

AIR COMPRESSOR

INSTRUCTION MANUAL

PLEASE READ AND BE FAMILIAR WITH THE INSTRUCTION MANUAL BEFORE OPERATION FAILURE TO DO SO MAY RESULT IN INJURY OR DAMAGE TO THE AIR COMPRESSOR.

Guarantee

AIR COMPRESSORS ARE GUARANTEED AGAINST MANUFACTURING DEFECTS FOR A PERIOD OF 12 MONTHS TERMS OF GUARANTEE

IN ORDER TO GIVE SATISFACTORY SERVICE, AIR COMPRESSOR REQUIRE REGULAR INSPECTION AND MAINTENANCE, ITEMS WHICH ARE PART OF THE MAINTENANCE SCHEDULE AND ARE SUBJECT TO NORMAL WEAR AND TEAR SUCH AS VALVES, SPRINGS AND DRIVE BELTS ETC ARE NOT COVERED UNDER THE GUARANTEE. THE GUARANTEE AGAINST MANUFACTURING DEFECTS DEPENDS ON THE USER ENSURING THAT:

- A. The compressor and unit is installed CORRECTLY with a supply of suitable voltage, adequate current rating and motor protection starter.
 - B. The compressor is regularly inspected and maintained and wearing parts are replaced as necessary within the guarantee period.
- FAILURE TO COMPLY WITH POINTS A AND B ABOVE WILL INVALIDATE THE GUARANTEE.

With this mind we would draw the users attention to the following basic points:

INSTALLATION: If in doubt, use a competent electrician who provide an adequate supply cable and ensure the correct voltage at the motor terminals.

MAINTENANCE: The work required is minimal but vital in ensuring your machine remains trouble free. Read section PREVENTIVE MAINTENACE and CLEANLINESS in the General Maintenance section and implement the regular checks and duties indicated.

INSTRUCITONS: Keep them in a sale place and offer to everyone called to install and maintain your machine. If your Belt Drive compressor is PROPERLY INSTALLED and MAINTAINED, it will give many years trouble free life.

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Belt Drive Compressors

Your compressor arrives fully assembled and works tested ready for connection to your mains supply.

AIR COMPRESSORS TECHNICAL SPECIFICATIONS

No	Model	Power		Capacity	Pressure	Cylinder
		Kw	HP	m ³ /min	Mpa	Qty x mm
1	Z-0.036/8	0.75	1	0.036	0.8	1 x 51
2	V-0.12/8	1.1	1.5	0.12	0.8	2 x 51
3	V-0.17/8	1.5	2	0.17	0.8	2 x 51
4	V-0.25/8	2.2	3	0.25	0.8	2 x 65
5	Z-0.17/8	1.5	2	0.17	0.8	2 x 55
6	W-0.36/8	3	4	0.36	0.8	3 x 65
7	V-0.48/8	4	5	0.48	0.8	2 x 80
8	V-0.60/8	5.5	7	0.60	0.8	2 x 90
9	W-0.67/8	5.5	7	0.67	0.8	2 x 80
10	W-0.9/8	7.5	10	0.9	0.8	3 x 90
11	W-1.0/8	7.5	10	1.0	0.7	3 x 90
12	W-1.6/7	11	15	1.6	0.7	3 x 115
13	W-1.35/7	11	15	1.35	0.7	3 x 90
14	W-1.5/7	11	15	1.5	0.7	3 x 100
15	W-2.0/7	15	20	2.0	0.7	3 x 115
16	W-2.5/7	18	24	2.5	0.7	3 x 120
17	W-3.0/7	22	30	3.0	0.7	3 x 125

INSTALLATION AND ELECTRICAL CONNECTION

FOUNDATIONS: Belt drive air compressors are supplied wheel mounted. The wheel mounted model absorbs vibration but should be positioned on firm level ground.

SITING AND VENTILATION: Ample access and headroom should be provided around the compressors for servicing. Adequate protection from weather must be provided. Good ventilation is vital. For maximum efficiency, intake air should be as cold and clean as possible (a temperature decrease of 3 °C will increase the volume delivered air by 1%). Solid gaseous impurities, abrasive dust and corrosive gases are particularly harmful. Exhaust fumes present a hazard if your compressed air is required to supply breathing apparatus.

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MAINS CONNECTION: The compressor should be located as close to the main supply as possible. Check that this supply is the same voltage and marked on the motor rating plate.

WARNING: This appliance must be earthed.

IMPORTANT: The wires in this mains lead are coloured in accordance with the following code:

GREEN AND YELLOW	EARTH
BLUE	NEUTRAL
BROWN	LIVE

VOLTAGE DROP: If the compressor is moved well away from the mains supply, the motor may appear sluggish, slow, buzz or unable to start. This is due to VOLTAGE DROP caused by the long lead to the compressor. This can be prevented by increasing the size of the cable. (incorrect voltage at the motor will invalidate the guarantee).

Automatic Running & Starting

BEFORE STARTING CHECK:

That the supply voltage is correct.

That the air pressure gauge reads zero.

That the oil level in the compressor pump crankcase is up to the level indicator.

PRESSURE SWITCH STARTER BUTTON: All machines are fitted with a black pressure switch, combining a STOP/START button on the top. In the "UP" position the motor will start, in the "DOWN" position the motor will stop, and the switch will bleed the pump head. If it is necessary to stop the machine before the normal cut off pressure is reached this button should be depressed to stop it.

NOTE: Before starting your compressor, any compressed air left above the piston and in the supply pipe should be exhausted by pressing down the button on the pressure switch and lifting it again to the "ON" position. The motor will start up immediately.

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27. Non return valve faulty.
28. Check if starter overload has tripped.

Safety

DO NOT:

Use compressed air for cleaning clothing.
Apply compressed air directly skin tissue.
Apply compressed air for breathing purposes charging breathing air cylinders unless the air has been filtered using filters designed specifically for this purpose.
Use an open air line, this will 'whip' and could cause injury.
Use flammable liquids to clean the compressor.
Use a naked flame for inspecting the interior of compressor or pressure vessel.

DO:

Use eye protection's when using compressed air to clean equipment.
Take precautions to ensure that dirt is not blown towards other persons, always use an air blow gun for cleaning.
Ensure all ancillary equipment is in good working order and correctly rated for this application.
Check regularly that covers are firmly fixed and positioned.
Replace all parts, tools and accessories if unsuitable for safe operation.
Fit a not return or shut off valve in the delivery line if the compressor is to be coupled in parallel with another compressor or connected to an air supply system.
Ensure that all pipework and hoses connected to the compressors are of the correct size and suitable for the working pressure.
Install the compressor so that an adequate supply of cooling air is available to the compressor and that air passage through the cover and motor fan inlets is not restricted.
CHECK the direction of rotation of pumps on initial start up and after any alteration of the electrical switchgear or connections.
Switch compressor off and isolate from mains, the vent completely before dismantling any component or carrying out any maintenance work.

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11,12
3,5,6
4,6,10,16,21
13,27
13,14
7,10,11,22
13,14,25,26,27,28

FAULT CHART

1. Clogged intake filter.
2. Loose pulley, or motor with excessive end play in shaft.
3. Receiver needs draining.
4. Air to flywheel blocked off.
5. Air leaks in piping (on machine or in outside system).
6. Receiver safety valve leaking.
7. Oil viscosity too low.
8. Oil viscosity too high.
9. Oil level too high (where overfilling possible).
10. Oil level too low.
11. Incorrect oil being used. Change to correct oil.
12. Extremely light duty or located in a damp humid spot.
13. Check line voltage (all phases if 3 phase), motor terminals for good contact, tighten starter connections, correct motor overload and fuses.
14. Poor power regulation (unbalanced line). Consult with competent electrician.
15. Carbon on top of piston.
16. Leaking broken, carbonized or loose valves or restricted air passages.
17. Worn or scored connecting rod bearings.
18. Defective bearing on crankshaft or on motor shaft. Loose motor fan.
19. Piston rings broken or not seated in, end gaps not staggered. Stuck in groove.
20. Cylinders or pistons scratched, worn or scored.
21. Wrong direction of rotations.
22. Extremely dusty atmosphere. Need more effective air inlet filter.
23. Drive belt too light.
24. Drive belt slack.
25. Check that motor capacitors are functioning (single phase units only).
26. Check if receiver pressure is higher than pressure switch cut-in pressure. (motor will restart when receiver pressure drops below cut-in pressure).

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AUTOMATIC RUNNING: Once started your compressor stops and starts automatically. Your compressor is fitted with a preset pressure switch, preset at the factory to stop the motor when the pressure in the tank reached its maximum working pressure, and to automatically restart the motor when the pressure in the tank decreases to its reset pressure. If for some reason you want to stop the compressor and immediately start again, the compressed air above the piston must be bled, to unload the compressor on the start up.

PRESSURE REGULATION: Your compressor is fitted with a pressure regulator or combined air filter and pressure regulator. Simply by turning the top handle the outgoing pressure is adjusted.

Maintenance

Regular maintenance will ensure maximum efficiency for the longest period.

PREVENTATIVE MAINTENANCE

DAILY

OIL: check the crankcase oil level, and top up with if required. If your compressor is not used daily, check crankcase oil level before starting up. Replace oil after 500 hours.

WATER: should be drained from the air receiver by means of the Drain Valve located underneath the receiver. Simply unscrew the knurled ring to release the water, and retighten finger tight. A similar operation should be carried out to the After Cooler and Pressure Regulator/Filter (if fitted).

LEAKS: check for leaks from the compressor, fittings, delivery lines and couplings and re-seal as necessary. Remember, even small leaks can cause significant wastage of compressed air costing you both for extra energy used and reduced compressor life.

CYLINDER HEAD BOLTS: these should be checked and re-tightened after the first day running, after 50 hours, and thereafter every 4 months. The cylinder head needs to be completely cool before carrying out this operation. Torque setting are 2.5KGM.(16.6 LBFF) (23Nm).

AIR FILTER: check and clean by reverse blowing with compressed air. If badly contaminated, replace the cartridge.

SAFETY VALVE: this is set to protect in case of pressure switch malfunction. With the pressure at maximum, the center shaft can be lifted with ease to check its function.

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AFTER 200 HOURS

BELT TENSION AND ALIGNMENT: check with mains isolated the motor pulley and pump flywheel should be in line and the movement on the Vee belt at its midpoint should not exceed 12mm. At the same time check that motor securing bolts and pumps securing bolts are tight, and check for belt wear. Also check that the pump flywheel and motor pulley are secure on their respective shafts.

FOUR MONTHLY OR AFTER 500 HOURS RUNNING

OIL: drain oil and replenish to the correct level with 40 grade compressor oil.

SIX MONTHLY OR AFTER 750 HOURS RUNNING

PRESSURE REGULATOR/FILTER: if fitted, it should be removed and thoroughly cleaned. The rubber diaphragm is located in the top sub assembly and should be replaced if you have difficulty adjusting the pressure or if badly worn.

General Maintenance

CLEANLINESS

Keep your compressor internally and externally clean. Change the oil regular and keep all external surfaces clean. A clean inside leads to good mechanical efficiency, a clear outside to a more efficient dissipation of heat to the circulating air.

COMPRESSOR UNLOAD VALVE

The button on top of the black pressure switch activates a small non-return valve which exhausts air from above the piston and in the tank supply pipe. Depress the button from time to time to ensure that the valve is working properly and exhausting air.

SUCTION ACTION

Gently place your hand over the filter inlet holes, the suction of air can be clearly heard. Poor suction would suggest a blocked air filter or damaged inlet valves.

PISTON RINGS

Sealing rings and oil scraper rings should be inspected when excessive oil is being used by the compressor indicating worn rings they should be replaced. A new oil change should always accompany rings or other major component changes.

BEARINGS

When checking or changing piston rings, the compressor crankshaft and conrod bearings should be checked for wear and replaced as necessary.

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MOTOR DRIVE PULLEY

Following electrical isolation and guard and belt removal, the pulley may be removed using a 'ouller'. Refrain from hammering the pulley from the shaft as this will damage the motor bearings.

MOTOR

Failure to start, or motor stoppage during operation, does not necessarily point to complete motor failure. A 'buzzing' motor may indicate:

- a) A low supply voltage or loose connections.
- b) A leaking non return valve causing back pressure from the receiver.
- c) Incorrect start procedure being used (see starting and automatic running).
- d) A seized compressor pump due to the lack of oil.

An apparently dead motor may indicate:

- a) That the thermal overload protection device has actuated.
- b) The main supply fuses have blown.
- c) Loose connection.

Fault analysis

FAULT SYMPTOMS

Oil pumping
Knock or rattles
Air delivery has dropped off
Trips motor overload or draws excessive current
Rusting in cylinders
Excessive starting and stopping
Compressor runs excessively hot
Compressor will not come up to speed
Lights flicker when compressor runs
Abnormal piston, ring or cylinder wear
Motor will not run

POSSIBLE REASON

1,7,9,11,19,20
2,15,16,17,18,20,24
1,5,16,19,20,24
8,13,14,16,18,20,23,27

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