Advance
R-1234yf RI
Notes:
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1 PREFACE

The machine has been designed and built to ensure long lasting, high-level operating reliability with maximum safety for user.

This operating manual is part of the machine.

Read carefully before use.

- The user is responsible for the proper use of the machine in accordance with the instructions found in this operating manual.
- The manufacturer cannot be held responsible for damage to persons, animals and/or objects due to improper use different to that illustrated in this instruction manual.
- The manufacturer reserves the right to make technical and aesthetic alterations to the machine without prior notification.

The purpose of this operating manual is:

- To supply the user with all the information needed to use the machine starting from purchase on through to the disposal of this same machine.
- To ensure maximum support for the personnel assigned to the use and the maintenance of the machine.

For any special needs or requests for technical assistance or spare parts, please contact the manufacturer.

This document may contain printing mistakes.

2 SYMBOLS

this safety alert symbol indicates that this message involves personal safety. Works danger, warming and caution indicate degree of hazard. Death, personal injury and/or property damage may occur unless instructions are followed carefully.

You are not ready to operate this machine if you have not read and understood the following safety items. Read this entire OPERATING MANUAL.
3 FORESEEN USE

The machine is designed solely for use in automobile air-conditioning system maintenance. This Service station may only be used with the refrigerant R1234yf and Silco UV Dye

It’s forbidden to use the machine for disposal process!

4 SAFETY

The user is obliged to follow the “General safety rules”, to use the machine in accordance to the “intended use” and the instructions of this operating manual.

Therefore, the user is not exposed to any risk if the general safety rules reported below are followed with proper use and maintenance of the machine.

4.1 Glossary of Terms

- **Machine**: The machine relative to this operating manual.
- **Refrigerant**: Fluid reported on the identification label.
- **A/C system**: Air-conditioning system in the vehicle.
- **External tank**: New Refrigerant used to fill the internal vessel.
- **Internal vessel**: Refrigerant storage tank inside the station.
- **Process**: Execution of an individual function (e.g. Recovery).
- **Cycle**: Execution of more processes.

- **Recovery**: The recovery of refrigerant in any condition and its storage in a container outside the A/C system, without necessarily undergoing analysis or treatment of any kind.
- **Recycling**: A reduction of the contaminating substances in used refrigerants through oil separation, the recovery of incondensable and their single or multiple passage through elements that enable a reduction in humidity, acidity and particles.
- **Nitrogen test**: Introduction of nitrogen inside an A/C system in order to detect possible leaks.
- **Evacuation**: Phase in which incondensable and moisture are evacuated from an A/C system solely by means of a vacuum pump.
- **Oil charge**: Introduction of oil inside an A/C system for the purpose of maintaining the amount of oil specified by the manufacturer.
- **UV dye charge**: Introduction of UV dye inside an A/C system in order to detect possible leaks by means of a UV lamp.
- **Refrigerant charge**: Phase during which refrigerant is introduced into an A/C system in the amount specified by the manufacturer.
4.2 General safety rules

- This machine is intended for use by **QUALIFIED PERSONNEL** only. Such users must have a knowledge of the basics of refrigeration, refrigeration system, refrigerants and the potential hazards that machine under high pressure can cause.
- DO NOT modify the safety devices
- DO NOT use external tanks or other storage tanks that have not been type-approved or that lack safety valves.
- DO NOT use the machine near open flames and hot surfaces. At high temperatures, the refrigerant decomposes, releasing toxic and chemical substances that are hazardous for users and the environment.
- It's obliged to supervise the machine at all times.
- It's obliged to use only the refrigerant indicated on the identification label. Mixtures with other types of refrigerant will seriously damage the cooling and refrigeration system, as well as the machine.
- It’s obliged to use goggles and gloves - contact with the refrigerant can cause blindness and other physical injury to the user.
- Avoid inhalation of vapour from the refrigerants and contact of the refrigerant with skin.
- Avoid to leave power supplied to the machine unless the machine is going to be used immediately. Cut off the electrical power supply prior to long intervals in which the machine will not be used.
- Attention: Ensure that all valves are closed before making connections between the machine and an A/C system or an external tank.
- Attention: Ensure that the process has been completed and that all valves are closed before disconnecting the machine.
- Attention: All of the flexible hoses may contain refrigerant under high pressure.
- Attention: The machine and A/C system in vehicles containing refrigerant should not be tested with compressed air. Some mixtures of air and refrigerant have proven to be combustible at high pressure levels. These mixtures are potentially hazardous and there is a risk of fire and explosions that can cause damage to property and personal injury. Additional medical and safety information can be obtained from the manufacturers of the oils and refrigerants.

4.3 Guidelines for handling refrigerants

4.3.1 Precautions for Refrigerant Storage

The refrigerant to be removed from a system must be handled carefully in order to prevent or minimize the possibilities of different refrigerants mixing. The tank used for storing refrigerants must be assigned to specific refrigerants to avoid different refrigerants mixing.

4.3.2 Recycling Capacity

The recycling machine’s filter system should be replaced regularly in order to maintain the efficiency of the recycling machine.

4.3.3 General notifications

Before re-introducing refrigerant into the system, the system itself must be evacuated and cleaned. In order to be sure that the system is free of contaminating agents before introducing the refrigerant, all the procedures described in this instruction manual must be followed.
Clean and maintain the machine regularly, especially when highly contaminated refrigerant is used: it is extremely important that contamination from the previous operation is not transferred to subsequent operations.

The machine is designed exclusively for **1234yf**
The design meets all the guidelines of the European standard **EN 378:2010**

Safety Classification and information about refrigerant:


**PROPANE series:** 1234yf (2,3,3,3-tetrafluoro-1-propene CF3CF=CH2)
Safety group: **A2**
PED fluid group: **1**

The refrigerant (R) **1234yf** is classified **FLAMMABLE**

The refrigerant can assume different names depending on the manufacturer!

For more information relating to the refrigerant refer to the SAFETY DATA SHEET according to Regulation (EC) No. 1907/2006 (MSDS)

The SAFETY DATA SHEET (MSDS) must be delivered to the operator(s) employee(s) using the machine!

**HAZARDS IDENTIFICATION**

Classification

**REGULATION (EC) No 1272/2008**

Flammable gases 1

H220 Extremely flammable gas.
Gases under pressure Liquefied gas
H280 Contains gas under pressure; may explode if heated.

**DIRECTIVES 67/548/EEC or 1999/45/EC**

F+ Extremely flammable
R12 Extremely flammable.

Tank label elements

**REGULATION (CE) N. 1272/2008**
Hazard pictograms:

Signal word :  Danger

Hazard statements :
H220 Extremely flammable gas.
H280 Contains gas under pressure; may explode if heated.

Precautionary statements :
P281 Use personal protective equipment as required.
P210 Keep away from heat/sparks/open flames/hot surfaces.
     No smoking.
P260 Do not breathe dust/ fume/ gas/ mist/vapours/ spray.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P410 + P403 Protect from sunlight. Store in a well ventilated place.

DIRECTIVES 67/548/EEC o 1999/45/EC

Symbol(s) :

R-phrase(s):
S-phrase(s):
R12 Extremely flammable.
S 9 Keep container in a well-ventilated place.
S16 Keep away from sources of ignition – No smoking.

SYMBOLS

These safety alert symbols indicate that this message involves personal safety. Works danger, warning and caution indicate degree of hazard. Death, personal injury and/or property damage may occur unless instructions are followed carefully.

Do not operate this machine if you have not read and understood the following safety items. Read this entire OPERATING MANUAL.
4.4 Safety devices

The machine is equipped with the safety devices required from the European Directives:

- Electric safety switch.
- Safety valve

**DO NOT MODIFY THE SAFETY DEVICES!**

4.5 Not condensable gases discharge

A not condensable gas discharge valve is installed to consent the evacuation of the not condensable-gasses in the internal vessel.

The not condensable gas discharge valve could generate noises.

Never approach the not condensable gas discharge valves! Danger of pressurized gas discharge

4.6 The working environment

- The machine must be used in open environment or in places equipped with good ventilation (at least 4 changes of air per hour).
- The machine has been designed for use at a maximum altitude of 1000 m above sea level, within a temperature range of +5 and +40°C and with a maximum humidity of 50% at +40°C.
- Operate in sufficiently light conditions.

4.7 Ventilation Control Device VCD

The machine is designed for the refrigerant **1234yf** classified as flammable.
For this reason, the machine is equipped with a ventilation security system which has the task, in case of leakage of the circuit, to avoid the formation of pockets of refrigerant.
The Ventilation Control Device (VCD) monitors the efficiency of the ventilation security system and in case of anomaly of the same it prevents the use of the machine or activates the procedure for putting in safety.
In addition, the internal vessel is equipped with a normally closed electric valve which is activated only when the ventilation security system works correctly.
5 USE OF THE SERVICE STATION

5.1 Unpacking and checking of components

Remove the machine packaging and ensure that the following parts are present:

- This operating manual.
- EC/PED documentation
- Refrigerant Tank adapter (Honeywell)
5.2 Service station description

- Printer
- Top cover
- Keyboard
- Safety switch
- Rear wheel
- Main switch
- Refrigerant identifier
- Nitrogen filling port 1/4SAE Male Max pressure 10 bar
- Cord and operation manual pocket
- Tool pocket
- LP Gauge
- HP Gauge
- LP Coupler
- HP Coupler
- LP Hose
- HP Hose
- Hoses pocket
- Vacuum pump oil level
- Front wheel with brake
- Drained oil bottle 500 cc
- UV Dye bottle 100 cc
- New oil bottle 250 cc
- Safety switch
- Ventilation Security System
- Refrigerant identifier

User Manual Advance R-1234yf RI
### Technical features

<table>
<thead>
<tr>
<th>Feature</th>
<th>Service Station Advance/Advance+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power supply</td>
<td>230V+/-10% 50Hz</td>
</tr>
<tr>
<td>Operating temperature range</td>
<td>10/49°C</td>
</tr>
<tr>
<td>Refrigerant</td>
<td>R1234yf</td>
</tr>
<tr>
<td>Internal vessel capacity (kg)</td>
<td>11</td>
</tr>
<tr>
<td>Maximum pressure (PS)</td>
<td>18 bar</td>
</tr>
<tr>
<td>Compressor</td>
<td>1/3 HP</td>
</tr>
<tr>
<td>Recovery rate (liquid)</td>
<td>390 g/min’</td>
</tr>
<tr>
<td>Not condensable gas discharge</td>
<td>Automatic</td>
</tr>
<tr>
<td>Main drier filter</td>
<td>Type 300/660 cc</td>
</tr>
<tr>
<td>Fan</td>
<td>172 mm + 80mm</td>
</tr>
<tr>
<td>Oil discharge</td>
<td>Automatic</td>
</tr>
<tr>
<td>Bottle capacity</td>
<td>500 cc</td>
</tr>
<tr>
<td>Weight scale</td>
<td>60 kg</td>
</tr>
<tr>
<td>Accuracy (+/-)</td>
<td>2 g</td>
</tr>
<tr>
<td>Vacuum pump</td>
<td>100 lt/min</td>
</tr>
<tr>
<td>Final pressure (mb abs)</td>
<td>0,08</td>
</tr>
<tr>
<td>Electronic vacuum meter</td>
<td>YES</td>
</tr>
<tr>
<td>Oil charge</td>
<td>Automatic</td>
</tr>
<tr>
<td>Bottle capacity</td>
<td>250 cc</td>
</tr>
<tr>
<td>UV tracer charge</td>
<td>Automatic</td>
</tr>
<tr>
<td>Bottle capacity</td>
<td>100 cc</td>
</tr>
<tr>
<td>Refrigerant charge</td>
<td>Automatic</td>
</tr>
<tr>
<td>Service hoses compensation</td>
<td>Automatic</td>
</tr>
<tr>
<td>Refrigerant Identifier</td>
<td>Built in</td>
</tr>
<tr>
<td>Nitrogen test system</td>
<td>Built in</td>
</tr>
</tbody>
</table>

### Configuration

<table>
<thead>
<tr>
<th>Feature</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display</td>
<td>4 x 20 crt</td>
</tr>
<tr>
<td>Keyboard / Encoder</td>
<td>YES</td>
</tr>
<tr>
<td>Car Data base (32 Mb )</td>
<td>YES</td>
</tr>
<tr>
<td>Printer</td>
<td>Build on</td>
</tr>
<tr>
<td>Gauges (pulse free)</td>
<td>D 80 mm</td>
</tr>
<tr>
<td>Service couplings</td>
<td>Parker SAE</td>
</tr>
<tr>
<td>Service hoses</td>
<td>2,5 m GY</td>
</tr>
<tr>
<td>Pocket tools</td>
<td>YES</td>
</tr>
</tbody>
</table>
5.3 Machine handling

In spite of the fact that the heaviest components have been assembled on the base in order to lower the centre of gravity, it has not been possible to eliminate the risk of overturning completely.

The machine is moved on the four wheels.

On roughly ground, the machine **must be moved by tilting it and balancing the weight on the two rear wheels.**

5.4 Preparation for use

At the purpose to protect the weighting system the scale is blocked by two screws.

In order to activate the machine, please refer to Chap. 9.

5.5 Turning on and switching off

Turning on: Move the main switch to the ON position (I)

Switching off: Move the main switch to the OFF position (O)

**DO NOT shut down the station by disconnecting the power cord!**

5.6 Stillstand for longer periods

The machine should be positioned in a safe area, disconnected from the power supply and protected from excessive temperatures and humidity.

5.7 Disposal

At the end of the machine's lifetime deliver it to a disposal centre.

5.8 Recycled material disposal

The lubricants extracted from A/C system must be delivered to used oil collection centre!
6 START-UP

6.1 Keyboard description

Refer to the following drawing:

Press the Power Switch (I) to turn on the equipment.

Press the Power Switch (I) to turn on the equipment.

The ventilation security system starts and the display shows:

Ventilation system check!
PLS wait.

After 30 sec. the ventilation security system is checked by the VCD.
If the ventilation security system is faulty or the inlet grid is obstructed, the display shows:

Ventilation system fault!
Contact SERVICE CENTER
Possible causes:

The inlet grid is obstructed: PLS remove the obstruction.

The main fan is faulty.
The main fan is blocked.
The VCD is faulty.
PLS contact exclusively the SERVICE CENTER!

If the ventilation security system works, the display shows:

Display (Stand-by)

| Silco d.o.o. |
| Braslovce |
| 01-02-2014 10:20:30 |

Change the lines by the menu “Company name” (See Chap. 6.2.2)

**6.1.1 Printer**

Paper: L 58 mm
Diameter: D 40 mm

Paper feed ---

A) **Before a process:**

Max 20 characters (Plate nr., Chassis nr., etc..)

B) **At the end of a process**

Press “START” key for printing.
Press “STOP” key to end.
6.1.2 Program selection

Press “I” key to check the quantity of available refrigerant.

Press “I” key to come back in stand-by.

Press “E” key to select a process

Turn "ENCODER" to select the required program.
The symbol “O” shows the position.

Following programs are available: (from left)

Basic menu
  SERVICE
  Basic setting
  Date – Time
  Company name
  Database service
  A/C pressure test
  A/C flushing
  Oil type change
  Scale reset
  Maintenance
  Refrigerant test

Vessel charge

Workshop menu

Full service

Advanced program
6.2 SETTING

6.2.1 Date – Time

Turn "ENCODER" to select Date-Time. Press “E” key to confirm.

Turn “ENCODER” to modify the blinking value
Press “E” key to confirm
The next value blinking.
When the data are right, press “START” key to confirm.

<table>
<thead>
<tr>
<th>Time:</th>
<th>10:20:30</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date:</td>
<td>01/02/14</td>
</tr>
</tbody>
</table>

6.2.2 Company name

Turn "ENCODER" to select Company name
Press “E” key to confirm

5 lines are available:

The following setting is an example:

- Company name (Workshop)
- Address (Road, etc.)
- City
- Phone
- Fax

NOTE: All five lines are reported on the ticket, otherwise the line 1 and 3 on the display (in Stand-by).

Turn “ENCODER” to select the character. Press “E” key to confirm.
The character is reported on the first line (left).
If required, press “C” key to delete.
It is possible to move in the line by UP/DOWN
Turn "ENCODER" to select the next character. Press “E” key to confirm.
The character is reported on the first line.
Press “START” key to confirm the setting.
The display shown the following line.
Press “STOP” when the 5 lines are set.

<table>
<thead>
<tr>
<th>Silco d.o.o.</th>
</tr>
</thead>
<tbody>
<tr>
<td>v</td>
</tr>
<tr>
<td>234567890</td>
</tr>
<tr>
<td>ABCDEFGHI</td>
</tr>
</tbody>
</table>
6.2.3 Personal settings

The procedure allows to pre-set some basic settings for automatic programs.

Turn "ENCODER" to select Personal setting Press “E” key to confirm

1 - Recovered refrigerant quantity and oil are reported on the print-out
0 - The data are not reported.

Turn “ENCODER” to select 1 or 0. Then press “E” key to confirm

The default value is applied in:
Full service database Full service Smart service
Turn “ENCODER” to set. Press “E” key to confirm

Refrigerant residual check min. 2

The default value is applied in:
Full service database Full service Smart service
Turn “ENCODER” to set. Press “E” key to confirm.

Leak test min. 2

The default value is applied in:
Full service database Full service Smart service
Turn “ENCODER” to set. Press “E” key to confirm.

Fresh Oil cc. 8

The default value is applied in:
Full service database Full service Smart service
Turn “ENCODER” to set. Press “E” key to confirm.

UV dye min cc. 5

NOTE: Set “0” to by-pass the process!

MIN. Qt. = 5 cc!!!

Turn “ENCODER” to select language.
Press “E” key to confirm

English

SN: Serial number, 361363: Production index (ex).
Press “STOP” key to exit.

SN000000 361363
1 Printer build on
0 Printer off line or not installed.
Turn “ENCODER” to select 1 or 0. Press “E” key to confirm.

OPTIMAL

PRINTER
1

1 Nitrogen test is performed in
Database service  Full service  menu
0 Nitrogen test is excluded
IMPORTANT NOTE: default time is 3 min’.
Turn “ENCODER” to select 1 or 0.
Press “E” key to confirm.

Nitrogen test
AUTO
1

Before any phase which implies recovery of refrigerant (from A/C system or external refrigerant bottle) the machines performs automatically a “Refrigerant analysis”.

Refrigerant Test
234567890 ABCDEFGHI

The phase can be excluded only by entering a password.
For this step contact exclusively the SERVICE CENTER!

Press “STOP” key to exit.

6.2.4 Service hose length (for service personel only!!!)

MAX. LENGHT= 500cm!!!

The value set is the hose installed in the factory.
In event replacing the hoses with the new one’s (longer) new length must be set in order to compensate the refrigerant in hoses.
### 6.3 Anomaly messages

<table>
<thead>
<tr>
<th>Anomaly Description</th>
<th>Error Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scale blocked (See Chap.. 9) or faulty</td>
<td>ERROR! Scale A1</td>
</tr>
<tr>
<td>Recovery process anomaly or compressor faulty.</td>
<td>ERROR! Recovery C1</td>
</tr>
<tr>
<td>High pressure switch in function. Wait 20/30 min. If the message appears again, please contact our Service* department.</td>
<td>ERROR! Overpressure in recovery process!</td>
</tr>
<tr>
<td>Maximum refrigerant quantity allowed! Reduce the refrigerant quantity in the internal vessel.</td>
<td>Vessel full! Please wait!</td>
</tr>
<tr>
<td>After few minutes the minimum value is not match. Possible causes: defective A/C system, etc…</td>
<td>A/C leakage failure! Check system for leaks. Continue? mb. ///</td>
</tr>
<tr>
<td>The vacuum value is not enough to guarantee the process. Possible causes: leakage in A/C system, air in the bottles … Press “START” to bypass and continue with refrigerant charge process.</td>
<td>Insufficient vacuum for oil/UV charge! START to bypass</td>
</tr>
<tr>
<td>The refrigerant quantity is lower than minimum quantity required. Perform “Internal vessel charge”.</td>
<td>Insufficient refrigerant. Charge the vessel.</td>
</tr>
</tbody>
</table>
Maintenance will expire soon.
Order the parts required (See Chap. 8)

Order filter drier
for next service.
Part. Nr.: 07.500

Order vac. pump oil
for next service.
Part. Nr.: 8020

6.4 Nitrogen test – error messages!

Not enough pressure to execute the Nitrogen Test.

ERROR!
Nitrogen test
A5

6.5 Refrigerant test – error messages!

Not enough pressure to execute the Refrigerant Test.

ERROR!
Not enough pressure for R1234yf Test

Possible causes:
Refrigerant Identifier device faulty
Refrigerant Identifier device is not supplied
Contact SERVICE CENTER

Contact SERVICE CENTER
Press "E" key to confirm

ERROR!
1
Contact SERVICE CENTER
6.6 Refrigerant test

It is possible to perform the Refrigerant Test to a refrigerant bottle or to an A/C system.

Connect the HP or HP/LP couplers to the refrigerant bottle or to the A/C system that has to be tested.
Press “E” key and turn “ENCODER” to select “Other selection”

Workshop menu
O » » » »

Press “E” key to confirm

SERVICE
O » » » » » » » » » » » »

Turn “ENCODER” to select “Refrigerant Test”

Refrigerant Test
» » » » » » » » » » » »

Press “E” key to confirm

Refrigerant Test
Confirm by “START”

Press “START” key to confirm.

Refrigerant Test
in process
Please wait!

The machine automatically performs the Refrigerant test.
All the procedure is defined by manufacturer of refrigerant identifier.
This means that the time needed for the Refrigerant Test cannot be modified by us in any manner.

ERROR!
Not enough pressure for R1234yf Test

Not enough pressure to execute the Refrigerant Test. Check the HP/LP gauges.
If the Refrigerant Test result is “FAIL!” the display shows:

![FAIL!]

Disconnect HP/LP couplers, then evacuate A/C machine

Switch OFF the machine and disconnect the HP (HP/LP) couplers then move the machine in a ventilated area then evacuate and clean the service hoses.

![IMPORTANT NOTE: it is impossible to know the kind of refrigerant fluid inside the hoses.]

During the cleaning operation, take all the necessary safety precautions!

If the Refrigerant Test result is “PASS” the display shows:

![PASS]

Disconnect service hoses from external tank or A/C system

Press “STOP” key to confirm.

Confirm by “START”

Press “START” key to confirm.

Refrigerant recovery from the service hoses

At the end, press “START” to Print or “STOP” to exit.

### 6.7 How to connect and set the nitrogen tank

**PREMISE**

**Nitrogen test**: Introduction of nitrogen inside an A/C system in order to detect possible leaks.

At the purpose, you need to connect a nitrogen tank with pressure regulator to the machine

![IMPORTANT NOTE: Nitrogen tank, pressure regulator and connection hose are not supplied with the machine!]

Connect the pressure regulator to the nitrogen tank according to the instruction of the pressure regulator manufacturer.
IMPORTANT NOTE: Set the pressure regulator to **MAXIMUM 10 bar**!

Connect the output of the pressure regulator to the nitrogen inlet port of the machine. A specific hose must be used according to local regulation.

### 6.8 First time use and vessel charge

The equipment contain not enough refrigerant to run. The available quantity could be negative (i.e.: -500 g.) It be necessary to put new refrigerant into the internal vessel before the use.

Turn "ENCODER" to select **Vessel charge**. Press “E” key to confirm.

---

**NOTE:** The message is always shown before processes. It does not mean something is wrong, it is only a reminder to check the quantity of Oil and UV Dye in bottles.

---

Connect the RED hose to a new tank of refrigerant. If available, open the liquid tank valve (RED). If no, turn the tank up-side-down.

---

Connect HP hose to the external tank. Open the valve liquid side.

---

Set the quantity.

---

Press “START” key to confirm

---

Confirm by “START”
Press “START” key to confirm

Refrigerant test

Confirm by “START”

Press “START” key to confirm

Refrigerant Test in process

Please wait!

If this test result is "PASS" the machine performs selected Program.

Start in process

Process start.

Vessel charge in process.
Pressure mb.
Refrigerant g. //////

Verify:
- Ext. Tank empty?
- Tank valve closed?

Process start.

MESSAGE: If the equipment senses a pressure lower than the minimum value for the process.

Vessel charge in process.
Pressure mb.
Refrigerant g. //////

- Replace the external tank, then press “START” key to confirm
- Press “STOP” key to complete the process.

Process completed.

Close the tank valve and disconnect the red hose from the tank.
Press “START” key to confirm.

Vessel charge end.
Close the external bottle valve.

Refrigerant recovery from the service hoses.

Vessel charge end.
g. //////
7 PROGRAMMES

7.1 NITROGEN TEST

How to work the nitrogen test.
Select "Nitrogen Test" Press “E” key to confirm.
If you need, set the CAR DATA.

Turn "ENCODER" to set the Nitrogen test time.
Minimum: 1 min. Maximum: 10 min.
Press “E” key to confirm.

The nitrogen valve fill the A/C System

When the pressure is stable, the machine check possible leaks for the time set.

At the end, the exhaust nitrogen valve empty the A/C System

Process end.
7.2 WORKSHOP MENU

Press “E” key to select.

Press “E” key to confirm.

Turn "ENCODER" to select the program or more programs.
The following selections are available:

Recovery
Vacuum / A/C system charge

Press “E” key to confirm.

7.2.1 Process settings

Recovery

Turn "ENCODER" to set the value.
Minimum: 1 min.
Maximum: 12 min.
Press “E” key to confirm.

Vacuum / A/C system charge

Vacuum time
min. 15

Leak test min. _

Turn "ENCODER" to set the vacuum time.
Minimum: 15 min.
Maximum: 999 min.
Press “E” key to confirm.

Turn "ENCODER" to set the leak test time.
Minimum: 2 min.
Maximum: 60 min.
Press “E” key to confirm.
Turn "ENCODER" to set "Automatic" / "Manual" / "No"
If "Automatic" is selected:

- Fresh Oil     ml. 10
- UV dye        ml.  5
- Refrigerant
- g._____

Turn "ENCODER" to set the Fresh oil value.
NOTE: The value is added to the quantity drained.
Minimum:    0 g. Maximum:  150 g.
Press "E" key to confirm.
Turn "ENCODER" to set the UV dye value.
Press "E" key to confirm.

Turn "ENCODER" to set the refrigerant amount.
Minimum:   50 g.
Press "E" key to confirm.

Charge A/C system by
HP and LP Port

Turn "ENCODER" to set (normally HP)
HP Port / LP Port / HP and LP Port
Press "E" key to confirm

Confirm by “START”

Press “START” key to confirm

Start in process

The equipment performs all the process selected.
7.3 Full service

Press “E” key to select.
Press “E” key to confirm!

Turn "ENCODER" to set the amount of refrigerant to be charged into the A/C system.
Minimum: 50 g.
Press “E” key to confirm!

Turn "ENCODER" to set the port to be used for charging (usually HP)
HP PORT
LP PORT
HP & LP port simultaneously
Press “E” key to confirm!

Press “START” key to start the complete service process.

The service station performs all the processes:

- Recovery, residual refrigerant check, draining of used oil
- Evacuation, Leak test
- Fresh Oil charge
- UV Dye charge
- Refrigerant charge.

NOTE: During the evacuation time, quantity of recovered refrigerant and oil could be checked by pressing the “I” key.

Processes end.

Perform the A/C system pressure test
Press “STOP” key to confirm.

Full service
«««««O»»»»»

Set charge amount:
Quantity g. 500

Charge A/C system by
HP PORT

Start in process

Recovery
Refrigerant g. ////
Oil cc. //

Verify the A/C system pressures.
Follow the instructions.

Disconnect the HP/LP service hoses from the A/C system!

Press “START” key to confirm.

Refrigerant recovery from the service hoses.

At the end all the process values are reported on the display.

Recovery
Refrigerant g. ///
Oil cc. ///

Vacuum
mb. ///

Press “STOP” key to end.
Press “START” key to print.
Then press “STOP” key to end.

A/C system charge
Quantity g. ///
7.4 Database service

Press “E” key to select.
Press “E” key to confirm

The memory contains the data of the main cars and trucks on the market.

Press “E” key to select.
Press “E” key to confirm.

Turn "ENCODER" to select the brand
Press “E” key to confirm.

Turn "ENCODER" to select the car
Press “E” key to confirm.

Turn "ENCODER" to select the version of the same car.
Press “E” key to confirm.

Refrigerant capacity and oil viscosity are shown.
For more information, press “I” key.

Oil type or original code
Total oil inside the A/C system

Press “I” key returning back.

Press “START” key to confirm.

From this point on the programme continues as “Full service”.
7.5 Smart service

Press “E” key to select.

The program is similar to “Full service”.

If the service station recognizes there was no significant leakage (therefore no moisture) in a system some processes will be by-passed and some sped up. This way valuable time, energy and general costs will be saved. For an average passanger car the complete service will be done in less than 10 minutes.
7.6 Advanced program

Press “E” key to select.

Press “E” key to confirm.

Turn “ENCODER” to select the program or more programs. The following selections are available:

Recovery
Nitrogen test
Vacuum
A/C system charge
Recovery / Vacuum
Vacuum / A/C system charge
Recovery / Vacuum / A/C system charge
Recovery / Nitrogen test / Vacuum / A/C system charge

Press “E” key to confirm.

7.6.1 Process setting

Recovery

Residual refrigerant check.

min. 2

Turn "ENCODER" to set the value.
Minimum:  2 min.
Maximum:  12 min.
Press “E” key to confirm.

Nitrogen test

Nitrogen test

Time  min. 3
Turn "ENCODER" to set the Nitrogen test time.
Minimum: 1 min.
Maximum: 10 min.
Press "E" key to confirm.

Vacuum

Turn "ENCODER" to set the vacuum time.
Minimum: 15 min.
Maximum: 999 min.
Press "E" key to confirm.

Turn "ENCODER" to set the leak test time.
Minimum: 2 min.
Maximum: 60 min.
Press "E" key to confirm.

A/C system charge

A) In case of vacuum selected.

    Fresh Oil  ml. 10
    UV dye     ml. 5
    Refrigerant g._____

Turn "ENCODER" to set the Fresh oil value.
NOTE: The value is added to the quantity drained.
Minimum: 0 g. Maximum: 150 g.
Press “E” key to confirm.

Turn "ENCODER" to set the UV dye value.
Press “E” key to confirm.

Turn "ENCODER" to set the refrigerant amount.
Minimum: 50 g.
Press “E” key to confirm.

B) In case of vacuum not selected.

    Refrigerant
g._____

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C) In case of A/C system charge

Charge A/C system by
HP PORT

Turn "ENCODER" to set (normally HP)
HP PORT / LP PORT / HP_LP PORTS

Press “E” key to confirm
Press “START” key to confirm

The equipment performs all the process selected.

7.7 Oil type change

In case of specific applications (i.e. hybrid cars that require special POE oil) the A/C system should be charged with the completely different type of oil than usual PAG. In this case the Service station must be purged internally in order to prevent mixing of the new oil with residues of the previous one.

For performing of the process additional kit under is needed. Kit consists of the special oil bottle and an adapter that should be installed between the service quick couplers. See the picture beneath:

Press “E” key to select.

Oil type change
<<<<<<<<<<<O>>>>>>
Follow the instructions on the screen:
Press “E” key to confirm.

Install the adapter between the HP and LP service coupler, confirm by START:

HP/LP Joint

The Service station will automatically clean all the oil paths inside the unit, so the filling of the pure new oil will be guaranteed.
The whole process will take about 3 minutes.

Press the “Stop” key to finish and return to the Main menu.

**Replace oil bottle with the new oil bottle for specific application PAG>POE**

Install the joint between HP/LP and close the couplings.

**Internal flushing**
Wait!

**Internal flushing**
End!

### 7.8 A/C Flushing

⚠️

In order to clean the vehicle A/C system, the equipment performs a washing process in “single or Multi pass”( multiple flushes).
For more details, refer to the A/C system manufacturers.

Press “E” key to select.
Turn "ENCODER" to select Basic menu then A/C Flushing.
Press “E” key to confirm.

Press “E” key to select.

A/C Flushing
««««O»»»»»

A/C Flushing
Flushes reqd: 01
Turn "ENCODER" to set from 01 to 04 steps (flushes)
Press “START” key to confirm.

Press “START” key to confirm.

Flush in process
Please wait!

The “Single or Multi pass” process is carried out. (You will need appropriate adaptors for the compressor/expansion valve)

Flushing completed.

Oil cc. //

7.9 A/C PRESSURE TEST

In order to check the A/C system pressures, perform the following instructions:

Press “E” key to confirm.

Check the A/C system pressure.
At the end press “X” key.

Disconnect the service hose with the A/C system OFF!

Press “START” key to confirm.

Wait the end.
8 MAINTENANCE

Maintenance can be made exclusively by SERVICE CENTER authorized by the manufacturer

Press “E” key to select.

Select:
Operation history

Possible selections:
Operation history
Next service
Counter reset (Password required)
Report

Press “E” key to confirm.

8.1 Operation history

By this menu is possible to check the operation history of the machine.
The data are not cancellable!

Select counter.
HFO recovered
Total
Kg. ///.///

Turn "ENCODER" to select the following counters:
Refrigerant recovered from A/C system
Refrigerant recovered from external tank
Refrigerant charged to A/C system
Vacuum working time

8.2 Next service

By this menu is possible to check the next service required

Filter replacement
within ///./// Kg.
of HFO recovered
Code: 07.500

Turn "ENCODER":

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8.3 Counter reset (Password required)

Change the filter and/or the vacuum pump oil BEFORE reset! Use only genuine spare parts or their equivalent! The use of replacement parts which are not of equivalent quality may damage the machine!

Select counter.
HFO recovered

By this menu is possible to reset the counter relative to the filter.

Select counter.
Vacuum time

By this menu is possible to reset the counter relative to the vacuum pump oil.

Press “E” key to confirm.

Counter reset.
Confirm by “C”
min. ///

Press “C” key to confirm.

Counter reset.
Confirm again!

Press “C” key to confirm.
8.3.1 Filter replacement

It's obliged to use goggles and gloves! Contact with the refrigerant can cause blindness and other physical injury to the user!

At the purpose to reduce the internal pressure, before dismount the filter, start a recovery process!

Disconnect the plug from the supply!

Dismount the front cover.
By two wrenches unscrew the filter’s nuts.
Avoid torques on copper pipes!

Disposal in according to local directives!

Dismount the two o-rings from the copper pipes.
Lubricating and positioning correctly the new o-rings
Assembly the new filter. The flow arrow must be on the bottom direction!

Screw the filter's nuts.
Assembly again the front cover.
8.3.2 Vacuum pump oil replacement

- Disconnect the plug from the supply!
  It's obliged to use gloves!

- The oil extracted must be delivered to used oil collection centre!

Dismount the front cover.
Unscrew the oil discharge cap and wait for the total oil exit.
Screw oil discharge cap and unscrew the muffler.
Fill the new oil. The correct pump's oil level is around half level-spy.
Screw the muffler.

Assembly again the front cover.
8.4 Report

The machine has a memory to record refrigerant usage monthly for the previous twelve months. Beyond this period it will overwrite the data for the month in question.

<table>
<thead>
<tr>
<th>Month/year</th>
<th>01/2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>HFO recovered</td>
<td>10.0</td>
</tr>
</tbody>
</table>

Turn "ENCODER" to select the following counters:

- Refrigerant recovered from A/C system
- Refrigerant recovered from external tank
- Refrigerant filled to A/C system

The display shows in sequence all the months and the total per year.

<table>
<thead>
<tr>
<th>Year</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>HFO recovered</td>
<td>210</td>
</tr>
</tbody>
</table>

Press “START” to print the report
9 SCALE RESET

At the purpose to compensate the scale deviation, perform the following instructions:

Disconnect the equipment from the power source!

Dismount the fixing screws from the top cover.
Dismount the top cover. Pay attention to the connections!
By a tool tighten the two pins (screws) to the “safety position”

The two red cones must not touch the bracket

“Safety position”

For safety reasons, place the top cover in the original position!
Connect the equipment to a power source!

Press “E” key to confirm.

Unload weight scale through the screws. (safety position)

Press “START” key to confirm the safety position.

In case of mistake:

Anomaly!
Weight scale A3
Follow the instruction right and perform again the procedure!
At the end, unscrew the pins to the “working position”

The working position is match when is impossible to unscrew the pins. Assembly again the parts.
10 Refrigerant identifier - filter replacement

In the Refrigerant Analyzer there is a “SAMPLE FILTER”, which must be periodically inspected by the user and replaced if needed.

The SAMPLE FILTER has a built-in red die indicator.

If any red spot appears on the outer diameter of the disposable filter element, the filter must be replaced.

Dismount the two screws that fix the plastic grid.

Take off the filter then install the new one. Install the plastic grid.

Pay attention to the direction of the arrow!