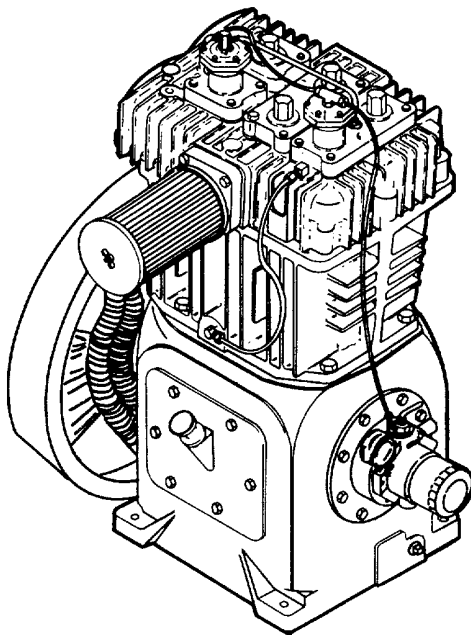


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TECHNICAL MANUAL

UNIT, INTERMEDIATE DIRECT SUPPORT AND INTERMEDIATE GENERAL SUPPORT MAINTENANCE INSTRUCTIONS

AIR COMPRESSOR
FOR
LANDING CRAFT UTILITY (LCU)
NSN 1905-01-154-1191



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TECHNICAL MANUAL

No.55-1905-223-24-8

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 17 January 1989

**UNIT, INTERMEDIATE DIRECT SUPPORT,
AND INTERMEDIATE GENERAL SUPPORT
MAINTENANCE INSTRUCTIONS**

**AIR COMPRESSOR
FOR
LANDING CRAFT UTILITY (LCU)
NSN 1905-01-154-1191**

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve these procedures, please let us know. Mail your letter or DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual directly to: Commander, US Army Aviation and Troop Command, ATTN: AMSAT-I-MP, 4300 Goodfellow Blvd., St. Louis, MO 63120-1798. A reply will be furnished directly to you.

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CHAPTER 1
INTRODUCTION

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SECTION I. GENERAL INFORMATION

1-1. Scope. The scope of this manual is as follows:

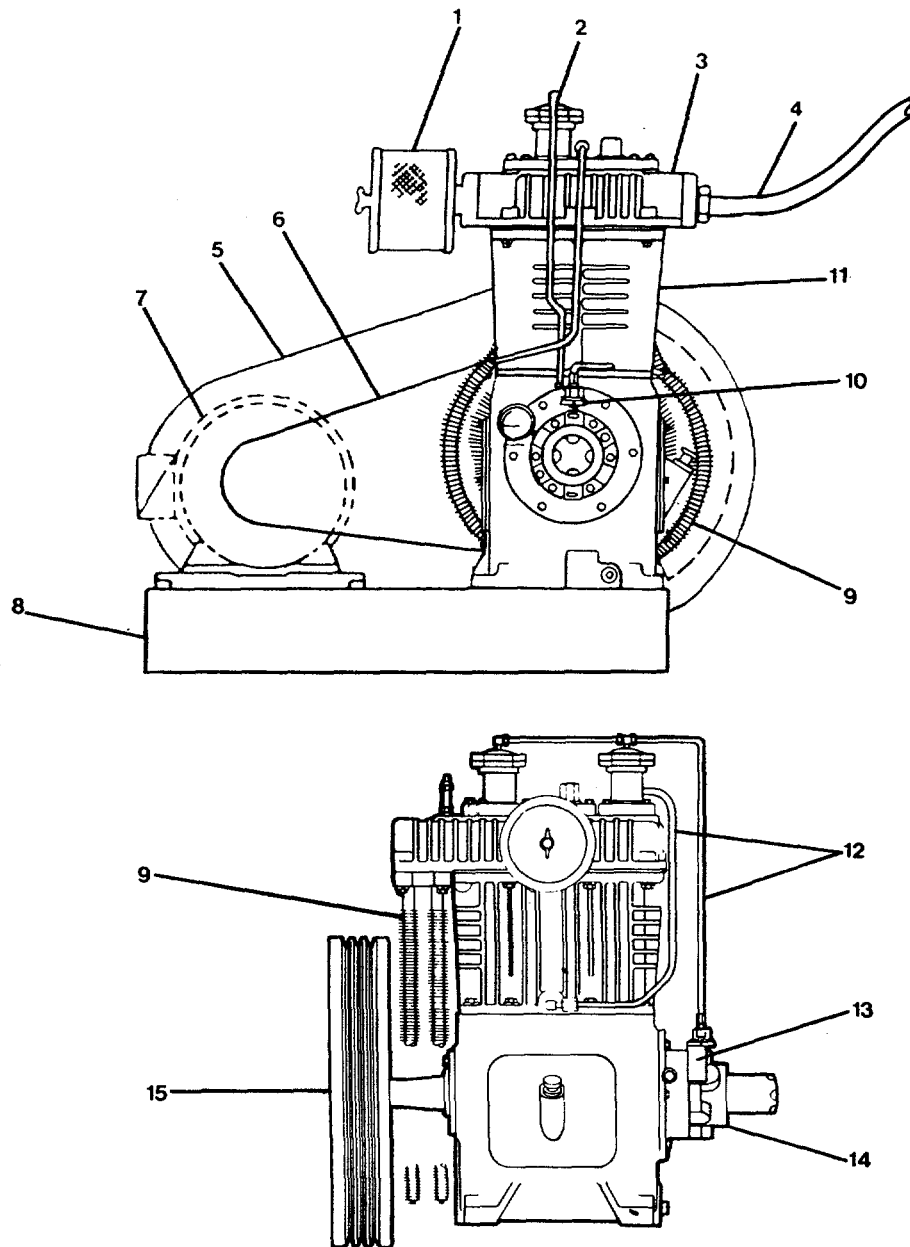
- a. Type of Manual. Unit, intermediate direct support, and intermediate general support maintenance manual.
- b. Model Number and Equipment Name. Model D340 QR-25, Air Compressor Unit.
- c. Purpose of Equipment. To supply compressed air to the air receiver tank. Used for starting engines; also provides low pressure air to run pneumatic tools.

1-2. Maintenance Forms, Records, and Reports. Department of the Army forms and procedures used for equipment maintenance are prescribed by DA Pam 738-750, the Army Maintenance Management System.

1-3. Destruction of Army Materiel. Refer to TM 750-244-3 for instructions covering the destruction of Army materiel to prevent enemy use.

1-4. Reporting Equipment Improvement Recommendations. If your equipment needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design. Put it on an SF 368 (Quality Deficiency Report). Mail it to Commander, U.S. Army Troop Support Command; ATTN: AMSTR-QX; 4300 Goodfellow Blvd.; St. Louis, Missouri 63120-1798. We'll send you a reply.

1-5. Preparation for Storage or Shipment. Administrative storage of equipment issued to and used by Army activities will have preventive maintenance performed in accordance with the Preventive Maintenance Checks and Services (PMCS) charts before storing. When removing the equipment from administrative storage, the PMCS should be performed to assure operational readiness. Preparation of equipment for shipment or short term storage is covered in paragraph 2-29.



LEGEND

- 1. AIR FILTER
- 2. UNLOADER
- 3. CYLINDER HEAD
- 4. OUTLET PIPE
- 5. BELT GUARD
- 6. VEE BELT
- 7. ELECTRIC MOTOR

- 8. BASE MOUNT
- 9. INTERCOOLER
- 10. HYDRAULIC UNDERLOADER ASSEMBLY
- 11. CYLINDER BLOCK
- 12. PIPING
- 13. OIL GAGE
- 14. BEARING CASE
- 15. PULLEY

8460A

FIGURE 1-1. Air Compressor Assembly (External View).

SECTION II. EQUIPMENT DESCRIPTION AND DATA

1-6. Characteristics, Capabilities, and Features. A very broad view of the air compressor unit is as follows:

a. Characteristics.

- (1) Single-acting, two-stage, belt-driven, two cylinder, electric-driven.
- (2) Air cooled.
- (3) Controlled at the pilothouse or engine room console.

b. Capabilities and Features.

- (1) Capable of delivering required air pressure (200 psi) at lower temperatures than a single-stage air compressor.
- (2) The pulley is finned to also act as a fan and move air over the intercooler to lower output air temperature.
- (3) Lubricated by means of a positive displacement rotary type oil pump.

1-7. Location and Description of Major Components. See FIGURE 1-1. The QR-25, Model 340 air compressor is a single-acting, two-stage, belt-driven, two cylinder, air cooled unit. The compressor is mounted on a separate base that includes the air compressor and electric motor. The motor drives two vee belts, which in turn drive a pulley attached to the compressor crankshaft. The air compressor unit includes a base, an electric motor, vee belts, belt guard, intercooler, hydraulic unloader, and the air compressor.

- a. Air Compressor (FIGURE 1-1). Crankcase, cylinder block and head, containing crankcase, connecting rods, and pistons to generate air pressure.
- b. Bearing Carrier (14). Contains the crankshaft bearing ring and oil pump.
- c. Hydraulic Unloader (10). Allows excessive pressure to be unloaded.
- d. Intercooler (9). Cools air between compressor stages.
- e. Electric Motor (7). Provides the drive power.
- f. Vee Belt (6). Provides belt drive.
- g. Pulley (15). Rotates crankshaft and cools the intercooler.

1-8. Equipment Data. Characteristics and reference data are provided in Table 1-1. Also see the equipment data given in the operator's manual TM 55-1905-223-10.

Table 1-1. Equipment Data

Characteristics	Reference Data
Air Compressor	Model 340, two stage, belt driven
Hydraulic Unloader	0-350 psi
Electric Motor	10 hp, 60 Hz, 240/460 Vac

1-9. Safety, Care, and Handling. Safety precautions must be observed at all times while performing maintenance. General WARNINGS and first-aid data appear in the front of this manual. Review all safety information before starting any task. Carefully read through an entire maintenance procedure before performing any maintenance function. Make sure the task can be done safely. All WARNINGS, CAUTIONS, and NOTES are of great importance to your safety and the safety of the equipment.

SECTION III. PRINCIPLES OF OPERATION

Overview.

The Principles of Operation will give you basic information about how these two compressors work.

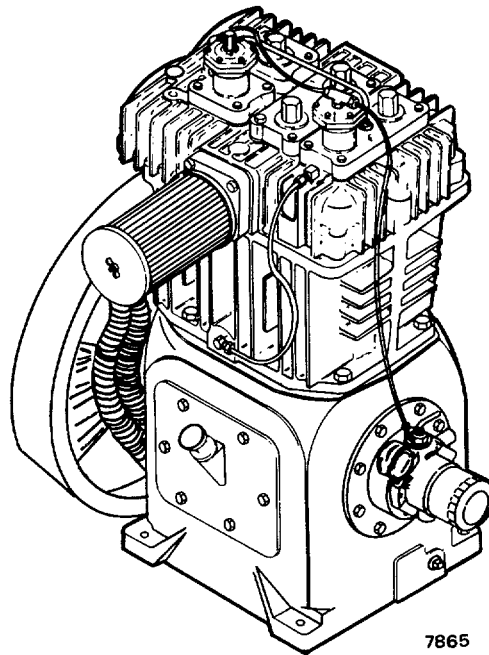
1-10. General. There are two QR-25, Model D340 air compressors, which are intended to supply air to the storage tanks. The two air compressors are mounted one over the other on the port side aft end of the engine room. The air pressure from each compressor is controlled by an individual pressure switch mounted near each compressor which is set to cut out at 200 psi (±5 psi). The bottom air compressor is set to start and operate at a minimum of 180 psi (±5 psi) and the top air compressor is set to start and operate at a minimum of 160 psi (±5 psi). The system pressure relief valves are set at 240 psi (±5 psi). The air compressors are controlled by a local start-stop switch located at the air compressor in the engine room. An emergency run switch is located at the motor controller located on the forward bulkhead of the engine room. The pilot house and engine room control consoles each have an air pressure gauge which displays system air pressure.

a. Air Compressor. The following is a brief summary of the QR-25, Model D340 air compressor assembly and the drive system, and a description of controls that are separate from the compressor assembly and drive system. Refer to FIGURE 1-2.

b. Air Cooling System. Refer to FIGURE 1-3.

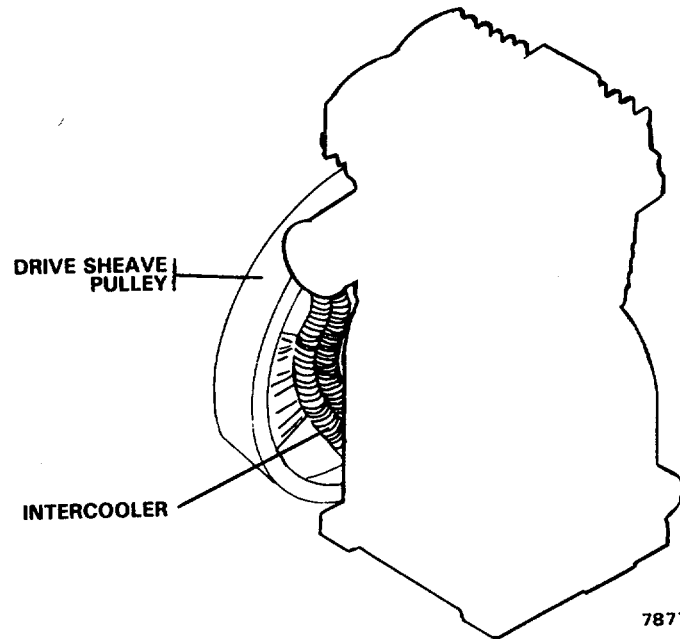
(1) Drive Sheave (Pulley). The drive sheave (pulley) has cast iron fan blades that direct a blast of air across a finned intercooler, then across the finned cylinders and heads.

(2) Intercooler. The intercooler is an integral design of the air-cooled two-stage compressor. The intercooler consists of finned tubes connecting the first stage and the second stage. The tubes cool and condense the air.



7865

FIGURE 1-2. Air Compressor.



7877

FIGURE 1-3. Air Cooling System.

c. Lubricating System. The crankcase rotating and reciprocating parts are lubricated by a positive displacement rotary gear type oil pump. Refer to FIGURE 1-4. Oil is drawn up from the crankcase oil sump through an oil strainer to the oil pump. The pump forces oil, under pressure, through the crankshaft and connecting rods to lubricate the crankpin journals, the main journals, the wrist pin bearings, and the cylinder walls.

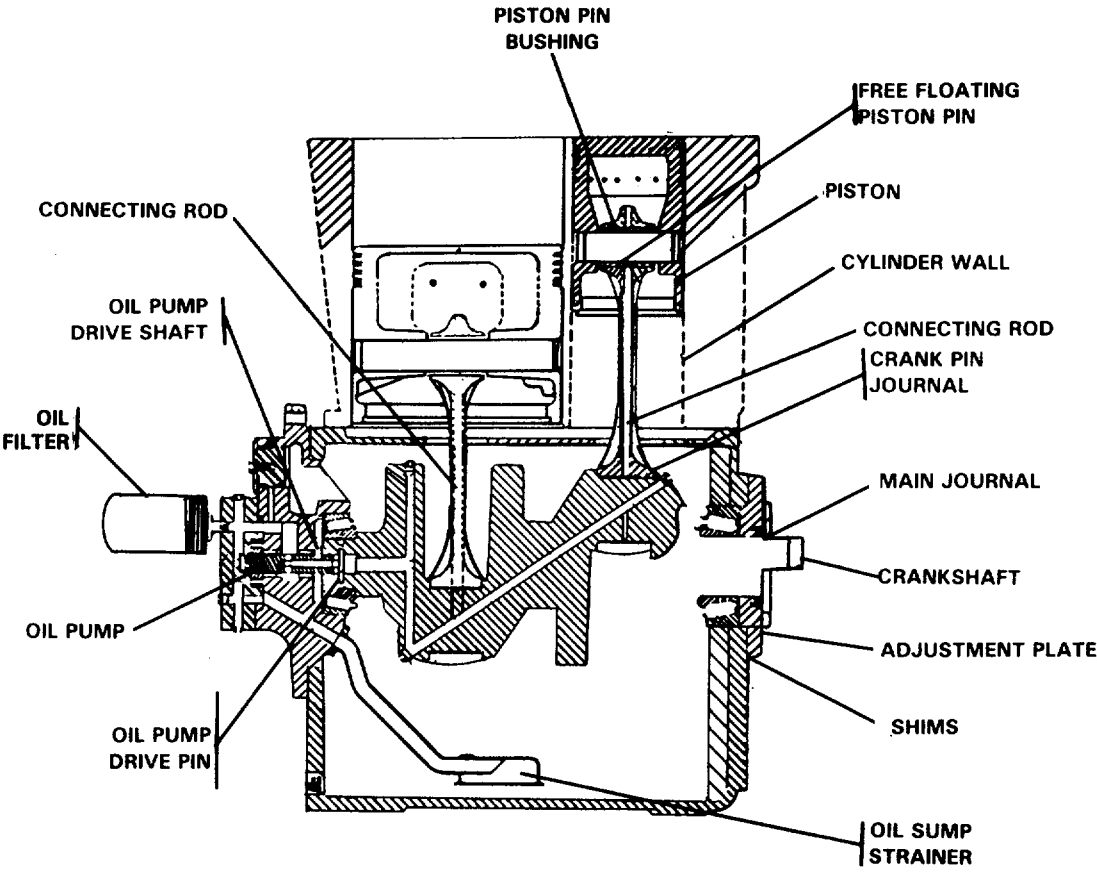
(1) Oil Pump. The oil pump is an integral gear type pump with an adjustable pressure relief valve. Refer to FIGURE 1-5. It is flange-mounted, piloted to the oil pump housing, and direct driven by the crankshaft.

(2) Oil Pressure Gauge. Normal oil pressure is between 18 and 20 psig.

d. Drive Power. A motor pulley diameter is selected to obtain the pressure and air delivery without overloading the motor or operating the compressor beyond or below the designed speed range. The motor pulley is coupled to the compressor sheave using vee belts. Refer to FIGURE 1-6.

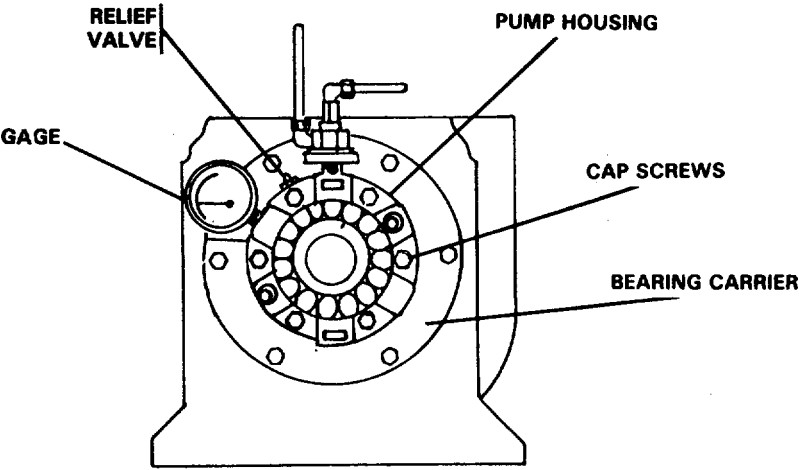
e. Hydraulic Unloader Valve. The hydraulic unloader valve permits the driving unit and compressor to attain full rated speed, and assures that oil pressure has been established before the compression of air begins. The hydraulic unloader valve is considered an integral part of the air compressor. Refer to FIGURE 1-7.

f. Mode of Control. Receiver or plant air system pressure is controlled within limits by automatically stopping and starting the compressor as the air pressure reaches a maximum preset pressure and then drops to a minimum preset pressure.



7866A

FIGURE 1-4. Lubricating System.



8461 A

FIGURE 1-5. Crankcase Oil Pump Assembly.