CE

Automotive Air-Conditioning Service Equipment

Ariazone 8001

OPERATOR MANUAL

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1. Introduction

Ariazone 8001 - Automotive A/C Service Station (Recovery, Recycling, Evacuation and Charging System) is a user-friendly tool specifically designed for the automotive air-conditioning technicians, to carry out the following functions:

- Testing air conditioning system
- Recover and recycle refrigerant.
- Gauge amount of refrigerant recovered from air-conditioning system.
- Gauge amount of oil removed from air-conditioning system (if any).
- Evacuate air-conditioning system.
- Charge lubrication oil or UV dye by volume into air-conditioning system.
- Electronically charge refrigerant by weight.

The system provides electronically controlled functions, whilst keeping the operator constantly informed and in full control.

This unit has been designed and build to be long lasting and with high level of reliability including maximum safety for the operator. The operator needs only to be responsible for the proper use and maintenance of the unit, in accordance with the manufacturer instructions found in this manual.

Important: This manual contains important information pertinent to operator safety, and must accompany the unit, in the case of sale or transfer to another party.

Manufacturer reserves the right to modify this manual and the unit itself at any time without prior notice.

Environmental information

This product may contain substances that can be hazardous to the environmental or to human health if it's not disposed of properly.

Electrical and electronic equipments should never be disposed of in the usual municipal waste, but must be separately collected for their proper treatment (recycling).

We also recommend that you adopt appropriate measures for environmental protection: recycling of the internal and external packaging of the product, including batteries (if any).

With your help it is possible to protect our planet and improve the quality of life, by preventing potentially hazardous substances being released in to our environment.

2. Important Safety Information's_

This unit is extremely simple and reliable in selecting and performing all its functions. Therefore, the user is not exposed to any risk, if the general safety guidelines reported below are followed, in association with proper use and maintenance of the unit (improper use and maintenance will reduce the safety of the unit).

- This equipment is to be operated by accredited technician only! Users must have basic knowledge of air-conditioning and refrigeration systems, including potential hazards associated with the handling of refrigerants and systems under high pressure.

- Use only pure R134a refrigerant with this equipment.

Read this user manual carefully before operating the unit. If you do not understand any section of this manual, please contact your nearest distributor or manufacturer.

Handle refrigerant with care as serious injury may occur. Always **wear appropriate protective safety gloves**.

The contact with refrigerant can cause blindness. Always **wear appropriate protective safety glasses**.

- RISK OF ELECTRICAL SHOCK. Power lead plug to be connected **only to power point with an earth**.

- Never operate the equipment with a damaged power lead, replace it immediately.

- Before removing any protective cover from unit, always **unplug power lead from power point**.

- The power cable may only be connected to a socket with nominal voltage stated on the rating plate, located at the rear of the unit.

- **Avoid inhalation of the refrigerant**. Use only in well ventilated work areas.

- Do not expose the machine to direct artificial heat or rain.

- Do not tamper with or change safety control devices or their settings.

- When transporting the unit keep upright and remove refrigerant cylinder from platform.

- Do not cover ventilation openings when the unit is operating.

- Maintenance is to be carried out as per the manufacturer recommendation shown in this manual. Only original parts are to be used for maintenance and repairs. Maintenance of the unit must only be performed by an authorized technician.

- Only non aggressive substances to be used for cleaning of the unit.

- The unit does not be operated with flammable refrigerants.

3. Technical Features

Refrigerant ..... **R134 a**

Electronic refrigerant scale ..... **+/- 10 g resolution**

Load cell ..... **2 x 60kg with 150% overload capacity**

LP and HP gauges ..... **AI-D 68 mm kl.1.0**

Recovery cylinder ..... **45 kg**

Recovery pump ..... **26cm^3 with liquid and thermal protection**

Recovery rate ..... **1200 g/min (liquid state)**

Vacuum pump ..... **2 stage, 170 l/min (6 cfm)**

Liquid pump ..... **High volume with high pressure by-pass**

Main Filter ..... **413cm^3 activated core (acid trap on request)**

Service hoses ..... **2.4, (95"), longer hoses available on request**

Dimensions ..... **W-660 mm, D-840 mm, H-1075 mm**

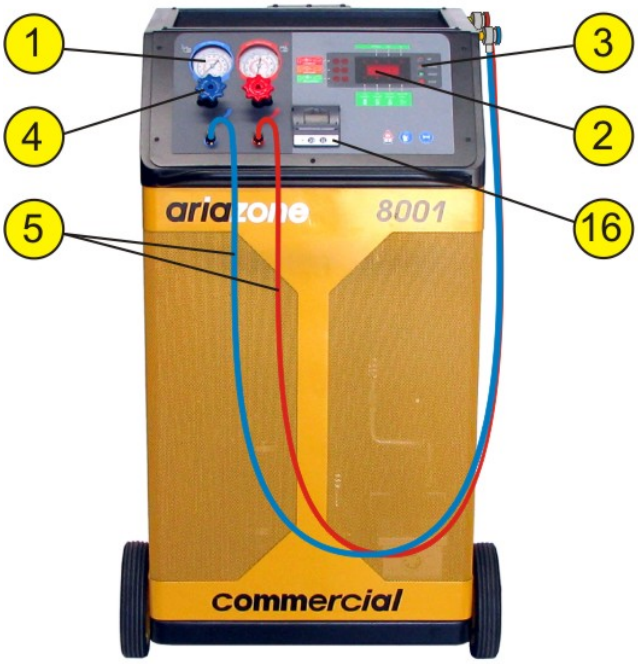
Weight ..... **166 kg (including empty cylinder)**

Chassis ..... **Sturdy all steel construction, powder coated.**

Supply voltage ..... **220-240VAC / 50Hz**

Working conditions ..... **0 – 50 °C ambient temperature, up to 80% humidity, 2000m altitude**

4. Main Parts & Features



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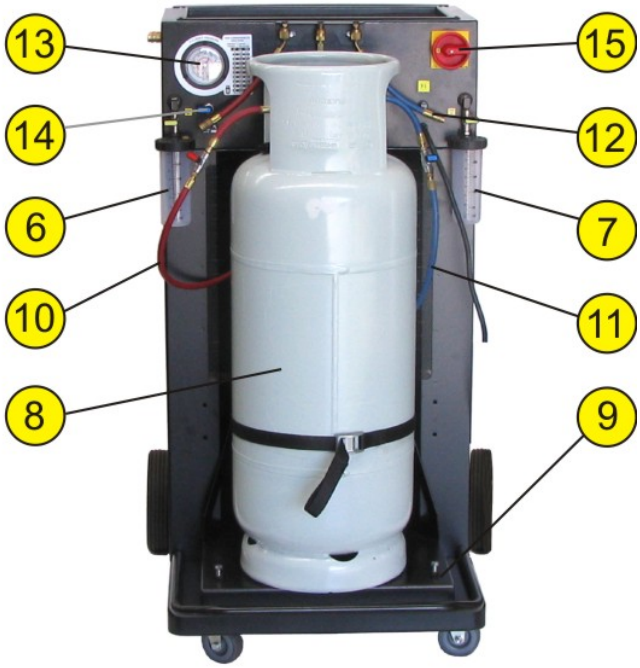

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1. Analog Gauges - Two large analogue gauges display suction and discharge pressures, which are mounted on the front panel for easy viewing by the operator. Pressures are displayed in Bar & PSI and temperatures in degrees Celsius.

2. Display - Numerical display indicates the values and LED indicators above and below the numeric display inform the operator whether the display is indicating kg or lb, remaining vacuum time, weight of refrigerant currently within the cylinder, the amount of refrigerant being charged or the amount of refrigerant recovered.

3. Mode Indicator - LED group and membrane switches. Three pairs of led blocks indicate the mode and status of the unit. These are used in conjunction with the adjacent membrane switches to select the unit functions. Further, once the mode is in operation the pattern in which the led's flash, indicate the activity of the system. These can be viewed from several meters.

4. Hand Valves - The console hand valves allow the operator to control the flow of the refrigerant (if desired).

5. Discharge & Suction Service Hoses with R134a quick couplers - A pair of 2.4m hoses are connected to the console, which allows the operator to connect the unit to the vehicle air-conditioning system service ports for testing system pressure, recovering and charging refrigerant and/or oil.
Service hose quick couplers allows the operator to connect the unit, to the vehicle air-conditioning system service ports without exhausting the refrigerant in to the environment.

6. Recovered Oil Drain Reservoir - A vessel of 250ml (8.75oz) is mounted on the right rear of the unit to allow the operator to gauge the amount of oil recovered from the air conditioning system, if any.

7. New Oil Storage Reservoir - A vessel of 250ml (8.75oz) is mounted on the left rear of the unit to allow the operator to inject oil into air conditioning system automatically.

8. Refrigerant Cylinder - 27 kg capacity, secured with the strap on the platform

9. Cylinder Platform / Electronic Scale

10. Cylinder liquid hose with ball valve

11. Cylinder vapor hose with ball valve

12. Adapters for ¼" SAE connectors

13. Cylinder Pressure Indicator - A large pressure gauge is mounted on the back upper side of the unit to indicate to the technician of any air (non-condensable) built up in the storage cylinder.

14. Cylinder Air Purge Ball Valve

15. Power switch

16. Thermal Printer

5. Preparing the machine for the first use

Perform the following steps to prepare the unit before the first use.

1. Remove the nylon wrapped and styrofoam insert behind the cylinder (8).

2. Check to ensure that all of the accessory components are present:

3. Check that the cylinder (8) is already placed on the platform (9) and properly secured with the strap provided. Unscrew two securing M6 bolts placed on each side of the platform basis app. 3-4 mm and LOCK them in place with nuts provided.

4. Check the vacuum pump oil level. The oil level should be even with the line on the vacuum pump sight glass when the pump is not running.

5. Power up (15) the unit. The unit will perform a lamp test, whereby all LED displays are illuminated. This will enable the operator to determine if any displays have failed.

6. After the sequence has been completed, the display (2) will indicate FILT - 99Hr. This is the number of hours left before equipment servicing is required.

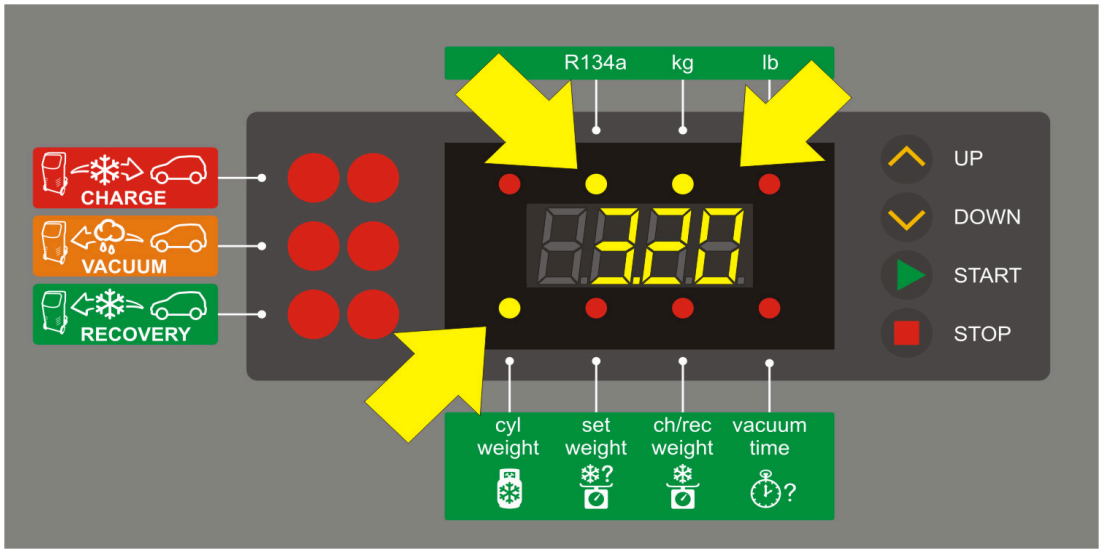
7. Now the display will show the amount of refrigerant in the cylinder (8). If the cylinder is delivered empty, display should indicate app. 0kg of refrigerant in the cylinder.

8. **Mode Selection.** To select a mode of operation, press either the "UP" or "DOWN" arrow keys until the LED indicator (3) is beside the desired function. Press 'START' key which will cause the unit to enter the selected mode. Any mode that has been selected can be exited by pressing the 'STOP' key.

9. Check that both cylinder valves and hoses (10 & 11) ball valves are open.

LIQUID AND VAPOR HOSES MUST BE CONNECTED TO VAPOR AND LIQUID PORTS ON THE STORAGE CYLINDERS. INCORRECT CONNECTION WILL CAUSE CHARGING TO BE VERY SLOW.

6. Display descriptions



After switching ON the machine, numerical display shows CYL WEIGHT (the amount of the refrigerant in the cylinder) in KG or LB (upon the unit set up). R134a should be selected also.

HIgH PrES - Excess pressure in refrigerant cylinder

TArE - Calibrating the weight display to read -0.00 with an empty cylinder on platform.

SPAn - Calibrating of the refrigerant electronic scale

Err1 - Disconnected load cell lead or faulty load-cell.

CYL FULL - Refrigerant weight exceeds maximum allowable limit and will not recover any more refrigerant

nO rEF - No refrigerant pressure in service hoses, or manifold hand valves are not open

dOnE - The selected function is completed

FILT 99Hr - Displays filter life in number of hours when machine is switched on

PAUS - Recovery pause is running, for duration of three minutes.

bUSY - Purge solenoid opens to cylinder vapor port to pressurize oil separator

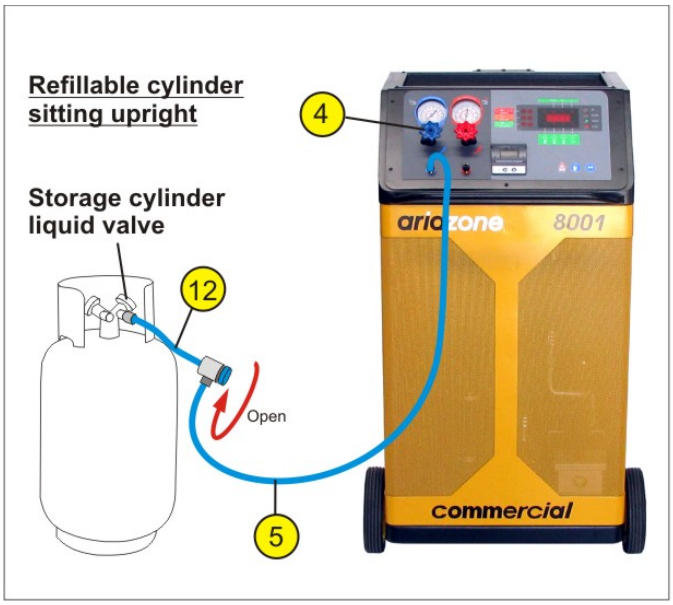
CYL - This display allows the operator to set the maximum allowable refrigerant weight in cylinder.

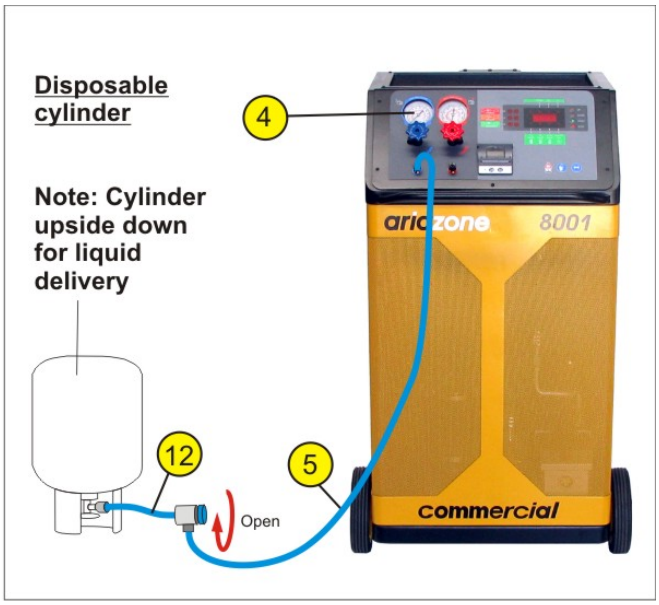
O Hr – Service alarm for maintenance and filter replacement.

7. Refrigerant Cylinder Filling Procedure

The cylinder (12) may be filled with refrigerant by following procedures.

Using refillable cylinder procedure
Have cylinder sitting upright, connect the suction (blue) service hose (5) to storage cylinder **liquid valve** by using the refrigerant cylinder adapter (12) supplied, open **liquid valve** on storage cylinder, open service hose quick coupling (5) and console blue hand valve (4) ...





Using disposable cylinder procedure
Connect the suction (blue) service hose (5) to a storage cylinder valve by using the refrigerant cylinder adapter (12). Turn upside down the cylinder for liquid, open the valve on the storage cylinder, open service hose quick coupling (5) and console blue hand valve (4) ...

... With "UP" keys select the ***Recovery*** function. By pressing "START" key twice, the unit will automatically start transferring the refrigerant from the storage cylinder to the unit cylinder (8).

When the desired amount of refrigerant is transferred, close the storage cylinder valve and allow the unit to recover the refrigerant from the service hose (5). Once the function is completed the unit will display symbol "done" and the amount of refrigerant transferred will be displayed in kg or lb on main display (2).

The cylinder may be taken to your refrigerant supplier and refilled. We recommend that the cylinder is not filled to it's maximum capacity or the unit will not allow you to recover, due to the safety features incorporated.

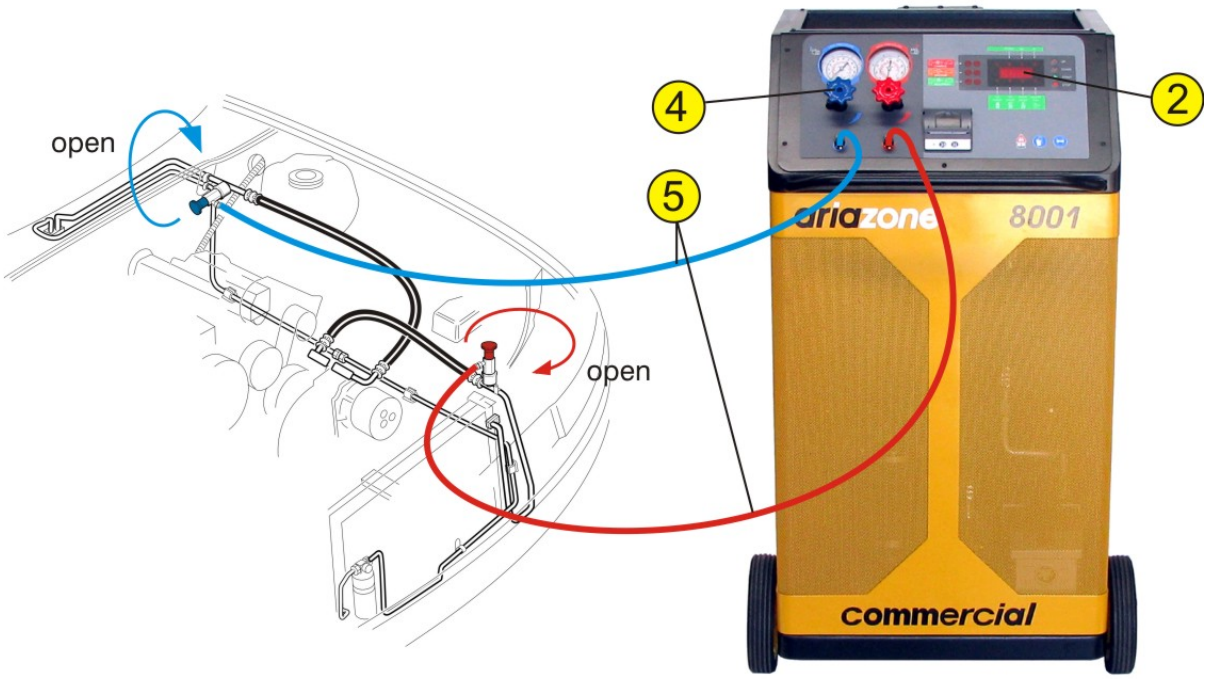
WARNING:
- Do not allow the cylinder to be filled above 80% of it's capacity.
- Never transport an overfilled cylinder. Refrigerant expands when heated and may cause the pressure relief valve to open and exhaust refrigerant in to the atmosphere or the cylinder may rupture.

8. Connecting to the Automotive A/C System

Use the service hose (5) quick couplings to connect the hoses to the A/C system service ports, bearing in mind that BLUE must be connected to the low-pressure (suction) side and RED to high pressure (discharge).

If the system is equipped with a single service port, connect only the appropriate hose.

Note: Before connecting the quick couplers, clean the a/c ports of any foreign material.



Winding the quick coupler hand wheel clockwise will allow the refrigerant to flow through the hoses. Turning hand wheel in opposite direction, the flow will be closed. If there is any refrigerant in the air-conditioning system, the pressure gauges will indicate a pressure rise.

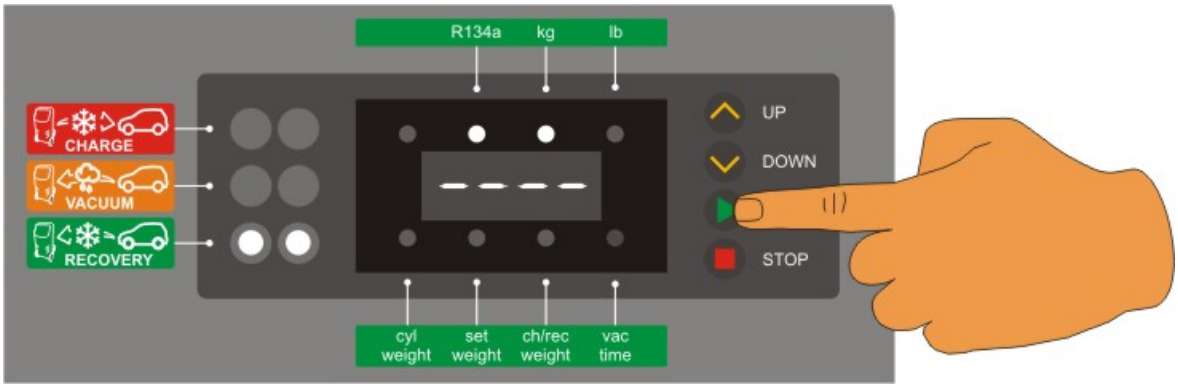
Note: Console hand valves (4) need to stay closed in order not to allow the refrigerant to enter the service equipment until the required function has been selected.

The unit gauges (suction & discharge) are important and useful instruments.
The operator should have basic understanding of gauge readings and air-conditioning system operation, in order to correctly diagnose any possible system malfunction.

9. Recovery & Recycling Mode

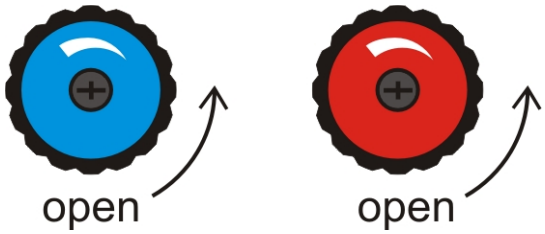
The purpose of the Recovery & Recycling mode is to recover refrigerant from the air conditioning system, which will condense, purify and store the liquid refrigerant in the unit cylinder ready for re-use.

To initiate the Recovery mode, press the 'UP' key once, followed by 'START' on the console. Display shows (- - - -). Now, there are two choices:



1. Press "START" key again to recover the **whole amount** of the refrigerant from the A/C system or storage cylinder.

2. With "UP" or "DOWN" key to select **desired** quantity of refrigerant to be recovered from the a/c system or storage cylinder. After the quantity selection, press "START" key.



Note: Open the hand valves (4) on the console to allow the flow of the refrigerant from the a/c system into the unit before making the above selection.

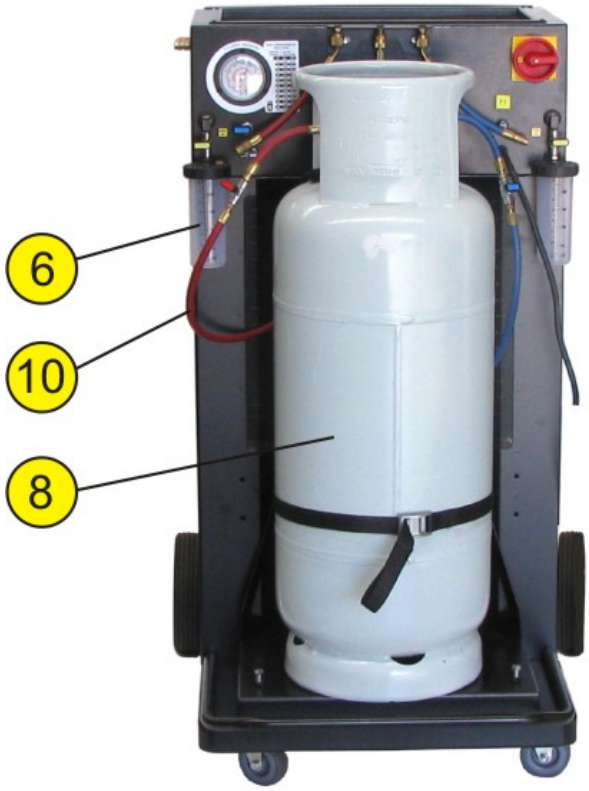
During the recovery process, the Recovery mode indicator will now be ON and the display (2) will indicate the amount of refrigerant being recovered.

In normal operation the above condition will be maintained until a vacuum of -0.4 bar (15 In Hg) is reached at either the discharge or suction ports. When this occurs, the machine will beep once, and the unit will enter the recovery "PAUSE" mode. In this mode, the unit will shut down the recovery function and pause for 3 min., which during this time the recovery mode indicator will be ON constantly. The display (2) will indicate "PAUSE". During this function, the unit is monitoring whether the air-conditioning system pressure is increasing, due to any refrigerant that may be left in the accumulator or dryer. If the pressure increases above zero, the machine will re-start the recovery function automatically and recover the rest of the remaining refrigerant.

If at the end of Recovery process a sufficient vacuum has been maintained, the unit will stop, the display (2) will indicate 'done' and the amount of refrigerant recovered will be displayed in (kg or lb) depending on the operator's selection.

Press 'STOP' on the console, the unit will display "busy" for 5 seconds.

IMPORTANT: At completion of recovery function, open the ball valve on recovered oil vessel (6) to gauge amount of oil (if any) that has been recovered.



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Conditions that will halt the recovery mode

1. **Refrigerant cylinder (8) full.** To protect the storage cylinder being overfilled, the unit will not allow the operator to recover refrigerant once it has reached 80% of its capacity.

2. **Air conditioning system empty.** If the A/C system pressure is not above atmospheric pressure, the recovery function will not be activated.

3. **High Pressure.** If the operating pressure of the unit exceeds 25 bar (340 psi), the unit will stop and display '**HigH - PrES'**. The following can cause the above:

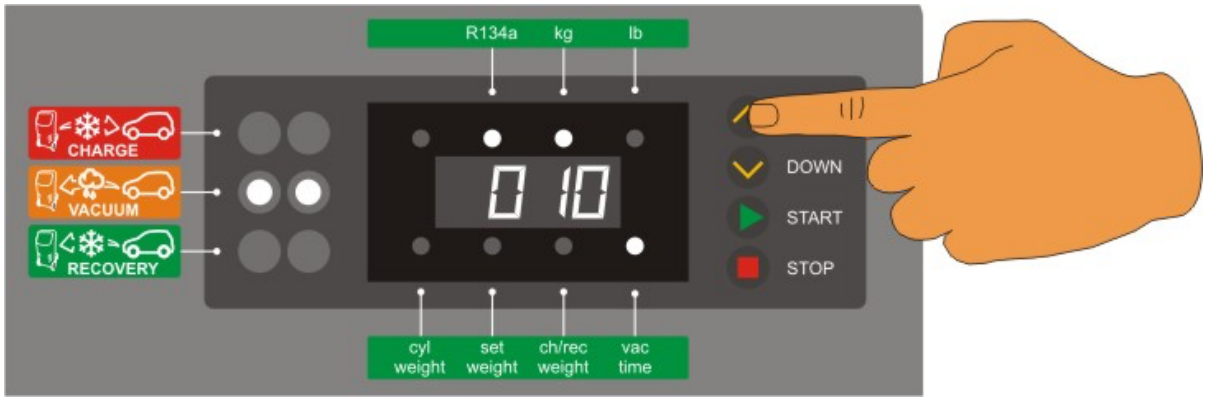
- Cylinder (8) valves not open.
- Restricted cylinder hose (10). Check the ball valves.
- Excessive high ambience temperatures.
- Excessive air in refrigerant into the cylinder (8).
- Faulty pressure control.

In all the above circumstances, press the 'STOP' key to return to the machines initial mode.

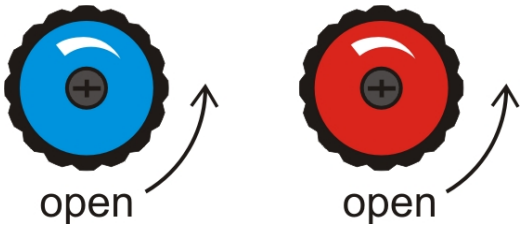
10. Evacuation Mode

In the evacuation mode the air and moisture in the air conditioning system is removed and exhausted to the atmosphere. The evacuation mode runs for a predetermined time selected by the operator.

To initiate evacuation mode, press the 'UP' key twice, followed by the 'START' key. Select the desired evacuation duration by pressing the 'UP' key to increase or 'DOWN' key to decrease time duration.



Once the desired time has been selected press the 'START' key and the function will commence.



Note: During evacuation mode hand valves (4) on the console must be open.

The evacuation time can be set from one minute to eight hours.

At any time the evacuation time can be paused or cancelled by pressing the stop button once to pause, or twice to cancel the function.

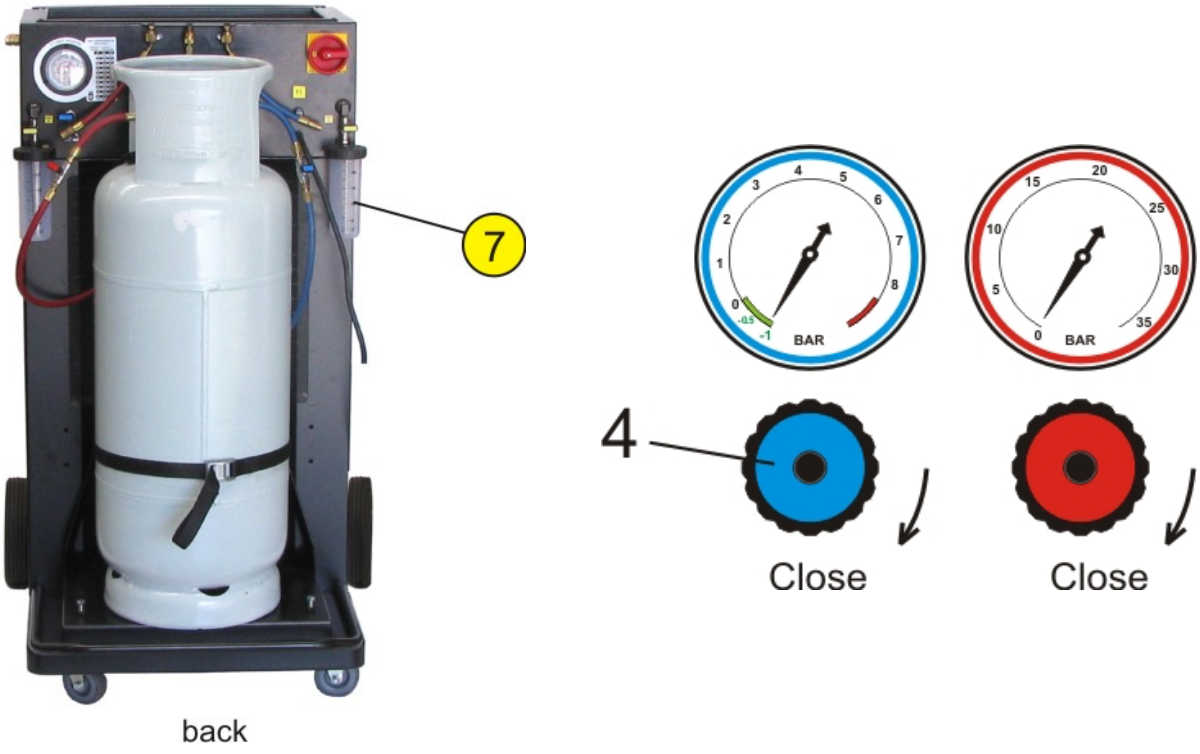
The unit has a unique function that if the evacuation function is selected and there is residual refrigerant in the air conditioning system, greater then 0.5 bar or 9 psi, the unit would detect this condition, whereby it will beep six times to warn the operator. After this warning the unit will automatically recover the residual refrigerant once it has recovered the entire refrigerant it will start the selected evacuation function automatically.

Note: After the evacuation process is completed, close both hand valves on console (4). By closing the valves the unit is "isolated" from the A/C system to allow for monitoring of any possible vacuum leak that may exist in the air- conditioning system. This is achieved by monitoring the suction and discharge gauges.

11. New Oil and/or UV dye Injection Mode

The purpose of the oil injection mode is to batch a user-defined quantity of refrigerant oil (or UV dye) from the graduate reservoir on the unit to the vehicle air-conditioning system.

Important: The unit requires that the air conditioning system has previously been evacuated to a maximum vacuum before this function can be carried out. Make sure you have sufficient oil in the oil reservoir (7).



Keep hand valves (4) closed on the console. Open the ball valve on the oil reservoir (7) and note the amount of oil being injected, by the graduations on the reservoir. Close the ball valve when the correct amount has been injected.

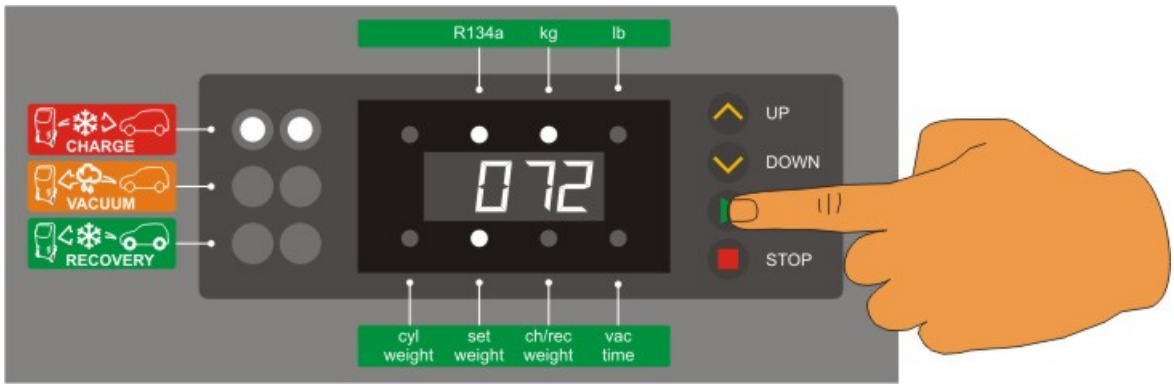
Warning: If the oil reservoir (7) valve is not closed, excessive oil will be charged into the air conditioning system, or the oil will be blown out of the reservoir when charging a system.

On A/C systems without discharge port, oil and UV dye can be carefully injected through suction port only. That case, **open both hand valves (blue and red) (4)** on the console.

12. Refrigerant Charge Mode

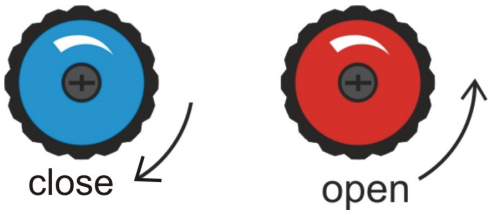
The purpose of the refrigerant charge mode is to batch a user-defined weight of refrigerant into the air-conditioning system.

To initiate charging mode, press the 'UP' key three times (or DOWN once), followed by the 'START' key. Select the desired refrigerant amount by pressing the 'UP' key to increase or 'DOWN' key to decrease. The maximum refrigerant weight that can be set at this point is determined by the actual refrigerant weight available in the cylinder (12).

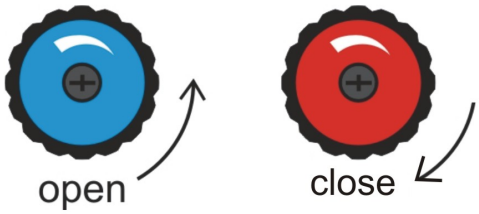


Once the refrigerant charge weight has been set, press the 'START' key and open appropriate hand valve depending on weather you are charging with the engine running or stationary (if the A/C system is OFF or ON).

CHARGING WITH A/C SYSTEM **OFF**



CHARGING WITH A/C SYSTEM **ON**



The display (2) will start from zero and will indicate the amount of refrigerant that has been charged into the air-conditioning system. This function can be paused at any time, by pressing the 'STOP' key once, or twice, to cancel the function.

If the charge function has been paused, the amount of refrigerant that has been charged to that point will be displayed, to continue the charge function press the 'START' key.

Once the present refrigerant weight has been charged, the charge function will automatically stop and the display will indicate 'DONE'. The operator can return the machine to its initial state by pressing 'STOP' key on the console.

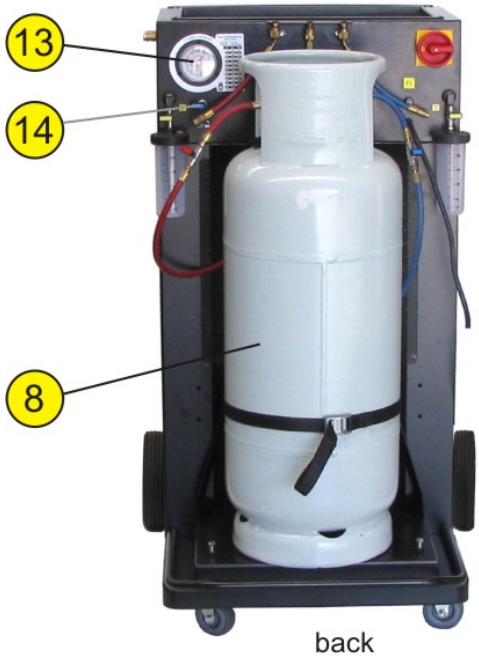
Conditions that will prevent refrigerant charging:

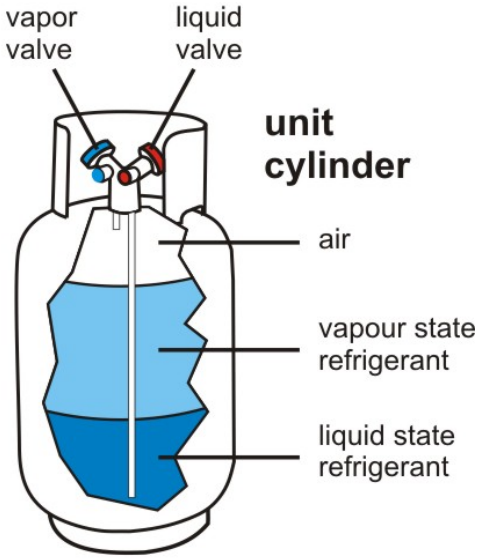
- If there is little or no refrigerant in cylinder (12).
- If the cylinder (12) valve is closed.
- If the hand manifold valve (4) console is closed.
- If the A/C system service port Schrader valve is not depressed.

13. Cylinder Air Purge

Air is not good for A/C system because it is a noncondensable gas. It is possible to get inside the cylinder during the proces of recovery of contaminated a/c system (system which leaks or not properly evacuated).

To check the cylinder for air contamination, a technician should read the pressure on the refrigerant in storage cylinder to see if it exceeds the maximum allowable pressure for a given ambient temperature. If it does, there is air in the cylinder and needs to be purged.





Every week check if there is air (non-condensable) build up in the refrigerant cylinder. First, measure the ambient temperature. Then read the cylinder pressure on rear gauge (13) and compare it with the temperature pressure chart, affixed to the machine.

If the cylinder pressure is higher than the pressure/temperature chart, there are non-condensable gases (air) in the cylinder (8). Slightly OPEN ball valve (14) to purge the non-condensable gases (air) from the cylinder (12) and bring back the pressure to the recommended chart values.

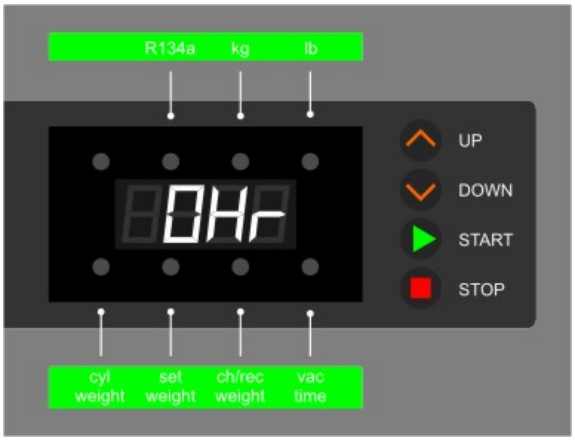
Note: After recovery process it is normal that cylinder pressure is higher than the pressure/temperature chart shows. Always read the cylinder pressure gauge (13) first thing in the morning before operating the machine.

Example: Ambient temp. 20 °C, the cylinder pressure should be 4.7 bar (68 PSI).

Ambient temperature	***Air purge gauge readings***	
(C°)	**bar**	**PSI**
8	2.9	42
12	3.4	49
18	4.3	63
20	4.7	68
22	5.1	73
24	5.4	79
26	5.8	84
28	6.2	90
30	6.7	96
34	7.6	110
38	8.6	124
42	9.7	14.1
46	10.9	157
50	12.1	175

14. Service Procedure

Every 100 Working Hours /Once a Year Service.
The service alarm will alert the operator for maintenance and filter replacement.



The following table describes the service intervals for the Ariazone system:

100 Hours Main Filter Replace

100 Hours Vacuum Pump Oil Drain and refill

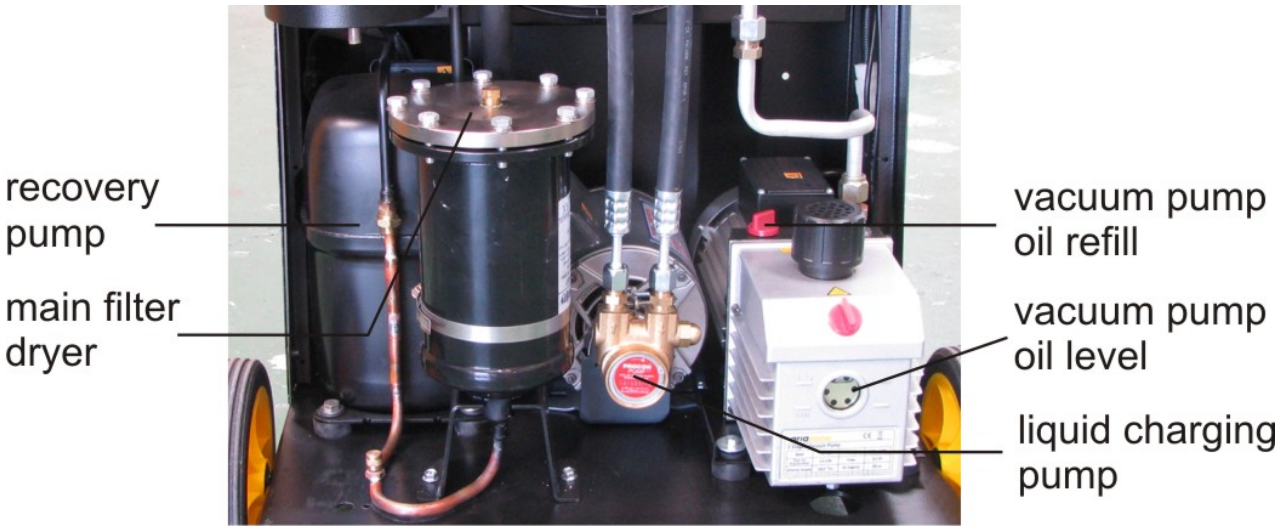
100 Hours Gauges Check zero setting

100 Hours Weight Platform Test the calibration

100 Hours Compressor Oil Drain and re-fill

300 Hours Oil Separator Replace

Ariazone International recommends a record of service for this machine to be kept.



Filter Dehydrator and Recovery pump oil Replacement Procedure

(a) Power up machine.

(b) Select recovery function and allow it to run its full cycle.

(c) Disconnect power from power point.

(d) Remove the cover by removing 6 retainers and slide forward.

(e) Remove filter shell assembly remove the 8 bolts on the filter in an even formation to allow an even removal of the filter top cover

(f) Remove the cover and filter assembly

(g) Dismantle the filter cartridge from its holder and replace seals and gaskets if necessary.

(h) Using a clean cloth wipe the inside of the filter body and clear any leftover filter granules

(i) Reassemble filter cartridge and holder assembly and install into filter body

(j) Refit top filter cover and tighten bolts evenly to 25nm.

(k) With the filter change complete proceed to remove the Schrader valve on the test service port on the recovery suction pipe to allow oil to be filled

(l) Turn off liquid and Vapour cylinder hoses. Remove the recovery pump assembly and drain oil by turning pump upside down once oil has been drained refit recovery pump

(m) Procedure to fill recovery pump with oil turn machine on and select recovery function, Using a rubber hose and funnel fill the recovery pump with 850ml of Ariazone compressor lubricant through the test service port the oil will be drawn through while the pump is running.

(n) When filling is complete refit Schrader valve to test service port and connect service hose and quick coupling.

(o) Evacuate service port for 10 minutes

Vacuum Pump Oil Drain & Refill

Drain vacuum pump by turning the drain plug anti-clockwise and allow all the oil to drain into a suitable container. (Dispose of used oil properly). Refit drain plug and refill pump with new vacuum pump oil to oil indicator on viewing glass.

Note: When the pump is running, the oil level should be even with the line on the sight glass. Under filling will result in poor vacuum performance. Over filling can result in oil blowing from the exhaust.

Note: ***Use high quality vacuum pump oil*****.**

Notes:

Declaration of Conformity

The company: Ariazone International
33 Garden Drive, Tullamarine,
Vic. 3043, AUSTRALIA
Tel: +613 9338 7522
e-mail: sales@ariazone.com
www.ariazone.com

Hereby declares that the product:

Ariazone 8001 - Automotive A/C Service Station

Meets all requirements of European Directives:

2006/95/EC - Low Voltage Directive
2004/108/EC - Electromagnetic Compatibility
98/37/EC - Machine Directive

and subsequent amendments entered in force to the date of declaration.

The producer also declares that equipment confirms Directives and Standards when used according to manufacturer specifications.

Date and place of issuing:

_____ , Melbourne

Serial No: _____