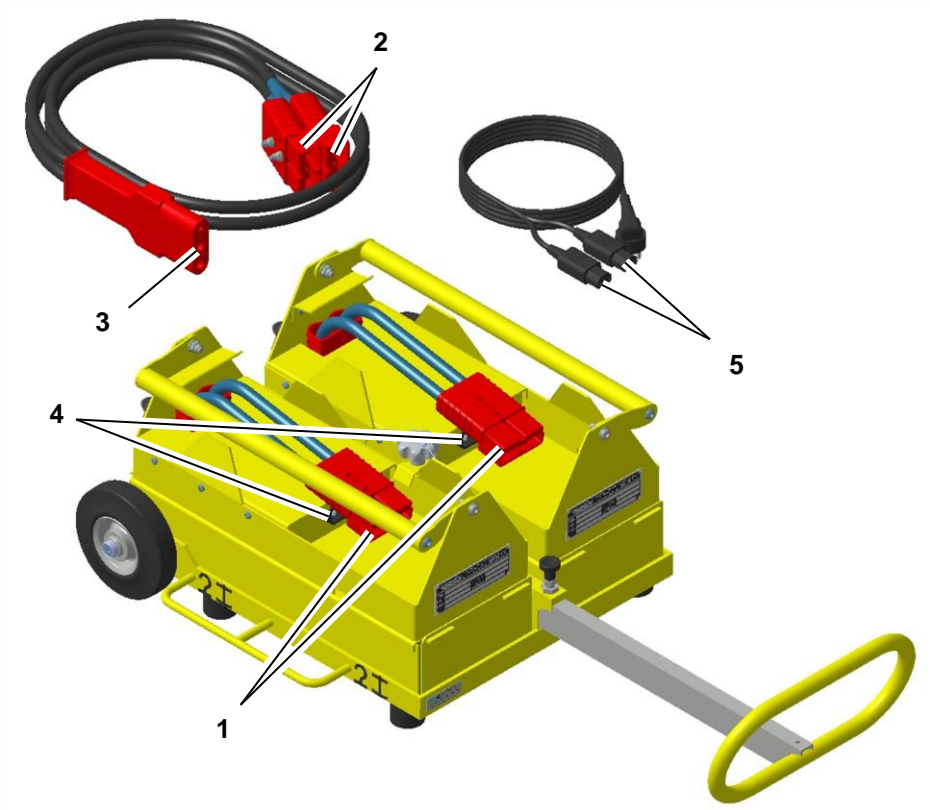


Fig. 3.1 GPU OPERATION



Fig. 3.2 LED

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SECTION IV

SAFETY

4.1 SAFETY

The GPU is equipped with the following safety features:

- 1) Fully sealed, liquid free batteries.
- 2) The power cables can be manually disconnected by pulling the power cables out of the GPU connectors.
- 3) Connectors which prevent accidental reverse polarity connections.
- 4) See the battery SAFETY DATA SHEET “Lithium SDS Rev Jan 2017 Start Pac” attached

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SECTION V

MAINTENANCE – TROUBLESHOOTING

5.1 GENERAL

This section contains information to ensure a proper maintenance of the GPU, and contains the instructions for an easy troubleshooting. To keep the product in perfect conditions it's necessary to carefully follow all the recommendations contained in this section.

! DANGER !

Electric Shock Hazard. Before any maintenance operation be sure no power is applied to the GPU.

Disconnect the external INPUT power cable.

Disconnect the OUTPUT power cable from the aircraft.

Attention

Components damaged or not efficient must be replaced (not repaired) immediately and the entire unit must be submitted to a careful inspections before using it again.

Attention

All components that present even minimum permanent deformation must be immediately replaced and the unit must be submitted to a careful inspections before using it again.

Attention

Company GB BARBERI s.r.l. declines any responsibility if the GPU is used over the limits previewed by the project.

Barberi's firm declines any responsibility, also for legal aspect or in concern with the safety responsibility regulations in force and declines any responsibility on the behalf of the builder for damages due to the use of the product when the product itself hasn't been subjected to the periodical maintenance (Ref. Table 5.1) or if the product has been serviced by firms which haven't been authorized by the manufacturer.

5.2 PERIODIC MAINTENANCE

The GPU must be subjected to the periodical maintenance operations listed in Tab. 5.1, to guarantee the functionality and safety for operators and aircrafts.

! DANGER !

Electric Shock Hazard. Before any maintenance operation be sure no power is applied to the GPU.

Disconnect the external INPUT power cable.

Disconnect the OUTPUT power cable from the aircraft.

Do not insert any metal objects into any receptacle on this unit, as severe injury may result.

Table 5.1 Scheduled maintenance and Inspections

PERIODICITY	COMPONENT	PROCEDURE
EVERY USE	GPU	Recharge batteries.
EVERY YEAR AFTER FIRST USE	General Cleaning	Remove the protections and eliminate dust that may have accumulated on the components. Perform a visual inspection to check the general condition.
	Electrical cables and wiring	Perform visual inspection to check the general condition, fixing and any sign of overheating or damage. Replace if necessary.

5.3 TROUBLESHOOTING

The instructions contained in this section, allow an easy troubleshooting.

Tabella 5.2 Troubleshooting

TROUBLE	PROBABLE CAUSE	SERVICE
IS IT NOT POSSIBLE TO OPERATE	LOW VOLTAGE BATTERY	RECHARGE TEH BATTERIES

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