

A/C RECHARGE STATION

Mod. MULTIGAS 8500

P/N GB983-970-000

P/N GB983-970-050

P/N GB983-970-100

P/N GB983-970-200

P/N GB983-970-300



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***Are an integral part of this manual : electrical system schematic diagram GB679 1310 000
Safety Data Sheet SHELL TURBO OIL T 46***

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GB983-970-XXX

MULTIGAS 8500



Mod. MULTIGAS 8500

A/C Recharge Station of air conditioning systems of aircrafts with refrigerant gas R-134a/R-1234yf.

User and maintenance manual

Ver. 1.0

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CAP. 2 GENERAL INSTRUCTIONS

2.1 GENERAL NOTES

All rights reserved.

This manual may not be reproduced, in part or entirely, either in printed or digital form.

It may be printed out solely for use by the user and operators of the equipment to which it refers.

Manufacturer and its staff (authors of the manual) are not liable for any consequences of improper use of the manual or equipment, and guarantees that the information given in the manual has been thoroughly verified.

The product can be subject to changes and improvements. We reserves the right to change without notice the information contained in the manual.

2.2 GENERAL INSTRUCTIONS

Pressure equipment undergoes checks before commissioning and periodical checks during operation in compliance with rules and law provisions in force in the country where the tool is used. The operator is responsible for operating the equipment in conformity with local legislation.

The equipment is designed for recovering and recycling R1234yf/R134a refrigerant fluid from aircraft A/C plant.

The equipment is intended to be used by automotive and similar repair and service workshops.

The switch between the two gas types, from R134a to R1234yf, can only be performed by a technician of an Authorised GB Barberi s.r.l. Service Centre, in accordance with the practice described in Chapter 13 of this manual.

This equipment is intended solely for use by **professionally trained operators** familiar with the basics of refrigeration, refrigeration systems, refrigerants and the hazards associated with pressurised equipment.

A careful reading of the present manual by the owners, the users and the operators is required for a correct and safe use of the tool.

2.3 MANUFACTURER IDENTIFICATION

The MULTIGAS 8500 equipment is manufactured by :

GB Barberi s.r.l. - Via Rosselli, 30 - 21018 Sesto Calende (Italy)

Tel. +39 0331 923418, Fax +39 0331 920692, info@gbarberi.com, www.gbarberi.com

By using circuits and components patented by: Brain Bee S.p.a.

2.4 WARRANTY

DEFINITION

The warranty provides for free replacement or repair of faulty components due to fabrication.

APPLICATION

The following warranty conditions are inclusive and substitute and legal guarantees in relation to failures of conformity, and exclude any other liability of the manufacturer and reseller in relation to the product. The purchaser may not make any claim other than those envisaged in these warranty conditions, for damages, reduced price or cancellation of the contract. **Once the warranty has expired, no claims may be made against the reseller or manufacturer.**

WARRANTY PERIOD

- 12 (twelve) months from the date of online activation by the reseller.
- 6 (six) months for replacement parts

EXCLUSIONS

This warranty is provided on condition of full payment of the purchase price and the purchaser may not make claim under it if he has suspended payments for any reason whatever. The warranty does not cover parts found to be defective for reasons of:

1. negligent use (failure to follow the operating instructions);
2. incorrect installation or maintenance;
3. maintenance by unauthorised persons;
4. shipping damage;
5. or any circumstances not resulting from fabrication defects.

The warranty does not cover any work done to install and connect the equipment to its power supplies and feeds.

The following are excluded from the warranty / advance replacement:

- consumables (including: batteries, paper, filters, oil);
- normal wear and tear.

The warranty is void in all cases of improper use and failure to run the scheduled maintenance detailed in the manual. **GB Barberi s.r.l.** accepts no responsibility for any damage deriving from the non respect of the prescriptions indicated in the instructions and in particular those concerning the tool installation, use and maintenance.

2.5 TECHNICAL SERVICE CENTERS

A list of authorised **GB Barberi s.r.l.** service centres for CLIMA stations is available on the website www.gbarberi.com

2.5.1 Repairs

In case of failures or anomalies, the user can contact directly or through his own regional reseller a **GB Barberi s.r.l.** authorised service centre to get help.

2.6 MARKING

The MULTIGAS 8500 equipment has been manufactured in compliance with the Community Directives listed in the Declaration of Conformity supplied with the pressure equipment.

The equipment is a PED risk class III device (97/23/EC).

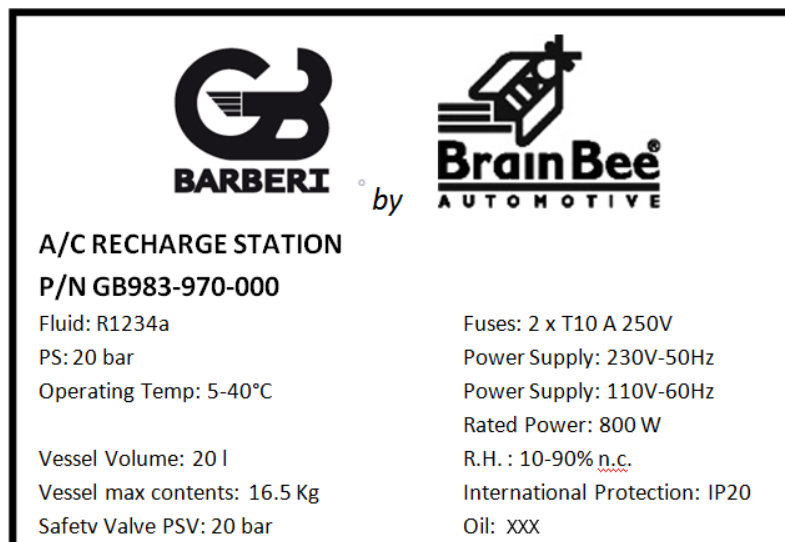
Pressure equipment shall undergo checks before commissioning and periodical checks during operation, in compliance with the rules and law provisions in force in the country where the equipment is used.

The characteristic data of the equipment are indicated on the specific data plate applied onto the equipment side part.



It is prohibited to remove damage or tamper with the equipment “data plate”.

NAMEPLATE



CE MARKING: The CE declaration is enclosed to the tool. Store correctly and provide on request.

CAP. 3 SAFETY CONDITIONS

3.1 PERSONAL SAFETY INFORMATION

3.1.1 Definitions

DANGEROUS AREAS:

Any area within or close to the equipment implying risk for the safety and health of exposed persons.

EXPOSED PERSON:

Any person completely or partially standing in a dangerous area.

OPERATOR:

The person/s charged with operating the machine for its intended purpose.

CLASSIFICATION OF OPERATORS

The operator can be classified according to two main categories, which, in some cases, refer to one single person:

- The operator charged with the equipment operation has the duty to:
 - Starting up and monitoring the machine's automatic cycle;
 - Carry out simple setting operations;
 - Remove the causes of equipment stop not implying breakings of members but simple operation anomalies.
- Maintenance technician a technician trained by an authorised **GB Barberi s.r.l.** service centre, capable of working on the machine's mechanical and electrical components with its guards open to make adjustments and to service and repair it.

USER

Body or person legally responsible for the equipment.

3.1.2 Personal safety information

The **GB Barberi s.r.l.** MULTIGAS 8500 A/C service station is particularly simple and reliable due to its adjustments and functions. When used correctly it presents no hazard for the operator, on condition that he observes the following general safety instructions and that the service station is regularly serviced (incorrect maintenance/use compromise the equipment's safety).

Before operating the service station for the first time, read these instructions carefully. If any part of the instructions is unclear, contact your reseller or the **GB Barberi s.r.l.**

This service station may be used by only one equipment operator, familiar with A/C and refrigeration systems and the hazards associated with refrigerants and high pressure equipment.



WORKPLACE: The equipment must be operated in the open or in a well-ventilated location (at least 1 air change per hour). The workshop has to be equipped with ventilation systems able to ensure the air change in every environment area or to carry out a periodical ventilation by opening the environment areas. Use the tool away from heat sources or hot surfaces. The tool has not to be used in explosion risk environments (potentially explosive atmospheres). Before using it, put the tool on a levelled plane and secure position, blocking it with suitable wheel stops.

Do not expose the tool to direct sunrays, heat sources, rain and jets of water. Do not smoke close to the equipment and during operations (keep at a distance of at least 1 m).

The work area must be monitored by the operator while the equipment is operating.

ATTENTION: the R134a and/or R1234yf refrigerant fumes/gases are heavier than air and can gather on the floor or inside cavities/holes and cause choke by reducing the oxygen available for breathing.

At high temperatures, the refrigerant breaks down releasing toxic and aggressive substances, harmful for the operator and the environment.) Avoid inhaling the system coolants and oils. The exposure can irritate eyes and the respiratory tract.



ELECTRICAL CONNECTION: Connect the power cord solely to a mains supply which conforms with the ratings on the machine's nameplate (mounted on its side). Make sure the mains socket is grounded.

Never use the service station with a defective power cord or a different one from that supplied with the machine; if damaged, immediately have it replaced with an original spare or equivalent by a **GB Barberi s.r.l.** service centre. Before opening the service station, extract completely the supply cable from the plug, or you can get an electric shock.

Do not tamper with or bypass the safety equipment and settings.

Do not leave the machine powered up when not in use; shut off the power supply before leaving the equipment unused for a long time. Do not forget that the tool (pressure tool) must always be protected.



REFRIGERANTS AND LUBRICANTS - INDIVIDUAL SAFETY EQUIPMENT AND PRECAUTIONS: The refrigerants and the pressure vessels have to be handled with care, otherwise there will be possible health risks.

The operator must wear safety glasses, gloves and protective clothing suitable to the work. The contact with the refrigerant can cause blindness (eyes) and other physical damages (freezing) to the operator. Avoid contact with the skin; the refrigerant's low boiling point (approx. $-26\text{ }^{\circ}\text{C}$ for R134a and approx. $-30\text{ }^{\circ}\text{C}$ for R1234yf) can cause freezing burns.

Further information about safety can be obtained from the safety sheets of lubricant and refrigerant producers.

Do not inhale refrigerant or oil vapour. Keep away from the vent valves and ventilation coupling, especially when non-condensable gas is being vented.

Never direct the quick couplings (taps) towards your face or other persons or animals.



OTHER PROHIBITIONS AND USE LIMITATIONS: Only use pure R134a or R1234yf refrigerants, refrain from using on vehicles containing other types of refrigerants or mixtures of the two refrigerants or other gases. The mixture with other types of refrigerant produces serious damages to the conditioning and cooling systems. **Mixed gases have to be disposed of according to the current regulations.** Never use MULTIGAS 8500 equipment with systems containing compressed air, mixtures of R134a or R1234yf with air or oxygen may be potentially flammable. Do not modify the calibration of safety devices. Do not remove the seals of the safety valves and of the control systems. Do not use external tanks or other storage containers that are not homologated or without safety valves. Make sure the equipment's aeration and ventilation ports are not obstructed or covered while the equipment is operating.

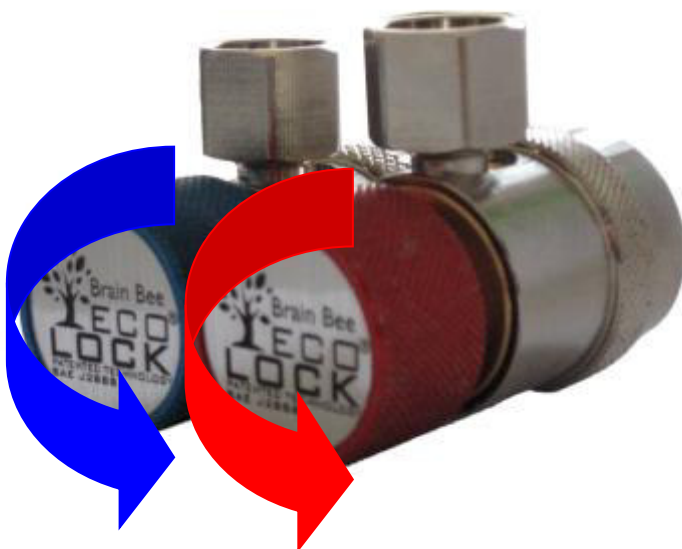


HOSE CONNECTIONS: Hoses may contain pressurised refrigerant. Before changing the service couplers, check the respective pressures in the hoses (pressure gauge). Before connection to a car A/C system, to an external tank/vessel, check that the quick couplers are closed (unscrewed HP and LP valves).

Scrupulously follow the instructions on the equipment's display.



QUICK COUPLERS CLOSING/OPENING:



Closing (detach from the vehicle):
counter-clockwise

Opening (connect to the vehicle):
clockwise

MAINTENANCE/GENERAL CLEANING: The equipment has to be serviced at the intervals indicated by the equipment itself.

The service station maintenance has to be performed according to the procedures described in this manual and to the current safety regulations.

Use only **GB Barberi s.r.l.** original parts.

When the equipment requires the dryer filter and the vacuum pump oil change, you have to be careful in the replacement.

A/C service station maintenance can be carried out exclusively by a trained operator or by a service man of a **GB Barberi s.r.l.** certified seller.

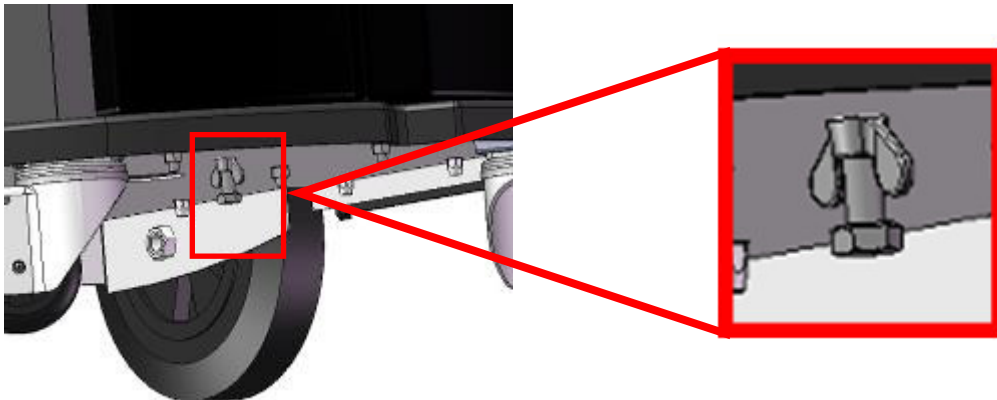
Do not use chemical agents for the service station cleaning as they could attack the material or the surface.



STOP FOR LONG PERIOD: Store the equipment in a safe place, disconnected from the mains, away from excessive temperatures, humidity and the risk of damaging impact. Contact the Technical Service to run a safety shutdown of the equipment, and if scrapping the unit, to drain and recycle the R134a or R1234yf gas as required by local legislation. To resume operation, repeat the installation (there is no need to register the unit anew with www.gbarberi.com) and run the commissioning trials and regular operational checks as required by local legislation.



TRANSPORT: If the tool has to be transported, you have to screw the safety screw for the tool scale fixation. The safety device for transport is on the back of the tool and it consists of a bolt with wing-nut. Commissioning: Slacken the wing-nut, unscrew the screw for about 4 mm. and fix it again with the wing-nut. Transport: slacken the wing-nut, screw the screw **by hand** and then fix it again with the wing-nut. For the transport of the R134a or R1234yf refrigerant, specific regulations are in force in every country. Therefore, refer to your reseller or your authorised service centre for information.



3.2 IMPORTANT SERVICE EQUIPMENT SAFETY INFORMATION

When using the tool, the following operations are not allowed as they might cause, under certain circumstances, danger for persons and cause permanent damage to the tool itself.



- Do not remove or make unreadable labels, signs and/or dangers signs placed on the tool and in the area nearby.



- Do not disable the unit's safety equipment.



- Use only fuses identical to the originals as specified on the nameplate; do not tamper with or attempt to repair the fuses.

If the power supply is known or can be expected to vary beyond the limits specified for the service equipment, immediately disconnect it.



- The electrical system to which the service equipment is connected must be configured as provided by local legislation.





- Only operators or qualified staff instructed or certified for the tool maintenance can open the tool. The equipment contains parts which can cause electrocution: shut off power to the equipment before servicing/repairing it.



3.3 SAFETY DEVICES

MULTIGAS 8500 is equipped with the following safety devices:

	<p>SAFETY PRESSURE SWITCH: It stops the compressor in case of excessive pressure.</p> <p>SAFETY VALVE: The safety valve opens when the pressure inside the system reaches a level higher than the fixed limits.</p> <p>SWITCH: Switches the equipment off by interrupting the power supply. It is advisable to pull the power cord plug out of the mains socket in any case before starting maintenance work.</p>
	<p>ANY TAMPERING WITH THE ABOVE-MENTIONED SAFETY DEVICES IS PROHIBITED.</p>

Failure to observe any of the above safety instructions voids the equipment's warranty.

CAP. 4 LAYOUT OF THE MANUAL

4.1 USE OF THE MANUAL



This manual is an integral part of the equipment and must be kept in the equipment's immediate vicinity by the purchaser

- If the equipment is sold on to a new user, this manual must accompany it.
- The content of this manual has been drawn up in compliance with the guide lines of the UNI standard 10893:2000.
- Diffusion, modification or use of this manual for own aims is forbidden.
- The manual uses symbols which call the reader's attention to specific points to facilitate its use.
- It includes all technical, operating, shutdown, maintenance, spare parts and safety information.
- In case of doubts on the correct interpretation of the instructions, please contact our technical service to obtain the required clarifications.



Operations which are potentially hazardous for the operator are highlighted with this symbol.
Such operations can cause serious injury.



Operations requiring special attention are highlighted with this symbol.
Such operations shall be carried out correctly to avoid causing damage to objects or to the surrounding environment. This symbol also highlights information to which special attention must be paid.



Operations which require careful reading of the manual's instructions are highlighted with this symbol.

4.2 SYMBOLS

This paragraph describes the safety symbols which may be posted on the service equipment's housing.

4.2.1 Safety

	ALTERNATING CURRENT
	SAFETY GROUNDING
	CONSULT THE INSTRUCTIONS MANUAL
	CAUTION! ELECTROCUTION HAZARD
	CAUTION !: DO NOT REMOVE THE COVER (maintenance technicians only)
	SEE THE USER MANUAL USE PROTECTIVE GLOVES WEAR PROTECTIVE GOGGLES

4.3 GLOSSARY

To facilitate the comprehension of the manual, we list below the most important technical terms used in it.

Refrigerant: Refrigerant fluid used in advanced motor vehicle A/C systems.

The following refrigerant fluids may be used:

- **R-1234yf** CH₂CF₃ 2,3,3,3-Tetrafluoropropene.
- **R-134a** C₂H₂F₄ - 1,1,1,2-Tetrafluoroethane

A/C system: Motor vehicle air conditioning system.

Equipment: *MULTIGAS 8500* service station for recovering, recycling, draining and charging the A/C system.

External tank: Refrigerant bottle used to fill the internal tank.

Internal tank: container for the refrigerant storage.

Phase: Performance of a single function.

Cycle: Sequence of steps.

Recovery: Extraction of refrigerant from the vehicle.

Recycling: Cleaning of the refrigerant, includes: separating out oils, removal of non-condensable gas and single/multiple pass through filters to reduce the humidity, acidity and particulate content of the fluid.

Disposal: disposal of refrigerant for storage followed by destruction/scraping by an authorised waste management centre.

Vacuum cycle: Draining out of a motor vehicle A/C system and separation out of condensed matter and humidity, using only the vacuum pump.

Oil injection: Injection of oil into an A/C system to ensure the correct charge as specified by the vehicle's manufacturer.

Charge: filling of refrigerant into the A/C system in the amount specified by the manufacturer.

System flushing: Cleaning phase for the removal of possible polluting substances from the A/C system or parts of it.

Non condensable gases: Gas stored in the gaseous phase, including air and nitrogen.

4.4 GUIDELINES FOR THE HANDLING OF REFRIGERANT

4.4.1 Precautions for refrigerant storage

The refrigerant removed from the A/C system must be handled with care to prevent or minimise the risk of mixing with other refrigerants.

This machine is suitable for treating R134a or R1234yf refrigerants, individually (not simultaneously).

The external canisters used to store the refrigerants must be clearly marked to prevent mixing different refrigerants.

Vessels shall be free from oil or other contaminants and clearly marked so as to identify the refrigerant contained.



ATTENTION: when handling, using and storing **R-134a** or **R-1234yf** gas and dealing with emergency situations, **MAKE SURE** to refer to the product's safety sheet.

OBTAIN THE SAFETY SHEET FROM YOUR REFRIGERANT SUPPLIER AND FOLLOW ITS INSTRUCTIONS

R134a	FRIG2
1. IDENTIFICAZIONE DELLA SOSTANZA / PREPARATO E DELLA SOCIETA' / IMPRESA	
Prodotto	1,1,1,2 Tetrafluoroetilene (R134a)
Nome commerciale	FRIG2
Identificatore	FRIG2
Numero CAS	811-98-0
Numero MSDS	144
Numero CE	215-0710
Gruppo	Refrigeranti
Identificazione della sostanza	Refrigerante Sociedade S.A. Via Sines T 25122 MILANO Italia 800-911398
2. COMPOSIZIONE / INFORMAZIONI	
Anticongelante	Non contiene anticongelante
Componenti / Impurità	Non contiene impurità
3. IDENTIFICAZIONE DEI PERICOLI	
Mantenimento agli occhi	In alta concentrazione può causare irritazione agli occhi. Evitare l'ingresso negli occhi. In caso di contatto con gli occhi, lavare abbondantemente con acqua pulita e cercare di rimuovere l'irritante con un garzo pulito e umido. Se l'irritazione persiste, consultare un medico. Mantenere la cartella medica e il referto (consultare il medico) pronto alla disposizione per la cura di emergenza. Qualora si ripresente un sintomo, consultare il medico. Non somministrare antidoti o soluzioni saline.
4. INTERVENTI DI PRIMO SOCCORSO	
Misure di primo soccorso	In alta concentrazione può causare irritazione agli occhi. In caso di contatto con gli occhi, lavare abbondantemente con acqua pulita e cercare di rimuovere l'irritante con un garzo pulito e umido. Se l'irritazione persiste, consultare un medico. Mantenere la cartella medica e il referto (consultare il medico) pronto alla disposizione per la cura di emergenza. Qualora si ripresente un sintomo, consultare il medico. Non somministrare antidoti o soluzioni saline.
Inalazione	In caso di inalazione, spostare la vittima all'aperto e riposarla in un luogo fresco. Se i sintomi persistono, consultare un medico.
- Contatto con la pelle	Non causare irritazione cutanea. In caso di contatto con la pelle, lavare con acqua pulita e sapone. Se l'irritazione persiste, consultare un medico.
- Contatto con gli occhi	Non causare irritazione agli occhi. In caso di contatto con gli occhi, lavare con acqua pulita e sapone. Se l'irritazione persiste, consultare un medico.
- Ingestione	Non causare irritazione gastroenterica. In caso di ingestione, bere acqua pulita e consultare un medico.
Altre situazioni	Non causare irritazione cutanea. In caso di contatto con la pelle, lavare con acqua pulita e sapone. Se l'irritazione persiste, consultare un medico.

Versione 6.0	Ref. 13000045292
Data di revisione 20.07.2011	
Questa SDS è conforme agli standard e prerequisiti regolamentari dell'Italia e può non essere conforme ai requisiti regolamentari di altri paesi.	
1. IDENTIFICAZIONE DELLA SOSTANZA O DELLA MISCELA E DELLA SOCIETA' / IMPRESA	
Identificatore del prodotto	Nome del prodotto : DuPont™ Opteon™ yf
Numero di registrazione	Numero di registrazione : 01-000019665-61-0001
Sinonimi	Sinonimi : 2,3,3,3-Tetrafluoropropene R1234yf R1234yf
Usi pertinenti identificati della sostanza o miscela e usi sconsigliati	
Utilizzazione della sostanza/miscela	Refrigerante
Strettamente riservato ad usi e impianti industriali.	
E5 - Industrial Charging of Mobile and Stationary Equipment (Packaging, Air-Conditioning and Refrigeration Equipment)	
E5 - Professional Servicing of Mobile and Stationary Equipment (Air-Conditioning and Refrigeration Equipment)	
Usi sconsigliati	
Non destinata a gas consumo diretto. Rimpiazzare solo unità riciclate di condizionamento d'aria del consumatore.	
Informazioni sul fornitore della scheda di dati di sicurezza	
Società	Pont de Nemours (Netherlands) B.V.
Indirizzo	Postbus 211 3330 ZH Dordrecht Tutti i Paesi
Telefono	+31 78 632 4444
Indirizzo e-mail	ss-support@che.dupont.com
Numero telefonico di emergenza	Numero telefonico di emergenza : +39-02-9210.5223
2. IDENTIFICAZIONE DEI PERICOLI	
Classificazione della sostanza o della miscela	
Gas infiammabili, Categoria 1	H220: Gas altamente infiammabile.
Gas sotto pressione, Gas liquefatto	H280: Contiene gas sotto pressione; può esplodere se riscaldato.
Estremamente infiammabile	R12: Estremamente infiammabile.
1/22	

4.4.2 Conditions of refrigerant and system

The condition of the refrigerant is critical to the operation of the vehicle's A/C system. Running repairs properly following failure of damage safeguards the quality of the refrigerant itself (particulates, acids and water).

4.4.3 Recycling capacity

The service equipment's filtering systems must be replaced regularly (see maintenance messages) to ensure effective recycling.

CAP. 5 GENERAL DESCRIPTION

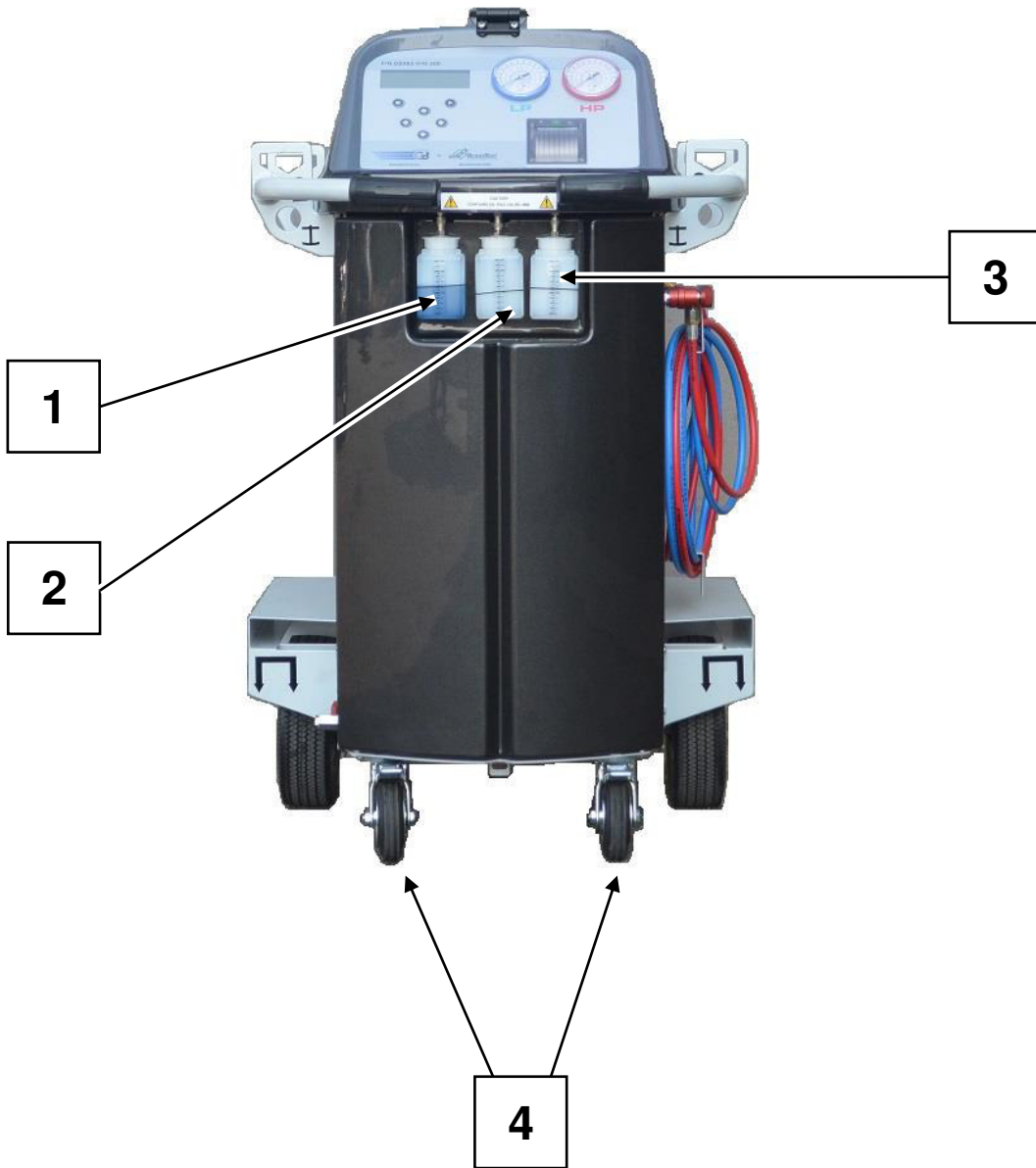
The advanced technology and innovative concept employed in designing and fabricating the **MULTIGAS 8500** makes it extremely simple and reliable in operation.

The MULTIGAS 8500 is usually suited to servicing aircrafts with a refrigerant charge of up to 5 Kg. However, it can be used to recharge larger amounts, since its canister can contain up to 16.5 kg of refrigerant.

The MULTIGAS 8500 is manufactured to established EU standards and subjected to service trials on completion.

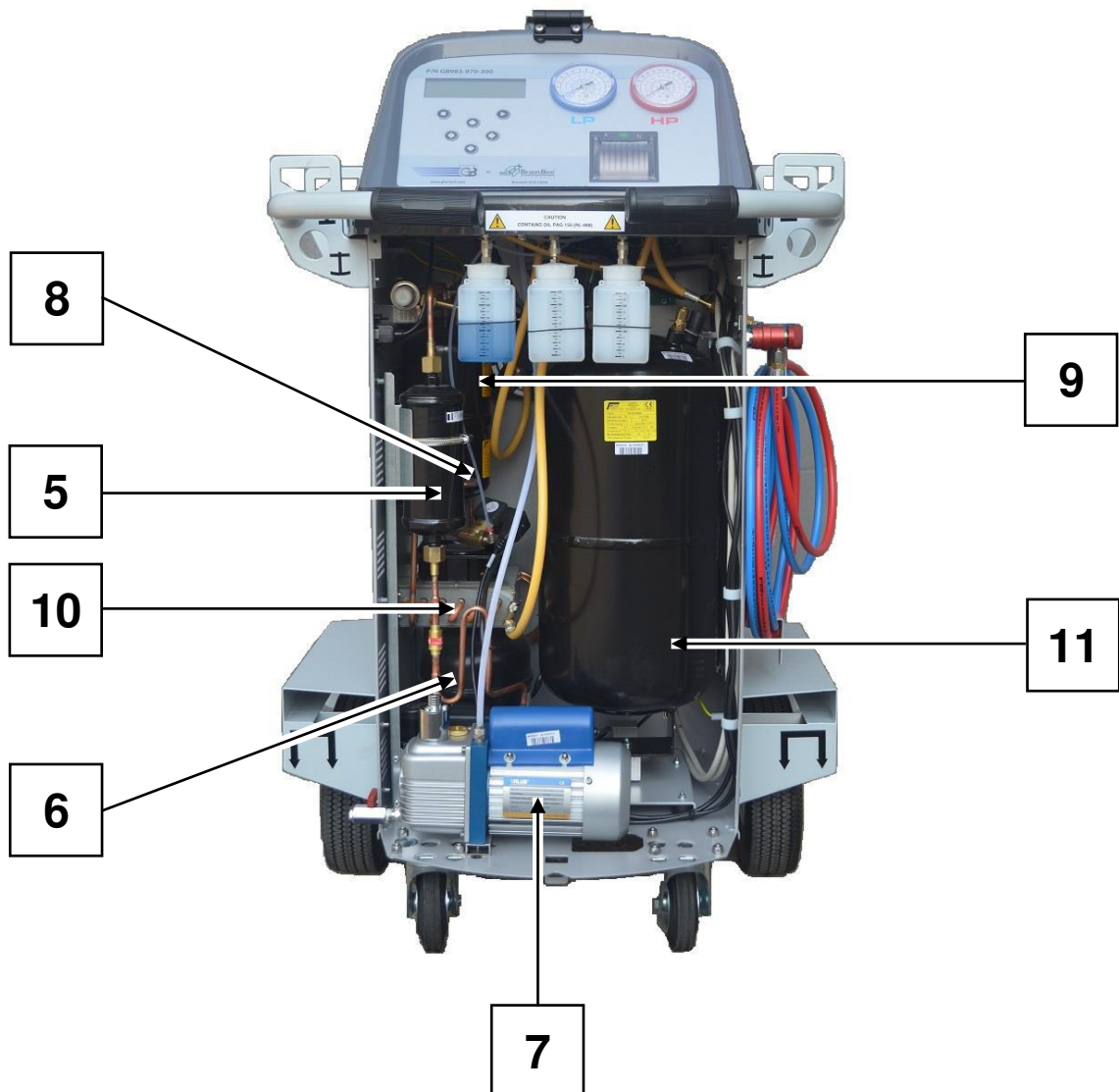


5.1 EXTERNAL VIEW OF MULTIGAS 8500 - FRONT SIDE



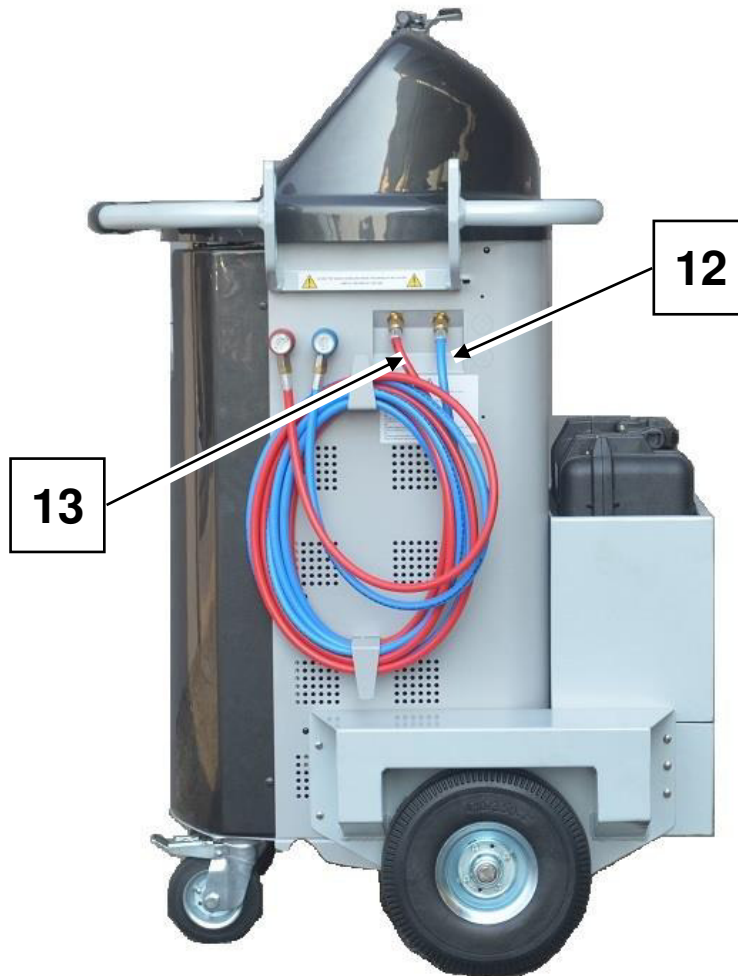
- 1. Bottle of oil "to be injected" 250 cc
- 2. Bottle of "recovered" oil 250 cc
- 3. Bottle for "Tracer" 250 cc
- 4. Castor wheels, with brake

5.2 INTERNAL VIEW OF MULTIGAS 8500 - FRONT SIDE



- 5. Dryer filter
- 6. Compressor
- 7. Vacuum pump
- 8. Distiller
- 9. Oil separator
- 10. Ventilated condenser
- 11. Refrigerant vessel

5.3 MULTIGAS 8500 RIGHT SIDE VIEW

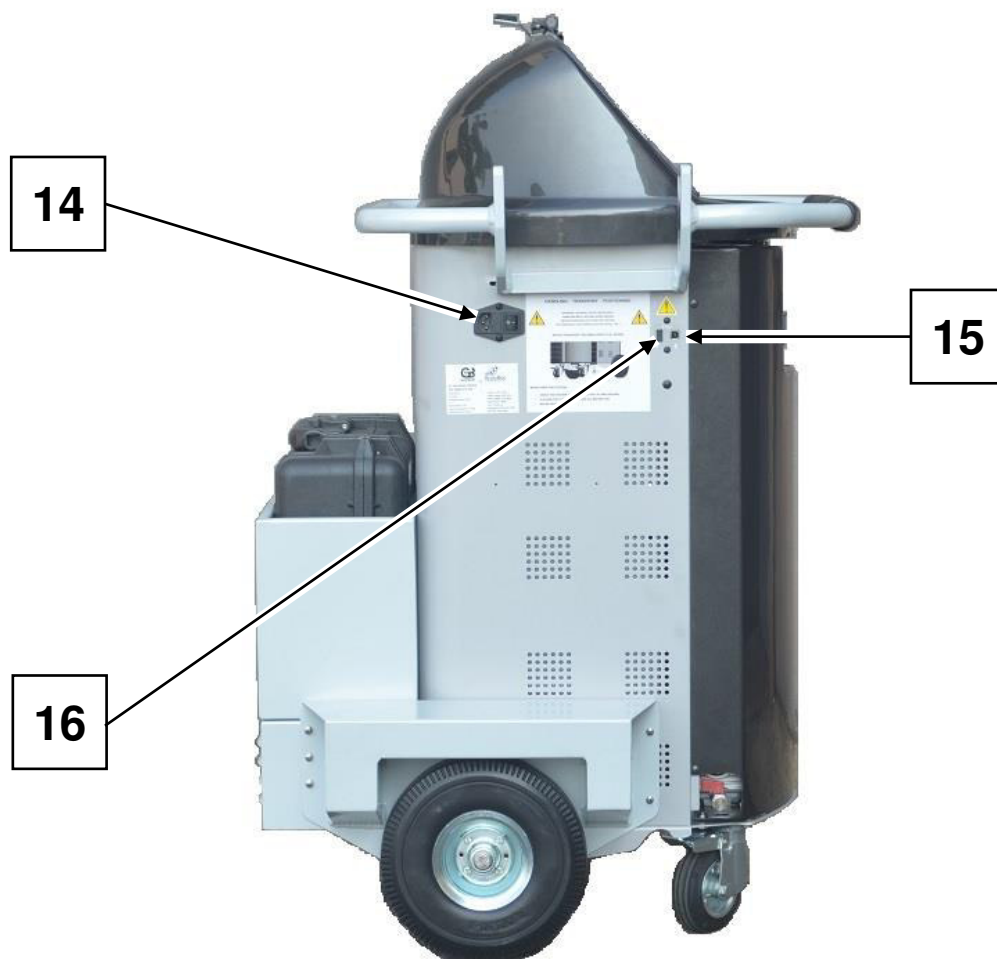


- 12. Hose LP 4,5m with quick coupler
- 13. Hose HP 4,5m with quick coupler



DO NOT USE THE UNIT UNLESS THE CHARGING HOSES (HP – LP) ARE CORRECTLY CONNECTED

5.4 MULTIGAS 8500 LEFT SIDE VIEW

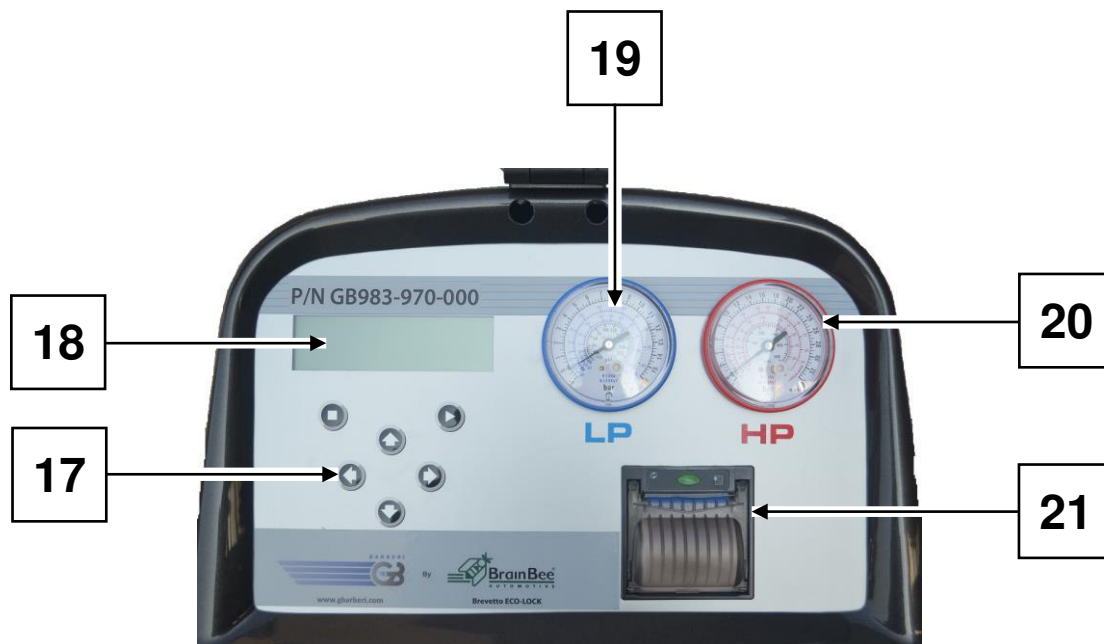


- 14. Main switch with 230 VAC MAINS SUPPLY FUSES (5 x 20 T 10A 250V)
- 15. USB Type – B for direct connection to PC
- 16. USB Type A for connection to USB 2.0 key or refrigerant identifier (optional)



The USB type-A connector can only be used with USB 2.0 portable memory devices with Mass storage service for reports export and station update, or for connection to GB Barberi s.r.l. refrigerant identifier. Do not connect other types of devices, such as USB keyboards or other units

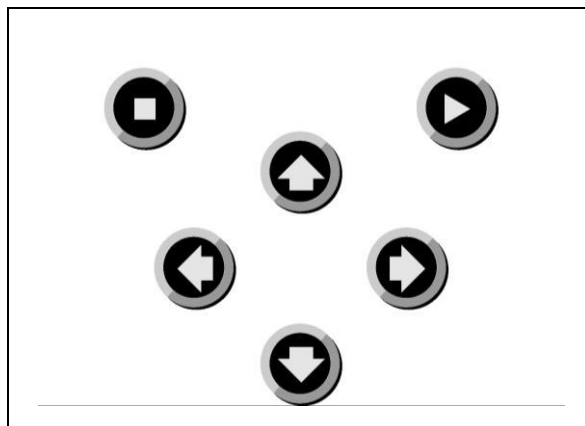
5.5 MULTIGAS 8500 TOP FRONT VIEW



- 17. Multifunction Keyboard
- 18. Graphic Display
- 19. LP Gauge
- 20. HP Gauge
- 21. Thermal printer

5.6 USER INTERFACE

The selection menu has a tree structure where different functions can be selected through a 6-key keypad.





Details for the user are displayed on a graphic LCD transfective display, with a 240*64 resolution, which guarantees excellent performance even in case of direct lighting. The first line shows the menu title, while the lines below show the operations available for that menu: the selected function flashes.

Key functions:

Arrow keys   : navigation within the menu

Arrow keys   : parameters setting

“STOP” key  : if pressed once within the menu it cancels the operation; by holding it down for more than 1 second the system exits the database and goes back to the initial page

“START” key  : if pressed once within the menu it confirms the operation; by holding it down for more than 1 second from the first level of the menu the system goes back to the database

5.7 ECO LOCK® QUICK COUPLERS

ECO LOCK® is the INTELLIGENT COUPLER, Brain Bee patented, that with the suitable automated procedure in the software enables to:

1. reduce the non condensable gas formation inside the vessel ;
2. avoid the refrigerant dispersion in the air during the disconnection (puff effect);
3. check possible SCHRADER valve leaks before disconnection.



5.8 INCLUDED ACCESSORIES

Refer to the annexed Spare Parts Catalog.

5.9 OPTIONAL ACCESSORIES

The following optional accessories are available from your reseller or commercial partner:

- NITROGEN LEAK TEST KIT - Kit for per leak test (under pressure conditions) with nitrogen (pressure reducer and cylinder not supplied)
- New oil containers (it is recommended to buy one for every different type of oil to be used)
- UV leak detection kit (UV kit)
- Degreasing detergent, to remove fluorescent tracer residues (Spray multinet)
- Degreasing detergent for condenser (Condenser cleaner)
- Flushing kit

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CAP. 6 TECHNICAL FEATURES

Vessels for R134a or R1234yf fluids	
R134a or R1234yf vessel capacity	20 l
Maximum operating pressure (PS)	20 bar
PED category (Dir.97/23/EC)	III
Weight of gas content	Scale
Safety valve	
Type	AIRTEK - VS14NPT20HNBRPED4 20bar R 1/4 NPT
Calibration pressure	20 bar
PED category (Dir.97/23/EC)	IV
Containers for oil and tracer	
Recovered oil XXX container (FOR OIL TYPE REF. TO TABLE AT PAGE 27)	250 ml
New oil XXX container FOR OIL TYPE REF. TO TABLE AT PAGE 27)	250 ml, with OIL CARE valve
UV tracer container capacity	250 ml, with OIL CARE valve
Pneumatic circuit	
Vacuum pump flow rate	3 m3/h
Vacuum level	0.02 mbar
Vacuum pump oil quantity	0,5 l (SHELL TURBO OIL T 46)
Refrigerant recovery compressor cubic capacity	14 cc
Dryer filter	45 kg of recovered R134a or R1234yf
Non condensable gases discharge	Automatic with AIR PURGE SYSTEM function, with solenoid valve
HP and LP taps	Automatic
Safety pressure switch	
Type	13/18bar 1/4SAE
Trip pressure	18 bar
PED category (Dir.97/23/EC)	IV
Pneumatic fittings	
Net length of external HP and LP hoses	4,5 m
HP and LP pressure gauges	Analog 80 mm, pulse-free, 1.0 class
User interface	
Display	260*64 TFH LCD graphic backlit display
Keypad	Membrane, 4 arrows, START and STOP
Software updating	USB type-A with USB 2.0 key USB type-B with direct connection to PC.
Printer	Thermal, 24 columns
Functions	
R134a or R1234yf recovery, exhausted oil recovery, vacuum, recharge, oil and tracer injection	Automatic and manual
Recycling mode	Single or MULTIPASS
Memory for customized cycles	100 records
Recovered oil measurement	Automatic weighing, 1 g res., 5 g acc.
New oil automatic injection	With automatic scale, 1 g res., 5g acc.

UV tracer automatic injection	Timed
Flushing	With integrated solenoid valves
Database	Integrated Autodata (refrigerant amount)
System pressure diagnostics	Visual (with HP and LP pressure gauges)
Identifier for R-1234yf	Optional (requires preliminary conversion to refrigerant R-1234yf)
Alarms	
Dryer filter replacement control	Active
Vacuum pump oil replacement control	Active
Full/empty vessel check	Active
Full oil container control	Visual
Empty oil container control	Visual
Overall dimensions	
WxDxH	728 x 784 x 1170 mm
Loadless weight	100 kg
Power supply	
Frequency	50 Hz
Voltage	230 V ~ +/- 10% - 50 Hz 110 V ~ - 60 Hz (SEE NOTE BELOW)
Power	800 W
Environmental conditions	
Operating temperature	5-40°C
Storage temperature and humidity	-25 - +50°C, 10-90% R.H. (non condensing)
Ambient pressure	75 kPa ÷ 106 kPa
Max operating altitude	2000 m
Pollution degree	2
Overvoltage category	II
Fuses	Retarder fuses 250V T10A
Installation category	II

TABLE: CROSS REFERENCE P/N – OIL TYPE

P/N unità di ricarica	Cod. TECO	Tipo olio
GB983-970-000	6-135	PAG 244
GB983-970-050	N.A.	POE 46
GB983-970-100	6-135-2001	POE 68
GB983-970-150	N.A. Versione PIAGGIO	POE 68
GB983-970-200	6-135-2002	PAG 46
GB983-970-300	6-135-2003	PAG 150

ATTENTION !

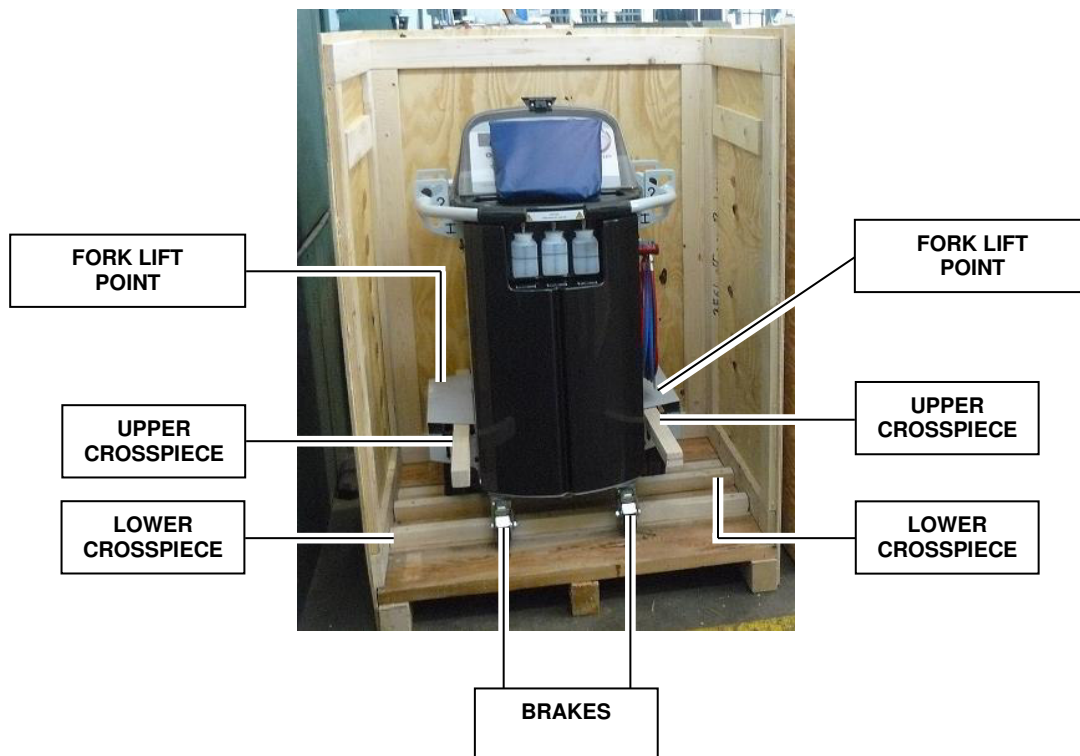
THE STATION IS EQUIPPED WITH AN AUTOMATIC VOLTAGE DETECTION SYSTEM.

THE STATION CAN WORK WITH ALL THE VOLTAGE AND FREQUENCY USED IN THE WORLD

CAP. 7 INSTALLATION

7.1 EQUIPMENT INSTALLATION

7.1.1 Unpacking *MULTIGAS 8500*



	RISK OF OVERTURNING
--	----------------------------

The manufacturer disclaims all responsibility for damage to objects and/or persons resulting from the equipment being wrongly removed from the wood box, or from the operation being made by unsuitable personnel, with improper means/protections and without complying with the existing laws on manual handling of loads and with the operations described in this manual.

- 1) Remove the front and top covers from the wood box.
- 2) Remove the two upper crosspieces, the two lower crosspieces and unlock the brakes of the front wheels. Using a forklift truck remove the equipment using the fork lift points.

Removing of the equipment from the wood box in 2 PERSONS and without use of the forklift truck.



RISK OF CRUSHING

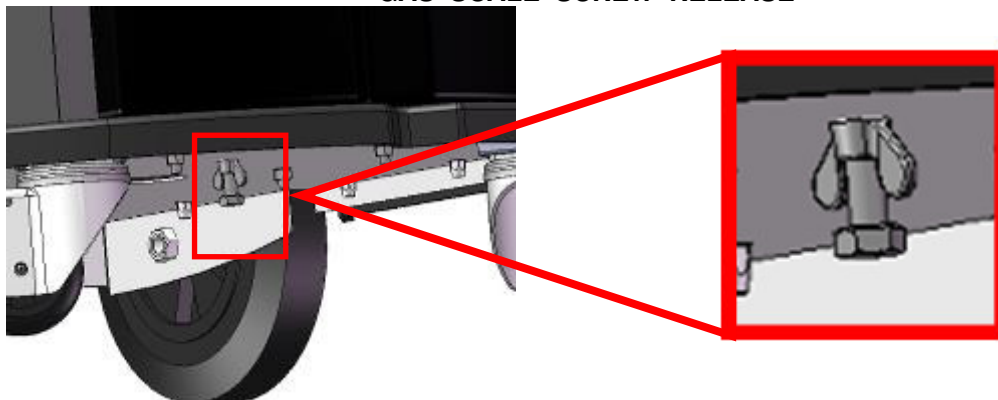
After performing the preliminary operations described in points 1) and 2) proceed as follows:

<p>3) position yourself as far as possible lateral from the wood box and, using the front handles, bring <u>SLOWLY</u> the equipment to the open side of the wooden box.</p>	<p>4) Using the front handles bring down <u>SLOWLY</u> the equipment from the bottom of the wood box, placing on the ground before the front wheels with brakes and <u>ONLY AFTER</u> placing the rear wheels on the ground.</p>

Keep the wooden box and scratch protection film for use when returning the unit. The unit rolls on wheels; the two smaller wheels can be locked.

MULTIGAS 8500 is supplied with the accumulation tank empty. This prevents problems in shipping the unit.

GAS SCALE SCREW RELEASE



The tool is transported, with the scale blocked by a locking screw to avoid the load cell damage. The scale locking screw is placed on the tool bottom (see the box shown above) and is formed by a bolt with wing-nut. For commissioning, slacken the wing-nut, unscrew the screw by 4 mm from the fixing ring nut and fix the wing-nut again.

CAP. 8 COMMISSIONING





8.1 CONNECTIONS

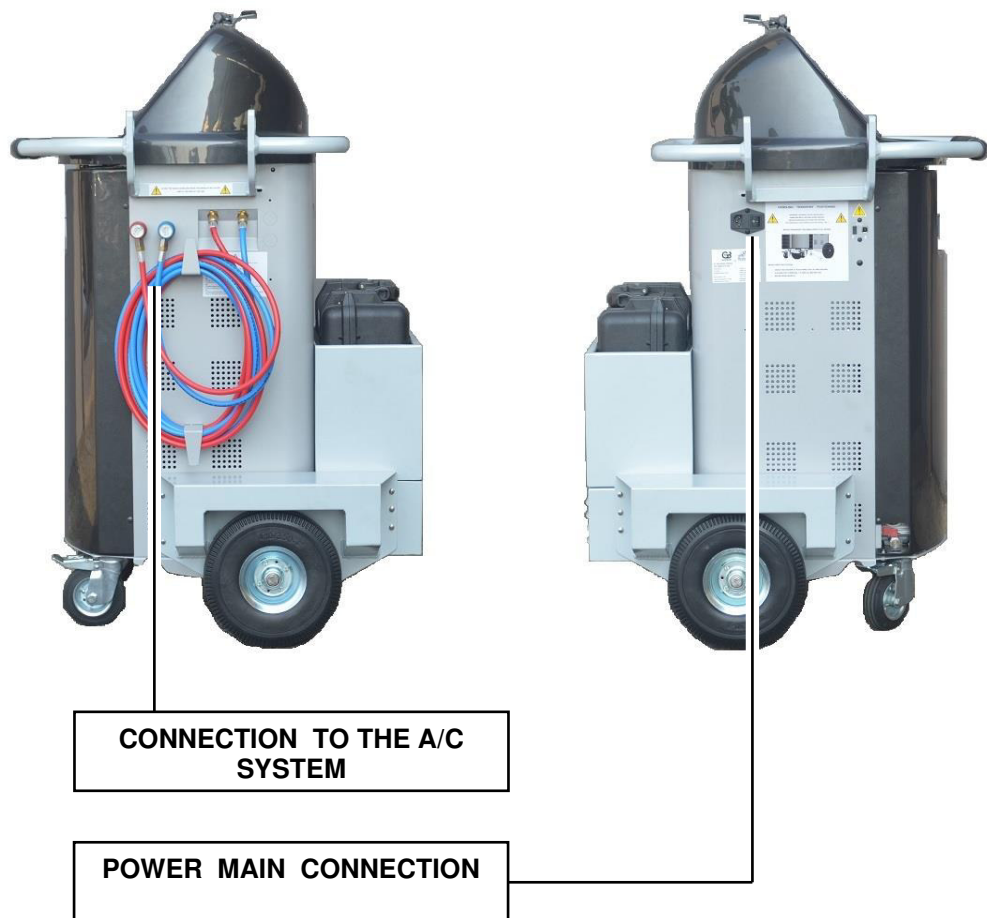
The unit has to be positioned on a horizontal surface to ensure the correct operation.

MULTIGAS 8500 is equipped with a special software developed for AgustaWestland. Customized programs can be programmed by the user or distributor.

The unit has to be connected to the electric mains following instructions on the identification plate of the unit applied next to the main switch, mainly as to applicable voltage and power.

8.1.1 Positioning and connection

	HANDLING: During handling, the minimum devices required for correct handling shall be ensured, as provided for by accident prevention provisions.
	POSITIONING: Place the unit in a stable place. The location must be well ventilated, with a good rate of change of air. The unit must be located at least 10 cm from any potential obstacles to its internal ventilation. Keep the unit away from rain and excessive humidity as they can irreparably damage it. In addition, the equipment must never be directly exposed to the sunrays or to excessive dust.
	INSTALLATION: the unit must be installed by a specialised technician in scrupulous observance of the instructions given in this manual. The use of the equipment in explosive atmosphere is forbidden.
	CONNECTIONS: since the unit is connected to the main power supply, it must be properly grounded with its power plug GND pin. Failure to ground the unit can damage it and constitutes a risk of fatal injury to the operator. Position the unit so that the power plug is easy for the operator to access.



	ATTENZIONE: Lasciare chiusi i rubinetti dei raccordi rapidi quando la stazione non è in uso e al termine delle operazioni.
--	---

8.1.2 First tank filling

Execute the following actions in sequence by following the display guided procedure and the illustrations on the summary sheet provided with the equipment:

- Gas weight check
- Oil weight check
- Pressure check
- First tank filling

It is possible to interrupt the initial check and print a report with the equipment printer in which the checking status is reported.

The equipment cannot operate in automatic mode until all the steps of the initial check have been completed.

	<p>CAREFULLY ABIDE BY THE FOLLOWING INSTRUCTIONS TO AVOID DANGER TO PERSONS, THE DISCHARGE OF REFRIGERANT IN THE ATMOSPHERE</p>	<p style="font-size: small;">VIETATO FUMARE O USARE FANNELLI LIBERE</p>
--	--	---

Let us consider as first filling the one carried out during the initial check with internal tank of the equipment free of refrigerant gas and containing air.

Set the quantity of gas to fill (at least 3 kg) and follow the guided procedure shown on the display. Check that the equipment hoses are not connected and positioned in the hose winder. Start the procedure that initially implies the creation of vacuum in the internal tank. This phase will take 15 minutes and will act on the whole equipment.

Only when the message appears asking to connect the recharge tank, connect the supplied HP quick coupler (colour red) in case of R134a or the LP quick coupler, in case of R1234yf, of the unit to an external refrigerant gas tank using the supplied adaptor.

Open the coupler by turning the knob clockwise. Open the valve on the external tank.

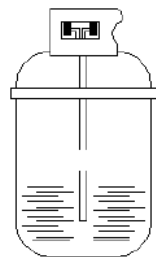
Just right before reaching the planned quantity of refrigerant, the unit will stop and ask the user to close the external refrigerant tank. Then, the device will continue the recovery from the hoses and ends when these are empty. Hence, it is necessary to open the LP quick-coupler and disconnect it from the external tank. Thanks to the ECO-LOCK function, the refrigerant - usually kept between the cylinder fitting and the hose quick-coupler until the end of the process - will not be released in the environment.

There may be two types of source tanks: with plunger and without plunger.

Tanks **with plunger** shall remain upright to be able to transfer liquid refrigerant; for this type of tanks connect to the L (liquid) coupler.

Tanks **without plunger** have only one valve, so they must be turned upside down to transfer the liquid refrigerant.

TYPE OF TANK



TANK WITH PLUNGER



TANK WITHOUT PLUNGER

The **LP** gauge indicates the pressure inside the external tank. After some minutes the unit will automatically end the function. At the end the weight of the charged refrigerant will be displayed.

8.2 NEW OIL BOTTLE FILLING

The new oil bottle is on the left – looking at the unit from the front side. (FOR OIL TYPE REF. TO TABLE AT PAG. 27)

To fill it, it has to be extracted from its housing by means of the quick coupler on the top of the bottle; slightly press downward the coupler ring nut to extract it.



Fill the bottle by paying special attention to the “oil care” valve.
This valve is made of a silicon polymer membrane; it compensates pressure variations within the bottle and stops humid air infeed inside thus preserving the new oil inside.



After filling, close the bottle and place it back in its seat.

8.3 TRACER BOTTLE FILLING

The tracer is a substance made up of a yellow-green coloured fluorescent pigment, which means that, when lit by an ultraviolet lamp, it becomes fluorescent and thus visible.

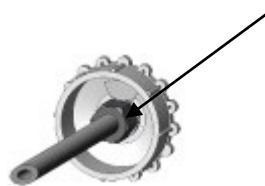
The tracer can therefore be used to detect leaks of a small entity inside the auto vehicle A/C system.

The tracer bottle is on the right – looking at the unit from the front side.

To fill it, it has to be extracted from its housing by means of the quick coupler on the top of the bottle; slightly press downward the coupler ring nut to extract it.



Fill the bottle by paying special attention to the “oil care” valve.



This valve is made of a silicon polymer membrane; it compensates pressure variations within the bottle and stops humid air infeed inside thus preserving the new oil inside.

After filling, close the bottle and place it back in its seat.

CAP. 9 SETUP

From the SETUP menu it is possible to select parameters and activations before starting cycles:

1) ECO LOCK®

- by selecting this entry, you can enable the ECO LOCK® function (the ECO LOCK® quick coupler must be present on the car).

2) ZERO PRESSURE

- Selecting this entry you can, you can set the pressure sensor to atmospheric pressure, for the acquisition of the Zero.

3) RECOVERED GAS AND OIL PRINTING

- selecting this entry, you can choose whether you want to enable displaying and printing of the recovered gas quantity.

4) VESSEL HEATING

- to enable or disable the use of the heating belt during the vacuum phase.

5) MULTIPASS

- by selecting this entry, one may decide whether or not to enable the multipass function, which enables an additional recycling, within the station itself, started in automatic when it is switched on but not in use. This function ensures a higher level of purity of the recycled refrigerant to the advantage of the service quality.

6) PRESSURE CHECK

- by selecting this entry, one can enable or disable the pressure check.

7) UNIT OF MEASURE

- selecting this entry, you can modify the pressure unit of measurement (switching from Bar to PSI)


8) CLOCK ADJUSTMENT

- by selecting this entry, date and time of the station may be changed.

9) GARAGE DATA

- by selecting this entry, one can enter the garage data to be printed on the end of cycle report.

10) LANGUAGE

- by selecting this entry, any language present in the database may be set. In case you choose a language with unintelligible characters, hold down the button  in the starting screen-page and you will directly return to the language setting menu.

11) STARTUP SCREEN

- By selecting this entry, you can decide whether the startup screen of the unit will be the databank page or the main menu page.

12) DEFAULT SETUP

- By selecting this entry, you can restore the unit default settings.



GB Barberi s.r.l. reserves the right to add new parameters to make the equipment increasingly versatile and adaptable to market's needs.

13) REPORTS SAVING MODE

- by selecting this entry, you can save the reports of the performed charges (automatic cycles or Reg. 842/2006).

14) GAS TYPE

- Selecting this item will display the type of gas used. To replace the gas is necessary to contact an authorized service center.

15) AIR PURGE SYSTEM

- by selecting this entry, one can enable or disable the AIR PURGE SYSTEM function. If enabled, on a weekly basis, the station, when switched on, will suggest the user to run the procedure . If disabled, execution of the procedure will no longer be suggested.

CAP. 10 A/C SYSTEM RECHARGE

10.1 PRELIMINARY OPERATIONS

The recovery and recharge operations have to be carried out after the aircraft A/C system has run for some time; however, an excessively hot A/C system has to be avoided since the next recharge phase could be adversely affected by high pressures.

Aircraft details necessary for the performance of the charge/recovery/vacuum cycle are the amount of refrigerant and the type and quantity of oil.

Refer to the manuals and procedures of the aircraft.

Indeed the amount of oil to be recharged is that extracted during the refrigerant recovery phase which is very small.

FEATURES

Your new A/C service station is equipped with new ECO LOCK® quick couplers. These new couplers offer the following functions:

1. Avoid dispersion of the gas, allowing the recovery by the tool (thus protecting the environment and saving refrigerant).
2. Automatic leak test of the car A/C system valve at the end of the service.

After connecting the quick couplers to the (high pressure) HP and (low pressure) LP connectors of the vehicle, screw the valves only when required by the messages on the tool display.

To recharge the A/C system, you have to know the refrigerant type and also the suitable type of oil. These data are available in the aircraft user manual or in the charging procedures.

As to the oil amount, remember that technical data of the A/C systems and instructions usually present in the aircraft show the total oil amount in the system. In the aircraft A/C system you have to add only the oil amount necessary to restore the amount set by the aircraft manufacturer.

10.2 NON-CONDENSABLE GAS DISCHARGE

The station is equipped with the AIR PURGE SYSTEM function, which allows automatically detecting and purging non-condensable gas (mainly air) accumulated within the tank.

Periodically, basically every week, the station, the first time it is switched on that day, will suggest running the AIR PURGE SYSTEM procedure

If the station detects non-condensable gas in the tank, it will automatically run the non-condensable gas discharge procedure.

Running this procedure is very important to ensure the ideal working parameters for the station operation. The presence of non-condensable gas in the tank will increase the pressure inside the tank and, therefore, will slow down and reduce the efficiency of recharge cycles on the vehicle.

The AIR PURGE SYSTEM function can be disabled from the setup menu. In this case, execution of the procedure will no longer be suggested when switching on the station.

The procedure will take a few minutes, and its duration may vary according to the amount of non-condensable gas within the tank.

If needed, the non-condensable gas discharge procedure can be executed at any time from the maintenance menu.



WARNING: Leave the quick coupling taps closed when the unit is not in use and at the end of vehicle service operations.

WARNING: For the Air Purge System procedure to be executed manually, the station must have been off for at least one hour.

**NON-CONDENSABLE
GAS VENT VALVE WITH
OUTLET EXTERNAL TO
THE FAN**



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CAP. 11 AUTOMATIC CYCLES

11.1 PRELIMINARY OPERATIONS

It is necessary to connect both the **LP (low pressure)** – and **HP (high pressure)** couplers to the aircraft A/C system (**Screw the valves only when required by the A/C station**).

Select the service mode (manual or automatic) and follow instructions.

11.1.1 Last cycle


From the Main Menu select the AUTOMATIC CYCLES, and select LAST CYCLE pressing .

```


R 134 a :      450 / 13000 g
O l i o :    NO  OIL
      UV :    NO  LP-HP
           00 : 30 : 00      ↓
  
```

The value of each selected field (flashing) can be either increased or decreased pressing



Through  the selected value is confirmed and the next field is entered.

By pressing  the previous MENU AUTOMATIC CYCLES is entered.

At the end of the setup the message "START" starts flashing: press  to start the automatic cycle.

CAP. 12 MANUAL CYCLES

12.1 PRELIMINARY OPERATIONS



From the Main Menu select: MANUAL CYCLE.
Inside this Menu, the following functions will be displayed:

- Recovery
- Vacuum
- Oil Injection
- Flushing
- Pressure Check
- Hoses emptying




To proceed with a complete A/C recharge operation, the following functions must be completed in sequence: RECOVERY, VACUUM, OIL INJECTION

Connect, by following the indications on the display, couplers **LP – HP** or the single coupler to the A/C system. Open couplers (or coupler) when required by rotating the knob clockwise.

LP - HP pressure gauges (or the single pressure gauge) indicate pressure inside the system.

From the main menu use keys   until selection of MANUAL CYCLES



Through keys   select the desired phase and press 

12.2 RECOVERY




In the MANUAL CYCLES menu, position on RECOVERY through the keys  , then push  to start the phase.



In case of problems or errors during this phase, a message will be displayed, identifying the type of error.


It is possible to interrupt the phase in progress at any time, by pushing .

At the end of the process the display will show the quantity of recovered oil, together with a message stating that the phase is over.


12.3 VACUUM

In the MANUAL CYCLES menu, position on VACUUM through the keys  , then push  to start the phase.




By means of the keys  , you can set the vacuum time and the test duration.

Push  to confirm the entered values and start the phase.

In case of problems or errors during this phase, a message will be displayed, identifying the type of error.

It is possible to interrupt the phase in progress at any time, by pushing .


12.4 INJECTION

In the MANUAL CYCLES menu, position on INJECTION through the keys  , then push  to start the phase. The main page will be displayed with the following preset values:

- amount of refrigerant that will be charged into the system and the amount of refrigerant contained in the inner tank of the UNIT.
- Injection mode and quantity of oil that will be injected into the system
 - OIL <value> g. It injects the quantity of oil that has been set.
 - REC. + <value> g. It injects the quantity of recovered oil plus the quantity of oil that has been set
 - NO OIL. No oil is injected during the injection cycle
- Oil type: It sets the oil type being used. (REF. TO TABLE AT PAG. 27)
- UV: Option for the injection of tracer

Push  to confirm the entered values and start the phase.

In case of problems or errors during this phase, a message will be displayed, identifying the type of error.

It is possible to interrupt the phase in progress at any time, by pushing .

NOTE: the station has a pre-set hoses length of 4,5 mt and calculates the quantity of gas to compensate, considering automatically the hoses length.



THIS PHASE HAS TO BE CARRIED OUT EXCLUSIVELY ON A/C SYSTEM UNDER VACUUM (AFTER A VACUUM PHASE HAS BEEN PULLED).




12.5 FLUSHING (WITH OPTIONAL ACCESSORIES)



After performing a lot of recharge cycles or after replacing components or parts of the /AC circuit on an aircraft it is advisable to carry out a system flushing.


The system washing (Flushing) consists in purifying the vehicle cooling system through several R134a or R1234yf gas flushes, by recovering it each time, so that the impurities can be filtered little by little through the additional filter.

Thanks to its specific design, MULTIGAS 8500 can automatically manage the flushing process so that the process becomes fully automatic.


2 flushing modes are available: STANDARD and FLUSHING KIT VAS (both with optional external kits).

Once the (optional) flushing kit has been installed, as described in the instructions included in the kit, and after selecting the specific function for the kit being used, by means of the keys   press  to start the phase.

You can set the flushing time by pushing  .

Push  to confirm the entered values and start the phase.

In case of problems or errors during this phase, a message will be displayed, identifying the type of error.

It is possible to interrupt the phase in progress at any time, by pushing .

12.6 PRESSURE CHECK

To check the aircraft A/C system status – for instance in case there is no flow of cold air from flaps – pressure values can be checked.

Connect the **HP - LP** couplers or the single coupler to the aircraft system.

Perform the following preliminary operations on the vehicle:

- Turn on the A/C system
- Set temperature at minimum level.
- Set fan speed at maximum level; close all the flaps except the central one and set air distribution to central position.
- Keep engine at accelerated idle at constant speed for at least 2 minutes.
- Check the pressure values within about 3 - 5 minutes.

In the MANUAL CYCLES menu push   to select PRESSURE CHECK, then push  to confirm.


Open couplers (or the single coupler) rotating knobs clockwise.

After the refrigerant injection, a check of the pressure on HP and LP sides will be requested; make sure that both values on LP and HP gauges fall within the values shown on the display.






PRESSURE VALUES CHANGE CONSIDERABLY WHEN AMBIENT TEMPERATURE CHANGES. KEEP THIS IN MIND WHEN CHECKING PRESSURE VALUES

In case of problems or errors during this phase, a message will be displayed, identifying the type of error.


It is possible to interrupt the phase in progress at any time, by pushing .

12.7 EMPTYING HOSES

To empty the charge hoses completely perform the HOSES EMPTYING phase.

In the MANUAL CYCLES menu push   to select HOSES EMPTYING (we refer to the external Blue and Red charge hoses), then push  to confirm.

In case of problems or errors during this phase, a message will be displayed, identifying the type of error.

It is possible to interrupt the phase in progress at any time, by pushing .

CAP. 13 MAINTENANCE

MULTIGAS 8500 is a remarkably reliable unit, manufactured using the highest quality components, making use of the most advanced production techniques.

Please contact an authorized technical service centre for all maintenance interventions and to purchase spare parts. The equipment includes parts subject to the PED Directive. The PED "Pressure Equipment Directive" 97/23/EC defines and regulates all those parts that are subject to pressure, with a specific ratio between their pressure and volume. Therefore, such parts cannot be disassembled or handled. Under the owner's responsibility, the equipment and its PED parts must be verified on commissioning and regularly thereafter as provided by local legislation.

The parts subject to the PED Directive are:

RECEIVER 20 I

Category III (Dir. 97/23/EC)

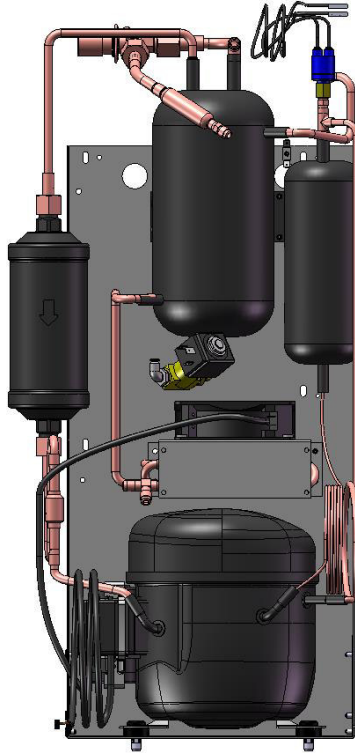


SAFETY VALVE GAS AIRTEK - VS14NPT20HNBRPED4 20bar R 1/4 NPT

Category IV (Dir. 97/23/EC)



SUCTION UNIT
Art. 3.3 (Dir. 97/23/EC)



PRESSURE SWITCH 13/18bar 1/4SAE
Category IV (Dir. 97/23/EC)





	BEFORE CARRYING OUT ANY MAINTENANCE OPERATION, MAKE SURE THE EQUIPMENT HAS BEEN DISCONNECTED FROM THE MAINS.
	ANY INTERVENTION ON PARTS OF THE UNIT NOT EXPRESSLY OUTLINED IN THIS CHAPTER IS FORBIDDEN.


13.1 SELF LEAK TEST

In the main menu select MAINTENANCE and then select "SELF LEAK TEST".

A leak test is carried out on the internal components of MULTIGAS 8500. This test allows checking the tightness of the CLIMA station inner circuits.


In case of failed leak test, it is necessary to check the charge hoses conditions and the quick couplers leak, and make the possible repair and then repeat the test.

From the MAINTENANCE main service through keys   select the LEAK TEST menu

and press  after connecting the quick couplers to the opposite seat on the bench, and close the HP and LP couplers, by rotating knobs Counter-Clockwise.



In case of problems or errors during this phase, a message will be displayed, identifying the type of error.

It is possible to interrupt the phase in progress at any time, by pushing 

13.2 PRESSURE ZERO

This function allows to determine and store the atmospheric pressure value.

We recommend running this procedure every time an abnormal operation of the station is detected, such as recovery phase taking too much time to be completed, or exhaust oil discharge with pressure being either too high or too low.

This procedure is run automatically during the first filling of the tank.

13.3 LONG LIFE PUMP SPECIAL FUNCTION – VACUUM PUMP OIL CHANGE

The tool is equipped with a special function named LONG LIFE PUMP that enables to optimize the vacuum pump oil use by avoiding the replacement every 60 hours of operation.

LONG LIFE PUMP is a Brain Bee patented special function allowing to extend even to 1000 hours the life of the pump oil used in the station.

LONG LIFE PUMP function performance is suggested at the end of 60-hour operation intervals of the vacuum pump and can be manually activated in the MAINTENANCE menu.

LONG LIFE PUMP procedure has to be started only after checking and, if necessary, topping up the pump oil level and lasts 1 hour: during this time the tool cannot be used.

During the procedure the oil is automatically purified from the gaseous polluting residues absorbed during the emptying operations of vehicles air conditioning systems.

At the end of the procedure, the vacuum pump performance check is carried out and a result to the operator is signalled.

In case of negative result you have to replace the vacuum pump oil.

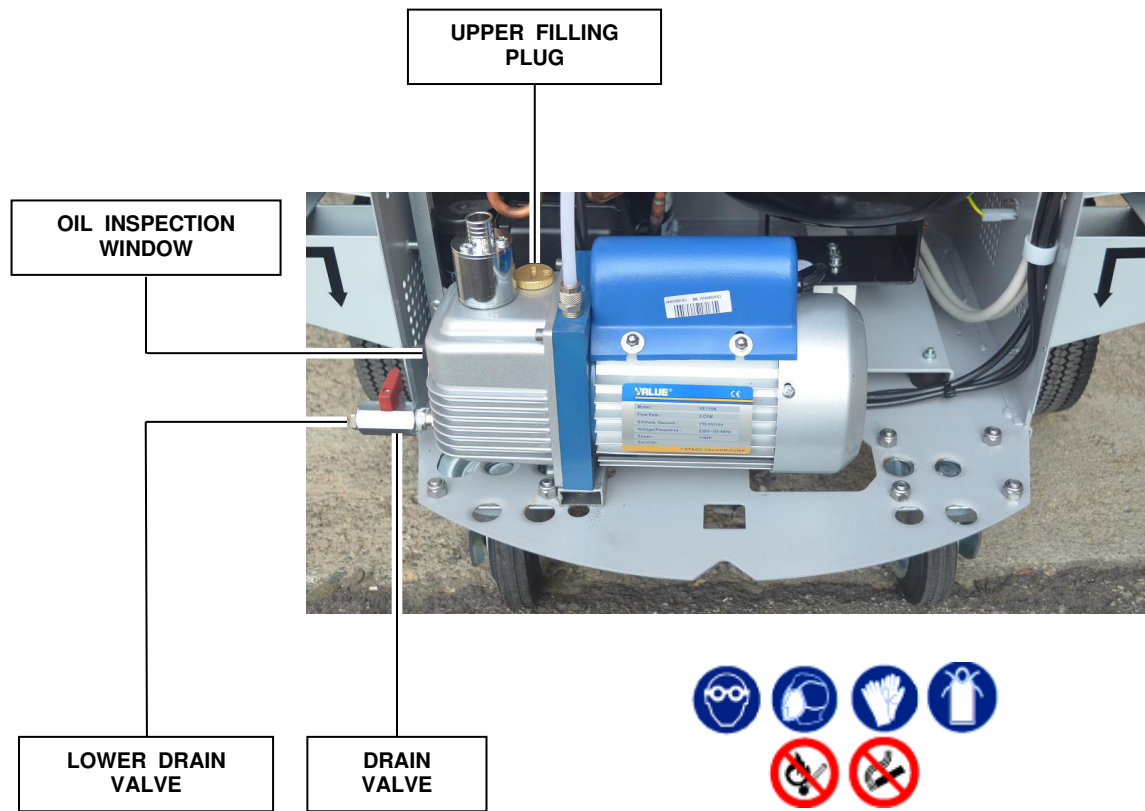
After 1000 hours of vacuum pump operation since the last oil change, the LONG LIFE PUMP procedure cannot be activated anymore and you have to replace the oil according to the following instructions.

Required equipment:

- 1 Medium-sized cross-tip screwdriver
- 1 Medium-sized flathead screwdriver
- 1 Hex key (10 mm)

For replacement, comply with the instructions outlined below:

- 1 Disconnect the unit from the mains.
- 2 Remove the screws that fix the front door of the unit and remove it.
- 3 Place a bowl underneath the machine, right under the pump oil drain hole. Open the upper plug, the lower plug and then the drain valve to remove the exhausted oil contained within the vacuum pump.



4 Once the pump has been emptied, screw the lower plug again and close the drain valve.

5 Fill the pump with new oil through the upper opening, using a funnel if needed. Bring new oil level halfway through the oil inspection window.

6 Once the pump has been filled, close the upper plug.

Once oil has been replaced, switch on the unit and from the MAINTENANCE menu select PUMP OIL REPLACEMENT: press the "RESET" key to set the counter to zero.

13.4 DRYER FILTER CHANGE

The dehydrator filter must be replaced after having dehydrated 45 kg of refrigerant fluid, since the filter capacity to keep the humidity present in the refrigerant will run out.

To replace the dryer filter, from the MAINTENANCE menu select DRYER FILTER REPLACEMENT: press "RESET" to set the counter to zero and to start the filter replacement procedure.

Now you can replace the filter.

Required equipment:

- 1 Medium-sized cross-tip screwdriver
- 1 regular or torque Hex key (24 mm)
- 1 Hex key (17 mm)

For replacement, comply with the instructions outlined below:

1. disconnect the HP and LP hoses from other systems/circuits or vehicles and close the quick couplers
2. the unit turns on and empties the hoses.
3. Confirm to have already worn the personal protective equipment (PPE) and follow the safety regulations in force.



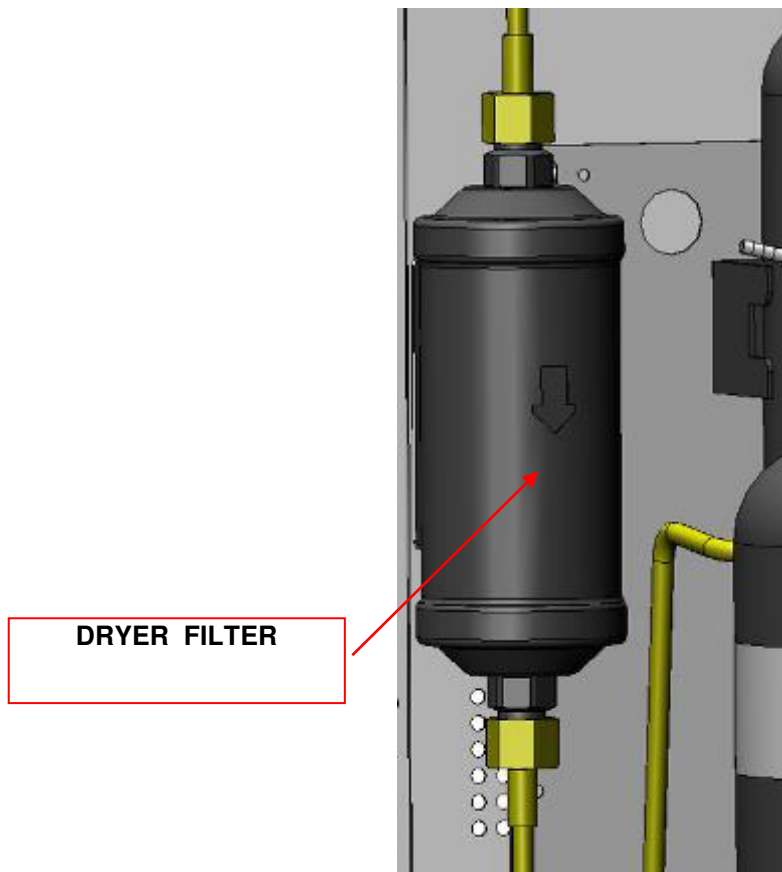
DANGER OF CONTACT WITH R134a or R1234yf REFRIGERANT and motor vehicle A/C system oil

4. Before opening the doors of the equipment, switch off the power and **disconnect the machine from the power supply.**



DANGEROUS VOLTAGE HAZARD

5. Remove the screws that fix the rear door of the unit.
6. Unscrew the 2 connection nuts of the filter by means of the hex keys.
7. Remove the straps that wind up the filter



8. Install the new filter paying attention to the position of gaskets and to the direction of the arrow indicating the fluid flowing direction.
9. Screw the two connection nuts of the filter.
10. Carry out the automatic leak test requested by the software when switched on again after the filter replacement.

13.5 COUNTERS

In the COUNTERS menu, at any time, the vacuum pump and compressor hours of life can be displayed; besides, remaining time before replacement of vacuum pump oil and dryer filter can also be displayed.

To access the COUNTERS menu, from the main menu enter the MAINTENANCE menu and press COUNTERS.

COUNTERS display the following information:

- Pump activation
- Compressor activation
- Pump oil remaining time
- Filter residual capacity

13.6 STORAGE VESSEL FILLING



STRICTLY COMPLY WITH INSTRUCTIONS BELOW TO AVOID REFRIGERANT DISCHARGE INTO THE ATMOSPHERE
ALWAYS FOLLOW THE INSTRUCTIONS ON THE REFRIGERANT MANUFACTURER'S SAFETY SHEET IN FULL

After following the above described procedure, connect the HP quick coupler (red), in case of R134a, LP quick coupler (blue), in case of R1234yf, of the unit to an external tank by using the adapter supplied with it.

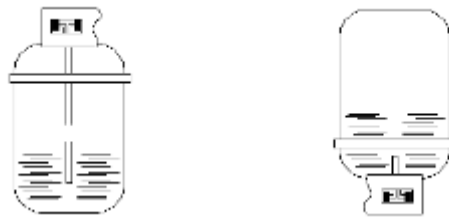
Open the coupler by turning the knob clockwise.

Open the valve on the external tank.

There are two types of source tanks: with plunger and without plunger.

Tanks **with plunger** shall remain upright to be able to transfer liquid refrigerant; for this type of bottles connect to the **L** (liquid) coupler.

Tanks **without plunger** have only one valve, so they must be turned upside down to transfer the liquid refrigerant.





The HP gauge shows the pressure level into the external tank.


Push   to select the submenu VESSEL FILLING, then push  to enter it.

In the following screen page set the quantity of refrigerant you wish to charge.

The field RESIDUAL shows the quantity of refrigerant being currently present in the vessel.


Position the cursor into the field TO CHARGE that will suggest, by default, the maximum quantity of refrigerant to charge.

Push   to set the quantity of refrigerant you need to charge.

Push  to start the charging phase.

Please note that when the system warns that the maximum selected weight has been reached, after the closing of the external bottle valve, the unit still absorbs a small amount of refrigerant.

In case of problems during the internal vessel filling phase, a specific message will appear on the last line of the display.

It is possible to interrupt the phase in progress at any time, by pushing .

After some minutes the unit will automatically end the function.

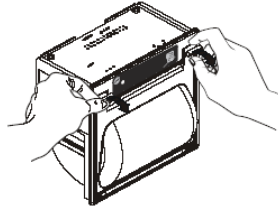
At the end the weight of the charged refrigerant will be displayed.

NOTE: The charging requires to be performed by a minimum of 2 kg to a maximum of 15 Kg.

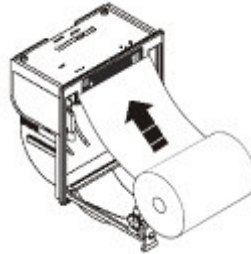
13.7 MAINTENANCE OF PRINTER

To change the roll of paper follow instructions below:

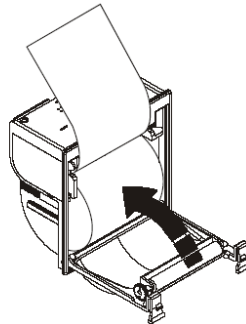
Open the lid of the printer as shown.



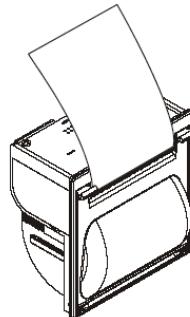
Position the roll of paper inside the housing in the rotation direction indicated in the picture;



Pull the paper out of the housing as indicated in the picture and close the lid ;



The printer is ready for printing.



13.8 PERIODIC CHECKS

A/C service stations (pressure equipment set) must be checked over regularly as provided by local legislation.

The frequency for the periodic requalification check of:

- **functioning** of the container and of the pressure equipment set and of the related protection/safety devices/accessories is established to be every 2 years (according to the Italian law D.M. 1/12/2004, No. 329);
- **integrity** of the container and of the pressure equipment set is established to be every 10 years (according to the Italian law D.M. 1/12/2004, No. 329);

withstanding that:

- the national laws in force of the country where the MULTIGAS 8500 is commissioned do not provide for a higher frequency (lower period of time);
- the bodies in charge, after the results of the previous checks performed (of commissioning or period requalification) do not establish different frequencies.

The checks must be performed by the bodies in charge in the country where MULTIGAS 8500 is commissioned, in compliance with the national laws/rules and the related procedures. Please identify and contact these bodies in order to establish performance times and modes of commissioning and periodic requalification checks (integrity, functioning, or any other scheduled checks).

Depending on local legislation, the checks may be extended to other components to verify the metrological characteristics of the integrated instrumentation and the presence of essential equipment and accessories.

Here below, some possible checks on components subject to the PED directive are outlined.

VESSEL 20I **Category III (Dir. 97/23/EC)**



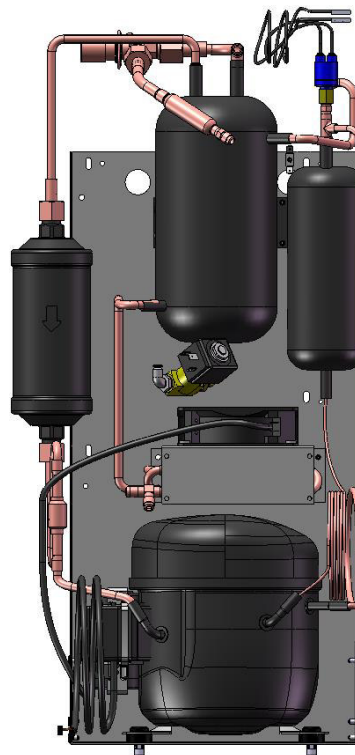
- Make sure no corrosion or leakage is present; under normal conditions of use, the vessel life is at least 20 years (in the absence of wear and other types of damages).

**SAFETY VALVE GAS AIRTEK - VS14NPT20HNBRPED4 20bar R 1/4 NPT
Category IV (Dir. 97/23/EC)**



- If the automatic safety valve trips, contact technical service to have the unit checked over, resolve any problems and replace the valve if necessary.

**SUCTION UNIT
Art. 3.3 (Dir. 97/23/EC)**



- Make sure no corrosion and leakages are present.

PRESSURE SWITCH 13/18bar 1/4SAE
Category IV (Dir. 97/23/EC)



- Check presence of the device with references indicated above, wholeness of connection cables and connector, and the correct connection to the equipment printed circuit board. In case the pressure switch must intervene, please contact the technical customer service that will check the equipment and remove any defect.

HOSES

- Periodically check that the external charging hoses, red (HP) and blue (LP), are in good order and undamaged. In case damages to the hoses are detected, stop using MULTIGAS 8500 and contact the technical customer service for the related replacement.



OTHER CHECKS

- Verify lubricant (vscuum pump oli) and filters (deidrato) had been repalced according to the scheduled maintenance periodicity.

13.9 PERIODIC INSPECTIONS TABLE

Periodic inspections, reported in the table below, integrate the actions indicated by the station MULTIGAS 8500 software (Ref. PAR.. 16 MESSAGE AND ALLARM CODES).

COMPONENT	INSPECTIONS PERIODICITY
VESSEL 20 l	ANNUAL CHECK (RIF. PAR. 13.8)
SAFETY VALVE GAS	IN CASE OF INTERVENTION (RIF. PAR. 13.8)
SUCTION UNIT	CHECK EVERY SIX MONTHS (RIF. PAR. 13.8)
PRESSURE SWITCH	CHECK EVERY SIX MONTHS (RIF. PAR. 13.8)
VACUUM PUMP OIL	REPLACING AFTER 60 h / 1000 h IN CASE OF APPLICATION FUNCTION LONG LIFE PUMP (RIF. PAR. 13.3)
DRYER FILTER	REPLACE AFTER DEHYDRATED 45 Kg OF REFRIGERANT (RIF. PAR. 13.4)
GAUGES	<u>NOT SUBJECT TO CALIBRATION</u> (UNLESS OTHERWISE INDICATED BY CUSTOMER PROCEDURES)

13.10 GAS TYPE REPLACEMENT

Your MULTIGAS 8500 station is supplied with the standard fittings to operate with gas R134a, but it can be easily adapted to be used with refrigerant gas R1234yf.

Contact an authorized Service Centre to ask for the adaptation kit.

The adaptation must be performed by a technician of an Authorised **GB Barberi s.r.l.** Service Centre, who will install the specific components for use of R1234yf. He will also carry out all configurations and verifications required by the gas type replacement procedure.

CAP. 14 DISPOSAL

14.1 A/C SERVICE UNIT DISPOSAL

At the end of its service life, the unit must be disposed of as follows:

- Contact the service centre to have the refrigerant in the unit recovered and recycled.
- Consign the unit to an authorised collection centre according to local legislation.

14.2 RECYCLED MATERIAL DISPOSAL

Consign the refrigerant recovered from the unit to the refrigerant supplier for proper disposal or recycling.

Lubricants extracted from systems must be consigned to an exhausted oil collection centre.

14.3 PACKING DISPOSAL

Electronic and electrical A/C service equipment must never be disposed of with domestic waste, but recycled appropriately.

The packaging must be disposed of in conformity with local legislation. This contributes to protecting the environment.

CAP. 15 SPARE PARTS

Refer to the annexed catalogue spare parts.

CAP. 16 MESSAGE AND ALLARM CODE

Please find below the list of message and alarm codes that could be detected by the software of the MULTIGAS 8500 station. If there are alarms, it is advisable to apply to Your supplier or service Partner.

Notice/Warning messages are coded with Wxxx code on the title of the window.

CODE	MESSAGE	When it occurs	Possible situations	Actions
W008	REPLACE VACUUM PUMP OIL	When required after Pump Monitoring System procedure	Pump oil contaminated	Replace pump oil
W009	REPLACE DRYER FILTER	every year since installation	Filter capacity is finished	Replace dryer filter
W025	REFRIGERANT QUANTITY TOO HIGH	During the programming of the inner tank charge amount	Amount required greater than that available in internal tank	Decrease the set quantity.
W026	RECHARGE VESSEL EMPTY OR DISCONNECTED	During the tank filling phase	Recharging tank empty or hoses/taps clogged/closed	Check tank, hoses, taps.
W029	VESSEL NEARLY FULL	During the refrigerant recovery or hoses emptying phase.	The tank is close to its maximum capacity.	Decrease quantity of gas by filling (injecting) an external suitable tank (with safety valve)
W032	NO PRESSURE - VEHICLE WITHOUT REFRIGERANT OR DISCONNECTED	During the refrigerant recovery phase		Check connections and leaks in A/C system

CODE	MESSAGE	When it occurs	Possible situations	Actions
W036	FURTHER OIL INJECTION NOT POSSIBLE	During oil injection phase	Insufficient vacuum level	Increase the vacuum phase time, check the A/C system tightness.
W044	VESSEL EMPTY	During flushing or Tank refrigerant internal re cycling phase	Gas level is too low for the procedure to be completed	Fill the internal tank with gas
W045	LP VERY LOW, CHECK CIRCUIT BEFORE CONTINUING	During flushing phase	LP hose disconnected, flushing couplings not properly connected or leak in circuit being flushed.	Reconnect LP and/or the fittings and eliminate any leaks.
W047	POSSIBLE LEAKAGE	During the refrigerant recovery phase	Vehicle A/C system may have leaks	--

Alarm messages are coded Axxx in the window title bar.

Alarms immediately terminate the procedure and prevent its resumption.

CODE	MESSAGE	When it can occur	Possible causes	Actions
A000	EEPROM NOT WORKING	Electronics fault	EEPROM damaged	Replace the logic electronic board
A001	EEPROM DATA CORRUPT	Electronics fault	EEPROM damaged	Replace the logic electronic board
A002	PRESSURE SAFETY SWITCH ACTIVATED	Pressure above 18 bar	High pressure in the internal tank or circuit between compressor and tank obstructed or closed.	Verify <ul style="list-style-type: none"> ▪ If internal vessel pressure level is over 18 bar, wait for pressure reduction ▪ disconnect equipment from the mains, use safety protection, open equipment and verify if the valve between compressor and internal vessel are open
A003	ADC NOT WORKING	Electronics fault	ADC analog-digital converter damaged	Replace the logic electronic board.
A004	FAN NOT WORKING	Only during use with R-1234yf	Fan not working properly (stopped or fan's rpm not adequate)	Stop use of the equipment: <ol style="list-style-type: none"> 1. check electrical connections 2. if necessary, change fan and related wiring 3. Replace the logic electronic board.

CODE	MESSAGE	When it can occur	Possible causes	Actions
A032	CIRCUIT STILL UNDER PRESSURE	During the vacuum, vessel filling or leak test phase in vacuum	The vehicle A/C system is pressurized	Recover the refrigerant gas from the vehicle before starting another vacuum phase.
A033	CIRCUIT LEAKAGE	During the vacuum, vessel filling or leak test phase, both under pressure and in vacuum	Leakage in the circuit or in the vehicle fittings.	Identify the leak position in the vehicle or connected system and have it repaired by trained and qualified staff according to local legislation.
A034	VACUUM LEVEL TOO LOW	During tracer injection and oil injection phase.. The necessary vacuum level has not been reached.	Vehicle A/C system is pressurised notwithstanding the vacuum phase, possible presence of leakages inside A/C system. Vacuum phase time not sufficient or phase not executed (manual cycle).	Repeat cycle, increase vacuum time, if leakages has been identified, identify the leak position in the vehicle or connected system and have it repaired by trained and qualified staff according to local legislation.
A035	VESSEL EMPTY	During the gas injection and flushing phase	Refrigerant gas is too low for the procedure to be completed	Fill the internal tank
A036	VESSEL REFRIGERANT QUANTITY TOO LOW	During the gas injection and flushing phase	Gas amount in internal tank less than required	Fill the internal tank

CODE	MESSAGE	When it can occur	Possible causes	Actions
A037	FURTHER REFRIGERANT INJECTION NOT POSSIBLE	During gas injection phase	Hoses not connected to vehicle A/C system; tap closed; Vacuum not sufficient presence of pressure in the circuit	Caution: before proceeding, empty out the hoses. Repeat the recovery procedure and increase the vacuum phase duration
A038	CIRCUIT LEAKAGE OR DISCONNECTED	During flushing phase	Leakages or obstructions in the circuit to be flushed	Check the connection to the A/C system or identify the leak in the circuit and have it repaired by trained and qualified staff according to local legislation.
A039	FURTHER OIL INJECTION NOT POSSIBLE	During oil injection phase	Insufficient vacuum level	Increase vacuum phase duration.
A043	VESSEL FULL	During the gas recovery and hoses emptying phase	Internal tank full, maximum capacity level reached	Decrease quantity of gas by filling (injecting) an external suitable tank (with safety valve)

CODE	MESSAGE	When it can occur	Possible causes	Actions
A047	LP LEAKAGE	During the gas recovery and hoses emptying phase	At the end of the gas injection, in the Eco-Lock Lock patented technology quick couplers disconnection phase, during the vehicle fittings leak test	Empty the vehicle (follow the procedure guided by the displayed messages)
A048	HP LEAKAGE	During the gas recovery and hoses emptying phase	At the end of the gas injection, in the Eco-Lock Lock patented technology quick couplers disconnection phase, during the vehicle fittings leak test	Empty the vehicle (follow the procedure guided by the displayed messages)
A049	LP AND/OR HP LEAKAGE	During the gas recovery and hoses emptying phase	At the end of the gas injection, in the Eco-Lock Lock patented technology quick couplers disconnection phase, during the vehicle fittings leak test	Empty the vehicle (follow the procedure guided by the displayed messages)

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GB983-970-XXX

SPARE PARTS LIST

A/C RECHARGE STATION

Mod. MULTIGAS 8500

P/N GB983-970-000

P/N GB983-970-050

P/N GB983-970-100

P/N GB983-970-200

P/N GB983-970-300

SPARE PARTS LIST



Basic Issue : **MAY** **2021**

Change 1 :



GB BARBERI s.r.l. 21018 Sesto Calende - Via Rosselli, 30 - VARESE - ITALY

Phone 0331.923.418 - Fax 0331.920.692

E-mail : info@gbarberi.com - www.gbarberi.com

LIST OF EFFECTIVE PAGE

INSERT LATEST CHANGED PAGES
DESTROY SUPERSEDED PAGES

NOTE:
THE PORTION OF THE TEXT AFFECTED BY THE CHANGE IS INDICATED BY A VERTICAL LINE IN THE OUTER MARGINS OF THE PAGE. CHANGES TO ILLUSTRATIONS ARE INDICATED BY MINIATURE POINTING HANDS.

DATE FOR ISSUE FOR ORIGINAL AND CHANGED PAGES ARE:

ORIGINAL : **MAY 2021** CHANGE 1 :




TOTAL NUMBER OF PAGE IN THIS PUBLICATION IS **16** CONSISTING IN THE FOLLOW:

PAGE NUMBER	(*) CHANGE
FRONTESPICE -----	0
PAGE A -----	0
PAGE A1 -----	0
PAGE A2 -----	0
PAGE I -----	0
PAGE ii BLANK -----	0
1 THRU 9 -----	0
PAGE 10 BLANK -----	0

UPON RECEIPT OF THE SECOND AND SUPSEQUENT CHANGE 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 PROPTLY IF THE PUBLICATION IS INCOMPLETE.

(*) ZERO IN THIS COLUMN INDICATES AN ORIGINAL PAGE.

INDEX OF CHANGES

0	03/05/21	Basic Issue	A. Castelli 	M. De Fino 	N. Barberi 
REV.	DATE:	DESCRIPTION			
CHANGE			PREPARED BY/ SIGNATURE	APPROVED BY/ SIGNATURE	AUTORIZED BY/ SIGNATURE

GB 983-970-XXX

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SECTION I

SPARE PARTS LIST

1.1 GENERAL

This Technical Manual provides a complete list of spare parts of the A/C RECHARGE STATION Mod. MULTIGAS 8500, identified by **P/N GB983-970-XXX**, manufactured by GB BARBERI s.r.l. - Via Rosselli, 30 - Sesto Calende (VA).

1.2 USE OF THE SPARE PARTS LIST

The columns contained in the spare parts list have the following meanings:

POSITION COLUMN

This column quotes the index numbers which are the same of the parts shown in the figure.

PART NUMBER (P/N) COLUMN

This column quotes the part numbers of the parts which are the same shown in the figure.

DESCRIPTION COLUMN

This column lists the name or supplies a concise description of each part or assembly.

UNIT PER ASSEMBLY COLUMN

This column indicates the quantity of each part required for each assembly or subassembly.

NOTE

SPARE PARTS ORDER MUST INDICATED THE PART NUMBER (P/N) OF THE SPARE AND THE SERIAL NUMBER (S/N) OF THE ASSEMBLY FOR WHICH THE SPARE IS REQUIRED.

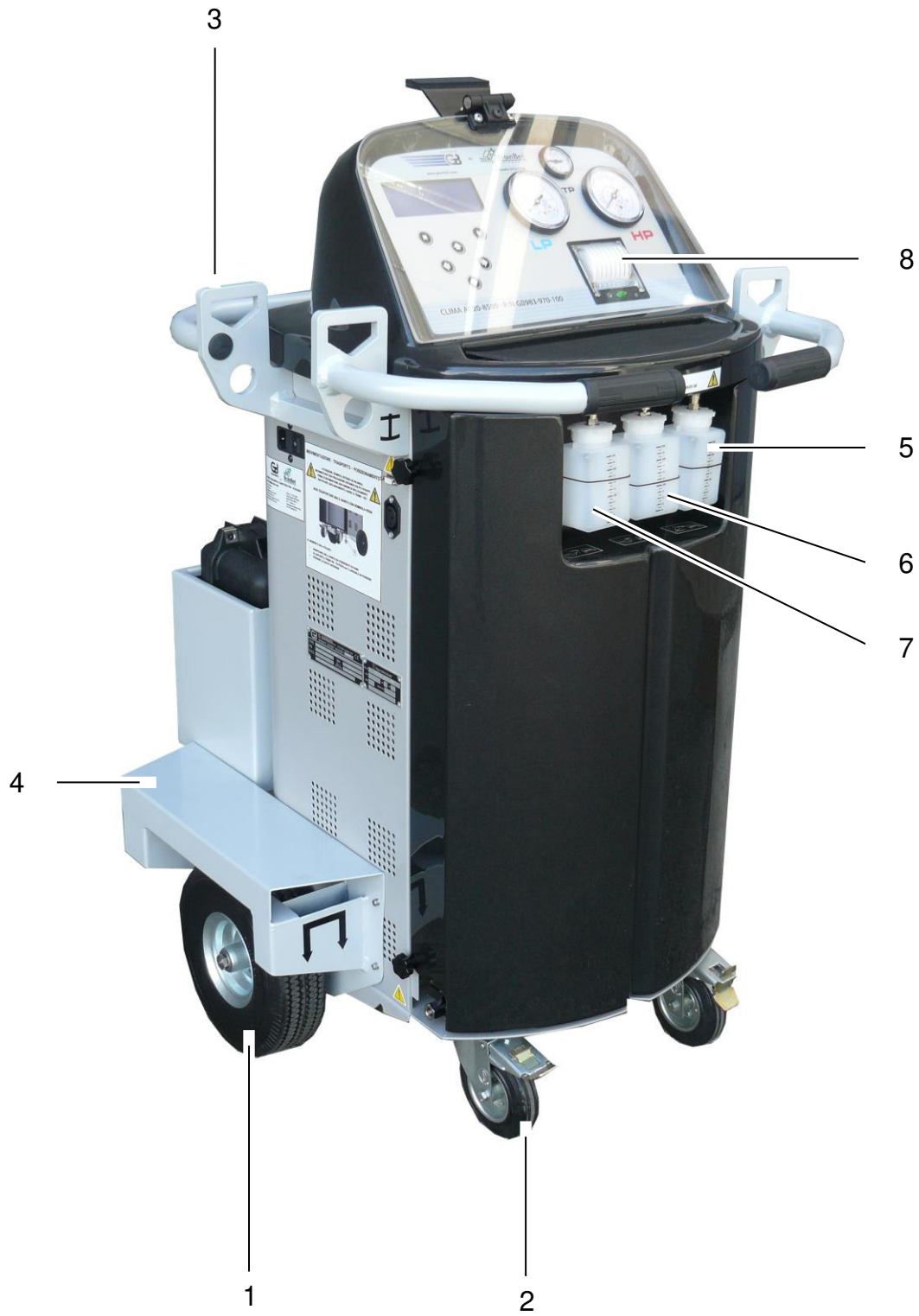


Fig. 1.1 A/C RECHARGE BENCH

Table 1.1 A/C RECHARGE BENCH (Ref. Fig. 1.1)

Pos.	N° di riferimento	Descrizione	Q.tà
1	.....GB080-604-260	Rear Wheel	2
2	.....GB082-300-030	Front Wheel.....	2
3	.....GB262-602-871	Handle Assy	2
4	.....GB262-602-872	Fork Lift Assy.....	2
5	.....GB230-405-100	Container of New Oil	1
6	.....GB230-405-200	Container Exhaust Oil.....	1
7	.....GB230-405-100	Container UV Tracer.....	1
8	.....GB006-760-100	Paper (5 pieces box)	1

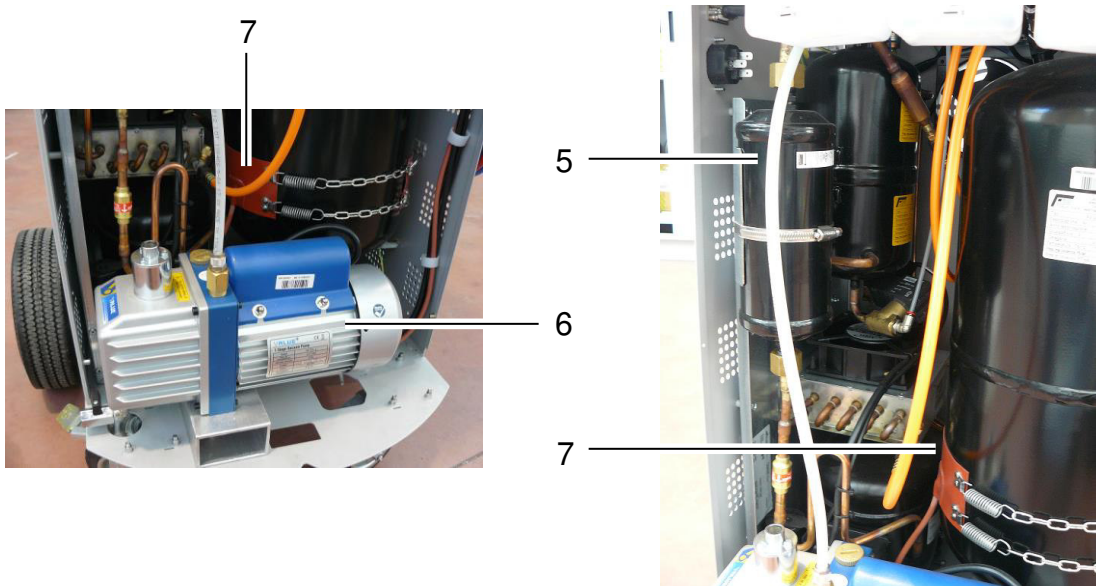
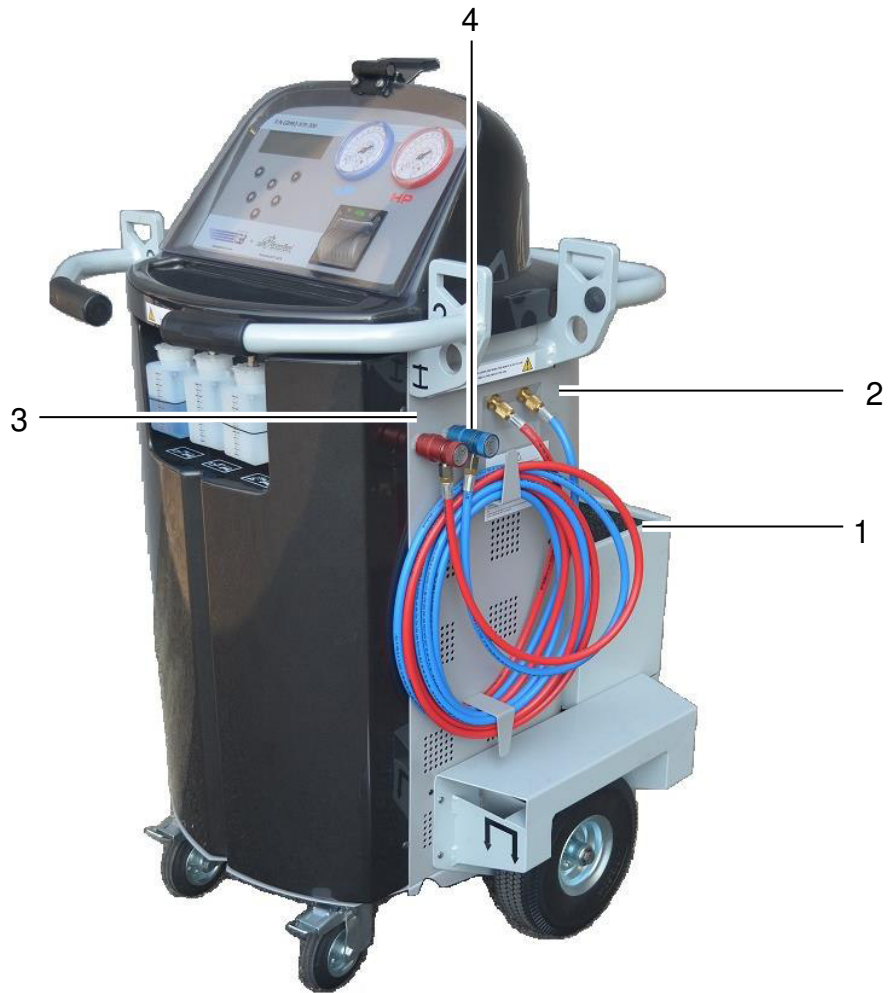


Fig. 1.2 SPARE PARTS

Table 1.2 SPARE PARTS (Ref. Fig. 1.2)

Pos.	N° di riferimento	Descrizione	Q.tà
1	.....GB529-036-100	Red Hose L = 4,5	1
2	.....GB529-036-200	Blu Hose L= 4,5	1
3	.....GB481-325-100	HP Red Quick Coupler	1
4	.....GB481-325-200	LP Blu Quick Coupler	1
5	.....GB671-910-000	Dryer Filter	1
6	.....GB009-008-200	Vacuum pump oil	1
7	.....GB699-930-100	Heating belt	1

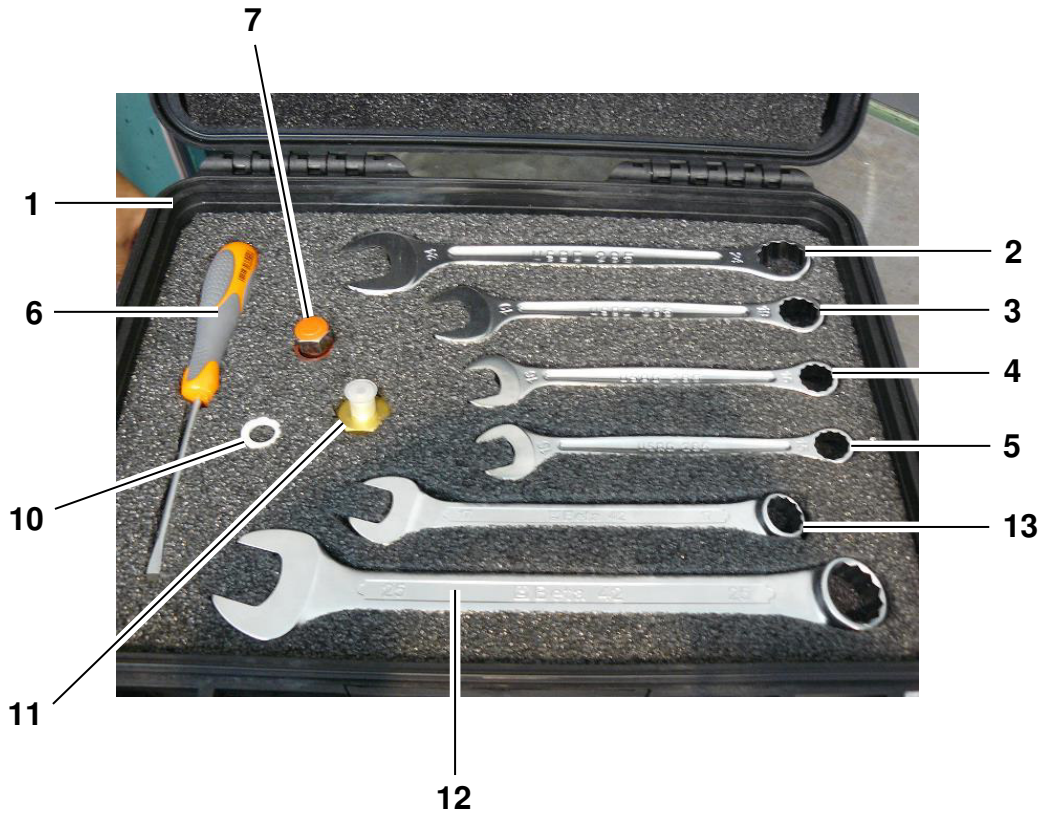


Fig. 1.3 TOOL KIT and ACCESSORIES

Table 1.3 TOOL KIT and ACCESSORIES (Ref. Fig. 1.3)

Pos.	N° di riferimento	Descrizione	Q.tà
1	.....GB707-091-510	..... Case Black	..... 1
2	.....GB961-002-450	..... Wrench 24	..... 1
3	.....GB961-001-940	..... Wrench 19	..... 1
4	.....GB961-001-600	..... Wrench 16	..... 1
5	.....GB961-001-550	..... Wrench 15	..... 1
6	.....GB961-302-050	..... Screwer	..... 1
7	.....GB458-020-995	..... Recharge Bottle Connection	..... 1
8	.....GB961-802-050	..... Bowl	..... 1
9	.....GB965-801-195	..... Protection Cover	..... 1
10	.....GB038-820-900	..... Teflon Gasket	..... 1
11	.....GB453-500-055	..... Bottle Connection	..... 1
12	.....GB961-002-460	..... Wrench 25	..... 1
13	.....GB961-020-080	..... Wrench 17	..... 1

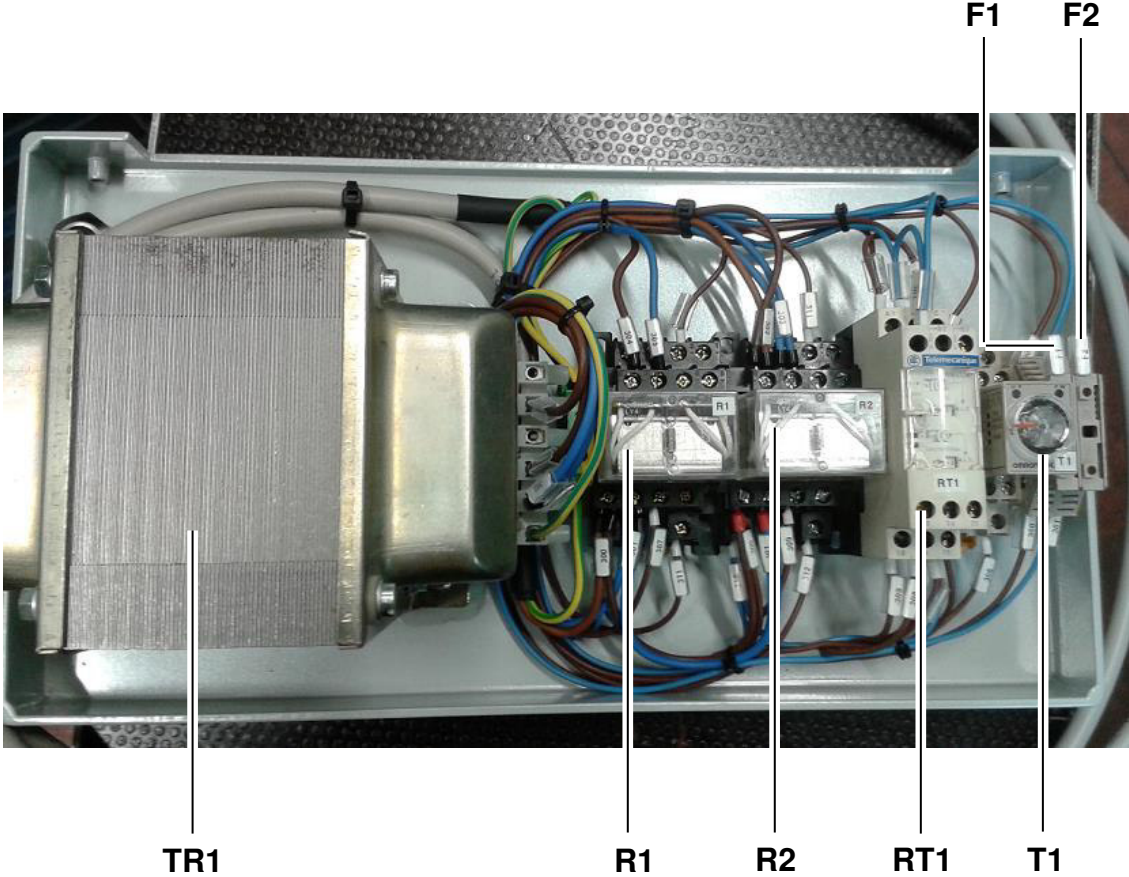


Fig. 1.4 MULTI-TENSION SYSTEM

Table 1.4 MULTI-TENSION SYSTEM (Ref. Fig. 1.4)

Pos.	N° di riferimento	Descrizione	Q.tà
F1	GB734-104-200	FUSE HOLDER.....	1
	GB747-106-010	FUSE 5 x 20 1A.....	1
F2	GB734-104-200	FUSE HOLDER.....	1
	GB747-106-010	FUSE 5 x 20 1A.....	1
R1	GB741-220-101	RELAY	1
	GB749-015-000	SOCKET, RELAY	1
R2	GB741-204-149	RELAY	1
	GB749-015-000	SOCKET, RELAY.....	1
RT1	GB741-220-100	RELAY	1
T1	GB742-622-100	TIMER.....	1
TR1	GB768-120-030	AUTO TRANSFORMER 1000 VA	1

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