

INSTRUCTION MANUAL ATLAS COPCO COMPRESSORS

MODELS - LE5E, LE6E, LE7E

COMPRESSOR INSTALLATION

LOCATION

Select a location for the air compressor that is as close as possible to the air inlet connection on the burner. In selecting this location it is of utmost importance that the compressor have an ample supply of cool, dry, and well circulated air.

The fan side of the compressor should not be closer than twelve (12) inches from a wall or obstruction, to allow ample circulation of air from the fan to the cylinder cooling surfaces. The fan side should be away from or opposite to hot boiler or furnace surfaces. Locate the compressor to allow servicing, access to oil sight glass, oil fill and drain.

The unit must be mounted horizontally in order to assure proper lubrication. Unit may be placed on any adequate floor or base in a frostproof area. Compressor must be bolted down if mounted on boiler skid. Support is through four (4) rubber vibration dampers.

AIR INTAKE

A clean, cool and dry air supply is essential to the satisfactory operation of the air compressor. The standard air filter that the compressor is equipped with, Atlas-Copco Part No. 1503-0188 for LE5E and LE6E Models, or Atlas-Copco Part No. 1503-0189 for Model LE7E, (Available through Atlas-Copco or GPEG) is of sufficient size and design to meet normal conditions when properly serviced. If, however, the compressor is to be installed in a location where considerable dust, dirt and other contaminants are prevalent, it is strongly advised that an adjustment in the recommended service period be made.

If long runs of intake pipe are necessary to supply the compressor with cool or clean air, consult GPEG for proper intake adapter and correct pipe sizing. If intake is piped to the outside, a hood must be installed over the filter to preclude the entrance of rain or snow to the intake of the compressor.

LUBRICATION

CAUTION: Before starting the compressor verify the crankcase oil level is between the upper and lower level of the sight glass. Do not fill above upper edge, nor allow level to fall below lower edge.

TYPE

The oil used must be a high grade low detergent oil having SAE-30 viscosity and one which will meet the requirement of the API (American Petroleum Institute) classification code *CD.

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Use only reputable brands of lubricating oil and once a "BRAND" has been adopted, keep to it. Different brands or grades of oil must never be mixed.

NOTE: The crankcase is connected to the air intake silencer through a breather valve. Faulty operation of this valve will result in excessive crankcase pressure and promote oil consumption.

CRANKCASE OIL CAPACITIES		
COMPRESSOR MODEL NO.	LITERS	U.S. GAL.
LE5E LE6E	1.40	0.37
LE7E	3.0	0.79

ELECTRICAL

It is advisable to have the electrical connections done by a qualified electrician who is familiar with the electrical codes of the locality. Installation must conform to National Electrical Code.

The main supply voltage and frequency must correspond to the indications on the motor data plate. The three-phase main supply and grounding lines should be of suitable size and in conformity with existing local official regulations. The installation must be protected against short circuits by suitably sized cartridge fuses of the inert type in all three phases.

Never operate unit without a ground conductor.

The motor must always be protected from overheating due to overload, low voltage, or single phasing by the use of a starter and properly sized thermal overload relays.

Compressor rotation is counter-clockwise facing fan end of unit, as indicated by the directional arrow on fan shroud.

PIPING SYSTEM

The piping system is shown on a separate drawing No. 34-000033-20. The compressor is furnished complete with safety valve and air pressure gauge with cock.

Field piping will include the air supply from the compressor to the burner air connection. Union fittings are to be provided at the terminal connections of all piping.

PIPING SCHEDULE

COMPRESSOR	DISCHARGE PIPE	
LE5E	3/4"	
LE6E	1"	
LE7E	1 1/4"	

Increase discharge piping by one size if equivalent length exceeds 15 ft. but is less than 30 ft. For runs in excess of 30 equivalent ft., consult factory.

MAINTENANCE CHART

CHECK	DAILY	WEEKLY	MONTHLY	2000 HRS. OPERATION OR ANNUALLY
Check oil level. Maintain between upper and lower edges of sight glass. DO NOT OVERFILL!	X			
2. Make overall visual check of compressor system.	X			
3. Inspect air distribution system for air leaks.		X		
4. Clean unit. Remove dust and dirt from cooling fins and motor by air jet.		X		
5. Operate safety valve manually.		X		
6. Clean or renew air intake filter element. Clean element more frequently if required.		X		
7. Inspect all bolts, nuts, screws including drive coupling set screws for tightness.			X	
8. Inspect crankcase oil for contamination and change if necessary.			X	
9. Change lubricating oil.				X
10. Inspect valve assemblies - Clean if required.				X
11. Inspect contact points in motor starter.				X
(Chart continued on Page 4 of 8)				

MAINTENANCE CHART (Continued from page 3 of 8)				
CHECK	DAILY	WEEKLY	MONTHLY	2000 HRS. OPERATION OR ANNUALLY
12. Inspect elastomer in drive coupling				X
13. Lubricate Motor				X

SERVICING AND ADJUSTMENT PROCEDURES

Air intake filter element:

Periods between cleanings or renewals of the element depend upon the working conditions.

RECOMMENDATIONS:

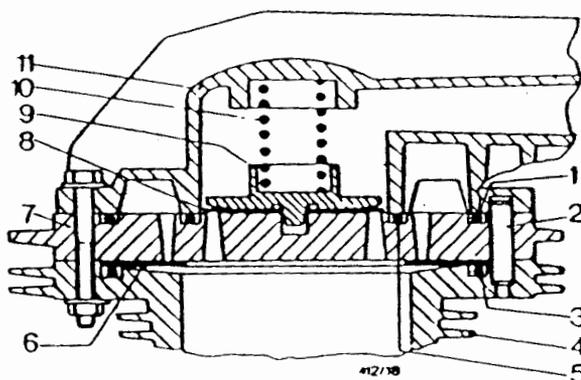
1. For minimum compressor down time, replace the dirty element by a new or cleaned one from stock.
2. Always stop the compressor before removing the element.
3. Discard the element after it has been cleaned five (5) times, or if the contaminant is of oily or sooty nature.

SERVICING:

1. Unscrew the knob (oil filler cap) on the retaining cover of the filter element. Lift off the cover and the element. Take precautions that no dirt drops inside the suction silencer.
2. Using a damp cloth, clean the filter chamber and cover.
3. Carefully tap the faces of the element alternately on a flat surface. This will remove much of the heavy dry contaminant.
4. Inspect the cleaned as well as a new element for damage. Thin spots, pin holes or the slightest rupture of the paper will render the element unfit for further use.
5. Reinstall the element, retaining cover and knob.

VALVES:

A faulty valve must be attended to immediately. Serious damage can result if compressor is operated with a broken valve disc. The instructions given must be faithfully followed when inspecting or replacing the valve discs.



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|----------------------|-----------------------|-------------------------|
| 1. Rubber cord joint | 6. Inlet valve disk | 11. Cylinder Head Cover |
| 2. Guide pin (2 off) | 7. Valve seat | |
| 3. Rubber cord joint | 8. Outlet valve disk | |
| 4. Cylinder | 9. Outlet valve guard | |
| 5. O-ring | 10. Spiral spring | |

Fig. Cylinder head valve assembly
 TYPE LE COMPRESSOR

Removal and reassembly (See Fig.)

OPERATION SEQUENCE	OPERATION SEQUENCE
<ol style="list-style-type: none"> 1. Remove the fan guard and the cover of the air intake silencer 2. Disconnect cylinder head cover (11) from the in- and outlet pipe flanges. Remove cover (11). 3. Remove spring (10), outlet valve guard (9), and outlet valve disk (8). 4. Lift off valve seat (7) and remove inlet valve disk (6). Do not remove guide pins (2). 5. Remove and discard all the O-rings and rubber cord joints. 6. Remove the carbon deposits from the inlet valve guard at the cylinder top. Take care that no dirt drops into the cylinder. 7. Clean and inspect all the parts. Discard any valve disks that are cracked or worn. 	<ol style="list-style-type: none"> 8. Fit new rubber cord joint (3). Do not stretch the rubber while inserting it in its groove; the ends should meet. Lightly smear the cords, O-rings, and their grooves with graphite grease. 9. Put inlet valve disk (6) into place and install valve seat (7). 10. Fit O-ring (5) and cord joint (1). 11. Install outlet valve disk (8), guard (9), and spring (10.) 12. Install cylinder head cover (11). Use new flange gaskets, if necessary. Fit the flange and cylinder head bolts and tighten them alternately. 13. Reinstall the fan guard and the cover of the air intake silencer.

PROBLEM SOLVING

COMPRESSOR - MODELS LE 5, 6, 7

CONDITION	POSSIBLE FAULTS	REMEDY
1. Insufficient Air Pressure	A. Air leak(s)	A. Check and correct as necessary.
	B. Air intake filter element choked.	B. Service or replace element.
	C. Air consumption exceeds capacity of compressor.	C. Verify that burner oil nozzle is of correct size and is tightly assembled.
	D. Damaged valve(s).	D. Inspect valves and replace parts where necessary.
	E. Pressure gauge defective.	E. Replace gauge.
	F. Bypassing air pressure regulator incorrectly adjusted.	F. Readjust or replace if defective.
	G. Air metering valve full open.	G. Readjust in accordance with burner instructions.
2. Compressor does not come up to speed.	A. Voltage drop at motor terminals due to low voltage supply or undersized supply cable.	A. Consult power supplier. Change to larger cross-section cable, if required.
	B. Ambient temperature too low.	B. Install compressor in frost-proof room. If no other location available, heat room.
3. High oil consumption.	A. Oil level too high.	A. Do not overfill crankcase. Keep level within sight glass.
	B. Breather valve malfunctioning.	B. Check Valve.
	C. Piston ring(s) worn or broken.	C. Have condition of piston rings checked.

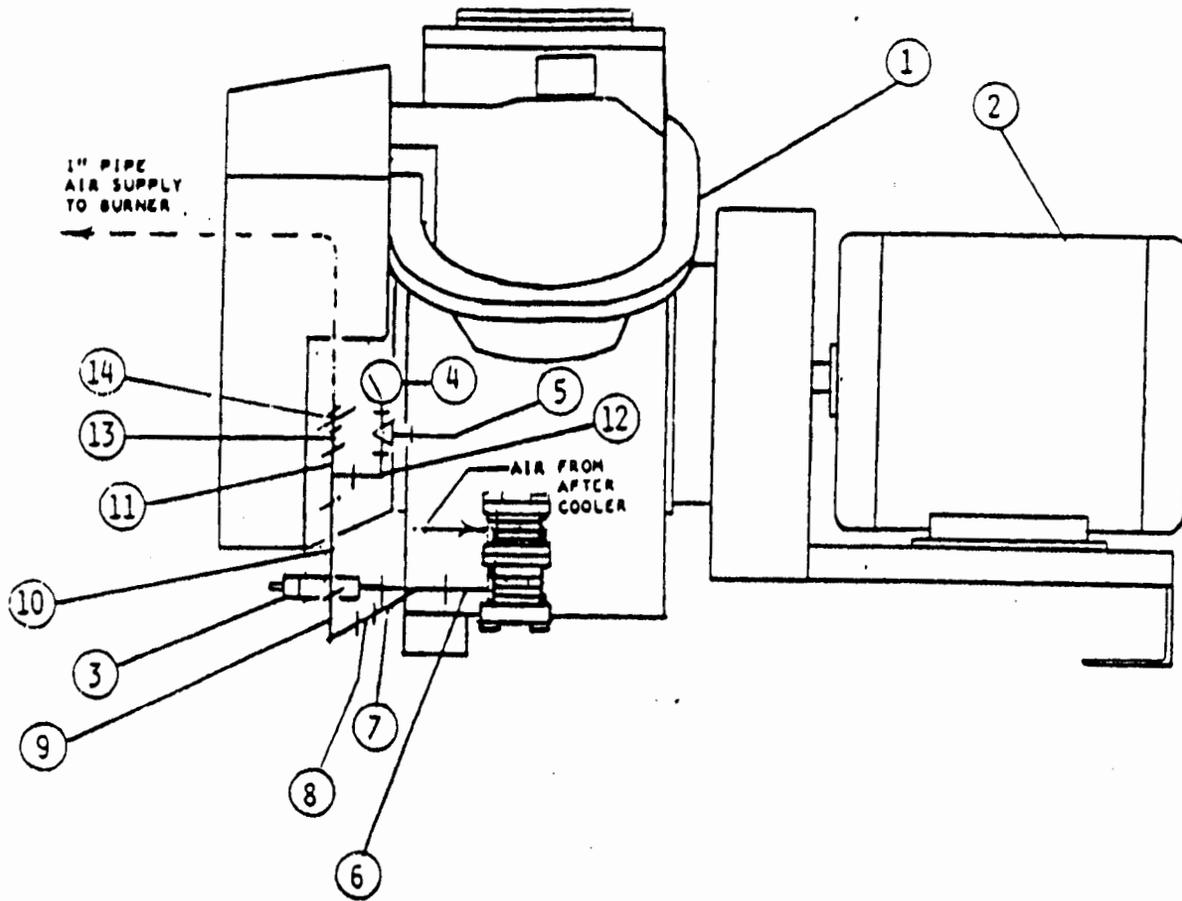
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PROBLEM SOLVING

COMPRESSOR - MODELS LE 5, 6, 7

CONDITION	POSSIBLE FAULTS	REMEDY
4. Compressor does not start.	A. Electrical failure.	A. Check electrical system.
	B. Compressor seized due to lack of oil.	B. Have compressor repaired.
5. Thermal overload relay cuts out during starting.	A. Incorrect heater size.	A. Check heaters and replace. Reset relay.
6. Thermal overload relay cuts out during operation.	A. Overload relay heaters incorrectly sized.	A. See 5A.
	B. One phase of supply line interrupted.	B. Check fuses and line terminals for tightness. Check voltage across motor line terminals.
	C. Supply voltage variations exceed normal tolerances.	C. Consult power supplier.
	D. Ambient temperature too high and causes overload relay to trip.	D. Improve ventilation of location.
	E. Overcurrent due to motor or compressor failure.	E. Measure motor line current in the three phases. If currents exceed rated motor current, have compressor inspected; if currents are not equal, have motor inspected.

NOTE: This drawing is typical for the model LE6E air compressor. When used with other models the part numbers and piping sizes shown on this drawing are subject to change. Refer to material list for part numbers and to piping schedule at top of page 3 of this manual for piping sizes and length of runs.



14	1	1"	230730-0080	UNION
13	1	1x2	230795-1080	NIPPLE
12	1	1/4"	230155-1010	SEMI FILL
11	1	1x1x1/4	230741-1220	TIE
10	1	1x3	230106-1120	NIPPLE
9	1	1x3/4	230154-1080	R.O. FILL
8	1	3/4x2	230106-1060	NIPPLE
7	1	1/2x1/2x3/4	230741-1060	TIE
6	1	1/2x1 1/2	230104-1060	NIPPLE
5	1	1/4"	392-C	GAUGE COCK
4	1	2"	FIG-23-60#-2.00	AIR GAUGE
3	1	1/2"	112C-30-35#	SAFETY VALVE-11/2 IN.
2	1	3HP		MOTOR
1	1		BY ATLAS	COMPRESSOR
ITEM	QUAN	SIZE	PART NO.	DESCRIPTION

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