Maintenance Manual Book

LUOYOU COMPRESSOR (SHANGHAI) CO., LTD.

Maintenance Manual

1.1 Routine Operation and Maintenance

1.1.1 Pre-starting Check and Maintenance

a）Check and maintain cleanliness and integrity of equipment.

b）Check and keep electrical components intact and wiring secure.

c）Check and keep fasteners locked securely.

d）Check and adjust the tension of the belt and replace when necessary.

e）Check, adjust and replace couplings or cushion blocks when necessary.

f）Check, add and replace the lubricant when necessary.

- The oil level should be maintained between the upper and lower red lines of the oil marker, as shown in figure 1-1.

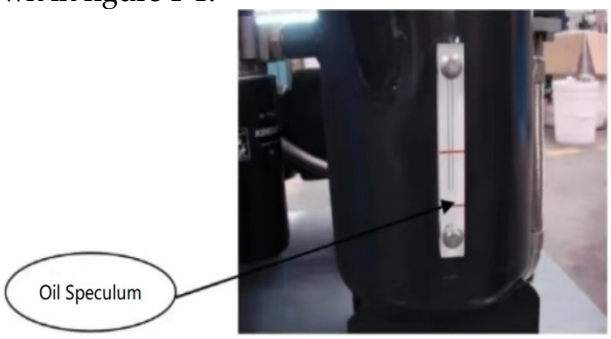


Figure 1-1

- Use Screw Compressor Lubricants, as shown in figure1-2.

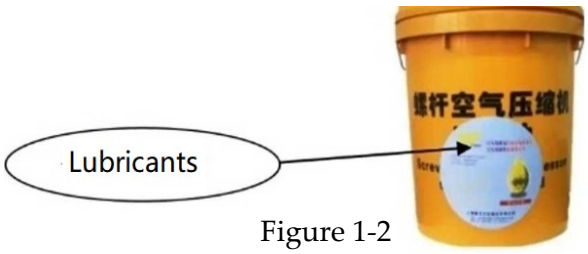


Figure 1-2

- To use a clean funnel for refueling (filter accuracy of 12um).
- Discharge the dirty oil before replacing with clean lubricant, as shown in figure1-3.

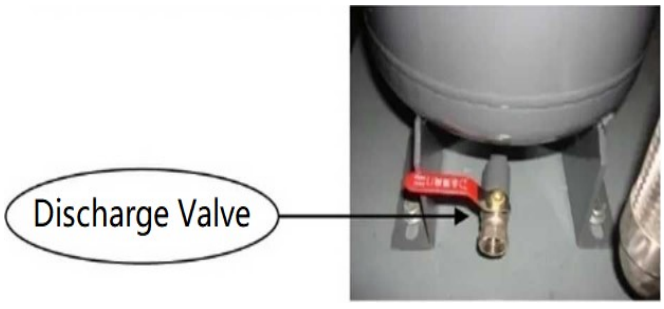


Figure 1-3

g) Check and drain the condensate water from the Air & Oil Separator when necessary (slightly open the drain valve at the bottom of the Separator and drain the condensate

water until the lubricant flows out).

h）Check, clean, and replace Air Filter Elements when necessary, as shown in figure1-4.

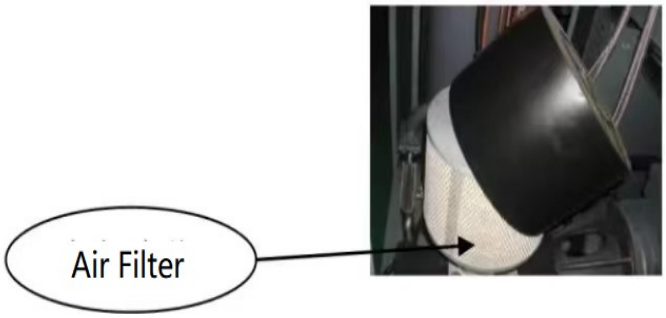


Figure 1-4

i）Check, clean, and replace Air & Oil Separator Core when necessary, as shown in figure1-5.

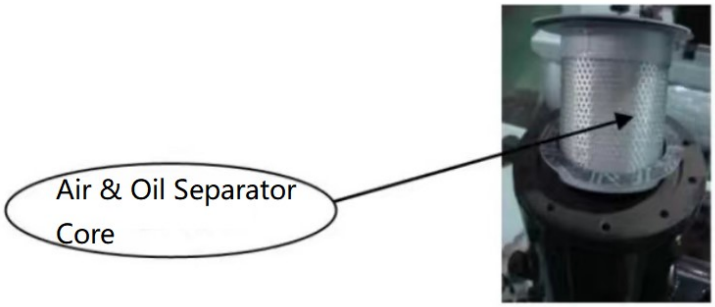


Figure 1-5

j）Check, clean, and replace Oil filter when necessary, as shown in figure1-6.

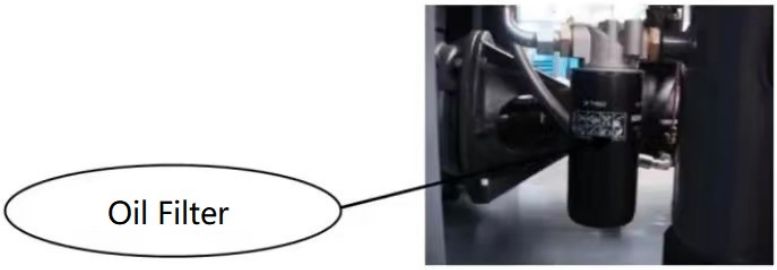


Figure 1-6

k）Check and clean the Cooler when necessary, as shown in figure1-7

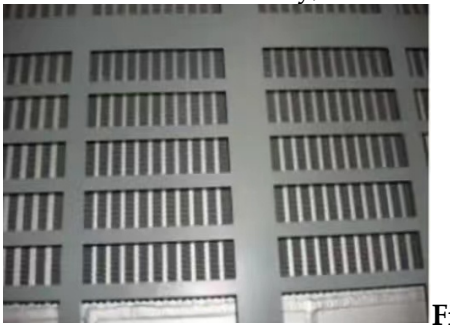
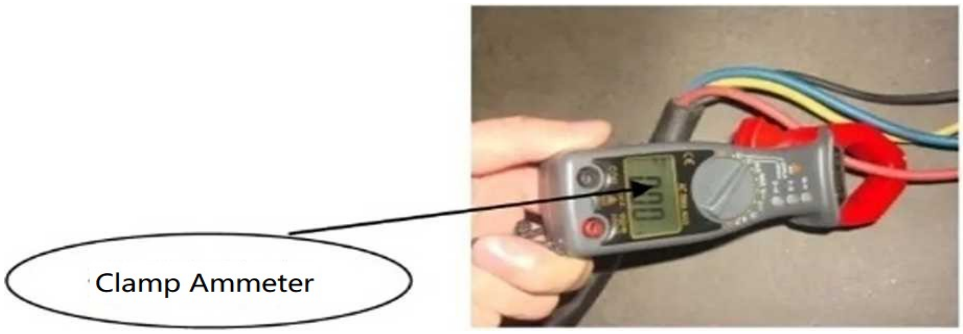


Figure 1-7

1.1.2 Check at Start-up

- ✓ Check the operation button.
- ✓ Check whether there is abnormal sound, vibration, or air and oil leakage.
- ✓ Make sure the pressure gauge, oil thermometer, ammeter, indicator and other instruments and meters are normal.
- ✓ Check the Oil Return Pipe.
- ✓ Check whether the automatic shutdown pressure and automatic start-up pressure is normal (may differ from a pressure sensor or a pressure gauge).
- ✓ Check whether the unloading valve is deflated during shutdown.
- ✓ Check whether the exhaust temperature is normal.
- ✓ Check whether the voltage and current.



- ✓ Check, clean, and replace safety valves when necessary.
- ✓ Check motor insulation resistance.
- ✓ Record voltage, current, air pressure, exhaust temperature and oil level daily, as well as working hours, maintenance status and abnormal conditions.

1.1.3 When leave the compressor for a long-time shutdown

1.1.3.1 During the long-time shutdown, the machine should be sealed up.

a) Clean the machine, coated with appropriate anti-rust grease in the parts that are prone to corrosion.
b) Wrap electrical equipment such as motor control panels, all meters and indicators with plastic or grease-proof paper.
c) Discharge the water in the Air & Oil Separator, Air cooler and Air outlet pipe.
d) Wrap the machine as a whole with plastic paper or similar wrapper.
e) Lock the fixing screws for transportation, if the compressor is to be transferred.

1.1.3.2 To restart a long-time sealed air compressor, the insulation resistance of the motor should be measured first (not less than 1MΩ), and the lubricating oil should be replaced for air compressors that have been sealed for more than 1 year.

Maintenance List

#	Check List	Job Content	Maintenance Intervals						Remarks
			Daily check	Weekly check	Monthly check	Six-month check	First year basic check	Second year check	
1	Fastener	Check the bolts and transmission components	☆						No bolts and transmission components fall off or loose
2	Coupling	Check the Coupling	☆						Good concentricity with no damage
3	Oil-return pipe filter	Check the filter			★				No impurities
4	Oil-return pipe	Determine the oil return is normal	☆						Oil return smoothly
5	Unloading valve	Deflate while shut down	☆						Unloading and venting during shutdown period
6	⊙Lubricant	Check the oil level and quality	☆						Oil level should be within the warning line and not oxidized or discolored
7	Exhaust Air (Oil) temperature	Check the exhaust temperature	☆						Normality between 70–105℃
8	Voltage / Current	Check the voltage and current	☆						Within 100-120% of the rated current
9	⊙Air Filter	Clean		☆					Change the filter element when necessary
10	Air & Oil Separator drainage	Discharge water		☆					Discharge from the oil exhaust valve
11	Dust gauze	Clean and maintenance			☆				Remove and clean

12	Pipe system	Check for oil and air leakage	☆						No leakage
13	Circuit System	Line terminal or display information	☆						No alert information and wire shedding
14	⊙Oil filter	Check and clean			☆				Change the filter element when necessary
15	Air & Oil Separator core	Clean and replacement			★				Change the filter element when necessary
16	Mechanical seals for Air End	Check leakage	☆						Oil leakage should be limited less than 1. 5g / hour
17	Engine insulation	Check the insulation resistance					★		≥ 2MΩ at 500V
18	Safety valve	Check the sensitivity				☆			Pull the discharge ring of the safety valve with less than 1 Bar strength under the rated pressure. To remove any possible debris where applicable
19	Automatic shutdown and start-up pressure	Check the sensitivity	☆						Keep stop pressure and the start pressure normal
20	Cooling Fan	Clean and maintenance	☆						Clean the surface impurities by air blowing
21	Oil level indicator	Check clarity	☆						Replace when the oil level is blur.
22	Belt/belt wheel	Check the tightness, replace when getting loose	☆						Belt center can be pushed with no more than 10 to 15mm, no torn, no damage

Remarks: "☆" in the table are the maintenance jobs can be done by the user, and "★" are the maintenance items done by an entrusted service center. "⊙" means the consumables must be replaced at time point of initial 500 hours, 3000 hours, and then every 3000 hours thereafter. (Assume that the compressor works for 6000 hours a year)

2. Trouble Shooting

NO.	Fault	Fault cause	Fault recovery
1	The engine does not start-up	No power input or abnormal voltage	Check the power circuit
		Phase loss (engine makes "buzzing" sound)	Check the power line terminals and electric controller as well as
		Power supply phase wrong connection or main controller fault	Change the phase sequence and repair or replace the main controller
		Blown fuse	Replace the fuse after confirming that the circuit is correct.
		The AC contactor burn out or fail	Repair or replace
		Pressure switch (reaction sensor) fails	Repair or replace
		Engine burnt / Bearing damaged	Repair or replace
		Air End moving basin stuck or bearing damage causing blocking rotation	Repair or replace
		Thermosensor action protection	Identify the fault and correct it
		Current protector action protection	Identify the fault and correct it
2	Frequently engine activating	Delay-starting device is out of control	Check or reset the delay device and master controller, replace when
		Seriously pipeline leakage	Check and block the leakage
		Small volume of the tank	Add Tanks or replace with larger
3	Over-heated exhaust air (oil) temperature	High ambient temperature	Enhance the ventilation capacity of the equipment room
		The cooler is too dirty for heat dissipation	Clean the Dryer
		Oil pipe blocked	Check and dredge
		Temperature sensor fault	Repair or replace
		No enough lubricant	Add lubricant
		Cooler malfunction	Check or replace
4	Low exhaust pressure	Pressure switch, force sensor, main controller malfunction	Repair, adjust, or replace
		Too much air consumption	Repair the pipeline, add air compressors or control the air
		Serious pipeline leakage	Repair, and replace when necessary
		Blocked Air Filter	Clean or replace the Filter Element
		Intake valve malfunction	Repair or replace
		Blocked Air & Oil Separator	Clean or replace the core
		Unloading solenoid leakage	Repair or replace
		V-belt drive slipping	Check, adjust, and replace

5	Large lubricant consumption	Blocked Scavenge pipe	Clean or replacement
		Air & Oil Separator core over-dated	Clean or replacement
		Too high lubricating oil level	Lower the oil level
		Minimum pressure valve malfunction	Repair or replace
		Failure to use specialized lubricant	Replace the special lubricant
6	Abnormal noise and vibration	Loose fasteners, wear or damage to motor or engine bearings	Fasten or replace
		Belt wear	Replace the belt
		Worn or loose coupling	Check, fasten or replace
		Engine, motor, or fan and rotary parts enter impurities	Maintenance or replace
7	Premature lubricant deterioration	Failure to drain the dirty lubricant	Remove the dirty oil and replace with new special lubricant
		Failure to use specialized lubricant	Replace the special lubricant
		Over-heated exhaust temperature	Enhance ventilation capacity, reduce ambient temperature or repair temperature control valve and cooling system
8	Oil Leaks from Air filter when shutdown	Input valve malfunction	Repair or replace
		Minimum pressure valve return air	Repair or replace
		Unloaded carbon valve malfunction	Repair or replace
9	Slow engine rotation causing high current or tripping	Engine, motor and bearings malfunction	Repair or replace
		Too tight V-belt drive	Check and adjust
		Low input voltage (wire too long, wire diameter too small)	Adjust the wire
		Poor circuit contact	Repair or replace
		High pipeline pressure difference (blocked the filter element)	Repair or replace
		Severely unbalanced three-phase voltage	Check and repair
		Poor contact or insufficient switch current capacity	Repair or replace
		Failure to use specialized lubricant	Replace the special lubricant
10	Fan not running	High temperature, large current, overload protector action	Repair or replace
		Phase loss	Check the circuit and the AC
		Thermostat or master control malfunction	Repair or replace
		Three-phase resistance value mismatch (engine burnt)	Repair or replace
		Fan bearing malfunction	Repair or replace

Compressor Maintenance Record

Cumulative Running Time (Hrs)	Air Filter Replacement	Oil Filter Replacement	Air & Oil Separator Cord Replacement	Lubricant Replacement	Date	Signature

Compressor Faulty & Repair Record

Date	Repair Item	Signature

Luoyou Compressor (Shanghai) Co., Ltd.
Address: No. 2777 Wanfeng Blvd, Fengjing, Jinshan, Shanghai 201501, China
Website: www.shluoyou.com.cn