



cps Automotive



CARSMART– AUTOMATIC A/C SERVICE UNIT MODEL CSA134 / CSA1234

USER AND OPERATIONS MANUAL VER1.4

CPS Asia Pacific

109 Welland Avenue,
Welland SA 5007

















Phone: +61.8.8340 7055

Email: sales@cpsaustralia.com.au

Web: www.cpsproducts.com.au

CARSMART – FULLY AUTOMATIC A/C SERVICE UNIT
MODEL CSA134 / CSA1234
USER AND OPERATIONS MANUAL

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INTRODUCTION

The CPS CSA CarSmart Series Refrigerant Management System is designed with ease of use for the technician in mind. It has an icon-based touch screen display, a comprehensive vehicle data base as well as the ability to set up to 30 custom vehicle data per machine.

The oil and dye replacement are easy and mounted externally at the front of the machine, it also comes with a handy solid metal front tray for storage of hoses and couplers.

CPS is pleased to bring to the automotive technician the many innovations commercial HVAC/R technicians have enjoyed for years. We hope you will enjoy using your new CSA CarSmart Series Refrigerant Management System.

The present recycling and recharging unit for A/C systems is meant for commercial purposes and is thought to be used by trained personnel only being aware of the principles of refrigeration, conscious of the hazards which may derive from equipment working under pressure with substances at very low boiling temperature.



We advise to read these operations manual carefully and to **strictly comply** with the given information, paying particular attention to the safety regulations. We shall decline any responsibility resulting from the improper use of the equipment, use for purposes other than those described in the present operating manual, incorrect operation, damages resulting from external influences.

Always keep the unit in vertical position to avoid oil leaks and the compressor to be damaged.






General safety regulations



- Only qualified service personnel should operate this unit. Most states, countries, etc... may require the user to be licensed. Please check with your local government agency.
- **Read** the instructions for use carefully before starting to operate with this Aircon service unit.
- **DANGER** – this unit's recovery tanks contain liquid refrigerant. Overfilling of a recovery tank may cause an explosion resulting in severe injury or even death. Do not disable the overfill safety features. Always make sure the correct tank is on the scale.
- **DANGER** - Only use the recovery tanks provided with this unit. See distributor for replacement tanks.
- **DANGER** - Avoid breathing refrigerant vapors and lubricant vapors or mist. Breathing high concentration levels may cause heart arrhythmia, loss of consciousness, or even cause suffocation.
- **DANGER** - Electrical shock hazard!!!! Always disconnect power source when servicing this equipment.
- **DANGER** - DO NOT USE COMPRESSED AIR TO PRESSURE TEST OR LEAK TEST THE UNIT OR VEHICLE AIR CONDITIONING SYSTEM. Mixtures of air and refrigerant are combustible at elevated pressures. These mixtures are potentially dangerous and may result in fire or explosion causing personal injury or property damage.
- **CAUTION** - all hoses may contain liquid refrigerant under pressure. Contact with refrigerant may cause frostbite or other related injuries. Wear proper personal protective equipment such as safety goggles and gloves. When disconnecting any hose, please use extreme caution. Apart from following the general safety rules which apply to your company
- **CAUTION** - avoid breathing refrigerant vapors and/or lubricant mist. Exposure may irritate eyes, nose, throat, and skin. Please read the manufacturers Material Safety Data Sheet for further safety information on refrigerants and lubricants.
- **CAUTION** - do not use this equipment in the vicinity of spilled or open containers of gasoline or other flammable substances. (For instance: battery charging rooms). **Do not use** the unit **near flames** or sources of heat; at high temperatures the refrigerating gas can generate poisonous substances for inhalation.
- **CAUTION**- to reduce the risk of fire, avoid the use of extension cords.
- **CAUTION**- This equipment should be used in locations with mechanical ventilation that provides at least 4 air changes per hour.
- **CAUTION- RISK OF INJURY**, the equipment should only be operated by certified personnel.
- **CAUTION**- R-1234yf is a Class A2L flammable refrigerant. Use in well ventilated areas. Minimize leakage from the unit. Periodically check unit for leaks.

- **CAUTION-** Use only CPS certified hose assemblies on this unit. The hose assemblies are made to proper length, contain shut offs where required and have direct effect on the proper operation of this equipment.
- **Do not smoke** whilst using the recharging unit.
- During the operations, **locate the unit on a flat** and leveled surface.
- **Do not use** the unit in **very humid and wet environments** or in the rain.
- During maintenance operations **disconnect the unit from the electrical power**.
- **Avoid removing the connecting hoses** if not necessary; in case always make sure there is a vacuum in the hoses before using again.
- **Follow** the information and the instructions of the refrigerant manufacturer.
- **Observe** any instructions on servicing vehicle A/C systems which apply at your company.

Warning icons used in the present manual

Caution!	Connected to 230V socket 50Hz	Wear gloves when handling refrigerants	Wear goggles when handling refrigerants	Protect against moisture, humidity	Read instruction manual carefully
					

- **Only use original spare parts** and accessories.
- **Use** authorised additives or consumables only (ask for advice from an authorised reseller).
- **Before starting** the machine, first **check each time** whether the charging hoses and the quick couplers are undamaged and are not leaking.
- **Recover** refrigerant from the hoses before releasing the quick connections.
- Make certain that all safety devices are functioning properly before operating the equipment.
- **Do not** leave the unit unattended when switched on; Use the main switch to switch off the unit after its use.
- **Never release** the refrigerating gas **into the environment**.
- Maintenance operations must be carried out by **specialized and authorised personnel**.
- **Do not** violate for any reason at all **the safety devices** the unit is equipped with, like the high-pressure valve of the internal reservoir.
- **Use** with refrigerant indicated on the data plate only (**HFO-1234YF or R134a**). **Do not** make modifications to the service unit.

Safety devices

- A) Pressure relief valve on internal gas tank: releases pressure if 18 Bar are exceeded in the gas tank
- B) Safety fan: ventilates the unit continuously when in use. The software displays a warning message in case of failure of this fan. **This device applies to R1234YF models only: CSA1234**

Please be aware that whatever damages due to a wrong or improper use of the recharging station will not be covered by our warranty. Consumables like packing and seals for hoses and quick couplings, fuses and damages occurred during transport are not part of the warranty.







INSTALLATION

Installation and preparing for use

Unpacking and checking of the unit

Check the integrity of the packaging to exclude damages occurred during transport. Check the entirety of the equipment and of the relevant accessories. Nonconformities, if any, must be pointed out immediately and written on the transport documents.

Checking the accessories delivered with the unit

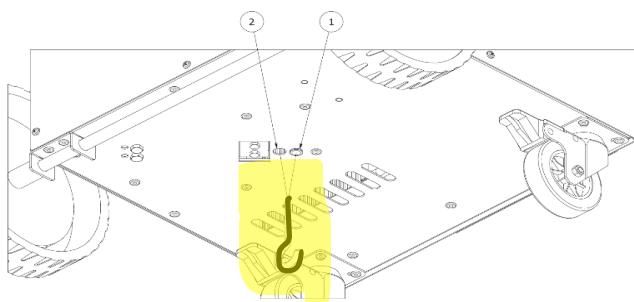
Charging hoses 3 m HP+LP	Quick couplings HP+LP	Feeding cable	Calibration hook
			

Preparing for use

TRANSPORT LOCKING CALIBRATION HOOK REMOVAL

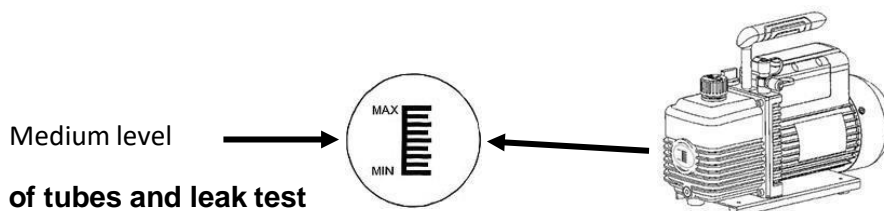
Before using the unit for the first time, remove the hook screwed to the tank scale which is for transportation protection. Keep hook in safe place for if ever required for scale calibration.

- 1) Hook in transport lock position
- 2) Hook in calibration position



Oil level checking of vacuum pump

Check the level of hydraulic oil in the vacuum pump and, if necessary, fill up to the level (about half of the spyglass)



Connection of tubes and leak test

Connect the charging hoses to the unit (high pressure = RED, low pressure = BLUE). Make sure that the quick couplings are in position **"CLOSED"** (eventually, turn handle **counterclockwise** to close)

Carry out a vacuum cycle of one/two minutes followed by a leak test under vacuum. The above procedure avoids that air residuals are left in the hoses and checks for eventual leaks.

(See the relevant instructions Pg.9)



INSTALLATION

APPLIES TO:

The vacuum and the following leak test should be repeated whenever the charging hoses Could have been contaminated with air.

Check if the setting relevant to the length of the hoses is correct (select “OPTIONS AND SETTINGS” then “HOSE LENGTH” and modify if needed, by means of the buttons “UP” and “DOWN” (3 Metres default setting)

If the hose length, on the opposite, is set to “0” (zero), at the end of the working cycle, the unit will not calculate the gas remaining in the hoses at the end of the working cycle and will lead the user to suction the gas residuals in the A/C system of the vehicle. instead.

(In case of a pressure test which is not preceded by a standard working cycle, the unit recovers the gas residuals in the vehicle by default, regardless to the above setting)

Filling of internal bottle



The unit is delivered with the empty internal gas bottle for safety reasons. It is therefore necessary to fill the bottle with a refrigerant quantity not lower than 2 Kg and not higher than eighty percent of the maximum nominal capacity of the reservoir (this percentage may vary according to local safety rules). To fill the internal tank please follow the relevant instructions of the present manual. To connect to the bottle, use the HP hose with the HP quick coupling

Connecting to power feeding



Connect to proper power feeding according to the unit's technical specifications

Position on an even surface



During the operations, the unit must be located on a **flat and leveled surface** in order to correctly perform the weight measurements and in order to comply to the safety rules.



UNIT DESCRIPTION

Component's description, use of

Preliminary test

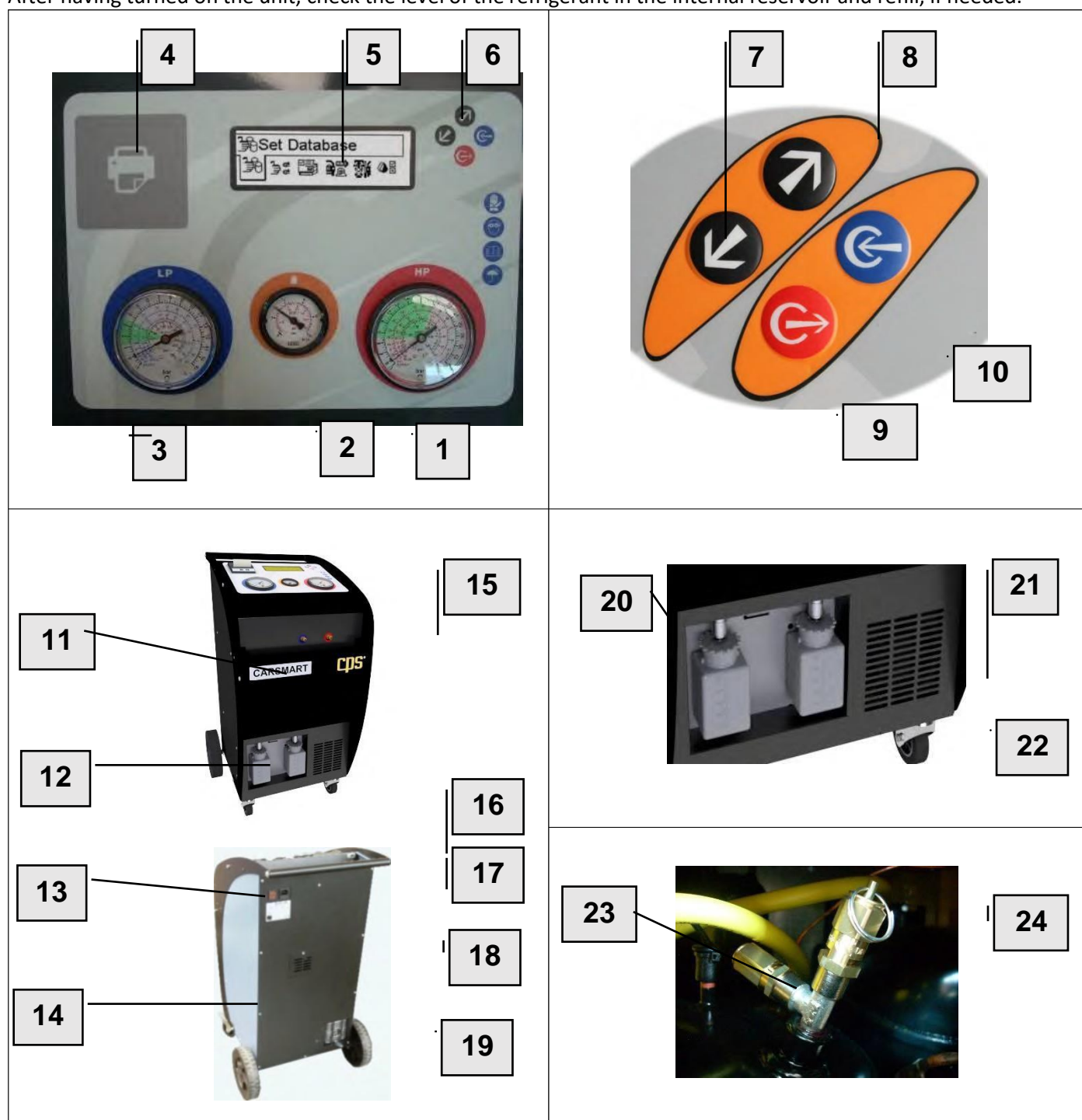
Connect the feeding cable to the mains (220V AC single phase) and turn on the main switch.

Check that the refrigerant used by the A/C system to be serviced is the one the service unit is intended for:

R134a or R1234YF








Check oil levels (vacuum pump and new oil reservoir).

After having turned on the unit, check the level of the refrigerant in the internal reservoir and refill, if needed.





UNIT DESCRIPTION

Re.:	Description	Note
1	High Pressure Gauge	For the inspection and diagnosis of the A/C system
2	Tank Pressure Gauge	To check the pressure inside the gas storage reservoir.
3	Low Pressure Gauge	For the inspection and diagnosis of the A/C system and for the control of the vacuum.
4	Thermal printer position	Prints a report on the carried-out cycles
5	LCD Display	Visualizes the operations of the unit
6	Buttons	Control buttons
7	Button "Down" 	To browse the menus or decrease the values of the various parameters
8	Button "UP" 	To browse the menus or increase the values of the various parameters
9	Button "EXIT" 	Interrupts any whatsoever operation, to exit and return to the previous menu
10	Button "ENTER" 	To select and confirm the different functions, or to enter the following menu
11	Hoses storage	To place instruction manual or hoses when not in use
12	New/old oil bottles	Store the new oil and the drained oil
13	Main switch	Shows the machine data (serial no., year of construction)
14	Identification plate	To connect the charging hoses LP / HP
15	Main LP (blue) and HP(red) couplings	To power the machine (220-240V 50 Hz)
16	Serial port	To update the databank of the unit
17	Ventilation fan	Internal ventilation fan (CSA1234 model only)
18	Safety valves inspection door	To inspect the safety and the NCG release valve
19	Vacuum pump ventilation grid	To ventilate and inspection the vacuum pump
20	New oil bottle 	New oil storage / new oil storage for hybrid vehicles (CSAHK)
21	Old oil bottle 	Drained oil storage
22	Dye bottle bottle position 	Dye storage Bottle
23	Non-condensable gas release valve	Automatically releases non-condensable gases
24	Max pressure valve	Automatically releases pressure if max pressure is reached. Allows to manually release NCG gases if present



MENU DESCRIPTION

Main menu and main working cycle description

After switching on the unit displays the SW version and performs an automatic test to check if there are any gas leaks in the machine and, eventually, stops the operation.

Switch on the unit which will display
Firmware version and refrigerant type

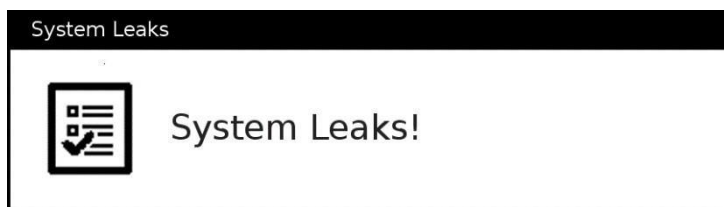


The unit automatically starts a series
of tests:

- A. Recovery check
- B. Drain check
- C. Vacuum check
- D. Safety Check



In case the test fails, the unit displays
a warning message (in the case at the
right, a leak in the system). Call the
service hotline on (+61)08 8340 7055
if such a message appears.



After the test you land in the "Home
Page":

- 1 – Home page Icon
- 2 – Gas quantity in the tank
- 3 – Theoretical tank pressure
- 4 – Actual gas temperature



NOTE:

Air Pressure relief

If the theoretical gas tank pressure shown on the home page (see above n. 3) calculated on the base of the gas temperature is significantly lower than the actual tank pressure (shown on the gas tank manometer) the refrigerant is contaminated by non-condensable gases (NCG's) The unit automatically releases NCG's during the vacuum cycle, but the user (for instance in case of failure of the NCG release valve) may also manually release by pulling the ring on the max pressure valve until the theoretical and the actual pressure values comply. **NOTE:** If the theoretical gas pressure, on the opposite, is higher than the actual value shown on the tank manometer the gas quantity in the tank is too low.







MENU DESCRIPTION



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By means of the buttons  "UP" (see above n. 8) and  "DOWN" (see above n. 9) you reach the different program choices:



"DATABASE" to access the choice of the model from the internal database



"MANUAL" to set the working parameters manually or to work step by step



ACCESSORIES to choose the accessory functions like the flushing with refrigerant or the test under pressure with the use of nitrogen



SETUP to set the basic parameters (Date and time language etc.)



OPTIONS to access optional settings or functions



PRINT to print the data stored in the unit or the data of the last service cycle





DATABASE

Model choice through the internal DATABASE

Select the DATA BASE working mode to browse the list of car manufacturers, choose the type and the version of the car you are going to service.



Select the "DATABASE" working mode...



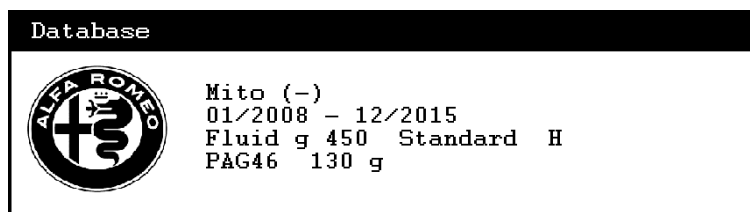
...browse the list of vehicles to choose manufacturer...



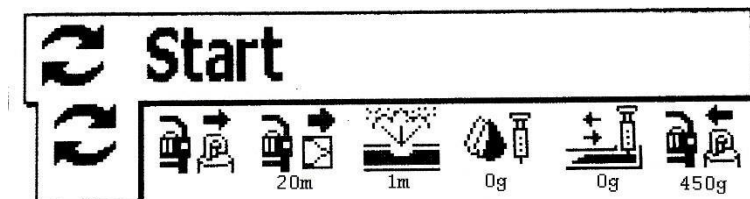
... the type ...



...and the version of the vehicle, info about **total** oil quantity in the system and if Hybrid/Electric vehicles (H)



The single parameters can be changed by pressing **ENTER**, changing the values with the buttons UP and DOWN and by pressing **EXIT** to return to the main menu.



Press **ENTER** to start the complete automatic working cycle (see **AUTOMATIC CYCLE with MANUAL PARAMETER SETTING** for detailed description of all the working cycles)



WORKING CYCLE

Automatic A/C service cycle, with automatic or manual working parameter setting

NOTE: always wear safety gloves and protection glasses when servicing an A/C system!



You may perform the **A/C service cycle** in two ways:

- A) **FULLY AUTOMATIC** working cycle \implies all working phases performed in one step
- B) **MANUAL** working cycle \implies single working phases performed one by one

In both cases, there is no setting needed for the **recovery** phase. The **vacuum/vacuum test time** and the **refrigerant quantity**

- 1. Can be taken from the internal **DATABASE** or
- 2. Can be defined by the user (manual setting of the parameters)

The **dye** quantity must be set by the user (default is "0 g") The **new oil** quantity mode, in case of a **FULLY AUTOMATIC** cycle, can be set choosing from three options:

- 1. It can be set by the user with no regard to the recovered oil ("**MANUAL**" oil setting)
- 2. It can be set so that it is equal to the amount of the old (recovered) oil ("**AUTO**" oil setting)
- 3. It can be set so that it is equal to the old oil quantity **plus** an **extra quantity** set by the user ("**AUTO+**")

- A) To perform a **FULLY AUTOMATIC** working cycle:



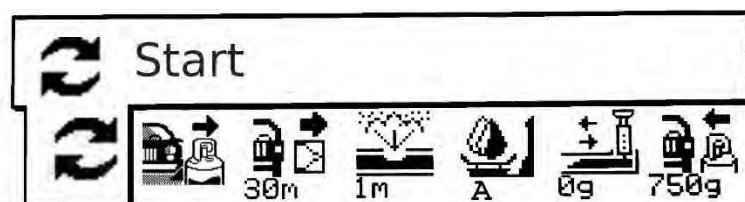
Choose the vehicle's model from the **DATABASE** or ...



... select the **AUTOMATIC CYCLE / MANUAL PARAMETER SETTING** mode (drawing at the right) and reach the following menu



By selecting **START** and clicking on **ENTER**, the unit performs a fully automatic cycle according to the displayed parameters. In the example to the right: 30 min vacuum, 1 min vacuum test, AUTO oil mode, 0 g of dye, 750 g refrigerant charging.





WORKING CYCLE



The **OIL** charging mode can be chosen from **three solutions**:

M = manual setting

A = automatic oil charge

A+ = as above, with an extra oil quantity



By selecting **MANUAL** or **AUTOMATIC +**, you must set the oil quantity. Increase/decrease by means of the UP/DOWN buttons Click on **EXIT** to return to the main page.



When all settings are defined choose **START** and press on **ENTER**



The unit asks you to confirm the A/C type:

- ☐ Hybrid (with **electric driven Compressor**) or electric vehicle
- ☐ Standard (belt driven compressor)

If **HYBRID** mode is confirmed (electric or hybrid – **with electric compressor** – vehicles), you are asked to perform a “self-recycling”. Follow the instructions on screen



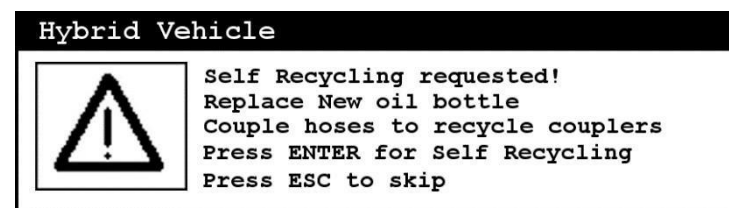
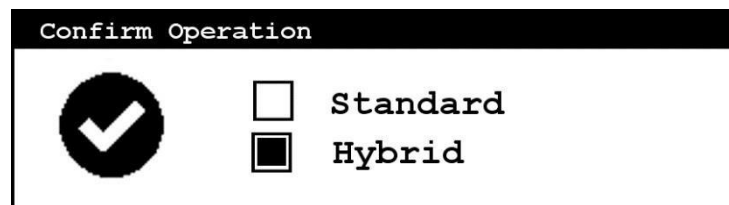
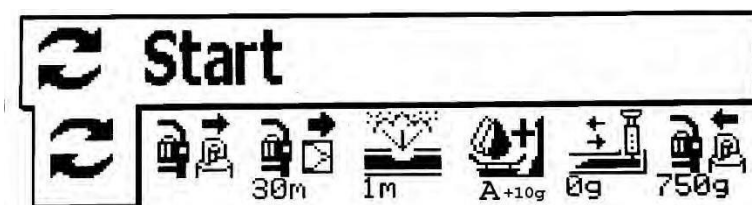
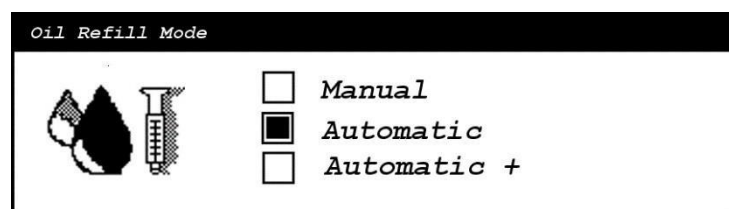
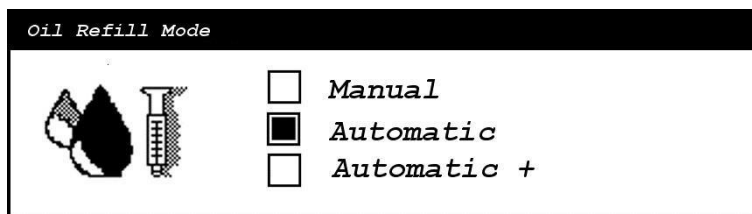
Connect the HP and LP quick couplings through the recycling coupler(CSAHAA) (Supplied with Machine). Open the quick couplings by turning them clockwise.



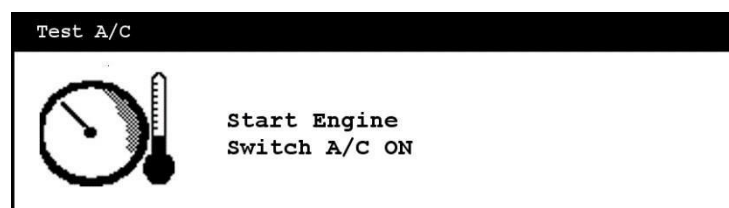
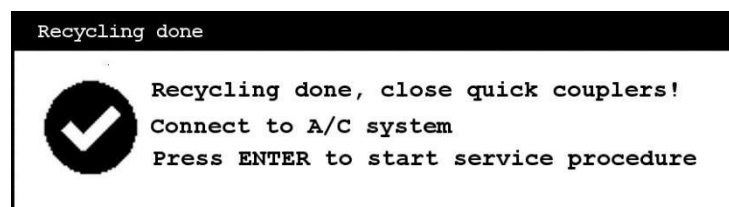
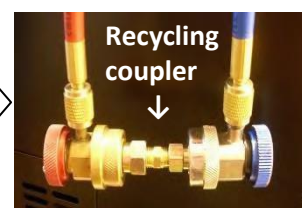
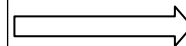
The unit performs a recycling to flush oil residuals in the unit. When finished, connect to the vehicle A/C system



At the **end** of the **whole cycle**, the unit skips to the A/C system pressure test: press **ENTER** to confirm or **EXIT** to skip the test. See **A/C PRESSURE TEST** instructions for details



Couple HP and LP hoses together with the CSAHAA





WORKING CYCLE



Press **EXIT** to finish the cycle. Follow the instructions on screen and close/disconnect hoses to recover the gas residuals.



ENTER to confirm the unit recovers any gas residuals left in hoses before ending the procedure



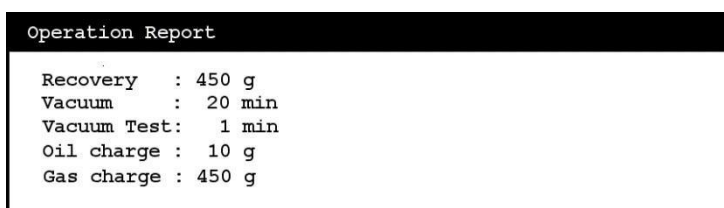
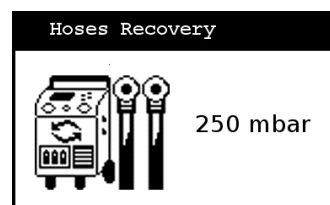
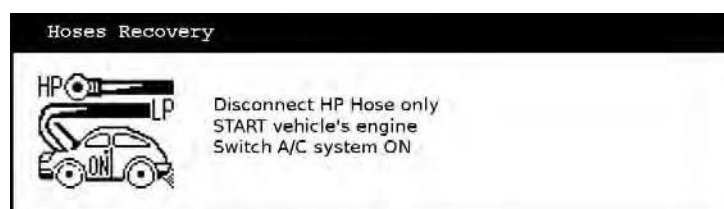
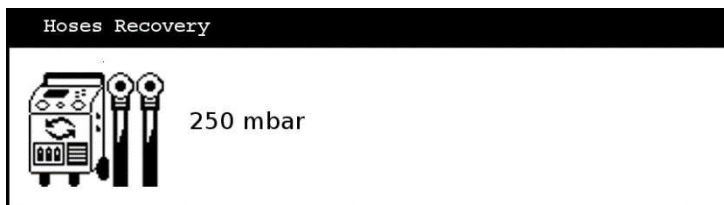
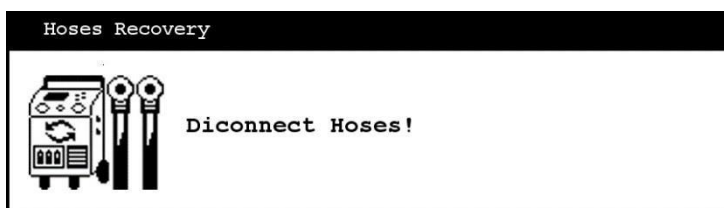
... **ALTERNATIVELY**, if the hoses length has been set at "0" (see SETTINGS instructions) recover the residuals in the A/C system. In this case **CLOSE HP** quick coupling only (**LP open**)



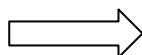
Even after the recovery **into the A/C system** there will still be small quantities of vapours left in the hose to be recovered.



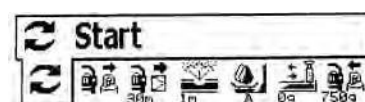
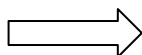
Press **ENTER** and wait until the unit ends the recovery from the hoses and shows the operation report page.



At the very end of the cycle, **ENTER** to **print** the result



Press **EXIT** to **return** to the main menu



B) To perform each single working phases in **MANUAL** mode (manual setting of the working parameters):



WORKING CYCLE



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Select the **AUTOMATIC CYCLE / MANUAL PARAMETER SETTING** mode (drawing at the right) and reach the following menu



NOTE: by choosing **START** and pressing on **ENTER**, the unit performs all the cycles with the shown parameters.

To perform the single phases, choose the working phase, press **ENTER** and change parameters (if any) by means of the buttons **UP/DOWN**



RECOVERY: immediate start of the gas recovery from the vehicle only (recovery followed by the oil drain). Press **ENTER** to start the recovery cycle only.



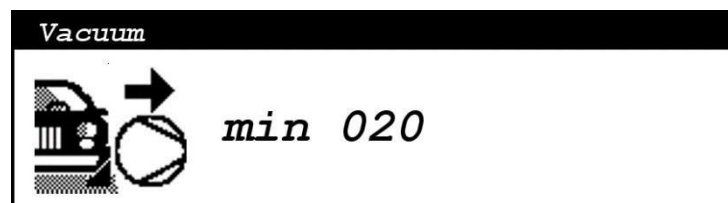
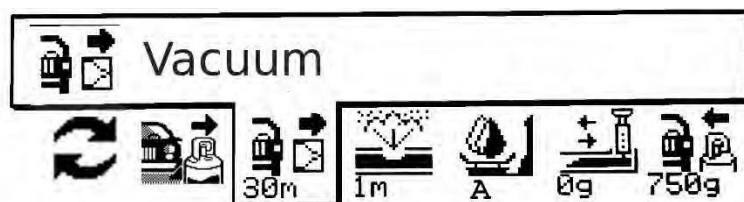
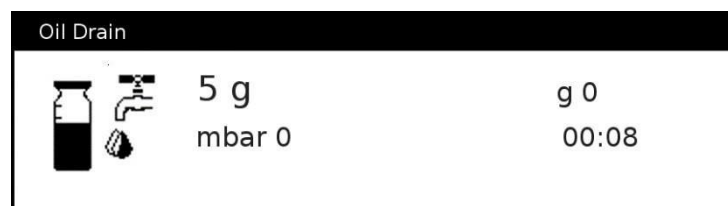
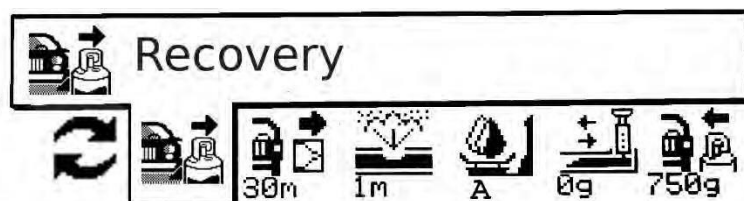
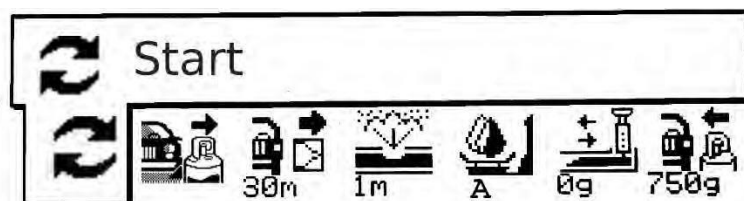
NOTE: After the recovery of the refrigerant, the unit displays the oil drain phase. **Always allow the oil drain phase to finish**



VACUUM: press **ENTER** to change the vacuum settings.



Change the settings by means of the buttons **UP/DOWN**. Press **ENTER** to start the cycle





WORKING CYCLE



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VACUUM TEST: press **ENTER** to change the test settings, **ENTER** to start the cycle (the test is also included in the VACUUM cycle).



OIL INJECTION: press **ENTER** to select the mode setting and the quantities (Manual and "Auto +" cycles only)

The **OIL** charging mode can be chosen from three solutions:

M = **manual** setting of the oil quantity

A = **automatic** oil charge (same as recovered)

A+ = as above, with an **extra oil quantity**



NOTE: if the oil charging icon is on **OFF** mode please go into **OPTIONS** -> **SET OIL REFILL** and set oil refill mode to **ON**



DYE INJECTION: press **ENTER** to select the dye quantity, **ENTER** again to start the cycle. **NOTE:** a gas recharging cycle must follow the oil or dye injection.



FLUID REFILL: press **ENTER** to change the settings, **ENTER** again start the gas charging

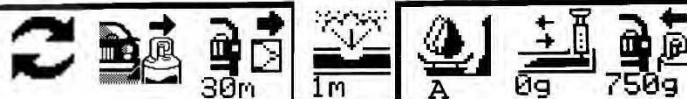
NOTE: the gas charging must be preceded by a vacuum/tank heating phase.



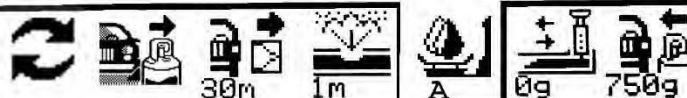
The unit asks you to confirm the A/C type:

- ☐ Hybrid/Elec. (**electric Compressor**)
- ☐ Standard (belt driven compressor)

Vacuum Test



New Oil

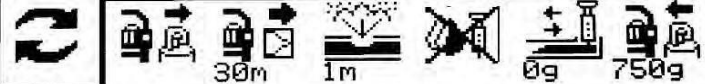


Oil Refill Mode



- ☐ Manual
- ☒ Automatic
- ☐ Automatic +

Start



Tracer Fluid



Fluid Refill



Confirm Operation



- ☐ Standard
- ☒ Hybrid



WORKING CYCLE



cps Automotive



If **HYBRID** mode is confirmed (electric or hybrid – **with electric compressor** – vehicles), you may be asked to perform a self-recycling. Follow the instructions on screen

Hybrid Vehicle

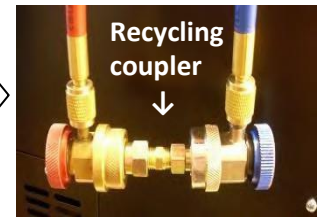
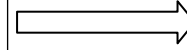


Self Recycling requested!
Replace New oil bottle
Couple hoses to recycle couplers
Press **ENTER** for Self Recycling
Press **ESC** to skip



Connect the HP and LP quick couplings through the recycling coupler (CSAHAA). (Supplied with machine) Open the quick couplings by turning them clockwise.

Couple HP and LP hoses together with CSAHAA



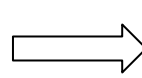
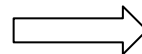
The unit performs a recycling to flush any wrong oil residuals in the unit. When finished, connect to the vehicle A/C system, and start the charging.

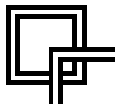
Recycling done



Recycling done, close quick couplers!
Connect to A/C system
Press **ENTER** to start service procedure

Press **ENTER** to **print** the results
Press **EXIT** to **return** to the main menu





ACCESSORY

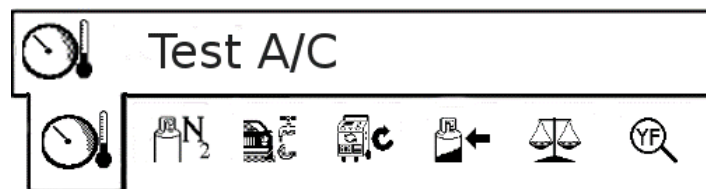
Description of the accessory function's menu



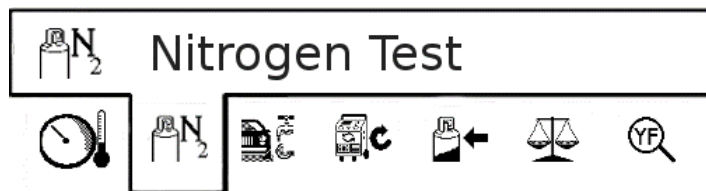
Choose the **ACCESSORY FUNCTIONS** menu and press **ENTER** to access the list of available functions



TEST A/C: Testing of the LP/HP working pressures



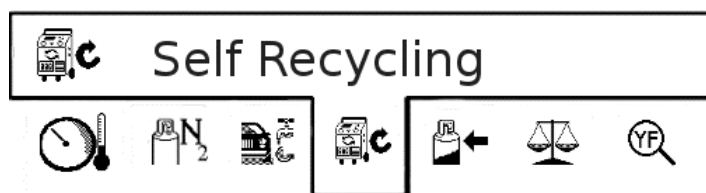
NITROGEN TEST: leak test under pressure with the use of nitrogen /Forming gas (Optional Kit Part # CSANITRO)



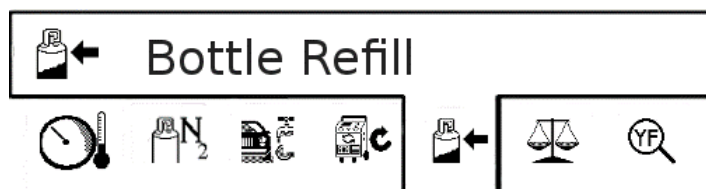
FLUSHING: flushing of the A/C system with the use of refrigerant (Optional Kit Part # CSAFLUSH)

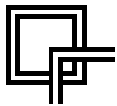


SELF RECYCLING: flushing of the internal lines with the use of refrigerant



BOTTLE REFILL: refilling of the internal refrigerant tank





ACCESSORY



cps Automotive



Once pressed on "bottle refill" the unit will display the quantity currently set for the recharging of the internal bottle

Bottle Refill

 2500 g



Adjust the quantity to be filled in the internal tank by means of the buttons "UP" (increase) or "DOWN" (decrease)



Connect the HP line to the external refrigerant bottle by means of the relevant adapter (CSA134ADP +AD41 for R134a bottles, CSA1234ADP for R1234YF bottles)



CSA134ADP
(R134a)



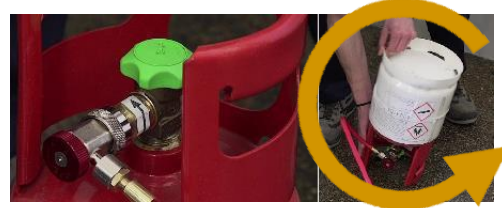
AD41
(R134a)



CSA1234ADP
(HFO1234YF)



If only one (vapor) connection is present on the refrigerant bottle (YF bottles, some R134a bottles) , turn the bottle upside-down to charge liquid refrigerant



otherwise use the liquid (red) coupling on the bottle

Liquid line coupling ->

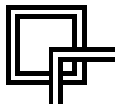


When the set quantity is reached, the unit asks you to close refrigerant bottle and the quick coupling to recover the refrigerant residuals left in the hoses

Hoses recovery



Internal tank recharging completed
Close copulings and press ENTER to confirm hose residuals recovery



ACCESSORY



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WEIGHT TEST: test of the weight scales of the unit (test only. To calibrate the scales, see service manual)



YF GAS ANALYZER: analyzes the purity level of the refrigerant in the A/C system




Weight Test



YF Analyzer



NOTE: “YF analyser” function  is available in the **R1234yf** models **CSA1234** only

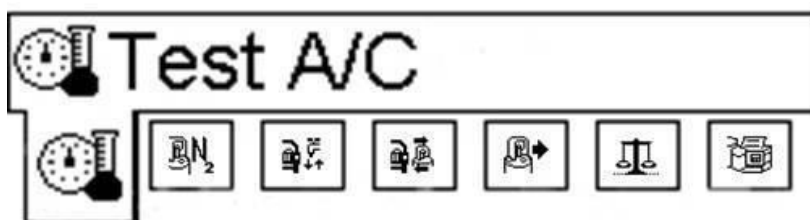
Vehicle's A/C system test cycle



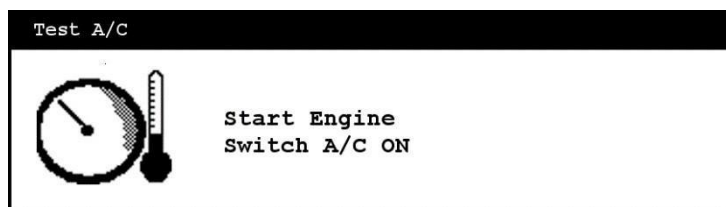
Choose the accessory functions menu in the main page.



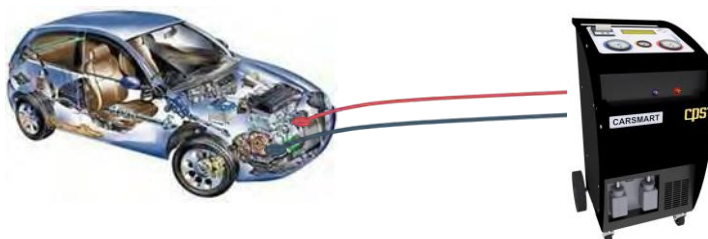
Choose "A/C test" in the accessory functions menu



The **A/C TEST** is also proposed **automatically after every complete service cycle**.



Connect the **HP** and **LP** quick couplings of the unit to the A/C system. Open the quick couplings by turning them **clockwise**



Start the engine of the vehicle, set **2.000-2.500 RPM**



Start the vehicle's A/C system with following settings:



air intake on "Recirculated air"



temperature control to the min value



fan speed control at max speed value

Press **ENTER** to start the A/C test



The test starts with the measurement of the **HP** side. Allow **2-3** minutes for the measurement to stabilize.



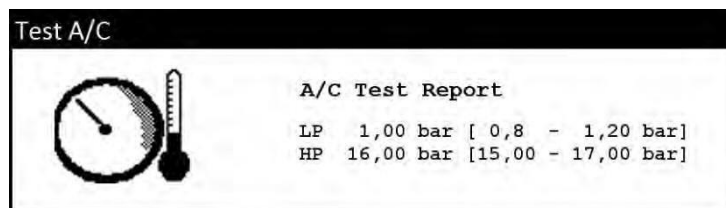
then switch to the **LP** side by pressing **ENTER** and wait **2-3** minutes



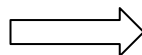
Press **EXIT** to stop the test



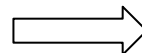
The unit will display the data of the test and the result



Press **ENTER** to **print** the result



EXIT to **return** to the main menu





NITROGEN TEST



cps Automotive

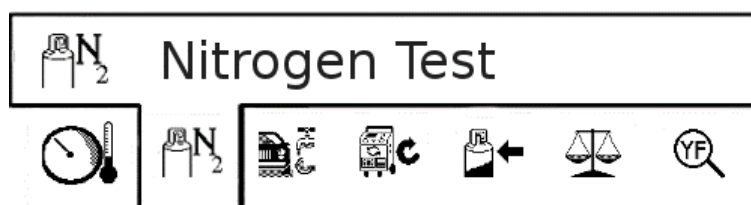
Leak test under pressure with the use of nitrogen/forming gas



Choose the accessory functions menu in the main page.



Choose **NITROGEN TEST** and press ENTER.



To perform the test, you will need a Nitrogen/Forming gas bottle and the nitrogen test kit code **CSANITRO** (not included in the outfit of the A/C unit)

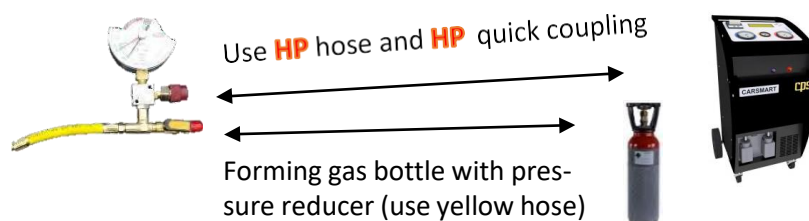


CSANITRO

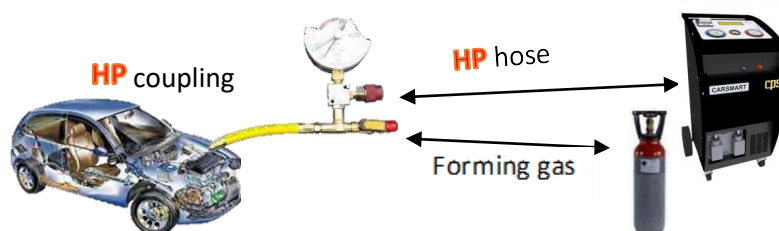
- 1 Pressure reducer
- 1 Connection hose
- 1 Manifold with gauge
- Various quick couplings



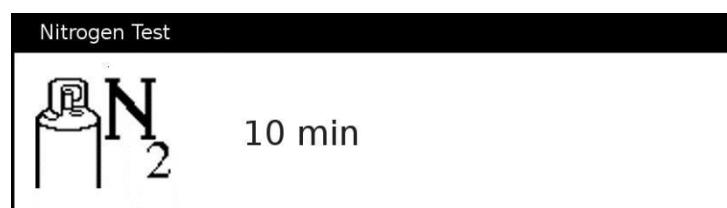
- Connect the unit to the manifold (use HP hose and quick coupling)
- Mount reducer on N bottle and connect to the manifold using the yellow hose



- Connect the manifold to the A/C system using the included quick coupling
- Reduce pressure to 8-10 Bar and open the tap and the quick couplings (on the vehicle and on the manifold)



Adjust test time (example: for a medium size A/C system, 8-10min) Press **ENTER**

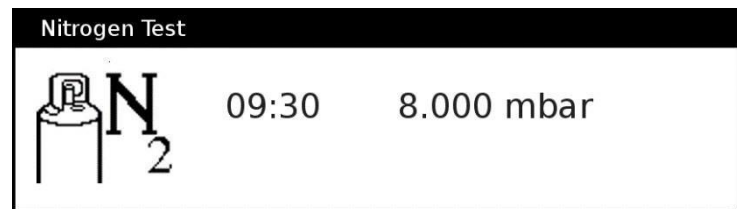




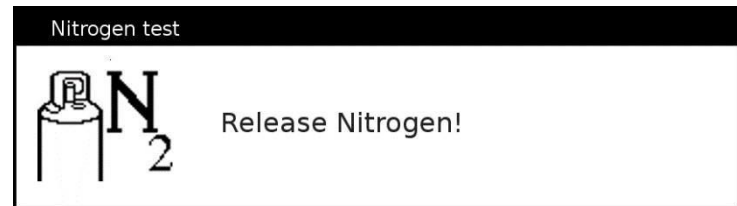
NITROGEN TEST



The unit displays the remaining time and the pressure in the A/C system (which is also shown on the gauge of the pressure reducer and of the manifold)



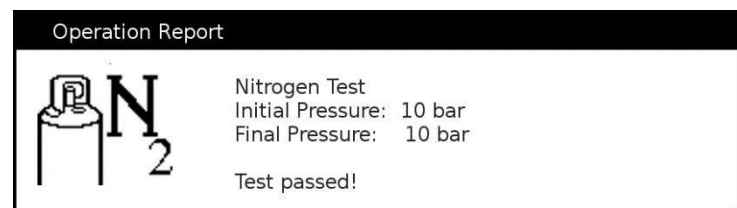
When requested, close the gas bottle, close the tap on the manifold, disconnect the hose from the manifold and release nitrogen by slowly opening the tap.



Close the tap again to allow the unit to perform the mandatory vacuum cycle at the end of the test



At the end of cycle, the unit displays the result of the test. Press **ENTER** to print ESC to exit



A/C system flushing with refrigerant



Choose the accessory functions menu in the main page.

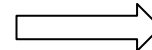


Choose **FLUSHING** and press **ENTER**.



To perform a flushing cycle, you need a flushing Filter part # **CSAFLUSH** not included in the standard outfit of the unit.

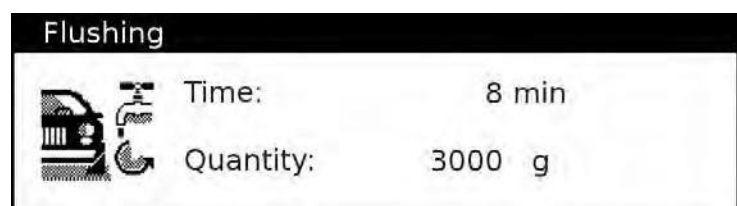
Filter/Oil separator
code
CSAFLUSH



Choose **FLUSHING** and press **ENTER** in order to set the parameters of the flushing cycle

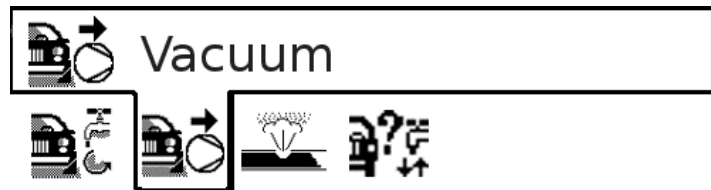


Set the refrigerant quantity to be used for the flushing and the max time allowed to the cycle





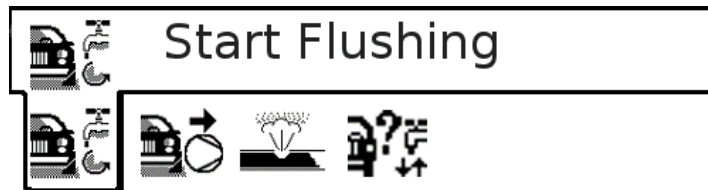
Chose **VACUUM** and **VACUUM TEST** to set the length of the vacuum cycle.



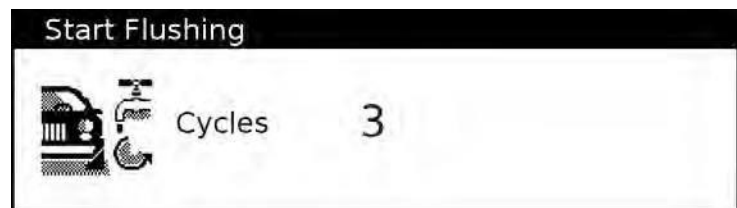
Set the length of the vacuum cycle and press **ENTER** to continue. The vacuum and the vacuum test are mandatory to avoid any gas leakage into the environment.



Select **START FLUSHING** and press **ENTER** to set the flushing parameters



Choose the number of the cycles to be performed. Between one cycle and the other and after the vacuum cycle, you may invert the hoses to change the flushing direction.



Internal Flushing procedure



Choose the accessory functions menu in the main page.



Select **SELF RECYCLING** and press **ENTER**
Follow the instructions on screen



When replacing the new oil bottle, the oil lines Must be cleaned as well



Connect the HP and LP quick couplings through the recycling coupler (CSAHAA).
(Supplied with machine) Open the quick couplings by turning them clockwise.



Set the RECYCLING phase time and set the vacuum time and the vacuum test time.
Press **ENTER** to start the internal flushing.
Follow the instructions



NOTE: if the quick couplings have not been opened yet, the unit will display a warning



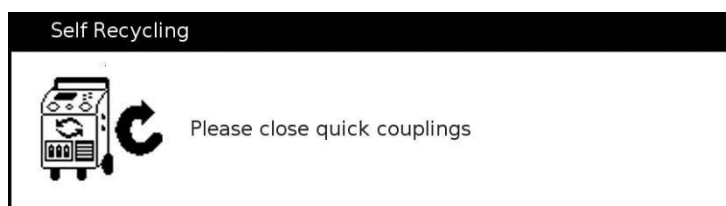
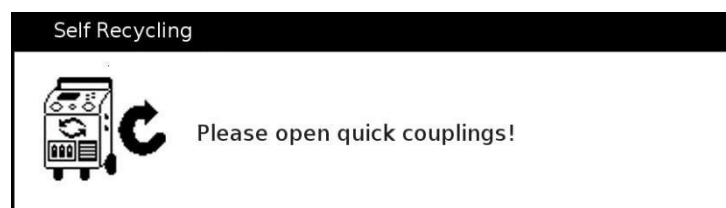
You are asked to close the quick couplings
(Turn counterclockwise). The unit recovers the gas left in the hoses and ends the cycle



Replace NEW OIL
bottle



Couple HP and LP
hoses together
with kit CSAHAA





WEIGHTTEST



cps Automotive

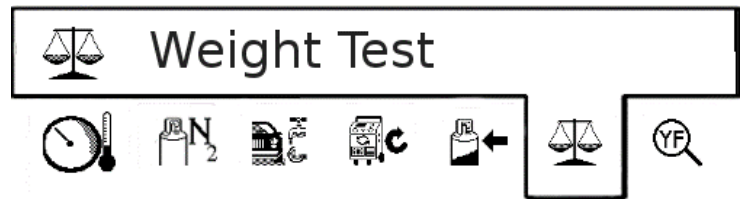
Testing procedure of the weighing scales



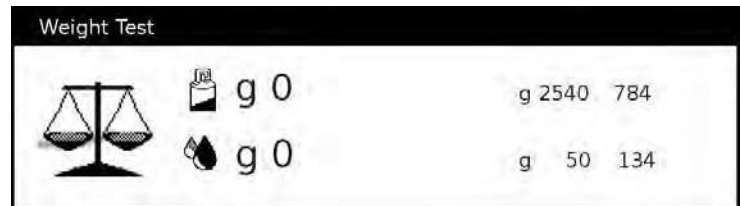
Choose the accessory functions menu in the main page.



Choose **WEIGHT TEST** and press **ENTER**.

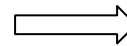


The data on the left side show the measured weight of the sample (gas tank and oil scales), the data on the right the analogue and digital values currently



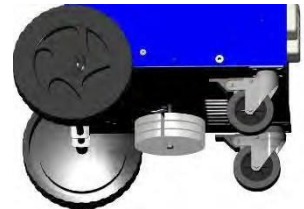
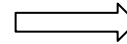
To perform the weight test, you need a sample weight (4, 5 or 6 Kg for the gas tank cell, 100-200 g for the oil scale)

Hook sample weight to the load cell.

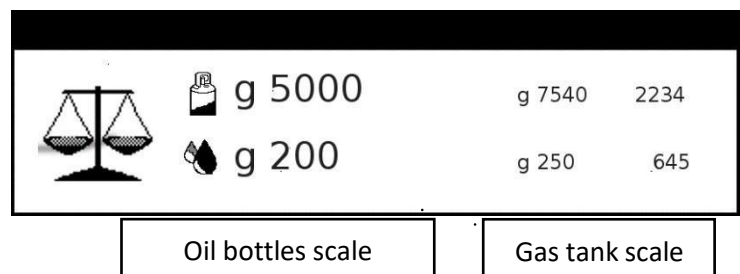


or the calibration kit code **CSACAL**.

Scale calibration kit code **CSACAL**



After having hooked the sample weights to the cell, the measured data must correspond to the sample weights.



NOTE: the above procedure is carried out to control the efficiency of the scales. To calibrate the scales, please refer to the specific service instructions.



SETTINGS



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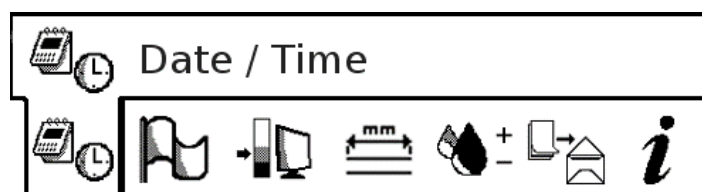
Working parameter settings of the unit



Choose the accessory functions menu in the main page.



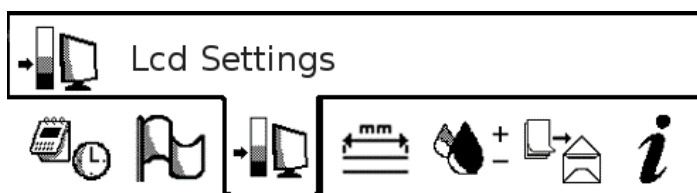
Set current Date and Time and press **ENTER** to confirm and exit the setting



Set the language to be used by the unit and press **ENTER** to confirm and exit the setting



Set the desired LCD brightness/contrast values and press **ENTER** to confirm and exit the setting



Set length of the charging hoses (default is 3000 cm). **NOTE:** if the hose length is set to "0" the unit will recover any gas residuals left in the hoses to the A/C system **instead of recovering it into the unit again.**



Press **ENTER** to display information about the firmware version, the total and partial recovered and charged oil and gas values.





OPTIONS



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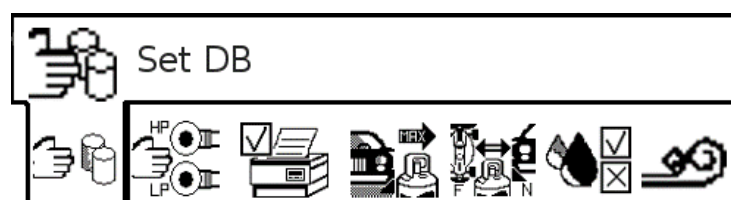
Optional parameter setting



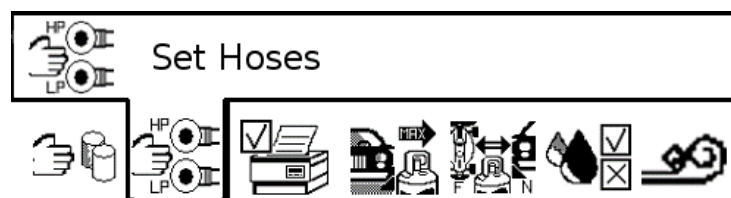
Choose the OPTIONS functions menu in the main page and press **ENTER**



Set the Database to be displayed and press **ENTER**



Set if both two hoses (LP, HP) have to be used during the service operations or if only one of the lines has to be used and press **ENTER**



Set if the recovered gas quantity from the vehicle's A/C system must be printed (YES/NO) and press **ENTER**



To set the "maximum recovery" option



You may **increase only** the length of the pressure increasing test after the recovery and add an additional recovery time (suggested is 01 min)





The refill type can be chosen from two options: **STANDARD** and **BUS** (to be used for high capacity - > 3 Kg - A/C systems only).

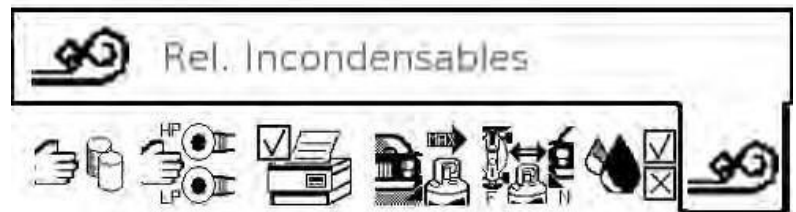
The misuse of the charging mode setting may lead to charging inaccuracies.



Excludes or **includes** the oil charging cycle from the automatic procedure (ON/OFF choice). The setting allows the user to exclude the oil charging even if an automatic oil charging mode with scale has been chosen



When requested you may release NCG's by following the directions on Pg.7 Air pressure relief.





PRINT



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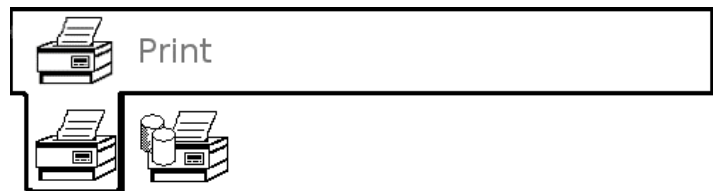
Printing the last service cycle or statistic data of the unit



Choose the PRINT functions menu in the main page and press **ENTER**



Press **ENTER** to print the last stored service operation

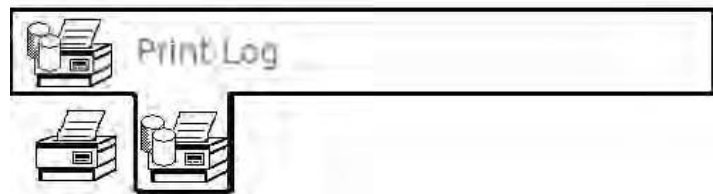


To print the shown report, press **ENTER**.
Press **EXIT** to return to the previous page.

Operation Report	
Recovery:	450 g
Oil drain:	3 g
Vacuum:	30 min
Vacuum Test:	1 min
Oil charge:	3 g
Gas charging:	450 g



Press **ENTER** to print a report of the refrigerant and on the oil, quantity recovered and recharged since the last reset point

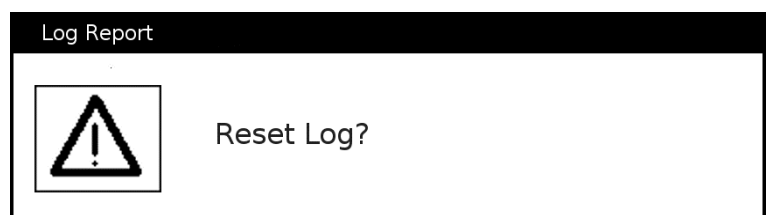


To print the shown report, press **ENTER**.
Press **EXIT** to return to the previous page.

Log Report	
	From 01/01/2016 10:00
	To 30/04/2016 17:00
	Recovered gas: 3000 g
	Recharged gas: 6000 g
	Recharged Oil: 250 g



After having printed the report or after having decided to **EXIT**, the unit asks you to confirm the resetting of the counters. Press **ENTER** to reset, or **EXIT** to return to the previous page



Ordinary maintenance

The replacement of the filters and of the oil of the vacuum pump must be carried out by skilled personnel. It is advisable that the maintenance service is made by an authorized Centre to make sure that the warranty of the product is not interrupted. The unit registers the service operation to monitor the working hours of the filters and the vacuum pump oil, the software version installed in the unit and the data base version. These counters must be reset by the service personnel.

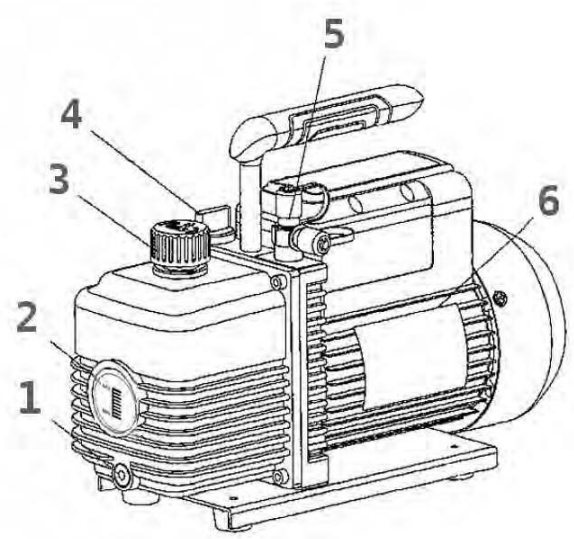
Filter replacement

Avoid allowing the refrigerant to contaminate the atmosphere. Recover the gas residuals left in the charging hoses and in the filter. Replace with original filters only.

ATTENTION! The filters must be mounted according to the flow direction indicated by the arrow signed on the filters itself.



Oil replacement of vacuum pump

	1	Oil drain screw plug
	2	Sight glass
	3	Air inlet
	4	Oil filling cap
	5	Exhaust fittings
	6	Vacuum pump information plate

- Check the oil level by means of the relevant sight glass (2). The level of the oil (when the pump is not working) should be at the middle of the sight glass.
- To replace the oil, remove the screw plug (1) switch on the pump for few seconds (max 5-10 seconds!) drain the oil in a container. Screw the oil drain plug in position again and add new oil by means of the cap (4) until you reach the normal level (middle of the sight glass) Use specific CPS Vacuum pump oil to fill into the vacuum pump! Put the oil-filling cap (4) in position and switch on the pump for a final check.
- Replace the oil of the vacuum pump every 10 working hours or if the CPS vacuum pump oil shows signs of discolouration.

IMPORTANT: the exhaust oil drained from the pump is a special waste and as such, it must be scrapped according to the regulations in force.

Warning: switch off the unit and unplug from electrical socket before operating on the vacuum pump. Electrical shock hazard!

