FIATALLIS®

FR35

WHEEL LOADER

Service manual

Brakes and air system

Form 73148347 English

6–85

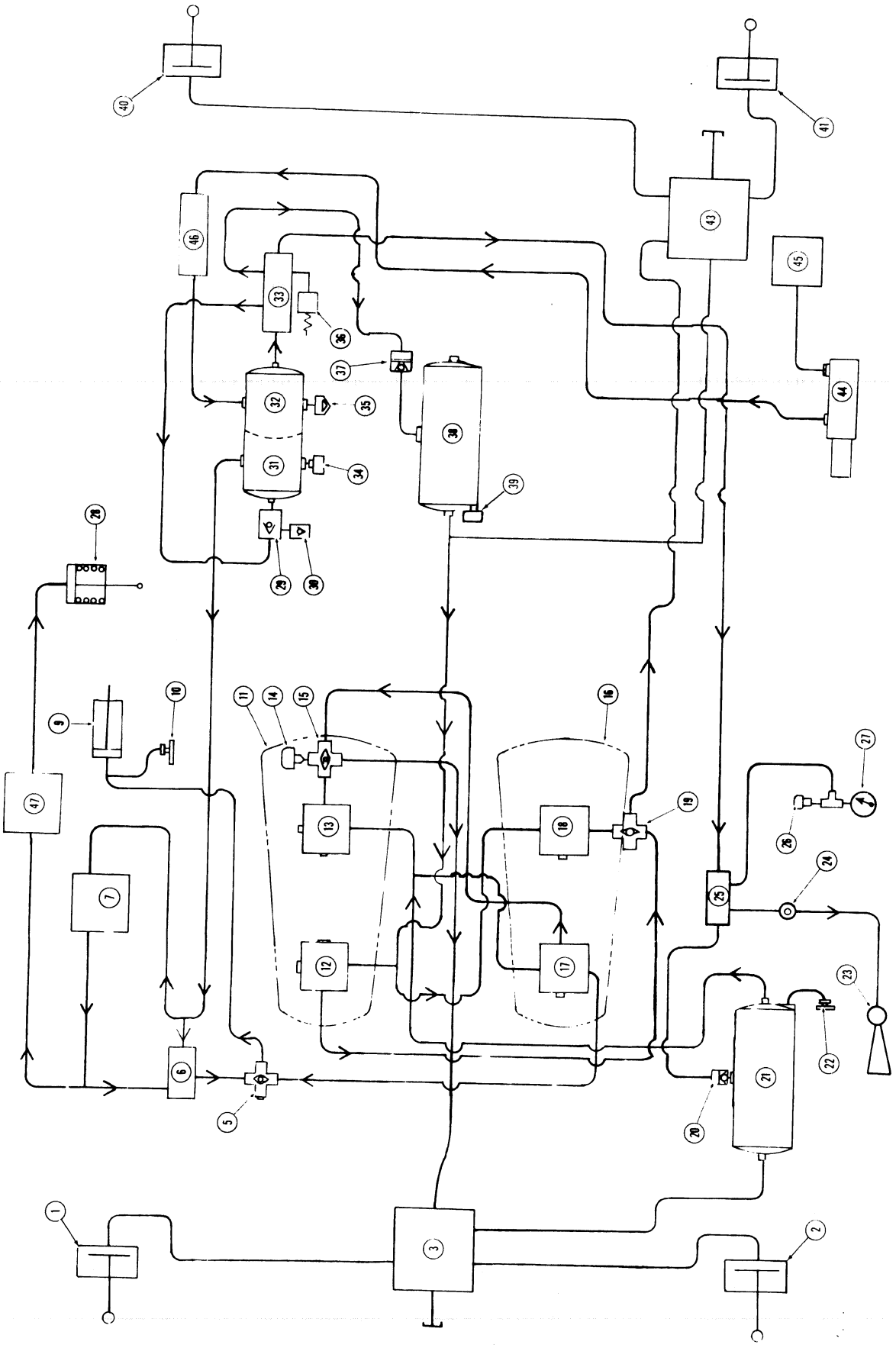

FIG.2 BRAKES AND AIR SCHEMATIC, FIAT ENGINE T-84444

4.1 GENERAL

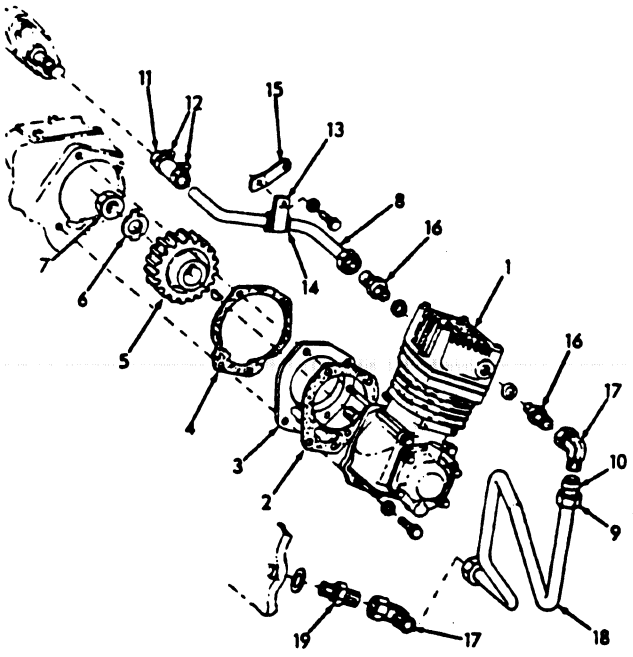

FIG.7 AIR COMPRESSOR T-84475

1.Compressor	6.Washer
2.Gasket	7.Nut
3.Spacer	8.Tube,water
4.Gasket	11.Hose
5.Gear & key	18.Tube,water

4.1.1
The function of the air compressor is to build up and maintain the air pressure required to operate the various air powered devices.

4.1.2
The flange mounted, reciprocation air compressor is a single cylinder and is gear driven,Fig.7(5). This compressor (MARELLI) has a capacity of 339.7 L (12.00 cu.ft) per minute.

4.1.3
Lubrication for the compressor is provided by an internal oil passage. Oil from engine enters the drilled passage. From this passage oil flows through drilled holes providing pressure lubrication. Oil returns to engine through the lower part of the compressor block mounting flange.

4.1.4
The compressor block is air cooled and the head is water cooled. Water to cool the head is provided by an external tube, Fig. 7 (8) and hose (11) from the water manifold. The water is returned to the engine through another external tube(18).

4.1.5
The air supply for the compressor is obtained from the engine air intake manifold and enters into the compressor at the top of the head. It is cleaned and filtered by the engine air cleaner.

4.1.6
The air compressor runs continuously whenever the engine is operating. When pressure in the air system reaches maximum setting, the unloader valve allows the compressor to vent to atmosphere.

4.2 OPERATION (GENERAL)

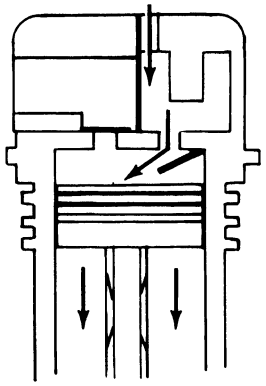

FIG.8 X-SECTION INTAKE T-84539

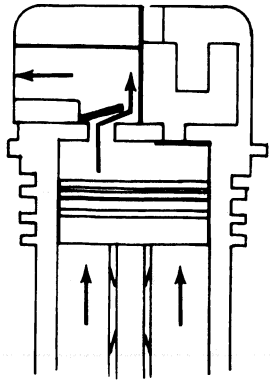

FIG.9 X-SECTION COMPRESSION T-84540

7.1 GENERAL (Drain Cocks)

7.1.1
Each dry tank is equipped with a drain cock. Drain cocks are primarily used as a quick means of draining air from main tanks. Also the clutch cut-off valve has a drain cock in its system.

NOTE: Opening a drain cock in any dry tank will also drain air from the wet tank.

7.2 OPERATION

7.2.1
The drain cocks are opened and closed by turning the handles 90 degrees.

NOTE: Handles should be turned by hand and never with a hammer or any heavy instrument or leakage may develop.

7.3 REMOVAL OF DRAIN COCKS

7.3.1
Open drain cocks to relieve all air pressure in system. Using a wrench, remove drain cocks. Be careful not to exert undue strain on body or key.

7.4 CLEANING AND INSPECTION

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⚠ **WARNING** -Never use gasoline solvent or other flammable fluids to clean element. Use authorized commercial, non-flammable, non-toxic solvents.

7.4.1
Drain Cocks

7.4.2
All drain cocks should be opened daily. Refer to your Operator's Manual.

7.4.3
Check all four drain cocks periodically for leakage passed the key and leakage through the body around the key. Any evident leakage must be corrected.

7.4.4
About once a year drain cocks should be disassembled and carefully washed in clean solvent. Before inserting key into place, coat the key with a light application of good cup grease.

7.4.5
If key is badly scored, the complete drain cock should be replaced.

7.5 INSTALLATION OF DRAIN COCKS

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⚠ **WARNING** -Before moving machine or attachments be sure exposed people in the area are clear of the machine. Walk completely around machine before mounting. Sound horn.

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⚠ **WARNING** -Never attempt to operate machine or attachment except when seated in the operator's seat. Keep head, body, limbs, hands and feet inside the operator's compartment to reduce exposure to hazards outside operator's compartment.

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⚠ **WARNING** -Warn all people who may be servicing or working around machine before starting engine.

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⚠ **WARNING** -Do not run engine of this machine in closed areas without proper ventilation to remove deadly exhaust gases.

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⚠ **WARNING** -Keep people clear of attachments and tools while in raised position, to prevent possible injury.

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⚠ **WARNING** -Observe all start up and shut down procedures and WARNINGS listed in the Operation and Maintenance Instruction Manual.

7.5.1
Coat the drain cock thread with pipe sealant (75000777).

9.5 CLEANING AND INSPECTION

WARNING -Never use gasoline solvent or other flammable fluids to clean element. Use authorized commercial,non-flammable,non-toxic solvents.

9.5.1
Clean all metal parts in non-flammable, non-toxic commercial solvent. Remove all foreign matter from valve parts.

9.5.2
Inspect all parts for excessive wear or damage. Replace all worn or damaged parts.

9.6 ASSEMBLY OF TREADLE VALVE

9.6.1
Install retainer,Fig.23 (13) and spring (12) on valve (7). Install o-ring(8) on retainer (11) and install retainer on valve(7). Install o-ring(5) and install washer (10) on valve (7). Secure washer with retaining ring(9).

9.6.2
Install assembled valve in body, Fig.23 (14). Install cover (4) on lower body and secure with four screws. Tighten screws to a torque of 23 to 34 daNm (20 to 30 lbs.in).

9.6.3
Install diaphragm (3) and washer (2) and secure in cover with screw (1).

9.6.4
Install o-ring, Fig. 22 (12) in lower body and secure lower body to upper body with four capscrews and lockwashers.Tighten capscrews to a torque of 79 to 113 daNm (70 to 100 lbs.in).

9.6.5
Install mounting plate (1) on valve and secure with three capscrews and lockwashers. Tighten screws to a torque of 90 to 113 daNm (80 to 100 lbs. in).

9.6.6
Install stop button (2) plunger (3) and boot (4) in valve assembly. Install roller (8) and pin (9) and secure with cotter pin. Install treadle assembly(5) on valve and secure with pin (6) and spring pin.

9.7 INSTALLATION OF TREADLE VALVE

NOTE: Apply pipe sealant (75000777) to all male pipe threads.

9.7.1
Install treadle assembly in loader and secure with capscres, nuts and lockwashers. Install elbows and fittings in treadle valve.

9.7.2
Check all tags on lines and connect air lines to treadle valve.

11.9.2
Install ring gear assembly on splined end of spindle.Install retainer, Fig.34 without shims. Be sure measuring holes are vertical. Install capscrews in the four holes noted as "A" and torque the capscrews to 203 Nm(150 lbs.ft).Release torque on the four capscrews and remove any two capscrews 180° apart. Rotate wheel one turn.Torque the remaining two capscrews to 108 Nm (80 lbs.ft). Rotate the wheel one turn then torque the two capscrews to 163 Nm (120 lbs. ft). Re-torque both capscrews once to be sure they are 163 Nm (120 lbs. ft). Rotate wheel several turns. Measure distance between face of retainer and end of spidle through measuring holes provided. Average the readings and subtract bearing retainer thickness to obtain the gap. The desired shim thickness is gap plus .127mm (.005 in). Remove retainer and install the determined shim pack. Install retainer and torque all capscrews to 312 Nm (230 lbs.ft). NOTE: Wheel rotational torque should be 34-54 Nm (25-40 lbs.ft).

11.9.3
Install planetary carrier assembly on wheel assembly and secure with capscrews and washers.Tighten capscrews to a torque of 407-447 Nm(300-330 lbs.ft).

11.9.4
Install axle shaft, sun gear and snap ring as an assembly.

11.9.5
Install new O-ring in cover on planetary carrier. Secure cover with nine capscrews and lockwashers.

11.9.6
Grease cavity in actuator housing with high temperature, waterproof grease. Install wedge assembly and brake air chamber on wheel.

11.9.7
Adjust the brake shoes in accordance with paragraph 2, BRAKE ADJUSTMENT, this TOPIC.

11.9.8
Install drain plug and fill planetary assembly with lubricant.

14.7.3
The dryer should NOT be painted as this will reduce thermoconductivity.

14.8 INSTALLATION

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WARNING -Before moving machine or attachments be sure exposed people in the area are clear of the machine. Walk completely around machine before mounting. Sound horn.

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WARNING -Never attempt to operate machine or attachment except when seated in the operator's seat. Keep head,body,limbs,hands and feet inside the operator's compartment to reduce exposure to hazards outside the operator's compartment.

==========

WARNING -Warn all people who may be servicing or working around machine before starting engine.

==========

WARNING -Do not run engine of this machine in closed areas without proper ventilation to remove deadly exhaust gases.

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WARNING -Keep people clear of attachments and tools while in raised position, to prevent possible injury.

==========

WARNING -Observe all start up and shut down procedures and WARNINGS listed in the Operation and Maintenance Instruction Manual.

NOTE: Apply pipe sealant (75000777) to all male pipe threads.

14.8.1
Install dryer on the loader.Connect air line from the compressor. Connect the air line from the compressor governor. Connect the heater wire and connect the drain line.

14.8.2
Start engine and build up air pressure. Check all air joints with a soap suds solution for leaks.Check the compressor and dryer through its unload and load cycle.

14.9 SCHEMATICS

14.9.1
Refer to TOPIC 24, ALCOHOL INJECTOR AND AIR DRYER SCHEMATICS for more detailed information.

Separate yoke (10) from slack adjuster (16) by removing cotter pin(8) and yoke pin (9).

18.6.3
Open the drain cock on the forward compartment of the dual tank and bleed the air from the parking brake circuit.This allows the actuator spring to decompress slowly.

18.6.4
Disconnect the air line from the actuator(13).Remove three capscrews,washers, and nuts from the left hand side of the mounting bracket, Fig. 42 (10). Loosen three capscrews on the right hand side of the mounting bracket. Tilt the mounting bracket up high enough to clear the caliper Fig. 43 (7) of the disk and support the bracket. Care must be taken not to damage any of the lines in or around the brake head assembly.

18.6.5
Remove worn carrier and lining assemblies (1) and replace with new ones.

NOTE: Make sure the linings face each other when installed.

18.6.6
Lower the mounting bracket and position caliper(7) over disk with a carrier and lining assembly (1) on each side of the disk. Be sure the disk does not rub on the mounting bracket. Install the three capscrews, washers and nuts. Torque all six capscrews and nuts to 515 - 617 Nm (380 -455 lbs.ft). Connect the air line to actuator.

18.6.7
Perform slack adjustment by rotating adjustment nut clockwise with a 14mm wrench until a total clearance of 1.02 - 1.52 mm (.040 - .060 in) is obtained between outboard lining and disk. Measurement is taken at center of lining I.D. after the caliper (7) is slid outboard as far as it will come.

NOTE: Do not over-adjust or lining drag may result.

18.6.8
Close the drain cock on the forward compartment of the dual tank. Charge the parking brake circuit through the manual air fill valve. This will compress the actuator spring. Connect the actuator yoke to the slack adjustor with yoke pin and cotter pin.

18.7 CALIPER OVERHAUL AND SEAL REPLACEMENT

18.7.1
Refer to paragraphs 18.6 through 18.6.4 for brake head removal. Remove brake head assembly from the loader and place on work bench.

18.7.2
Dismount actuator,Fig.43 (13) from cap assembly (23) bracket by removing nuts (11)and washers(12)from actuator studs.

Remove retainer ring (14) from power screw shaft (19).

Slide manual slack adjuster (16) and spline washer (15) from power screw shaft (19).

Remove and discard packing (18) and wave spring washers (17) from power screw shaft (19).

18.7.3
Remove bolts (2) and washers (3) from cap assembly (23).

Remove as a unit, the power screw shaft (19),piston assembly(6)and cap assembly (23)with welded-on bracket from caliper (7).

Side power screw shaft (19) and piston assembly (6) from cap assembly (23).

Unscrew piston assembly (6) from power shaft (19).

19.5.5
The push rod (5) should be inspected for rod wear due to misalignment. If rust is present, wire brush and coat with rust inhibitor compound.

19.6 LUBRICATION

19.6.1
For maximum protection and service life, relubricate the chambers at re-assembly as follows:

a. CHAMBER - Fill inside center boss groove and lightly grease the chamber bore with TR-3 HI-LO lube.
b. POWER SPRING - Coat with rust inhibitor compound.
c. PISTON - Fill O-ring groove (groove nearest neck) about half full of TR-3 HI-LO lube.
d. WIPER FELT - is prelubricated and sealed in a plastic bag.

19.7 ASSEMBLY

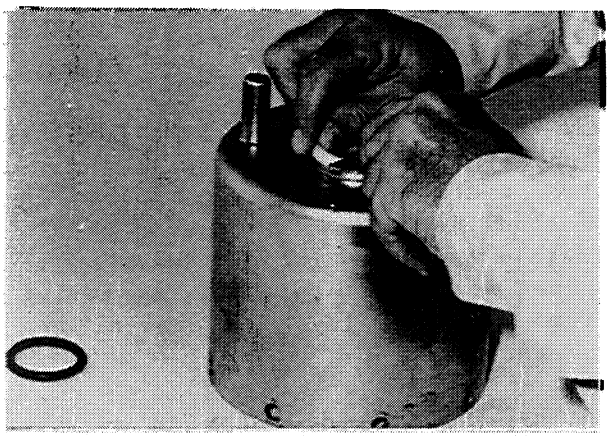

FIG. 54 SEALING CHAMBER T-84563

19.7.1
Install nylon bushing in center boss groove. Bushing must be installed so that side with bevel edge faces toward inside of cylinder. Install small O-ring in other groove, Fig. 54.

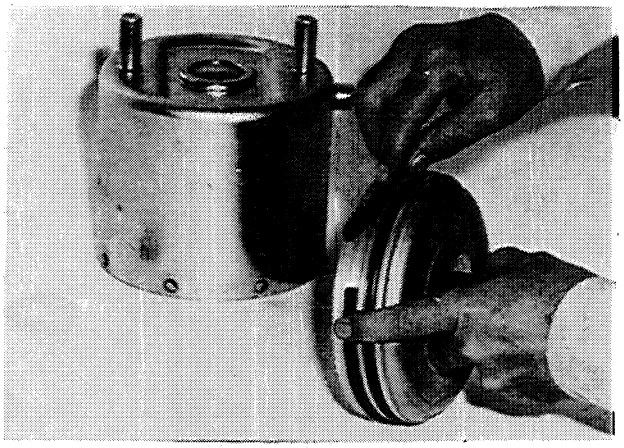

FIG. 55 SEALING PISTON T-84564

Lubricate and install large O-ring in groove of piston nearest the neck and saturated felt wiper in other groove as shown, Fig. 55.

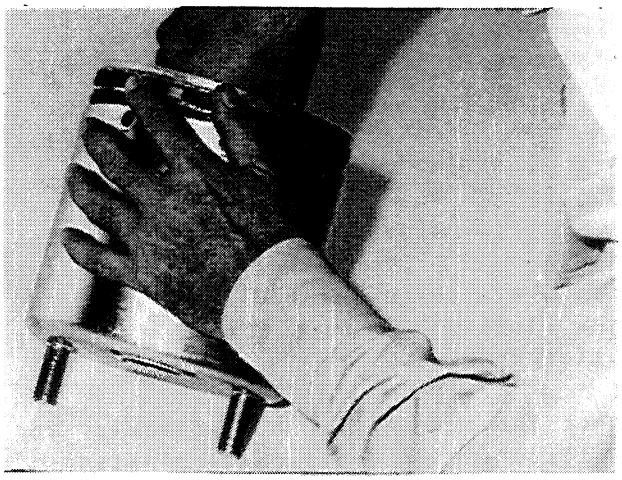

FIG. 56 PISTON INSTALLATION T-84565

19.7.3
Insert piston assembly all the way into cylinder, holding felt wiper in place as piston is inserted, Fig. 56.

23.1 PRESSURE REGULATING UNIT

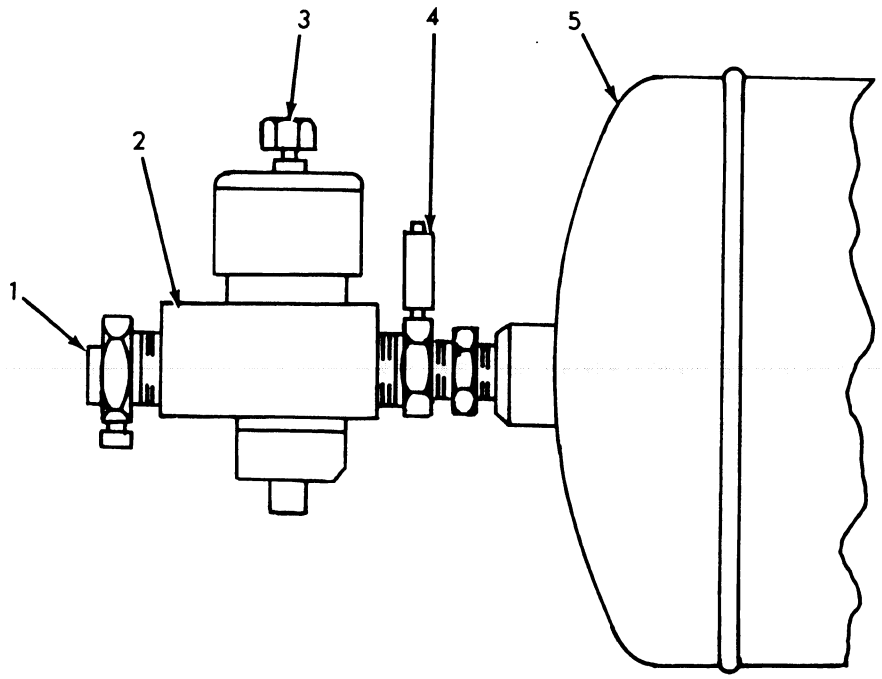

FIG. 63 PRESSURE REGULATING UNIT T-85000

1. Air inlet from compressor
2. Pressure regulator
3. Pressure regulator adjustment screw
4. Unloader valve
5. Air tank

23.1.1
The pressure regulator consists of two components. A pressure regulator, Fig.63 (2) set at 7.5 - 8 bar (108 - 116 psi) and the unloader valve (4).

23.1.2
The unloader valve prevents the air pressure in the tank to build up to dangerous levels when for any reason the regulator should no longer operate properly. The valve is factory set at 12 - 12.5 bar (174 - 181 psi).

23.1.3
At this pressure build up it will automatically unload the compressed air into the atmosphere.

23.2 PRESSURE REGULATOR
23.2.1
The compressor operates continuously together with the engine. However, the actual air compression is controlled by the regulator which will stop or start air compression when the pressure levels in tank reach the maximum and minimum levels, respectively. The regulator function is to maintain the air pressure in the tanks constantly at the setting of the valve.

23.2.2
When the air pressure in the tanks increases beyond the setting, a valve will lift. At this time, the force applied by the air will open the valve, thus conveying the air coming from the compressor directly into the atmosphere.