

ADVANCE/ECO

for R1234yf (HFO)
With built in
Nitrogen Test device



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1 PREMISE

ADVANCE HFO (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 unit 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.

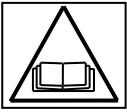
For any special needs or requests for technical assistance or spare parts, please contact the manufacturer.

This document may contain printing mistakes.

The pictures in this document may not correspond to the machine received with this manual

1.1 Information about refrigerant

NOTE: All the information here is current as of the date of printing of this manual.



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

Safety Classification and information about refrigerant:

The refrigerant is classified in **Table E.1** (Refrigerants designation) of **Annex E** (Normative) of the European standard **EN 378-1:2008 + A1: 2010 (E) (EN 378-1:2011)**

PROPANE series: 1234yf (2,3,3,3-tetrafluoro-1-propene $\text{CF}_3\text{CF}=\text{CH}_2$)
Safety group: **A2**
PED fluid group: **1**

The refrigerant (R) **1234yf (HFO)** 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.

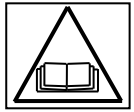
S 9 Keep container in a well-ventilated place.

S16 Keep away from sources of ignition - No smoking.

2 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

3 INTENDED USE

The machine is designed solely for use in automobile air-conditioning system maintenance.

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

4 SAFETY



The user should follow the “general safety rules”, and use the machine according 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 bottle: New Refrigerant used to fill the internal vessel.
- ◆ Internal bottle: Refrigerant storage tank.
- ◆ Process: Execution of an individual function (Ex. 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 passages through elements that enable a reduction in humidity, acidity and gasses.
- ◆ **Nitrogen test:** Introduction of nitrogen inside an A/C system in order to detect possible leaks.
- ◆ **Vacuum:** Phase in which air 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 tracer charge:** Introduction of UV tracer 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.
- ◆ **Flushing:** at the purpose to clean the A/C system or components, liquid refrigerant is flushed through it, in order to do so a special device and adapters are needed.

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 unit under high pressure can cause.
- ◆ **It's essential to supervise the machine at all times.**
- ◆ 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 essential 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.
- ◆ Gloves and Goggles should be worn - contact with the refrigerant can cause blindness and other physical injury to the user.
- ◆ Avoid inhalation of vapours from the refrigerants and contact of the refrigerant with skin.
- ◆ Do not switch on 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 minimise 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 Notions

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.

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 Non condensable Gas Discharge

A non condensable gas discharge valve is installed to allow these gasses to be released.

The non condensable gas discharge valve could generate noises.



Never approach the non condensable gas discharge valves! Danger of pressurized gas discharge

4.6 Ventilation Safety System

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.

It is forbidden to obstruct the inlet grid of the fan.

The user must monitor the efficiency of the ventilation security system and in case of anomaly of the same must switch off the machine.

In addition, the internal vessel is equipped with a normally closed electric valve which is activated only when the machine is ON.

4.7 The work environment

- ◆ The machine must be used in open environments or in places equipped with good ventilation (at least 4 changes of air per hour).
- ◆ The unit 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 lit conditions.

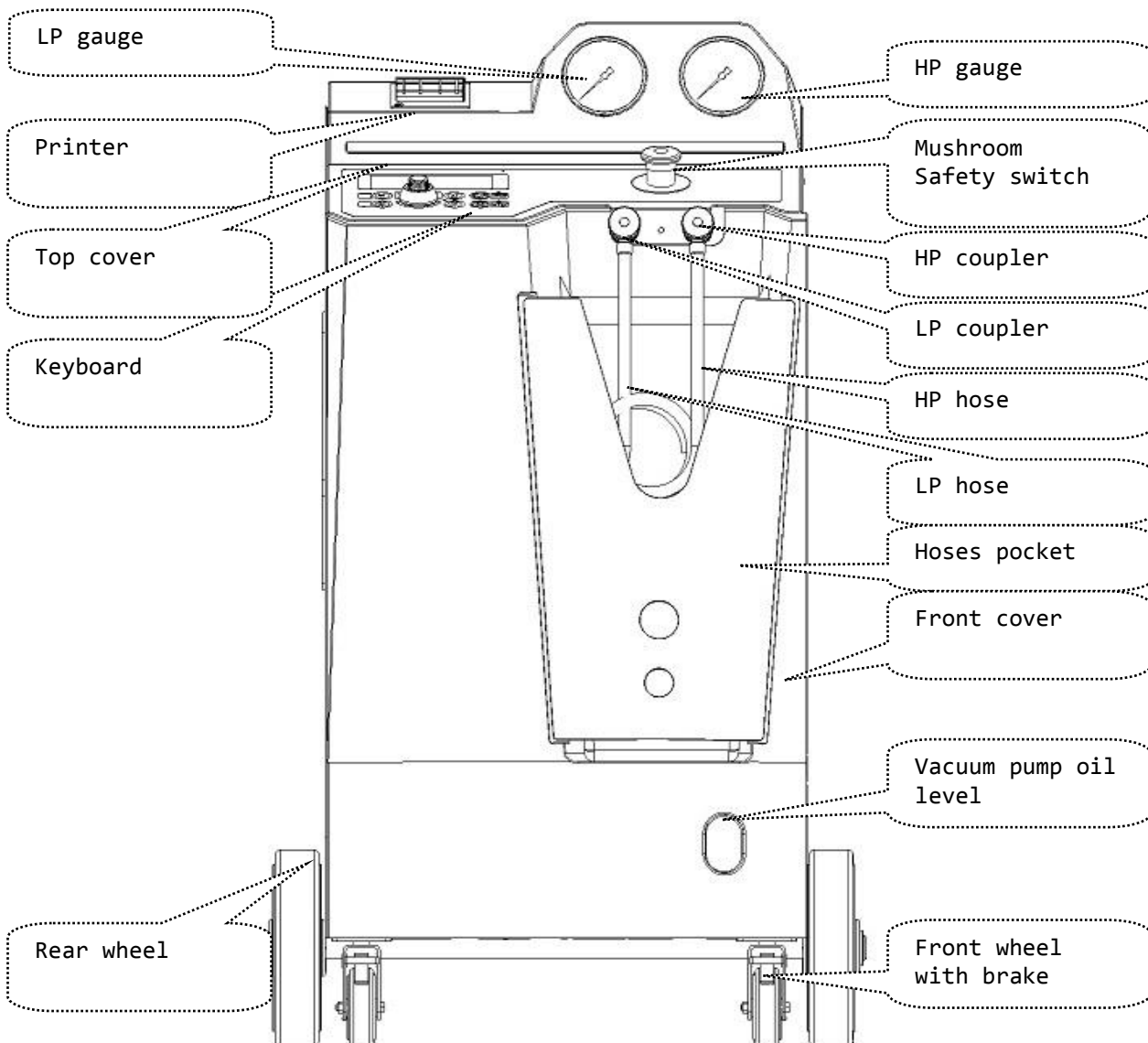
5 USE

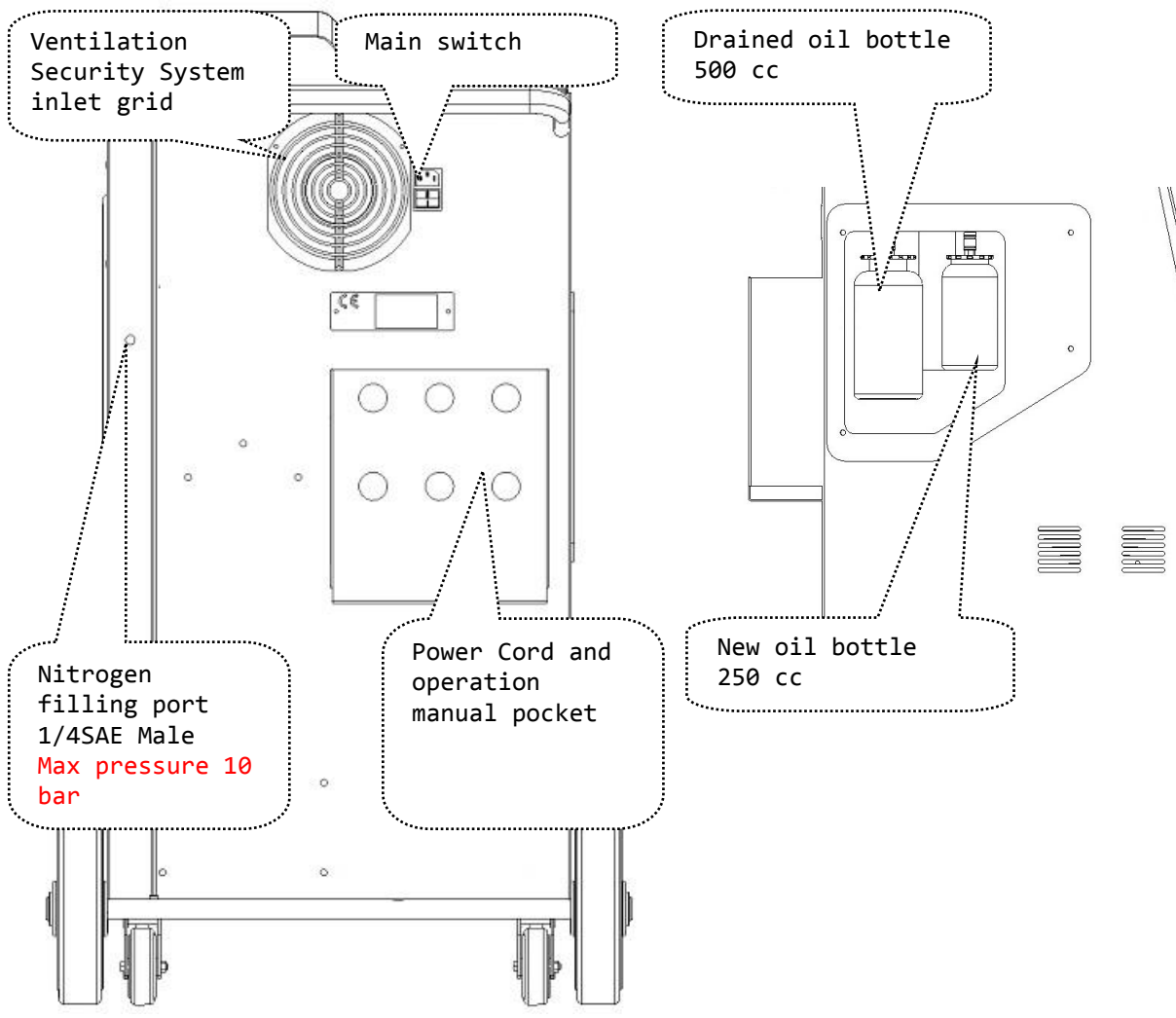
5.1 Unpacking and Checking the Components

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

- ◆ **This operating manual.**
- ◆ EC/PED documentation
- ◆ Refrigerant Tank adapter (Honeywell)

5.2 Machine description





| | |
|-------------------------------|--------------------|
| Technical features | ADVANCE/EL R1234yf |
| Power | 230V+/-10% 50Hz |
| Operating temperature range | 10/49 °C |
| Refrigerant | R1234yf |
| Internal vessel capacity (Kg) | 11 |
| Maximum pressure (PS) | 18 bar |
| Compressor | 1/3 HP |
| Recovery rate (liquid) | 320 g/min' |
| Not condensable gas discharge | Automatic |
| Main drier filter | Type 300/660 cc |
| Ventilation Security System | 172 mm |
| Recovery high speed fan | 172 mm |
| Oil discharge | Automatic |
| Bottle capacity | 500 cc |
| Weight scale | 60 kg |
| Accuracy (+/-) | 2 g |
| Vacuum pump | 100 lt/min |
| Final pressure (McLeod abs) | 0,08 mb |
| Electronic vacuum meter | YES |
| Oil charge | Automatic |
| Bottle capacity | 250 cc |
| Refrigerant charge | Automatic |
| Service hoses compensation | Automatic |
| Fluxing program | YES |
| Workshop program | YES |
| Nitrogen Test Device | Built in |
| | |

| | |
|----------------------------|--------------------|
| Configuration | ADVANCE/EL R1234yf |
| Display | 4 x 20 crt |
| Keyboard / Encoder | YES |
| Car Data base (32 Mb) | YES |
| Printer | On demand |
| Gauges (pulse free) CL 1.0 | D 80 mm |
| Service couplings | Parker SAE J639 |
| Service hoses (SAE J2888) | 2,5 m |
| Pocket tools | YES |

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

5.4 Preparation for use

For the purpose of protecting the weighting system the scale is locked by two screws.

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

5.5 On/Off and Stopping

Start-up: Move the main switch to the ON position (I)

Stopping: Move the main switch to the OFF position (O)

DO NOT stop the machine by removing the plug!

5.6 Storage for long periods

The machine should be positioned in a safe area, disconnected from the 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.

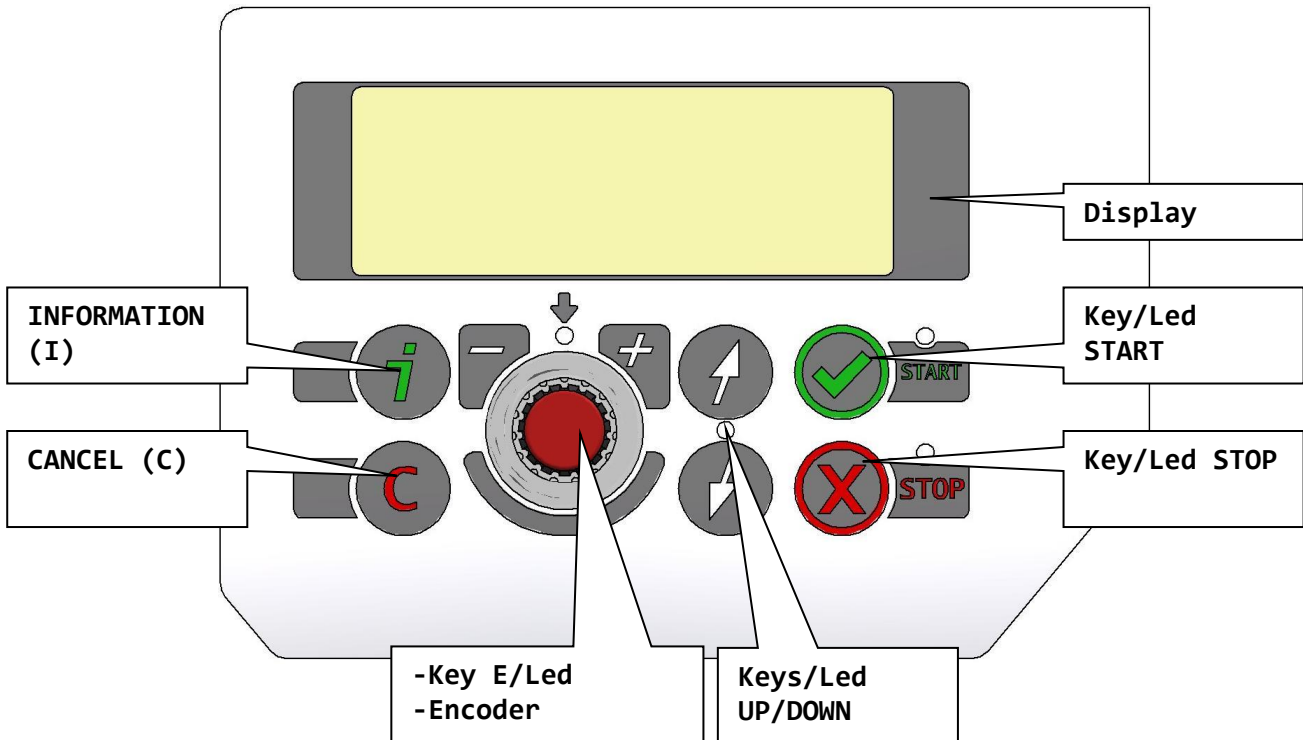
5.8 Recycled material disposal

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

6 STARTUP

6.1 KEYBOARD DESCRIPTION

Refer to the following drawing:



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

The ventilation security system starts and the display shows:

```
Ventilation system  
check!  
PLS wait.
```

Display (Stand-by)

```
ADVANCE HFO  
1 _____  
3 _____  
01-01-2016 10:20:30
```

Change the lines 1 and 3 by the menu "Company name" (See Chap. 6.2.2)

6.1.1 Printer

The machine has a built in printer.



Paper: L 58 mm
Diameter: D 40 mm

Paper feed ---

A) Before a process:

```
CAR DATA:  
-           V  
234567890 ABCDEFGHI
```

Max 20 characters (plate, chassis, etc..)

B) At the end of a process

```
Service report  
printing by "START"
```

Press "START" key for printing.

Press "STOP" key to end.

6.1.2 Program selection

Press "I" key to check the refrigerant available.

Available quantity:
Refrigerant g. /////
01-01-2016 10:20:30

Press "I" key to come back in stand-by.

Press "E" key to select a process

Workshop menu
««O»»

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

The following programs are available: (from left)

Basic menu

Vessel charge

Workshop menu

Full service

Advanced program

Basic menu includes the following programs:

SERVICE

Basic Setting

Date - Time

Company name

Database service

A/C pressure test

A/C flushing

Oil type change

Scale reset

Maintenance

6.2 SETTING

6.2.1 Date - Time

Turn "ENCODER" to select Other selections then Date-Time.

Press "E" key to confirm.

| | |
|-------|----------|
| Time: | 10:20:30 |
| Date: | 01/01/16 |

Turn "ENCODER" to modify the blinking value

Press "E" key to confirm

The next value blinks.

When the data is right press "START" key to confirm.

6.2.2 Company name

Turn "ENCODER" to select Other selections then Company name.

Press "E" key to confirm.

| |
|---------------------|
| <u>1</u> _____ |
| V |
| 234567890 ABCDEFGHI |

5 lines are available:

1_____ Company name (Workshop)

2_____ Address (road, etc..)

3_____ City

4_____ Phone

5_____ FAX

The above setting is an example only:

NOTE: The five lines are reported on the ticket, otherwise the line 1 and 3 on the display (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 shows the following line.
Press "STOP" when the 5 lines are set.

6.2.3 Basic setting

The procedure allows to set the machine.
Turn "ENCODER" to select Basic setting Press "E" key to confirm

| |
|----------------------------------|
| Print recovery data? 1 |
|----------------------------------|

1 The data are reported on the ticket (refrigerant quantity and oil).
0 The data are not reported.
Turn "ENCODER" to select 1 or 0. Press "E" key to confirm

| |
|---|
| Refrigerant residual check min. 2 |
|---|

The default value is applied in:
Database service Full service
Turn "ENCODER" to set. Press "E" key to confirm.

| |
|-----------------------|
| Leak test min. 2 |
|-----------------------|

The default value is applied in:
Database service Full service
Turn "ENCODER" to set. Press "E" key to confirm.

| |
|-----------------------|
| Fresh oil ml. 10 |
|-----------------------|

The default value is applied in:

Database service Full service

Turn "ENCODER" to set. Press "E" key to confirm

English

Turn "ENCODER" to select. Press "E" key to confirm.

SN000000 361363

SN: Serial number 361363: Production index (ex).

OPTIONAL
PRINTER
1

1 Printer built in.

0 Printer off line or not installed.

Turn "ENCODER" to select 1 or 0.

Press "E" key to confirm

Nitrogen Test
AUTO
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.

Press "STOP" key to exit.

6.3 ERROR MESSAGES

ERROR!
Scale

A1

Scale blocked (See Chap.. 9) or faulty

ERROR!
Recovery

C1

Recovery process anomaly or compressor faulty.

ERROR!

Overpressure in
recovery process!

High pressure switch activated.
Wait 20/30 min. If the message appears again, please contact
SERVICE CENTER

Vessel full!

Please wait!

Maximum refrigerant quantity allowed!
Reduce the refrigerant quantity in the internal vessel.

A/C leakage failure!
Check system for
leaks. Continue?
mb. ///

If after a few minutes the minimum value is not reached.
Possible causes: defective A/C system, etc...

Insufficient vacuum
for oil/UV charge!

START to bypass

The vacuum value is not enough to guarantee the process.
Possible causes: defective A/C system, air in the bottles, etc...
Press "START" to bypass the process and go to charge process.

Insufficient
refrigerant.

Charge the vessel.

The refrigerant quantity is below the minimum quantity required.
Perform "Internal vessel charge".

Order drier filter
for next service.

Code: 0699150303

Order vac. pump oil
for next service.

Code: 0499230004

Maintenance will be required soon.
Call for Service.

6.4 NITROGEN TEST ERROR MESSAGE

ERROR!
Nitrogen Test

A5

Not enough pressure to execute the Nitrogen Test.

6.5 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, brackets 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 regulations.

6.6 FIRST TIME USE AND VESSEL CHARGE

The equipment may not contain enough refrigerant to run.

The available quantity could be negative (Es: -500 g.)

It will be necessary to add new refrigerant into the internal vessel before the use (3/4 Kg.).

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



WARNING!
Verify oils and UV
quantity in the
bottles.

NOTE: The message is shown before processes.



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

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.

Set the quantity.

g.//////

Turn "ENCODER" to set the value.

Minimum: 800 g.

Maximum: the value shown by the display. Press "E" key to confirm.

Confirm by "START"

Press "START" key to confirm

The display shows:

Start in process

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



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

Process start.

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

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



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

- Replace the external bottle, then press "START" key to confirm
- Press "STOP" key to complete the process.

Process completed.



Vessel charge end.

Close the external
Bottle valve.

Close the bottle valve and disconnect the red hose from the bottle. Press "START" key to confirm.

Refrigerant recovery
from the
service hoses

Vessel charge end.

g. /////

Press "STOP" key to end.

7 PROGRAMS

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.

```
Nitrogen test
Time          min.  3
```

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

```
Nitrogen test
in process
Pressure      mb  6500
```

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

```
Nitrogen test
in process
Time          sec.  120
Pressure      mb  6500
```

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

```
Nitrogen test
in process
Pressure      mb  6500
```

```
Nitrogen test
OK!
```

Process end.

7.2 FRESH OIL CHANGE

(New oil bottle and adapter on demand)

If it is required to change the kind of compressor oil, the A/C machine will require flushing to prevent cross contamination of oils.
This procedure cleans the hoses and pipes prior to new oil injection.

Press "E" key to select.

Turn "ENCODER" to select Basic menu then Fresh oil change.

Press "E" key to confirm.

Fresh oil change

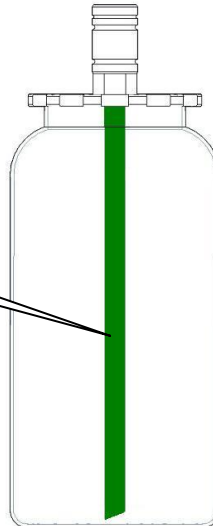
«««««0»»»»

Press "E" key to select.

Replace oil bottle
with the new oil
bottle for specific
application PAG→POE

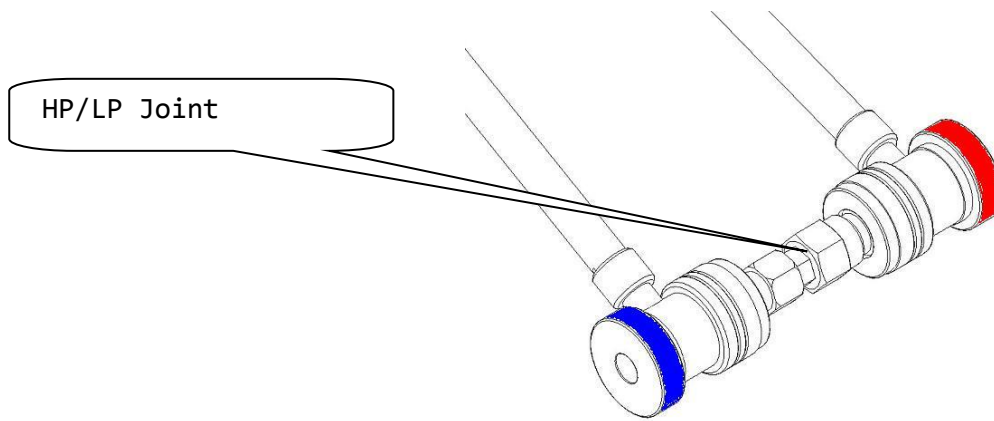
Replace the oil bottle with the new oil bottle.

250 cc. Oil Bottle
green pipe.



Press "E" key to confirm.

Install the joint
between HP/LP and
close the couplings.
START to confirm



Press "START" key to confirm.

Internal flushing
Wait!

The machine starts.

If the joint isn't installed, MESSAGE:

Install the joint
between HP/LP and
close the couplings.
START to confirm

Press "START" key to confirm.

The machine starts. The process cleans the complete unit included the service hoses. At the end:

Internal flushing
end.

Press "STOP" key to exit.
The machine is ready.

7.3 WORKSHOP MENU

Press "E" key to confirm.

Recovery

Turn "ENCODER" to select the programs available:

Recovery

Vacuum / A/C system charge

Press "E" key to confirm.

Recovery

Residual refrigerant
check.

min. 2

Turn "ENCODER" to set the value.

Minimum: 2 min.

Maximum: 12 min.

Press "E" key to confirm.

The equipment performs the process.

Recovery,

residual refrigerant check, used oil drain process.

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.

Oil/UV charge

Automatic

Turn "ENCODER" to set "Automatic" / "Manual" / "No"
If "Automatic" is selected:

Fresh Oil ml. 10

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.

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.

7.4 FULL SERVICE

Press "E" key to select.

Full service

«««0»»

Press "E" key to confirm.

Set charge amount:

Quantity g. 500

Turn "ENCODER" to set the amount of refrigerant to be charged into the A/C system.

Minimum: 50 g.

Press "E" key to confirm

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

Equipment with printer: See Chap. 6.1.1

Confirm by "START"

Press "START" key to confirm.

The equipment performs all the processes.

Recovery, residual refrigerant check, used oil drain process.

Nitrogen test (If parameter AUTO is set to 1) Vacuum, Leak test.

New oil charge.

Refrigerant charge.

Processes end.

Verify the A/C
system pressures.

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

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

Perform the instruction.
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. ///

A/C system charge

Quantity g. ////

Press "STOP" key to end. Equipment with printer: See Chap. 6.1.1
Press "START" key to print.
Then Press "STOP" key to end.

7.5 DATABASE SERVICE

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

Turn "ENCODER" to select Basic menu then Database Service

```
Database Service
<<<<<0>>>>>>>>>>>>
```

Press "E" key to confirm.

```
Hyundai
```

Turn "ENCODER" to select the brand

Press "E" key to confirm.

```
Hyundai
i30
```

Turn "ENCODER" to select the car

Press "E" key to confirm.

```
Hyundai
i30
2012-
```

Turn "ENCODER" to select the version of the same car.

Press "E" key to confirm.

```
Hyundai
i30
PAG FD46XG cc. 150
g. 500
```

Refrigerant capacity and oil viscosity are shown.

For more information, press "I" key.

```
Please refer to
the car manufacturer
technical
specifications!
```

Press "I" key to go back.

Hyundai
i30
PAG FD46XG cc. 150
g. 500

Press "START" key to confirm.

The program is performed like "Full service".

Wait the end.

7.6 ADVANCED PROGRAM

Press "E" key to select.

Advanced program
««««0

Press "E" key to confirm.

Recovery

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

Vacuum time

min. 20

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.

A/C system charge

A) In case of vacuum selected.

| | |
|-------------|----------|
| Fresh Oil | ml. 10 |
| 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 refrigerant amount.
Minimum: 50 g.

Press "E" key to confirm.

B) In case of vacuum not selected.

| | |
|-------------|----------|
| Refrigerant | g. _____ |
|-------------|----------|

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 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.

A/C Flushing

«««««0»»»»»

Press “E” key to select.

A/C Flushing

Flushes reqd: 01

Turn ”ENCODER” to set from 01 to 04 steps (flushes)

Press “START” key to confirm.

Confirm by “START”

Press “START” key to confirm.

Flushing 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. //

7.8 A/C PRESSURE TEST

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

A/C pressure test

Press "E" key to confirm.

Verify the A/C
system pressure.

Check the A/C system pressure.
At the end, press "X" key to exit.



Disconnect the HP
Service hose (red)
from the A/C system

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

Press "START" key to confirm.

Refrigerant recovery
from the
service hoses

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":

Oil replacement
within //// min.
pump working time.
Code: 8020

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



Always 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!



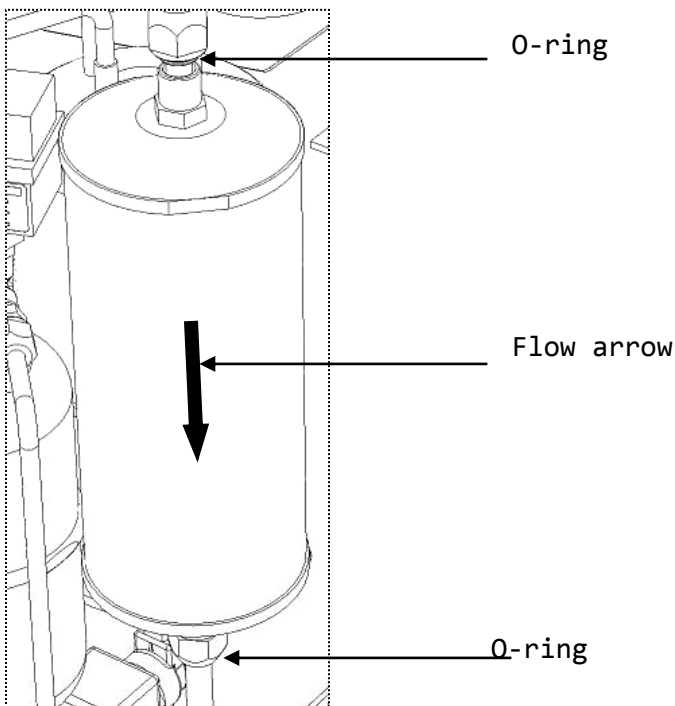
Disconnect the plug from the supply!

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 pointing down!

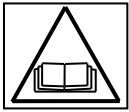


Screw the filter's nuts.
Reassemble the front cover.

8.3.2 Vacuum pump oil replacement



Disconnect the plug from the supply!
Use Gloves and Goggles!



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

Dismount the front cover.

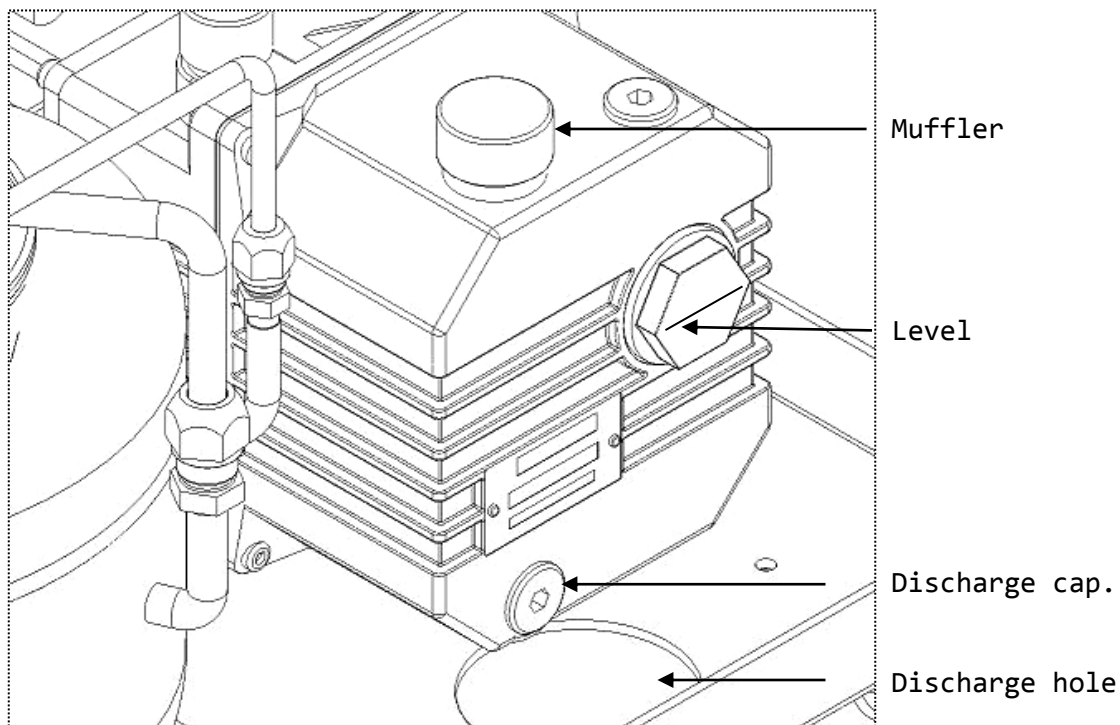
Unscrew the oil discharge cap and wait for the oil to drain.

Refit discharge cap and unscrew the muffler.

Fill with new oil. The correct pump's oil level is around half sight glass.

Refit the muffler.

NOTE: the picture could show a different type of vacuum pump!



Reassemble 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.

Month/year

01/2015

HFO recovered

Kg. 10.0

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.

Year

2015

HFO recovered

Kg. 210

Press "START" to print the report

9 SCALE RESET

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

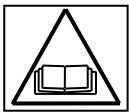


Disconnect the equipment from the power source!

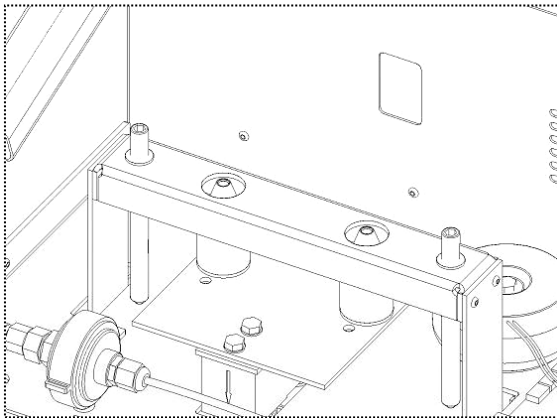
Dismount the fixing screws from the top cover.

Dismount the top cover. Pay attention to the connections!

Using the correct tool tighten the two pins (screws) to the “safety position”



The two red (or black) 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!

Scale reset

««««««««0»»»»

Press “E” key to confirm.

Unload weight scale
through the screws.
(safety position)

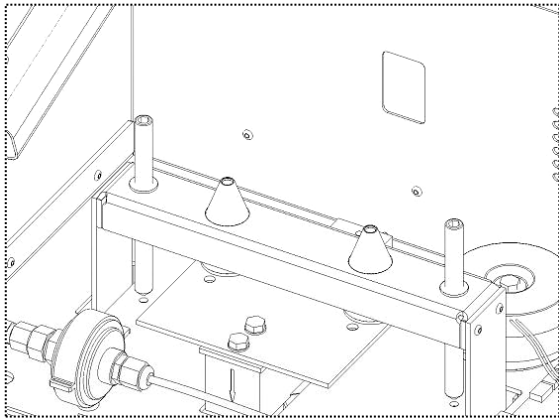
Press "START" key to confirm the safety position.

In case of mistake:

ERROR!
Weight scale
A3

Follow the instruction right and perform again the procedure!

At the end, unscrew the pins to the "working position"



"Working position"

The working position is reached when it is impossible to unscrew the pins further.
Reassemble the parts.