Chapter 5
Maintenance instructions

Content

This chapter contains information on the maintenance work required.

Overview

This chapter is subdivided as follows:

5.1 What to take into account

Content

This section contains general information to be heeded during servicing and maintenance work.

Personnel requirement

Servicing and maintenance work may only be carried out by duly qualified personnel.

The specific personnel requirements are set out in Chapter 0.

Danger!

It is essential to adhere to the following safety instructions in order to avoid all risks of personal injury or death:

Potential Source of Danger	Preventive Measures
Crushing from moving parts	• Always maintain a safe distance from all moving parts when carrying out test runs
Electric shock	• Switch off all voltage sources before starting work. • Take measures to prevent power sources from being switched on again by accident
Inappropriate spare parts	• Always replace self-locking nuts and screws • Only use spare parts included in the approved lists
Unauthorised/premature approval of unit for operation	• Do not release the unit for operation until the safety devices are fully functional. **Only then is the work completed!**

5.1 What to take into account (continued)

After completion of work

The following steps must be carried out after completing the work:

Step	Operation
1	Follow the maintenance schedule and complete the inspection sheets, activity logs, etc. (see Appendix W “Maintenance Check”).
2	Check that the safety devices are working correctly. Do not release the machine for operation if the safety devices are not in perfect working order.
3	Reinstall and secure any safety devices that have been removed.
4	Remove any tools, foreign objects and materials left lying around.
5	Carry out a test run and check the function of the serviced components.
6	If you leave the machine before completing the work keep the keys safe and inaccessible to unauthorised persons.

Spare parts, accessories

Only genuine spare parts should be used when replacing components such as the oil filter, oil, air filter, separator cartridge, V-belt, etc.

Repairs

Only allow authorised dealers to carry out repair work.
A list of other persons authorised by the manufacturer to carry out repairs can be obtained from the manufacturer on request.

Do not allow repairs to be carried out by any persons other than those authorised by the manufacturer!

Servicing is carried out as agreed with the authorised dealer.

5.1 What to take into account (continued)

General Notes

Take the standard safety precautions and proceed with great care when carrying out any servicing work.
Please follow especially the points below:

- Servicing work to be carried out by qualified personnel only.
- Correct tools only to be used for servicing work.
- Unit and power supply to be switched off before any servicing work is carried out. Take measures to ensure that the unit cannot be switched on accidentally!
- Unit must be allowed to cool before carrying out servicing work to avoid risk of burns!
  Exception: oil change (unit at operating temperature); safety instructions to be strictly adhered to in this case!
- Unit to be disconnected from all sources of pressure and all pressure removed before executing a maintenance work or dismounting pressurised parts.
- Scrupulous standards of cleanliness to be maintained during servicing work; parts and exposed openings to be covered with a clean cloth, paper or masking tape.
- Motor, air filter, electrical components, control equipment, etc. to be protected from ingress of moisture, e.g. when being wiped.
- Welding or other heat-based work never to be carried out in close proximity to the oil system; oil tank to be fully discharged and cleaned before such work.
- No tools, loose parts or rags to be left in or on the unit.
- Operating pressures, temperatures, time settings, control equipment and cut-out devices to be checked for perfect working order before unit is released for operation after maintenance work.
- Doors on unit to be closed before switching on the unit (including for test run)!
- Sound-absorbing materials to be left in place and retained.

5.2 Remove faults

Content

This section covers general points on troubleshooting and contains references to relevant sources of information.

Danger!

- Always take measures to ensure that the machine can be shut off in an emergency by a second person.
- You may only rectify faults or carry out checks if you are duly qualified (specialist training in mechanical or electrical engineering).
- Adhere to the general safety instructions contained in this manual for handling the machine.
- Follow the instructions given in this chapter and all other maintenance instructions issued by the operator and pay due regard to the documentation relating to the components included in the unit (e.g. frequency converter, refrigerant dryer).

List of faults

The necessary action to be taken in the event of faults is outlined...

... in Chapter 4.4. “Remedying malfunctions in normal operation” and
... in the operator’s internal servicing documents.

5.3 Venting the compressor system

Contents

This section outlines the main points to be taken into account when the unit has to be vented.

Why vent?

The pressure has to be removed from the unit before all servicing and maintenance work. The unit vents automatically when switched off but if there is a fault the unit might remain pressurised even after being switched off. Since this is not evident from the outside it is always essential to vent the unit before servicing work.

Beware of burns when unit is at operating temperature! The oil filler plug can reach temperatures up to approx. 110 °C ! Always use gloves when handling the oil filler plug!
When the oil filler plug is unscrewed the residual pressure may cause hot oil to squirt out! It is therefore essential to wear safety goggles!

Venting the compressor system

It is essential to adhere to the following instructions in order to avoid the above risks of personal injury or death:

Step	Operation
1	Switch off the unit and take measures to prevent it from being restarted.
2	Unscrew cap on filler neck (oil filler plug) by hand.
3	The first five rotations of this plug must be made slowly in an anti-clockwise direction until the detectable “snap point” is reached; the oil filler plug has a side safety borehole through which the residual pressure can gradually discharge.
4	Wait until all the pressure in the unit has been relieved; the unit is now depressurised.

5.4 Cleaning work

Content

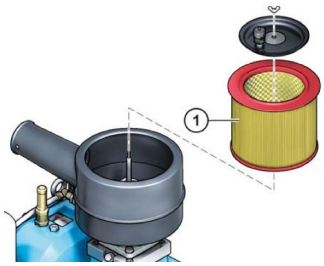
The following section contains information on cleaning the compressor and the air filter.

General points

In terms of general cleaning, vacuum the unit or wipe it with a damp cloth. Check the intake passage regularly, where necessary removing any leaves, dust, dirt or similar matter in the interests of an efficient air supply.

Never direct compressed air at living beings!
Misuse of the compressed air unit can cause serious tissue damage or even fatal injuries.

Cleaning the air filter



Step	Operation
1	Switch off the unit and take measures to prevent it from being restarted.
2	Unscrew filter cover and remove filter cover.
3	Remove filter cartridge.
4	Wipe dust out of filter housing with a slightly damp cloth.
5	Replace filter.
6	Insert filter in housing.
7	Fit filter cover and screw on, ensuring that the cover is correctly seated.
8	Carry out test run and functional check.

5.5 Checking oil level

Content

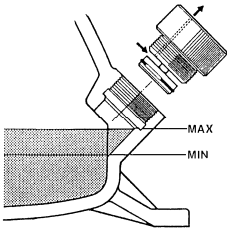
This section outlines the procedure for checking the oil level in the compressor.

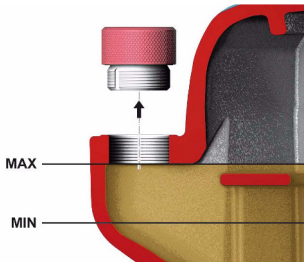
General points

The level in the oil tank is a key factor in the operational safety of the unit. Due diligence should be exercised in conducting the following checks at the specified times. Otherwise we cannot accept liability in the event of damage.

Follow the safety instructions for venting the unit (see Chap. 5.3)

Checking the oil level





Step	Instructions
1	Switch off the unit and take measures to prevent it from being restarted.
2	Wait until the unit has been switched off for at least three minutes.
3	Unscrew cap on filler neck of block by hand.
4	To check the oil level, look on the oil sight glasses: Minimum oil level: Oil must not fall below half of the oil sight glass **right next to** the thermal valve Maximum oil level: Oil should not be higher than half of the oil sight glass **over** the thermal valve
5	If necessary, refill to the maximum mark with oil of the same kind.
6	Replace the oil filler plug firmly by hand.
7	Switch on the unit and check for leaks at the oil filler neck.
8	If necessary, change the O-ring at the filler neck.

5.6 Changing oil filter

Content

This section outlines the procedure for changing the oil filter.

Important note!

An oil filter may only be changed when the unit is switched off and fully depressurised and without power.

Changing the oil filter

Step	Operation
1	Switch off the unit and take measures to prevent it from being restarted. Allow the unit to cool to approx. 70°C and then remove the pressure as described in Chapter 5.3.
2	Loosen the old oil filter with the hexagon screw and remove it.
3	Place the new oil filter in the air end and tighten it.
4	Start the unit and check the oil filter for leaks.
5	Record the oil filter change on the maintenance check sheet.

Comply with environmental guidelines when disposing of used filter cartridges!

5.7 Changing oil

Content

This section outlines the procedure for changing the oil.

Important note!

The oil may only be changed when the unit is switched off and fully depressurised! The unit should be at operating temperature (approx. 60°C - 80°C) when the oil change is carried out.
The unit should be run with the type of oil best suited to its operation. The oil used by the factory is RENNER VDL N ISO 68. It is recommended that this grade of oil is used.
Other oil grades must be comparable to the RENNER VDL ISO 68. Only refill the unit with oil of the same make and the same grade.
Do not mix oils of different kinds!
Follow the safety instructions for venting the unit (see Chap. 5.3)!

Changing the oil

Step	Operation
1	Switch off the unit and take measures to prevent it from being restarted. Allow the unit to cool to approx. 70°C and then remove the pressure as described in Chapter 5.3.
2	Take a receptacle suitable for collecting the oil and position it under the ball valve on the base of the compressor block and then unscrew the plug and open the ball valve.
3	Drain all the oil from the compressor block then close the ball valve and replace the plug.
4	Pour the new oil into the filler neck up to the maximum level and replace the oil filler plug firmly by hand.
5	Switch the unit on, let it run 2 to 3 times for only about 5 seconds and switch it off again.This allows the oil to be distributed in the unit before it is put on load.
6	Switch the unit on and allow it to run for approx. three minutes.
7	Check the oil level and, if necessary, refill to maximum mark.
8	Check drain plug and oil filler plug for leaks.
9	Record the oil change on the maintenance check sheet.

Comply with environmental guidelines when disposing of used oil!
*** The machine must be completely emptied before using a synthetic oil, e.g. (RENNER Super Lub).**
(Including cooler and filter)

5.8 Cleaning oil return window

Content

This section outlines the procedure for cleaning the oil scavenge sight gauge (optional extra).

General points

The oil scavenge sight gauge is screwed onto the line on the separator cartridge.

Cleaning the oil level indicator

Step	Operation
1	Switch off the unit and take measures to prevent it from being restarted. Allow the unit to cool to approx. 70°C and then remove the pressure as described in Chapter 5.3.
2	Undo the screws on the oil scavenge sight gauge.
3	Remove sight gauge and wipe over with a cloth.
4	Check seal and replace if necessary.
5	Refit sight gauge.

5.9 Cleaning oil cooler

Content

This section outlines the procedure for cleaning the oil cooler.

General points

If the oil cooler is not very dirty it can be left in the unit and blown with compressed air while the unit is switched off.
If the oil cooler is very dirty proceed as outlined below.

Cleaning the oil cooler

Step	Operation
1	Switch off the unit and take measures to prevent it from being restarted. Allow the unit to cool to approx. 70°C, disconnect from the power supply, and remove the pressure as described in Chapter 5.3.
2	Remove the oil cooler.
3	Steam clean the oil cooler.
4	Refit oil cooler.
5	Start the unit and check for leaks.

5.10 Check the safety valve

Check

After 2000 operating hours - however at least 1x a year

General points

The check process may only take a few seconds and be completed only by hand

Caution risk of injury!
Scalding danger by escaping hot air-oil mixture
Since this is a dangerous process, please proceed with extreme caution.
Additionally, safety precautions should be taken, such as safety goggles and ear protection.

Check the safety valve

Step	Operation
1	Unscrew the cap (**1**) by turning counterclockwise (do not use any tools!)
2	The cap must lift and let out air.
3	Close the cap by turning clockwise.
4	After closing the cap, no more air should escape.

The average service life of the valve seal is 3 years!

5.11 Tensioning and changing of drive belts(s)

Content

This section outlines the procedure for tensioning and/or changing the V-belt.

General points

The belt can be set to the optimum tension using the adjustmentscrews on the air end block.

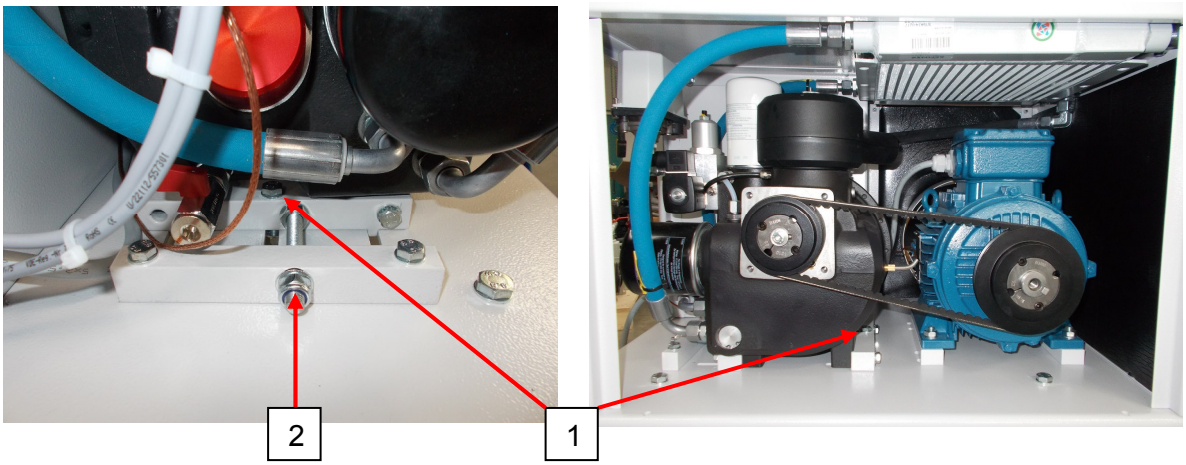


Fig. Tighten drive belt

The optimum capacity of the system and service life of the V-belt is guaranteed only if the belt is correctly tensioned. Please check the setting before start up and after 100 operating hours, as well as according to the information in the maintenance plan.

For replacing or re-tensioning the V-belt, please proceed as follows:

Tighten drive belt

Step	Operation
1	Switch off the unit, disconnect it from the power supply, and take measures to prevent it from being restarted.
2	Loosen the air end screws.(1)
3	Turn the adjustment screw (2) (in a clockwise direction) until the optimum tension is reached.
4	Tighten the screws on the air end again.
5	The correct pre-tensioning value can be obtained from the data sheet.
6	Using a pre-tensioning test device (e.g. **optibelt** Optikrik) you can review the values

Change the V-belt

Step	Operation
1	How to "tighten a V-belt", step 1 and 2
2	Loosen adjustment screw, remove old belts
3	Insert the new V-belt (please only use RENNER original spare parts).
4	As described above in “Thighten belts”, step 3 – 6.

Check for each V-belt replacement the alignment of the V-belt pulleys to each other.

Please note that the correct V-belt tensioning values and the alignment of the pulleys are a deciding feature for the service life of the V-belt.