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MANUAL PREVIEW

Ford

Service Manual

**Air Compressors,
Portable Generators,
Portable Heaters,
Pressure Washers,
Trouble Shooting Guide**

or Call 800-443-0625



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Service Manual

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FORD AIR COMPRESSORS

FORD PORTABLE GENERATORS

FORD PORTABLE HEATERS

FORD HIGH PRESSURE WASHERS

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Ford Tractor Operations

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FORD AIR COMPRESSORS

Torque Specifications

	CH 500 CH 500A	CH 1000 CH 2000 CH 4000
Head Plate	—	97 ± 7
Head Bolts	120-150	120-150
Connecting Rod Bolts	80-130	80-130
Bearing Cap Bolts	30-35	55
Check Valve	120	150
Crankshaft End Play	.016 min.	.016 min.
Crankshaft End Play	.040 max.	.045 max.
Bore and Stroke	2-1/4 x 1-3/4	2-3/4 x 2

NOTE: All Torques are in inch pounds
Compression Ring Gap 180° apart

Trouble Shooting

CONDITION	POSSIBLE CAUSE
1. Motor will not start	A. If motor overload switch has tripped, push red reset button located on motor. B. Insure correct voltage is available to unit. Check fuse or circuit breaker. C. Pressure in tank must be below cut-in setting. Reduce pressure if necessary. D. Make sure current passes across pressure switch and is reaching motor terminals. An inoperative pressure switch will not provide current to motor. Check and replace if necessary. (If the above items have been checked and the motor is still inoperative, return motor to authorized motor repair shop). E. Using incorrect gauge extension cord will result in voltage drop and motor may not start under load. Refer to instruction sheet for proper gauge extension cord to be used.

FORD AIR COMPRESSORS

Trouble Shooting

CONDITION	POSSIBLE CAUSE
2. Air leaks	A. Do to vibration certain fitting and nipples may develop air leaks. These should be corrected as soon as possible by re-tightening or remounting and applying pipe dope if necessary. B. Gaskets on the compressor or gaskets on check valve may require replacing occasionally. C. Air leak at safety valve. If safety valve sticks tap with a solid object or loosen tip nut and screw down until air stops and tighten nut. D. Any leaks that may develop in the steel tank should be repaired by a reputable welding shop.
3. Low discharge pressure	A. Restricted air intake. Often caused by dirty filter — clean or replace. B. Inlet and outlet valves not seating properly. Disassemble and inspect valves and seats for improper sealing. Remove any foreign material between seat and valve. Replace any broken parts. Re-tighten loose screws. C. Replace any blown gaskets and correct all air leaks. D. Check belts for proper tension. 3/8" to 1" deflection on center of belt. E. Be sure gauge is operative and giving correct reading. F. Dismantle and check rings and cylinder walls for wear. Replace parts as necessary.
4. Noisy operation	A. Loose motor bolts or pulley set screws. Check often to make sure they are tight. Also check compressor and flywheel screws. B. Lack of oil will cause knocking noises and permanent damage to compressor. CHECK OIL LEVEL FREQUENTLY. C. Worn piston pin. Check for excessive play. Replace if necessary. D. Loosened rod bolts. Check for damaged crankshaft or rod — replace if necessary. E. Excessive clearance between crankshaft and rod. Replace if needed. F. Remove head and inspect for carbon deposits or other foreign matter on top of piston, either clean or replace.
5. Excessive belt wear	A. Check motor pulley and compressor pulley alignment. Re-align if necessary. B. Check for worn crankshaft, key way, or worn pulley bore resulting from running the compressor with loose pulleys.

FORD AIR COMPRESSORS

Trouble Shooting

CONDITION	POSSIBLE CAUSE
6. Oil in the discharge air	A. Compressor air intake restricted. Replace air filter if necessary. B. Check oil level. Drain to proper level if compressor has been over filled. C. Oil too thin. Recommended oil is 10W40 HD. D. Worn or broken rings will allow oil to bypass. Replace as necessary. E. Compressor cylinder walls that show excessive wear or scarring should be replaced.
7. Oil leaks	A. Check gaskets between cylinder and crankcase. Replace any broken gaskets. Tighten bolts evenly. B. Over filling of crankcase will cause oil to come out of breather hole. Drain to correct level.
8. Gas engine will not operate	A. Before attempting to start unit, be sure that you have moved the stop switch away from spark plug, and opened the fuel valve on the gas tank. B. Check gas supply — refill if necessary. C. Check spark plug and replace if necessary. D. Any other repairs should be made by an authorized service station.
9. High pressure	A. The air governor is sticking. B. The safety valve is sticking. C. The check and unload valve is sticking.
10. Uses too much oil	A. Clean or replace air filter. B. Wrong oil type (Consult Operator's Manual).
11. Milky oil in crankcase	A. Water in the oil. Change more often (Consult Operator's Manual).
12. Oil in discharge air	A. Check oil level (Bottom of threads). B. Clean oil filter and check for other air restrictions. C. Check for plugged breather vent.
13. Air blowing out of air inlet	A. Broken inlet valve. Replace reed valve and gaskets.
14. Compressor vibrates	A. Motor or pump mounting bolts may be loose B. Check pulley and flywheel alignment. C. Check for loose belt.

SPECIAL NOTE: Alignment of Belt

To align belt, loosen fan pulley and pull it back on the shaft until it is flush with front of shaft. Sight down belt and see if alignment is correct or use a yard stick or other straight edged object. Placing this flush against the outer edge of the flywheel and let it extend toward the motor pulley. By sighting along belt, you can get your correct alignment.

FORD PORTABLE GENERATORS

Component Testing

2

- There must be continuity between leads 3, 4, 33 and 44.
- There must be continuity between leads 55 and 66.
- There should be no continuity between lead 1 and leads 3, 4, 33, 44, 55 and 66.
- There should be no continuity between lead 4 and leads 55 and 66.



Figure 2-9. Checking Stator Continuity

- There must be no continuity between any stator lead and ground on the stator housing or frame laminations.
2. Contact red and black meter leads and readjust to zero ohms. Check cold resistance of stator windings contacting meter leads to stator leads 1 and 2, leads 3 and 4, leads 33 and 44, then to leads 55 and 66. Slight resistance readings of less than one ohm should register. Readings should be in the area of 0.35 ohms for 50 Hz sets and 0.25 ohms for 60 Hz sets. Contact meter leads to stator leads 55 and 66, readings of approximately 1.5 ohms should register.

Should any fault be found with the stator in any of the above tests, the stator must be repaired or replaced.

ROTOR

The rotor creates the magnetic field needed to raise alternating current in the stator windings. Rotors used in models covered by this manual have two poles and two slip rings. Prior to testing, inspect rotor for visible damage to pole shoes, insulation, exposed coil windings, slip ring surfaces, and threads in engine end of shaft. Check bearing for noise when rotated, wear, or heat discoloration.

Using a small thin-blade screw driver, carefully pry rubber seal from bearing. Inspect bearing for proper lubrication. Repack bearing with high temperature grease, or replace bearing as necessary.

Contact each slip ring with a meter lead as shown in Figure 2-10. Resistance readings for cold rotors at room temperatures should be as follows:

2.25 kW — 4.3-4.9 ohms
3.5 kW — 6.0-6.8 ohms
5 kW — 4.5-5.1 ohms

Should visual inspection or meter testing reveal any rotor faults, rotor must be replaced.



Figure 2-10. Checking Rotor Resistance

Slip rings acquire a glossy brown finish in normal operation. Do not attempt to maintain a bright, newly-machined appearance. Ordinary cleaning with a dry, lint free cloth is usually sufficient. Very fine sandpaper (#00)