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COOPER

Cooper DryFlo DX275-AC and DX400-AC

Diesel Rotary Screw Air Compressor with Aftercooler

OPERATING MANUAL

Models: Cooper DryFlo DX275-AC, Cooper DryFlo DX400-AC

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WARNING

Do not operate this equipment without reading and understanding this manual.

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Quick Start

This page covers everyday use. Read Section 1 Safety before using the machine for the first time.



Figure 1. Engine controller: Stop/Reset (40), Start (44), display (48)

Before you start (every day)

- Park on firm, level ground in a clean, ventilated area. Apply the brakes and lower the support leg (25).
- Check the compressor oil (31), engine oil (23), coolant (24) and fuel levels.
- Drain water from the fuel pre-filter (33) and condensate from the separator tank (39).
- Squeeze the dust collector on each air filter, and check all hoses and connections are tight.

Running the compressor

1. With the machine depressurised and the air outlet ball valve (1) closed, connect the air hose firmly to the ball valve.
2. Clear all loose objects from on and around the machine, and close all doors.
3. Turn on the power switch, then press Start (44).
4. Watch the display (48). Readings must be in the normal range and air pressure within the rated pressure.
5. Check the compressor oil level while running. If it drops quickly, or the air contains a lot of oil, stop and see Section 5.2.

Stopping: Open the small ball valve to vent air, press the unload button, press Stop (40) and wait three minutes for the machine to stop, then turn off the power switch. In an emergency, press the emergency stop button and make sure it locks down. If it fails, press Stop (40) twice.

WARNING

Before connecting or removing a hose, make sure the unit is fully depressurised and the air outlet ball valve (1) is closed. A hose that comes loose under pressure can whip and cause serious injury.

1 Safety

1.1 General safety

Read this manual before using the machine, and keep it with the machine.

- Only trained and authorised people may use, set up or maintain the machine. One operator only.
- Use the machine only for supplying compressed air, within the limits in Section 2.
- Wear safety gloves and safety boots, plus any other PPE listed in Section 1.2. No loose clothing or jewellery, and tie back long hair.
- Keep the work area clean, dry, well lit and clear of offcuts.
- Never remove, bypass or modify any guard, safety device or safety sign.
- Never clean, oil or adjust the machine while it is running.
- Electrical work must only be done by a licensed electrician.
- In a fire, stop the engine, isolate the battery and use a suitable extinguisher. Do not use a dry powder extinguisher on this machine (Section 1.2).
- Report any damage or fault, and do not use the machine until it is repaired.

1.2 Machine specific hazards

General

- Never start the machine unless it is safe. If there is a problem, isolate the power or remove the drive, and tag the machine so others do not start it.
- Do not modify the machine without written approval from Capital Machinery Sales.
- Follow local workplace safety laws. Provide eye, face and breathing protection, protective clothing, noise monitoring and sound insulation where needed.

Towing and transport

- Only authorised, experienced people may transport the machine. Check the towing vehicle's rated towing weight and trailer rules first. The tow rating must be greater than the machine weight.
- Before towing, turn off the battery and depressurise the pressure vessel.
- Check the tow bar (10) for cracks, bends and dents, the towing ring for wear, the brakes, the coupling, tyre pressure and the support legs. Fix any problem before towing.
- Watch for pinch points when coupling up. After coupling, check the coupling is locked.
- Tow at less than 20 km/h, follow local road rules and slow down for weather and road conditions.

Parking and site

- Park on open, level, firm ground. Apply the brakes, lower the support legs vertical to the ground and use wheel chocks on both sides of the tyres if needed.
- Park in an area that only authorised people can enter. Place a sign nearby if parked near a road.
- Park with the wind direction in mind, so hot exhaust air is not drawn back in. If used indoors, pipe the engine exhaust outdoors.

Lifting

- Use a crane of adequate capacity, tested and approved under local safety rules. Check the lifting gear first (hook safety catch, wire rope, shackles).
- The lift supervisor must follow the lifting safety procedure. Do a trial lift first. If there is a problem, lower the load, fix the fault and test again.
- Do not untie rigging until the load is in place. No one may ride on the load or the lifting equipment.
- Never lift when the wind is above level 5. Do not stack or hang loose items on the machine.
- Lift through the centre of gravity, smoothly, without swinging, sudden rises or drops, and do not leave the load in the air for long. Never lift over people or buildings.

Running the compressor

- Never let the working pressure of air tools, hoses, fittings, valves or filters exceed their rated pressure.
- Never work directly in front of any air outlet or exhaust port.
- Check the hose and air outlet ball valve (1) are firmly connected before starting. Once a hose is fitted, do not move the machine or put force on the ball valve.
- Never supply compressed air directly to breathing equipment or masks. The air contains a small amount of compressor oil and must be purified to local regulations first.

- Clean up spilt oil or flammable liquids straight away. Keep sparks and flames away. When checking or adding oil, earth the machine and oil tank and turn off the battery. No smoking nearby.
- Never open the fuel tank or refuel while the machine is running. Keep volatile liquids such as ethanol away, and keep flammable materials away from hot parts.
- Do not let oil build up on the sound insulation or inside the enclosure. Wipe it off with detergent or steam, never a flammable cleaner. Replace damaged insulation.
- Keep tools and other conductive objects away from exposed electrical parts.
- Do not start the machine if the battery electrolyte is frozen. The battery can explode.
- Keep all doors closed while running unless necessary, so the sound insulation works.
- Keep clear of the fan, coupling and other moving parts while running. Never run the machine with the fan, coupling or other guards removed.
- The battery can give off hydrogen, which is explosive. Keep sparks and flames away. Wear an acid-proof apron and face mask when working on the battery. If electrolyte splashes, rinse at once with plenty of water.
- Antifreeze coolant is toxic. Do not swallow it and avoid skin contact and breathing its vapour. If swallowed, get medical help at once. If it gets in your eyes, rinse with water for 15 minutes, then get medical help.

Maintenance and repair

- Maintain the machine in a clean, dry, well lit place. Disconnect all power and use warning tags so the machine cannot be started.
- Replace damaged, scratched, aged, discoloured or corroded wiring, and keep terminals and contactors clean.
- Before opening the separator tank filler, stop the machine and open the air outlet ball valve (1) so there is no pressure in the tank. Make sure there is no pressure before removing any fitting, valve, drain plug, filter or separator, or adding coolant.
- Let the machine cool down before checking or changing engine oil or coolant. Open the radiator cap (37) slowly.
- Remove oily rags and paper from around the compressor. Keep suitable fire extinguishers nearby. Dry powder extinguishers must not be used.
- Before welding, remove sound insulation and other heat sensitive items, and surround the work with flame retardant material. Never weld near the fuel or oil systems. If needed, empty the tanks and clean them with a non-flammable detergent.
- Never leave loose or removed parts inside the machine. Keep them in a box or on flat ground.
- Clean oil and water off hands, shoes, machine parts and the floor to prevent slips. Replace worn PPE.
- If you must enter the enclosure to adjust the compressor, tell others and mark the door so no one closes it.

1.3 Safety devices

- **Safety valve (16):** on the separator tank. If the pressure regulation fails and pressure reaches the valve opening pressure, the valve vents to atmosphere, then closes again when pressure falls.
- **Compressor high temperature and over-pressure shutdown:** stops the machine if the compressor discharge temperature exceeds 125°C, or if pressure keeps rising.
- **Blocked compressor oil filter shutdown:** stops the machine if the oil filter (28) is too dirty. A blocked filter starves the compressor of oil and can cause a fire.
- **Low engine oil pressure shutdown:** stops the machine below 0.1 MPa.
- **High engine coolant temperature shutdown:** stops the machine above 104°C.
- **Low fuel and low coolant level shutdown:** stops the machine when the fuel sensor (19) reads too low, or the coolant level is too low.
- **Sensor failure alarm:** any damaged sensor or broken wire raises an alarm. The engine also has its own protection functions; see the engine manual.
- **Emergency stop button and guards:** the emergency stop stops the machine and locks down when pressed (Section 4.5). Never run the machine with the fan or coupling guards removed.

2 Specifications

2.1 Model data

Specification	DX275-AC	DX400-AC
Free air delivery	275 CFM (7.8 m ³ /min)	406 CFM (11.5 m ³ /min)
Working pressure	10 bar (145 psi)	10 bar (145 psi)
Engine	4BTA3.9-C100-II	QSB3.9-C150-31
Engine power	74 kW (99 HP)	103 kW (150 HP)
Rated / idle speed	2200 / 1500 rpm	2200 / 1350 rpm
Emission level	G II	EU Stage IIIA
Weight	1730 kg	1800 kg

Table 1. Model data

2.2 Common data

Specification	Both models
Screw oil capacity	40 L (10.6 US gal)
Fuel tank	140 L (40 US gal)
Battery voltage	24 V
Air outlets	G3/4" x 1, 2" x 1
Wheels	185R14LT x 2
Dimensions, skid mounted (L x W x H)	2377 x 1400 x 1776 mm
Dimensions, with tow bar (L x W x H)	3300 x 1920 x 2070 mm
Noise	76 ±3 dB(A)
Working temperature	-10°C to +55°C

Table 2. Common data

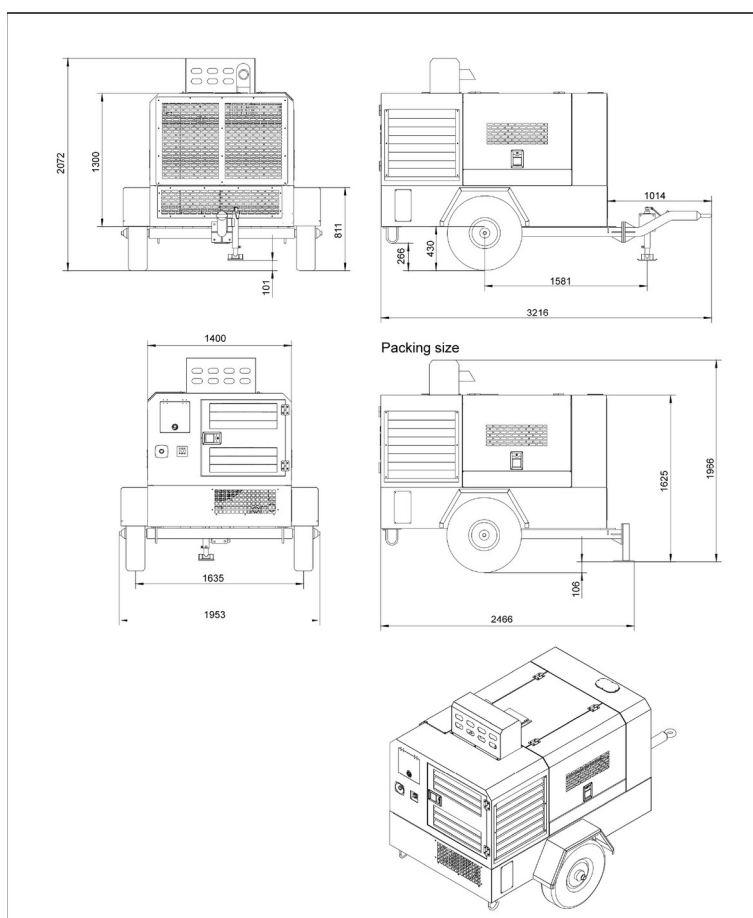


Figure 2. Dimensions with tow bar (mm), including packing size

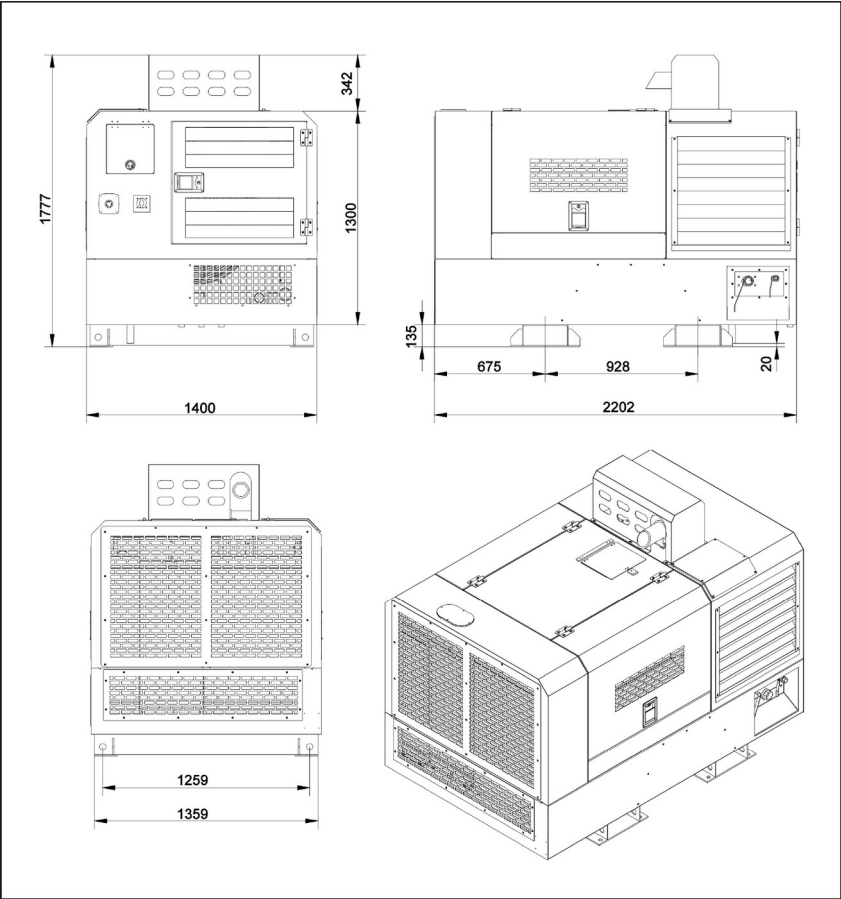


Figure 3. Dimensions, skid mounted (mm)

3 Installation

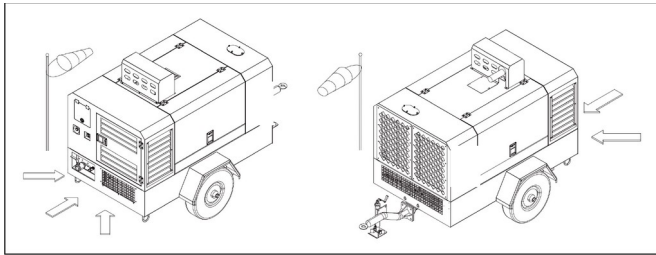
3.1 On delivery

Check the machine for transport damage. Check the rating plate, the doors, the tow bar (10), the support leg (25) and the tyres. Report any damage to Capital Machinery Sales through capitalmachinery.com.au before use.

3.2 Lifting and moving

The machine can be lifted as a whole using a sling through the small window on the top of the enclosure. Follow the lifting rules in Section 1.2. For towing, follow the towing and transport rules in Section 1.2, and check tyres and the running gear before every move (Section 5.1).

3.3 Site



Place the machine on fairly flat ground in a clean, well ventilated area. Point the tow bar in the same direction as the wind, as shown in Figure 4. A clean site extends the life of the air filters, oil filter and oil separator, and the oil cooler needs cleaning less often.

Figure 4. Tow bar pointing the same way as the wind

WARNING

Engine exhaust contains carbon monoxide, a deadly gas. Never run the machine indoors unless the exhaust is piped outdoors.

3.4 First start and oil

- Use only the screw compressor oil supplied for this machine (supplier codes 6100009001 and 6100009002). Do not mix brands of oil.
- First operation, or a unit not used for more than four months after leaving the factory: pour about 5 L of clean compressor oil into the compressor air inlet before starting, so the compressor does not start dry.
- The oil seal of the unit lasts six months from the date it leaves the factory. After that it must be re-sealed (Section 5.5).

3.5 Before each start

1. Check every connection is tight, to avoid oil or air leaks, and the electrical parts are not loose or damaged.
2. Check the engine oil level (Section 5.3 and the engine manual).
3. Check the compressor oil level gauge (31). With the machine loaded and running, the pointer must be in the green area. Add oil if low, drain if too high.
4. Check there is enough diesel. The fuel level shows on the controller. Use the right diesel for the season.
5. Check the coolant. The level should be 2/3 of the level gauge (24) on top of the coolant tank.
6. Check the battery is charged. Before starting it must not be below 24 V, and while cranking it must not fall below 18 V. Battery voltage shows in the engine data on the controller.
7. Open the separator tank drain, the cooler drain plug and the engine head drain plug. Check for water, then close the valve and tighten the plugs.
8. Remove dust from the air filter.
9. Connect the air hose to the air outlet ball valve (1).
10. Check the engine and compressor sensors and connectors make good contact and the wiring is not damaged.
11. Clear all loose objects from on and near the machine. If an oil change is due, follow Section 5.4.

4 Operation

4.1 Main components

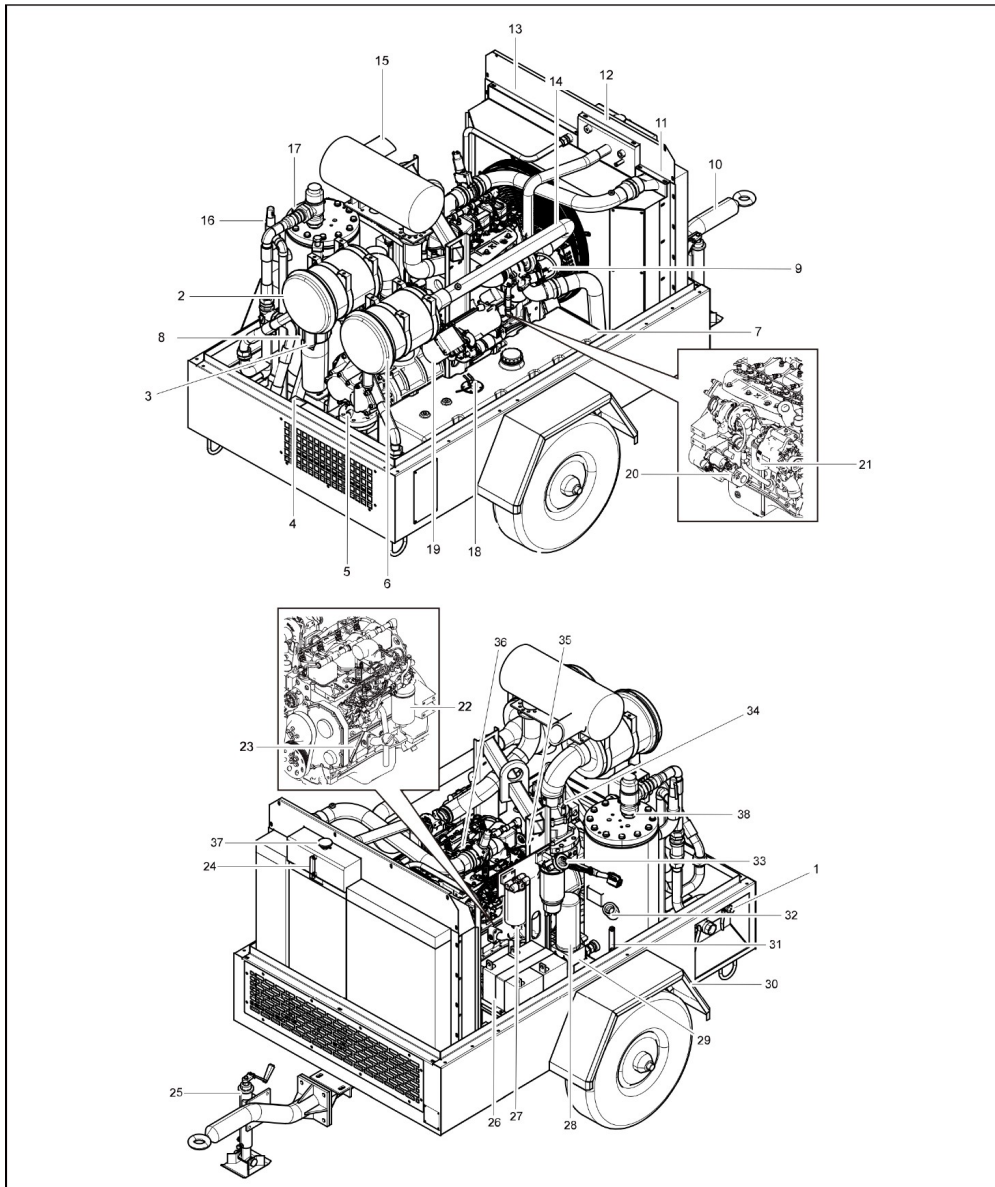


Figure 5. Main components, DX400-AC (QSB3.9 engine, three fuel filters)

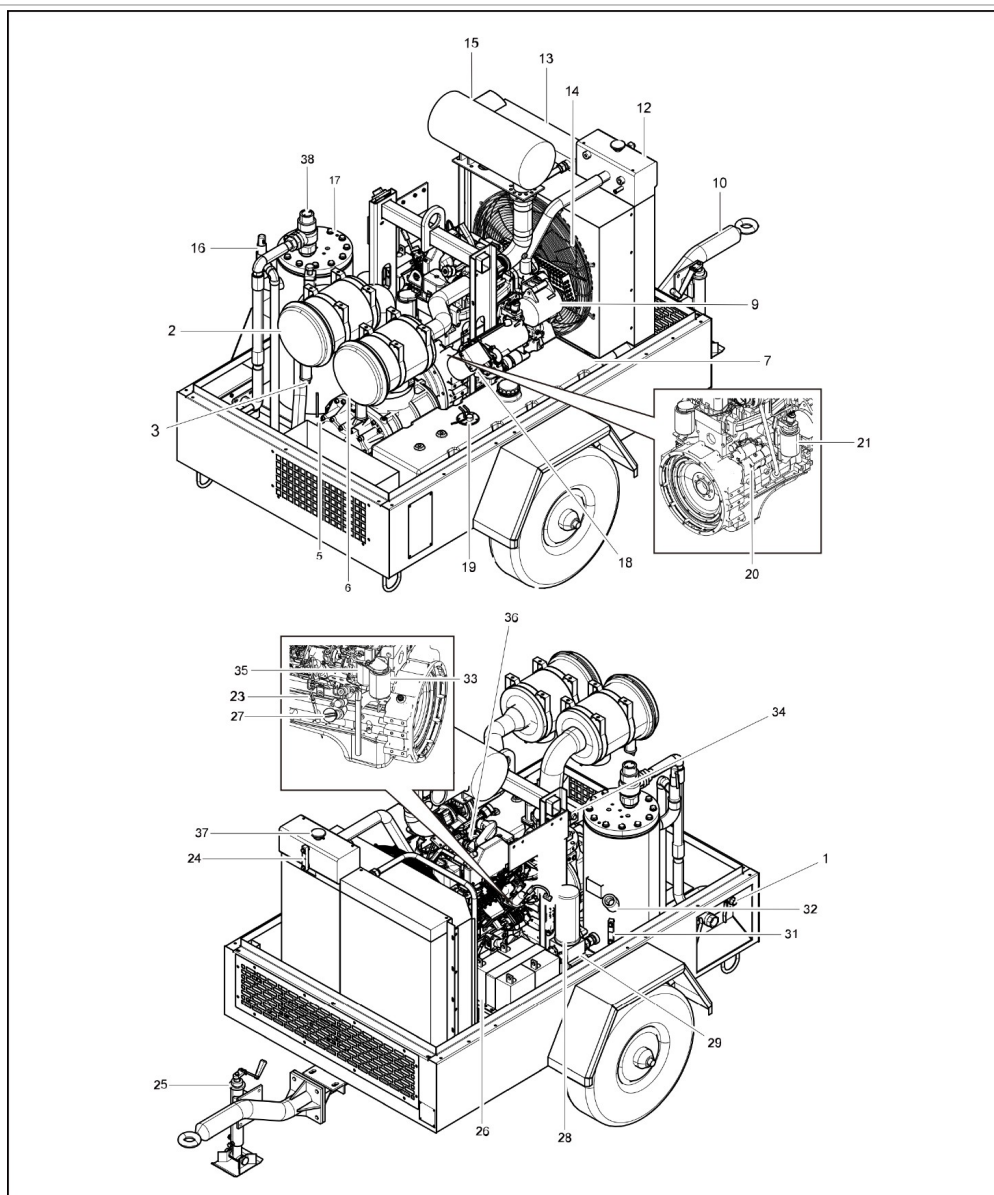


Figure 6. Main components, DX275-AC (4BTA3.9 engine)

Item	Part	Item	Part
1	Air outlet ball valve	21	Engine oil filter
2	Compressor air filter	22	Fuel filter III (DX400-AC)
3	Dust collector	23	Engine oil dipstick
4	Aftercooler	24	Coolant level gauge
5	Compressor (air end)	25	Support leg
6	Engine air filter	26	Battery
7	Fuel tank	27	Engine oil filler cap
8	Water separator	28	Compressor oil filter
9	Generator	29	Temperature control valve
10	Tow bar	30	Separator tank drain pipe
11	Intercooler	31	Compressor oil level gauge
12	Coolant tank	32	Compressor oil filler plug
13	Oil cooler	33	Fuel filter I (pre-filter)
14	Fan	34	Intake valve
15	Engine exhaust outlet	35	Fuel filter II
16	Safety valve	36	Engine
17	Separator tank	37	Radiator cap

Item	Part	Item	Part
18	Heater	38	Minimum pressure valve
19	Fuel level sensor	39	Separator tank drain plug
20	Starter motor		

Table 3. Main components

4.2 Controls



Figure 7. Engine controller

Item	Control	Function
40	Stop / Reset	Running: stops the compressor. Held for 3 minutes: tests the panel lights. While stopping: press again to stop the compressor quickly.
41	Automatic	Enters automatic mode.
42	Manual	Enters manual mode.
43	Speed control	Enters the speed control screen, if speed control is configured.
44	Start	Starts the compressor from stop.
45	Up / Increase	Changes screen. In settings, moves the cursor up and increases the value.
46	Setting / Confirm	From the home screen, opens the settings menu. In settings, confirms the setting.
47	Down / Reduce	Changes screen. In settings, moves the cursor down and reduces the value.
48	Display	Shows engine and compressor readings, fuel level, battery voltage, alarm and status.

Table 4. Controller

Other controls: the power switch, the unload button, the emergency stop button, the small vent ball valve and the air outlet ball valve (1).

4.3 How the compressor works

The diesel engine (36) drives the screw compressor (5) through a flexible rubber coupling and a pair of speed gears. Air is drawn through the air filter and intake valve (34), compressed between the male and female rotors, and passes to the separator tank (17). The oil separator removes the oil, and the air leaves through the minimum pressure valve (38) and the air outlet ball valve (1). The aftercooler (4) and water separator (8) dry the air. Air delivery and pressure are adjusted automatically.

Oil is pushed around by the tank pressure: from the separator tank, through the temperature control valve (29) or the oil cooler (13), then the oil filter (28), back to the compressor. The minimum pressure valve keeps 0.3 to 0.55 MPa in the separator tank so the oil keeps circulating. The engine driven fan cools the oil cooler.



Figure 8. The three stages of a screw compressor: suction, compression, discharge

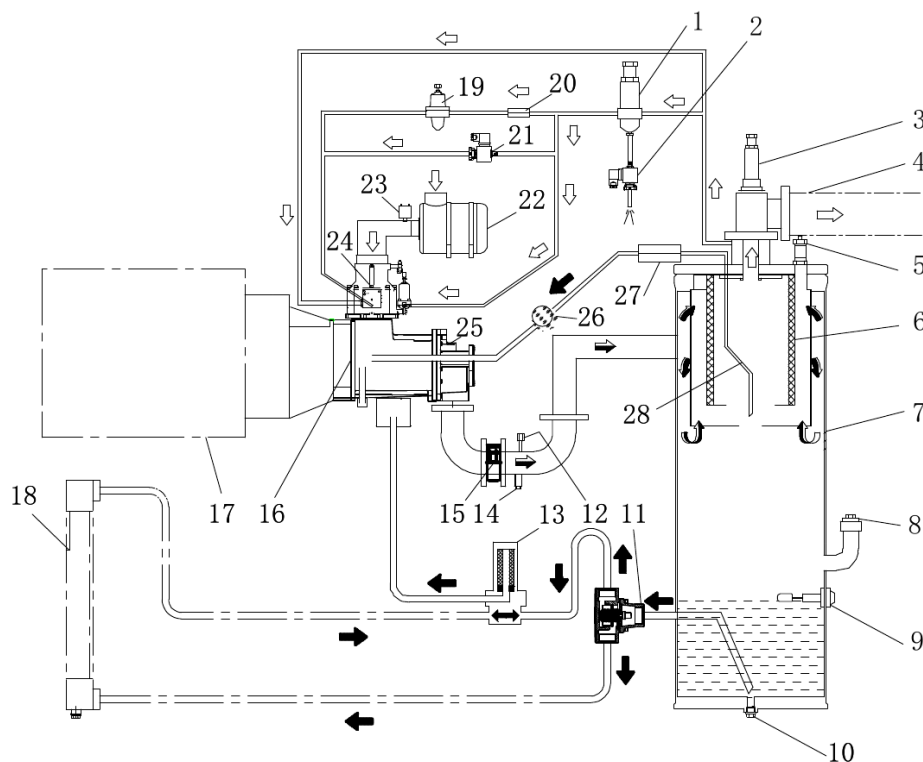


Figure 9. System flow. Solid arrows: oil. Half-filled arrows: oil and air. Open arrows: air. Numbers apply to this figure only (Table 5)

No.	Part	No.	Part
1	Air-water separator	15	Horizontal check valve
2	Air release solenoid valve	16	Coupling
3	Minimum pressure valve	17	Diesel engine
4	Ball valve	18	Cooler
5	Safety valve	19	Positive proportional valve
6	Oil separator element	20	Throttle (orifice)
7	Separator tank	21	Bypass solenoid valve
8	Oil filler	22	Air filter
9	Oil level indicator	23	Vacuum indicator
10	Tank drain outlet	24	Intake valve
11	Temperature control valve	25	Screw compressor
12	Temperature sensor	26	Oil return check valve
13	Oil filter	27	Throttle (orifice)
14	Screw oil discharge	28	Oil scavenge pipe

Table 5. System flow key (Figure 9 only)

4.4 Starting and running

1. Do the checks in Section 3.5.
2. Turn on the power switch and press Start (44).

3. Watch the compressor oil level. If it drops quickly and the air contains a lot of oil, check and fix it using Section 5.2.
4. Check every reading is in the normal range and the air pressure is within the rated pressure. If the discharge temperature is too high, engine oil pressure too low, coolant temperature too high or fuel too low, the alarm light comes on and the machine stops automatically. Find and fix the cause before restarting.

CAUTION

While the machine is running, never plug in or unplug any sensor or wiring connector, and never cut the power. This can wipe the ECU program or burn out the ECU board.

4.5 Stopping

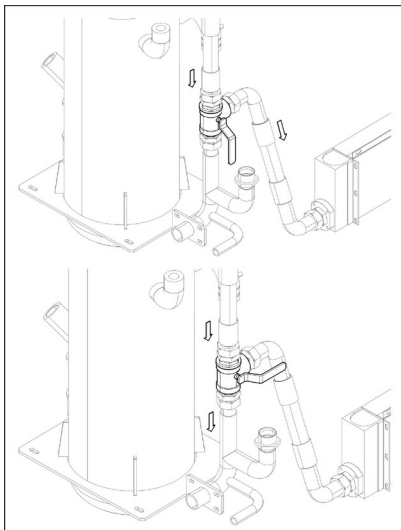
1. Open the small ball valve to vent air.
2. Press the unload button. The green light above it goes out and the compressor unloads.
3. Press Stop (40) and wait three minutes for the machine to stop automatically.
4. Turn off the power switch.

The air in the separator tank vents to atmosphere automatically through the unloading valve and the air filter.

Never close all the ball valves before stopping the machine. This can damage the compressor shaft seal and shorten the life of parts inside the engine.

Emergency stop: press the emergency stop button and make sure it locks in the pressed position. If the emergency stop fails, press Stop (40) twice in a row. Do not use the emergency stop for normal stopping. Repeated emergency stops can cause the ECU program to be lost.

4.6 Aftercooler air path



On machines with the aftercooler, turn the ball valve to send the air through the aftercooler or bypass it.

1. Use only the two valve positions shown. Any other position can cause a fault or damage.
2. Turn the ball valve fully. Never leave it part open or part turned.

Figure 10. Aftercooler valve positions

5 Maintenance and Troubleshooting

WARNING

Before any maintenance, stop the machine, isolate the battery and tag the controls. Open the air outlet ball valve (1) and make sure there is no pressure in the system. Let the machine cool. Refit all guards and check the safety devices before use.

Correct use and regular maintenance reduce or prevent failures.

5.1 Maintenance schedule

When	Task
Every 24 hours	Check the compressor oil level, engine oil level and coolant level. Check the fuel pre-filter (33). Remove surface dust from the air filters (note 1). Empty the air filter dust collector. Check tyre pressure and tread, and the running gear (note 6).
Every 50 hours or weekly	Drain condensate from the separator tank (Section 5.12, note 9).
Every 250 hours	Replace the fuel pre-filter and fuel water separator element (notes 5 and 7). Check and clean the solenoid valves, and the control valve and cylinder. Drain separator tank condensate (note 9). Check the fan and generator belt. Check the battery terminals and voltage.
Every 500 hours	Remove dust from the coolers. Grease the running gear.
Every 1500 hours	Replace the air filter elements (note 1). Replace the compressor oil (note 2). Replace the compressor oil filter (note 3). Replace the oil separator element (note 4).
Every 3000 hours	Check the minimum pressure valve setting. Check the safety valve.

Table 6. Maintenance schedule

- Note 1: shorten or extend the air filter interval to suit the dust and working conditions (Section 5.6).
- Note 2: change the compressor oil first at 500 hours on a new machine, then at least once a year.
- Note 3: change the compressor oil filter first at 50 hours on a new machine. Always change the oil filter when you change the oil.
- Note 4: in harsh conditions, replace the oil separator when its pressure drop reaches 0.8 bar, even before 1500 hours.
- Note 5: shorten or extend to suit the fuel quality.
- Note 6: check before moving the machine.
- Note 7: this extra fuel filter is fitted by the machine maker. Contact Capital Machinery Sales for replacements.
- Note 9: drain more often in long cold spells. If the tank has not been drained for a long time, drain it before starting. If water and oil will not drain, do not start the machine. Warm the tank first, or serious damage can result.

CAUTION

Skipping oil, filter and separator changes damages the compressor and is not covered by warranty (Section 6).

5.2 Troubleshooting

If anything is abnormal after starting, find and fix the cause before restarting.

Problem	Cause	Fix
Machine does not start	Emergency stop pressed	Reset the emergency stop.
	Alarm not reset	Reset the alarm.
	No power, battery voltage 0	Charge the battery. If the battery is not flat, check the wiring.

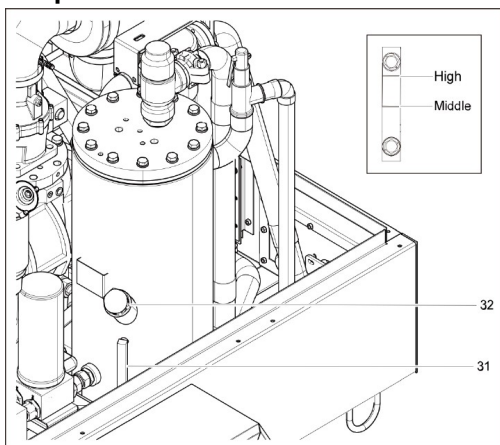
Problem	Cause	Fix
	Battery voltage low	Charge the battery.
	Wrong oil or fuel	Change the oil or fuel.
	Air in the fuel system	Bleed the air from the fuel system.
	Starter motor does not turn	Check the starter motor (20).
	Wax (paraffin) in the fuel system	Remove the wax from the fuel system.
	Tank pressure above 0.5 bar	Let the machine unload to below 0.5 bar.
	Temperature below -15°C	Contact Capital Machinery Sales to fit a water heater.
	None of the above	Contact the engine maker's service agent.
Pressure does not build up	Engine speed does not increase	Check the 1939 communication wiring. If it is good, contact Capital Machinery Sales.
	Solenoid valve has no power	Check the wiring and the solenoid valve.
	Solenoid valve leaking	Replace the sealing parts.
	Intake valve (34) not opening, cylinder seized	Repair or replace the cylinder. If not seized, check the intake valve blade.
	Air leaking in or out of the system	Check for and fix air leaks.
	Air filter blocked	Replace the air filter.
	Minimum pressure valve (38) leaking	Replace the minimum pressure valve.
Too much oil in the air	Compressor oil overfilled	Drain compressor oil to the correct level.
	Oil return line restrictor blocked	Clean the restrictor.
	Oil separator damaged	Replace the oil separator.
	Maintenance overdue	Do the scheduled maintenance.
Discharge temperature too high	Compressor oil low	Add oil.
	Poor ventilation or high ambient temperature	Improve ventilation.
	Cooler blocked	Clean the cooler (Section 5.9).
	Oil filter blocked	Replace the oil filter (28).
	Temperature control valve (29) faulty	Replace the temperature control valve.
	Fan belt loose or frayed	Tension or replace the fan belt.
Controller shows no engine data	1939 wiring	Check the 1939 communication line.
	ECU program lost	Reload the ECU program.
	ECU board burnt out	Replace the ECU board.
Oil sprays from the air filter after stopping	Screw oil overfilled	Drain oil to the correct level.
	Intake valve blade not sealing	Open and repair the intake valve (34).
Any problem that continues		Contact Capital Machinery Sales through capitalmachinery.com.au .

Table 7. Troubleshooting

Before servicing, stop the machine, disconnect the external air line and make sure the system has no pressure. Use only genuine parts; faults caused by non-genuine parts are not covered. The compressor (air end) is a precision part. If it fails, it must be repaired by the factory or a service agent approved by Capital Machinery Sales.

WARNING

In very cold weather, if a heater is used to warm the inside of the machine, it must have no open flame (a charcoal heater is recommended), must be kept away from wiring and flammable parts, and must never be left unattended. Remove it and clean up before starting, or the machine can catch fire.

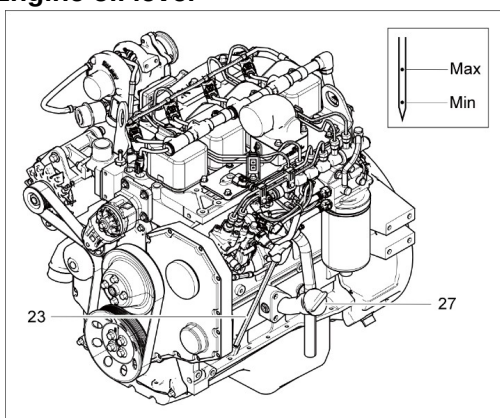
5.3 Fluid levels**Compressor oil level**

Check daily, after running the compressor.

1. Check the compressor oil level gauge (31). If the level is below the middle mark, add oil through the filler plug (32).

Before opening the filler plug (32), make sure there is no pressure in the unit.

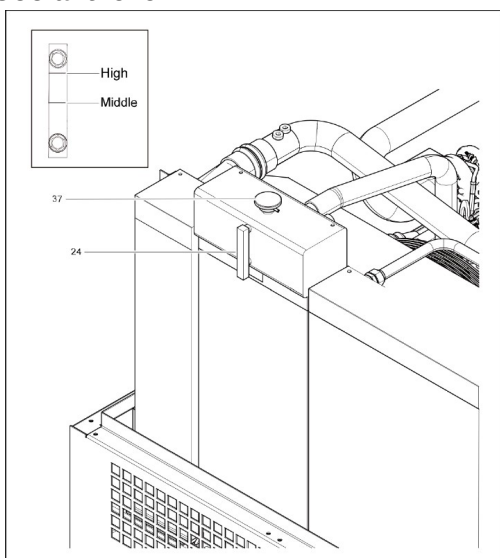
2. Fill to above the middle mark of the gauge.
3. Refit the filler plug (32) and tighten it.

Engine oil level

Check before starting or after stopping, with the machine level.

1. Pull out the dipstick (23). After stopping, wait for the engine to cool and the oil to drain back first.
2. Check the dipstick. If needed, open the oil cap (27) and add oil.
3. Tighten the oil cap (27).

Before starting, the level should be about 3/4 of the dipstick mark. After stopping, wipe and reinsert the dipstick; the level should be above 1/2. Do not mix synthetic and mineral oils.

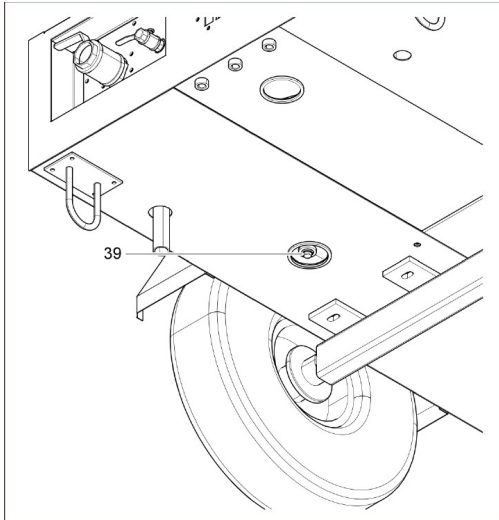
Coolant level

Check the coolant level gauge (24). If needed, open the radiator cap (37) and fill the tank.

Only open the radiator cap after the machine is stopped and cooled. Open it slowly, wrapped in a cloth, as the tank may be under pressure.

Do not mix types of coolant. Do not add water, which dilutes the coolant.

5.4 Changing the compressor oil



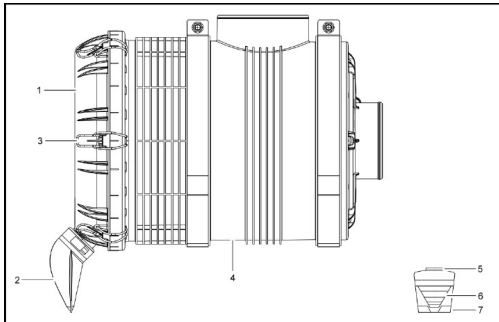
1. Run the machine unloaded to warm the oil, then stop it.
2. Straight away, remove the separator tank drain plug (39) and the oil cooler drain plug, and drain the old oil from the tank, pipes and cooler.
3. Refit the plugs. Fill new oil through the filler plug (32) and the unloading valve inlet.
4. Check the level on the gauge (31), and fit a new oil filter (Section 5.7).

Ask Capital Machinery Sales before using another brand of oil. Never mix two compressor oils.

5.5 Storage

- For long storage, drain all the compressor oil, refill with new oil of the same brand to seal the compressor, and run it for 3 to 5 minutes.
- Store and transport the machine in a dry, covered place. In hot or humid areas, inspect and maintain it more often.
- The oil seal lasts six months from the date the machine leaves the factory. After six months, re-seal it.

5.6 Air filter



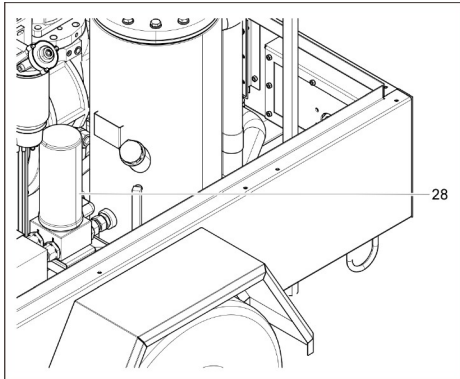
No.	Part
1	Dust collector cover
2	Dust collector
3	Clip
4	Filter housing
5	Reset button
6	Piston
7	Red indicator area

Table 8. Air filter (figure numbers only)

- Squeeze the dust collector a few times before starting to remove dust.
- If the yellow piston in the blockage indicator reaches the red area, replace the filter element. Normally replace the main (outer) element. If the safety element is dusty, the main element has failed; replace the safety element too. Press the reset button afterwards.
- To clean the main element, tap the ends gently, then blow air through it against the normal airflow, up and down. Keep the air below 5 bar and the nozzle away from the element. Never use oil or water. Replace a damaged element, or one that will not clean.

5.7 Oil filters

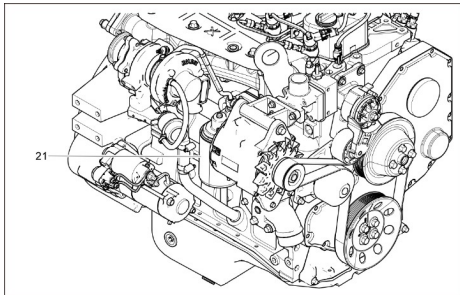
Compressor oil filter



1. Fit the filter wrench to the compressor oil filter (28).
2. Turn it anticlockwise to remove it, and wipe the oil from around the temperature control valve.
3. Fit a new compressor oil filter.

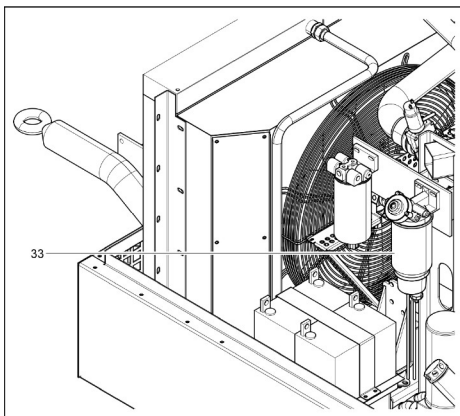
See Table 6 for the change intervals.

Engine oil filter



1. Fit the filter wrench to the engine oil filter (21).
2. Turn it anticlockwise to remove it. Fill the new filter with new oil until it overflows, and oil the seal.
3. Fit the new engine oil filter. Do not mix types of engine oil.

5.8 Fuel filters

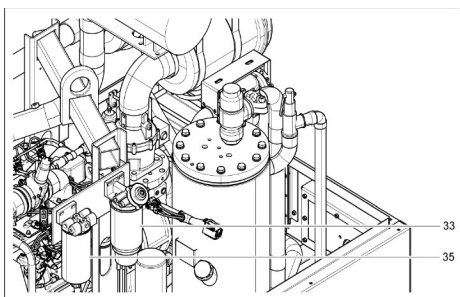


Open the door to reach the fuel pre-filter (33), and protect yourself from injury.

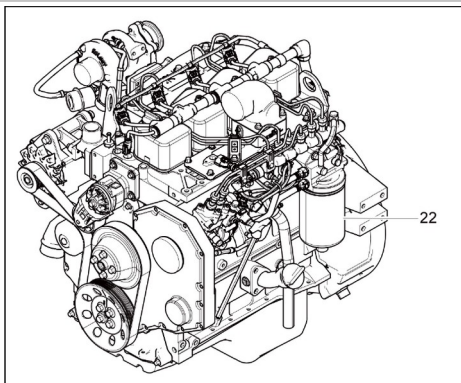
Check the bowl under the pre-filter. If full, open the plug under it and drain the water. In winter or cold areas, drain it again after stopping, to prevent freezing.

Leaving the pre-filter undrained for a long time can reduce engine performance and cause damage.

Fuel filter I (33) is changed differently from filters II (35) and III (22, DX400-AC only).

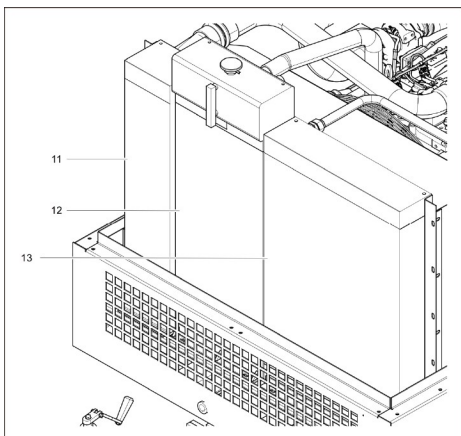


1. Disconnect the sensor under fuel filter I (33).
2. Drain the water from the bowl and remove the bowl.
3. Remove the filter element.
4. Fit the bowl under the new element.
5. Fill the new element with diesel and fit it back into the filter head.



6. Remove fuel filter II (35) and fuel filter III (22).
 7. Fill the new filters with diesel.
 8. Fit (35) and (22) back into the filter housing.
- Use the correct tools. Never mix types of diesel.

5.9 Cleaning the coolers

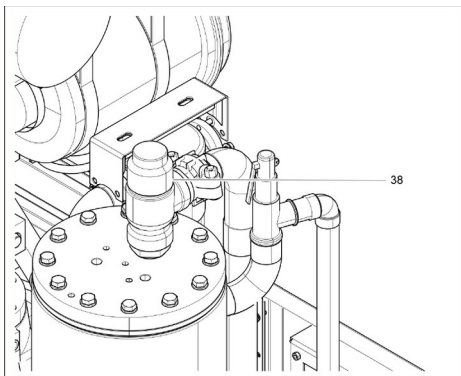


Keep the cooler fins clean. Clean oil and dirt off the intercooler (11), coolant tank (12) and oil cooler (13) with compressed air and steam, blowing against the normal airflow.

To clean inside the oil cooler, fill it with kerosene, leave it 4 to 6 hours, drain it from the bottom drain port, then blow it clean with compressed air. Repeat until clean.

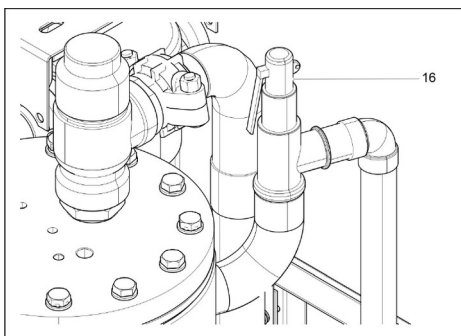
Hold the nozzle at about 90° to the cooler and keep the air below 5 bar, or the cooler can be damaged.

5.10 Valves



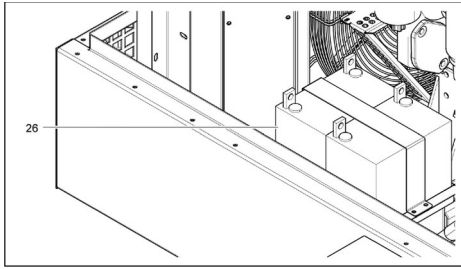
Minimum pressure valve (38): set at the factory. If the setting changes after long use, it can be adjusted with the adjusting nut on the valve.

Damage caused by unauthorised pressure adjustment is not covered by warranty.



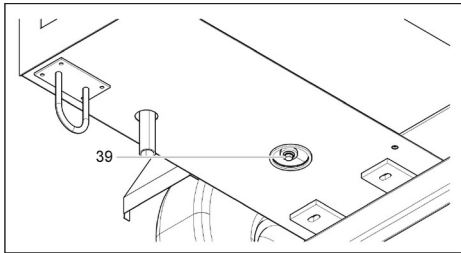
Safety valve (16): have it inspected by Capital Machinery Sales. Never inspect or adjust it yourself, as this can endanger your safety. No responsibility is accepted for accidents or losses caused by unauthorised adjustment.

5.11 Battery



1. Check the battery case for cracks, damage and leaks.
2. Check the battery frame is tight and not corroded, and the cables are not damaged.
3. Check the terminals and clamps for oxidation and corrosion, and the cables for damage.
4. Check the battery top is clean and the vent holes in the filler caps are clear.

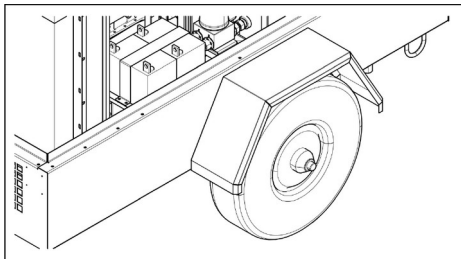
5.12 Separator tank drain



1. Loosen the separator tank drain plug (39) about half a turn to drain the condensed water.
2. Tighten the plug again once clean compressor oil flows out.

Drain the condensate every 50 hours or once a week.

5.13 Tyres and axle



1. Check the tyres for wear and damage.
2. Check the tyre pressure.
3. Grease the wheel hub bearings: remove the bearing cover, fill with grease to 3/4, then refit the cover.

4. Grease the running gear: apply the grease gun to each grease nipple on the axle until grease comes out.

5.14 Disposal and parts

Dispose of used oil, coolant, filters, batteries and the machine under local regulations.

To order parts, contact Capital Machinery Sales with the machine model, serial number and part description. A photo of the part helps.

Wear part	Use	DX275-AC	DX400-AC
Main air filter element	Compressor and engine air filters	Yes	Yes
Safety air filter element	Compressor and engine air filters	Yes	Yes
Compressor oil filter	Machine maker's filter	Yes	Yes
Oil separator element		Yes	Yes
Screw compressor oil	See Table 2 for capacity	Yes	Yes
Fuel pre-filter element (level 1)	Machine maker's filter	No	Yes
Fuel water separator (level 2)	Engine filter	No	Yes
Fuel water separator (level 3)	Engine filter	No	Yes
Engine oil filter	Engine filter	Yes	Yes
Fuel filter (level 1)	Engine filter	Yes	No
Fuel filter (level 2)	Engine filter	Yes	No

Table 9. Wear parts

5.15 Wiring diagrams, DX400-AC

For licensed electricians only. Turn the page sideways to read.

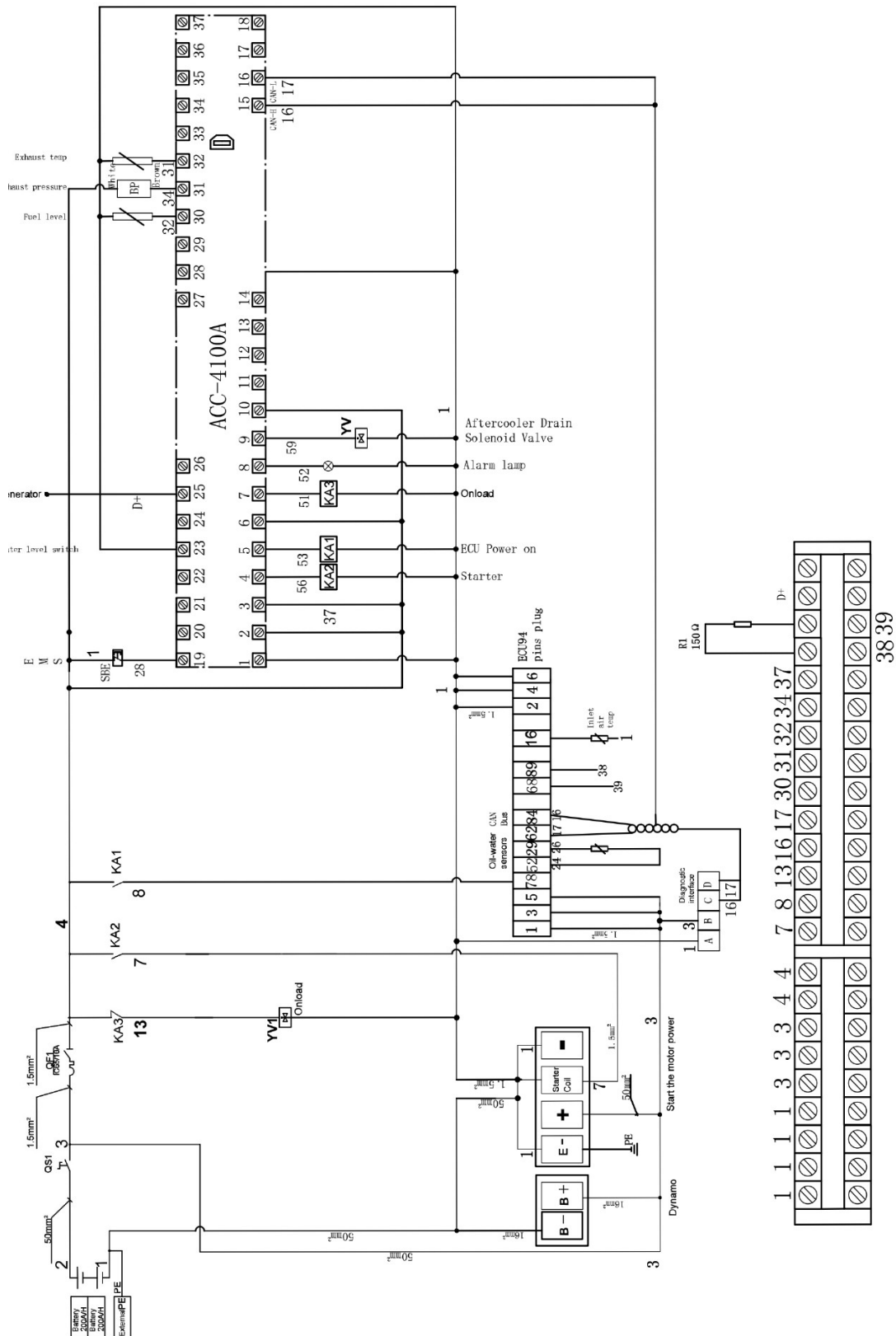


Figure 11. DX400-AC wiring diagram

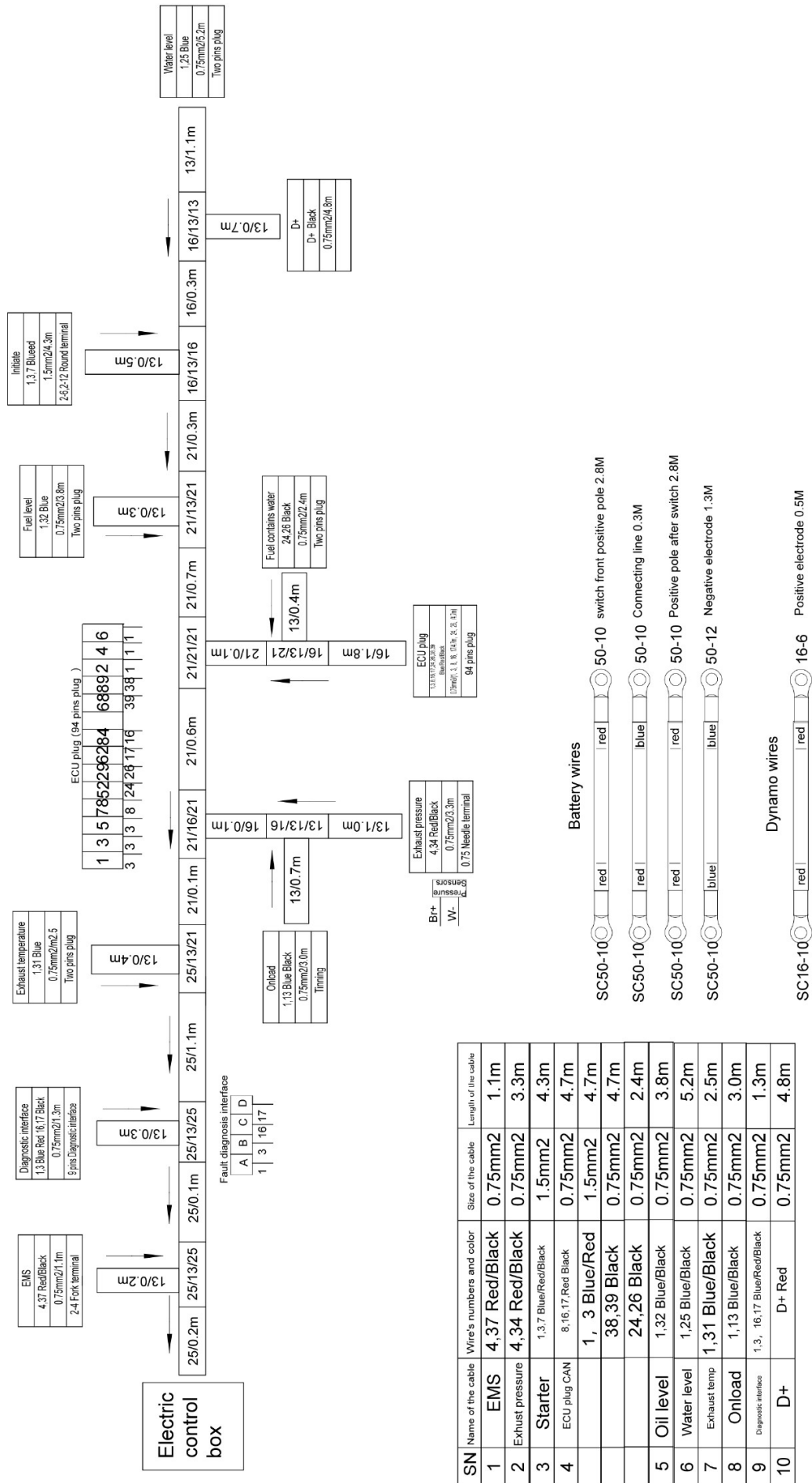


Figure 12. DX400-AC wiring harness and cable list

6 Warranty and Support

6.1 Warranty

- Standard 12 month warranty, unless a different period is shown on the product page or your invoice.
- Covers replacement of any part or material found to be defective under normal working conditions. Misuse and damage are not covered.
- This warranty is in addition to your rights under the Australian Consumer Law. Full terms are at capitalmachinery.com.au.

Not covered by warranty

- Using non-genuine parts, or parts not supplied or approved by Capital Machinery Sales, including consumables such as filters, oil separators, compressor oil and fluids. Any damage this causes is not covered.
- Tampering with, opening or modifying the machine or its sealed components.
- Incorrect power, air or gas connection.
- An unsuitable operating environment, poor maintenance, work by unauthorised people, excessive use, or not following this manual.
- Damage caused by unauthorised adjustment of the minimum pressure valve or the safety valve.
- Damage caused by skipped oil, filter or separator changes (Section 5.1).

6.2 Engine

The diesel engine has its own maintenance and protection requirements. Follow the engine manual supplied with the machine.

6.3 Making a warranty claim

Lodge your claim online at capitalmachinery.com.au/warranty-claim. Have your invoice number and date of purchase ready, and describe the problem. Photos or a short video help us resolve it faster. Our team will reply by email with the next steps.

6.4 Service and parts

For service, spare parts and support, visit capitalmachinery.com.au.

6.5 Revision history

Revision	Date	Change
0	16/10/2026	First Issue, written from the DX275-AC/DX406-AC series Air Compressor Operation Manual.



Capital Machinery Sales has supplied, serviced and supported workshop machinery across Australia for over 20 years, backed by more than 30 years of hands-on industry experience.

Sales, service and spare parts

capitalmachinery.com.au

Warranty claims: capitalmachinery.com.au/warranty-claim

Hallam, Victoria