

LINDSAY AIR COMPRESSOR

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1. GENERAL

1.01 This section covers the operation of the model 55 Lindsay Air Compressor and associated tools.

1.02 While the compressor is intended primarily for use in breaking paving, tamping, and rock drilling, its basic design renders it capable of supplying air to various other air actuated tools.

2. PRECAUTIONS

2.01 Never operate the unit in a closed structure.

2.02 Never add gasoline to the fuel tank when the engine is hot or in operation.

2.03 Examine all hoses, tools, and couplings prior to beginning a work operation.

- 2.04 When the equipment or working area is in such a position that traffic or pedestrians should be warned, required signs and guards shall be appropriately placed in accordance with other Bell System Practices.
- 2.05 The operator must keep his feet clear of all digging, tamping, drilling or breaking tools during operation. This is of prime importance when starting to break concrete, paving or other hard surfaces.
- 2.06 Prescribed eye protection must be worn at all times in accordance with other Bell System Practices.
- 2.07 NEVER CONTACT AIR LINES, MUFFLER, OR RECEIVERS when the unit is or has been operative as these components become extremely hot.
- 2.08 NEVER joke or "horse-play" with compressed air.
- 2.09 When changing tool bits on the tools close discharge valve and open tool throttle to relieve air pressure before removing bit from chuck or breaking air hose connections.
- 2.10 Exercise caution when coupling the trailer to the towing vehicle.
- 2.11 Do not move compressor while engine is running.

3. DESCRIPTION

3.01 The Lindsay Model 55 compressor is a four cylinder, V-type, reciprocating, air cooled unit capable of delivering 60 cubic feet of free air per minute at 1800 r. p. m. A pressure gauge fitted to one of the two receivers indicates average receiver pressure at any given time.

A safety valve is also provided on the receiver, and in the event of unloader mechanism failure it will blow off at about 10 pounds per square inch above unloading pressure. Stop the unit immediately if the safety valve unseats.

3.02 The compressor is driven by a 4 cylinder, 4 cycle, air cooled, governed, Wisconsin gasoline engine capable of developing 19.5 horsepower at 1800 r. p. m. The engine is electrically started and equipped with a battery-coil ignition system.

3.03 The trailer has an overall length of 90 inches and is 58 inches wide. A box is provided on the trailer for the storage of air tools, oil, and miscellaneous gear. This box has a capacity of 4.5 cubic feet. A kick stand is secured to the trailer drawbar and should always be up when the trailer is to be towed. The trailer is fitted with 6.40 x 15 pneumatic tires.

4. ENGINE FUEL SYSTEM

4.01 The fuel system is of the gravity feed type. Gasoline consumption for steady operation is 10 to 15 gallons per day.

4.02 Only clean regular grade gasoline of 70 to 80 octane should be used. Gasolines of lower octane rating may cause detonation and preignition. NEVER ADD OIL TO THE GASOLINE.

4.03 Care must be taken to keep the fuel tank vent from clogging in order to insure the flow of gasoline to the carburetor.

4.04 The gasoline strainer and bowl must be inspected frequently for signs of dirt or water accumulation. If necessary to remove and clean the bowl and screen, first close the fuel line shut-off valve located under the tank.

4.05 The carburetor main metering jet has a fixed orifice and no adjustments can be made. A needle valve is provided for adjustments in the idle jet only.

5. ENGINE ELECTRICAL SYSTEM

5.01 The engine is equipped with a battery coil ignition system. The battery electrolyte level should be checked by construction forces prior to starting the unit. Questions pertaining to battery maintenance will be answered by motor vehicle personnel.

5.02 Spark plugs should be replaced when necessary with same make and type or equivalent.

5.03 An automotive type electrical starter, generator, voltage regulator and distributor comprise the remainder of the basic electrical components.

5.04 The battery ammeter located on the forward end of the engine should be checked frequently during operation to be certain that the battery is charging. The charging rate will depend upon the condition of the battery.

5.05 The distributor grease cup must be filled with a high melting point grease. Give the grease cup a complete turn after every 50 hours of operation.

6. ENGINE AND COMPRESSOR LUBRICATION

6.01 The gasoline engine and compressor are lubricated by two independent pressure systems, each unit being fitted with a separate plunger type oil pump.

6.02 NEVER OPERATE THE UNIT UNLESS THERE IS ADEQUATE OIL IN BOTH ENGINE AND COMPRESSOR CRANKCASES.

6.03 A bayonet gauge is provided on the engine for determining crankcase oil level. Only good grades of automotive engine oil should be added to the crankcase.

6.04 The following chart lists the lubricants that are recommended for the engine:

Temp.	Viscosity
5°F. to 120°F.	SAE 20
-20°F. to 5°F.	SAE 10 W

If the unit is to be operated under heavy duty conditions, such as 8 hours of rock drilling or paving breaking, SAE 30 oil must be used if temperature is 40°F. or above.

6.05 Check oil level after each 8 hours of operation. Oil must be drained and replaced with fresh oil of proper viscosity after every 25 hours of operation. Drain oil only when engine is hot.

6.06 The oil bath air cleaner requires frequent servicing. Under normal operating conditions the cleaner should be serviced after each 8 hours of operation. When operating under abnormally dusty conditions the cleaner must be serviced after each 4 hours of operation.

6.07 When servicing the air cleaner the dirty oil must be replaced with clean oil of the same viscosity as used in the engine crankcase. Wash the filter element in a suitable solvent. The oil level mark is clearly marked on the air cleaner housing. Do not fill past this level.

6.08 The compressor crankcase must be serviced with the same viscosity oil used in the engine crankcase. The oil should be changed completely after every 25 hours of operation.

6.09 With the unit standing on level ground, remove the oil level plug on the crankcase. Fill the crankcase through the vertical filler pipe located between the two cylinders until oil starts to escape from the oil level hole. Replace plug and filler cap.

7. COMPRESSOR AIR DELIVERY

7.01 Each compressor cylinder is fitted with an individual air cleaner. Air filter pads must be changed when they become torn or clogged. Unfiltered air entering the cylinder will cause excessive wear on the cylinder walls and piston rings.

7.02 The compressor pilot valve has been preset to load at a pressure of 80 pounds per square inch and to unload at a pressure of 95 pounds per square inch. Adjustments are provided to vary the load-unload differential and the limit of the unloading pressure. Neither of the adjustments should be attempted in the field.

7.03 Air delivery is regulated by varying the engine speed with the throttle control. The throttle stop is set to permit a maximum engine speed of 1900 r. p. m. This setting should not be altered. For all drilling and breaking operations the throttle should be locked in the maximum speed position.

7.04 A centrifugal flyball governor is provided on the gasoline engine for the purpose of varying throttle settings to meet load requirements. Never interfere with governor control of the engine. Engine surges or hunting may be rectified by governor adjustment; however, no governor adjustments are to be attempted by field personnel.

7.05 The compressor receivers are fitted with two discharge valves. When using tools which require lubrication such as the paving breaker or rock drill the valve which passes discharge air through the line oiler should be open. For work operations involving tools which are not oil lubricated the valve which by-passes the oiler should be open. Only one of the two valves should be open at one given time.

8. STARTING THE UNIT

- 8.01 Locate the unit as far from the work as practicable and on level ground.
- 8.02 Connect air hose to be used being sure that it is free of grit by blowing down with air prior to connecting tool.
- 8.03 Close both receiver discharge valves.
- 8.04 Be certain to check battery electrolyte level, and oil level in both engine and compressor crankcase. Check oil level in line oiler.
- 8.05 Place both manual unloading levers on both cylinder heads straight up.
- 8.06 Open fuel shut-off valve under fuel tank.
- 8.07 Pull out ignition switch.
- 8.08 Pull out throttle to the limit of its travel and lock in this position.
- 8.09 Pull out choke control to close choke.
- 8.10 Depress starter button until engine fires.
- 8.11 If the engine does not fire immediately wait a few seconds before attempting to start. If it appears that the engine has been flooded, release choke.
- 8.12 Allow engine to warm a few minutes at no load before releasing the unloader levers.
- 8.13 Open choke when engine has warmed up.
- 8.14 Release unloaders by positioning them straight down.
- 8.15 Allow air receiver pressure to build up to about 85 p. s. i. before operating the air tool. Open proper discharge valve.
- 8.16 After each four hours of operation open receiver pet cocks to remove condensation.

9. STOPPING THE UNIT

- 9.01 Close receiver outlet valve. Allow compressor to run until unloading pressure has been reached. This procedure will allow the engine to be stopped against no load.
- 9.02 With load removed from engine run at half speed for a minute. This will reduce engine temperature and help prevent vapor lock.
- 9.03 Push in ignition switch.
- 9.04 Close fuel shut-off valve.
- 9.05 Open pet cocks on the rear bottom of receivers to relieve pressure and remove tank condensation.
- 9.06 If the unit is to be idle for an extended period of time, garage forces concerned should consult the manufacturer's instruction book for the storage procedure.