

7 - MAINTENANCE



WARNING: Maintenance tasks must only be carried out by the AEROTECNICA COLTRI Customer Assistance Service or qualified personnel.



DANGER: Do not carry out maintenance tasks if the compressor has only just shut down; wait for the compressor to cool.

All maintenance work must be carried out with the compressor OFF and the power supply lead unplugged from the mains socket.

Depressurise the entire compressor circuit before carrying out any maintenance tasks.

To depressurise the entire compressor circuit open the drain valves (a) and (b) in sequence and collect the condensate in an appropriate recipient.



7.1 FOREWORD

To obtain the best possible performance from the compressor and ensure a long working life for all its parts it is essential that personnel follow the use and maintenance instructions with extreme diligence.

It is thus advisable to read the information below and consult the manual every time an inconvenience arises.

For further information please contact our assistance centre:

**Contact the AEROTECNICA COLTRI SpA.
Maintenance Service Centre
Tel. +39 030 99 10 297
Fax. +39 030 99 10 283
e-mail: info@coltri.com**

7.2 GENERAL

- Proper preservation of the compressor requires thorough cleaning.
- This type of refill station, designed and built according to the most advanced technological criteria, requires only minimum preventive and routine maintenance.
- Before carrying out any maintenance tasks, run checks and/or controls on the compressor, switch off the compressor, remove the plug from the mains socket.
- The residual pressure present in the compressor (pumping circuit) must be released.
- During disassembly and re-assembly of the compressor, always use suitable wrenches/tools so as not to damage the relevant components.
- Loosen stiff parts with a copper or plastic mallet.
- When refitting parts make sure they are clean and lubricated sufficiently.
- Compressor maintenance tasks must only be carried out by authorised personnel and recorded in the chapter "10 Maintenance register" of this manual.

7.3 UNSCHEDULED WORK

Involves repair and/or replacement of the mechanical parts of one or more compressor components:


this work normally needs doing only after some years of use. If substantial modifications are made, the manufacturer cannot be held liable for any dangers that might arise.

This work must be carried out by the assistance centre.

7.4 SCHEDULED MAINTENANCE TABLE

Maintenance	Before every refill	Hours												Years			
		25	50	100	250	500	1000	1500	2000	3000	4000	5000	20000	1	5	10	15
Condensate discharge	○																
Intake filter		○		●										●			
Lubricating oil	○		●											●			
Belt wear and tension		○				●								●			
1st, 2nd, 3rd stage valves					○	●											
4th stage valves					○	●											
Condensate separator					○					●							●
HP filter					○					●							●
1st, 2nd, 3rd stage segments						●											
4th stage						●											
HP flex hoses		○				○				●					●		
Fitting/hose leak					○												
General check-up						○											
Pumping unit, general overhaul									○								
Safety valve					○							●				●	


○ = Checking and cleaning ● = Change

 **IMPORTANT:** Maintenance interval times are indicative only and may vary according to the conditions under which the compressor is used.

7.5 TROUBLESHOOTING


Problem	Cause	Solution
• The electric motor does not start	• Phase missing	• Check fuses or condenser
• Rotation speed and flow rate decrease	• Motor power too low	• Check the motor and the line
	• The belt slips	• Restore proper belt tension
• The flow rate diminishes without rpm decreasing	• Valves not working	• Contact technical assistance
	• 4th stage piston worn	• Contact technical assistance
	• Fittings loose / leaking seals	• Check for leaks with soapy water and eliminate them
	• Intake filter clogged	• Replace
	• Intake extension kinked	• Straighten, use stiffer pipe
	• Piston or piston rings worn	• Contact technical assistance
• Air smells of oil	• Filter cartridge exhausted	• Replace
	• Piston rings worn	• Contact technical assistance
• Compressor overheats	• Direction of rotation wrong	• Correct direction of rotation
	• Cooling tubes dirty	• Contact technical assistance
	• Incomplete valve closure (causing overload of another stage)	• Contact technical assistance

7.6 CHECKING AND CHANGING THE LUBRICATING OIL




DANGER: Do not carry out these tasks if the compressor has only just shut down; wait for the compressor to cool. Any oil spilt during the oil change could cause personnel to slip; wear protective garments and anti-slip footwear and remove any traces of oil immediately. Both oil is classified as special wastes and must therefore be disposed of in compliance with the anti-pollution laws in force. All maintenance work must be carried out with the compressor OFF and the power supply lead unplugged from the mains socket.

After putting the compressor into service the lubricating oil must be changed after the first 5 working hours.
The lubricating oil must be changed every 50 hours working hours or annually.



IMPORTANT: The compressor must be placed on a solid surface with a tilt of no more than 5°.



WARNING: Use only COLTRI OIL ST755. If it is impossible to find COLTRI OIL ST755 it is advisable to use a specific oil for breathable air compressors that complies with the characteristics of the table below.

OIL TABLE		
Sump capacity (litres)	0,60 (600cc)	
Recommended oils	COLTRI OIL ST 755	
	RECOMMENDED OIL	
	Parameter	Requirement
	Viscosity Grade	ISO 150
	Base Oil	Synthetic
	Base type	Ester
	Performance level	DIN 51506-VLD
	Primary applications	Lubricant suitable for: Breathing air (ISO EN 12021), Nitrox, Oxygen enriched air up to max 40% O2
	Foaming (ASTM D892)	0/0 (all three sequences)
	Flash Point (ASTM D92)	250°C
	Pour Point (ASTM D97)	< -30°C
	Additives content	Antiwear, Antioxidant, Antirust, Antifoam

- unscrew the cap (c);
- open the plug (b) and let all the oil flow out;
- close the drain plug (b);
- open the cap with the rod (d);
- fill the oil sump with 0.6 litres of oil from top oil plug (see "Oil table");
- screw the cap (c);
- close the cap with the rod (d);
- switch on the compressor and run it depressur area for 30 seconds;
- switch off the compressor and wait 5 minutes;
- check the oil level (a); if it is not between the min. and max. limits on the dipstick (a) proceed with the tasks described in paragraph "Checking the oil level".



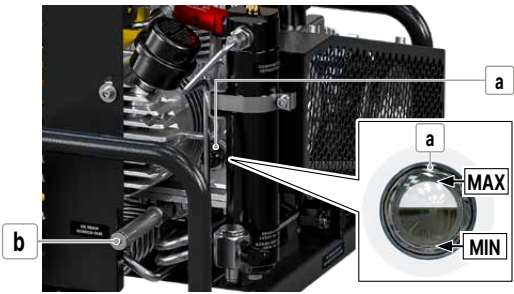
Checking the oil level

The oil level must be checked every 5 working hours of the compressor.

The oil level must be between the minimum and the maximum shown on the oil level indicator (a).

Note that an excessive quantity of oil can cause infiltrations in the cylinders and leave deposits on the valves while too low a level prevents proper lubrication and could cause engine seizure.

If the oil level is not within the minimum and maximum limits top up or drain as described in "Changing the lubricating oil".

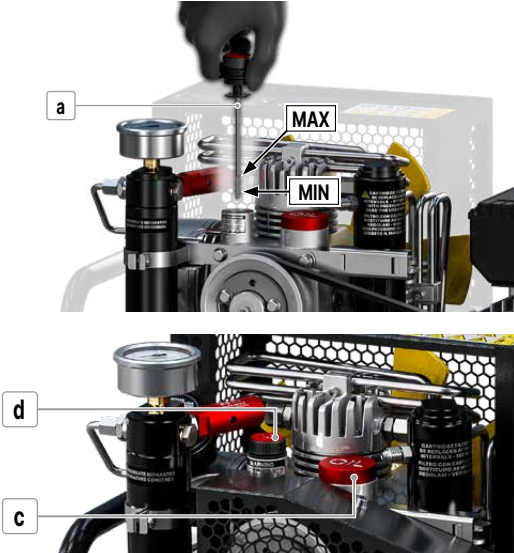


Changing the lubricating oil

The lubricating oil must be changed after the first 5 working hours (running in) then every 50 working hours or annually.

To change the oil proceed as described:

- position a recipient under the drain plug (b) so that the oil flows into the exhausted oil recipient (recipient capacity of at least 1 litre required);



7.7 CHECKING FUEL LEVEL AND TOPPING UP



IMPORTANT: Before carrying out any work on the engine consult the attached engine use and maintenance manual.

The fuel level must be checked at the start of every working day.

To check the fuel level:

- unscrew the cap (a);
- check that there is fuel inside the tank (b);
- re-tighten the cap (a).

To top up the fuel level:

- unscrew the cap (a);
- top up with fuel: do not fill to the brim of the tank (b) but leave a space for expansion;
- re-tighten the cap (a).

SH (HONDA)



SK (KOHLER)



DANGER: When topping up the fuel level make sure you do not spill any fuel as this could cause a fire. If fuel is spilt it must be wiped up immediately.

The fuel is flammable: therefore, never use naked flames when refuelling and do not use materials that can generate sparks.

Use protective gloves when topping up the fuel level.

Always make sure the fire extinguisher is at hand when topping up the fuel level.

7.8 CHANGING THE INTAKE FILTER



DANGER: Do not carry out these tasks if the compressor has only just shut down; wait for the compressor to cool. All maintenance work must be carried out with the compressor OFF and the power supply lead unplugged from the mains socket.

After putting the compressor into service the intake filter must be changed after the first 50 working hours.

The air filter must then be changed every 100 working hours or annually.

To change the filter proceed as follows:

- turn the air filter cover (a) by rotating it clockwise;
- remove the air filter cartridge (b);
- replace the cartridge with a new one;
- re-close the cover (a): screw it back on anticlockwise.



IMPORTANT: If the compressor is used in a dusty environment the filter change interval should be reduced to every 50 hours.

7.9 CONDENSATE DISCHARGE



DANGER: Do not carry out these tasks if the compressor has only just shut down; wait for the compressor to cool. All maintenance work must be carried out with the compressor OFF and the power supply lead unplugged from the mains socket.

Condensation accumulates in the condensate separator; the condensate must be discharged every 10-15 minutes of compressor use.

To discharge the condensate open the drain valve (a) and collect the condensate in an appropriate recipient.

Close the valves.

For compressors with automatic condensate discharge the condensate must be collected at the discharge point (c) in appropriate recipients.

An outflow of condensate water with lubricating oil is normal during refills: the quantity will depend on the level of humidity in the air.

Condensate must be disposed of according to the instructions shown in section "9.1 Waste disposal".



IMPORTANT: Every 15 years or ever 3000 hours it will be necessary to change the condensate separator body.



IMPORTANT: Every 5 years or ever 3000 hours it will be necessary to change the drain valves.



DANGER: You **MUST** drain the condensate at the specified intervals. Failure to observe this instruction can place staff in serious danger and could cause serious damage or injury.

7.10 CHANGING THE FLEX HOSES



IMPORTANT: The hoses must be changed periodically (every 5 years or ever 3000 hours) or when they show signs of abrasion/wear/damage. The bending radius of the hoses must not be less than 250 mm.



DANGER: Do not carry out these tasks if the compressor has only just shut down; wait for the compressor to cool. All maintenance work must be carried out with the compressor OFF and the power supply lead unplugged from the mains socket.

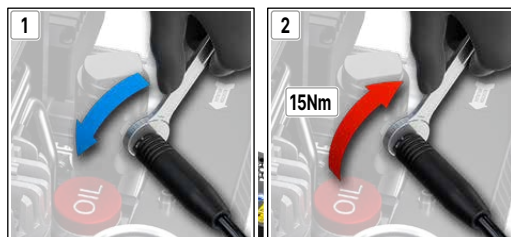
Vent the air from the compressor before carrying out any maintenance tasks. Tank refill pressure is very high; therefore, before refilling the tanks check that the hoses are perfectly connected and in good condition. Check also that the valves on any unused hoses are closed properly so as to prevent the dangers that derive from hose whiplash.

When the tanks are being refilled unauthorised personnel must remain at a distance of at least 3 metres.

It is strictly forbidden to disconnect the hoses from the fittings or refill valve when the machine is under pressure.

To change the bottle refill hose proceed as follows:

- disconnect the bottle refill hoses by unscrewing the fitting (a) at its extremity (14mm wrench);
- replace the old hose with a new one;
- screw the hose onto the connector (b);
- use a dynamometric wrench to tighten the hoses on the compressor with a torque of 15 Nm.



7.11 PURIFIER FILTER



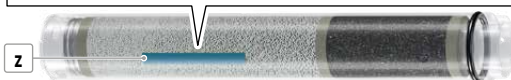
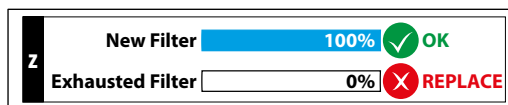
WARNING: Constant and precise maintenance on the components of the filtering system, as described in this manual, guarantees that the quality of the air exiting the compressor is in compliance with the requirements specified by the EN12021 standard.



IMPORTANT: If the compressor is used in an environment where CO (exhaust fumes) may be present it is compulsory to use CO-fixing filtration cartridges; these can be supplied on request.

The filtration cartridge must be replaced at intervals calculated on the basis of the characteristics of the environment in which the compressor is located, or on an annual basis. To calculate these intervals refer to the table below.


The filter cartridge must in any case be replaced before the air develops an unpleasant smell or when the litmus test (z) inside the cartridge turns white or a colour other than blue.




DANGER: Do not carry out these tasks if the compressor has only just shut down; wait for the compressor to cool. All maintenance work must be carried out with the compressor OFF and the power supply lead unplugged from the mains socket.

Depressurise the entire compressor circuit before carrying out any maintenance tasks.

To depressurise the entire compressor circuit proceed as follows in the section "7 - Maintenance".



DANGER: You **MUST** replace the filtration cartridge at the specified intervals. Failure to observe this instruction can place staff in serious danger and could cause serious damage or injury.




IMPORTANT: It is essential that there be a filtration cartridge (b) inside the purifier filter (d) every time the compressor is used.




IMPORTANT: Every 15 years or ever 3000 hours it will be necessary to change the filter body (d).

Filter cartridge replacement frequency calculation table *			
Temperature		Filter duration (work hours)	
°C	°F	50 l/min	100 l/min
40	104	8	4
30	86	12	6
20	68	20	10
10	50	30	15
0	32	56	28
-5	23	88	44


* The values shown in the table were obtained with pressure maintenance valve calibrated at 200bar.



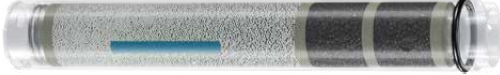
SC000340 Active carbon/Molecular sieve




SC000340/SM Molecular sieve



SC000340/CARB Active carbon



SC000340/CO-CATALYST Hopkalite/Active carbon/Molecular sieve

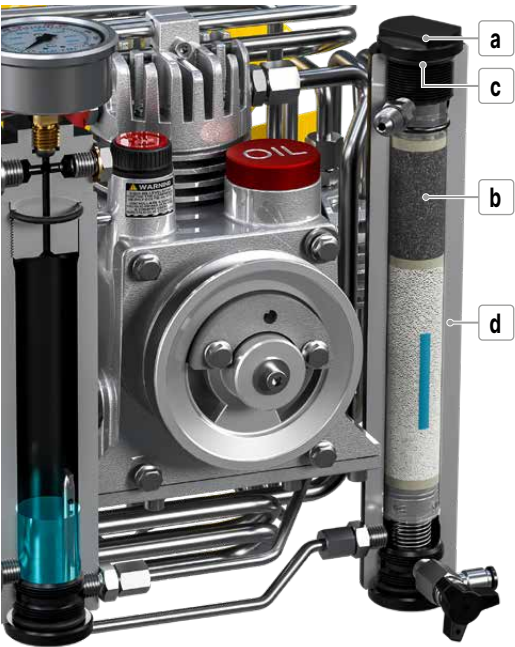


WARNING: The filtration cartridge are classified as special waste: they must be disposed of in compliance with the anti-pollution standards in force.

Changing the filtration cartridge

To change the filtration cartridge (b) proceed as follows:

- vent all the compressed air inside the circuit;
- unscrew the filter cap (a);
- remove the filtration cartridge (b) and replace it with a new one;
- change the O-ring (c) on the cap (a) every time the filter is changed;
- close the filter cap (a).



7.12 TRANSMISSION BELT



DANGER: Do not carry out these tasks if the compressor has only just shut down; wait for the compressor to cool. All maintenance work must be carried out with the compressor OFF and the power supply lead unplugged from the mains socket.

Checking transmission belt tension / changing belts

Belt tension must be checked monthly.

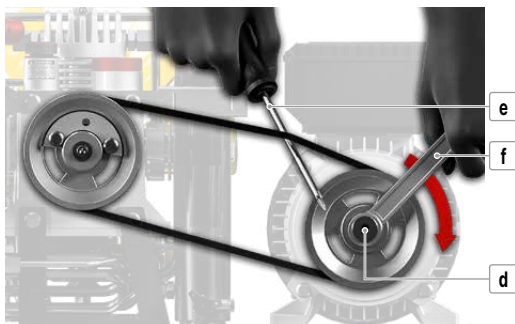
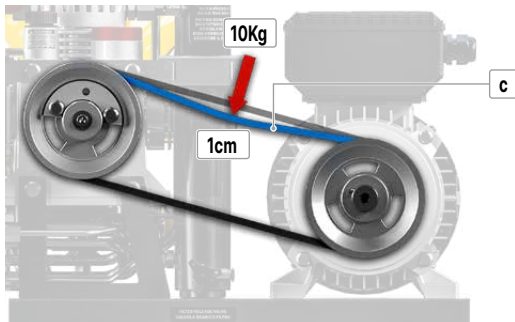
The transmission belt must be replaced annually or every 500 working hours of the compressor.

To check belt tension remove the cover (a) by removing the fixing screws (b) and exert a pressure of approximately 10 Kg on the belt (c); check that the belt does not flex by more than 1 cm with respect to its original position. If the belt is worn or close to its scheduled time for replacement change it with a new one.

Should it flex more than this:

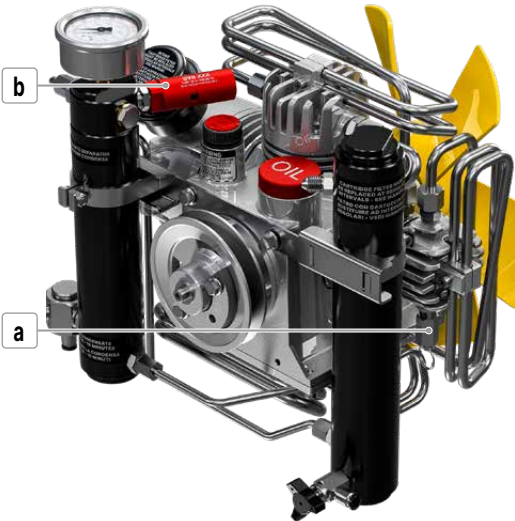
- put a screw with washer (d) on the motor shaft;
- Insert a screwdriver (e) between the motor pulley and the belt;
- with a wrench (f) turn the crankshaft until the belt comes out of the pulley;
- replace the belt with a new one;
- insert the belt on the groove of the compressor pulley (g) and partially on the groove of the motor pulley (h);
- turn the crankshaft until the belt enters the seat of the two pulleys (g-h) taking care not to injure your hands;
- remove the screw with washer (d) from the motor shaft;
- re-check belt tension;
- re-fit the cover (a).

If the tension of the new belt still fails to comply with the necessary requisites contact AEROTECNICA COLTRI assistance service.





DANGER: These operations are very dangerous. Be extremely careful not to injure your hands.

7.13 SAFETY VALVES



a	b
120 bar / 1740 psi	232-300-330 bar / 3300-4300-4700 psi

 **IMPORTANT:** The safety valves (a-b) must be replaced every 10 years or 5000 hours.



DANGER:

Tampering with the safety valve to increase the pressure setting is strictly forbidden.

Tampering with the safety valve can seriously damage the compressor, cause serious injury to personnel and renders the warranty null and void.

Should the safety valve fail to work properly contact the AEROTECNICA COLTRI assistance service.

8 - STORAGE

Should the compressor not be used, it must be stored in a dry sheltered area at an ambient temperature of between +5 °C and +40 °C. Store the compressor away from sources of heat, flames or explosive.

8.1 STOPPING THE MACHINE FOR A BRIEF PERIOD

If you do not intend to use the compressor for a brief period proceed with general cleaning.

8.2 STOPPING THE MACHINE FOR A LONG PERIOD

If you do not intend to use the compressor for a long period, extract the filtration cartridge. Run the compressor for a few minutes without actually filling bottles so as to flush out all the residual condensate. Stop the compressor, disassemble the intake filter, restart the compressor and spray a few drops of oil into the air intake hole so that a light film of lubricant is aspirated and penetrates the interior of the compressor. Stop the compressor and refit the air intake filter. Clean the external parts: eliminate any moisture, salt or oil deposits. Protect the compressor from dust and water by storing it in a clean, dry place. Switch off the machine via the main switch and remove the plug from the mains power socket. Proceed with a thorough general clean of all machine parts.

For combustion engine compressors, if the compressor must stop for more than 1 month, remove the fuel from the tank, close the fuel valve and start the engine to idle until the residual internal fuel runs out.

During machine downtimes it is advisable to run the compressor for 20 minutes every 15 days.