TECHNICAL MANUAL

OVERHAUL INSTRUCTIONS
with
ILLUSTRATED PARTS BREAKDOWN

COMPRESSOR, ROTARY, POWER DRIVEN, 250 CFM, 100 PSI, DIESEL ENGINE DRIVEN, 4 WHEEL, TRAILER MOUNTED, TYPE MC-5

MODEL 21M250 . . . . . PART NO. 89150-1

Contract Number: F08635-93-C-0025

Davey Compressor Company Division of Keco Industries, Inc. (16004)

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SAFETY SUMMARY

The following are general safety precautions and instructions which must be understood and apply during many phases of overhaul and maintenance to insure personal safety and health and the protection of Air Force property. Portions of this may be repeated elsewhere in this publication for emphasis.

WARNING AND CAUTION STATEMENTS

WARNING and CAUTION statements have been strategically placed throughout this text prior to overhaul or maintenance procedures, practices or conditions considered essential to the protection of personnel (WARNING) or equipment and property (CAUTION). A WARNING or CAUTION will apply each time the related step is repeated. Prior to starting any task, the WARNINGS or CAUTIONS included in the text for the task will be reviewed and understood.

TRAINED PERSONNEL

Only personnel trained, qualified, and certified in the operation of the air compressor shall operate the air compressor.

CLEANERS, CHEMICALS, PAINTS, AND PRIMERS

Some cleaners, chemicals, paints, and primers have adverse effects on skin, eyes, and the respiratory tract. Observe manufacturer's Warning labels and current safety directives. Use only in authorized areas. Unless *otherwise indicated in text*, use as described in this T.O. should not result in any immediate health concerns. Consult the local Bioenvironmental Engineer for specific protection equipment and ventilation requirements.

COMPRESSED AIR

Use approved personal protective equipment (goggles/face shield) when using compressed air. Maximum allowable pressure is 100 psi. Provide protection from flying particles when using compressed air. Do not direct airstream toward self or other personnel.

HEARING DAMAGE

To prevent hearing damage, all personnel within 50 feet of the servicing unit must wear approved ear protection.

USING JACK STANDS

Use jack stands to support front axle when aligning front end. Failure to comply with this warning could result in injury to personnel or damage to equipment.

WHIPPING SERVICE HOSE

Venting compressed air through the air hoses may cause the hose to violently whip around. Insure hoses are under control before releasing compressed air.

FLOW ARROWS ON COMPONENTS

When installing parts onto air compressor, be sure that any flow arrows on components are pointing in the correct direction.

HEAVY COMPONENTS

Some components of the air compressor are heavy. Use a suitable lifting device to move any component not easily manageable by two people.

SECTION I

INTRODUCTION AND GENERAL INFORMATION

1-1 INTRODUCTION.

1-2. This technical manual covers overhaul instructions for Type MC-5, Model 21M250, 4-Wheel Trailer Mounted, Diesel Engine Driven, 250 CFM, 100 PSI, Rotary Air Compressor manufactured by Davey Compressor Division of Keco Industries, Inc. - Part Number 89150-1 has been assigned to the unit. Refer to Figure 1-1 for an identifying view. The instructions herein are for the guidance of personnel responsible for the overhaul of the equipment. Operation and Service Instructions are found in KM-21M250-1.

1-3. This manual is divided into eight sections: Introduction and General Information, Special Tools and Test Equipment, Disassembly, Cleaning, Inspection Repair and Replacement, Assembly, Testing, and Table of Limits. A Table of Contents is provided in the front of this manual and is followed by a List of Illustrations and List of Tables. This front matter is provided for ready reference in locating page numbers for text topics, illustrations, and tables.

1-4. GENERAL INFORMATION

1-5. The Type MC-5, Rotary Compressor unit is a trailer mounted, four-wheel pneumatic tired, diesel engine driven, sliding blade type, rotary air compressor. The unit supplies 250 cubic feet of air per minute (CFM) at a discharge pressure of 100 pounds per square inch (PSI). The unit is enclosed in a sheet metal housing fastened to a frame and axle combination. The trailer unit is equipped with an inertia operated hydraulic brake system and a hand operated parking brake. When the unit is parked, the brakes are set manually by using a hand lever provided. The compressor unit is self contained and capable of continuous operation, under normal conditions, for a period of eight hours without refueling. The unit is designed to supply compressed air for use in general construction work in conjunction with pneumatic tools and other equipment. A general description of the components which comprise this unit is outlined in the following paragraphs. Table 1-1 is a listing of Leading Particulars.

NOTE

Illustrations contained in the disassembly section are indexed in direct order of disassembly. Supplementary text is provided in step-by-step procedures. Exploded view illustrations contained herein are the same as those contained in the Illustrated Parts Breakdown.

1-6 DESCRIPTION OF COMPONENTS.

1-7. HOUSING GROUP. The engine, compressor, instrument panel, and other controls are enclosed in a sheet metal housing. Doors on both sides of the unit provide access to these components and tool storage areas. In addition to the doors, the housing group consists of side and end panels, door and roof supports, a grille, trays, rails, and roof. Clearance lights and reflectors are attached to the outside of the housing. Data and instructions plates are attached to unit near control panel inside the housing.

1-8. HOSE REELS AND SERVICE VALVES. Two revolving hose reels with locking devices are provided at the rear of the compressor unit. Each hose reel is capable of handling a 50-foot length of 3/4-inch inside diameter hose. Each hose reel is provided with a shutoff valve. The air discharge line is equipped with an air service manifold having four individually controlled service outlets with 3/4-inch hose couplings and a 1-1/2-inch globe valve.

1-9. INSTRUMENT PANEL. All the operating controls and instruments are mounted on the rear panel assembly located at the rear of the compressor unit. The controls and instruments can be categorized into three groups: operation indicating group, control group, and safety group. The operation indicating group consists of gauges that indicate engine oil pressure, engine water temperature, receiver air pressure, engine hours of operation, engine speed, restriction and cold start indicators, start indicating lamp, compressor oil temp. gauge and battery-alternator amperage. The control group consists of the panel lamp switch, quick start control, engine idle control, engine stop control, unloader cable, the safety control push button and the start push button. The safety group consist of an oil pressure switch which shuts down the engine when engine oil pressure drops below 4 PSI. Engine overspeed switch, engine coolant temp. switch, compressor discharge temperature switch.

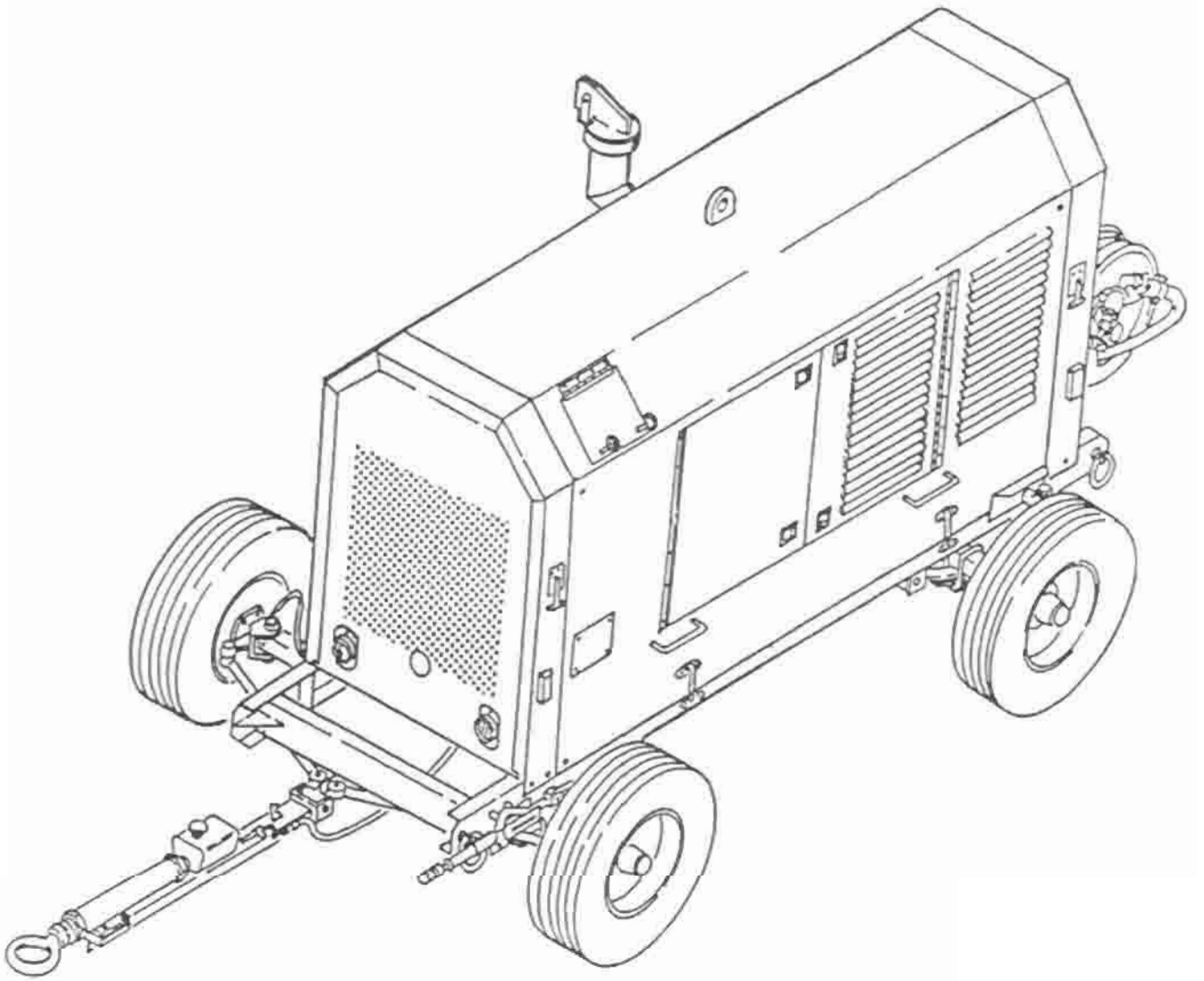


Figure 1-1. Rotary Air Compressor Unit, Type MC-5, Model 21M250

Table 1-1. Leading Particulars

Rotary Air Compressor:

- Manufacturer ..... Davey Div-Keco
- Model 21M250
- Type ..... Sliding Blade, Air, Rotary
- Part Number 89150-1
- Air volume ..... 250 CFM
- Air Pressure ..... 100 PSI
- Stages ..... One
- Prime Mover ..... Diesel Engine
- Mounting ..... Trailer Mounted, 4-Wheel Pneumatic Tires
- Brakes ..... Hydraulic Surge Type with Mechanical Hand Brake
- Tire Size ..... 6.50 x 16LT, 6 Ply
- Tire Pressure ..... 45 PSI
- Turning Angle ..... 40°
- Towing Speeds (Max.) ..... Highway 50 MPH Off Roads 5 MPH
- Electrical System ..... 12 VDC

Diesel Engine:

- Manufacturer ..... John Deere
- Engine Model Number. 4039T
- Type ..... 4 Cylinder In-Line 4-Cycle
- Fuel Type DF-2; JP-4; JP-5; JP-8
- Bore and Stroke ..... 4.19 x 4.33
- Displacement ..... 239 CU. IN.
- Firing Order 1-3-4-2
- Combustion System ..... Direct Injection
- Low Idle Speed ..... 850 RPM
- Aspiration ..... Turbo Charged
- Rated Speed ..... 2500 RPM

Engine Accessories:

Starting Motor:

- Manufacturer ..... Deere and Company
- Part Number ..... (Ref) RE54874
- Rating 12VDC

Alternator:

- Manufacturer ..... Delco 12SI
- Part Number R100045B
- Rating 12V/78A

Fuel Injector Pump:

- Manufacturer ..... Stanadyne
- Part Number RB40402

Oil Filter:

- Manufacturer ..... John Deere
- Part Number ..... TI 19044

Air Cleaner (Compressor and Engine):

- Manufacturer ..... Donaldson Co., Inc.
- Part Number 6090183
- Element Number P182063

Compressor Oil Filter:

- Manufacturer ..... Davey Compressor Co.
- Part Number 86810

Capacities:

Fluid:

- Fuel Tank ..... 32 GAL
- Engine Crankcase ..... 13 QTS (During oil change add 1 quart for filter)
- Compressor Oil Separator ..... 33 QTS
- Engine Cooling System ..... 8 QTS

Overall Dimensions and Weights:

- Overall Length ..... 116.3 IN.
- Overall Width ..... 74.0 IN.
- Overall Height ..... 72.8 IN.
- Shipping Volume ..... 403 CU. FT.
- Shipping Weight ..... 3840 LB.

The engine water temperature safety switch shuts down the engine if engine coolant reaches an unsafe high temperature. The switch is wired to the engine shutdown solenoid and actuates at 245° F. Not mounted on the panel but part of the safety group are the engine overspeed switch and the compressor thermoswitch which are wired to the fuel solenoid. The overspeed switch is set to shut the engine down when speed exceeds 2250 RPM. The compressor thermoswitch is set to shut down the engine when the compressor coolant temperature reaches an unsafe high temperature.

1-10. COOLING SYSTEM. The air compressor unit cooling system consists of a radiator and oil cooler assembly, fan drive and fan assembly, coolant lines, hoses and fittings. The engine has a pressure cooling system. An impeller-type water pump circulates the coolant through the engine components and the radiator. Coolant temperature is reduced by ambient air being drawn through the radiator core by the suction-type fan. The engine coolant temperature regulator controls the flow of coolant through the engine. The ambient air drawn through the radiator also passes over the oil cooler cores which reduces the temperature of the compressor oil. A fan guard is installed on the radiator and oil cooler assembly. A thermal bypass valve is mounted on the side of the compressor to direct part, or all, of the compressor system oil through the oil cooler. When oil temperature reaches approximately 150° F (66° C), the valve begins to open, mixing hot and cool oil to maintain a relatively constant minimum operating temperature.

1-11. AIR CLEANER. Two air cleaners are provided to accommodate the engine intake air and compressor intake air. Each air cleaner is two-stage design with a dry-type reusable element. The cleaner is equipped with a raincap on the inlet tube.

1-12. AIR COMPRESSOR SYSTEM. The air compressor system consists of a single-stage, sliding blade, air compressor assembly, minimum pressure valve, thermal bypass valve, oil filter, speed control linkage, and air pressure regulator. Free air is drawn through the air cleaner into the compressor intake control. A valve in the intake control opens and closes to allow air to pass into the compressor stator according to the discharge air demand. When the intake valve is completely closed, the compressor is running unloaded. When the compressor is stopped, this valve closes to prevent oil and air from the stator from being vented to the atmosphere. The speed control linkage is connected to the intake control valve and moves the engine throttle to increase or decrease RPM as required to maintain the rated output. The single-stage rotor-stator assembly develops an output of 250 CFM at a discharge pressure of 100 PSI. During the compression cycle, oil is introduced into the rotor-stator assembly for sealing, cooling and lubrication. The air-oil mixture passes from the rotor-stator assembly to the oil separator assembly. The oil separator assembly contains a labyrinth and filter arrangement which separates the oil from the air before the air passes through the minimum pressure valve. The minimum pressure valve consists of a valve, spring, and piston which maintains a minimum air pressure of 70 PSI within the oil separator when the compressor is running. This minimum air pressure is necessary to produce proper oil circulation in the system and efficient air-oil separation. The valve is held closed until air pressure reaches approximately 70 PSI, at which time the force of the air moves the valve open and the piston upward, allowing compressed air to flow to the air discharge service valves. When air pressure drops below 70 PSI, the force of the spring overcomes the separator air pressure and moves the piston downward, closing the valve. A blowdown valve automatically relieves air pressure from the system immediately after compressor shutdown. A safety valve on the separator tank opens automatically if the air pressure should exceed 125 PSI. A pressure regulator is connected between the oil separator and the intake-control. As the air load demand increases, the regulator controls a flow of air into the intake-control to open the valve. This action increases air input and engine speed. As the air pressure reaches the rated value, the pressure regulator causes the valve to close and the engine to return to the low idle speed.

1-13. FUEL SYSTEM. The fuel system consists of a fuel tank, flexible fuel lines, and the engine fuel system. The engine fuel system consists of a fuel supply line, fuel pump, fuel filter, engine driven fuel injector pump, four (4) injector nozzles, a fuel return line and cold weather starting aid.

1-14. ELECTRICAL SYSTEM. The 12 volt electrical system consists of 12 volt damp maintenance free charged battery, an engine starting motor, and an engine driven alternator. The alternator restores electrical energy to the battery and supplies electrical power to meet load demands of the engine and accessories when the unit is operating. The battery supplies power to the starting motor and to the electrical accessories when the unit is being started.

1-15. COMPRESSOR UNIT ELECTRICAL GROUP. The unit electrical group consists of the instrument panel wiring and wiring harness, the stop-turn lights, clearance lights, and wiring harness. Each stop-turn light assembly serves as a stop-light, taillight, and turn signal. The clearance lights are either amber or red and are mounted at various points on the housing. All of the exterior lights are

interconnected by a chassis wiring harness and receive power from the towing vehicle via the intervehicular electrical cable.

1-16. ENGINE AND ACCESSORIES. The engine is a four cycle, four cylinder multi-fuel diesel engine. Inlet air, filtered by the dry-type air cleaner, is ducted to the exhaust driven turbo charger and forced into each respective cylinder during the intake stroke. Fuel is finely atomized and sprayed into the cylinder as the piston is completing its compression stroke. Engine speed, other than at idle, is controlled by compressed air demand through a mechanical linkage connected to the compressor intake-unloader. As demand decreases, the throttle is commanded toward engine idle. The optimum engine operating temperature is maintained by the engine block mounted thermostat, a standard construction tube and fin radiator, and a multibladed molded nylon fan which draws air from outside the enclosure and pulls it through the radiator. Engine lubricating oil is cleaned and cooled as it is pumped through the block mounted replaceable oil filter.

1-17. CHASSIS AND RUNNING GEAR. The chassis is a welded assembly of formed high strength alloy steel members on which all 21M250 components are mounted. The chassis assembly is carried on a four (4) wheel trailer-type running gear. The chassis is provided with four (4) 25,000 pound capacity tie down points at each corner for surface or air transportability and a single overhead provision for lifting the assembled unit, located at the top of the unit enclosure and positioned over the units composite center-of-gravity (CG). The running gear is equipped with leaf spring suspension and high-flotation style pneumatic tires. A towbar is attached to the front steerable axle assembly and is equipped with a surge-type hydraulic brake actuator and safety chains. An emergency break-away cable is provided for attachment to the towing vehicle. In such an emergency, the cable actuates a lever which sets the rear wheel hydraulic brakes. In addition to the rear axle hydraulic brakes, a hand operated parking brake lever is supplied. The towbar is equipped with a lunette eye and safety chains for attachment to the towing vehicle. The steerable front axle assembly is designed to provide a turning angle of 40° either left or right. The above mentioned surge-type brake actuator automatically applies the trailer hydraulic brakes in synchronization with the braking action of the towing vehicle. Because the forward surge of the trailer activates the trailer brakes, the braking action is in exact proportion to the deceleration of the towing vehicle. The trailer brake system is self-contained with no connection required to the towing vehicle except for the emergency break-away cable. When backing the towing vehicle with trailer attached, apply the load steadily. Do not accelerate rapidly. If brakes hold initially, do not release load, but maintain a steady push. The brakes will release and the trailer will begin to back.

1-18. COLD WEATHER STARTING AID. A cold weather starting aid is provided to assure engine start when ambient temperature is below +32° F. This aid consists of a highly combustible ether base mixture stored in a metal cylinder. The fuel cylinder mounts with a valve which is actuated by the QUICK START control cable. Each actuation of the QUICK START control injects a measured shot of atomized ether into the engine intake manifold via a length of tubing.

SECTION II

SPECIAL TOOLS AND TEST EQUIPMENT

2-1 SPECIAL TOOLS AND TEST EQUIPMENT.

2-2. No special tools or test equipment are required for the overhaul of the Type MC-5 rotary Air compressor Unite. Suggested tools and test equipment that should be made available at overhaul facilities are listed in table 2-1.

Table 2-1. Special Tools and Test Equipment List

TOOL/EQUIPMENT NUMBER	FIGURE NO.	NOMENCLATURE	USE AND APPLICATION
		Grease gun. Antifreeze tester. Fuel injector tester. Volt/Ohm-meter. Compression tester.	

SECTION III

DISASSEMBLY

3-1. GENERAL.

3-2. This section contains instructions for complete disassembly of the Type MC-5, Model 21M250, Rotary Air Compressor into major components, subassemblies, and component parts. Removal and disassembly instructions are sequenced in the order recommended for complete disassembly of the unit. Due to the nature of the equipment it is unlikely that complete disassembly will be necessary to accomplish overhaul.

3-3. The diesel engine overhaul procedures are covered in T.O. 38G1-112-3. Only the engine components related to the compressor are covered in this manual.

3-4. When disassembling any of the components, proceed only as far as is necessary to perform the required repair. Do not disassemble all parts of the assembly if the serviceability of the assembled parts can be determined while they are assembled.

3-6. Good judgment is necessary to determine if a part can be repaired satisfactorily or if it must be replaced. Replace any part of doubtful serviceability. All lock wires, weld wires, lock washers, cotter pins, gaskets, and preformed packings (O-rings) removed should be discarded and replaced with new items.

3-7. PRELIMINARY PROCEDURES.

3-8. Prior to disassembly, the following procedures shall be followed:

a. Set the parking brakes by moving the parking brake hand lever to the ON position.

b. Disconnect battery cables from battery (17, Figure 3-1) and remove battery from battery box. Store battery in a heated storage area.

WARNING

Never attempt to disassemble any part of the air compressor without first relieving all air pressure from the entire air system.

c. Make certain all air pressure is relieved from the air system by opening the air service valves.

d. Place a container under radiator drain, loosen the radiator filler cap, open radiator drain and drain off coolant. Place the container under the engine, open engine block drain and drain coolant from engine.

e. Place a container under engine, remove engine crankcase drain plug and drain lubricating oil from the engine. Reinstall drain plug.

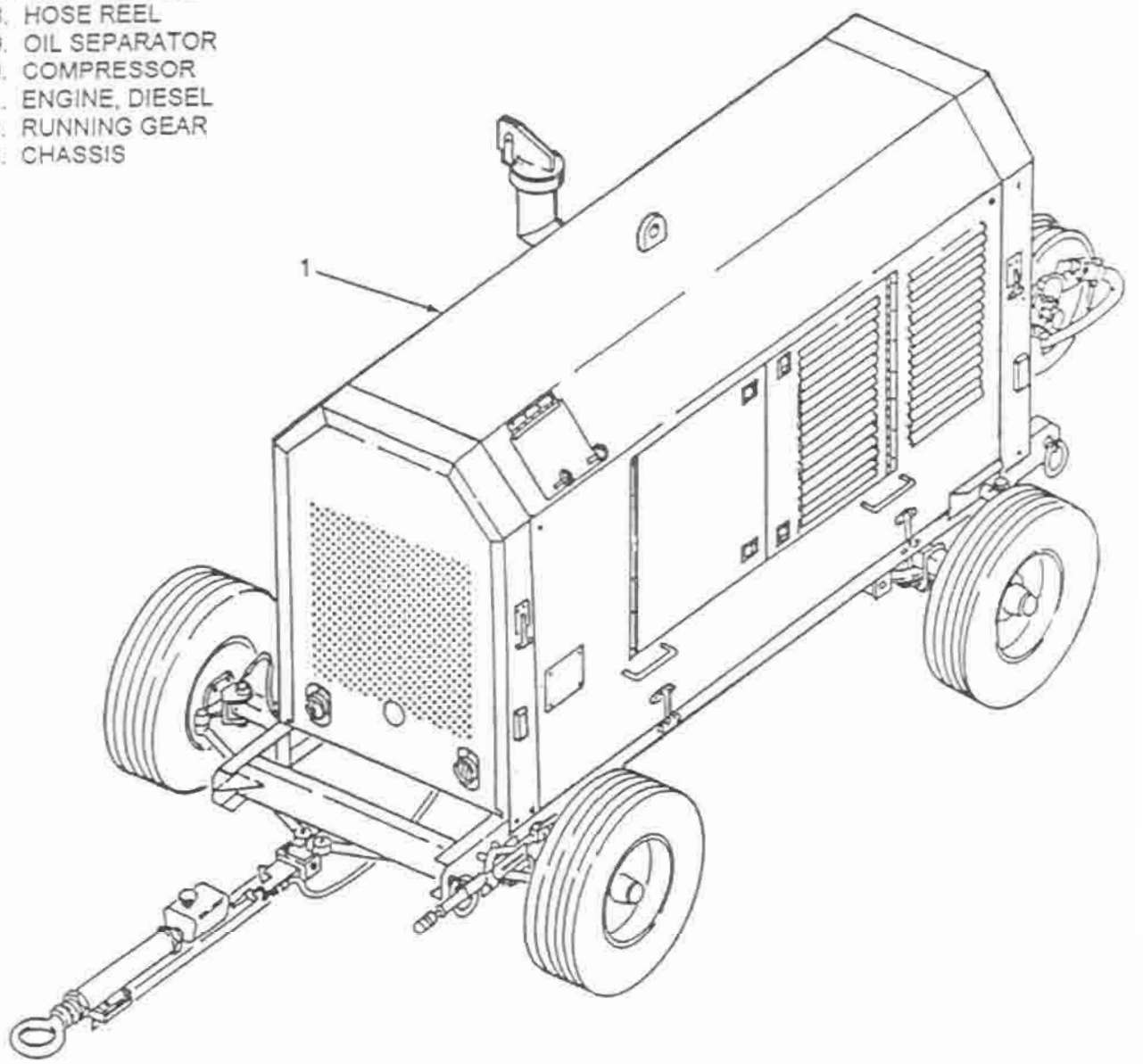
f. Place a container under oil separator tank, remove oil separator drain plug, open drain valve, and drain compressor lubricating oil from tank. Reinstall drain plug and close drain valve.

g. Place a container under fuel tank, loosen fuel tank filler cap, remove fuel tank drain plug and drain fuel from the tank. Reinstall drain plug.

3-9. DISASSEMBLY.

3-10. MAJOR COMPONENTS (Figure 3-1, Sheets 1 and 2). The MC-5 Air Compressor is a self-contained unit consisting of the following major assemblies: roof assembly, front panel, hose reels, exhaust muffler and air cleaner group, oil separator, rear panel assembly, compressor assembly, radiator and oil cooler group, fuel tank assembly, engine and accessories group, chassis and running gear group. The complete unit is first dismantled into these major assemblies, then further dismantled into subassemblies to the detailed parts including all attaching parts. General shop practice standards for repair and maintenance shall be followed on all assemblies.

1. ROOF ASSEMBLY
2. FRONT PANEL
3. RADIATOR/OIL COOLER
4. EXHAUST/AIR CLEANER
5. FUEL TANK
6. REAR PANEL
7. HOSE REEL/SERVICE MANIFOLD
8. HOSE REEL
9. OIL SEPARATOR
10. COMPRESSOR
11. ENGINE, DIESEL
12. RUNNING GEAR
13. CHASSIS



14. AXLE AND BRAKE GROUP
15. FRAME
16. TIRES AND TUBES
17. BATTERY CABLES, BATTERY MOUNTING

Figure 3-1. Rotary Air Compressor, Type MC-5, Model 21M250 (Sheet 1 of 2)

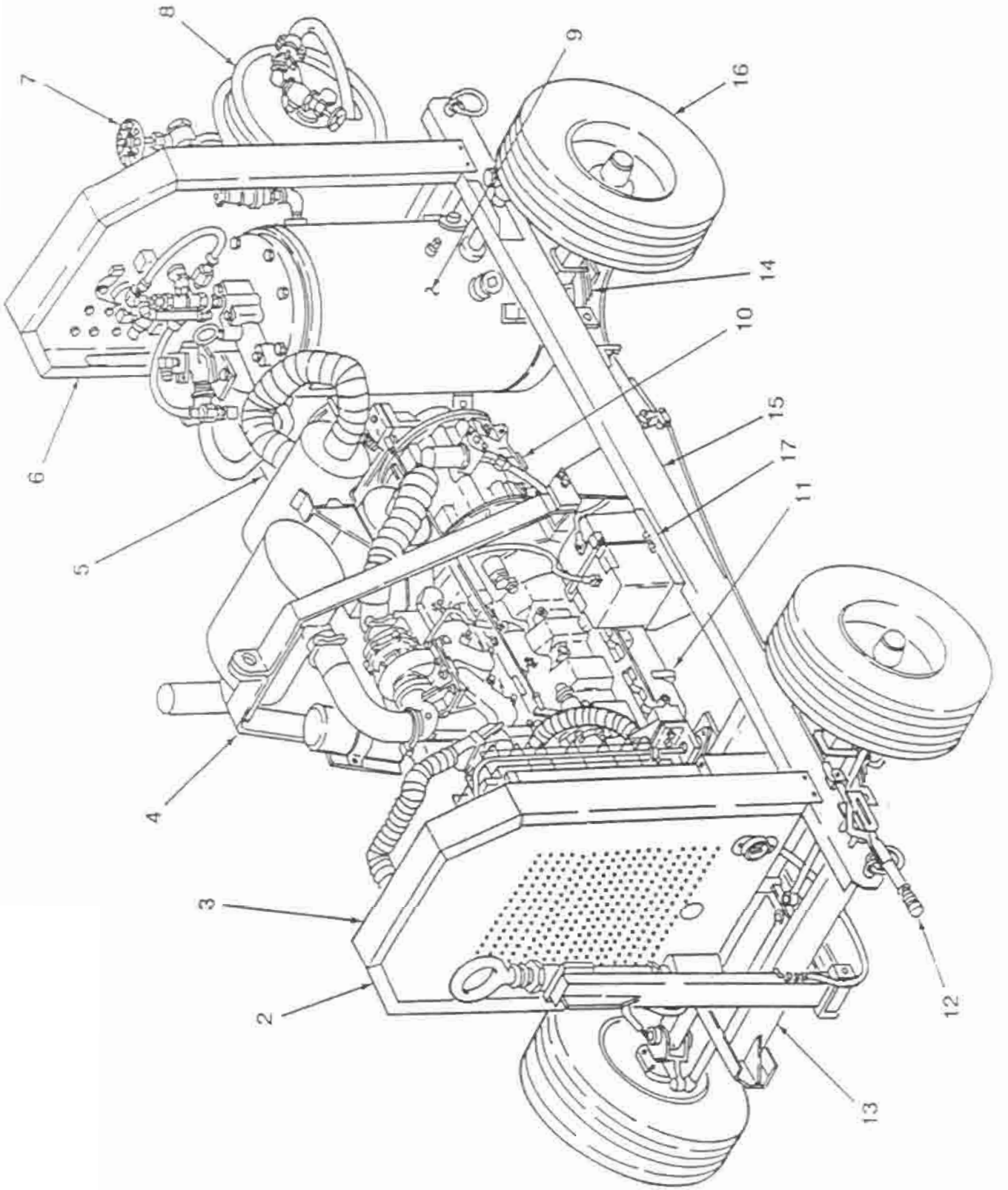


Figure 3-1. Rotary Air Compressor, Type MC-5, Model 21M250 (Sheet 2)

3-11. Roof Assembly (Refer to Figure 3-2, Sheet 1 and 2). Disassemble housing group only to the extent necessary to replace or repair a defective subassembly or subassemblies as follows:

a. Open side doors (1, 2, 3 and 4, Figure 3-2, Sheet 1 and 2) and remove seven rivets (5) securing door hinges to enclosure (6). Remove each side doors with hinges attached to doors.

b. Remove eight machine screws (7) securing enclosure (6) to frame assembly.

c. Lift latch (8) from latch bracket (9) from left and right side of enclosure (6). Remove enclosure (6) from frame assembly.

d. Unlatch studs (10) from access door (11). Remove four rivets (12).

KEY TO FIGURE 3-2

1. Door
2. Door
3. Door
4. Door
5. Rivet
6. Enclosure
7. Screw
8. Latch
9. Bracket, Latch
10. Stud
11. Door
12. Rivet

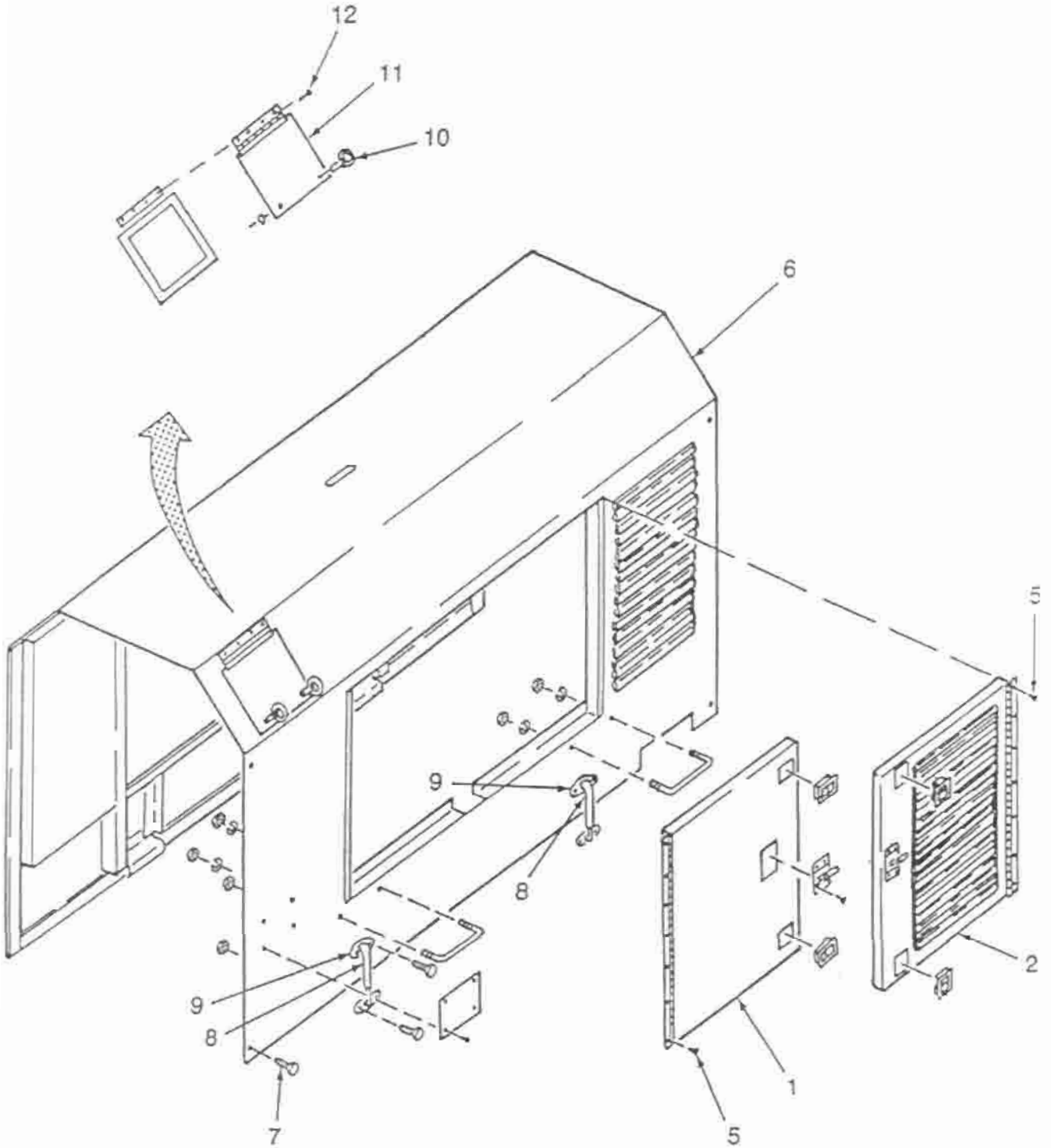


Figure 3-2. Roof Assembly (Sheet 1 of 2)

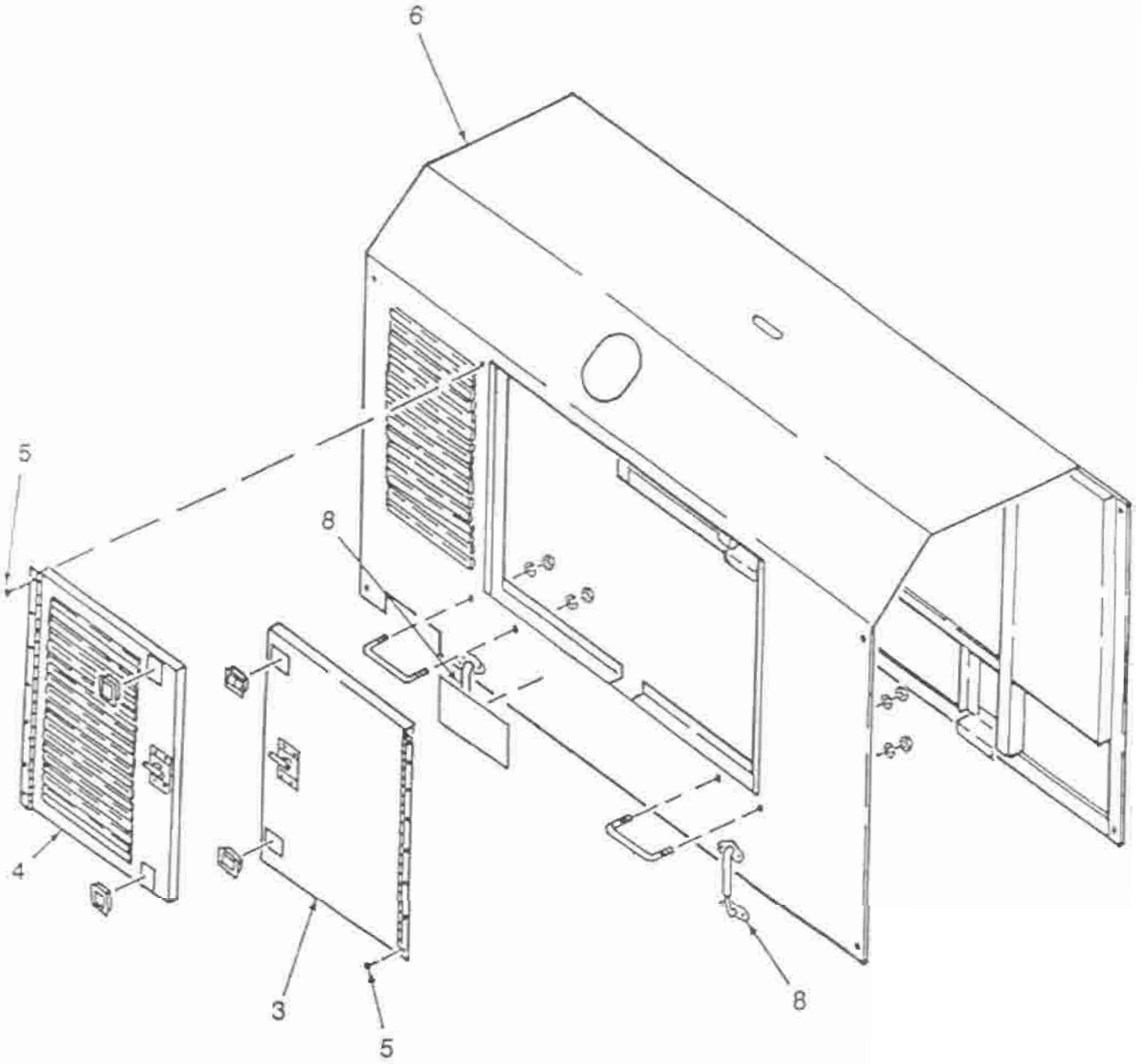


Figure 3-2. Roof Assembly (Sheet 2)

3-12. Panel Front. (Refer to Figure 3-3). Disassemble front panel group only to the extent necessary to replace or repair a defective subassembly on subassemblies as follows.

a. Remove four machine screws (1) securing front panel to frame.

b. Remove eighty-two pop rivets (2) securing front plate (3) to channel supports (4, 5, and 6). Remove front plate.

c. Remove twenty-nine cap screws (7) securing gaskets (8) to front plate (3). Remove gaskets.

d. Remove eight cap screws (9) securing gasket (10) to front plate (3). Remove gasket.

e. Remove eight cap screws (11), eight flat washers (12), eight lock washers (13), and eight nuts (14) securing gasket (15) to front plate (3). Remove gasket.

f. Remove two machine screws (16) and two lock washers (17) securing reflector (18) to front plate (3). Remove reflector.

KEY TO FIGURE 3-3

1. Machine Screw
2. Rivet
3. Front Plate
4. Channel Support
5. Channel Support
6. Channel Support
7. Cap Screw
8. Gasket
9. Machine Screw
10. Gasket
11. Cap Screw
12. Flat Washer
13. Lock Washer
14. Nut
15. Gasket
16. Machine Screw
17. Lock Washer
18. Reflector

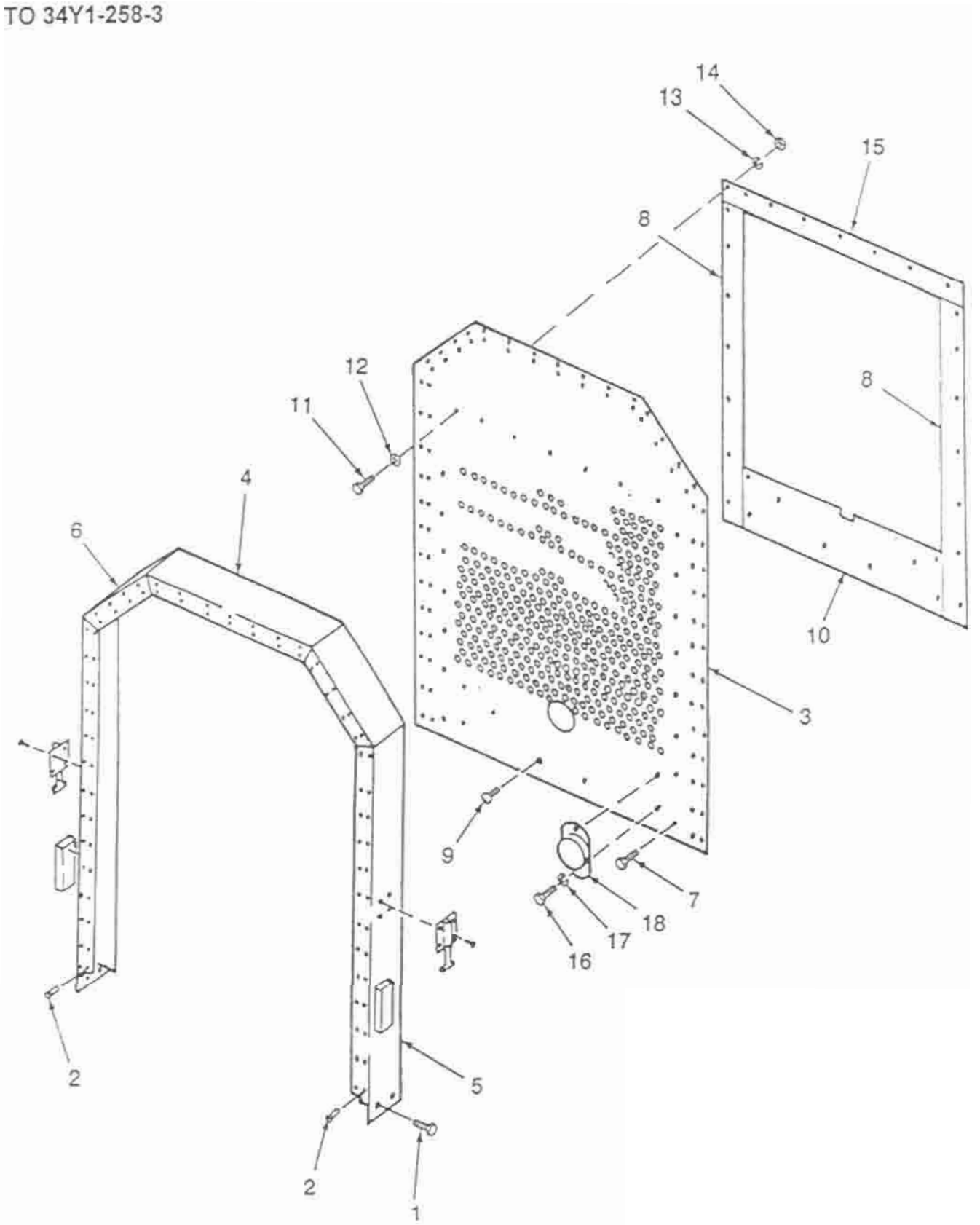


Figure 3-3. Panel Front

3-13. Radiator And Oil Cooler Mounting Group Removal. (Refer to Figure 3-4, Sheet 1 and 2). Remove housing as necessary (para 3-11) and remove radiator and cooler group from unit as follows.

a. Remove four cap screws (1), four lock washers (2), four flat washers (3), securing oil cooler bracket (4 and 5) to thermo cooler (6).

b. Remove six cap screws (7), six lock washers (8), six flat washers (9), securing oil cooler bracket (4 and 5).

c. Remove eight cap screws (10), eight lock washers (11), eight flat washers (12), securing oil cooler brackets (4 and 5) to unit frame.

d. Remove fourteen cap screws (13), fourteen flat washers (14), fourteen lock washer (15), fourteen plain nuts (16), securing oil cooler bracket (4 and 5) to unit frame.

e. Remove seven cap screws (11, Figure 3-3), seven flat washers (12, Figure 3-3), seven lock washers (13, Figure 3-3), seven plain nuts (14, Figure 3-3), then secure top bracket (17, Figure 3-4) to left and right oil cooler brackets (4 and 5).

f. Loosen cooler tube nuts. Disconnect oil cooler tubes (18 and 19) from adapter elbows (20) and then remove adapter elbows (20) and adapters (21) from oil cooler (6).

g. Remove oil cooler (6) from unit frame.

h. Loosen four hose clamps (22) securing radiator hose assemblies (23 and 24) to radiator (25) and remove hoses.

i. Remove four cap screws (26) and self-locking nut (27) attaching air cleaner bracket (28 and 29) to both sides of radiator (25) along with gaskets (30).

j. Remove four machine screws (31), four lock washers (32), four flat washers (33), securing fan guard (34) to radiator (25) and remove fan guard.

k. Remove drain hose (35) from radiator (25).

l. Remove six cap screws (36), six self-locking nuts (37) holding radiator bracket (38) to radiator (25), remove radiator bracket.

m. Remove four cap screws and lock washers securing fan assembly (39) to pump drive pulley. Remove fan assembly (39) and fan spacer (40).

n. Remove shut-off drain cock (41) from radiator (25).

o. Remove radiator (25) from unit frame.

KEY TO FIGURE 3-4

1. Cap Screw
2. Lock Washer
3. Flat Washer
4. Oil Cooler Bracket
5. Oil Cooler Bracket
6. Thermo Cooler
7. Cap Screw
8. Lock Washer
9. Flat Washer
10. Cap Screw
11. Lock Washer
12. Flat Washer
13. Cap Screw
14. Flat Washer
15. Lock Washer
16. Nut
17. Top Bracket
18. Oil Cooler Tube
19. Oil Cooler Tube
20. Adapter Elbow
21. Adapter
22. Hose Clamp
23. Radiator Hose
24. Radiator Hose
25. Radiator
26. Cap Screw
27. Nut
28. Bracket
29. Bracket
30. Gasket
31. Machine Screw
32. Lock Washer
33. Flat Washer
34. Fan Guard
35. Drain Hose
36. Cap Screw
37. Nut
38. Bracket
39. Fan Assy
40. Fan Spacer
41. Drain Cock

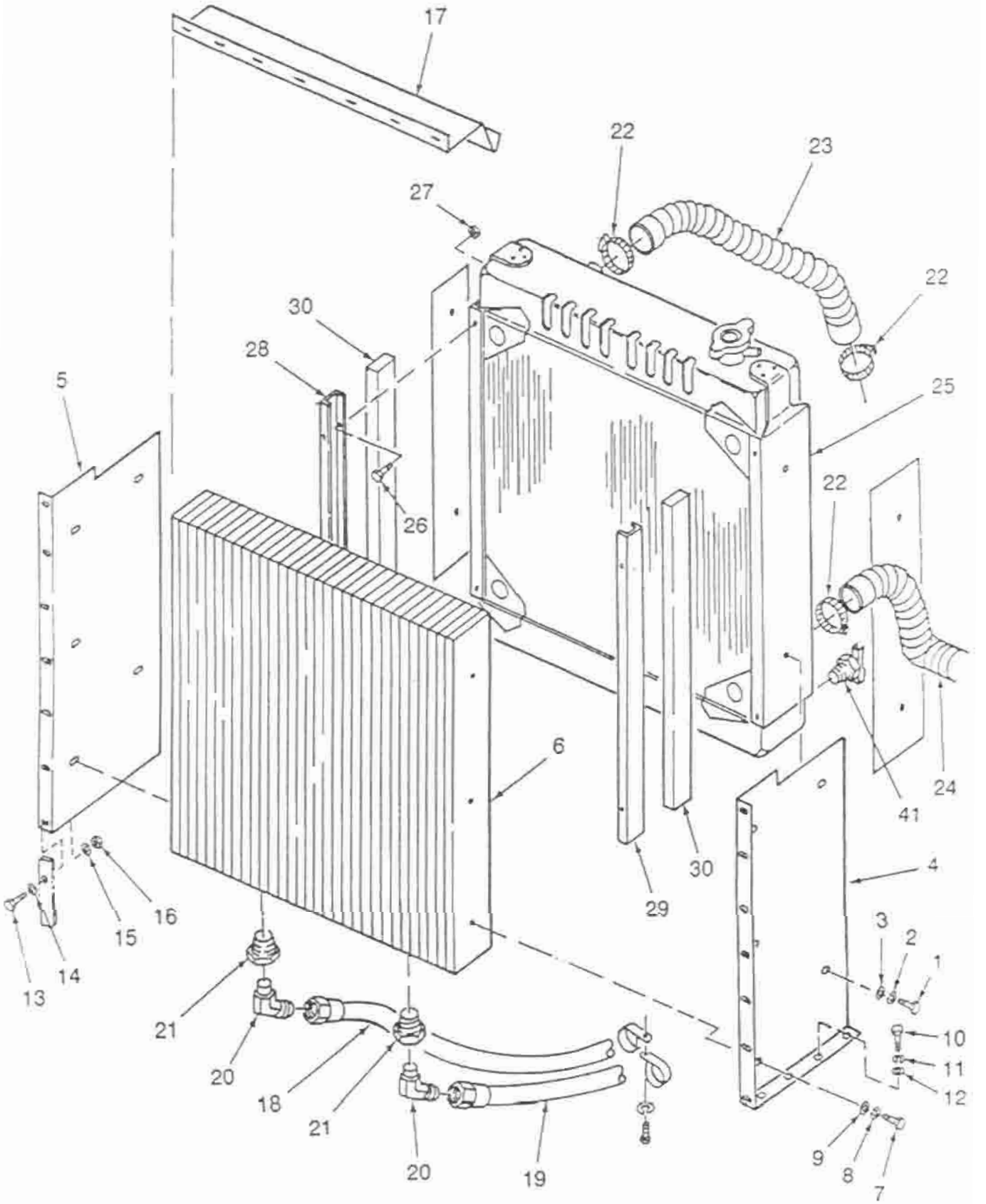


Figure 3-4. Radiator And Oil Cooler Mounting Group (Sheet 1 of 2)

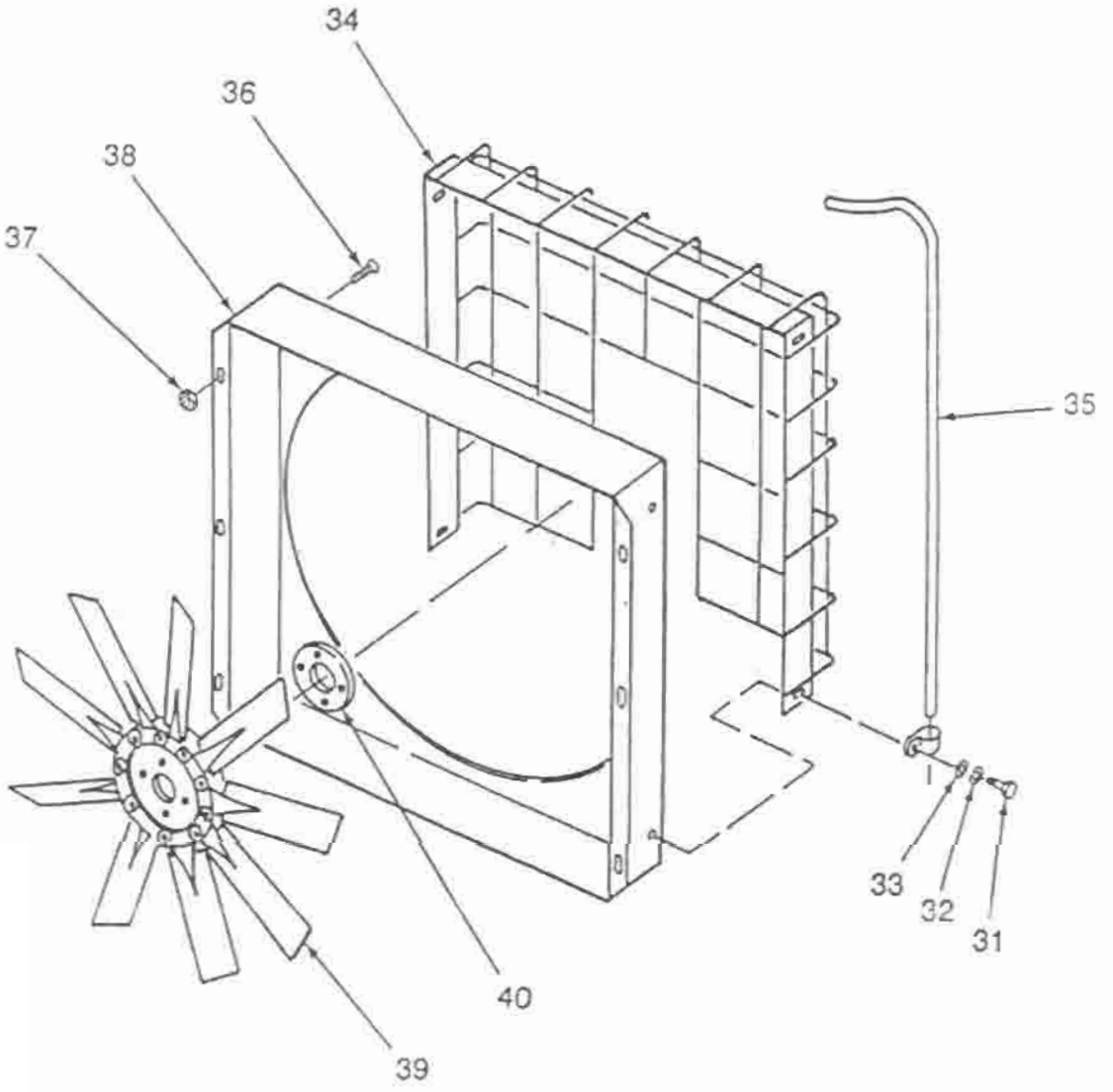


Figure 3-4. Radiator And Oil Cooler Mounting Group (Sheet 2)

3-14. Hose Reel Assy And Service Manifold. (Refer to Figure 3-5).

a. Remove service hoses (9, Figure 3-6) from hose reels assemblies (1, Figure 3-5). Remove hose reel assemblies (1) from service manifold (2) by removing the hose reel retainer (16, Figure 3-6). Refer to paragraph 3-15 for additional details.

b. Remove service valves and discharge manifold piping as follows:

1. Remove four claw couplings (3), four ball valves (4) from service manifold (2).

c. Remove elbow (5) from top of service manifold (2) and remove nipple (6) from elbow (5) and globe valve (7).

d. Remove nipple (8) from lower portion of service manifold (2) and from elbow (17, Figure 3-9).

e. Remove four cap screws (9), four lock washers (10), four plain nuts (11) attaching service manifold (2) to manifold frame (12). Remove service manifold (2).

f. Remove four cap screws (13), four lock washers (14) attaching manifold frame (12) to unit frame. Remove manifold frame (12).

g. Remove eight machine screws (15), eight lock washers (16), eight plain nuts (17) attaching plenum air inlet (18) to rear panel (19). Remove plenum air inlet (18).

h. Remove two machine screws (20), two lock washers (21) and two plain nuts (22) attaching reflector (23) to rear panel (19). Remove reflector (23).

KEY TO FIGURE 3-5

1. Hose Reel Assy
2. Service Manifold
3. Coupling
4. Valve
5. Elbow
6. Nipple
7. Valve
8. Nipple
9. Cap Screw
10. Lock Washer
11. Nut
12. Frame
13. Cap Screw
14. Lock Washer
15. Machine Screw
16. Lock Washer
17. Nut
18. Plenum
19. Panel
20. Machine Screw
21. Lock Washer
22. Nut
23. Reflector

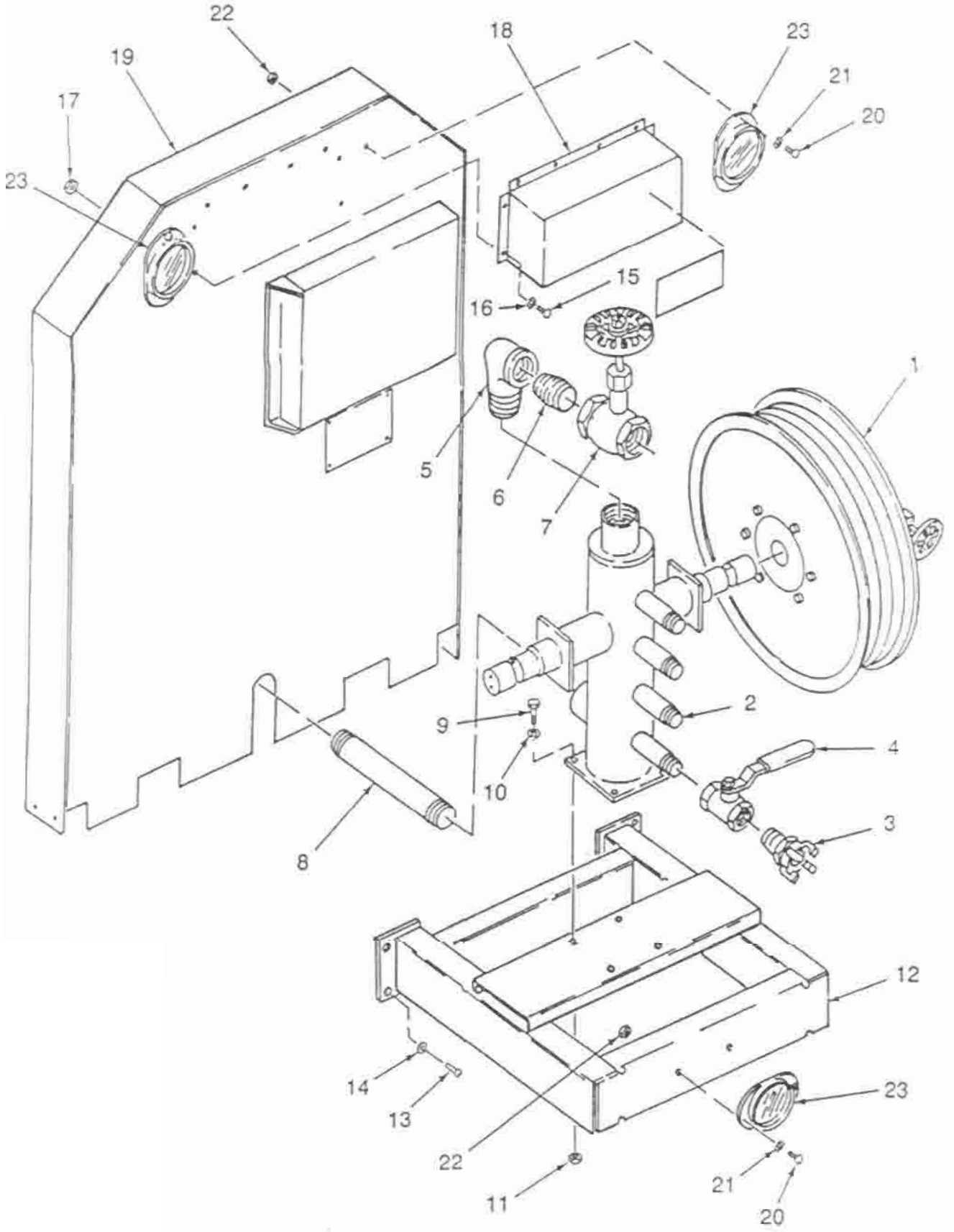


Figure 3-5. Hose Reel Assembly And Service Manifold

3-15. Hose Reel Disassembly (Figure 3-6). After removing hose reel from compressor unit (para. 3-14, step a), disassemble hose reel as follows:

a. Remove coupling (1) from elbow (2).

b. Remove elbow (2) from valve (3) and remove valve (3) from pipe nipple (4) and remove pipe nipple (4) from hose reel body (5).

c. Remove five bolts (6), five flat washers (7) and five lock nuts (8) from hose reel end (9) and body (5). Remove hose reel end (9) from body (5).

d. Remove knob (10) from block (11). Remove block (11) from body (5).

e. Remove grease fitting (12) from body (5).

f. Remove socket head screw (13) and lock washer (14) from body (5). Remove hose reel end (15) from body (5).

g. Remove retainer (16) and o-ring (17) from body (5).

KEY TO FIGURE 3-6

1. Coupling
2. Elbow
3. Valve
4. Nipple
5. Body
6. Bolt
7. Washer, Flat
8. Nut, Lock
9. Hose
10. Knob
11. Block
12. Grease Fitting
13. Screw
14. Lock Washer
15. Hose Reel Ends
16. Retainer
17. O-Ring

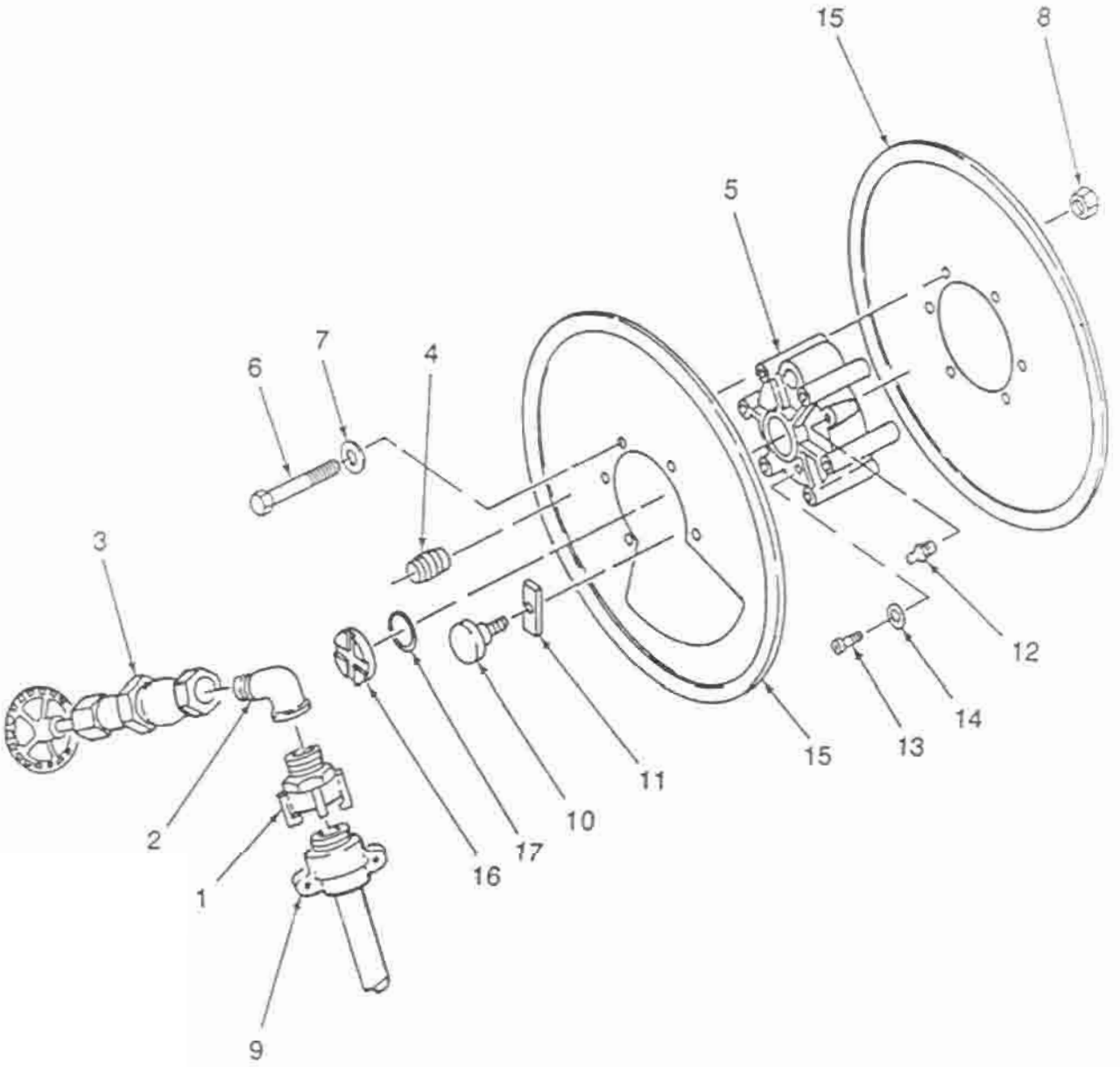


Figure 3-6. Hose Reel Disassembly

3-16. Panel Assembly Rear Removal (Figure 3-7). Disassemble rear panel group only to the extent necessary to replace or repair a defective subassembly or subassemblies as follows:

a. Mark wiring harness leads connected to panel instruments and push button to ease reassembly and remove panel group as follows:

1. Remove leads from ignition switch (3). Reinstall terminal screws and lock washers to switch to prevent loss.

2. Mark ammeter (4) harness and remove wire from meter.

b. Remove water temperature gauge (6) heat sensor from engine block. Coil and tie lead wire and sensor together (sensor and lead are part of gauge).

c. Disconnect air hose for receiver air pressure gauge (7) at elbow connector (8) by turning hose assembly swivel nut on hose connected to back side of pressure gauge. Disconnect oil pressure line by turning swivel nut on hose connected to back side of oil pressure gauge (9).

d. Loosen two screws holding quick start cable sheath and wire to pressure switch (10). Straighten wire end and remove cable from switch.

e. Disconnect idle cable (1), stop cable (15) and compressor unloader cable (14) at wire ends (Figure 3-8). Remove wire harness straps and cable clamps as required to free cables from unit. Coil and tie each cable so they can be removed from instrument panel.

3-17. Instrument Panel Group Disassembly (Figure 3-7). Open control panel cover (5) to remove instrument panel assembly.

a. Remove cables (11 and 12) as required by loosening jam nut at rear of panel and pulling cable assemblies out front of panel. Place jam nuts and ring washers on cable assemblies to prevent loss.

b. Remove ignition push button (2) as required by removing set screw from push button and remove push button from ignition switch. Remove switch from panel by loosening jam nut at front on panel pulling switch out from back side of panel. Mark jumper wires and remove wires from ignition switch. Reinstall set screw and jam nut to prevent loss. Reinstall screws and lock washers onto terminals to prevent loss.

c. Remove water temperature gauge (6) as required, by removing bracket nuts, lock washers and bracket from back of gauge. Remove temperature gauge and heat sensor lead from panel. Reinstall bracket, washer and nuts to gauge to prevent loss.

d. Remove ammeter (4) as required, by removing three wires from ammeter bracket. Remove bracket from rear of panel and remove ammeter from front of panel. Reinstall bracket, washer and nut to meter to prevent loss.

e. Remove air pressure gauge (7) from panel by removing pipe tee (13), 90° elbow (8) and bushing (14) from rear of gauge (7). Remove bracket nuts and remove gauge (7). Remove air pressure gauge (7) from front of panel. Reinstall bracket, washer and nut on back of gauge to prevent loss.

f. Remove engine oil pressure gauge (9) from panel by removing jumper wires from oil pressure switch. Reinstall screws to pressure switch terminals to prevent loss of screws.

g. Remove two nuts and lock washers securing oil pressure bracket to panel. Remove pressure gauge (9) from front side of panel and remove bracket from rear of panel. Reinstall bracket, washer and nut on back of gauge to prevent loss of parts.

h. Remove compressor oil pressure gauge (15) from panel by removing jumper wires from oil pressure switch. Reinstall screws to pressure switch terminals to prevent loss of screws.

i. Remove two nuts and lock washers securing oil pressure bracket to panel. Remove pressure gauge (15) from front side of panel and remove bracket from rear of panel. Reinstall bracket, washer and nut to back side of gauge to prevent loss of parts.

j. Remove tachometer from panel as follows:

1. Mark and disconnect jumper wire from pressure switch (10).

2. Remove two nuts and lock washers (40) securing tachometer bracket (41) and tachometer to panel. Remove screws from meter flange and remove meter (39) and wire (42) from panel.

3. Reinstall mounting screws, lock washers and nuts (40) to meter bracket (41) to prevent loss of parts.

k. Remove panel lamp assembly (16) by marking and disconnecting lead wire from lamp switch. Remove nut and washer securing lamp to panel and remove panel lamp with lead from panel. Reinstall lock washer and nut to lamp assembly to prevent loss. Reinstall screw to lamp switch to prevent loss of parts.

l. Remove lamp switch (17) from panel by turning knurled nut counter clockwise and removing nut with lock washer from switch. Remove ON/OFF plate from switch and remove switch from back of panel. Mark and disconnect jumper wire from switch. Reinstall screw to switch terminals to prevent loss of parts. Reinstall ON/OFF plate, lock washer and nut to switch to prevent loss of parts.

m. Remove indicating lamp assembly (37) by marking and disconnecting lead wire from lamp assembly. Remove nut securing lamp to panel and remove panel lamp with lead from panel. Reinstall nut to lamp assembly to prevent loss.

n. Remove restrictor indicator (38) by removing nut and washer securing indicator to panel. Remove indicator from front side of panel. Reinstall washer and nut to restrictor indicator to prevent loss.

o. As necessary, remove identification plates (18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30) by removing self tapping screws (31).

p. Remove four machine screws (32) securing rear panel to frame.

q. Remove eighty-six pop rivets (33) securing rear panel to channel supports (34, 35 and 36). Remove rear panel.

Key to Figure 3-7

1. Panel, Rear
2. Push Button Switch
3. Ignition Switch
4. Ammeter
5. Control Panel Cover
6. Water Temperature Gauge
7. Air Pressure Gauge
8. Elbow Connector
9. Engine Oil Pressure Gauge
10. Pressure Switch
11. Cables
12. Cables
13. Pipe Tee
14. Bushing
15. Compressor Oil/Pressure Gauge
16. Panel Lamp Assembly
17. Lamp Switch
18. Lamp Switch Plate
19. Restriction Plate
20. Start Indicating Plate
21. Unloader Plate
22. Tachometer/Hour Meter Plate
23. Cold Start Plate
24. Receiver Pressure Plate
25. Engine Oil Pressure Plate
26. Idle Control Plate
27. Ammeter Plate
28. Compressor Oil Temperature Plate
29. Engine Water Temperature Plate
30. Start Plate
31. Screw
32. Machine Screw
33. Pop-Rivets
34. Channel Support
35. Channel Support
36. Channel Support
37. Indicating Lamp Assembly
38. Restrictor Indicator
39. Hour Meter
40. Nuts and Lockwashers
41. Bracket
42. Wires

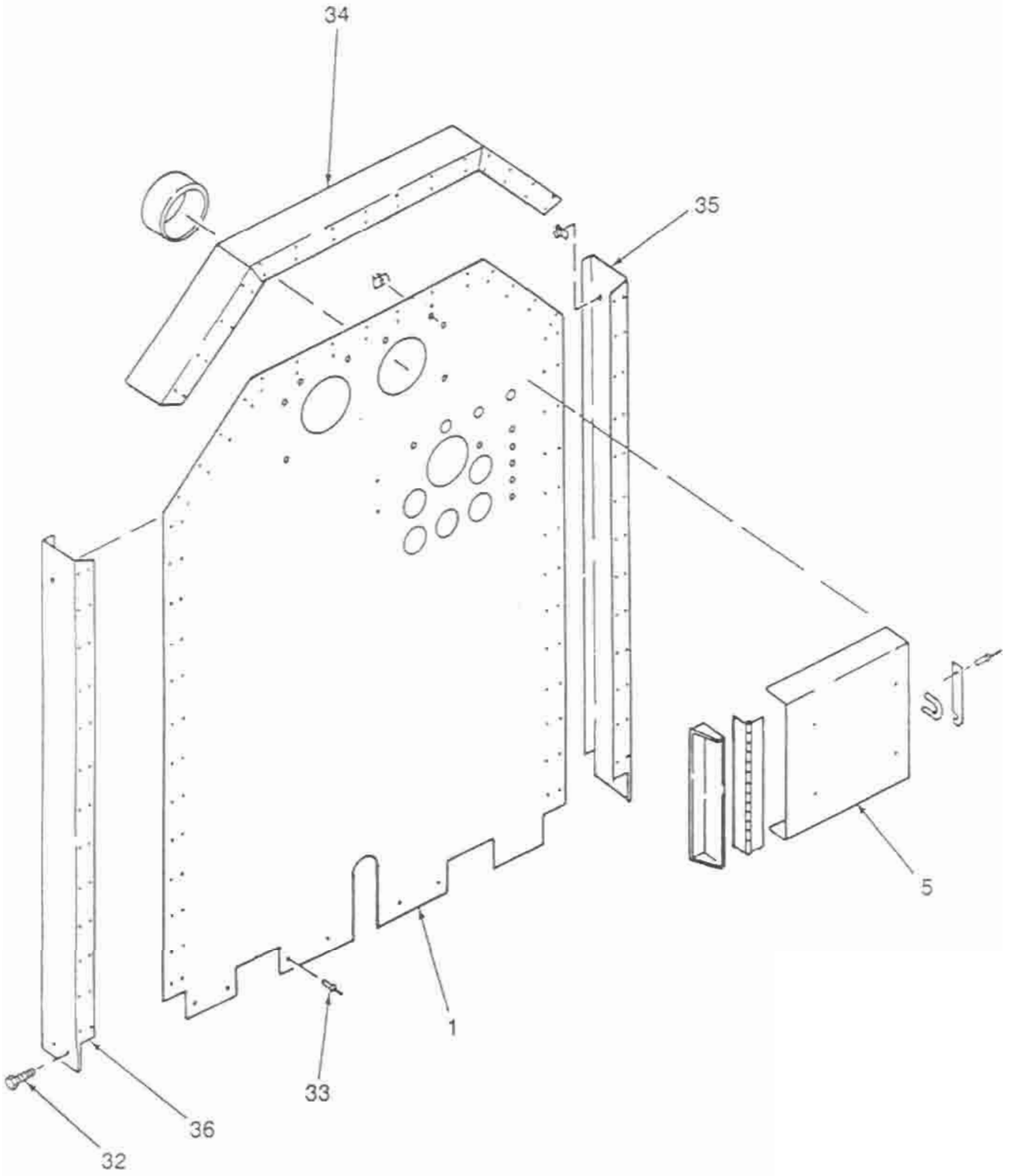


Figure 3-7. Panel Assembly Rear (Sheet 1 of 4)

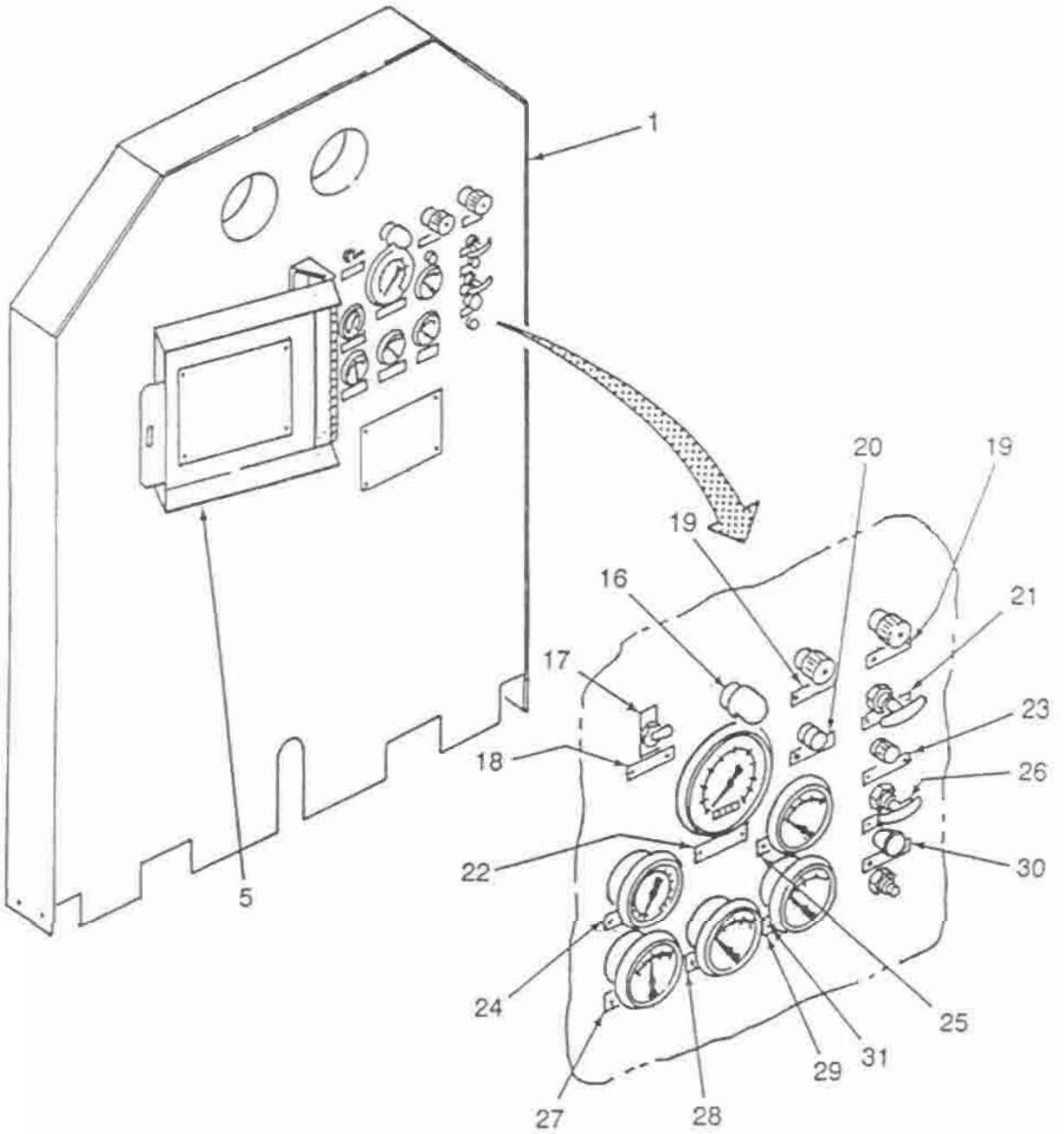


Figure 3-7. Panel Assembly Rear (Sheet 2)

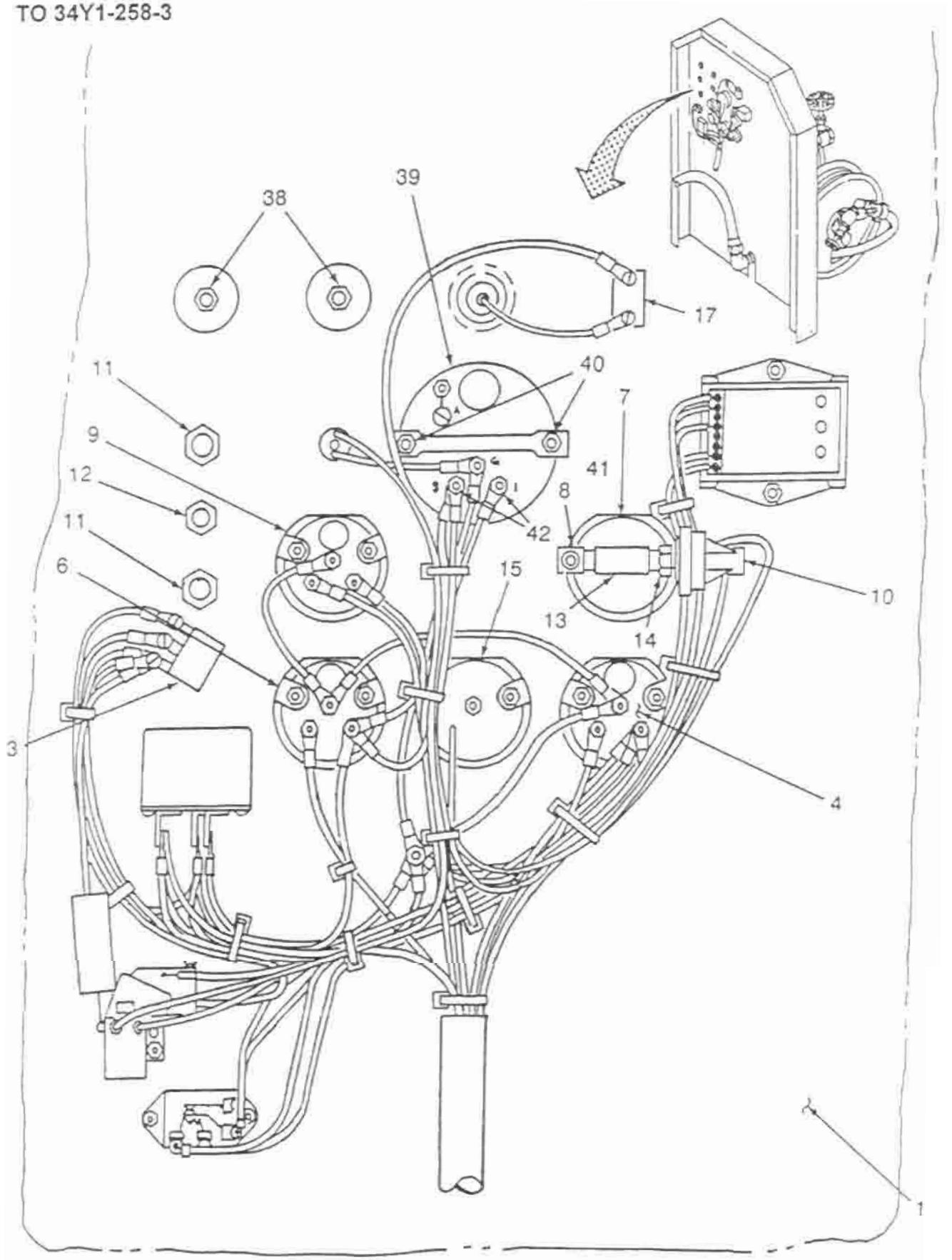


Figure 3-7. Panel Assembly Rear (Sheet 3)

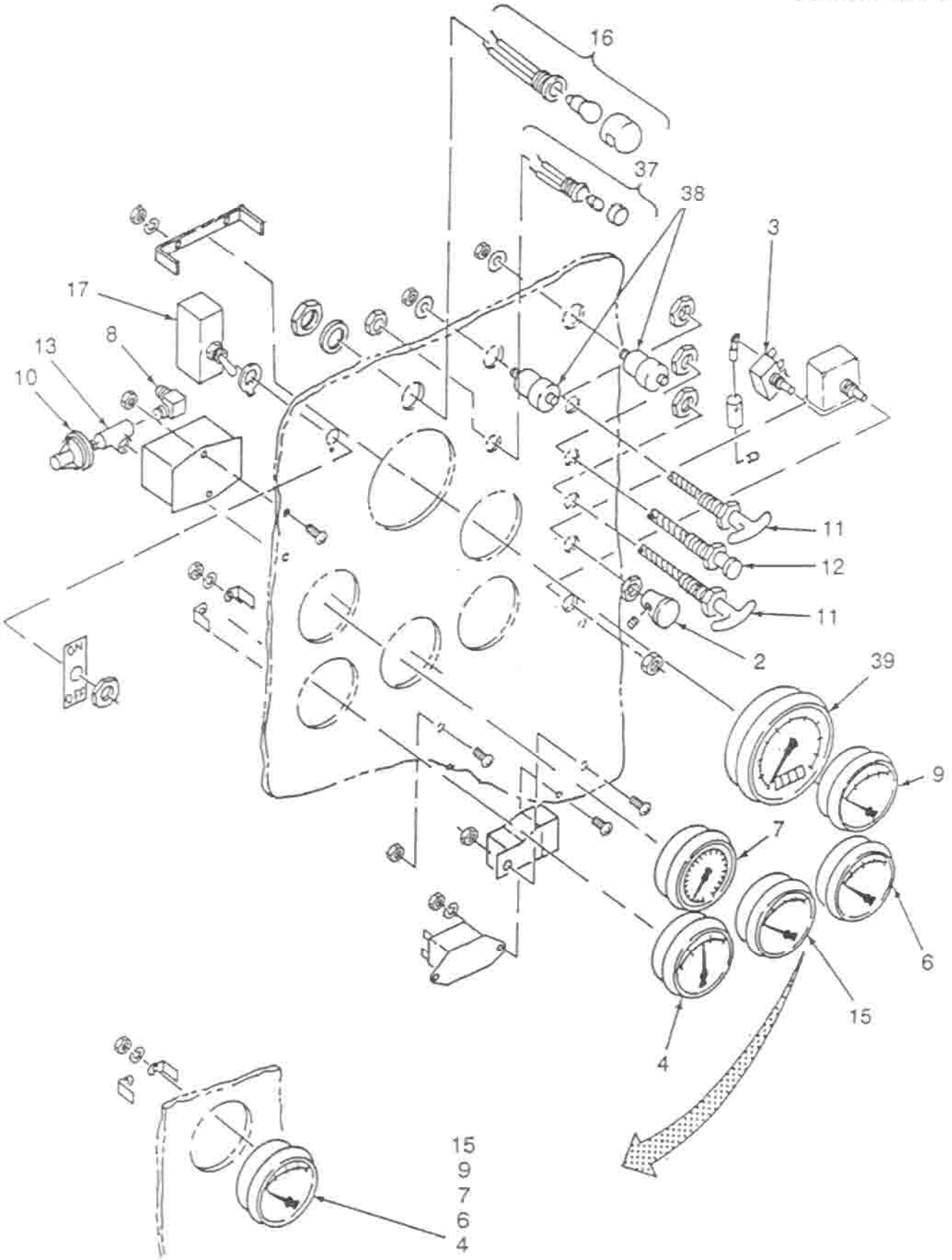


Figure 3-7. Panel Assembly Rear (Sheet 4)

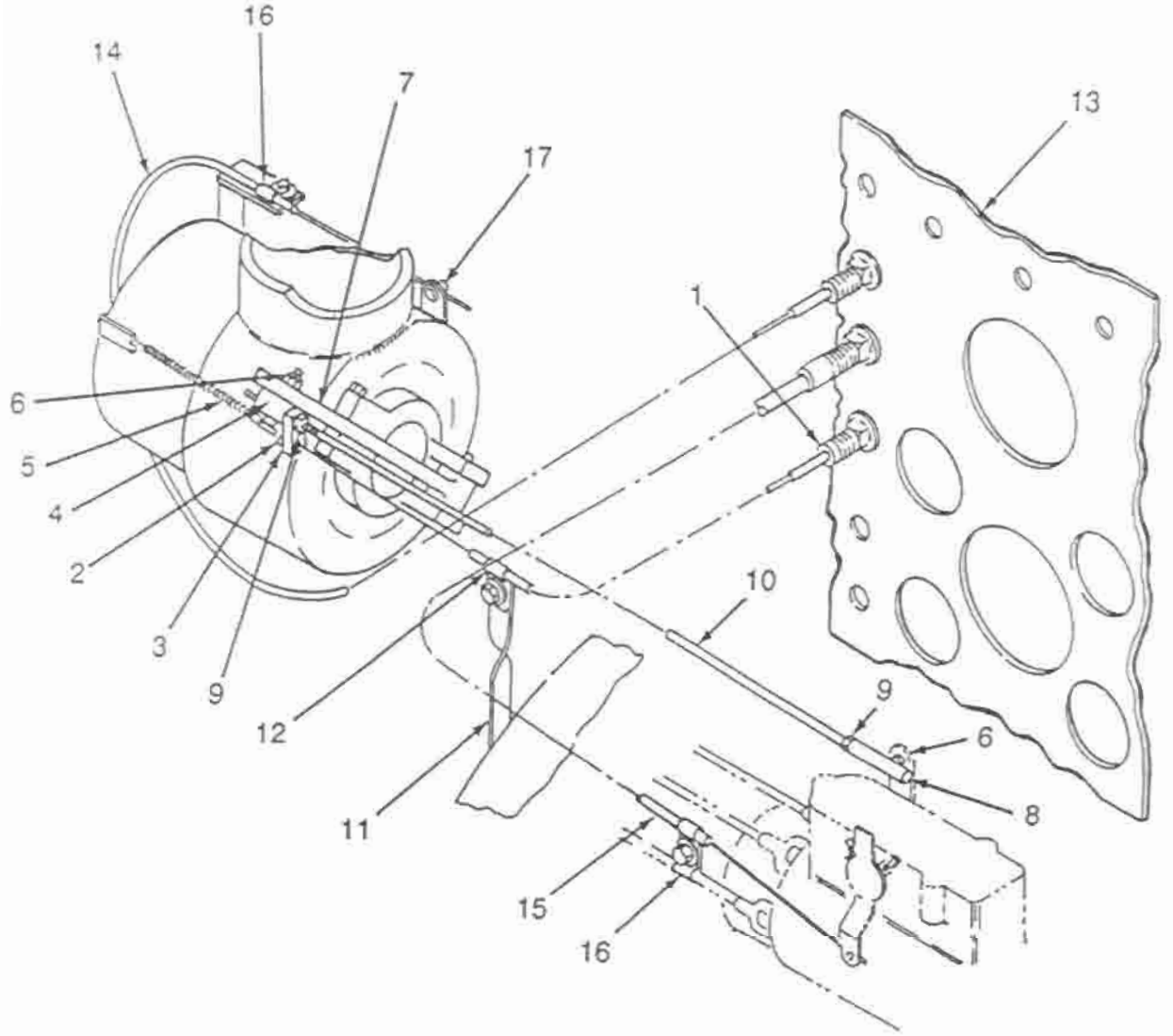
3-18. Speed Control Linkage Group (Figure 3-8). Disconnect control linkage as follows:

a. Disconnect wire end of idle control cable (1) from wire stop block (3) by loosening wire stop screw (2) and pull wire free from stop block (3). Install wire stop (2) on end of control cable wire and tighten screw to prevent loss of wire stop. Remove nut and screw securing cable clip (12) to bracket (11). Remove cable clip (12) from idle control cable (1) and install clip to bracket (11) with screw and nut to prevent their loss. Idle control cable (1) is now free. Coil the cable and tape near the instrument panel (13).

b. Disconnect and remove spring (5) from stop block (4) and from bracket. Remove locknut (6) and disconnect ball joint (8) from injection pump lever arm. If necessary, loosen hex nut (9) and remove ball joint (8) from control rod (10). Remove two nuts (9) securing control rod (10) at stop block (4). Remove control rod from stop block. If necessary to remove wire stop block (3) from control rod (10), remove the nuts (9), on each side of stop block (3), and remove the stop block. Only when necessary, remove locknut (6) and stop block (4) from lever arm (7).

c. Loosen wire stop screw (17) that secures unloader control cable (14) to intake unloader lever arm. Loosen locknut and screw securing cable (14) and cable clamp (16) to bracket. Withdraw cable (14) from lever arm wire stop and cable clamp. Coil cable and tape near instrument panel (13).

1. IDLE SPEED CABLE
2. WIRE STOP
3. WIRE STOP BLOCK
4. STOP BLOCK
5. SPRING
6. LOCKNUT
7. LEVER ARM (COMPRESSOR)
8. BALL JOINT
9. HEX NUT



10. CONTROL ROD
11. BRACKET
12. CABLE CLIP
13. INSTRUMENT PANEL
14. COMPRESSOR UNLOADER CONTROL CABLE
15. STOP CONTROL CABLE
16. CABLE CLAMP
17. WIRE STOP

Figure 3-8. Speed Control Linkage Group

3-19. Air Compressor Assembly Removal (Refer to Figure 3-11). Remove roof assembly as necessary (para 3-11). Disconnect air hoses (3, 5, and 7) as follows, (Figure 3-9):

a. Mark and remove hoses (3 and 5) from elbow adapter (8). Remove elbows from street tee (10) and remove tee from sight gauge (11). Remove sight gauge from elbow (12) and remove elbow from compressor air intake housing.

b. Mark and remove hose (4) from elbow (8) and remove elbow from street tee (10). Mark and remove hose (6) from connector (9) and remove connector from street tee (10). Remove street tee (10) from pressure regulator (13).

c. Remove pressure regulator (13) and nipple (15) from elbow (16). Remove elbow (16) from compressor air intake housing.

d. Hook compressor eye bolt (1) with lifting device (Figure 3-11).

e. Disconnect thermo switch leads (2) at compressor discharge connection (3) and remove twelve cap screws (4) and lock washers (5) securing compressor adapter housing (7) to engine fly wheel housing.

f. Shift compressor horizontally from engine to disengage drive bushings (6) from compressor coupling (8) and remove compressor from unit.

3-20. Oil Separator Assembly Removal (Figure 3-9).

WARNING

Never attempt to disassemble any part of the air compressor without first relieving all air pressure from the entire air system.

a. Make certain that all air pressure is relieved from air system by opening air service valves at manifold (7, Figure 3-5) and by lifting safety air relief valve (45, Figure 3-10).

b. Drain oil separator (para. 3-8, step f).

c. Remove manifold and service piping from oil separator minimum pressure valve housing (see Figure 3-10).

d. Disconnect air discharge hoses (3, 4 and 5).

e. Remove blowdown valve assembly (6, Figure 3-10) as follows:

1. Mark and remove hose (2, Figure 3-9) from blowdown valve (6, Figure 3-10).

2. Mark and remove two hoses (3 and 4, Figure 3-9) from blow valve tee (6, Figure 3-10) and remove tee from blowdown valve housing; remove elbows (5), nipple (14) and bushing (15, Figure 3-10).

3. Remove blowdown valve (6) from minimum pressure valve housing (12, Figure 3-10).

4. Mark and remove hose (3, Figure 3-9) from "Y" orifice elbow (5, Figure 3-10). Remove elbow (5), orifice (8), strainer (9) and nipple (13) from housing (12, Figure 3-10).

f. Remove elbow (4, Figure 3-15), from bottom of separator body (44 , Figure 3-10).

g. Remove nipple (5, Figure 3-15) from side of separator body (44, Figure 3-10).

h. Remove 90° elbow (6) from nipple (5, Figure 3-15).

i. Remove adapter (7) from 90° elbow (6, Figure 3-15).

j. Remove o-ring (8) and oil cap (9) from adapter (7, Figure 3-15).

k. Remove four lock nuts (1), four bolts (2) and four washers (3) securing separator to frame (Figure 3-15). Break weld and lift oil separator assembly up and out of unit.

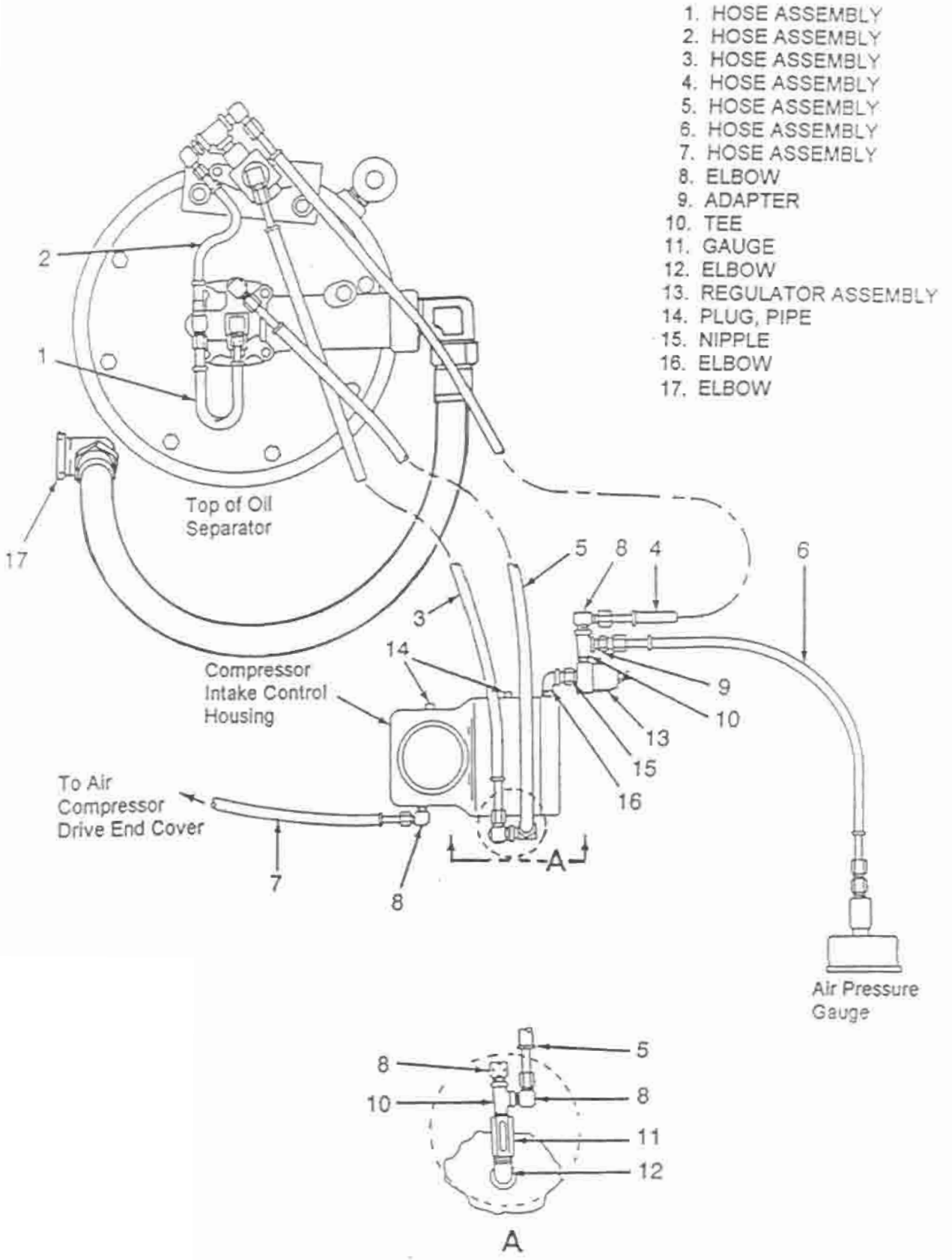


Figure 3-9. Oil Separator Assembly Removal

3-21. Oil Separator Disassembly (Figure 3-10). After removing oil separator from compressor until (para. 3-19), disassemble oil separator as follows:

a. Remove hose assembly (16) from pressure regulator elbow (20), and tee (18).

b. Remove hose assembly (19) from tee (18) and elbow (5).

c. Remove elbow (17), pressure regulator (20), pipe nipple (21), bushing (22), and eye bolt (23) from minimum pressure valve housing (12).

d. Remove four bolts (24) and lock washers (25) from housing (12). Remove hardened bolt (26), lock washer (25) and flat washer (27) from housing (12). Remove minimum pressure valve housing (12) from oil separator cover (28).

e. Remove non-return valve piston (29), spring (30), o-ring (31), and valve assembly (32) from housing (12). Disassemble non-return valve if necessary, by removing lock nut (33), washer (34), seat (35) and facing (36) from stem (37).

f. Remove plug (38) from cover (28).

g. Remove gasket (39) and eight bolts (40) and lock washers (41) from cover (28). Remove cover.

h. Remove pipe (42) from cover (28) and remove separator element (43) from oil separator body (44).

i. Remove air relief valve (45) and 90° elbow (46) from separator body (44).

j. Remove pipe plugs (47, 48, 49 and 50) from separator body (44).

KEY TO FIGURE 3-10

1. Hose Assembly
2. Hose Assembly
3. Hose Assembly
4. Tee
5. Elbow
6. Blowdown Valve Assembly
7. Hose Assembly
8. Orifice "Y"
9. Strainer
10. O-Ring
11. Screen Element
12. Minimum Pressure Valve Housing
13. Nipple
14. Nipple
15. Bushing
16. Hose Assembly
17. Elbow
18. Tee
19. Hose Assembly
20. Pressure Regulator
21. Pipe Nipple
22. Bushing
23. Eye Bolt
24. Bolt
25. Lock Washer
26. Hardened Bolt
27. Flat Washer
28. Separator Cover
29. Valve Piston
30. Spring
31. O-Ring
32. Valve Assembly
33. Lock Nut
34. Washer
35. Seat
36. Facing
37. Stem
38. Plug
39. Gasket
40. Bolts
41. Lock Washer
42. Pipe
43. Separator Element
44. Separator Body
45. Air Relief Valve
46. 90° Elbow
47. Pipe Plug
48. Pipe Plug
49. Pipe Plug
50. Pipe Plug

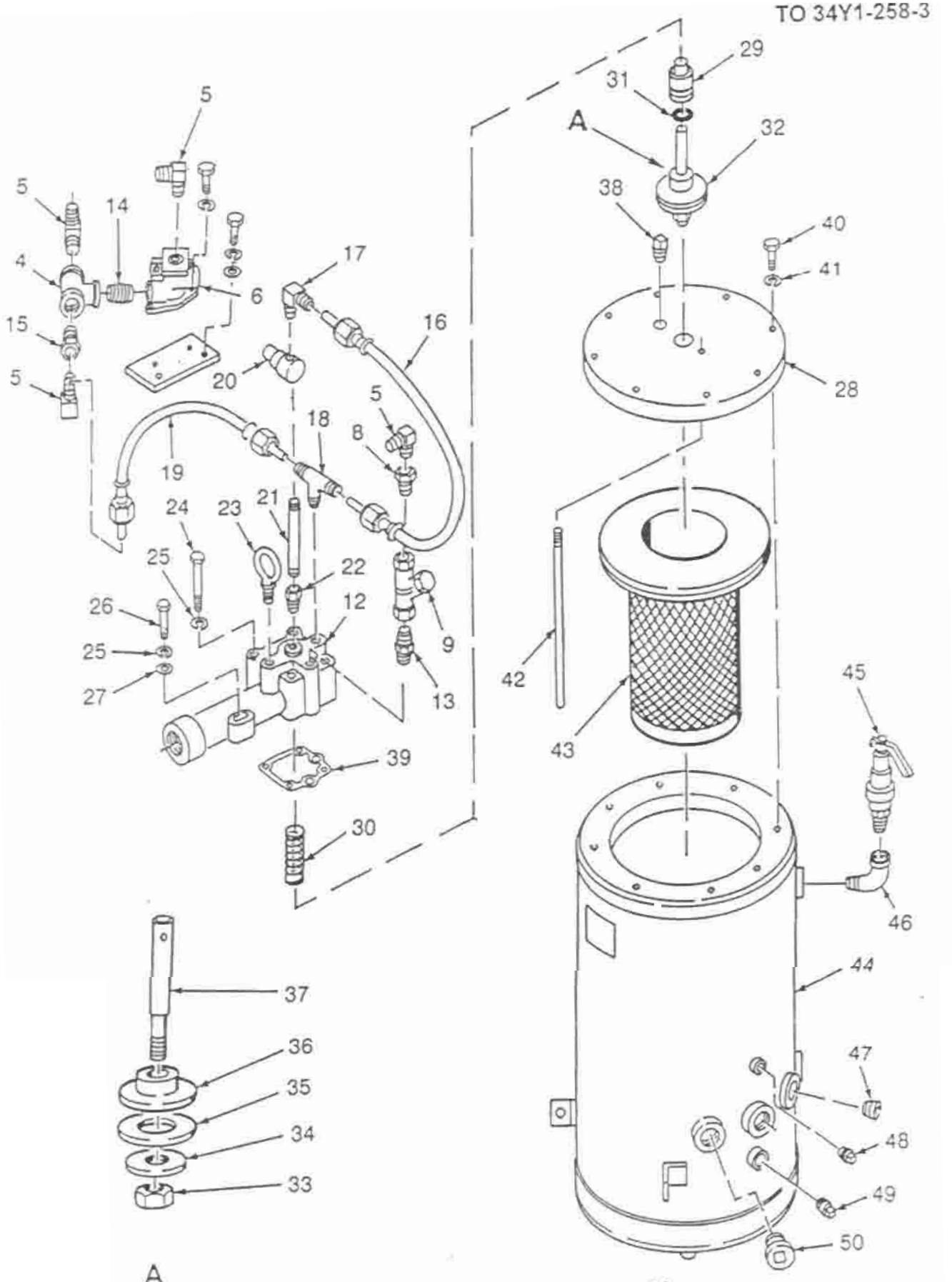


Figure 3-10. Oil Separator Disassembly

3-22. Air Compressor Group Disassembly (3-11). After removing compressor from unit (para 3-18). Disassemble air compressor to the extent necessary as follows:

a. Remove the eight drive bushings (6) from eight pin couplings (9) by pulling bushing off pin. Remove pin couplings by bending the four locking straps (10) flat and with a wrench, turn each pin counter clock wise until it is free of fly wheel.

b. With thermo switch connectors (3) disconnected, unthread thermo switch (11) from discharge connection (12). Remove bolts (13), lock washers (14) and discharge connection (12) from compressor stator (15). Remove adapter nut (16) and o-rings (17) from discharge tube (18).

c. Loosen lever arm screw (42) and remove lever arm with wire stop (43, Figure 3-15) from valve shaft (21, Figure 3-11).

d. Remove oil filter/ by pass assembly (22) by removing two socket head screws (23) and lock washers (24) from compressor stator (15). Remove gasket (25) from filter housing (22).

e. Remove drive coupling (8) by removing retainer bolt (28), lock washer (29), retainer (30) and front set of grip springs (31) from shaft (32). Remove key (33) and pull coupling from shaft along with rear set of grip springs (31).

f. Remove six bolts (34), lock washers (35) and cover (36). Remove breather disc (37) from cover (36). Remove diaphragm (38) and gasket (39).

g. Remove locknut (40) from stem (41) and disassemble piston (42), spring (43), and gasket (44). Remove intake valve (45) and spring (46) from push rod (47).

NOTE

At this point air intake housing (48) can be removed from compressor cover (49) by removing three hex bolts (50), lock washers (51), and gasket (52).

h. Remove intake valve plate (53) by removing two screws (54) and lock washers (55) from valve shaft (21). Remove stop pin (56) and valve shaft (21) from intake housing (48).

i. Remove clamp (57) from guide (58) by loosening locknut (59) from bolt (60) and sliding clamp from guide.

j. Remove lever assembly (64) from clamp (57) by removing pin (61) and two bushings (62) from arm (63).

k. Remove push rod (47) from intake housing (48) by removing two socket head bolts (65) and lock washers (66), securing guide (58) to housing (48) and removing gasket (67) and rod (47) with bushing (68) and o-ring (69). Remove o-ring (69) then bushing (68) from push rod (47).

l. Remove air intake housing (48, see previous note). Remove relief valve plug (69), o-ring (70), spring (71) and ball (72) from housing (48).

m. Remove six bolts (73) and lock washers (74) securing bearing cover (75) and gasket (38) to compressor cover (36). Remove two bolts (76) and lock washers (77) securing bearing retainer (78) to shaft. Remove one bolt (79) and five bolts (80) and six seal washers (81) securing compressor cover (36) to compressor stator (15).

NOTE

Inner race of bearing (82) will remain on end of rotor shaft (32) when cover is removed.

n. Remove cover (49) and outer bearing race (82). Remove o-ring (83).

o. Remove six bolts (84) and lock washers (85) securing oil seal cover (86) and gasket (87) to drive end cover (88). Remove seal (89), o-ring (90), sealing sleeve (91), sleeve (92) and o-ring (93).

NOTE

Do not remove rotor end cover group (94) from stator unless inspection reveals that defective parts need replacing.

p. Remove six bolts (95) and seal washers (96) securing housing adapter (7) and stator cover (88) to compressor stator (15).

CAUTION

When removing stator cover (88) and rotor from compressor housing (15), rotor blades (97) and relief ball (98) will fall out of assembly.

q. Remove housing adapter (7) and gasket (99) from cover (88). With stator tilted, remove rotor, drive end cover and bearing assembly from compressor stator (15). Remove ball (98), o-ring (100), and rotor blades (97).

CAUTION

Since excessive heat causes metal to soften, any inner bearing race heated for removal from shaft must be discarded and the entire bearing replaced. Never heat bearing inner race unless it is intended to replace entire bearing.

r. If drive end cover, rotor, and shaft combination (94) requires disassembly, remove bearing inner race (82) from shaft (32) with gear puller or the equivalent. If bearing inner race cannot be removed with gear puller, heat the race evenly with a torch and remove as quickly as possible.

s. Remove rotor (101) from shaft (32), remove key (102) from shaft key way.

NOTE

Make note of the drain holes in the rotor (101) blade slots. These holes shall be on the rotation leading edge when installed on rotor shaft.

t. Pull drive end cover (88) off shaft. Bearing (82) face ring will fall free. Remove bearing (82) outer race from end cover (88) bore. Remove self tapping screws (103) and rotation plate (104) only when replacement is necessary.

u. Remove bearing (82) inner race from rotor shaft (32) with gear puller or equivalent. If bearing inner race cannot be removed with gear puller, heat the inner race evenly with a torch and remove as quickly as possible. Observe CAUTION preceding step r. above.

v. If necessary, remove elbow (105) from cover (88). Remove relief valve plug (106), o-ring (107), spring (26) and valve (27) from stator (15). Remove eye bolt (1) from stator (15).

KEY TO FIGURE 3-11

1. Eye Bolt
2. Thermo Switch Leads
3. Discharge Connection
4. Cap Screw
5. Lock Washer
6. Drive Bushing
7. Adapter Housing
8. Compressor Coupling
9. Pin
10. Locking Strap
11. Thermo Switch
12. Discharge Connection
13. Bolts
14. Lock Washer
15. Compressor Stator
16. Adapter Nut
17. O-Ring
18. Discharge Tube
19. Lever Arm
20. Wire Stop
21. Shaft
22. Oil Filter/By Pass Assembly
23. Socket Head Screw
24. Lock Washer
25. Gasket
26. Spring
27. Valve
28. Retainer Bolt
29. Lock Washer
30. Retainer
31. Grip Springs
32. Shaft
33. Key
34. Bolts
35. Lock Washers
36. Cover
37. Breather Disc
38. Diaphragm
39. Gasket
40. Locknut
41. Stem
42. Piston
43. Spring
44. Intake Control Cylinder
45. Intake Valve
46. Spring
47. Push Rod
48. Intake Housing
49. Cover
50. Bolt
51. Lock Washer
52. Gasket
53. Valve Plate
54. Screw
55. Lock Washer
56. Stop Pin
57. Clamp
58. Guide
59. Lock Nut
60. Bolt
61. Pin
62. Bushing
63. Arm
64. Lever Assembly
65. Socket Head Bolt
66. Lock Washer
67. Gasket
68. Plug, Check Valve
69. O-Ring
70. O-Ring
71. Spring
72. Ball
73. Bolts
74. Lock Washers
75. Intake Control Cover
76. Bolts
77. Lock Washers
78. Bearing Retainer
79. Bolt
80. Bolts
81. Seal Washers
82. Bearing
83. O-Ring
84. Bolts
85. Lock Washers
86. Oil Seal Cover
87. Gasket
88. Drive End Cover
89. Seal
90. O-Ring
91. Sealing Sleeve
92. Sleeve
93. O-Ring
94. Rotor and Cover
95. Bolts
96. Seal Washers
97. Rotor Blades
98. Relief Ball
99. Gasket
100. O-Ring
101. Rotor
102. Key
103. Self Tapping Screws
104. Rotation Plate
105. Elbow
106. Relief Valve Plug
107. O-Ring

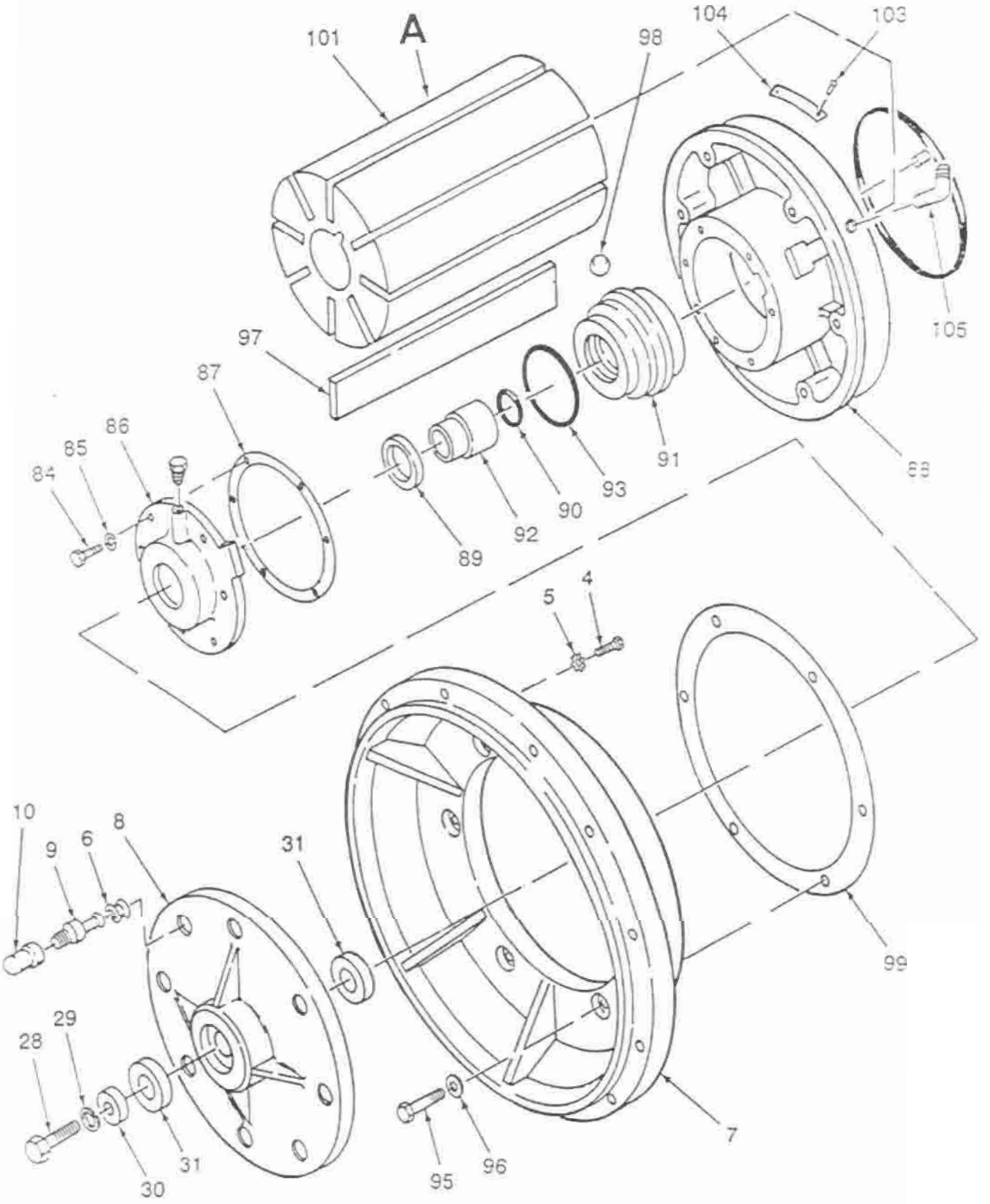


Figure 3-11. Air Compressor Group Disassembly (Sheet 1 of 4)

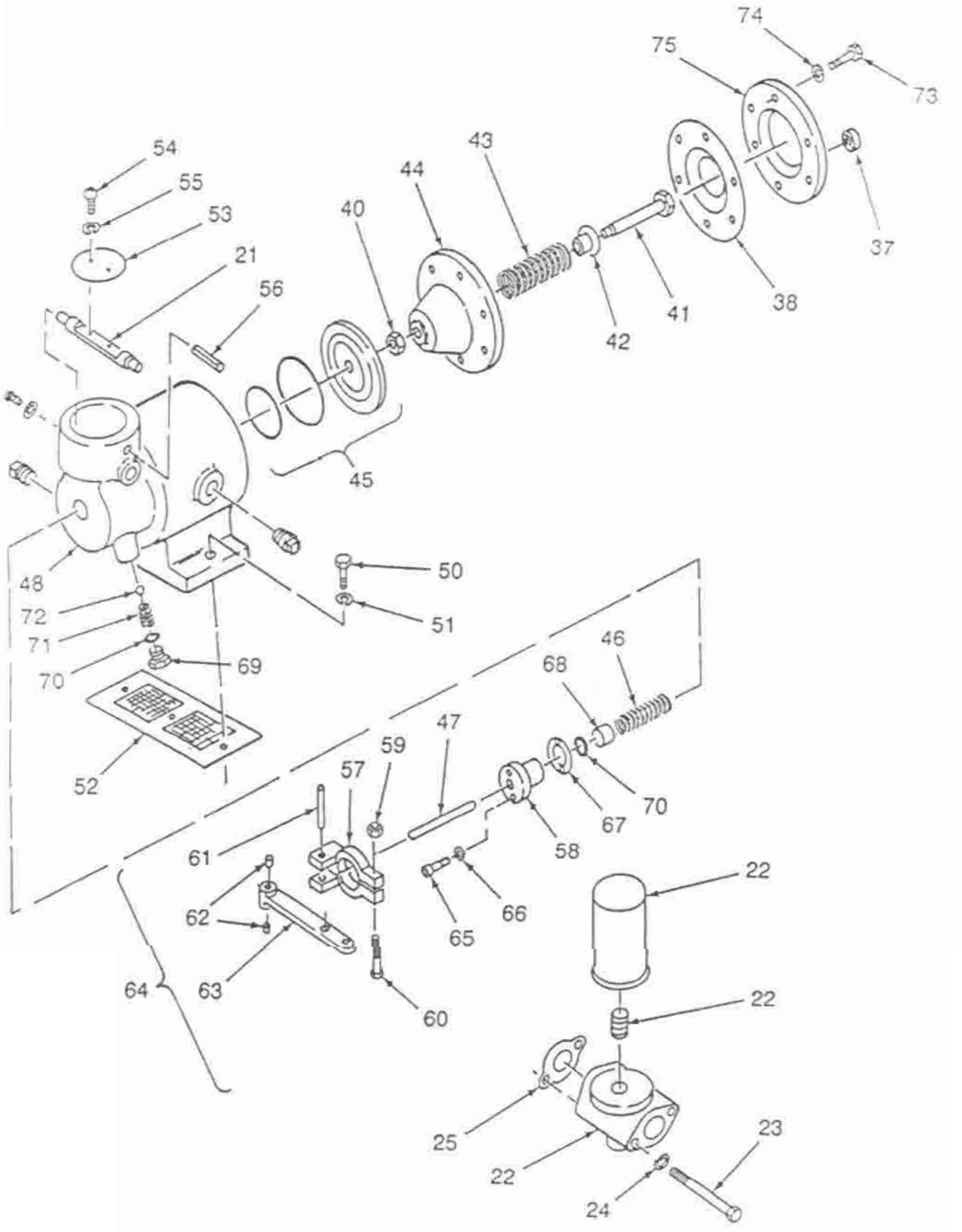


Figure 3-11. Air Compressor Group Disassembly (Sheet 2)

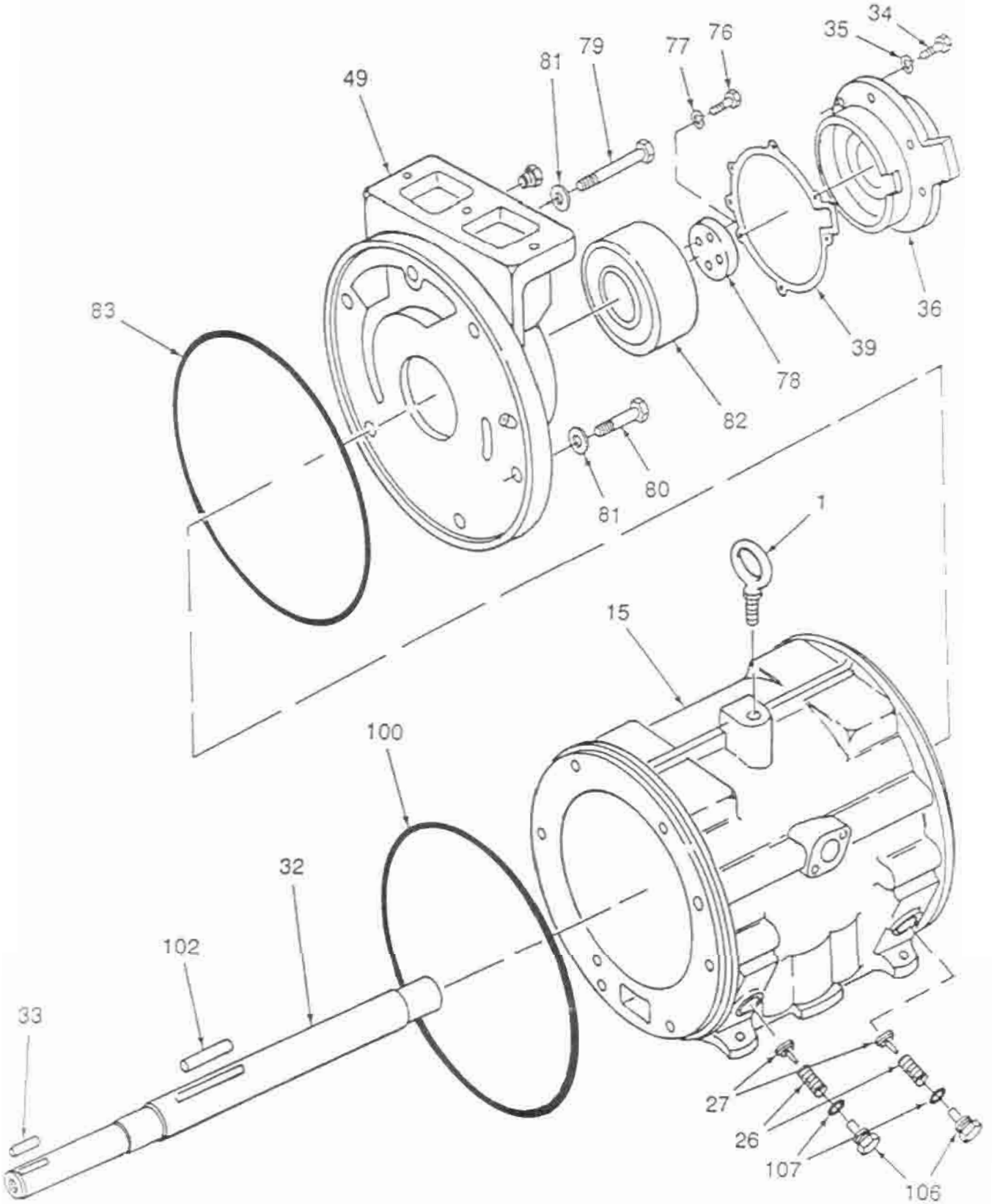


Figure 3-11. Air Compressor Group Disassembly (Sheet 3)

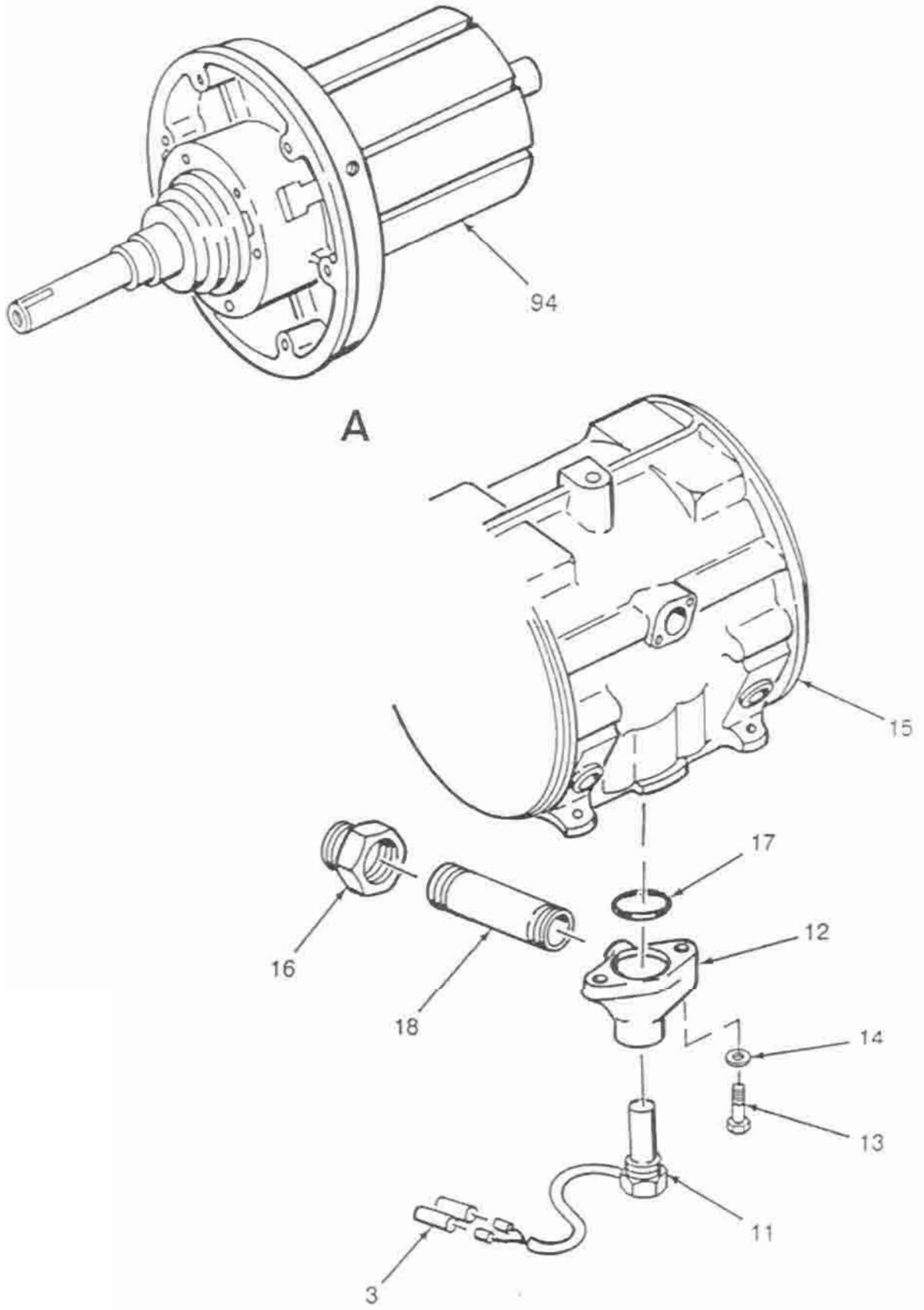


Figure 3-11. Air Compressor Group Disassembly (Sheet 4)

3-23. Fuel Tank Disassembly (12, Figure 3-15 and Figure 3-12). Disconnect fuel line hose at engine fuel pump and disconnect fuel return line (13) at engine injector pump and fuel tank (12).

a. Remove fuel return hose (13) from adapter (14) at fuel tank. Remove fuel tank to fuel pump hose (15) from elbow adapter (16), (See Figure 3-15).

b. Remove drain plug (11) from fuel tank (See Figure 3-15).

c. Remove tube assembly (17) from elbow (18), (See Figure 3-15).

d. Release tank strap (19) by removing nut (20) and lock washer (21) from stud end of strap (See Figure 3-15)

e. Remove cap screw (22) and washer (23) from anchor end of strap and reinstall cap screw, washer and nut to prevent loss. Remove tank (12) from unit, (See Figure 3-15).

f. Remove elbow (2) and reducer bushing (4) from bottom of fuel tank (5) (See Figure 3-12).

g. Remove tee (6), reducer bushing (7), elbow (8) and adapter (1) from top of fuel tank (See Figure 3-12).

h. If necessary, remove fuel level gauge (9) by turning gauge counter clockwise and remove it from fuel tank (5), (See Figure 3-12).

i. If necessary, remove fuel cap (10). Remove fuel cover flange (10) and gasket by removing machine screws (11) and shake-proof washer (12), (See Figure 3-12).

1. ADAPTER
2. ELBOW
3. PLUG
4. BUSHING
5. FUEL TANK
6. TEE
7. BUSHING
8. ELBOW
9. FUEL GAUGE
10. FUEL CAP/FLANGE/GASKET
11. MACHINE SCREW
12. SHAKEPROOF WASHER

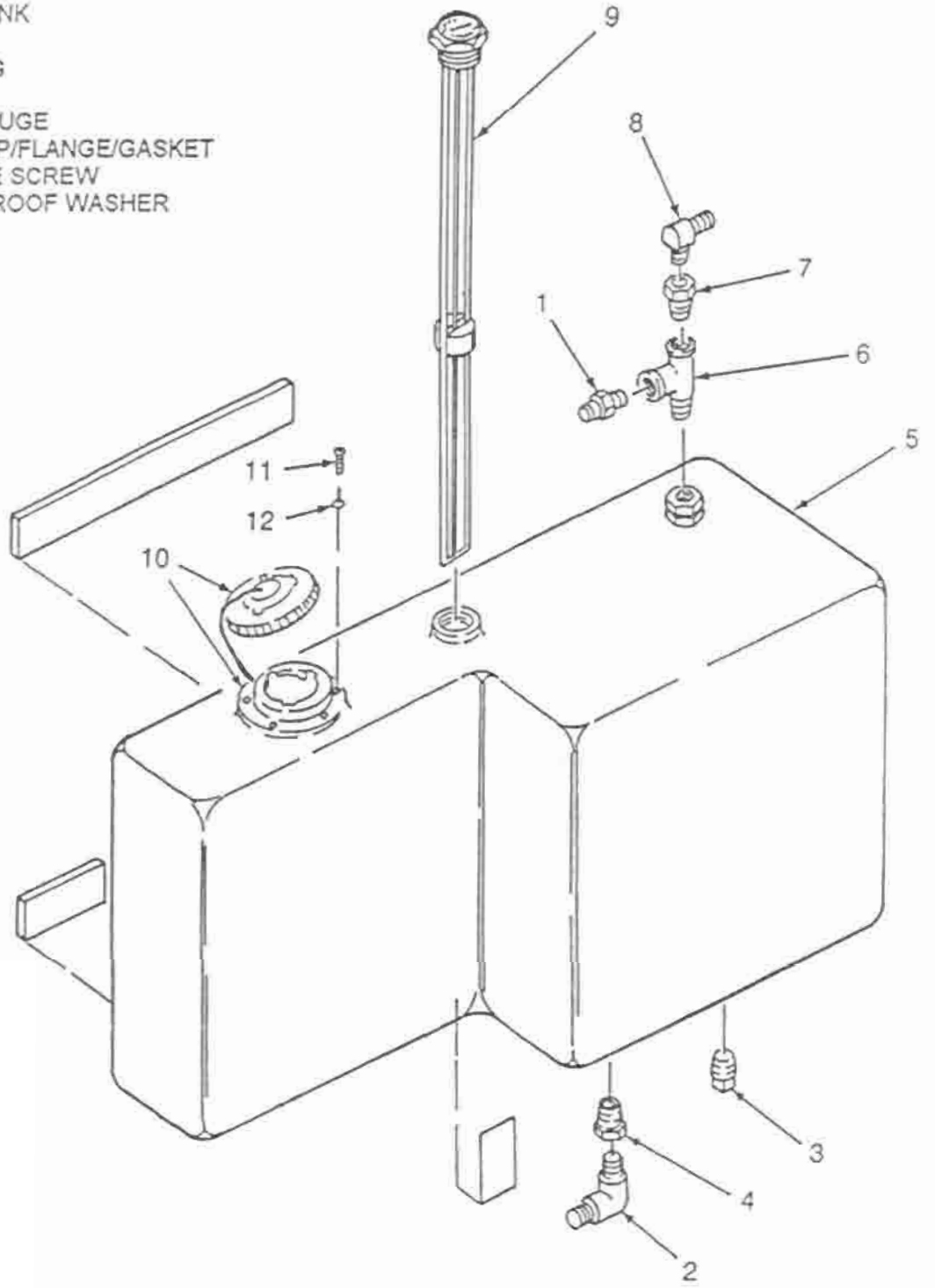


Figure 12. Fuel Tank Disassembly

3-24. Exhaust Muffler And Air Cleaner Disassembly (Figure 3-13).

a. Loosen hose clamp (1) from barbed fitting (2) and remove fresh air hose (3) from barbed fitting (2).

b. Loosen hose clamp (4) from end of barbed fitting (2) and remove air cleaner hose (5) from barbed fitting.

c. Loosen muffler clamp (6) from end of muffler (7) and remove elbow (8) from muffler (7).

d. Loosen muffler clamp (6) from front end of muffler (7) and remove elbow (9) from muffler (7).

e. Loosen muffler clamp (6) from top of engine and elbow (9). Remove elbow (9).

f. Loosen hose clamp (4) from end of air cleaner (10) and remove air cleaner hose (11).

g. Loosen hose clamp (12) from top end of air cleaner (10) and remove fresh air hose (13).

h. Remove nut (14), lock washer (15), washer (16) and bolt (17) attaching exhaust muffler (7) to lifting bail (18). Remove exhaust muffler (7) from lifting bail (18).

i. Remove self-locking nut (19) and cap screw (20) from muffler support, outlet (21). Remove muffler support (21).

j. Remove self-locking nut (19) and cap screw (20) from muffler support, inlet (22). Remove muffler support (22) and barbed fitting (2).

k. Remove nut (23), lock washer (24), washer (25) and bolt (26) attaching angle support to engine. Remove bolt (27) attaching air cleaner bracket (28) to engine. Remove nut (30), lock washer (31), washer (32) and bolt (33) attaching angle support (29) to air cleaner bracket (28). Remove air cleaner (10).

l. Remove self-locking nuts (34) and bolts (35) attaching lifting bail (18) to both sides of frame assembly. Remove lifting bail (18) from frame assembly.

KEY TO FIGURE 3-13

1. Hose Clamp
2. Barbed Fitting
3. Air Hose
4. Hose Clamp
5. Air Hose
6. Muffler Clamp
7. Muffler
8. Elbow
9. Elbow
10. Air Cleaner
11. Air Hose
12. Hose Clamp
13. Air Hose
14. Nut, Plain
15. Lock Washer
16. Washer
17. Bolt
18. Lifting Bail
19. Nut
20. Cap Screw
21. Outlet, Muffler Support
22. Inlet, Muffler Support
23. Nut
24. Lock Washer
25. Washer
26. Bolt
27. Bolt
28. Air Cleaner Bracket
29. Angle Support
30. Nut
31. Lock Washer
32. Washer
33. Bolt
34. Nut
35. Bolt

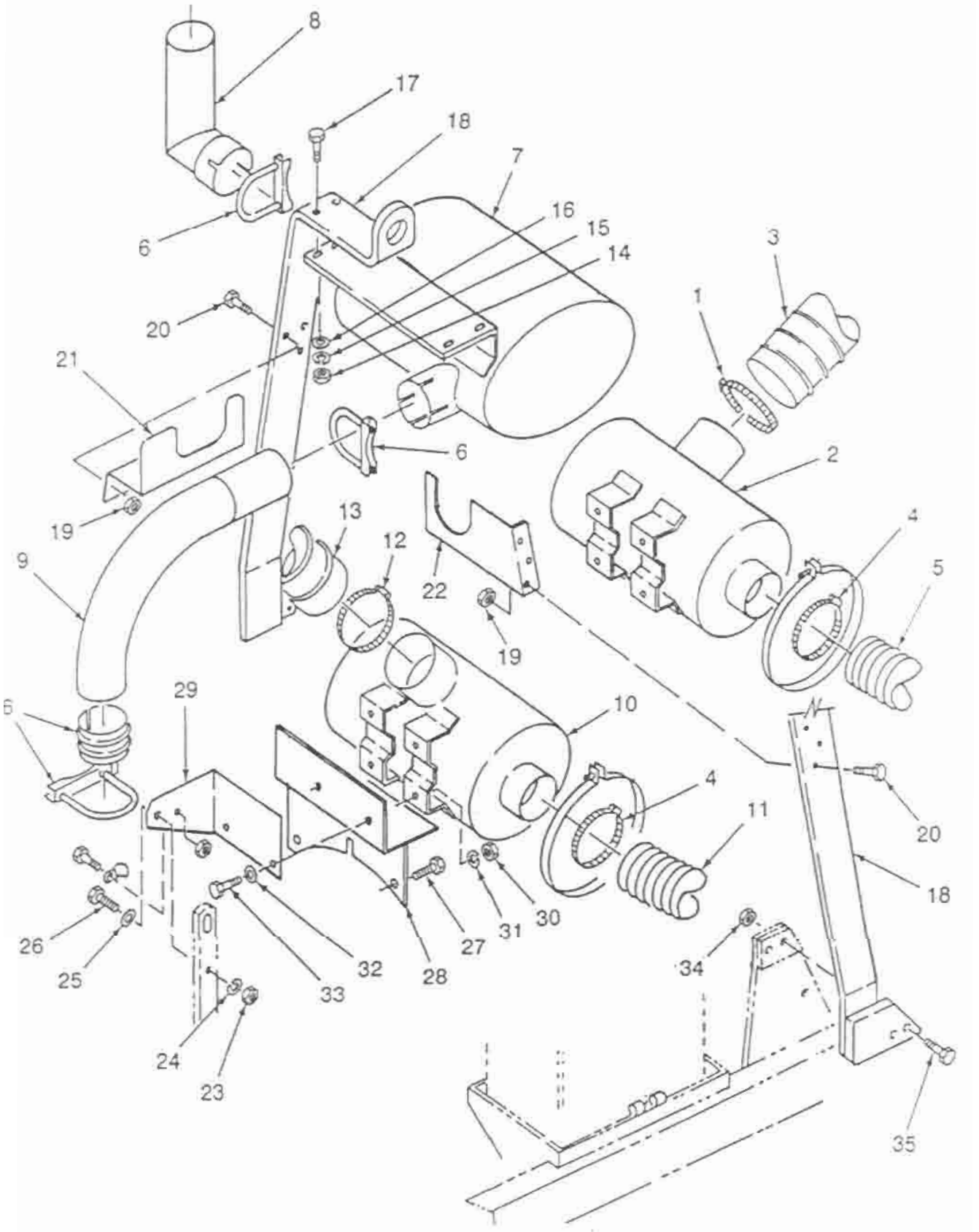


Figure 13. Exhaust Muffler And Air Cleaner Disassembly

3-25. Battery Cables, Battery Mounting Disassembly. Refer to Figure 3-14 and remove mounting group as follows:

a. Remove ground strap (1) from negative post on battery. Remove positive battery cable (2) from battery post and disconnect jumper cable (3) from frame by removing self-locking nut (4) lockwasher (5) and cap screw (6). Reinstall bolt, lock washer and nut onto frame to prevent loss.

b. Remove nut (7), lock washer (8) and flat washer (9) from "L" bolts (10) and remove hold-down plate (11). Reinstall lock washers, flat washers, and nuts on "L" bolts to prevent loss.

c. Lift battery (12) from battery box and store battery on battery pads in a heated storage area.

3-26. Engine And Accessories Group (Figure 3-15). To remove engine from unit, refer to T.O. 38G1-112-3 and proceed as follows:

a. Remove housing as required (para 3-11).

b. Remove panel assembly rear (para 3-16), air compressor assembly (para 3-19) and disconnect radiator/oil cooler mounting group (para 3-13) from engine.

c. Mark wire harness lead (76, 3 wires, Figure 3-15, Sheet 1) at starter motor. Disconnect battery leads (1 and 2, Figure 3-14) and wire harness at starter motor.

d. Mark wire harness leads (7 wires) at alternator and remove leads. Mark and disconnect pressure switch leads between starter and alternator.

e. Mark wire harness leads (2 wires) at injector pump. Disconnect fuel tank hose (15), and remove leads from injector pump.

f. Remove overspeed transmitter from engine.

g. Remove engine cable assembly (46) by removing cap screw (47), flat washer (48) and lock washer (49) from engine.

h. Remove muffler clamp (50) from rear of engine and air inlet adapter (51). Remove adapter.

i. On left and right rear side of engine, remove self-locking nut (52), flat washer (53), and cap screw (54) from rear shock mounts (55) on frame.

j. On left and right front side of engine, remove self-locking nut (56), flat washer (57) and cap screw (58) from front shock mounts (59) on frame.

k. On left and right rear side of engine, remove cap screw (60) and lock washer (61) from engine and rear engine mount (62).

l. On left and right front side of engine, remove self-locking nut (63), lock washer (64) and cap screw (65) from right front engine mount (66). Remove hex head screw (67) attaching front engine mount (66) to engine.

m. On left and right rear side of engine, remove self-locking nut (68) and cap screw (69) attaching rear shock mounts (55) to frame.

n. On left and right front side of engine, remove self-locking nut (70), and cap screw (71) attaching front shock mounts (59) to frame.

o. On left side of engine, remove ball joint (73) attached to linkage on engine. Remove ball stop (74) from link on air compressor. Remove wire stop (75) from link.

p. Hook engine lifting eyes with a lift device.

q. Take up slack to support engine with lift device cables and remove wire harness straps holding harness to engine (Figure 3-15, Sheet 1).

r. Raise engine slightly. Check for additional attachments or interfering projections and remove if necessary.

s. Hoist engine clear of unit.

CAUTION

Do not rest engine on oil pan. Severe damage to the pan or engine can result.

t. Place engine on blocks or mount it on an overhaul stand.

KEY TO FIGURE 3-15

1. Nut
2. Bolt
3. Washer
4. Elbow
5. Nipple
6. 90° Elbow
7. Adapter
8. O-Ring
9. Fill Plug
10. Hose Assembly
11. Drain Plug
12. Fuel Tank
13. Fuel Return Hose
14. Adapter
15. Hose
16. Elbow Adapter
17. Tube Assembly
18. Elbow
19. Tank Strap
20. Nut
21. Lock Washer
22. Cap Screw
23. Washer
24. Hose Assembly
25. Hose Assembly
26. Hose Assembly
27. Hose Assembly
28. Elbow
29. Nipple
30. Regulator Assembly
31. Tee
32. Adapter
33. Elbow
34. Elbow
35. Elbow
36. Tee
37. Gauge
38. Elbow
39. Lever
40. Washer
41. Wire Stop
42. Lever Arm Screw
43. Lever Arm and Wire Stop
44. Elbow
45. Hose Assembly
46. Cable Assembly
47. Cap Screw
48. Flat Washer
49. Lock Washer
50. Muffler Clamp
51. Adapter
52. Self-Locking Nut
53. Flat Washer
54. Cap Screw
56. Self-Locking Nut
57. Flat Washer
58. Cap Screw
59. Front Shock Mount
60. Cap Screw
61. Lock Washer
62. Rear Engine Mount
63. Self-Locking Nut
64. Lock Washer
65. Cap Screw
66. Front Engine Mount
67. Hex Head Screw
68. Self-Locking Nut
69. Cap Screw
70. Self-Locking Nut
71. Cap Screw
72. Jumper Cable
73. Ball Joint
74. Stop Block
75. Wire Stop
76. Wire Harness
77. Cold Weather Starting Aid
78. Mount Plate
79. Self-Locking Nut
80. Machine Screw
81. Cap Screw
82. Lock Washer

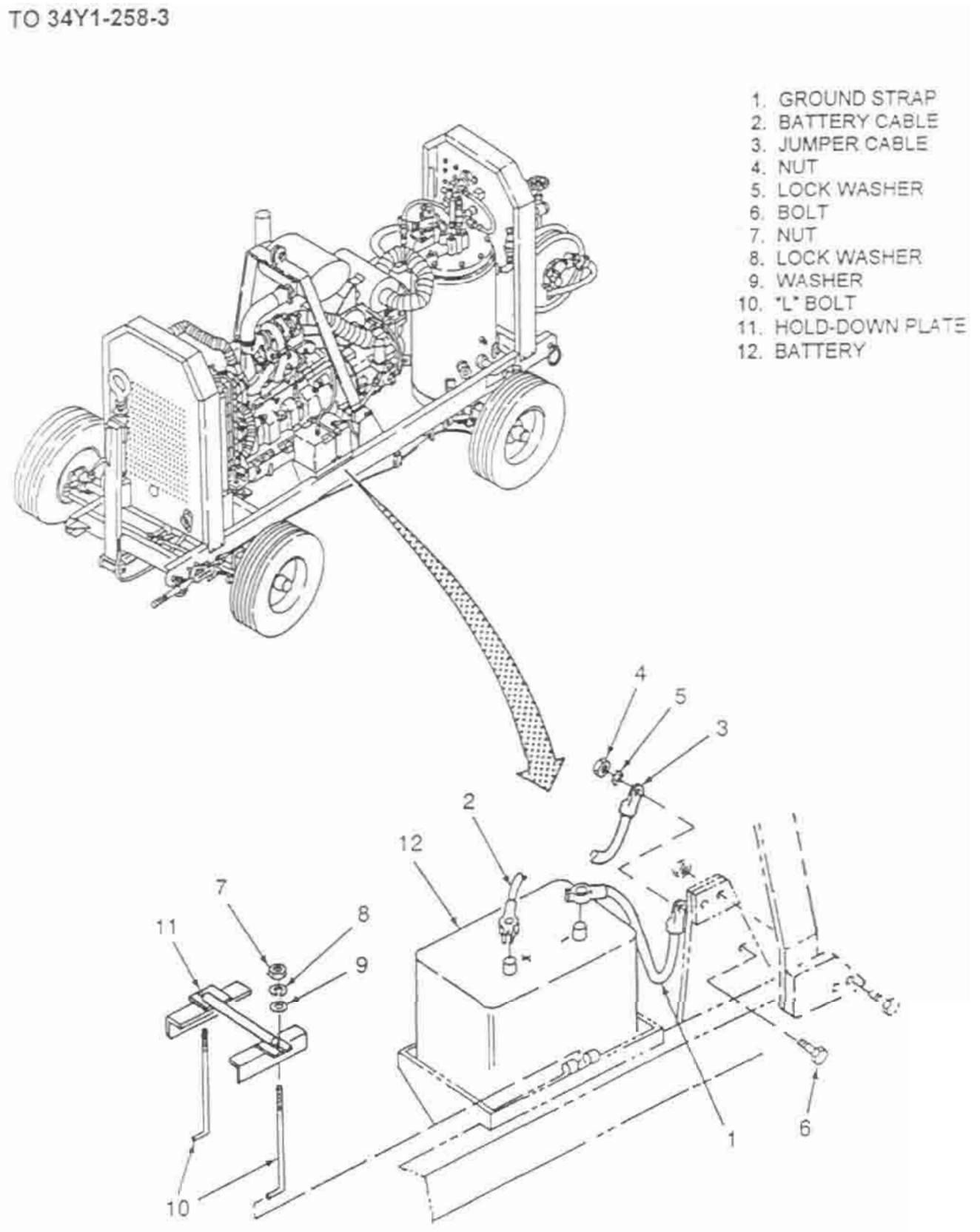


Figure 3-14. Battery Cable, Battery Mounting Disassembly

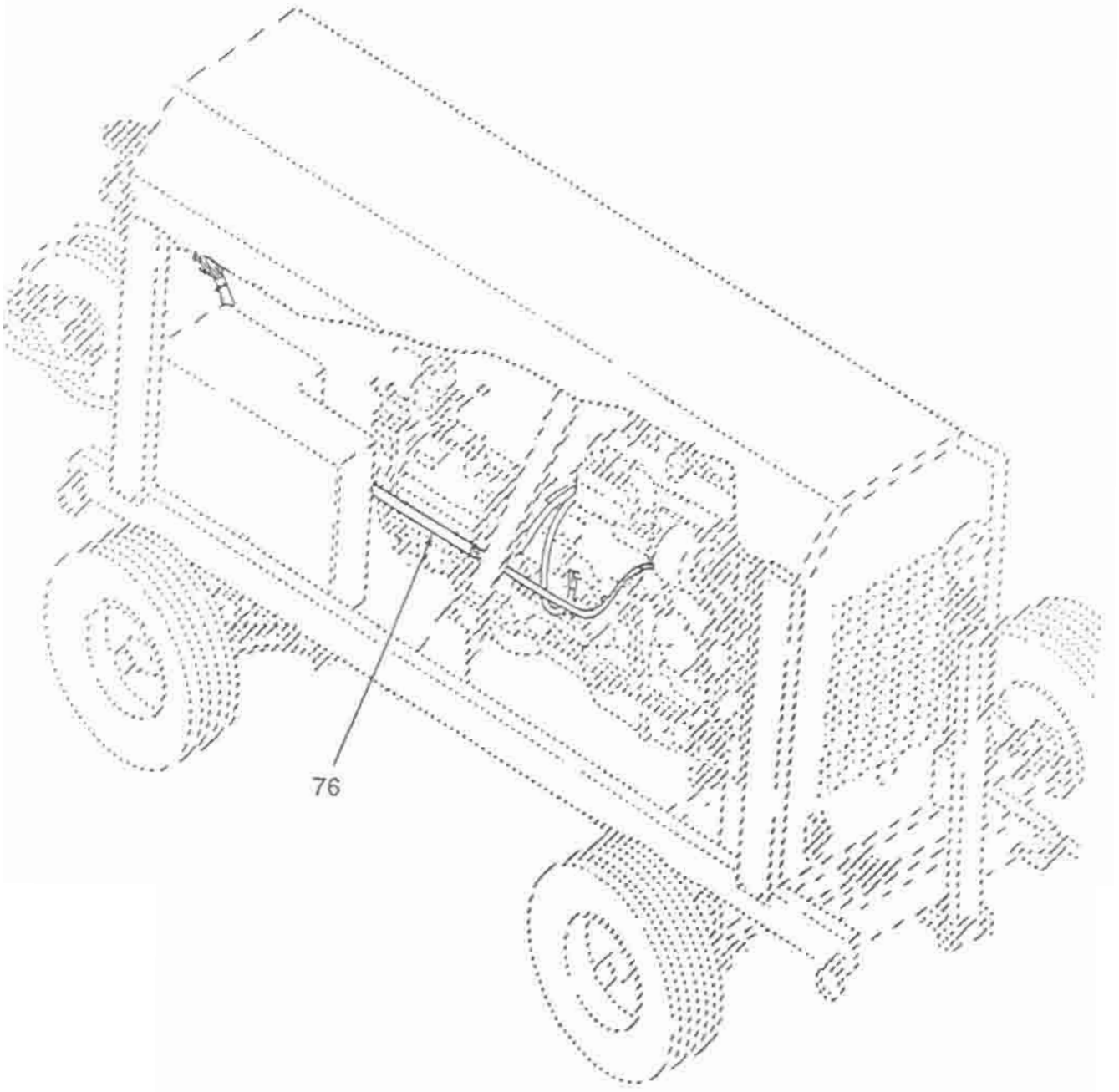


Figure 3-15. Engine And Accessories Group (Sheet 1 of 5)

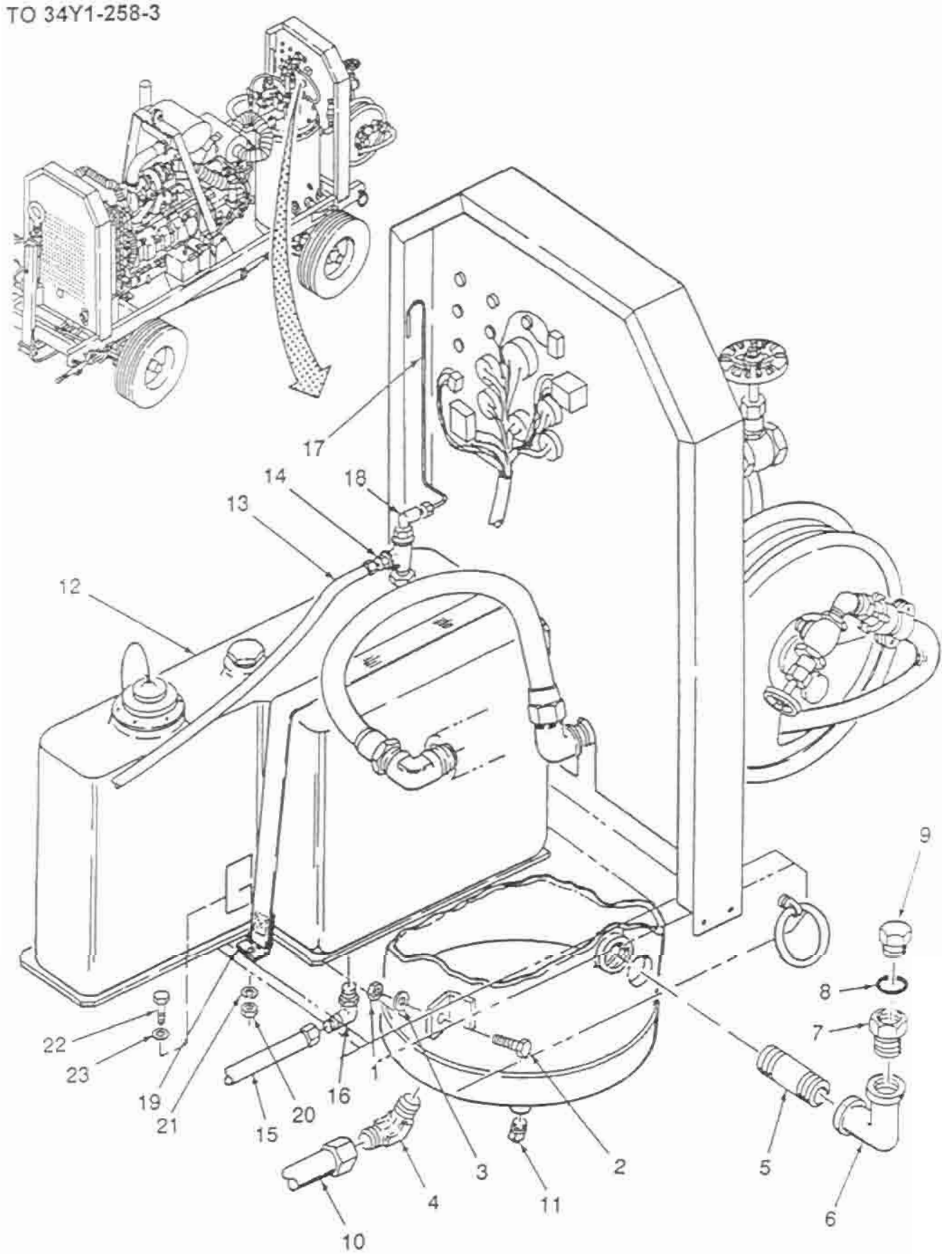


Figure 3-15. Engine And Accessories Group (Sheet 2)

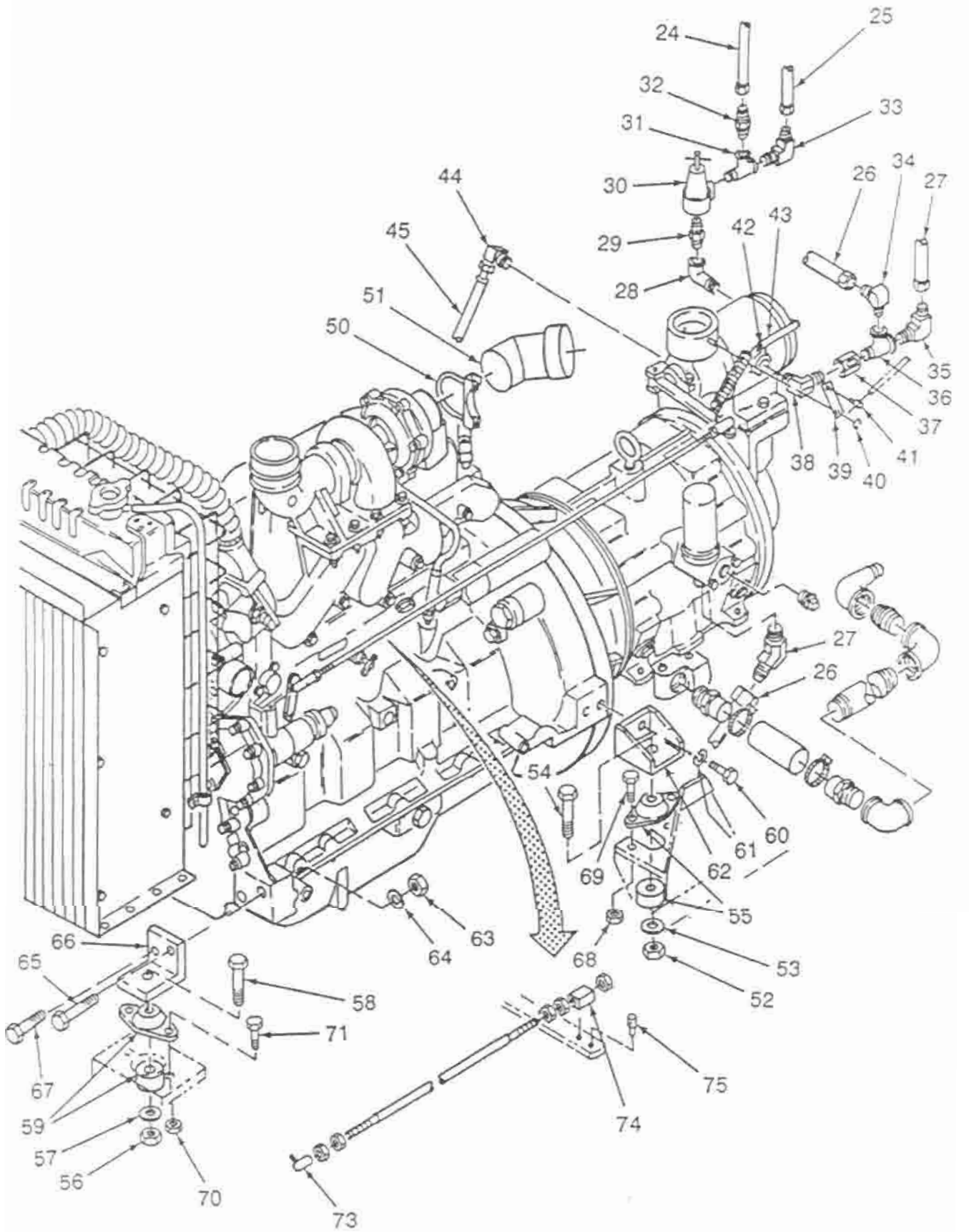


Figure 3-15. Engine And Accessories Group (Sheet 3)

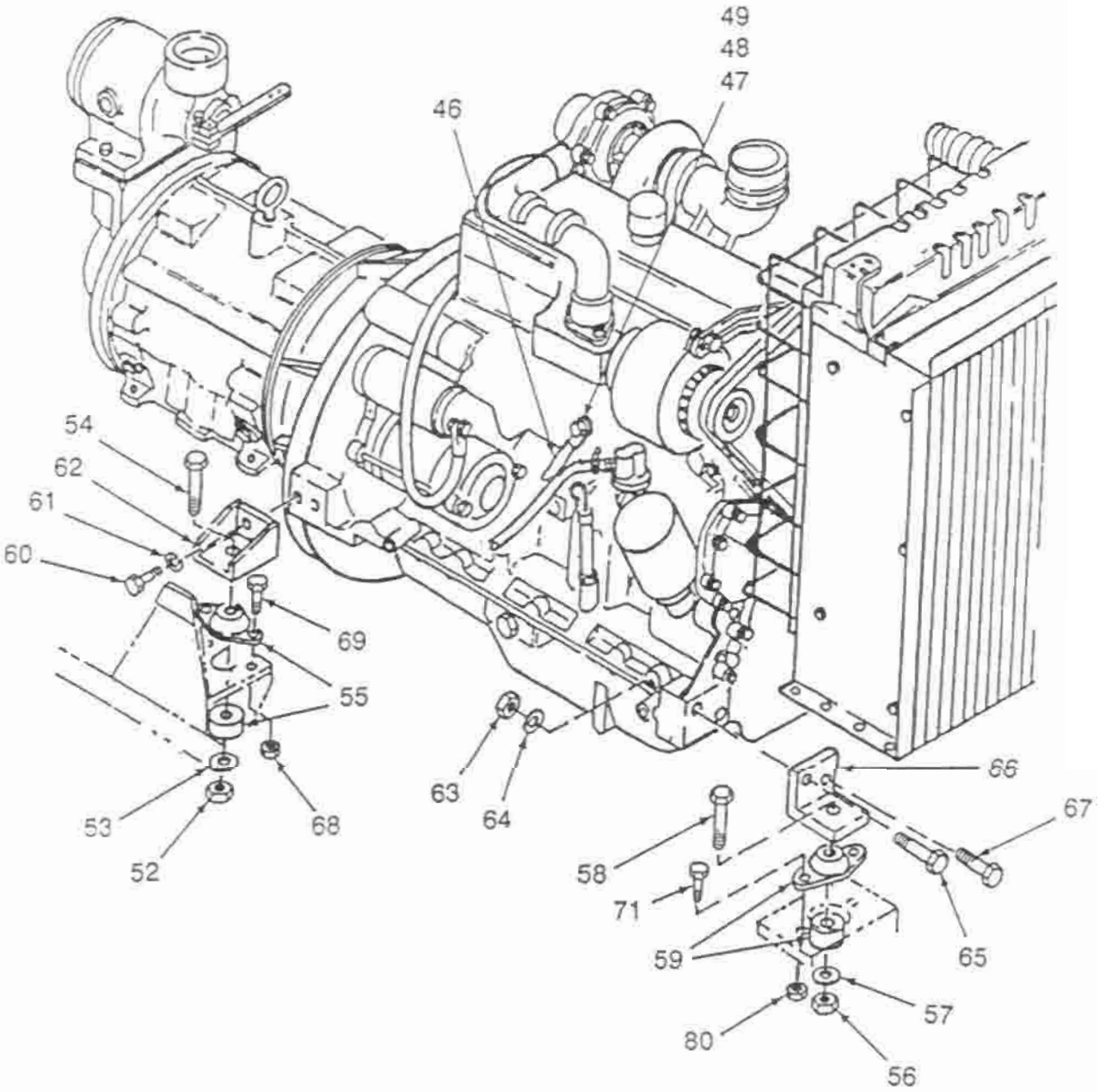


Figure 3-15. Engine And Accessories Group (Sheet 4)

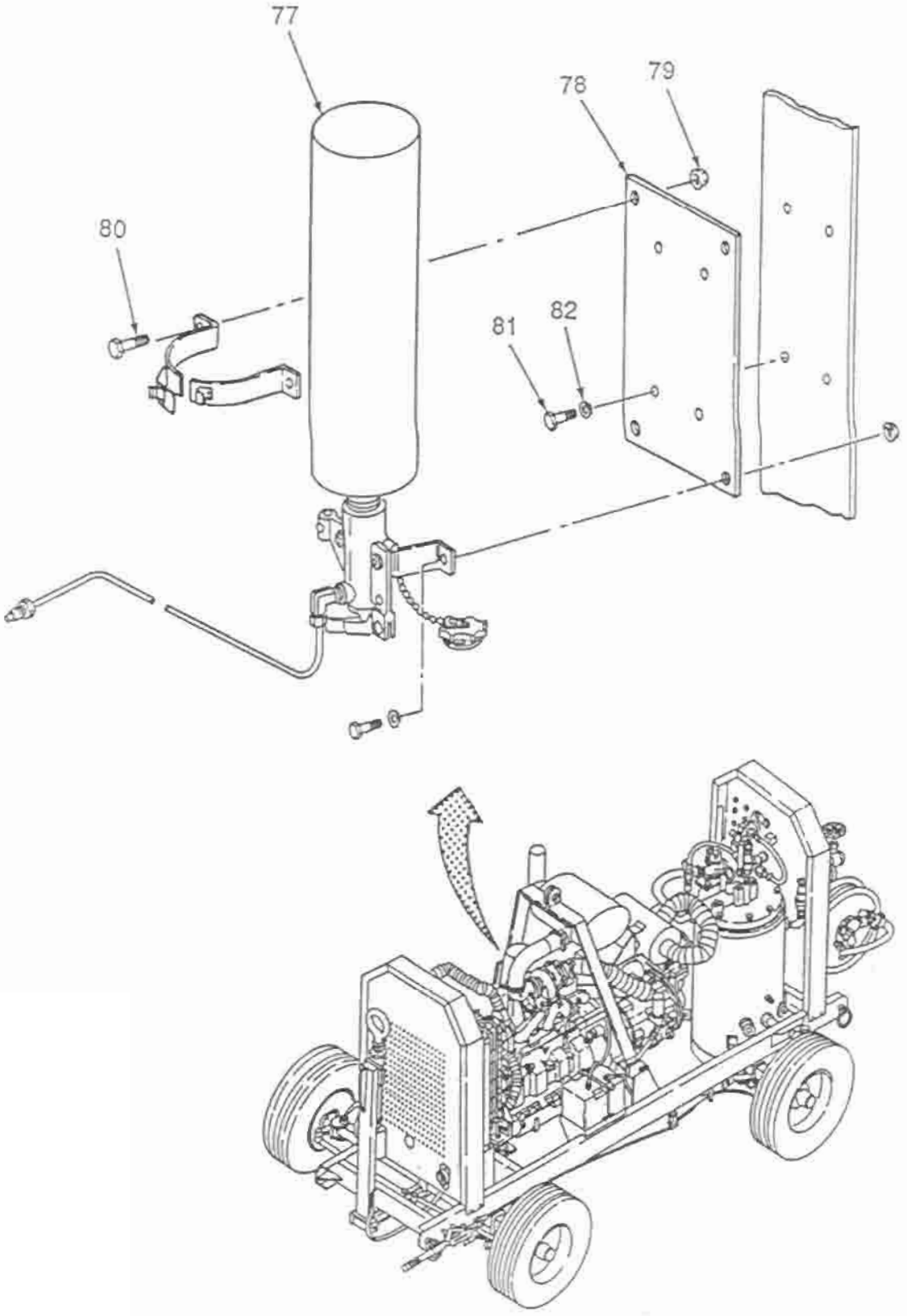


Figure 3-15. Engine And Accessories Group (Sheet 5)

3-27. Front Axle Group (Figure 3-16). Disassemble the front axle group as follows:

a. Remove the front axle group from frame by removing the eight lock nuts (2), beveled channel washers (3) and bolts (4). Remove lock nuts (7), bolts (8), and spring brackets (1) from eye end of springs (6). Remove cotter pins (9), rivet pins (10), and spring brackets (5) from hook end of springs (6).

b. Remove wheel nuts (29) and wheel assemblies (28). Tires and tubes need not be removed from wheels (28) for axle disassembly.

c. If towbar (14) bolt (16) is in center arm (17), remove slotted nut (15) and bolt (16). Remove cotter pins (24), slotted nuts (25), and washers (26); remove tie rod assemblies (23) from spindles (38) and center arm (17). When necessary to disassemble tie rod assemblies, loosen tie rod jam nut, thread tie rod pins off tie rods, and, if necessary remove jam nuts from the rods.

d. Remove cotter pin (21) and drive center arm pin (22) out of axle center bracket and center arm. Remove spacing washer if used. Separate center arm assembly from axle. As necessary, remove rollpin (18), towbar latch (19), and spring (20) from center arm (17). Lubrication fittings in center arm (17) need not be removed unless damaged.

e. Remove grease caps (31), cotter pins (32), spindle nuts (33), spindle washer (34), and outer bearing (35) cones. Tap hub (30) with a soft mallet to loosen from spindle and pull hub (30) off spindles (38). Remove grease seals (37) and inner bearing (36) cones from hub (30). When necessary to replace, press inner and outer bearing (35, 36) cups from hub bores and wheel studs (42) from hub (30) flange.

f. Drive rollpins (39) and king pins (40) out of spindles and axle beam, separating the spindles (38) from axle beam (41). Remove spindle lubrication fittings (27) if damaged.

g. Remove eight nuts (11), four u-bolts (12), two spring plates (13), separating the two springs (6) from axle beam (41).

Key to Figure 3-16

1. Spring Bracket
2. Locknut
3. Channel Washer
4. Bolt
5. Spring Bracket
6. Leaf Spring
7. Nut
8. Bolt
9. Cotter Pin
10. Pin
11. Locknut
12. "U" Bolt
13. Plate
14. Towbar
15. Slotted Nut
16. Bolt
17. Center Arm
18. Rollpin
19. Latch
20. Spring
21. Cotter Pin
22. Pin
23. Tie Rod
24. Cotter Pin
25. Slotted Nuts
26. Flat Washer
27. Grease Fitting
28. Wheel Assy
29. Nut
30. Hub
31. Grease Cap
32. Cotter Pin
33. Locknut
34. Washer
35. Bearing
36. Bearing
37. Grease Seal
38. Spindle and Knuckle
39. Roll Pin
40. Pin
41. Axle Beam
42. Wheel Studs

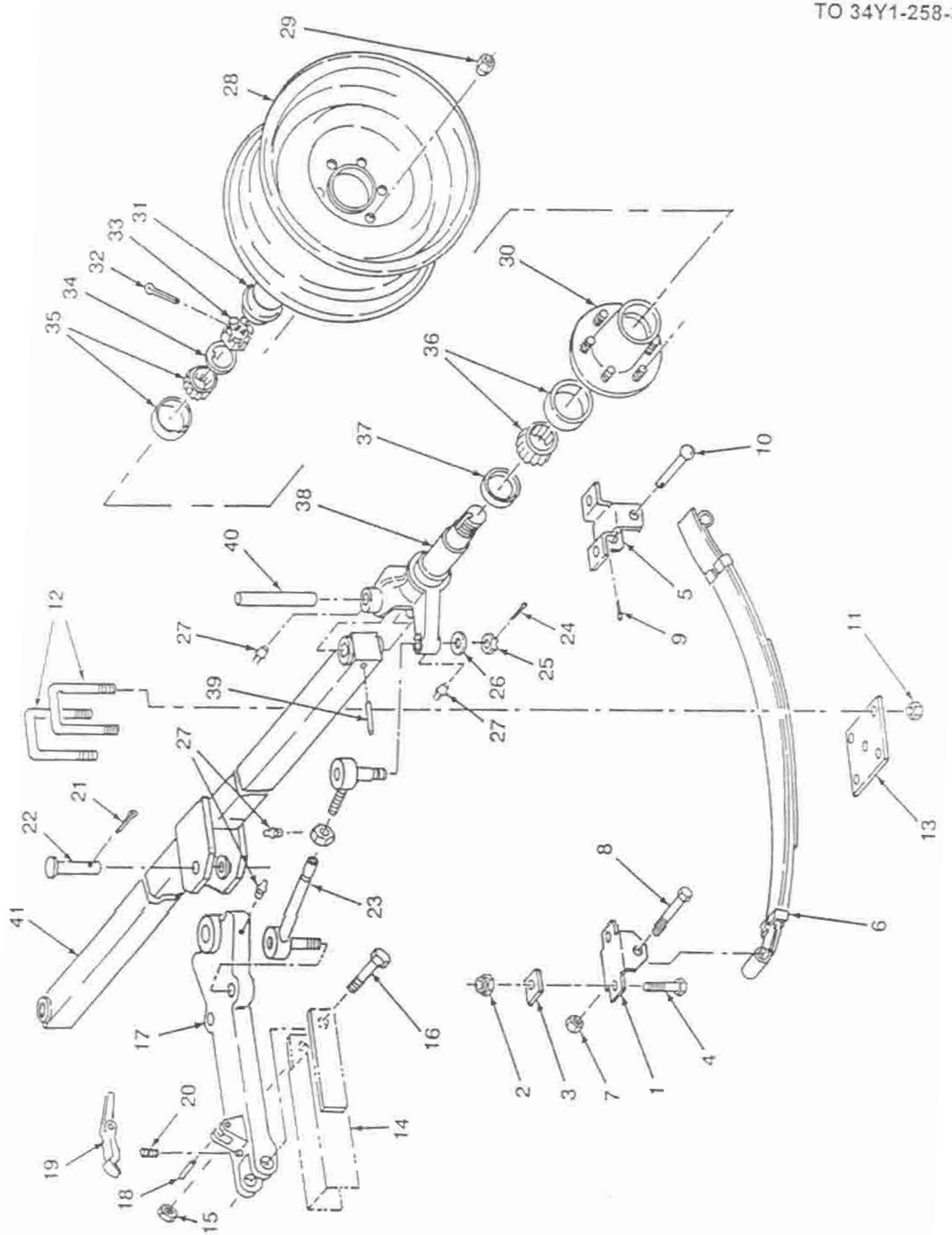


Figure 3-16. Front Axle Group

3-28. Surge Brake Actuator (Figure 3-17). Disconnect surge brake actuator from towbar (Figure 3-20). Disassemble surge brake actuator as follows:

a. Remove hex nut (15) and bolt (16) from sleeve and mfg. assy (10). Remove set screw (13) from sleeve and mfg. assy (10).

b. Remove hex nut (2) and screw (4) from clamp (5) two places.

c. Remove plunger assy (3) from lunette eye. Slide boot (6) from lunette eye and bumper (1) from plunger assy (3).

d. Remove push rod (8), spring (9) from sleeve and mfg. assy (10).

e. Remove lock ring (27), stop plate (26), piston assy (25), cup protector (24), primary cup (23), return spring cap (22), piston return spring (21), valve assy (20), valve seal (19), and locknut (18) from sleeve and mfg. assy (10).

f. Remove retainer nut (28), gasket (29), cup (30), spring seat (31) and spring accumulator (32) from master cylinder (36).

g. Remove stud (11) and washer (12), two places, attaching breakaway assy (17) to sleeve and mfg. assy (10).

h. Remove two grease fittings (14) from sleeve and mfg. assy (10).

i. Remove filler cap (37), and filler cap gasket (38) from top of master cylinder (36).

j. Remove bleeder screw (34) two places from master cylinder (36).

k. Remove expansion plug (33) from rear of master cylinder (36).

l. Remove nameplate (35) from master cylinder (36).

Key to Figure 3-17

1. Bumper
2. Hex Nut
3. Lunette and Plunger Assy.
4. Screw
5. Clamp
6. Boot
7. Cable
8. Push Rod
9. Spring
10. Sleeve and Mfg. Assy
11. Stud
12. Washer
13. Set Screw
14. Grease Fitting
15. Hex Nut
16. Bolt
17. Breakaway Assy
18. Lock Nut
19. Valve Seal
20. Valve Assy
21. Spring
22. Cup
23. Primary Cup
24. Cup Protector
25. Piston Assy
26. Stop Plate
27. Lock Ring
28. Retainer Nut
29. Gasket
30. Cup
31. Spring Seat
32. Spring
33. Plug
34. Bleeder Screw
35. Name Plate
36. Master Cylinder
37. Filler Cap
38. Gasket

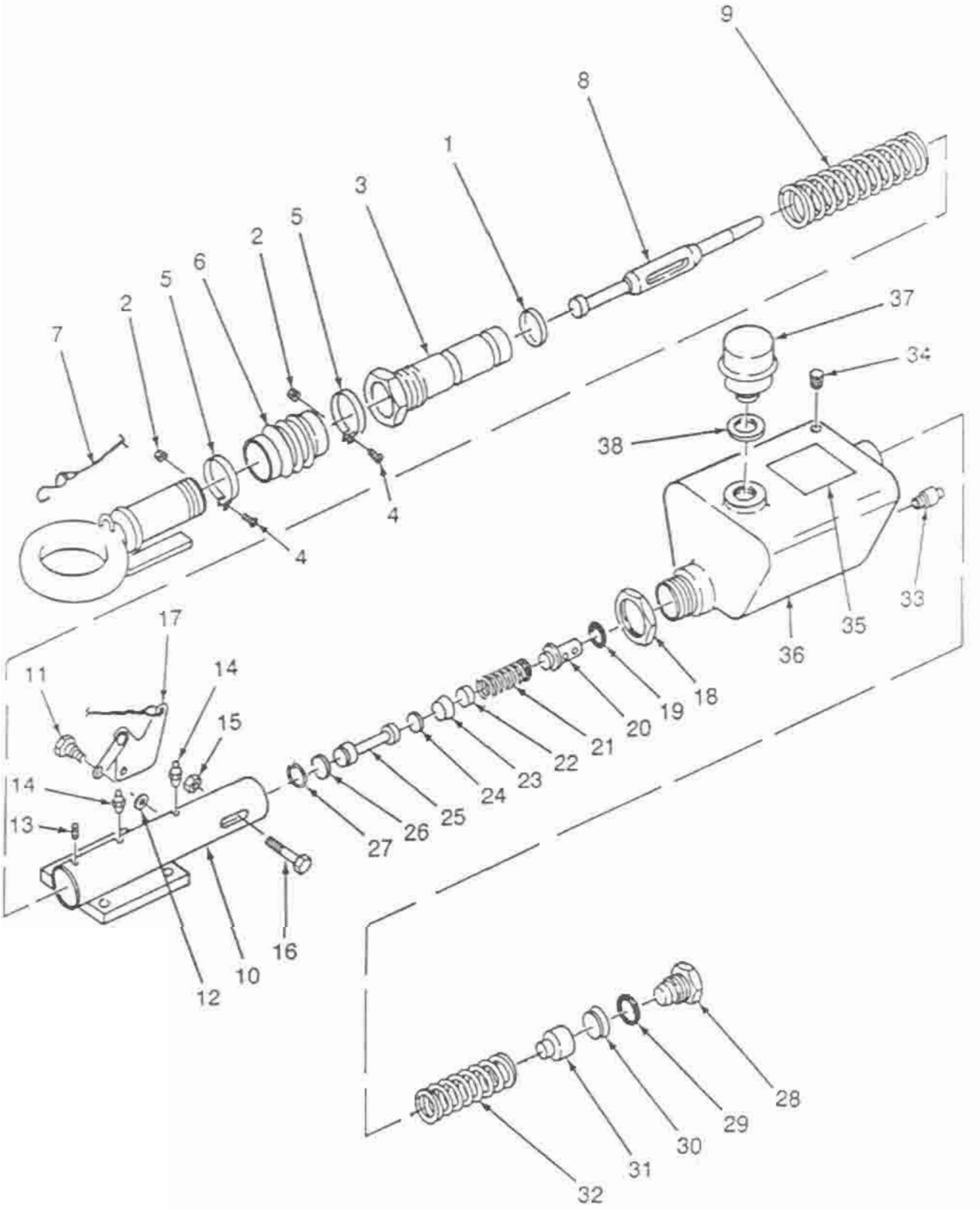


Figure 3-17. Surge Brake Actuator

3-29. Rear Axle Group (Figure 3-18). Disassemble the rear axle group as follows:

a. To remove rear axle group from frame, remove two lock nuts (3), lock washers (5) and bolts (4) from the two front spring bracket (8) mounting holes. Remove six bolts (4) and lock washers (5) from remaining spring bracket (8 and 11) mounting holes. Remove lock nuts (6) and bolts (7) and remove spring bracket (8) from eye end of spring (28). Remove cotter pin (9), rivet pin (10), and spring bracket (11) from hook end of spring (28).

b. Remove wheel nuts (13) and wheel assemblies (1). Tires and tubes need not be removed from wheels (1) for axle disassembly.

c. Remove grease caps (15), cotter pins (12), spindle nuts (13), spindle washers (14), and outer bearing cone (16). Tap hub (21) with a soft mallet to loosen hub and drum assembly on spindle and pull off hub and drum assembly

d. Remove grease seals (17) and inner cup (19) and bearing cones (18). When necessary for replacement, separate hub (21) from brake drum (22 and 23) and press bearing cups (19 and 20) out of hub (21) bores. Press wheel studs (33) out of drum (21).

e. Disconnect brake cables from brake levers. Remove nuts (24), lock washer (25) and screw (26). Remove brake assemblies (22 and 23) from axle beam flange.

Brake assemblies (22 and 23) are right and left-hand, left-hand is shown. Refer to Figure 3-19 for details.

f. Remove eight nuts (29), four u-bolts (30), two spring plates (31) and two springs (28) from axle beam (32).

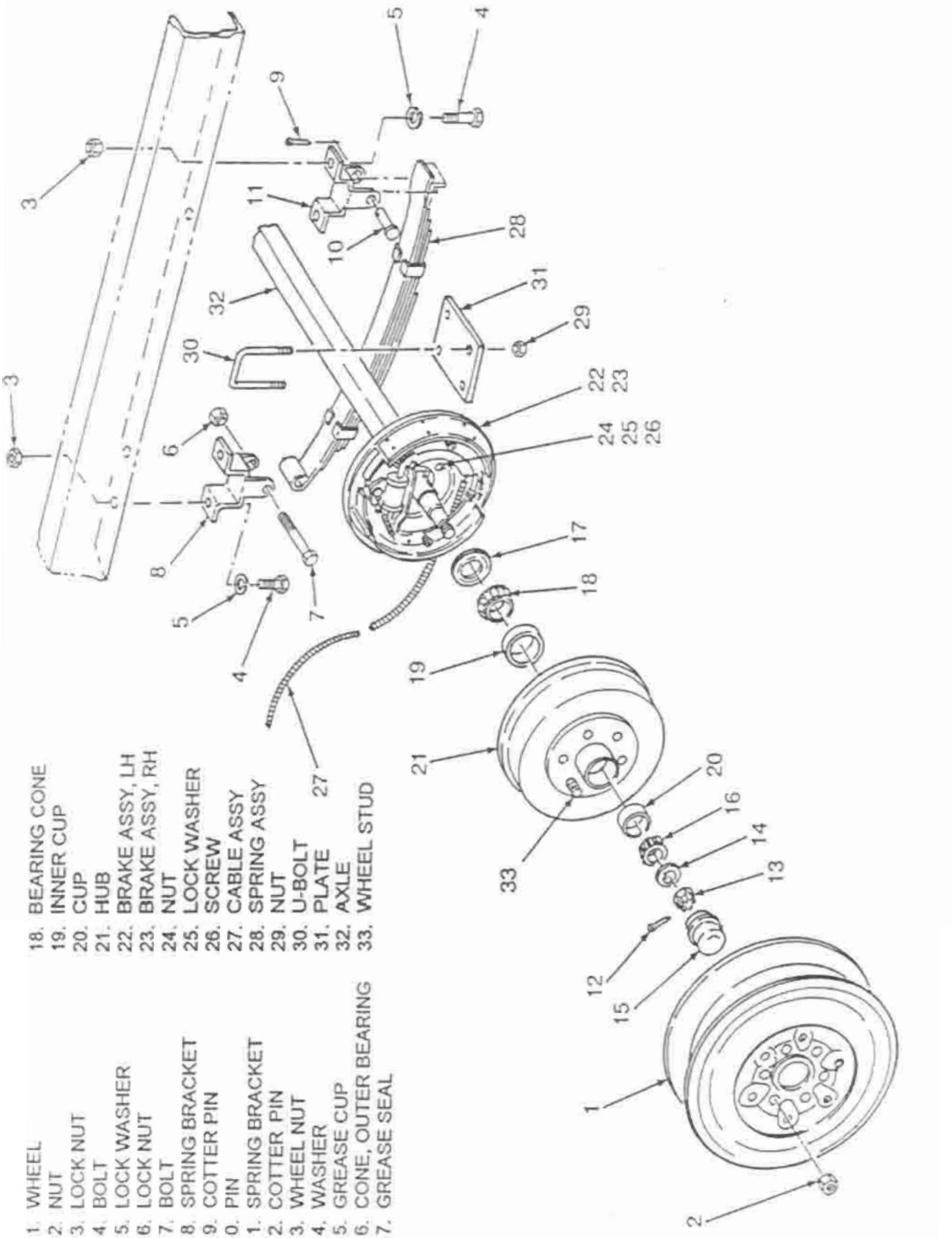
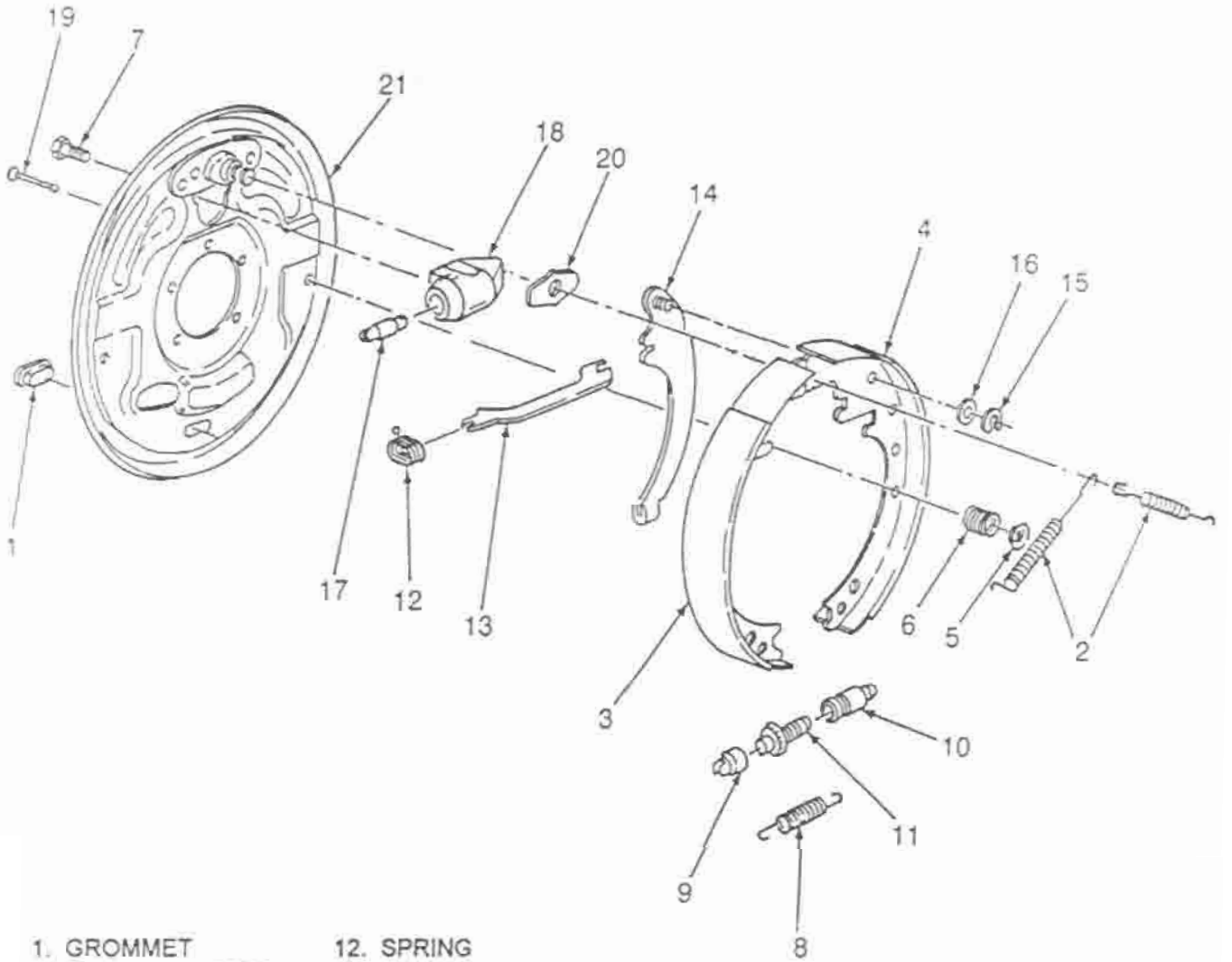


Figure 3-18. Rear Axle Group

3-30. Brake Assembly (Figure 3-19). Remove grommet (1) from adjusting hole in backing plate (21). Remove the two anchor springs (2) and adjusting screw spring (8). Remove shoe holddown cups (5), holddown springs (6), and holddown pins (7). Remove primary and secondary shoe assembly (3, 4). Remove adjusting screw assembly and as necessary disassemble socket (9), nut (10), and screw (11). Remove strut spring (12) and strut (13). Remove retainer (15), washer (16), and lever assembly (14). Remove cylinder push rod (17), screws (19) and cylinder assembly (18). If necessary, remove guide plate (20) from backing plate (21).



1. GROMMET
2. ANCHOR SPRING
3. BRAKE SHOE ASSY
4. BRAKE SHOE ASSY
5. CUP
6. SPRING
7. PIN
8. ADJ SCREW SPRING
9. SCREW SOCKET
10. PIVOT NUT
11. ADJ SCREW
12. SPRING
13. STRUT
14. PARK BRAKE LEVER
15. RETAINER
16. WASHER
17. PUSH ROD
18. CYLINDER ASSY
19. CAP SCREWS
20. GUIDE PLATE
21. BACKING PLATE

Figure 3-19. Brake Assembly

3-31. Hydraulic And Hand Brake Connections (Figure 3-20, Sheets 1 and 2). Disassembly of these parts should be only to the extent necessary to repair or replace defective parts.

a. Place a suitable container beneath each connection of hydraulic lines to collect fluid as parts are disassembled from hydraulic system. Disconnect and remove brake hydraulic hose assemblies (1) from hose connectors (2) and from bulkhead elbow (3) and bulkhead tee (4). When necessary, remove connectors (2). Disconnect and remove hydraulic hose assembly (5) from union (6) on towbar. Disconnect and remove hydraulic hose assembly (1) from bulkhead elbows (3) on frame. Disconnect hydraulic tubing lines (7) from bulkhead tees (4) removing tubing clips as necessary from frame. Disconnect and remove brake hydraulic hose assemblies (8) from hose connector (9) and from bulkhead elbow (10). Disconnect hydraulic tubing line (11) from bulkhead tee (4) and bulkhead elbow (10). Disconnect hydraulic tubing lines (12) from bulkhead tees (4) removing clips as necessary from frame. Remove hydraulic tubing line (13) from bulkhead tee (4) and bulkhead elbow (10) removing tubing clips as necessary. Disconnect hydraulic tubing lines (16 and 17) from bulkhead tee (4) and bulkhead elbows (3), removing clips as necessary from frame.

b. Remove two lock nuts (18), two bolts (19), through spacers (23) and flat washers (20) securing brake handle (21) to mounting bracket (22). Remove cotter pin, flat washer, clevis pin, and spacers, releasing cable clevis (24) from brake handle (21). Assemble clevis pin, spacers, flat washer and cotter pin to brake handle to prevent loss.

c. Loosen clevis nuts (25) and thread clevis (26) off end of brake cable stud, remove nut (25). Remove one jam nut (27) on brake side of cable assembly (24) and withdraw cable from mounting bracket (22). Assemble jam nut (27) and cable stud nut (25) on cable to prevent loss.

d. When hub and drum are removed from rear axle assembly, cables (29) can be disconnected from brakes.

KEY TO FIGURE 3-20

1. Hydraulic Hose Assy
2. Hose Connector
3. Elbow, Union
4. Tee, Union
5. Hose Assembly
6. Union
7. Tube Assy
8. Hose Assembly
9. Hose Connector
10. Elbow, Union
11. Tube Assembly
12. Tube Assembly
13. Tube Assembly
14. Tube Assembly
15. Connector, Male
16. Tube Assembly
17. Tube Assembly
18. Lock Nut
19. Screw, Cap
20. Lock Washer
21. Brake Handle
22. Mounting Bracket
23. Spacer
24. Cable Clevis
25. Clevis Nut
26. Clevis
27. Jam Nut
28. Master Cylinder
29. Brake Cable
30. Mounting Bracket
31. Shaft Lever
32. Pin
33. Cotter Pin
34. Cross Shaft
35. Collar
36. Bearing Shaft
37. Shaft Lever
38. Pin
39. Pin
40. Cotter Pin
41. Nut
42. Bolt
43. Nut
44. Lock Washer
45. Bolt

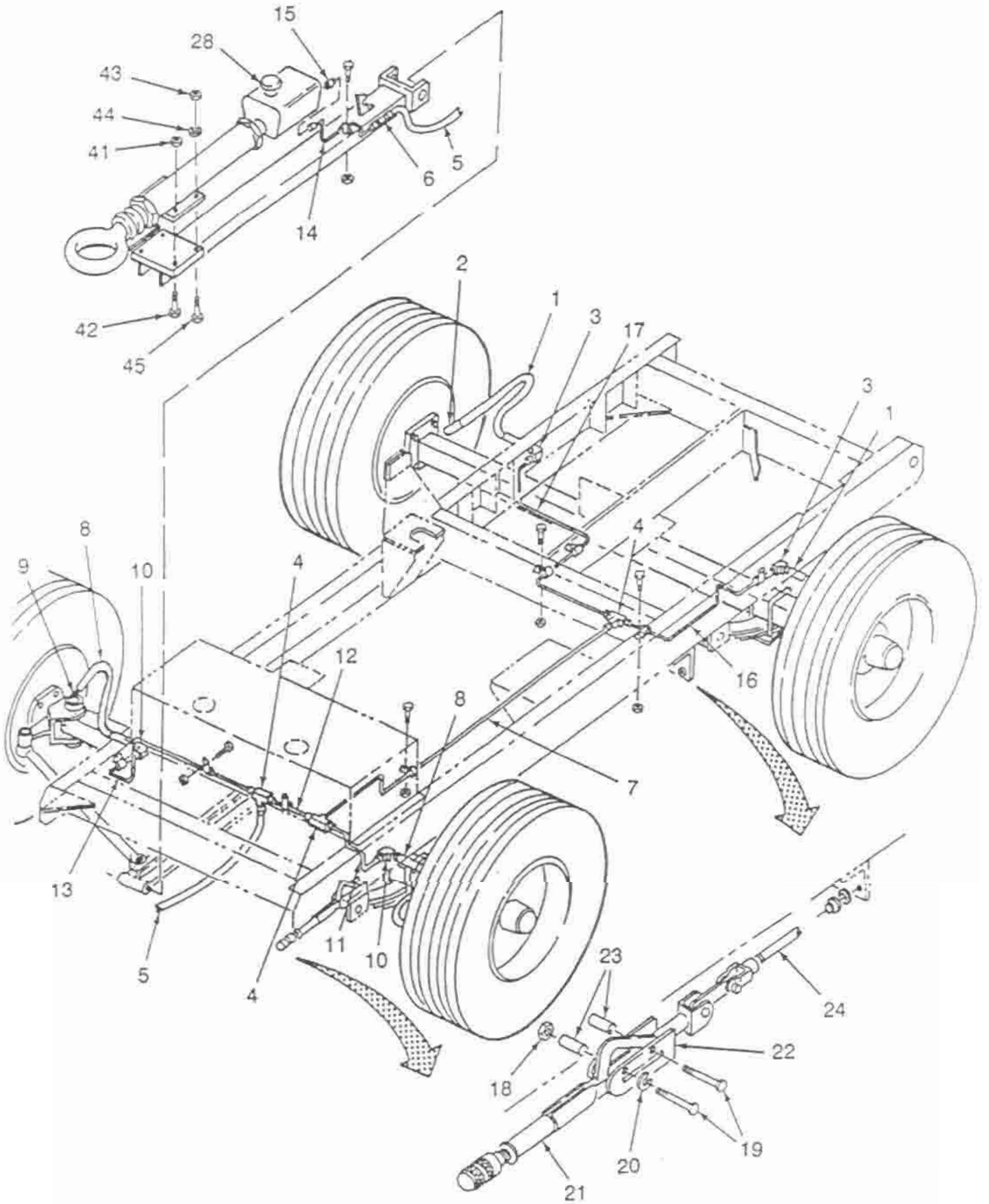


Figure 20. Hydraulic And hand Brake Connections (Sheet 1 of 2)

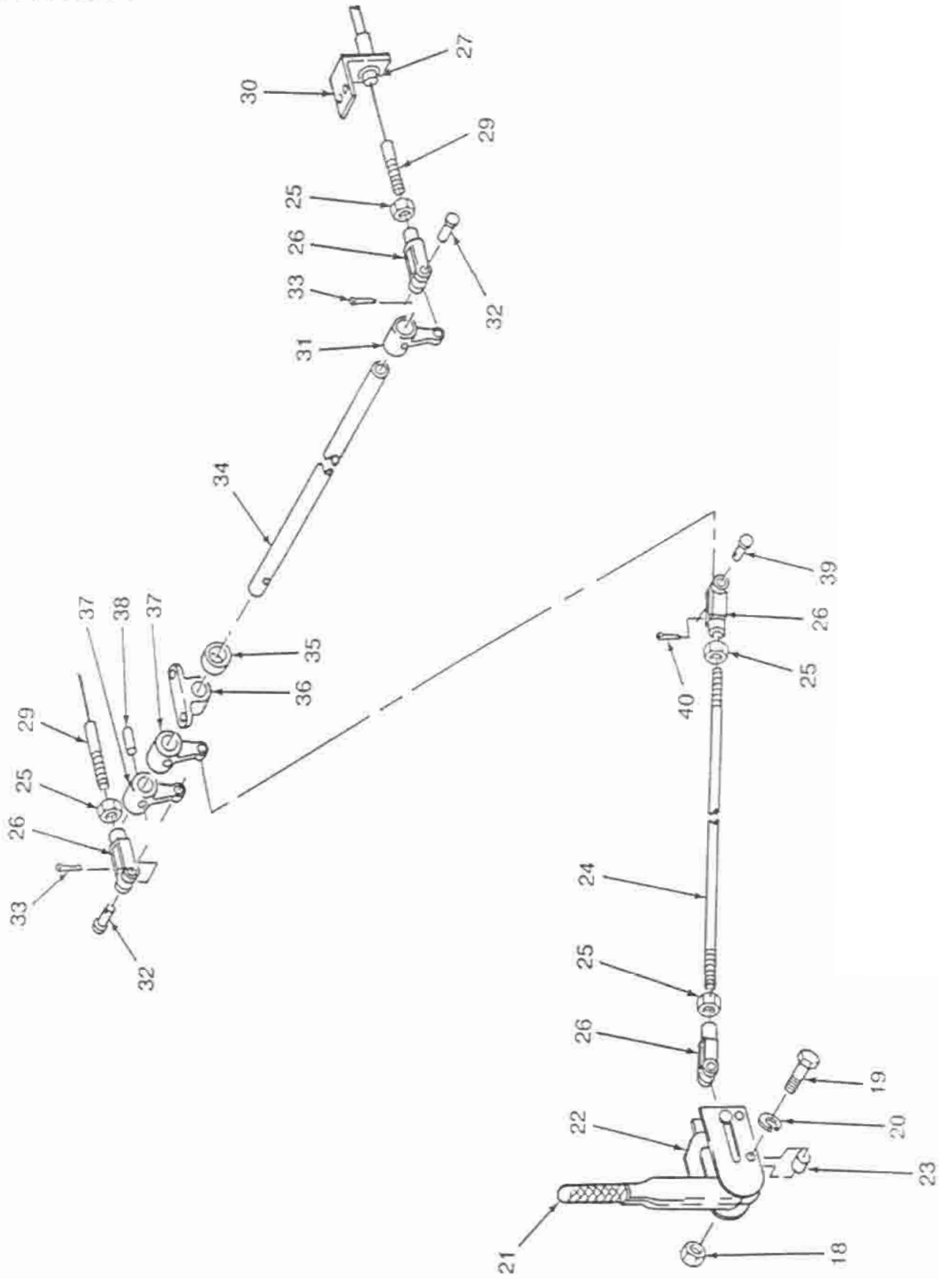


Figure 20. Hydraulic And hand Brake Connections (Sheet 2)

3-32. Frame (Figure 3-21). Disassembly of these parts should be only to the extent necessary to repair or replace defective parts.

a. Remove gasket (1) and gasket (2).

b. Remove four cargo rings (3).

c. Remove eight cap screws (4), eight lock washers (5), eight nuts (6), support (7), and support (8).

1. GASKET
2. GASKET
3. RING, CARGO
4. CAP SCREW
5. LOCK WASHER
6. NUT
7. SUPPORT
8. SUPPORT

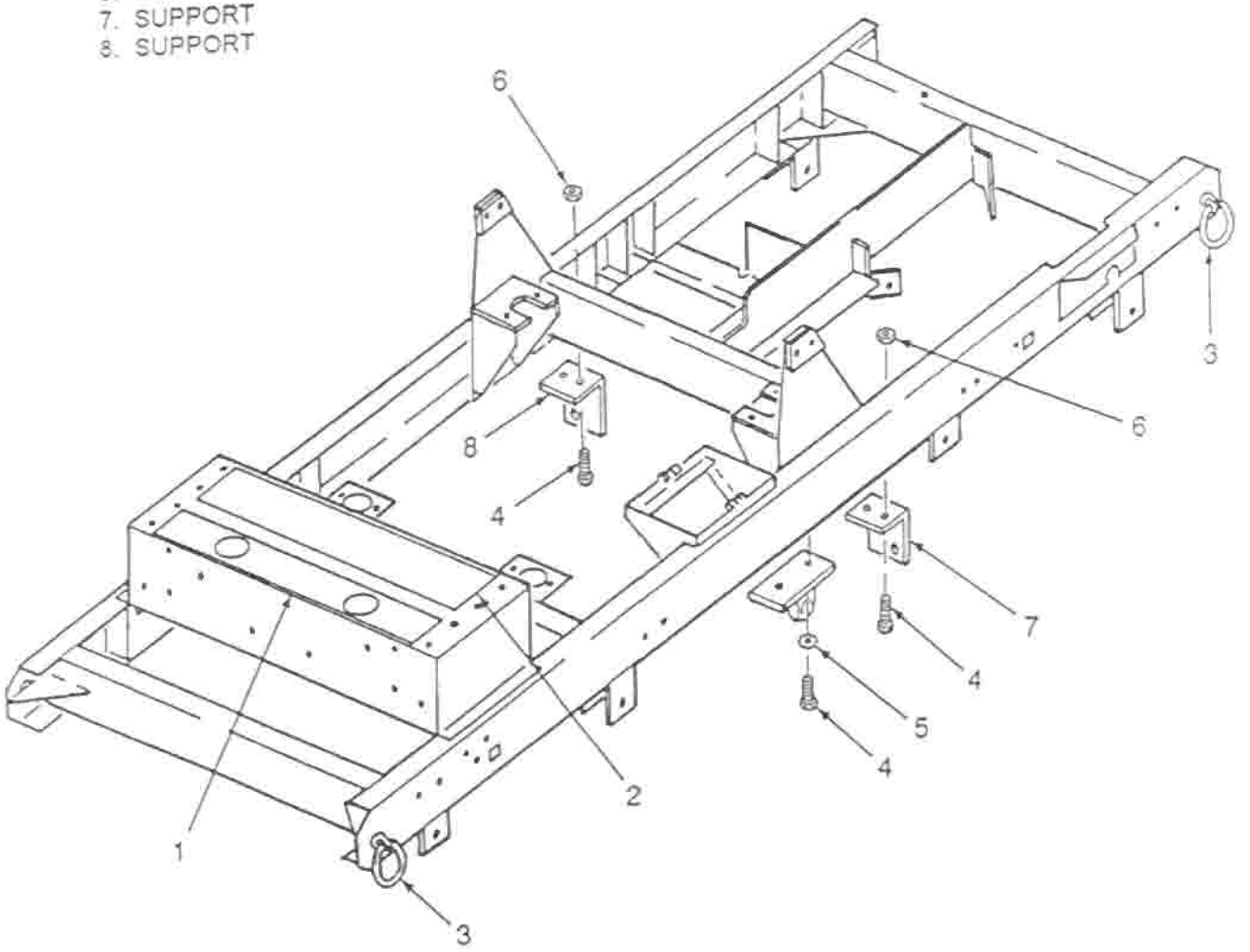


Figure 3-21. Frame

SECTION IV

CLEANING

4-1. GENERAL.

4-2. Unless otherwise specified in following paragraphs of this section, clean all metal parts using a cleaning solvent that is in accordance with Federal Specification P-D-680, Type II, or equivalent. Wipe nonmetallic parts with a clean, lint free cloth moistened with this solvent and air dry. Specific cleaning of components follows.

WARNING

Provide a well ventilated area for cleaning with solvents or other chemicals. Repeated or prolonged inhalation of solvent fumes can cause illness or death. When cleaning or air drying with compressed air, the air pressure must not exceed 30 psi at air nozzle to avoid injury.

NOTE

The manufacturer recommends that gaskets and o-ring preformed packing be replaced at overhaul; therefore, no cleaning of these parts is covered in this manual.

4-3. PAINTED SURFACES.

4-4. After cleaning, all painted surfaces requiring paint touch-up should have applied pretreatment primer in accordance with Military Specification MIL-P-15328, or equivalent. Application should be in accordance with MIL-T-704. After pretreatment, apply one coat of commercial grade red oxide primer, or equivalent. Finish paint shall be Color Number 13538, Federal Standard 595.

4-5. CLEANING.

4-6. RADIATOR AND OIL COOLER (Figure 3-4). Remove accumulated dirt and debris from oil cooler and radiator (6, 25) fins by using compressed air blown in opposite direction of normal air flow (fan is suction type, drawing air into unit through oil cooler then radiator). Move air nozzle back and forth as well as up and down. Maximum air pressure 30 psi. Refer to Section V for inspection and repair.

4-7. COMPRESSOR OIL FILTER (Figure 3-11). Turn oil filter (22) counter clockwise and remove filter (22) from oil filter base.

a. Discard filter and gasket. Clean all parts in cleaning solvent and dry thoroughly.

b. Inspect bypass assembly to make sure they are clean and have no damaged threads.

4-8. OIL SEPARATOR ASSEMBLY (Figure 3-10). When a varnish condition is detected during changing of compressor oil filter, para 4-7, the following is a suggested cleaning method.

a. Mix a super detergent, such as THERM-SOLVE CONCENTRATE, manufactured by Pennsylvania Refining Company, Cleveland, Ohio, with the compressor oil in the separator in a ratio of one gallon of THERMA-SOLVE to each ten gallons of oil.

b. Operate the compressor under normal conditions for 40-60 hours, allowing the treated oil to dissolve and suspend the varnish.

c. After this period of operation, stop the compressor while running under full load. This procedure will allow maximum air to mix with the oil and force the maximum amount of oil from the oil cooler into the separator tank.

d. Place a container under the separator tank drain and while the oil is still hot, drain the oil from the separator.

e. Attach a suitable lifting device to eye bolt (23, Figure 3-10), remove bolts (40) and washers (41). Lift the housing and cover assembly upward until pipe (42) clears top of separator; then, swing away from separator. Remove and replace element (43).

WARNING

Destroy used element to prevent accidental reuse. Over-pollution of metal

salts collecting on the element can become a hazardous condition by lowering the flash point and causing a fire in the separator.

f. Assemble the housing and cover assembly on separator tank (44) and secure with lock washers (41) and special bolts (40). Assemble this assembly in the same position as removed.

CAUTION

Do not substitute commercial cap screws for special bolts (42). These special bolts are high tensil to meet ASME standards for pressure vessels.

g. Replace the compressor oil filter (para 4-7).

h. Remove separator oil filler plug (11, Figure 3-15). Fill separator with clean oil to overflow and install filler plug.

NOTE

As an aid in preventing varnish buildup, THERMA-SOLVE CONCENTRATE may be added to the compressor oil at a ratio of one quart of THERMA-SOLVE to each ten gallons of oil approximately 40 hours prior to scheduled oil change.

4-9. STORAGE BATTERY. To clean the top of the storage battery (12, Figure 3-14), tighten and seal the vent plugs to prevent cleaning solution from entering the battery cells. Clean the top of the battery with a brush dipped in ammonia or soda solution. When foaming stops, flush off the battery with clean water; then, unseal the vent plugs. Brighten the terminal contact surfaces with steel wool or a stiff wire brush.

4-10. RADIATOR ASSEMBLY (Figure 3-4). At least twice a year the radiator assembly (25, Figure 3-4) should be drained and flushed thoroughly to remove any rust or sludge. Clean the system as follows:

a. Run the engine until operating temperature is achieved; then, stop the engine.

b. Using caution, remove the radiator cap as the engine cooling system is of the pressurized type.

c. Open the radiator drain cock (41) and drain coolant from radiator. Open the crankcase drain cock located on right-hand side of crankcase and drain coolant from engine. When flow of coolant stops, close drain cocks.

d. Fill the system with clean water and a flushing compound that is compatible with aluminum. Flush the system in accordance with instructions furnished with the flushing compound being used.

e. After flushing, rinsing, and completely draining the system of flushing solution, fill the system with clean coolant.

CAUTION

Do not use inhibitors labeled "acid neutralizers." Use only a corrosion inhibitor that is compatible with aluminum.

f. Fill the system slowly to allow air to escape and system to be filled to maximum capacity. Refer to table 4-1 for coolant recommendations.

g. Start the engine and run until normal operating temperature is reached, adding coolant as necessary to obtain proper level. After all air has been removed from system and coolant level remains fixed, install the radiator cap.

Table 4-1. Freezing Points, Composition, and Specific Gravities of Military Antifreeze Materials.

LOWEST EXPECTED AMBIENT TEMP. °F	°C	PINTS OF INHIBITED GLYCOL PER GALLON OF COOLANT[1]	COMPOUND, ANTIFREEZE ARCTIC[2]	ETHYLENE GLYCOL SOLUTION SPECIFIC GRAVITY AT 68° F (20°c)[3]
+20	-7	1-1/2	Issued full strength and ready mixed for 0° to -65°F (-19° to -54°C) temperatures for both initial installation and replenishment of losses.	1.022
+10	-12	2		1.036
0	-18	2-3/4		1.047
-10	-23	3-1/4		1.055
-20	-29	3-1/2		1.062
-30	-34	4		1.067
-40	-40	4-1/4		1.073
-50	-46	Arctic	DO NOT DILUTE WITH WATER OR ANY OTHER SUBSTANCE	
-60	-51	Antifreeze		
-75	-59	preferred		

[1] Maximum protection is obtained at 60 percent by volume (4.8 pints of ethylene glycol per gallon of solution).

[2] Military Specification MIL-C-11755 Arctic type, nonvolatile antifreeze compound is intended for use in the cooling system of liquid-cooled internal combustion engines. It is used for protection against freezing primarily in Arctic regions where ambient temperature remains for extended periods close to -40°F (-40°C) or drops below to as low as -90°F (-68°C).

[3] Use an accurate hydrometer. To test hydrometer, use 1 part ethylene glycol antifreeze to 2 parts water. This should produce a hydrometer reading 0°F (-17.8°C).

NOTE: Fasten a tag near the radiator filler cap indicating the type antifreeze.

4-11. NONDESTRUCTIVE INSPECTION CLEANING. Cleaning methods in connection with applicable nondestructive inspection are the same as those described in this section.

SECTION V

INSPECTION, REPAIR, AND REPLACEMENT

5-1. GENERAL.

5-2. This section contains inspection, repair, and replacement instructions that are classed as "special". "Special" means that which may be peculiar to a certain part or component of the equipment. Logical or common inspection, repair and replacement, such as for broken glass components, flat tires, housing dents, and the like, is not included in this section.

5-3. INSPECTION.

5-4. Refer to table 5-1 and the following paragraphs for inspection of those parts and components requiring special inspection procedures.

Table 5-1. Inspection, Repair, and Replacement

COMPONENT	INSPECTION	REPAIR AND REPLACEMENT
Air cleaner assembly (Figure 3-13)	1. Inspection element for pin holes, ruptures, and damaged gaskets.	1. Replace a damaged element. Replace element after six cleanings
Oil cooler and radiator Figure (3-4)	1. Inspect oil cooler and radiator for leaks in accordance with para 5-5a and 5-5b.	1. Repair leaks by soldering or brazing. If damaged beyond this repair, replace the oil cooler or radiator.
Battery cables and battery (Figure 3-14)	1. Inspect battery cable clamps and terminals for corrosion and tightness on battery terminals.	1. Clean the battery, para 4-9, lubricate battery terminals with MIL-G-10924 grease. If cable clamps do not make tight connections, replace clamps as necessary.
	2. Inspect cables for evidence of burning and insulating cover breaks.	2. Replace all defective cables.
	3. Inspect battery for loose terminals, missing cell caps, and cracks in case.	3. Replace battery if terminals are loose or case is cracked.
Hose reel assembly (Figure 3-6)	1. Inspect hose reels for free rotation and action of locking device.	1. Disassemble hose reel (para 3-15) and replace any defective parts.
	2. Inspect for air leakage at valve assembly using a soapy water solution applied with a brush. Leakage is indicated by the presence of bubbling solution with air in system.	2. Disassemble hose reel (para 3-15) and replace o-ring packing or valve assembly if it has damaged threads or seat.

Table 5-1. Inspection, Repair, and Replacement (Cont)

COMPONENT	INSPECTION	REPAIR AND REPLACEMENT
Air line system (Figure 3-9)	1. Inspect all hose connections for leakage, damaged thread connections, and deteriorated hose. With air in system, use soapy water solution to detect leakage, evidenced by bubbling of solution.	1. Replace all hose assemblies and fittings with damaged threads.
	2. Inspect element of strainer (9, Figure 3-10) for clogging of screen mesh and for damage.	2. Clean the screen element in solvent, Specification P-D-680, Type II. Replace a damaged element.
	3. Inspect air line orifice (8, Figure 3-10) for clogging.	3. Clean the orifice with solvent, Spec P-D-680, Type II, and dry with compressed air. Blow the air through orifice to make certain it is open for system air flow.
Oil separator assembly (Figure 3-10)	1. Inspect non-return valve (32, Figure 3-10) for worn facing washer (36), seat (35), bent stem (37) and free movement in piston (29).	1. Replace any defective part of non-return valve.
	2. Inspect piston (29) for any nicks that might cause binding in housing (12) and for cracks.	2. Remove any raised portion of nicks with a metal scraper. Remove minor scratches with emery cloth. Replace piston if other defects are noted.
	3. Inspect spring (30) for broken coils and distortion. See table 8-2.	3. Replace a defective spring.
	4. Inspect oil separator element (43) for enlarged holes, rupture, damaged flange, or any other defect.	4. Replace a damaged element.
Speed control linkage (Figure 3-8)	1. Inspect cables for any breaks or kinks that would impair operating the cable. Check for tightness of wire stops.	1. Tighten wire stops as necessary. Replace defective cables.
	2. Inspect spring (5) for broken coils or distortion. See table 8-2.	2. Replace defective spring.

Table 5-1. Inspection, Repair, and Replacement (Cont)

COMPONENT	INSPECTION	REPAIR AND REPLACEMENT
Instrument Panel (Figure 3-7)	1. Inspect all wires for damaged insulation and tightness of terminal connection. Inspect wires for evidence of shorts and burning.	1. Tighten connections as required. Repair damaged insulation by wrapping damaged area with insulation tape, MIL-1-15126. If wires show evidence of shorts and burning, replace wire assembly.
	2. Inspect all gauges for loose mounting and broken faces.	2. Tighten mounting as required. Replace all damaged gauges.
	3. With unit running, check all gauges for proper operation. Correct readings are: Engine RPM 1060 idle - 1950 full load Engine Oil Pressure: 40 psi at 1800 rpm Engine Water Temp: 170°F to 190°F Compressor Oil Temp: 170°F to 220°F Air Pressure: 80 - 105 psi loaded 115 - 120 psi unloaded	3. Replace all gauges which do not function properly.
	4. Inspect all hoses for deterioration, condition of thread connections and leakage at connections.	4. Replace all defective hose assemblies.
Air Compressor and drive (Figure 3-11)	1. Inspect springs (43, 46, 71) for broken coils and distortion. See table 8-2.	1. Replace defective springs.
	2. Inspect intake control diaphragm (38) for rupture and deterioration.	2. Replace damaged diaphragm.
	3. Inspect intake valve (45) for cracks, distortion, condition of seat, and free movement in housing (48).	3. Any damage is cause for replacement.
	4. Inspect rotor blades (97) for breaks, chipping and wear. See table 8-1.	4. Replace damaged or worn blades.
	5. Inspect rotor (101) and stator (15) for cracks, gouges, raised metal such as burrs, and for wear. Inspect rotor blade slots for any burrs and chipping. See table 8-1.	5. Raised metal (burrs) may be removed with a metal scraper and the surface smoothed with emery cloth. If damaged or worn beyond limits, replace defective part.

Table 5-1. Inspection, Repair, and Replacement (Cont)

COMPONENT	INSPECTION	REPAIR AND REPLACEMENT
Air compressor and drive (Figure 3-11)	6. Inspect bearings (82) for freedom of rotation, wear, and any other defect.	6. Replace defective bearings. Refer to para 3-22 for disassembly.
	7. Inspect rotor shaft (32) for journal wear and concentricity. See table 8-1.	7. Replace a defective rotor shaft.
	8. Inspect oil seal (91) for damaged sealing lip.	8. Replace oil seal at each overhaul.
Axle and brake group (Figures 3-16, 3-18, 3-19, and 3-20)	1. Inspect parking brake handle (21, Figure 3-20) for any breaks and binding.	1. Replace a defective lever assembly. Adjust as necessary.
	2. Inspect all linkage for bending, breaks, and free action.	2. Replace damaged parts of linkage.
	3. Inspect bearing cones and cups (Figures 3-16 and 3-18) for freedom of rotation and gritty action.	3. Replace defective bearing cones and cups.
	4. Inspect sealing lip of seals (37, Figure 3-16; 17, Figure 3-18) for damage and evidence of leakage.	4. Replace damaged seals.
	5. Inspection brake drum (22, 23 Figure 3-18) for scoring, scratches, cracks and breaks.	5. Turn drums if necessary.
	6. Inspect leaf springs (6, 28 Figure 3-18) for broken leaves.	6. Replace broken spring.
	7. Inspect axle spindles for cracks and scoring.	7. Replace defective axle.
Brake assembly (Figure 3-19)	1. Inspect all springs (2, 6, 8, 12) for broken coils and distortion.	1. Replace defective springs.
	2. Inspect brake shoes (3, 4) for cracks, distortion, and lining wear.	2. Replace damaged or worn shoes.
	3. Inspect strut (13) and lever (14) for cracks, breaks, and distortion.	3. Replace damaged parts.
	4. Inspect backing plate assembly (21) for cracks and distortion.	4. Replace damaged backing plate as an assembly.

5-5. RADIATOR AND OIL COOLER. After the oil cooler and radiator are disassembled, paragraph 3-13, flush and drain the interior of the oil cooler (6, Figure 3-13) and inspect for leaks as follows.

a. Oil Cooler. Plug the outlet connection of the oil cooler with a 3/8 NPT pipe plug. Apply air pressure of 100 psi maximum to the inlet connection and check the cooler for leaks. Mark each leak detected. Relieve the air pressure and solder or braze all leaks detected. Recheck after repair by repeating this procedure. If leaks cannot be repaired by soldering or brazing, replace the oil cooler.

b. Radiator. Plug or cap the inlet and outlet opening and the overflow port. Remove the radiator cap and apply air pressure of from 4 to 10 psi at the filler opening. Check for leaks and mark any detected. Relieve the air pressure and solder or braze all leaks detected. Recheck after repair by repeating this procedure. If leaks cannot be repaired by soldering or brazing, replace the radiator.

5-6. MANDATORY REPLACEMENT PARTS. This appendix lists mandatory replacement parts you will need to have when performing maintenance on the air compressor. Any time a maintenance procedure is performed that requires you to remove any of the items shown on this list, you are required to replace that item with a new one. You will know that your procedure requires one of these replacement parts when either specific parts are listed or the statement "(Appendix H, Item X)" appears in the "Materials Required" area of the Initial Setup portion of the maintenance procedures in Chapters 4 or 5.

5-7. EXPLANATION OF COLUMNS. The table shown in Section II identifies the parts which must be replaced during maintenance of the air compressor. An explanation of the columns in each in this table is as follows.

a. Column (1) - Item number. This number is assigned to the entry in this listing and is referenced in the narrative instructions to identify the material (e.g., "Rivet (Appendix I, Item 1).

b. Column (2) - CAGEC. The Contractor and Government Entity Code (CAGEC) is a 5-digit numeric code which is used to identify the manufacturer, distributor, or Government agency, etc., that supplies the item.

c. Column (3) - Part Number. Indicates the primary number used by the manufacturer (individual, company, firm, corporation, or Government activity), which controls the design and characteristics of the item by means of its engineering drawings, specifications standards, and inspection requirements to identify an item or range of items.

d. Column (4) - Nomenclature. The column identifies the common name for the part in accordance with the name given to the part on the applicable engineering drawing or specification.

Table 5-2. Mandatory Replacement Parts List

(1) ITEM NUMBER	(2) CAGEC	(3) PART NUMBER	(4) NOMENCLATURE
1		580383 †	SEAL
2		560342	GASKET
3	16004	89805	GASKET
4	16004	89381	GASKET
5	16004	89353-1	GASKET
6	16004	89352	GASKET
7	16004	89353-3	GASKET
8	16004	89312	GASKET
9	16004	89302	GASKET
10	16004	89287	GASKET
11	16004	89286	GASKET
12	16004	89246	GASKET
13	16004	89245	GASKET
14		76348 †	GASKET
15	16004	61761	GASKET
16	94833	56062-21	RIVET
17	89833	56062-21	RIVET
18	94833	56062-25	RIVET
19	16004	47325	GASKET
20	16004	46886	O-RING
21	16004	46879	SEAL
22	16004	44430	GASKET
23	16004	44428	O-RING
24	16004	44088	GASKET
25	16004	44051	GASKET
26	16004	26393	SEAL
27	16004	24999	O-RING
28	16004	24982	O-RING
29	16004	24978	O-RING
30	16004	24964	O-RING
31	16004	24936	O-RING
32	16004	24498	O-RING

Table 5-2. Mandatory Replacement Parts List (Cont'd)

(1) ITEM NUMBER	(2) CAGEC	(3) PART NUMBER	(4) NOMENCLATURE
33	97403	13214E3789-2	RIVET
34	97403	13214E3789-4	RIVET
35	97403	13214E3789-10	RIVET
36	16004	13214E3789-10	RIVET
37	97403	13214E3789-11	RIVET
38	22938	6317	SEAL
39	22938	5403-1	RIVET
40	16004	4446	GASKET
41	16004	4443	GASKET
42	96906	MS24665-283	COTTER PIN
43	96906	MS24665-285	COTTER PIN
44	96906	MS24665-353	COTTER PIN
45	96906	MS24665-360	COTTER PIN
46	77308	PRP56822397575	PACKING

SECTION VI

ASSEMBLY

6-1. GENERAL.

6-2. This section contains instructions for complete assembly of component parts, subassemblies, and major components which make up the Type MC-5, Model 21M250, Rotary Air Compressor unit.

6-3. The following paragraphs give detailed step-by-step instructions for the assembly of component parts into subassemblies to form a complete end item.

6-4. The manufacturer recommends the replacement of all gaskets removed at disassembly. Coat all preformed packing o-rings with a light film of lubricating oil, Specification MIL-L-2104, at assembly to ease assembling and to avoid nicking and cutting the o-rings.

6-5. ASSEMBLY.

6-6. BRAKE ASSEMBLY. Assemble guide plate (20, Figure 3-19) and brake cylinder (18), securing with cap screws (19). Install cylinder push rods (17) in brake cylinder (18). Assemble lever assembly (14) on the shoe and lining assembly (4) and secure with washer (16) and retainer (15). Assemble shoe and lining assemblies (3, 4), strut (13), spring (12), and secure shoe and lining assemblies to backing plate assembly (21) with pins (7), spring (6), and shoe cup (5). Assemble adjusting nut (10) on adjusting screw (11); assemble socket (9) on adjusting screw (11). Install these parts on shoe and lining assemblies and install spring (8). Use brake spring pliers and assemble springs (2). Install grommet (1) in backing plate assembly (21) and if removed, attach backing plate to axle (32, Figure 3-18) with five screws (26), lock washers (25) and nuts (24).

6-7. REAR AXLE GROUP. Refer to Figure 3-18 and assemble rear axle group as follows:

NOTE

Springs (28) are mounted underslung, eye end of spring facing the front of unit frame. Spring center distance is 33-1/2 inches.

a. Mount the two springs (28), underslung, to axle beam (32) with eye end of spring facing forward and spring centers of 33-1/2 inches. Secure with spring plates (31), u-bolts (30), and nuts (29).

NOTE

Brake assemblies (23) are right and (22) left-hand, left-hand is shown. Determine left-hand by location of actuating lever (14, Figure 3-19). This lever is at the rear when brake is mounted to axle beam flange and the hydraulic cylinder (18) is at the top with plunger (17) facing forward.

b. Mount the right and left-hand brake assemblies (22, 23, Figure 3-18) to axle beam (32) flanges with screws (26), lock washers (25), and nuts (24). Pass end of brake cable through opening in brake backing plate and connect to actuating lever.

CAUTION

Lubricate bearing cones (16, 18, Figure 3-18) with light coating of grease, MIL-G-10924, prior to assembly. Take care when assembling hub and drum assembly onto spindle so that grease seal (17) lip is not damaged.

c. If removed, press inner and outer bearing cups (19, 20) into hub (21) bores; press wheel studs (33) into hub (21). Assemble inner bearing cone (18) and press a new seal (17) into hub (21) flush with face of hub seal bore, sealing lip of seal facing toward bearing.

d. Assemble hub (21) on studs (33) and carefully assemble hub and drum assembly on axle spindle. Fill cavity of hub between bearing cups (19, 20) approximately half full of grease, MIL-G-10924, assemble outer bearing cone (16), wheel washer (14), and spindle nut (13). Tighten spindle nut (13) until slight drag can be felt when hub and drum is turned by hand; then back off nut to position where slot in nut and hole in spindle align; then, assemble cotter pin (12) and bend over cotter pin ends. Assemble grease cup (15).

e. Attach the two rear spring brackets (11) to underside of unit frame with four lock washers (5) and bolts (4). Attach the two front spring brackets (8) to frame with two bolts (4), channel washers (34), and locknuts (3). Raise axle assembly and assemble eye end of spring to bracket (8) with bolt (7) and locknut (6). Assemble hook

end of spring to bracket (11) with rivet pin (10) and cotter pin (9).

f. If tires and tubes are not mounted on wheel assemblies (1), mount the tubes and tires and inflate to 45 psi. Assemble wheel assemblies (1) onto wheel studs (33) and secure with wheel nuts (2).

g. After complete running gear is assembled, rear axle group (Figure 3-18), front axle group (Figure 3-16), towbar and surge brake actuator (Figure 3-17), and the hydraulic and hand brake connections (Figure 3-20), refer to Section VII for brake adjustment and front wheel tie rod adjustment.

6-8. FRONT AXLE GROUP. Refer to Figure 3-16 and assemble the front axle group as follows:

NOTE

Springs (6) are mounted underslung, eye end of spring facing the front of unit frame. Spring center distance is 33-1/2 inches.

a. Mount springs (6) underslung on axle beam (41), with eye end of spring facing forward, on spring center distance of 33-1/2 inches. Secure springs to axle beam with the two spring plates (13), four u-bolts (12), and eight nuts (11).

b. Assemble spindle and knuckle assemblies (38) to axle beam (41) with the tie rod eye facing forward. Attach to axle beam with king pins (40) aligning holes in king pin with rollpin hole in axle beam. Drive in rollpins (39).

c. Assemble latch spring (20) and towbar latch (19) to center arm (17) and drive in rollpin (18). Assemble center arm (17) to axle beam (41), install center arm pin (22), spacing washer if used, and cotter pin (21).

d. If tie rod assemblies were disassembled, thread jam nut onto tie rods and the rod connecting pins on each end of the tie rods. Thread the rod pin at knuckle end onto tie rod far enough to connect the tie rod assemblies (23) between the center arm (17) and spindle and knuckle assemblies (38). Attach the tie rod connecting pins with flat washers (26), slotted nuts (25), and cotter pins (24).

NOTE

Refer to Section VII for tie rod adjustment.

e. Assemble spring brackets (1) to eye end of springs (6) with bolt (8) and locknut (7). Assemble spring brackets (5) to hook end of springs (6) with rivet pin (10) and cotter pin (9). Raise the axle assembly and attach the spring brackets (1, 5) to unit frame with eight bolts (4), channel washers (3), and locknuts (2).

CAUTION

Lubricate the bearing (36, 35) cones with light coating of grease, MIL-G-10924, prior to assembly. Take care when assembling hub assembly onto spindle so that grease seal (37) lip is not damaged.

f. If hub assemblies were disassembled, press bearing (36, 35) cups into bores of hub (30). Assemble bearing (36) cone into hub. Press grease seal (37) into hub, sealing lip of seal facing into hub, until face of seal is flush with face of hub. Press wheel studs into hub flange.

g. Carefully assemble hub assemblies onto spindles. Fill cavity between bearing (36, 35) approximately half full of grease, MIL-G-10924. Assemble bearing (35) cone, spindle washer (34), and spindle nut (33). Tighten spindle nut (33) until slight drag can be felt when turning hub by hand; then, back off nut (33) until cotter pin (32) can be inserted through slot in nut and hole in spindle. Bend over cotter pin ends. Assemble grease caps (31).

h. If tires and tubes were removed from wheel assemblies (28), mount tubes and tires. Inflate tires to 45 psi. Assemble wheel assemblies (28) onto wheel studs and secure with wheel nuts (29).

i. If removed at disassembly, assemble grease fittings (27) into spindle and knuckle assemblies (38) and center arm (17) and lubricate the pivot point grease fittings with grease, MIL-G-10924.

6-9. TOWBAR AND SURGE BRAKE ACTUATOR. Refer to Figure 3-17 and assemble the towbar and surge brake actuator as follows:

a. Assemble boot (6) to luneete eye with two clamps (5) with two screws (4) and hex nuts (2).

b. Assemble bumper (1) onto plunger assy (3).

c. Assemble plunger assy (3) onto lunette eye, tightening it securely.

d. Slide push rod (8) into plunger assy (3) and slide spring (9) over plunger assy (3).

e. Slide sleeve and mfg. assy (10) over above assembled parts, securing them with bolt (16) and hex nut (15). Install setscrew (13) into sleeve and mfg. assy (10).

f. Assemble new valve seal (19), piston return spring (21), return spring cap (22) and primary cap (23) onto valve assy (20).

g. Assemble cup protector (24), piston assy (25), stop plate (26), and step f, locking it with lock ring (27).

h. Install steps f and g into master cylinder (36).

i. Assemble sleeve and mfg. assy (10) to master cylinder (36) and secure with locknut (18).

CAUTION

When attaching breakaway assy (17) to sleeve mfg. assy (10), with stud (11) and washer (12), make certain breakaway assy (17) is positioned with actuating lever arm toward master cylinder and leaf spring.

j. Assemble retainer nut (28), new gasket (29), cup (30), spring seat (31), and spring accumulator (32) on back side of master cylinder (36).

k. Assemble filler cap (37) and filler cap gasket (38) into top of master cylinder (36).

l. Install bleeder screw (34) and expansion plug (33) into master cylinder (36).

m. Attach the surge actuator to the towbar (Figure 3-20).

6-10. HYDRAULIC AND HAND BRAKE CONNECTIONS. Refer to Figure 3-20 and make the hydraulic and hand brake connections as follows:

a. Assemble hydraulic hose connector (2) to each brake cylinder. If removed from surge actuator master cylinder, assemble hydraulic connector (15) and inverted flare nut at rear of master cylinder (28). Assemble the union (6) onto towbar. Assemble four bulkhead elbows (3 and 10), one on left side of frame just aft of cross member, just forward of left front wheel. The second one on right side of frame just aft of cross member, just forward of right front wheel. The third one on side of frame just forward of left rear wheel assembly. The fourth on the side of frame just forward of right rear wheel assembly. Connect hose assemblies (1) to bulkhead elbow (3) on left and right side of frame at rear wheel assy.

b. Assemble bulkhead tee (4) on left side just forward of left rear wheel assy. Connect hose assembly (16) to bulkhead elbow (3) and union tee (4), on right rear wheel assy. Connect hose assy (16) to bulkhead elbow (3) and union tee (4) on left rear wheel assy.

c. Connect tube assy (7) to union tee (4) just forward of left rear wheel assy to union tee (4), just forward at the left front wheel assy.

d. Connect hose assemblies (8) to left and right front wheel assy to bulkhead elbows (10) on both left and right hand side. Connect tube assy (11) to bulkhead elbow (10) and union tee (4) on left front wheel assy. Connect tube assy (13) to bulkhead elbow (10) and union tee (4) on right front wheel assy.

e. Attach to frame all tubing clips as shown (Figure 3-20).

f. Connect hose assy (5) to union tee (4) and union (6) on towbar assembly.

g. Refer to Section VII for filling and bleeding of hydraulic system.

h. Mount brake handle assembly (21) to frame mounting bracket (22) with two bolts (19), brake handle spacers (23) on bolts positioned between handle side members, and locknuts (18).

i. Remove clevis (26) and one clevis nut (25) from brake cable (29). Insert cable through hose in frame mounting bracket (30) and secure cable sheath to bracket with jam nut (27). Thread clevis nut (25) onto cable wire stud. Thread clevis (26) onto stud. Perform same steps on right side of frame.

j. Attach clevis (26) to shaft lever (31) inserting pin (32) through clevis (26) and lever (31), securing it with cotter pin (33). Insert cross shaft (34) into shaft lever (31). Slide collar (35) onto cross shaft (34), bearing shaft (36) onto shaft lever (37) inserting pin (38), securing it onto cross shaft (34).

k. Attach clevis (26) to middle shaft lever (37) inserting pin (39) through lever and clevis, securing it with cotter pin (40).

l. Refer to Section VII for hand brake adjustment.

6-11. FUEL TANK MOUNTING. Refer to Figure 3-12 and install fuel tank (5) as follows:

a. Install tee (6), reducer bushing (7), elbow (8) and adapter to fuel tank (5).

b. If removed, install fuel level gauge (9) by turning gauge clockwise until it sets into fuel tank (5).

c. If removed, install fuel flange cover (10) and new gasket (10). Secure with four machine screws (11) and shake-proof washers (12).

d. Install reducer bushing (4) into bottom of fuel tank (5). Install elbow (2) into reducer bushing (4).

e. Install drain plug (3) into bottom fuel tank (5).

f. Install fuel tank assembly (12) into frame (Figure 3-15) and secure tank with fuel tank strap (19). Secure strap at anchor and with cap screw (22), washer (23), lock washer (21) and locknut (20). Draw tank down firmly with stud end of strap by tightening nut (20) and lock washer (21).

g. Install fuel hoses (13 and 15).

6-12. Radiator and Oil Cooler. After cleaning or repairing radiator and oil cooler (Sections IV and V), refer to Figure 3-4 and reconnect or install components as required as follows:

a. Secure radiator bracket (38) to radiator with six cap screws (36) and six nuts (37).

b. Connect oil cooler (6) to radiator (25) as follows:

1. Secure oil cooler brackets (4 and 5) to oil cooler (6) with six cap screws (7), six lock washers (8), and six flat washers (9).

2. Secure air cleaner brackets (28 and 29) to both sides of radiator (25) along with gaskets (30) with four cap screws (26) and self-locking nuts (27).

3. Install top bracket (17) to left and right oil cooler brackets (4 and 5) with seven cap screws (11, Figure 3-3), seven flat washers (12, Figure 3-3), seven lock washers (13, Figure 3-3), and seven plain nuts (14, Figure 3-3).

4. Install oil cooler brackets (4 and 5) to radiator (25) along with spacers, using four cap screws (1), four lock washers (2) and four flat washers (3).

5. Lift cooler and radiator assembly with a suitable device and install in unit.

6. Secure cooler brackets (4 and 5) to frame using eight cap screws (10) eight lock washers (11) and eight flat washers (12). Secure oil cooler brackets (4 and 5) to unit frame using fourteen cap screws (13), fourteen flat washers (14), fourteen lock washers (15) and fourteen plain nuts (16).

c. Connect cooler oil tubing and radiator hoses as follows:

1. Install oil cooler adapter (21) into bottom of oil cooler (6). Install adapter elbows (20) into adapters (21). Secure oil tubes to adapter elbows (20) with tube nuts and sleeves.

d. Attach fan guard (34) to radiator bracket (38) with four machine screws (31), four lock washers (32) and four washers (33).

e. Secure radiator hoses (23 top and 24 bottom) to radiator with hose clamps (22). If necessary, connect hoses to engine and secure with clamps (22).

6-13. AIR COMPRESSOR GROUP. Refer to Figure 3-11. Assemble air compressor as follows:

a. Assemble eye bolt (1) to stator (15). Assemble the two relief valves (27), valve springs (26), new o-ring packing (107), and valve plug (106).

b. If removed from drive end cover, assemble adapter (7), identification plate (104), and secure plate to cover with self-tapping screws (103).

c. Press bearing (91) sealing sleeve on drive end of shaft (32). Press sealing sleeve (91) outer race into end cover (88). Assemble shaft through end cover; then place bearing face ring (93) over drive end of shaft against inner race of bearing.

d. Install key (102) in keyway of shaft (32); assemble rotor (101) onto shaft.

CAUTION

Assemble rotor onto shaft with blade slot drain holes on rotation leading edge. (See Figure 6-1).

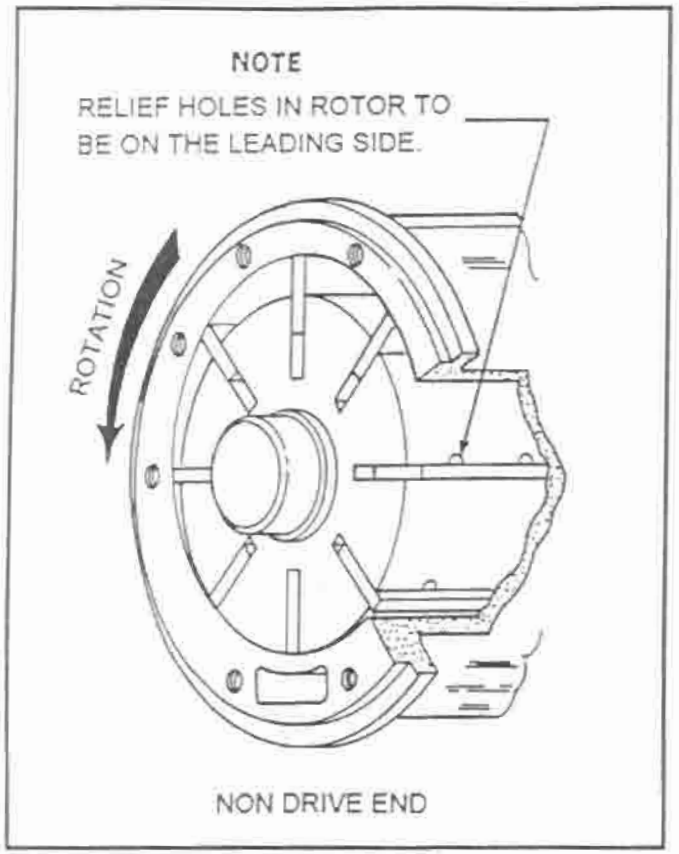


Figure 6-1. Rotor relief holes

e. Press inner race of bearing (82) onto non-drive end of shaft (32).

f. Place ball (98) into stator as shown; coat o-ring packing (100) with clean compressor oil and place on end of stator (15).

g. Assemble gasket (99) and adapter (7) on register of drive end cover (88) making certain holes are aligned. Carefully assemble this group of parts into drive end of stator with sealing washers (96) and bolts (95).

h. Coat o-ring packing (90, 93) with clean compressor oil. Assemble packing (90) and sleeve (92) on shaft.

i. Assemble oil seal (89) into oil seal cover (86) with sealing lip facing drive end cover. Coat o-ring packing (93) with clean compressor oil and install on oil seal sleeve (89); assemble oil seal sleeve into oil seal cover (86) with packing end toward oil seal (89). Assemble gasket (99) and oil seal cover (86) over shaft extension, carefully, making certain mounting holes are aligned; secure oil seal cover (86) to end cover (88) with lock washers (85) and cap screws (84).

j. Assemble gripsprings (31) on each side of drive coupling (8) with small end of taper facing away from compressor on both shaft halves of the gripsprings. Refer to Figure 6-2. Assemble the gripsprings as follows:

1. Install smaller gripspring (3) on shaft (2) with beveled edge out.

2. Position larger gripspring (4) over gripspring (3) so that the beveled edges meet.

3. Install key (8) on shaft. Slide coupling (1) on shaft and over key and gripsprings until it seats.

4. Position second larger gripspring (4) in coupling with beveled edge facing outward.

5. Install second smaller gripspring (3) on shaft. Be sure beveled edges of gripsprings (3 and 4) match.

6. Position gripspring retainer (7) on shaft. Secure gripspring retainer (7) with lock washer (5) and special bolt (6).

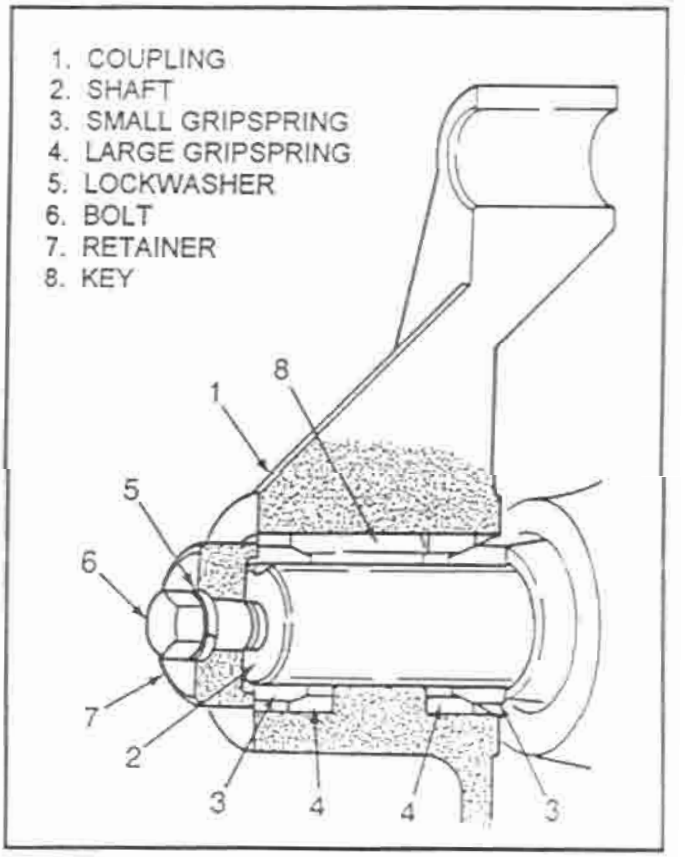


Figure 6-2. Grip spring installation

k. Liberally coat blades (97, Figure 3-11) with clean compressor oil and insert blades into rotor slots. Coat o-ring packing (83) with compressor oil and place on non-drive end register of stator (15).

l. Press outer race of bearing (88) into end cover (49). If removed, install pipe plug. Carefully, assemble end cover (49) onto stator and secure with sealing washers (81) and bolts (79, 80). Assemble bearing retainer (78) and secure with lock washers (77) and bolt (76). Assemble gasket (39) and bearing cover (36) to end cover (49); secure with lock washers (35) and bolt (34). Refer to Section VII for test of rotor stator assembly.

m. After satisfactory test, place ball (72) in housing (48) and assemble spring (71), o-ring packing (70) and plug (70). If removed, install stop pin. Assemble valve shaft (21) into housing (48) and secure valve plate (53) to shaft (21) with lock washers (55) and screws (54). If removed, install pipe plug.

n. Use new gasket (52) and assemble housing (48) to end cover (49); secure with three lock washers (51) and cap screws (50).

o. Coat o-ring packing (70) with clean compressor oil and install in rod guide (58). Install guide bushing (68) into rod guide (58) flush with guide face. Carefully insert push rod (47) through rod guide from bushing end. Assemble rod guide group of parts to housing using new gasket (67) and secure with lock washers (66) and socket head cap screws (65). Place lever clamp (57) over outside diameter of rod guide (58) and secure in place with cap screw (60) and locknut (59). Insert control arm pin (61) through lever clamp (57) until ready to install control arm (63) and bushing (62).

p. Insert intake control valve (45) into housing (48) over push rod (47) and install spring (46) over push rod into intake control valve center bore.

q. Insert control stem (41) through intake control cylinder (44). Assemble spring (43) and piston (42); secure with locknut (40).

r. Use new gasket and assemble gasket, cylinder (44), diaphragm (38) and intake control cover (75); secure to housing (48) with lock washers (74) and cap screws (73). If removed, install breather disc (37) in cover (75).

s. Coat o-ring packing (17) with clean compressor oil. Place packing (17) in groove of discharge connection (12) and attach connection to stator with lock washers (14) and cap screws (13). Install thermoswitch assembly (11).

t. Install o-ring packing (17) on each end of discharge tube (18); insert tube into discharge connection (12); install separator inlet adapter (16) on end of discharge tube (18). (Separator inlet adapter is connected to the oil separator tank at assembly of compressor onto unit.)

u. If removed, assemble locking straps, coupling pins and drive bushings to engine flywheel. Torque pins (Table 8-2) and bend corners of straps over hex head portion of pins to lock in place. (These parts are shown on this illustration for reference as to relationship to drive coupling (8).

6-14. INSTRUMENT CONTROL PANEL. Refer to Figure 3-7. Assemble components onto control panel as required.

a. Install lamp switch (17) and ON/OFF plate to panel as follows:

1. Insert lamp switch from backside of panel and install ON/OFF plate (Figure 3-7). Secure switch to panel with washer and knurled nut. Connect jumper lead to switch terminal.

b. Install panel lamp assembly (16) to panel and secure lamp to panel with lock washer and nut. Connect lead wire from lamp to lamp switch terminal.

c. If removed, install hour meter (39) as follows:

1. Remove mounting screws, lock washers, and nuts from meter flange and install hourmeter (39) into panel.

2. Secure hourmeter flange to panel with screws, lock washer, and nuts furnished with meter.

3. Connect jumper wire to pressure switch.

d. If removed, install oil pressure gauge (9) as follows:

1. Remove nuts and lock washers from bracket on back of gauge. Install oil pressure gauge into front side of panel and secure gauge to panel with bracket lock washers and nuts from rear of panel.

e. If removed, install air pressure gauge (7) to panel as follows:

1. Remove bracket nuts and bracket from back of gauge and insert air pressure gauge in front of panel.

Secure gauge from rear of panel with brackets and nuts furnished with gauge.

2. Install 90° elbow (8), pipe tee (13) and bushing (14) onto rear of gauge (see Figure 3-7).

f. If removed, install ammeter (4) as follows:

1. Remove bracket and nuts from back of meter. Insert meter in front of panel and secure meter with bracket and nuts from rear of panel.

2. Connect jumper leads to ammeter bracket.

g. If removed, install water temperature gauge and heat sensor lead (6) into instrument panel (Figure 3-7) by removing bracket nuts and lock washers (furnished with gauge) and inserting gauge with sensor lead into front of panel. Secure gauge to panel from the backside with bracket, nuts and lock washers. Leave heat sensor lead coiled until ready to install sensor in engine block.

h. If removed, install start push button (2) into panel as follows:

1. Remove knurled ring on front of button (turn ring counterclockwise).

2. Connect jumper leads to start push button terminals (3) and insert button through back of panel.

3. Secure start push button to panel by screwing knurled ring (turn ring clockwise) onto front of push button.

i. Install control cables (11 and 12) as required as follows:

1. Remove jam nut and washer from cable assembly.

2. Insert wire end of cable through front of panel and thread washer and jam nut onto cable wire end until handle end of cable is tight in panel.

3. Secure cable to panel by tightening jam nut and ring washer against panel back side.

4. Coil and tie cables for ease in handling.

5. Connect idle cable, stop cable (11), and compressor unloader cable (12) at wire ends (see Figure 3-7). Connect wire harness straps and cable clamps as required to secure cables to unit.

6. Install wire end of quick start cable through wire guide and quick start valve actuating arm. Tighten wire end with wire stop (Figure 3-15).

7. Connect air hose (6, Figure 3-9) to air pressure gauge elbow connector. Connect oil pressure line to connection elbow at pressure switch (Figure 3-15).

8. Install water temperature gauge heat sensor into engine cylinder head (exhaust manifold side).

9. Connect wire harness leads (4 wires) to panel instruments and push buttons (Figure 3-7).

6-15. SPEED CONTROL LINKAGE. Refer to Figure 3-8.

a. Assemble speed control linkage (Figure 3-8) as follows:

1. If necessary, assemble speed control rod by threading two hex nuts (9) onto each end of rod. Install wire stop block (3) on rod. Secure stop block (4) on control rod (10) with locknut (6). Thread ball joint assembly (8) onto control rod and jam ball joint against hex nut by turning nut counterclockwise and ball joint clockwise.

2. Connect control rod (1) to injection pump lever (7) by inserting ball joint stud into lever and securing stud to lever with locknut (6).

3. Connect coil spring (5) to compressor bracket and control rod stop block (4).

4. Connect compressor lever arm (7) to control rod stop block (4) with locknut (6).

5. Connect wire end of idle control cable (1) to speed control rod (10) by threading wire through stop block (3) and inserting wire stop (2) on end of wire.

6. Attach unloader control cable (14) and stop control cable (15) as shown in Figure 3-8. Secure cable sheaths with cable clips (12).

6-16. OIL SEPARATOR ASSEMBLY. Refer to Figure 3-10. Assemble oil separator group as follows:

a. If removed, install pipe plugs (47, 48, 49 and 50), oil discharge elbow (4, Figure 3-15), elbow (46) and safety valve (45) into tank body (44).

CAUTION

Use extreme care when assembling element (43) and cover (28) into tank (44) to prevent any damage to element.

b. Carefully assemble element (43) into tank (44). Position element flange inside the cover mounting holes so that holes are not covered.

c. Assemble separator pipe (42) into underside of cover (28) and carefully assemble cover (28) on top of tank. Take care so as not to puncture element (43) with pipe (42).

CAUTION

Cover bolts (27, 42) are high tensile type. DO NOT SUBSTITUTE with standard commercial grade bolts.

d. Attach cover (28) to tank (44) with lock washers (41) and hardened bolts (40).

e. If non-return valve (32) was disassembled, install facing (36), seat (33) and washer (34) onto stem (37) and secure with locknut (33).

f. Coat o-ring (31) with clean compressor oil and install in groove in piston (29). Insert spring (30), and non-return valve assembly (32) into piston (29).

g. Place gasket (39) in position on tank cover (28). Make certain mounting holes are not covered by gasket. Insert non-return assembly with piston (29) and spring (30) into center hole in cover (28). Align and place minimum pressure valve housing (12) over non-return assembly and secure housing (12) to cover (28) with bolts (24, 26), flat washer (27) and lock washers (25).

h. Install eye bolt (23) into housing (12). Install bushing (22) and pipe nipple (21) into housing (12) and screw pressure regulator (20) onto pipe nipple (21). Install adapter elbow (17) into pressure regulator (20) and attach hose assembly (16) to elbow (17).

i. Install pipe plug (11, Figure 3-15, Sheet 2).

j. Insert bolts (2), washers (3) and nuts (1) into tank mounting brackets (Figure 3-15, Sheet 2).

k. Install oil fill pipe nipple (5) into tank body and tighten nipple. Assemble fill piping elbows (6) to nipple (5) and adapter (7). Tighten pipe assembly. Coat o-ring (8) with clean compressor oil and install o-ring onto fill plug (9). Thread fill plug (9) with o-ring (8) into adapter (7) finger tight. Thread elbow (6) with pipe assembly onto pipe nipple (5) finger tight. (Fill pipe assembly must be separated at elbow (6) and nipple (5) when separator is installed in unit, see para 3-26, Figure 3-15).

6-17. AIR LINE SYSTEM DIAGRAM. At assembly of the various air system components and for assembly of system hoses and fittings, refer to Figure 3-9. This paragraph and Figure 3-9 are included for a reference to the relationship of fittings and hoses to the air system components. Replace all defective hoses and fittings at assembly.

6-18. HOSE REEL ASSEMBLY. Refer to Figure 3-6 and assemble hose reel as follows:

a. Coat o-ring (17) with clean compressor oil and install o-ring (17) in body (5). Install retainer (16).

b. Install grease fitting (12) into body (5).

c. Assemble hose reel ends (15) to body (5) as follows:

1. Assemble reel end (15) to body (5) with socket head screw (13) and lock washer (14).

2. Secure reel end (15) to body (5) and hose reel end (15) with fire bolts (6), five flat washers (7) and five locknuts (8).

3. Insert block (11) and knob (10) through reel end (15) into body (5).

d. Insert pipe nipple (4) into body (5).

e. Install valve (3) onto pipe nipple (4). Install elbow (2) into valve (3), coupling (1) into elbow (2). Install hose (9) into coupling (1).

f. Refer to para 6-22. Install hose reel assemblies.

6-19. MAIN HOUSING GROUP. Refer to Figure 3-1, Sheets 1 and 2. Main housing panel assembly is not covered in detail in this manual. Disassembly should be only to the extent necessary to gain access to a part or component requiring replacement or repair. Refer to Section X for detailed listing of main housing components and attaching hardware.

6-20. Cold Weather Starting Aid Group (77, Figure 3-15, Sheet 5). Install cylinder clamp assembly onto front housing mounting plate (78). Secure clamp assembly with two machine screws (80) and locknuts (79). Install valve assembly onto mounting plate (78) and secure with two bolts and locknuts.

6-21. MAJOR COMPONENT ASSEMBLY. Refer to Figure 3-1. Assemble the major components to make up a complete end item. Parts, such as mounting hardware and the like, not covered in the following paragraphs may be found in the preceding paragraphs 6-6 through 6-19 for the given component. Refer to table of contents for reference to a component detailed assembly.

a. Assemble the axle and brake group (14, Figure 3-1) to frame (15) and install tires and tubes (16). Inflate tires to 45 psi.

b. Refer to para 6-10 and install fuel tank (12, Figure 3-15, Sheet 2).

c. Install radiator and oil cooler (3, Figure 3-1, Sheet 2) as described in para 6-11.

d. Assemble air compressor (para 6-12) and install compressor (10, Figure 3-1) as follows:

1. Attach a suitable lifting device to air compressor eye bolt (1, Figure 3-11), and carefully position compressor in line with engine.

2. Move compressor against engine flywheel housing and engage drive pins with drive coupling.

3. Secure compressor adapter to engine flywheel housing with twelve lock washers and cap screws.

4. Refer to paragraphs 6-14 and 16 for control linkage and air line system, respectively.

5. Connect oil filter/bypass tubing adapters (22, Figure 3-11) to oil cooler tubes. Connect bottom adapter to oil separator discharge tube.

e. Assemble oil separator (para 6-16) and install separator (Figure 3-15, Sheet 2) as follows:

1. Remove fill piping assembly at elbow (6) and nipple (5). Attach a suitable lifting device to minimum pressure valve eye bolt (23, Figure 3-10), and carefully lower separator tank into position on frame.

2. Secure tank to frame with support brackets and bolts (2), lock washers (3) and locknuts (1).

f. Install main housing panels (para 6-19) and attaching components (para 6-20 through 6-23) as required. Assemble and install discharge manifold and service valves (para 6-22), hose reels (para 6-18), and batteries (para 6-24).

g. Fill fuel tank with JP-4 or JP-5 fuel, engine crankcase and compressor oil separator with lubricating oil (MIL-L2104) to the capacities listed. Fill engine cooling system with the recommended material listed in Table 4-1 to the capacity listed in Table 1-1. Lubricate all grease fittings and wheel bearings with grease, MIL-G-10924 or equivalent.

6-22. AIR DISCHARGE MANIFOLD AND SERVICE VALVES. Refer to Figure 3-5. After front end support panel and housing cover have been installed, assemble service manifold (2) service valves and associated hose assemblies (1) as follows:

a. Insert nipple (8) through housing opening and thread nipple into minimum pressure valve housing (12, Figure 3-10).

b. Thread valve (7, Figure 3-5), nipple (6) and elbow (5) into service manifold (2). Tighten fittings.

6-23. HOSE REEL INSTALLATION. After assembling discharge manifold piping (para 6-22), install hose reel assemblies (8, Figure 3-1, Sheet 2) as follows:

a. Slide hose reel assembly (1) onto spindle of service manifold (2, Refer to Figure 3-5).

b. Connect service hoses (9) to reel coupling (1, Figure 3-6) and wind hose onto reel (1, Figure 3-5).

6-24. BATTERY CABLES AND MOUNTING (17, Figure 3-1, Sheet 2). Refer to Figure 3-14. Install batteries as follows:

a. Place battery (12) into recess in frame.

b. Secure battery in position with hold-down plate (11), "L" bolts (10), washer (9), lock washer (8) and nut (7).

c. Attach positive cable (2) to plus battery post and starter motor stud.

d. Attach negative cable (1) to minus battery post and unit frame.

e. Refer to Section VII for wiring schematic

SECTION VII

TESTING

7-1. GENERAL.

7-2. This section contains the testing and adjustment instructions for assembled components after overhaul, either prior to installation on unit, when applicable, or after installation.

7-3. FRONT AXLE TIE ROD ADJUSTMENT. Refer to Figure 3-16. Adjust front wheel toe-in as follows:

a. Insert thumbtack or pin markers into the front center of the tire tread on each front wheel. Carefully measure the distance between the markers.

b. Push the vehicle backwards in a straight line until the markers are positioned at the back of the wheel. Again measure the distance between the markers. The measured distance between the markers when at the rear must exceed the distance when markers are at the front by 1/4-inch.

c. If toe-in measurement is not correct, remove cotter pins (24, Figure 3-16), slotted nuts (25) and flat washers (26) from tie rod ends. Disengage ends from steering knuckle spindle assembly (38).

d. Using a straightedge along the sides of the front and rear wheels, position the front wheels so that proper toe-in is obtained.

e. Loosen rod locknuts and turn rod ends in or out on the tie rods (23) until the end studs align with hole in spindle (38).

f. Insert rod ends through spindle knuckles (38) and recheck toe-in (step b). If correct, tighten rod locknuts and secure rod ends with washer, nut, cotter pin combination (26, 25, 24).

7-4. BRAKE ADJUSTMENT. After assembly of front and rear axle assembly groups to main frame, and attachment of hydraulic brake lines and fittings (para 6-6), adjust brakes as follows:

a. Remove master cylinder filler cap (31, Figure 3-17) and fill surge brake actuator master cylinder with clean automotive brake fluid to the indicator line below the filler opening. Install the filler cap.

b. To bleed the hydraulic system, use a wooden or metal bar approximately 4 feet long to serve as a lever to manually operate surge brake actuator mechanism. Place the bar through the lunette eye. Use a loop of the safety chain as a fulcrum about 8 inches below the eye.

c. Loosen adapter fitting in end of master cylinder. Allow fluid to fill the chamber completely. Install and tighten adapter fitting. Recheck fluid level throughout the bleeding procedure.

d. Purge one wheel cylinder at a time. Connect a bleeder hose (transparent tubing is preferable) to wheel cylinder bleeder screw. Using a clean jar or can of fluid, submerge free end of bleed line in the fluid. Loosen wheel cylinder bleeder screw and bleed until emerging fluid is free of air bubbles. Tighten wheel cylinder bleeder screw, remove bleeder line, and purge the other wheel cylinder in like manner.

e. After both wheel cylinders are bled, loosen bleeder plug on surge brake actuator master cylinder to check that no air is trapped in the accumulator. When fluid is free of air bubbles, tighten the bleeder plug.

NOTE

Be careful not to pump master cylinder reservoir empty or air will be introduced into the system. Brakes will not function properly unless all air is removed from system.

f. When system is completely bled, apply pressure to surge brake actuator and check for leaks. Check and fill actuator master cylinder with fluid, as necessary.

CAUTION

Block front wheels to prevent unit from slipping off jack while adjusting brakes.

g. Jack up trailer so that the wheel to be adjusted is off the ground. Actuate brakes several times to center shoes on the drums.

h. Release brakes completely. Make certain that actuator is in free towing position (fully extended) and pry grommet (1, Figure 3-19) from the adjusting hole in the brake backing plate (21) with a screwdriver.

i. Insert a screwdriver through the adjusting hole so that the end of the blade engages the star wheel on the adjusting screw (11). While rotating the trailer wheel, turn the adjusting screw to tighten the brake shoes against the brake drum until the wheel will not turn.

j. Rotate the adjusting screw in the opposite direction just enough to fully release the brake, with no brake lining drag against the inside of the drum when the trailer wheel is rotated.

k. Remove the screwdriver from adjusting hole, install cover in adjusting hole, lower trailer, and move the jack to the other side of the trailer.

l. Adjust brake on the other wheel in the same manner.

m. To adjust parking brake, turn adjusting knob on end of parking brake handle (21, Figure 3-20) clockwise to increase the force applied by the parking brake cables (28) and mechanism.

n. If excessive force is required to apply parking brake, turn the adjusting knob counterclockwise until lever can be moved to the applied position with normal hand force.

o. If hand brake lever cannot be adjusted in the above manner, it may be necessary to adjust the linkage. To make this adjustment, turn the brake lever handle adjusting knob fully counterclockwise; then, turn the knob four or five turns clockwise.

p. Loosen clevis nut (25, Figure 3-20) and turn the end of the operating cable farther onto the cable clevis (24) to shorten the effective length of the cable and lock cable to clevis with nut.

7-5. ROTOR-STATOR ASSEMBLY TEST. After overhaul and prior to installation test the air compressor rotor-stator assembly as described below. The rotor-stator assembly consists of those items assembled in Section VI, para 6-13. Refer to Figure 3-11. Test assembly as follows:

a. Rotate the coupling (8, Figure 3-11) in direction of rotation by hand to ensure free rotation with no binding or rubbing.

b. Bolt the rotor-stator assembly to a stand on the stator discharge flange. Use a gasket between flange and stand mating surfaces.

c. Close off intake opening with a gasket and blank flange.

d. Install a gasket and flange on the stator oil filter connection. Equip the flange with a pressure gauge capable of registering at least 125 psi, an on-off line valve, and a suitable "quick-change" air hose connection to accommodate test facility air hose.

e. Connect test air supply to "quick-change" connection. Turn line valve on and subject the rotor-stator to an air pressure of 100 psi, plus or minus 10 psi, indicated on air pressure gauge.

f. Use a soap and water solution applied with a brush on stator, end covers, and all sealing surfaces to test for any leakage. Leakage will be indicated by bubbling of the solution.

g. Relieve the test air pressure, remove the test fixtures, make repair or replacement necessary to correct any leakage, and retest as outlined above.

h. After pressure test of rotor-stator assembly, complete assembly of the air compressor (para 6-13, step m).

7-6. WIRE HARNESS SCHEMATIC DIAGRAMS. At assembly of the various system components the wire harness leads disconnected at disassembly will have to be reconnected. This paragraph and Figure 7-1 are included for a reference to the wiring relationships.

7-7. FINAL ASSEMBLY AIR PRESSURE TEST. After all air-end components have been assembled, perform an air pressure test to determine if there are any leaks as follows:

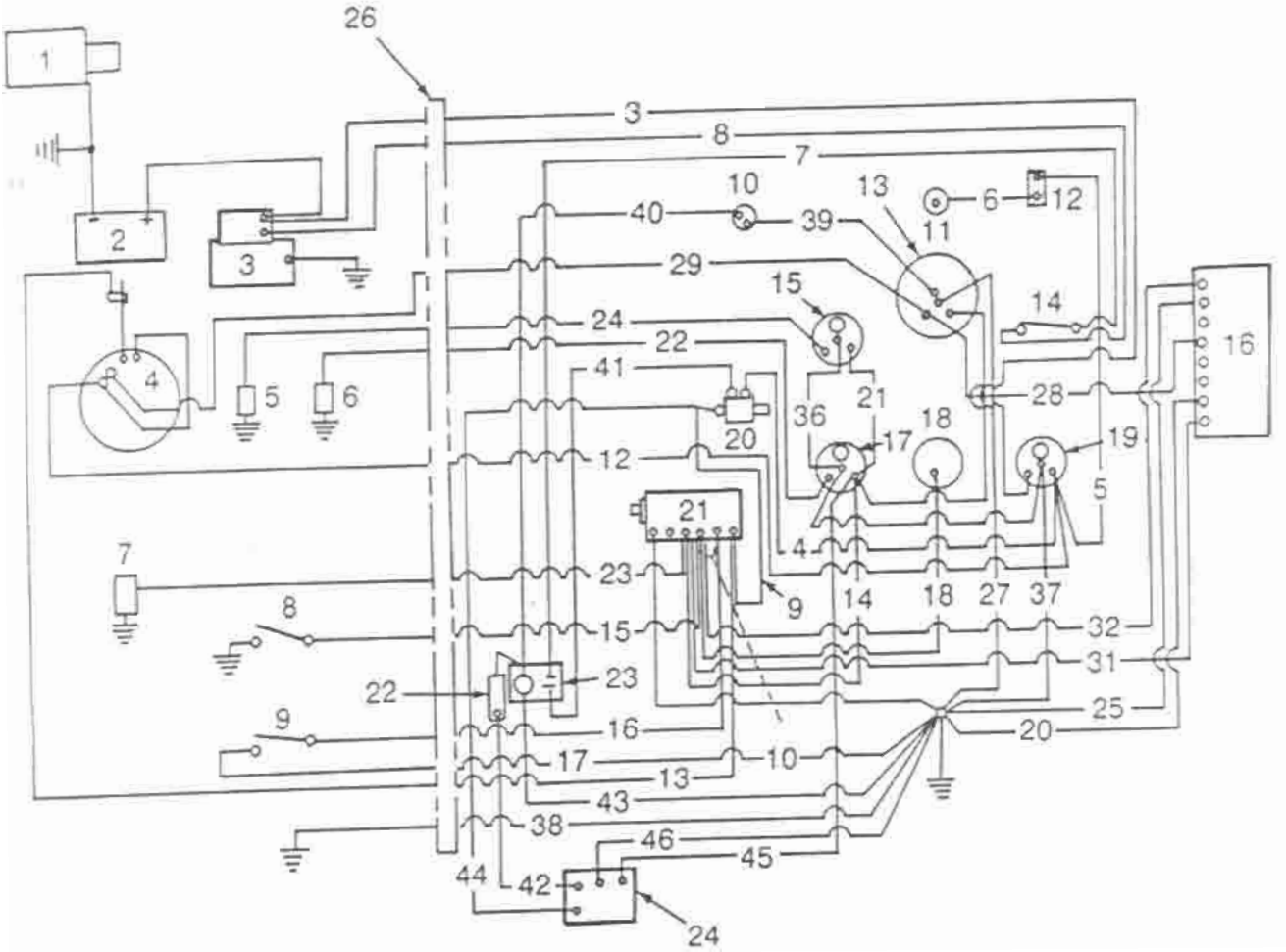
a. Close all service valves and hose reel discharge valves.

b. Remove the oil separator assembly oil filler plug, o-ring and adapter (Figure 3-10). Install a 1-1/2 NPT to 1/4 NPT reducing bushing in the oil filler elbow (6, Figure 3-15).

c. Install male half of a "quick-change" air hose connection in the reducing bushing installed above.

d. Connect an air supply line to the "quick-change" connection and subject the components to an air pressure of 100 psi.

e. Check all tubing, piping, hoses, and fittings at joints or connections with a soapy water solution applied with a brush. Leaks will be indicated by bubbling of the solution.



1. ENG. AND COMPR. ASSY
2. BATTERY
3. STARTER
4. ALTERNATOR
5. PRESS. SENDER
6. WATER TEMP. SENDER
7. FUEL SOLENOID
8. WATER TEMP. SWITCH
9. OIL PRESS. SWITCH
10. START IND. LP.
11. LAMP
12. LAMP SWITCH
13. TACH/HOUR METER
14. REC. PRESS. SWITCH
15. OIL PRESS. GAUGE
16. MURPHY SPEED SWITCH
17. WATER TEMP. SWITCH
18. OIL TEMP. GAUGE
19. AMMETER
20. IGNITION SWITCH
21. MURPHY MAG. SWITCH
22. TIMER
23. POWER RELAY
24. TIME DELAY RELAY
25. WIRE NUMBERS
26. WIRING HARNESS

Figure 7-1. Schematic Wiring Diagram

f. Repair any leaks found, release air pressure, remove test items installed, and install adapter, o-ring, and oil filler plug.

7-8. UNIT START-UP AND RUN-IN.

7-9. After overhaul of compressor, the unit shall be run-in for a period of seven hours to allow for break-in of compressor and to repair all leaks and malfunctions of unit.

a. Select a site as near level as possible. Out-of-level should not exceed 15 degrees in any direction during operation of this equipment.

b. Set the parking brakes.

c. Check engine coolant level in radiator. Proper level is 2 inches below filler neck.

d. Fill the fuel tank (para 6-21g), and purge air from the system as follows:

1. To insure quick engine starts after filter changes it is necessary to purge all air from the fuel system. This is accomplished by priming the fuel system. To prime fuel system, place manual stop control in STOP position and open bleed valve at fuel injection pump inlet.

2. Using hand priming lever on fuel transfer pump, purge air from fuel system. The fuel system is sufficiently purged when air-free fuel flows from the bleed valve.

3. Close bleed valve and place manual stop control in RUN position. Using a clean cloth, wipe excessive fuel oil from fuel injection pump and adjacent engine components where spillage has occurred.

e. Check engine oil level and fill as necessary (para 6-21g).

f. Check compressor oil separator oil level and fill (to overflow) as necessary (para 6-21g).

g. Start the unit as outlined in paragraphs 7-12 and adjust speed control linkage (7-14), and the air pressure regulator as necessary (7-15). Check fuel system for leaks.

h. Check readings of all gauges (7-12h).

7-10. TROUBLESHOOTING. Troubles that may be encountered during testing of the unit, their probable causes, and possible remedies are listed in Table 7-1.

7-11. STARTING THE EQUIPMENT. When ready to start the equipment, all steps of paragraph 7-10 having been performed, the following procedures shall be followed in sequence.

WARNING

Continued exposure to extremely high, steady state loud noises may result in significant loss of hearing. Personnel exposed to such noises should wear ear protection. One acceptable model is the Mine Safety Appliances Aural Protector, Sound, M-1 Commercial Noise Foe, Mark II Model with Foam Filled Seal Pads, NSN-4240-00-861-3612. Operator and crew should wear ear protection devices when working within 12 feet of the unit when the unit is in operation.

a. Open air discharge service valves.

b. Pull engine stop cable out (11, Figure 3-7). Press the start switch (2) to crank engine for three seconds; then, release start switch. Push stop cable in.

c. Unlock compressor unloader handle (11) and pull out and lock by turning handle clockwise.

d. In cool weather, below 40°F (4.4°C), pull quick-start (12) handle out and push in when start switch (2) is pressed.

CAUTION

Do not crank the engine for more than 15 seconds at a time. Allow the starting motor to cool for 1 minute between cranking intervals.

If engine oil pressure does not register within 3 seconds after starting, release safety control button and determine cause.

e. Press start button (2) and safety control button simultaneously. When engine starts, release start button but continue to hold in the safety control button until engine oil pressure is indicated on gauge (9).

f. After engine starts, unlock stop cable (11) by turning handle counterclockwise and pull handle out to fast idle. Lock handle by turning clockwise. Allow engine to run at fast idle until engine water temperature reaches approximately 140°F (60°C).

g. When operating temperature is reached, unlock compressor unloader handle (11) and stop cable handle (11). Push both handles in and lock by turning clockwise. Close the air outlet service valves.

h. Check the readings on all gauges. Normal operating readings are:

Air pressure..... 80 - 105 PSI
Engine oil pressure..... 20 - 40 PSI
Engine water temperature..... 180 - 205°F (80° - 96°C)

CAUTION

Do not allow equipment to operate unattended for prolonged periods. Observe all gauges periodically to be certain unit is operating normally and listen to the unit for any abnormal noises. Observance of these precautions can prevent serious damage to the unit.

NOTE

This unit is equipped with safety devices to automatically stop the unit in the event of low engine oil pressure, high engine coolant temperature, high compressor air temperature, and engine overspeed. Do not attempt to restart unit until cause for such automatic stop has been determined.

7-12. STOPPING THE UNIT. Perform the following procedures in sequence to stop the unit.

a. Close all discharge service valves. Engine will return to idle and the compressor will operate unloaded.

b. Allow unit to run at idle for five minutes.

c. Pull engine stop cable (11, Figure 3-7) outward.

d. When engine stops, the compressor will Automatically blow down air from the compressor system. Turn lamp switch OFF.

e. Close and latch the control panel cover.

7-13. SPEED CONTROL LINKAGE ADJUSTMENT. (See Figure 3-8). If a tachometer indicates an idle speed higher than 1000 RPM, ± 50 RPM, with air discharge valves closed and compressor running unloaded, adjust the speed control linkage as follows.

a. Allow unit to operate until operating temperatures are attained.

b. Hold control rod, (Figure 3-8), loosen locking nuts and move control rod as required to set engine idle speed at 1000 RPM. Observe speed on a tachometer. Tighten the locking nuts.

c. Cycle the air compressor several times by opening and closing the air discharge service valves. Observe tachometer each time to ensure engine idle remains at 1000 RPM with compressor running unloaded. Readjust as described in steps above as necessary.

7-14. AIR PRESSURE REGULATOR ADJUSTMENT (Figure 3-7). If the air pressure gauge indicates a reading other then 115-117 PSI maximum when unit is running in the unloaded configuration, and the engine idle speed is 1000 RPM, ± 50 RPM, make adjustment of air pressure regulator as follows:

a. Allow unit to operate until operating temperatures are attained.

b. With air discharge service valves closed, and engine operating at idle speed of 1000 RPM, adjust air pressure regulator to obtain a reading at 115-117 PSI on air pressure gauge. If air pressure rises above 117 PSI, turn adjusting screw counterclockwise to decrease pressure. Bleed off excess air by opening air discharge service valve. After excess air has been discharged, close service valve and readjust air pressure regulator, as necessary, to obtain 115-117 PSI.

c. Cycle the air compressor several times by opening and closing the air discharge service valves. Observe air pressure gauge each time to ensure pressure setting remains stable.

Table 7-1. Troubleshooting

TROUBLE	PROBABLE CAUSE	REMEDY
Battery discharging	Loose battery connections.	Check and clean terminals and tighten connections.
	Short circuits.	Check wiring connections and wiring harness for defects. Repair or replace as necessary. Refer to Figure 7-1.
	Defective voltage regulator.	Replace the voltage regulator.
	Alternator not charging.	Check and adjust drive belt as necessary. Replace a defective alternator.
	Defective battery.	Replace the battery.
Compressor overheats	Separator oil level too low.	Fill separator to overflow with proper grade of oil (para 6-21g).
	Dirty compressor oil filter.	Service compressor oil filter.
	Dirt or debris clogging oil cooler.	Clean the oil cooler and radiator fins of all dirt and debris (para 4-6).
	Compressor defective.	Disassemble and overhaul compressor.
Compressor operation is noisy	Low separator oil level.	Fill separator to overflow with proper grade of oil (para 6-21g).
	Air pressure regulator defective or out of adjustment.	Adjust air pressure regulator or repair as necessary (para 7-15).
	Loose, worn, or damaged compressor parts.	Overhaul the compressor if normal service and tightening of external components does not remedy noisy operation.
Compressor not operating to full capacity or pressure	Air pressure regulator out of adjustment or defective.	Adjust or repair air pressure regulator (para 7-15).
	Leaks in air hoses or connections.	Check air hoses and connection while unit is operating (para 7-7). Tighten connections or replace defective hoses or fittings (para 6-16).
	Air cleaner dirty or clogged.	Service the air cleaner (KM-21M250-1).
	Safety valve on oil separator leaking.	Replace faulty safety valve (45, Figure 3-10).
	Air service valves leaking.	Replace defective air service valves.
Compressor fails to load or unload	Dirt buildup on intake-unloader valve seat.	Clean the intake-unloader valve plate (53, Figure 3-11).

Table 7-1. Troubleshooting (Cont)

TROUBLE	PROBABLE CAUSE	REMEDY
Compressor fails to load or unload (Cont)	Unloading pressure set too high or too low.	Adjust the air pressure regulator (para 7-15).
	Control air hoses damaged or leaking.	Tighten connection and replace damaged hoses.
	Ruptured diaphragm in intake control.	Replace a damaged diaphragm (38, Figure 3-11).
	Moisture in control hose assemblies.	Disconnect hose assemblies, clean, and reconnect.
Compressor unloads but engine does not idle	Speed control linkage out of adjustment.	Adjust the speed control linkage and replace any damaged parts (para 7-14).
Engine returns to idle, compressor does not unload	Faulty compressor intake control.	Check for defective diaphragm, sticking intake valve, damaged or plugged hose assemblies to intake control (Figures 3-9 and 3-11).
Condensate and/or emulsion in oil separator	Unusually low oil temperature and high humidity.	If a climatic condition, change separator oil to proper grade for operating condition.
Excessive compressor oil consumption	Leak in oil system.	Check and repair oil lines and connections.
	Low separator pressure (below 70 psi).	Defective minimum pressure valve spring or pressure regulator. Replace all defective minimum pressure control components (Figure 3-10).
	Clogged line from separator to intake orifice or clogged orifice.	Remove hose assembly and orifice, clean, and reinstall (9, Figure 3-10).
	Ruptured oil separator element.	Replace element.
Compressor output too low	Intake control valve sticking or worn.	Inspect intake control valve, clean, or replace if worn.
	Speed control out of adjustment.	Adjust speed control to correct operating speed (para 7-14).
	Damaged rotor blades.	Replace damaged blades.
Excessive oil in air discharge	Clogged oil return hose or saturated oil separator element.	Remove, clean, and install oil return hose. Should this not remedy condition, replace separator element.

Table 7-1. Troubleshooting (Cont)

TROUBLE	PROBABLE CAUSE	REMEDY
Excessive oil in air discharge (Cont)	Minimum pressure valve assembly and/or pressure regulator on oil separator faulty causing separator pressure to drop below 70 psi. Drop in separator pressure will allow oil blowout when service air demand exceeds separator pressure.	Inspect minimum pressure valve assembly components and pressure regulator (Figure 3-9). Replace all defective parts.
Parking brake will not set or release	Parking brake handle out of adjustment.	Adjust by turning handle as necessary to tighten or loosen tension (para 7-4m).
	Brakes out of adjustment.	Adjust brakes (para 7-4).
	Brake shoes worn.	Replace brake shoes.
	Broken actuating cable.	Replace broken cable (Figure 3-20).
Surge brake will not function	Broken or disconnected hydraulic line.	Connect or replace hydraulic line (Figure 3-20).
	Hydraulic fluid low.	Fill master cylinder with clean hydraulic fluid (para 7-4).
	Brakes out of adjustment.	Adjust brakes (para 7-4f).
	Brake shoes worn.	Replace brake shoes (para 3-29).
Brakes apply but braking is not adequate.	Brake shoes and drums are wet.	Allow unit to set until brakes dry or apply brakes slowly and tow unit until heat from braking evaporates moisture. **CAUTION** Do not tow unit for long duration with brakes applied. Excessive friction will cause glazing of brakes shoes.
	Hydraulic fluid low.	Fill master cylinder with clean hydraulic fluid (para 7-4).
	Air in hydraulic system.	Bleed air from hydraulic lines (para 7-4).
	Surge brake actuator leaking.	Repair surge brake actuator.
	Brake drum broken or cracked.	Replace brake drum.
Brakes apply too slowly	Air in hydraulic system.	Bleed air from hydraulic lines (para 7-4)

Table 7-1. Troubleshooting (Cont)

TROUBLE	PROBABLE CAUSE	REMEDY
Brakes apply too slowly (Cont)	Restricted hydraulic line.	Remove hydraulic line and clear restriction or replace line (Figure 3-20). Install and bleed air from line (para 7-4).
	Hydraulic fluid low.	Fill master cylinder with clean hydraulic fluid (para 7-4).
	Surge brake actuator defective.	Repair surge brake actuator.
Brakes will not release	Brakes out of adjustment.	Adjust brakes (para 7-4).
	Parking brake actuator defective or out of adjustment.	Adjust parking brake or repair actuating mechanism (para 7-4m).
Brakes release too slowly	Restriction in hydraulic line.	Remove hydraulic line and clear restriction or replace line (Figure 3-20). Install and bleed air from line (para 7-4).
	Shoe movement binding on backing plate.	Lubricate pivot points.
Brakes apply uneven or grab	Grease or moisture on linings.	Clean grease from linings and drums. If wet, allow unit to sit until brakes dry or apply brakes slowly and tow unit until heat from brakes evaporates moisture. CAUTION Do not tow unit for a long duration with brakes applied. Excessive friction will cause glazing of brake shoes.
	Scored or cracked brake drum.	Replace drum.
	Loose wheel bearing.	Replace wheel bearing.
	Brake drum out of round.	Replace drum.
Wheel wobbles	Wheel bent.	Replace wheel.
	Wheel loose on hub.	Tighten nuts.
	Wheel bearing defective.	Replace wheel bearing.
Wheel bearing overheats.	Wheel bearing defective.	Replace bearing.
	Lack of lubrication.	Pack wheel bearings (para 6-7d).
Tire wear abnormal	Wheel loose on hub.	Tighten nuts.
	Improper tire inflation.	Inflate tires to proper pressure, (refer to Table 1-1).
	Tie rod out of adjustment.	Adjust tie rod (para 7-3).

Table 7-2. Battery Testing Chart

HYDROMETER TEST (80°F) (SEE NOTE "A" BELOW)	CONDITION	REMEDY
A. 1.250 to 1.280 Specific Gravity	Charged	No remedy is required if variation among the cells is not over 0.015 Sp. Gr. If variation is much more than 0.015 Sp. Gr., give high rate discharge test. If cells test O.K., recharge and adjust gravity of all cells uniformly.
B. 1.225 to 1.250 Specific Gravity	Fair	Advisable to recharge, especially in cold weather. Adjust gravity of cells if not uniform. Check operation and setting of generator regulator. On adjustable third brush generators, increase the charging rate. Make a thorough check of the electrical system for short circuits, loose connections, and corroded terminals.
C. Less than 1.225 Specific Gravity	Poor	Battery should be recharged. Adjust gravity of cells if not uniform. Proceed as outlined in "B".
D. Cells show more than 25 points (0.025 Sp. Gr.) variation in gravity. Look for:	1. Short circuit in low cell. 2. Loss of electrolyte by leakage or excessive overcharge. 3. Improper addition of acid or "dopes." 4. Natural or premature failure.	Recharge battery at rate of one ampere for each positive plate in one cell until gravity readings show no rise in three consecutive readings when taken one hour apart. Cell voltages on charge should also be fairly uniform. Adjust gravity of cells to 1.280 - 1.290 at 80°F (27°C) by addition of water to lower, or 1.400 Sp. Gr. acid to raise the gravity of the acid. Make high rate discharge test after not less than 12 hours and not more than 96 hours standing on open circuit; and check discharge voltages on each cell; if more than 0.15 volt between cells is shown on discharge, the battery may be considered to be no longer serviceable.

NOTE: "A" - electrolyte level should be 1/4 to 1/2-inch above the separators. Do not take the reading soon after adding water. Hydrometer readings should be corrected for temperature if temperature is extremely low or high.

Table 7-2. Battery Testing Chart (Cont)

VOLTMETER TEST	CONDITION	REMEDY
E. If the voltage drop is more than 0.2 volt units between the cranking motor cable and the frame while cranking, look for:	Poor contact between terminal and frame or between clamp terminal and battery post:	Locate the high resistance; repair or replace.
F. While operating the cranking motor, without ignition turned on, check the voltages of all cells. (This test can also be done on the high rate tester.) If the voltage varies more than 0.15 volt between cells, look for:	Defective cell or cells.	Compare voltage readings with hydrometer readings - low voltage is usually accompanied by low gravity. Apply remedy given for "D".

The presence of short circuits in the wiring can be determined by switching off all electrical equipment and, with the ground strap connected, tapping the other cable terminal against its battery post. Sparking will be produced if there is substantial short circuit in the wiring. To detect a very slight short circuit, place a low reading ammeter in the circuit.

SECTION VIII

TABLE OF LIMITS

8-1. INTRODUCTION.

8-2. Abbreviations used in the following tables are in accordance with Military Standard, MIL-STD-12. The minimum and maximum limits in the following Table of Limits are set up as ideal limits. Measurements not exceeding the replacement maximum permits the part to be continued in service.

8-3. TABLE OF LIMITS. Refer to Table 8-1 for clearances, backlashes, end play, wear limits, and the like.

8-4. MISCELLANEOUS TABLE. Refer to Table 8-2 for spring data and special torque data.

Table 8-1. Table of Limits

REF NO.	CHART NO. (FIGURE)	DESCRIPTION	MINIMUM	MAXIMUM	REPLACE-MENT MAXIMUM
88	3-11	COMPRESSOR			
		DRIVE END COVER			
		Mounting register Diameter	11.2755 in.	11.2775 in.	
		Bearing Bore Diameter	4.3307 in.	4.3321 in.	
		Bearing Bore Depth	2.495 in.	2.500 in.	
49	3-11	NON-DRIVE END COVER			
		Mounting Register Diameter	11.2755 in.	11.2775 in.	
		Bearing Bore Diameter	4.3307 in.	4.3321 in.	
		Bearing Bore Depth	2.495 in.	2.500 in.	
36, 86	3-11	BEARING COVERS			
		Mounting Register Diameter	4.327 in.	4.329 in.	
36		Mounting Flange to Face	0.743 in.	0.748 in.	
86		Mounting Flange to Face (Drive End)	0.753 in.	0.758 in.	
15	3-11	STATOR			
		Length	10.506 in.	10.508 in.	
		Bore	7.994 in.	8.003 in.	
101	3-11	ROTOR			
		Length	10.498 in.	10.500 in.	
		Diameter (OD)	6.873 in.	6.875 in.	
		Bore	2.230 in.	2.231 in.	
		Blade Slot Width	0.250 in.	0.253 in.	
32	3-11	SHAFT			
		Bearing Journals	1.9687 in.	1.9691 in.	
		Rotor Journal	2.228 in.	2.229 in.	
		Coupling Journal	1.8737 in.	1.8747 in.	
		Concentricity (Total Indicator Reading)		.001 in.	

Table 8-1. Table of Limits (Cont)

REF NO.	CHART NO. (FIGURE)	DESCRIPTION	MINIMUM	MAXIMUM	REPLACE-MENT MAXIMUM
97	3-11	BLADES (New)			
		Length	10.4878 in.	10.4908 in.	
		Height	1.8128 in.	1.8158 in.	
		Thickness	0.2468 in.	0.2488 in.	
		Clearance in slots	0.0012 in.	0.0062 in.	
		Out-of-Square (Ends)		.001 in.	
		Straightness, Full Length (Total Indicator Reading)		.001 in.	

Table 8-2. Miscellaneous Table

SPRING DATA								
REF NO.	FIG. OR CHART NO.	DESCRIPTION	TEST FORCE (LBS) (WHEN APPLICABLE) MIN	MAX	LG UNDER TEST (IN.)	FREE LENGTH (IN.)	ACTIVE COILS	OUTSIDE DIA. (IN.)
30	3-10	Valve Spring				4	14	15/16
5	3-8	Control Lever Spring				3-1/8	70	9/32
43	3-11	Intake Control Spring				1-11/16	5	1.725
46	3-11	Valve Spring				3-1/4	18	15/32
71	3-11	Relief Spring				1	12	17/64
2	3-19	Anchor Spring	56.7	69.3	5.78	4-7/8	22-1/2	9/16
6	3-19	Hold Down Spring	21.5	26.5	0.62	1-1/8	5	23/32
8	3-19	Adjusting Screw Spring	36	44	4.31	3-19/32	22-1/2	15/32
12	3-19	Strut Spring	7	11	0.63	1-9/32	5-1/2	

BOLT TYPE IDENTIFICATION		
TYPE	DESCRIPTION	MARKING
5	Will have 3 equally spaced radial lines. (Quenched and tempered medium carbon steel.)	
8	Will have 6 equally spaced radial lines. (Quenched and tempered medium carbon alloy or medium carbon boron steel.)	

Table 8-2. Miscellaneous Table (Cont)

COMPRESSOR - SPECIAL TORQUE DATA			
REF NO.	FIG. OR CHART	LOCATION	TORQUE (FT-LBS)
1	3-15	Oil Separator Assembly - Support Nuts	20
	3-11	Compressor Assembly To Engine - Cap Screws	20
	3-15	Engine Support - Cap Screws	75
10, 13, 26	3-4	Oil Cooler/Radiator Assembly Spacer Cap Screws	20
9	3-11	Drive Coupling - Pins	43
73	3-11	Intake Control Cover - Cap Screws	11
65	3-11	Rod Guide - Cap Screws	7
34	3-11	Non-Drive End Bearing Cover - Cap Screws	11
79, 80	3-11	Intake End Cover - Cap Screws	45
28	3-11	Drive Coupling - Special Screw	45
84	3-11	Bearing Cover - Cap Screws	11
95	3-11	Compressor Adapter - Cap Screws	45

SECTION IX

INTRODUCTION

9-1. MODEL COVERED.

9-2. This illustrated parts breakdown covers the Type MC-5, Model 21M250, part number 89150-1, four wheel trailer mounted, diesel engine driven 250 cfm, 100 psi rotary air compressor. The units are manufactured by Davey Compressor Company, Division of Keco Industries, Inc., Florence, Kentucky 41042-2911.

9-3. PARTS LISTED.

9-4. In general, the assemblies and parts installed at the time the end items were manufactured are listed and identified in this manual. When an assembly or part (including vendor items), which is different from the original, is installed during the manufacture of later items, series, or blocks, all assemblies and parts will be listed (and "Usable On" coded). However, when the original assembly or part does not have continued application (no spares of the original were procured or such spares are no longer authorized for replacement), only the preferred assembly or part is listed. Also, when an assembly or part is installed during modification, and the original does not have continued application, only the preferred item will be listed. Interchangeable and substitute assemblies and parts, subsequently authorized by the Government, are not listed in this manual; such items are identified by information available through the Interchangeable and Substitute (I & S) Data Systems. Refer to T.O.00-25-184. When a standard size part can be replaced with an oversize or undersize part, the latter parts, showing sizes, are also listed. Repair Parts Kit and Quick Change Units are listed when they are available for replacement.

9-5. LISTING OF SIMILAR ASSEMBLIES.

9-6. When similar assemblies contain approximately 51% or more of identical parts, the assemblies are combined and listed as follows.

a. The assemblies are listed first followed by detail parts.

b. A part common to all assemblies in the same quantity is listed once.

c. A part common to all assemblies in differing quantities is listed once for each quantity and identified to which assembly each listing pertains.

d. Parts peculiar to an assembly are listed once and identified to which assembly each pertains.

9-7. PARTS IN KITS.

9-8. This publication reflects the listing of repair parts kits. Certain replacement parts are stocked only in kits. Standard parts and parts having multi-application are stocked in kits. Kit parts should not be ordered from separate stock to make up a kit.

9-9. When replacement parts of an assembly are available in the form of kits, the words "(Repair kit available)" follows the description of the applicable assembly. The detail parts of the assembly that are contained in the kit are identified by a symbol before the part number. A footnote follows the Maintenance Parts List (MPL) which defines the symbol. The kit listing follows the last detail part of the assembly in the same indentation as the assembly. Kit source codes, assigned to the kits and their components appear in the SMR column of the Numerical Index, Section III.

9-10. SYMBOLS AND ABBREVIATIONS.

9-11. Symbols and abbreviations used in the MPL are in accordance with Military Standard, MIL-STD-12, or are defined below.

(AP) This abbreviation, found in the Description column, indicates the part is an "attaching part" for the next higher assembly or part.

(CFM) Abbreviation for "cubic feet per minute."

F This abbreviation, found in the Numerical Index, Section III, is used in conjunction with a figure and index number, such as F7-6. It is assigned to a part listed in the numerical index having no index number assigned in the MPL. The abbreviation means the item so listed "follows" that figure and index number (example: the listed item follows index number 6 on figure 7).

This symbol, inserted flush right following a part number in the MPL for Government Furnished Equipment (GFE) and Contractor Furnished Equipment (CFE) means that detail

parts are listed in a separate manual. Refer to "Related Publications" paragraph of this Introduction for publication number, when applicable.

* This symbol, inserted flush right following a part number in the MPL, means "Requisition this marking in accordance with the requirements of AFR 6-4." The symbol is applied to identifying drawing numbers for decalcomanias, metalcals, and vinyl film markings.

† This symbol, also ††, inserted in front of a part number in the MPL, indicates the footnote at the end of the parts list for that assembly should be referenced. In general, the symbol is used to indicate a component of a kit.

9-12. MANUFACTURERS' CODES.

9-13. These five digit code numbers are used to identify the actual manufacturer of vendor items used in this equipment. The code appears in parentheses in the Description column following the description of the part involved. The applicable codes are listed below. The prime contractor's code is also listed below even though it is not used in the MPL. The absence of a manufacturer's code in the Description column of the MPL means that the part is the end item manufacturer's part number of a commercial off-the-shelf type item that should be ordered by complete description. The following codes have been excerpted from Cataloging Handbook H4-1 and H4-2, Federal Supply Code for Manufacturers.

CODE	MANUFACTURER'S NAME AND ADDRESS
14892	Bendix Corp., The Brake and Steering Div. 410 W. Bendix Drive South Bend, IN 46619
16004	Davey Compressor Company Division of Keco Industries, Inc. 7375 Industrial Road Florence, KY 41042-2911
17098	Yoder Brake and Manufacturing Co. 1202 West Main St. Urbana, OH 63078
22938	Prototype Development, Inc. 7750 Hub Parkway Cleveland, OH 44125
24617	General Motors Corp. 3044 Grand Blvd. W. Detroit, MI 48202
30003	Navy Air Systems Command 1421 Jefferson Davis Hwy. Arlington, VA 22202
60038	Timken Roller Bearing Co. 1835 Dueber Ave. S.W. Canton, OH 44706
63477	Wagner Electric Corp., Wagner Div. 6400 Plymouth Ave. St. Louis, MO 63133
79470	Weatherhead Co. 300 East 131st St. Cleveland, OH 44108
81346	Austin America, Society for Testing and Materials 1916 Race St. Philadelphia, PA 19103
81349	Military Spec. Departments Under Authority of Defense Standardization Manual 4120-3M
89135	Emeco Industrial Inc. 805 Elm St. Hanover, PA 17331
89616	Uniroyal Plastic Company Inc. Mishawaka, IN 49932
93072	Toledo Stamping and Mfg. Co. 99 Fearing Blvd., P.O. Box 596 Toledo, OH 43601
94189	Dico Inc. Subsidiary of Dyner Corp. 200 S.W. 16th Street Des Moines, IA 50309
94833	Keco Industries Inc. 7375 Industrial Road Florence, KY 41042
95026	United Manufacturing Co. 5250 Dobeckmun Cleveland, OH 49102

96906	Military Standards Promulgated by Military Departments Under Authority of Defense Standardization Manual 4120-3M
97403	U.S. Army Belvoir Research and Development Center Fort Belvoir, VA 22060

9-14 USABLE ON CODES.

9-15. The absence of a code in this column indicates that parts listed are usable as replacements on all models covered by this publication, supported by the parts list.

9-16. SOURCE, MAINTENANCE, AND RECOVERABILITY (SMR) CODES

9-17. Definitions of applicable source, maintenance, and recoverability (SMR) codes are set forth in T.O.00-25-195.

9-18. RELATED PUBLICATIONS.

9-19. Publications used in conjunction with this Illustrated Parts Breakdown are listed below.

KM-21M250-1	Operation and Service Instructions, Compressor, Rotary, Air, Type MC-5
T.O. 38G1-112-3	Overhaul Instructions, Diesel Engine Driven, Model No. 4039T

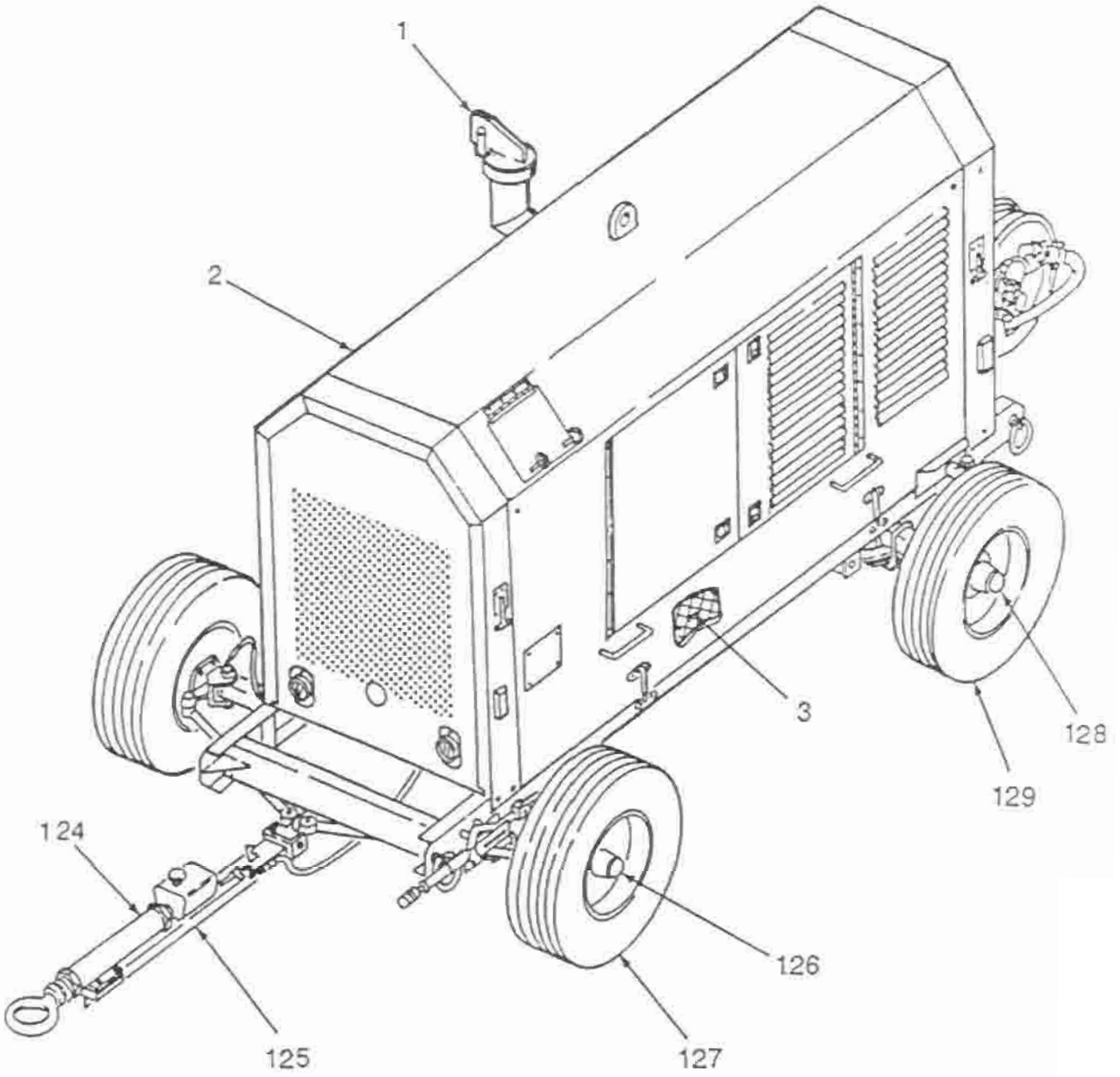


Figure 9-1. Rotary Air Compressor, Type MC-5, Model 21M250 (Sheet 1 of 9)

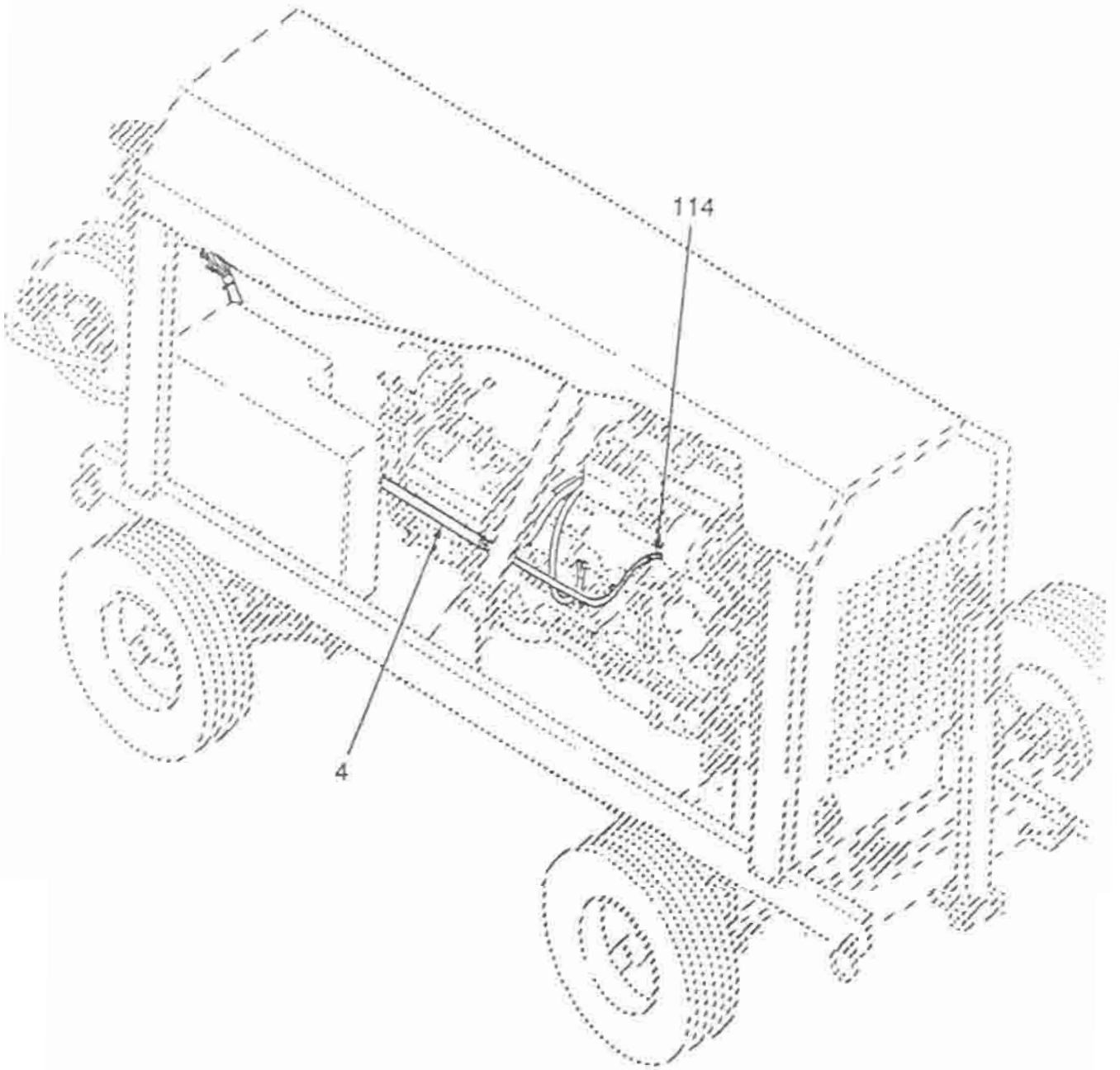


Figure 9-1. Rotary Air Compressor, Type MC-5, Model 21M250 (Sheet 2)

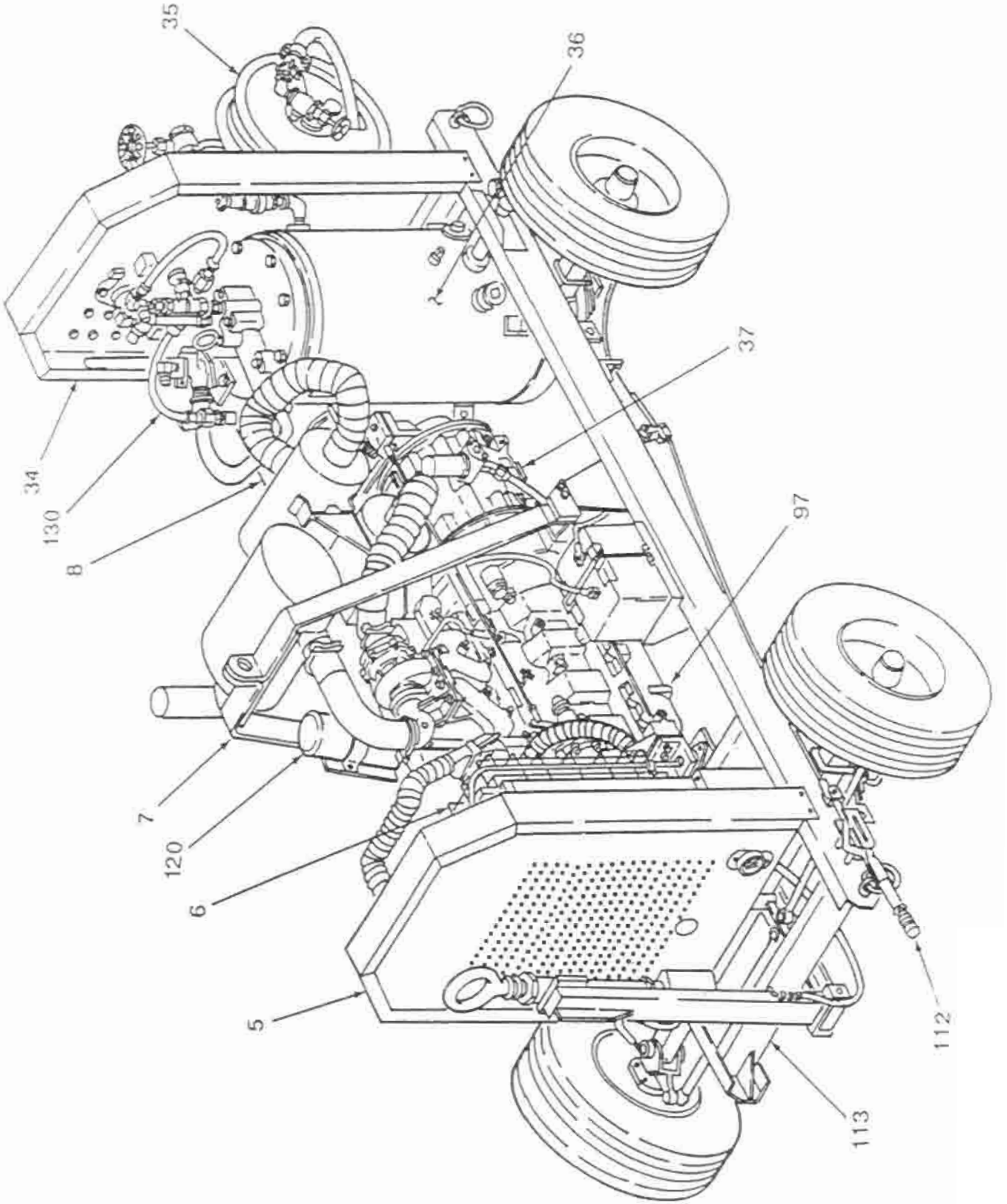


Figure 9-1. Rotary Air Compressor, Type MC-5, Model 21M250 (Sheet 3)

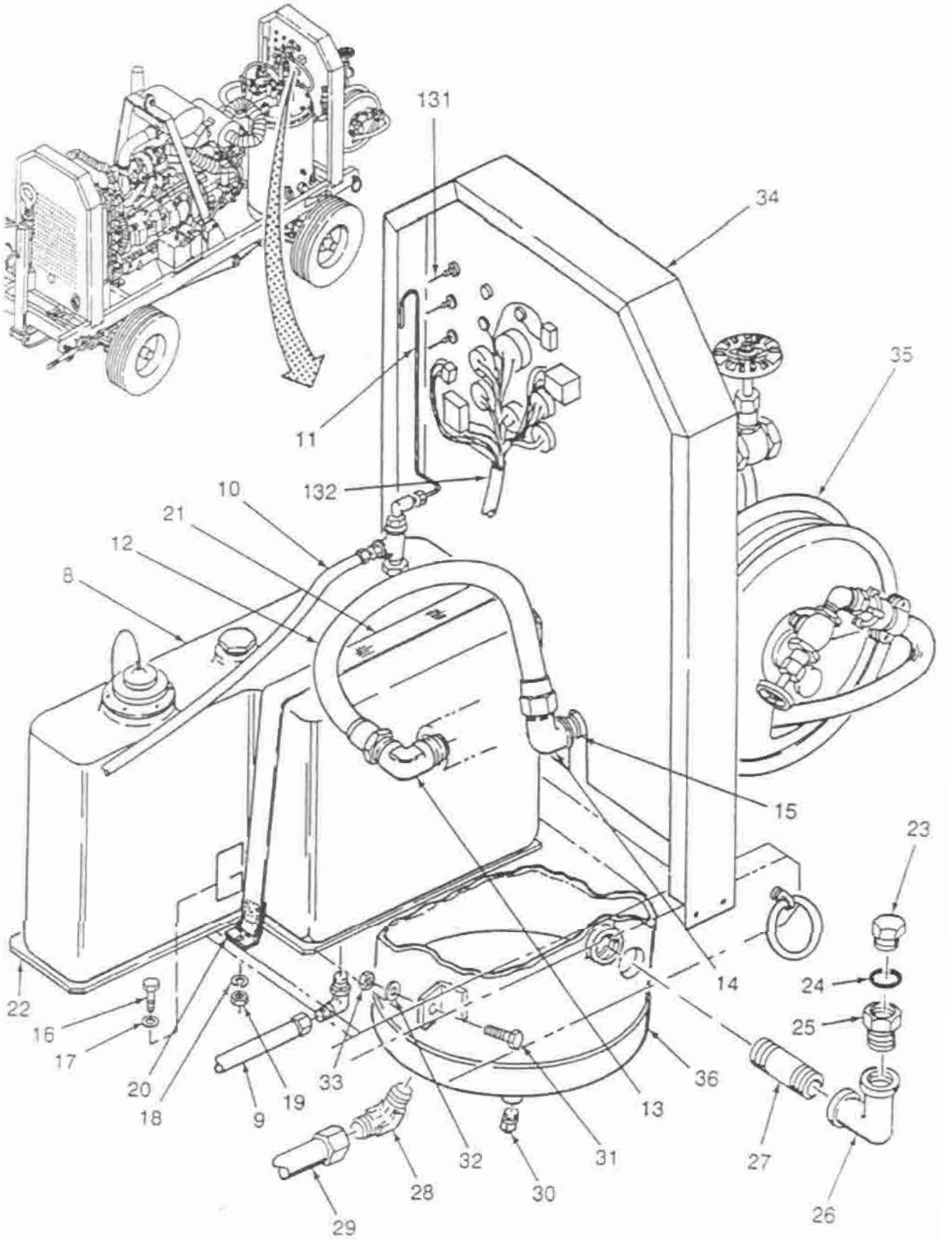


Figure 9-1. Rotary Air Compressor, Type MC-5, Model 21M250 (Sheet 4)

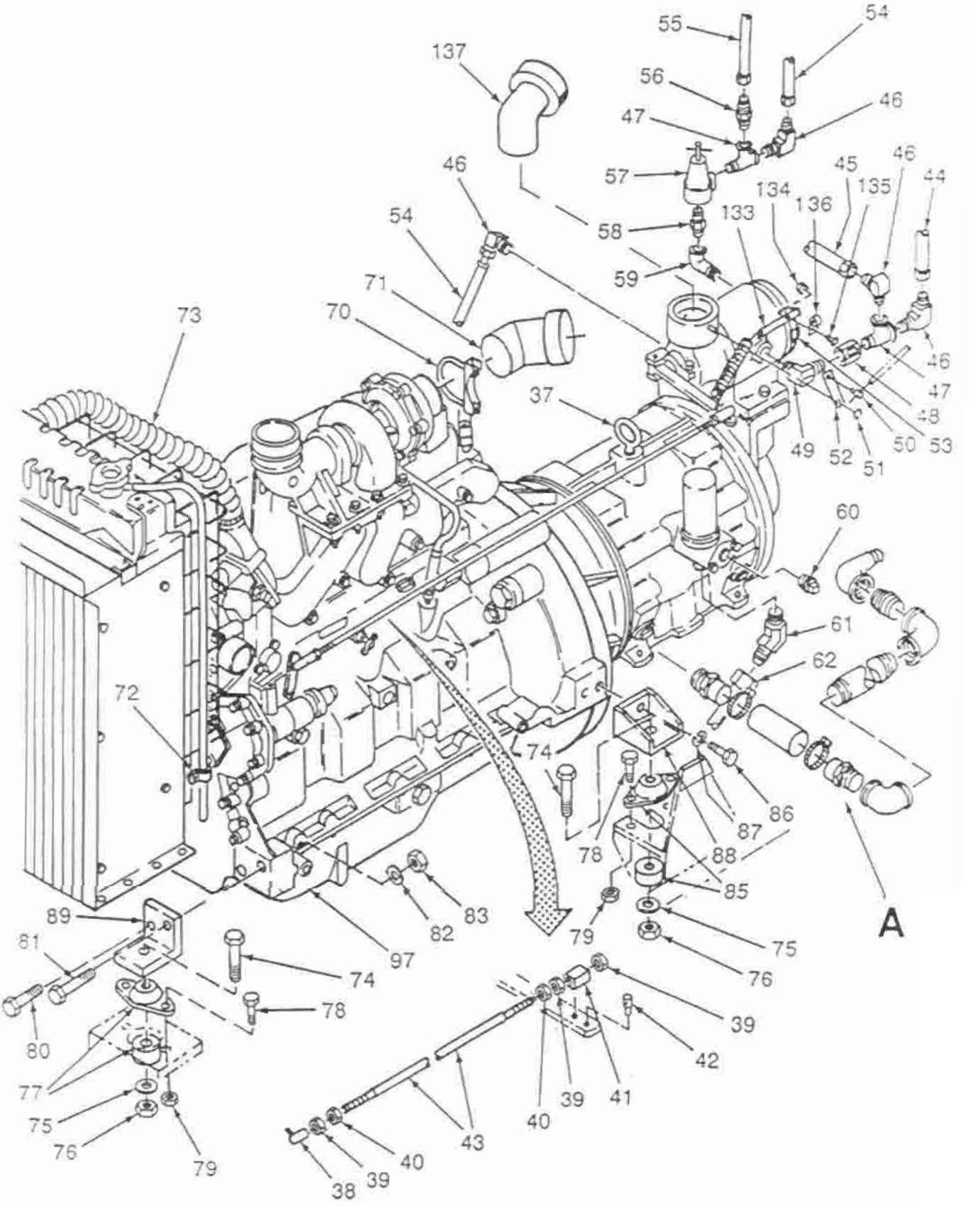


Figure 9-1. Rotary Air Compressor, Type MC-5, Model 21M250 (Sheet 5)

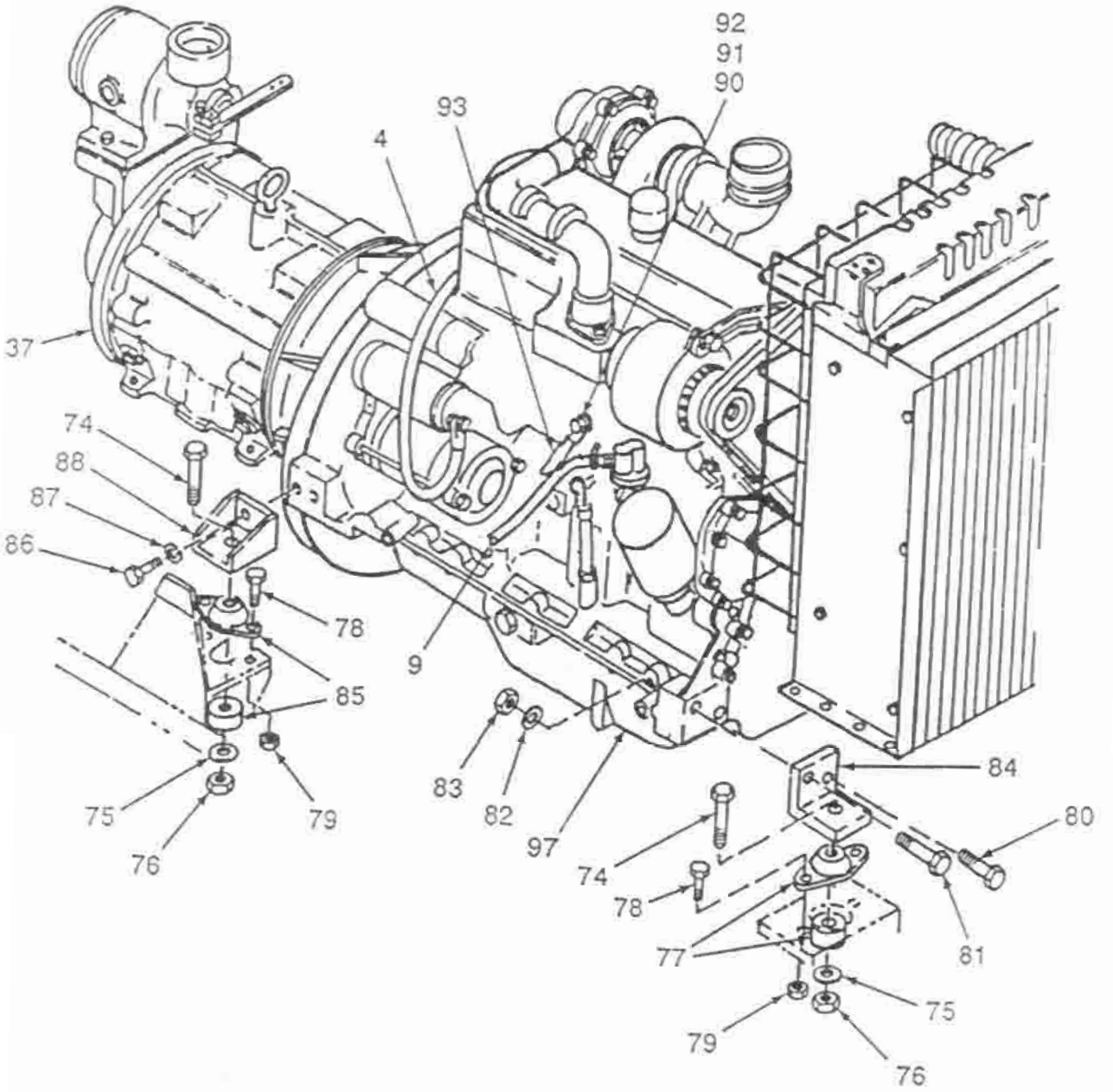


Figure 9-1. Rotary Air Compressor, Type MC-5, Model 21M250 (Sheet 6)

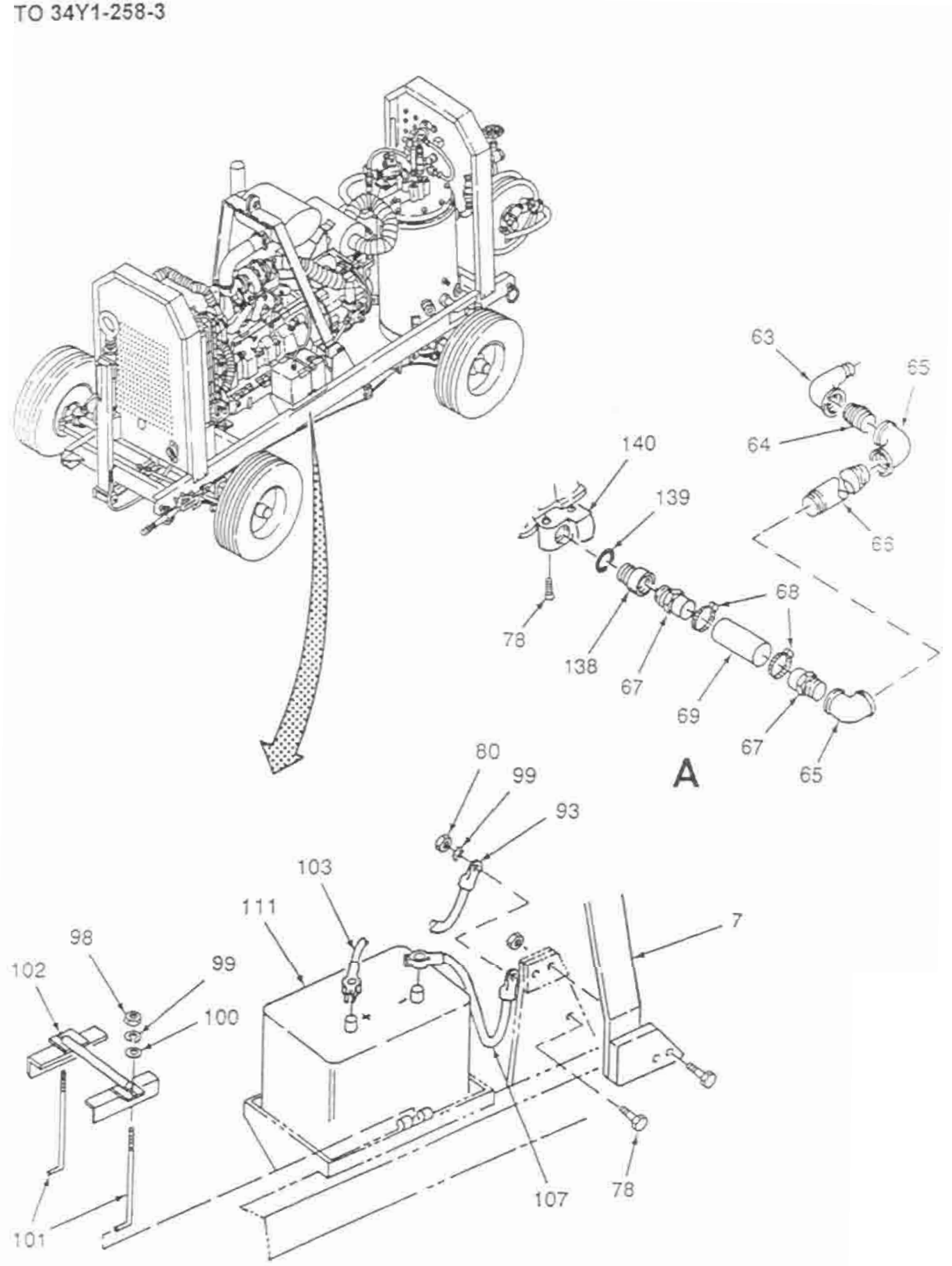
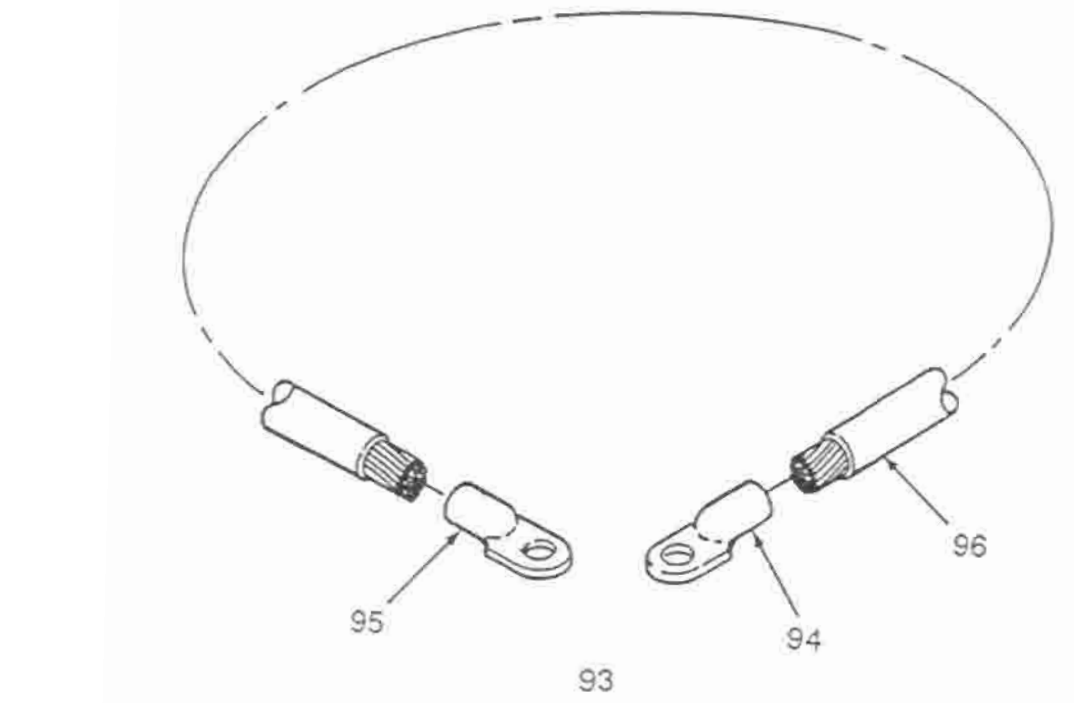


Figure 9-1. Rotary Air Compressor, Type MC-5, Model 21M250 (Sheet 7)



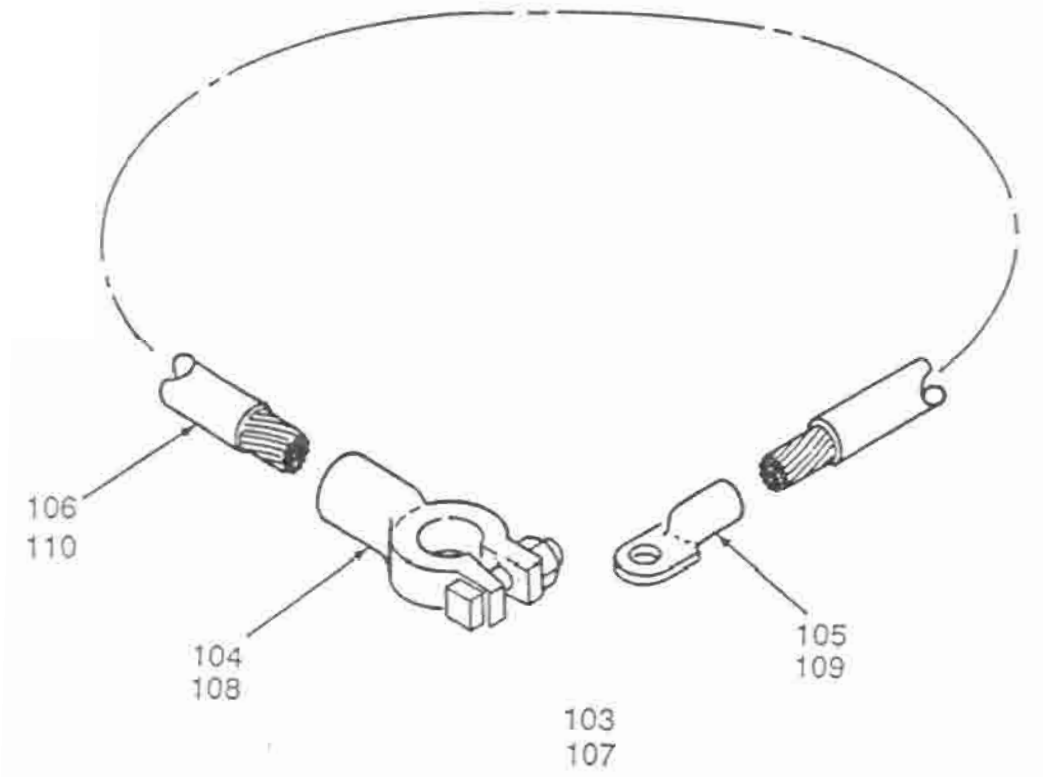


Figure 9-1. Rotary Air Compressor, Type MC-5, Model 21M250 (Sheet 8)

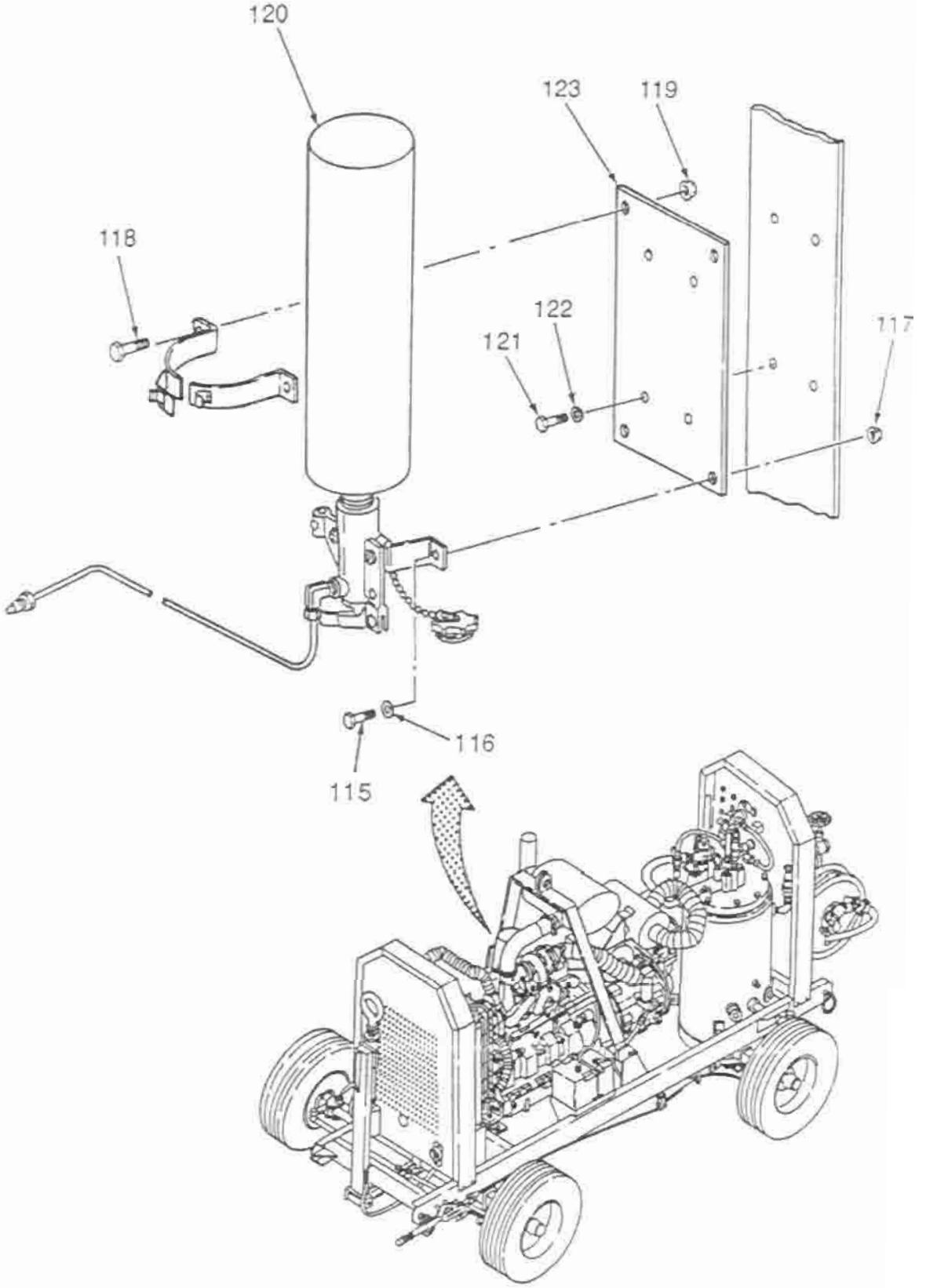


Figure 9-1. Rotary Air Compressor, Type MC-5, Model 21M250 (Sheet 9)

SECTION IX
MAINTENANCE PART LIST

INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SMR CODE
9-1-	89150-1	COMPRESSOR, ROTARY, POWER ..... DRIVEN, TYPE MC-5, MODEL 21M250 (16004)	REF		
-1	0270539	. RAIN CAP (SUPPLIED PART OF ..... ENGINE 89135)	1		
-2	89248-1	. ROOF ASSEMBLY (16004) (SEE ..... FIGURE 2 FOR BREAKDOWN)	1		
-3	NO NUMBER	. INSULATION (16004) (SEE FIGURE ..... 13 FOR BREAKDOWN	1		
-4	89378-6	. WIRING LIST (16004)	1		
-5	89224-1	. PANEL FRONT (16004) (SEE FIGURE 3.... FOR BREAKDOWN)	1		
-6	NO NUMBER	. RADIATOR AND OIL COOLER MTG..... GROUP (16004) (SEE FIGURE 4 FOR BREAKDOWN)	1		
-7	NO NUMBER	. EXHAUST MUFFLER AND AIR ..... CLEANER ASSEMBLY (16004) (SEE FIGURE 8 FOR BREAKDOWN)	1		
-8	89298-1	. FUEL TANK ASSEMBLY (16004) (SEE .... FIGURE 12 FOR BREAKDOWN)	1		
-9	89321-1	. HOSE ASSEMBLY, FUEL TANK TO ..... FUEL PUMP (16004) (SEE FIGURE 15 FOR BREAKDOWN)	1		
-10	89320-1	. HOSE ASSEMBLY, FUEL RETURN ..... (16004) (SEE FIGURE 15 FOR BREAKDOWN)	1		
-11	88465-3	. TUBE ASSEMBLY (16004) (SEE ..... FIGURE 15 FOR BREAKDOWN)	1		
-12	89315-1	. HOSE ASSEMBLY (16004)	1		
-13	89318	. ELBOW, MALE (16004)	1		
-14	89319	. ELBOW, FEMALE (16004)	1		
-15	51768-8-9500	. NIPPLE (1.50 NPT X 9.50 LG.) (94833)	REF		
-16	MS90725-60	. SCREW, CAP, HEX. HD., .375-16 UNC ..... X 1.00 LG. (96906)	2		
-17	MS27183-14	. WASHER, FLAT (96906)	2		
-18	MS35338-46	. WASHER, LOCK (96906).....	2		
-19	MS51967-8	. NUT, PLAIN, HEXAGON, .375-16 UNC..... (96906).....	2		
-20	89270-1	. STRAP, FUEL TANK (16004)	1		
-21	14048	. WEBBING FABRIC X 51.00 LG. (16004)....	1		
-22	89284	. PLATE, SUPPORT, FUEL TANK (16004) ...	1		

INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SMR CODE
-23	26359	. CAP, OIL FILLER (16004)	1		
-24	24982	. O-RING (16004)	1		
-25	63062	. ADAPTER, FILLER CAP (16004).....	1		
-26	179454	. ELBOW, 90° (1.50 NPT) (16004)	1		
-27	51768-8-5160	. NIPPLE (1.50 NPT X 5.16 LG.) (94833)	1		
-28	89329-1	. ELBOW, MALE, 45° NPT X 37° FLARED ... (16004)	1		
-29	89285-3	. HOSE ASSEMBLY (16004) (SEE ..... FIGURE 4 - 26 FOR NHA)	REF		
-30	MS20913-4S	. PLUG, PIPE, SQ. HD. (.50 NPT) (96906)	1		
-31	MS90725-11	. SCREW, CAP, HEX. HD., .500-13 NC X .... 1.25 LG. (96906)	4		
-32	MS27183-19	. WASHER, FLAT (96906)	4		
-33	MS51922-33	. NUT, SELF - LOCKING, .500-13 UNC ..... (96906)	4		
-34	89235-1	. PANEL ASSEMBLY, REAR (16004) ..... (SEE FIGURE 9 FOR BREAKDOWN)	1		
-35	NO NUMBER	. HOSE REEL ASSEMBLY AND ..... SERVICE MANIFOLD (16004) (SEE FIGURE 11 FOR BREAKDOWN)	1		
-36	89187-1	. OIL SEPARATOR ASSEMBLY (16004)..... (SEE FIGURE 7 FOR BREAKDOWN)	1		
-37	89188-1	. COMPRESSOR ASSY (16004) (SEE ..... FIGURE 5 FOR BREAKDOWN)	1		
-38	9665	. JOINT, BALL (16004)	1		
-39	MS51968-2	. NUT, HEX., .250-28 NF (96906).....	3		
-40	MS51922-5	. NUT, SELF - LOCKING, .250-28 NF ..... (96906)	2		
-41	18952	. BLOCK, STOP (16004)	1		
-42	27359	. STOP, WIRE (16004))	1		
-43	89331	. ROD, SPEED CONTROL (16004).....	1		
-44	89326-1	. HOSE ASSEMBLY (16004)	1		
-45	89327-1	. HOSE ASSEMBLY (16004)	1		
-46	28890	. ELBOW, .250 NPT X .375 TUBE ..... (16004)	4		
-47	67800	. TEE, STREET .250 NPT (16004)	2		
-48	62234	. SIGHT - FLOW (16004).....	1		
-49	65644	. ELBOW, MALE (16004)	1		
-50	67981	. STOP, WIRE (16004)	2		
-51	86342	. WASHER (16004)	1		
-52	30024	. LEVER (16004)	1		
-53	62620	. BRACKET, SPRING (16004)	1		
-54	89324-1	. HOSE ASSEMBLY (16004)	2		
-55	89333-1	. HOSE ASSEMBLY (16004)	1		

INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SMR CODE
-56	28888	. CONNECTOR, MALE (16004)	1		
-57	64142-1	. PRESSURE REGULATOR (16004)	1		
-58	65610	. NIPPLE, HEX (16004)	1		
-59	MS39230-2	. ELBOW, PIP-ST., 90° .250 NPT (96906).....	1		
-60	MS20913	. PLUG, PIPE .750 NPT (96906)	1		
-61	89329-2	. ELBOW, MALE, 45° NPT X 37° ..... FLARED (16004)	1		
-62	89285-1	. HOSE ASSEMBLY (16004) (SEE ..... FIGURE 4-27 FOR NHA)	REF		
-63	MS39230-8	. ELBOW, STREET 1.50 NPT (96906).....	1		
-64	MS51953-171	. NIPPLE, PIPE, SHORT 1.50 NPT (96906) ...	2		
-65	179454	. ELBOW, 90° 1.50 NPT (16004).....	3		
-66	51768-8-13590	. NIPPLE, 1.50 NPT X 13.59 LG. (94833)	1		
-67	68293	. ADAPTER, DISCHARGE (16004)	2		
-68	68499	. CLAMP (16004).....	2		
-69	89311	. HOSE, DISCHARGE (16004).....	1		
-70	89341-1	. CLAMP, MUFFLER (16004)	1		
-71	89292-1	. ADAPTER, AIR INLET ENGINE (16004)....	1		
-72	11033	. CLIP, TUBING (16004)	1		
-73	90121	. HOSE (16004)	1		
-74	MS90725-121	. SCREW, CAP, HEX. HD., .500-13 UNC .... X 3.50 LG. (96906)	4		
-75	MS27183-19	. WASHER, FLAT (96906)	8		
-76	MS51922-33	. NUT, SELF - LOCKING, .500-13 UNC..... (96906)	8		
-77	89156-1	. SHOCK MOUNT, FRONT (16004).....	2		
-78	MS90725-62	. SCREW, CAP, HEX. HD., .375-16 UNC ..... X 1.25 LG. (96906)	21		
-79	MS51922-17	. NUT, SELF - LOCKING, .375-16 UNC ..... (96906).....	19		
-80	MS90725-162	. SCREW, HEX. HD. (96906).....	2		
-81	MS90725-166	. SCREW, CAP, HEX. HD., .625-11 UNC ..... X 2.50 LG. (96906).....	2		
-82	MS35338-50	. WASHER, LOCK (96906).....	2		
-83	MS51922-49	. NUT, SELF - LOCKING, .625-11 UNC ..... (96906)	6		
-84	89189-2	. ENGINE MOUNT, FRONT LEFT ..... (16004)	1		
-85	89156-5	. SHOCK MOUNT, REAR (16004).....	2		
-86	MS90725-114	. SCREW, CAP, HEX. HD., .500-13 UNC ..... X 1.75 LG. (96906)	8		
-87	MS35338-48	. WASHER, LOCK (96906).....	12		
-88	89190-1	. ENGINE MOUNT, REAR (16004)	2		

INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SMR CODE
-89	89189-1	. ENGINE MOUNT, FRONT RIGHT (16004)..	1		
-90	MS90725-59	. SCREW, CAP, HEX. HD., .375-16 UNC ..... X .875 LG. (96906)	1		
-91	MS27183-14	. WASHER, FLAT (96906)	1		
-92	MS35338-46	. WASHER, LOCK (96906).....	1		
-93	86630	. CABLE ASSEMBLY, ENGINE ..... GROUND (16004)	1		
-94	A11025	. . TERMINAL (3/8 STUD) (16004).....	1		
-95	A82533	. . TERMINAL (1/2 STUD) (16004).....	1		
-96	A11023	. . CABLE #2 9-1/2 LG. (16004).....	1		
-97	89135	. ENGINE, DIESEL (16004) (SEE T.O. ..... 38G1-112-3 FOR BREAKDOWN)	1		
-98	MS51967-2	. NUT, PLAIN, HEXAGON, .250-20 UNC..... (96906)	2		
-99	MS35338-44	. WASHER, LOCK (96906).....	2		
-100	MS27813-10	. WASHER, FLAT (96906)	2		
-101	89060	. "L" BOLT, BATTERY CLAMP (16004)	2		
-102	89306-1	. CLAMP, BATTERY (16004)	1		
-103	89376-1	. CABLE, ASSEMBLY (16004)	1		
-104	82592	. . CLAMP, LUG (16004)	1		
-105	82533	. . TERMINAL, 1/2 STUD SIZE (16004)	1		
-106	M086/2-02-0	. . WIRE, ELEC., 600V, AWG #00..... (81349)	1		
-107	89377-1	. CABLE ASSEMBLY BATTERY, ... NEGATIVE (16004)	1		
-108	35095	. . CLAMP, LUG (16004)	1		
-109	11025	. . TERMINAL, 3/8 STUD SIZE (16004)	1		
-110	M5086/2-02-0	. . WIRE, ELEC., 600V, AWG #00 ..... (1.0 FT.) (81349)	1		
-111	88920	. BATTERY - 12 VOLT, 800 CA (16004)	1		
-112	NO NUMBER	. RUNNING GEAR AND HYDRAULIC..... BRAKE CONNECTIONS (16004) (SEE FIGURE 16 FOR BREAKDOWN)	1		
-113	89155-1	. FRAME (16004) (SEE FIGURE 22 FOR ..... BREAKDOWN)	1		
-114	MIL-I-23053/5-105-9	. INSULATION SLEEVING, HEAT..... SHRINKABLE .187 I.D. MIN. AS SUPPLIED X 2.00 LG. (96906)	2		
-115	MS24693-S95	. SCREW, MACH, FLAT CSK HEAD,..... .250-20 UNC X 0.625 LG. (96906)	2		
-116	MS27183-12	. WASHER (96906).....	2		
-117	MS51922-1	. NUT, SELF-LOCKING, 0.250-20 UNC. ..... (96906)	2		

INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SMR CODE
-118	MS24693-S118	. SCREW, MACH, FLAT CSK HEAD ..... 0.3125-18 UNC X 0.75 LG. (96906)	2		
-119	MS51922-9	. NUT, SELF-LOCKING 0.3125-18 UNC. .... (96906)	2		
-120	NO NUMBER	. CYLINDER, FUEL STARTING AID ..... (PART OF EITHER KIT SUPPLIED W/ENGINE) (89135)	REF		
-121	MS90725-6	. SCREW, CAP, HEX. HD., 0.250-20 NC ..... X 0.75 LG.	4		
-122	MS35338-44	. WASHER, LOCK (96906).....	4		
-123	89282-1	. PLATE, CYLINDER MOUNT (16004)	1		
-124	03-30469	. TOWBAR AND SURGE BRAKE ..... ACTUATOR (94189)	1		
-125	03-30468	. . DRAWBAR AND ACTUATOR ASSY .... (94189) (SEE FIGURE 18 FOR BREAKDOWN)	1		
-126	NO NUMBER	. FRONT AXLE GROUP (22938) ..... (SEE FIGURE 19 FOR BREAKDOWN)	1		
-127	81240	. WHEEL (SEE FIGURE 19-1 FOR ..... BREAKDOWN	2		
-128	NO NUMBER	. REAR AXLE GROUP..... (SEE FIGURE 20 FOR BREAKDOWN)	1		
-129	81240	. WHEEL (SEE FIGURE 20-1 FOR ..... BREAKDOWN)	2		
-130	NO NUMBER	. AIR LINES AND FITTING GROUP ..... (SEE FIGURE 6 FOR BREAKDOWN)	1		
-131	NO NUMBER	. LINKAGE GROUP, SPEED ..... (SEE FIGURE 14 FOR BREAKDOWN)	REF		
-132	89379-1	. WIRING HARNESS (16004) SEE FIGURE .. 8 FOR BREAKDOWN	1		
-133	47949	. BRACKET, AIR INTAKE (16004)	1		
-134	MS51922-1	. NUT, SELF-LOCKING, .250-20 UNC ..... (96906)	1		
-135	MS90725-5	. SCREW, CAP, HEX HD, .250-20 NC X ..... .625LG (96906)	1		
-136	11030	. CLIP, TUBING (16004)	1		
-137	89288-1	. ADAPTER, AIR INLET COMPR (16004)	1		
-138	144039	. BUSHING (16004)	1		
-139	24549	. "O" RING (16004).....	1		
-140	68521	. DISCHARGE CONNECTION (16004).....	1		

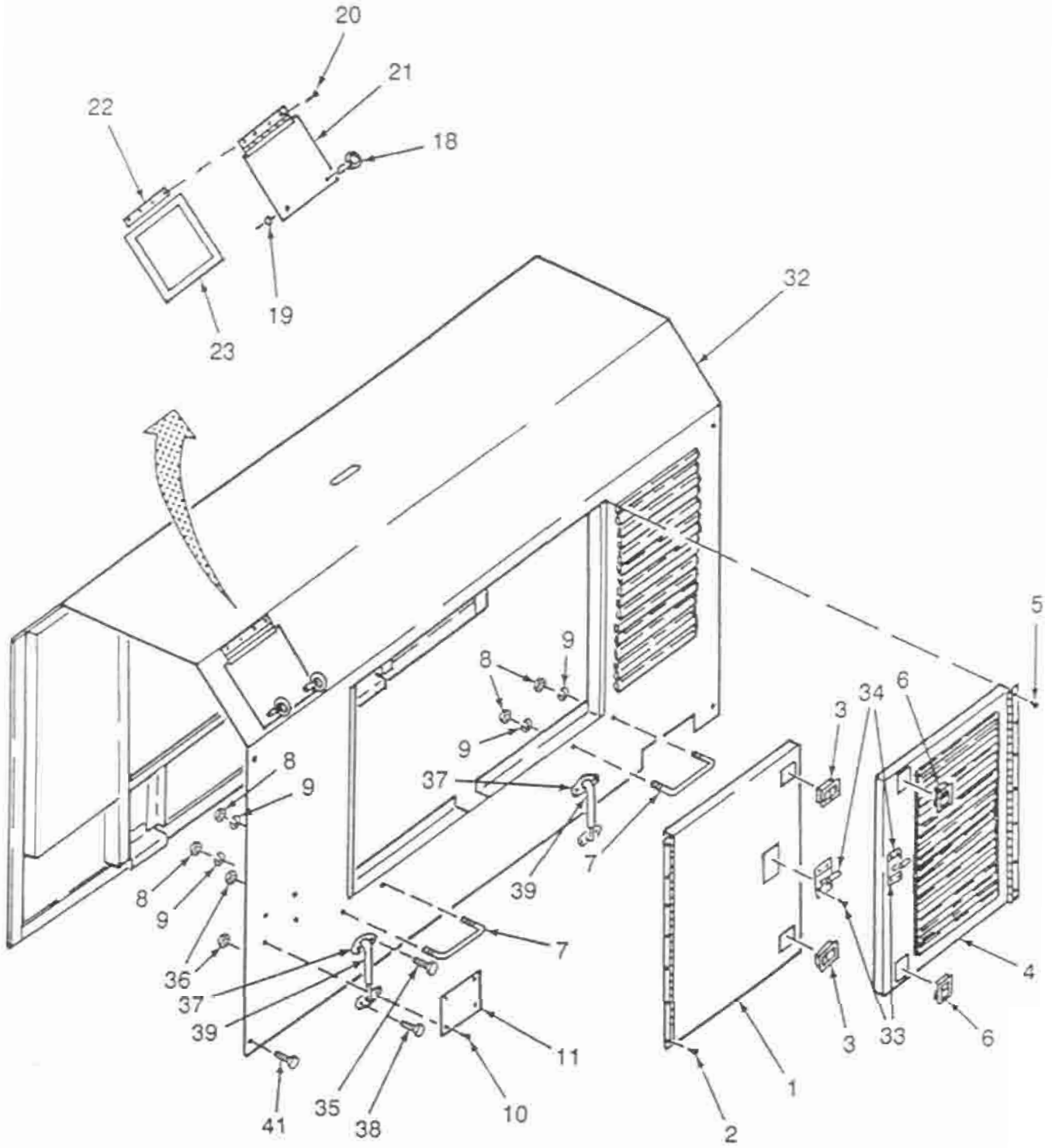


Figure 9-2. Roof Assembly (Sheet 1 of 3)

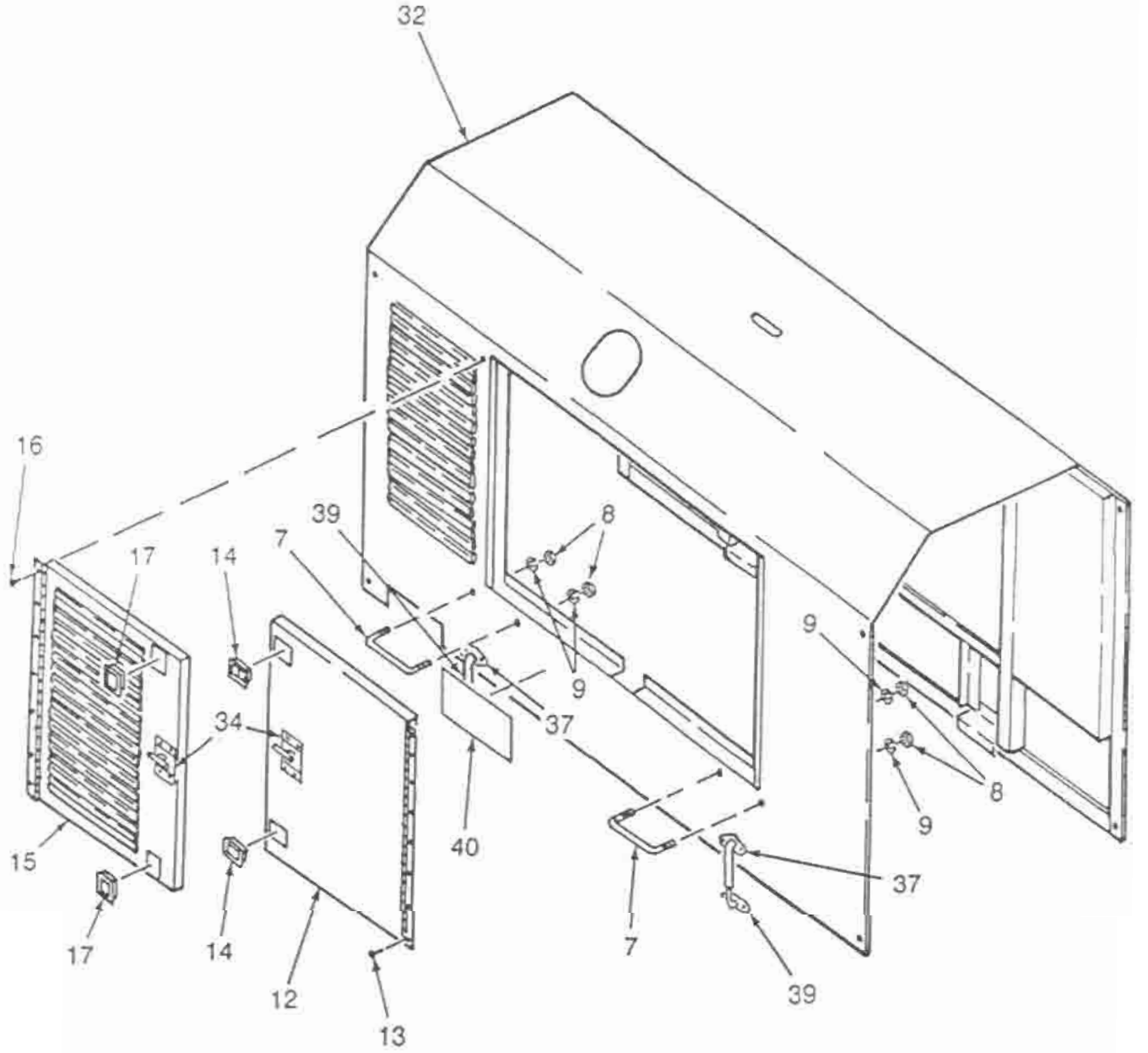


Figure 9-2. Roof Assembly (Sheet 2)

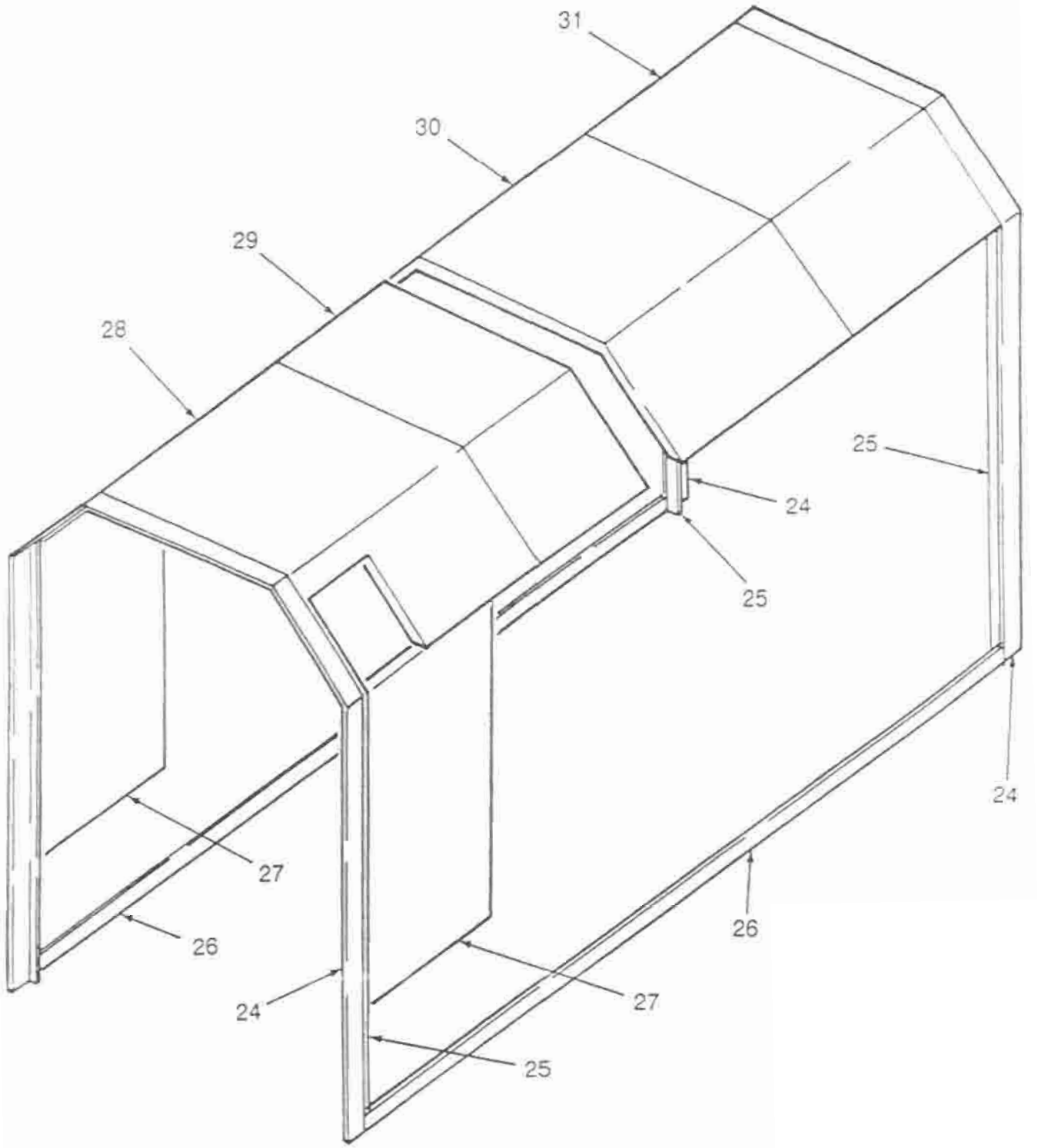


Figure 9-2. Roof Assembly (Sheet 3)

INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SMR CODE
9-2-	89248-1	ROOF ASSEMBLY..... (SEE FIGURE 1 - 2 FOR NHA) (16004)	REF		
-1	89238-1	. DOOR, ENCLOSURE (16004).....	1		
-2	13214E3789-10	. RIVET, BLIND (97403).....	7		
-3	1355AS862	. LATCH, DOOR (30003)	2		
-4	89345-1	. DOOR, ENCLOSURE (16004).....	1		
-5	13214E3789-10	. RIVET, BLIND (97403).....	7		
-6	1355AS862	. LATCH, DOOR (30003).....	2		
-7	89218	. HANDLE (16004)	4		
-8	MS51967-8	. NUT, PLAIN, HEXAGON, .375-16 UNC..... (96906) (AP)	8		
-9	MS35338-46	. WASHER, LOCK (96906) (AP).....	8		
-10	13214E3789-2	. RIVET, BLIND (97403).....	4		
-11	89342	. PLATE, TRANSPORTATION DATA..... (16004)	1		
-12	89238-2	. DOOR, ENCLOSURE (16004).....	1		
-13	13214E3789-10	. RIVET, BLIND (97403).....	7		
-14	1355AS862	. LATCH, DOOR (30003)	2		
-15	89345-2	. DOOR, ENCLOSURE (16004).....	1		
-16	13214E3789-10	. RIVET, BLIND (97403).....	7		
-17	1355AS862	. LATCH, DOOR (30003).....	2		
-18	500K1451-3	. STUD, BAIL, STYLE RB (94833).....	2		
-19	500K1451-2	. WASHER, RETAINING (94833).....	2		
-20	13214E3789-4	. RIVET, BLIND (97403).....	4		
-21	89254-1	. DOOR, ACCESS (16004)	1		
-22	89251	. SPACER, HINGE (16004).....	1		
-23	2A2C2F2 (555K5004-2HN-03-29)	. EXPANDED RUBBER, CLOSED CELL, ... .063 THK X .750 W X 34.00 LG (81346)	1		
-24	89353-3	. GASKET, ENCLOSURE (16004)	2		
-25	89353-1	. GASKET, ENCLOSURE (16004)	2		
-	54643	. ADHESIVE, INDUSTRIAL (USE WITH .... INDEX 25)	10 OZ		
-26	89352	. GASKET, ENCLOSURE (16004)	2		
-27	89808-5	. INSULATION (16004).....	2		
-	80052	. PIN (16004) (USE WITH INDEX 27).....	24		
-	80053	. CLIP (16004) (USE WITH INDEX 27).....	24		
-28	89807	. INSULATION (16004).....	1		
-	80052	. PIN (16004) (USE WITH INDEX 28).....	20		
-	80053	. CLIP (16004) (USE WITH INDEX 28).....	20		
-29	89808-1	. INSULATION (16004).....	1		
-	80052	. PIN (16004) (USE WITH INDEX 29).....	19		
-	80053	. CLIP (16004) (USE WITH INDEX 29).....	19		
-30	89809	. INSULATION (16004).....	1		
-	80052	. PIN (16004) (USE WITH INDEX 30).....	21		

INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SMR CODE
-	80053	. CLIP (16004) (USE WITH INDEX 30).....	21		
-31	89808-3	. INSULATION (16004)	1		
-	80052	. PIN (16004) (USE WITH INDEX 31).....	21		
-	80053	. CLIP (16004) (USE WITH INDEX 31).....	21		
-32	89230-1	. ENCLOSURE (16004)	1		
-33	13214E3789-10	. RIVET, POP (16004)	16		
-34	1355AS901	. DOOR HOLDER (16004)	4		
-35	MS90725-6	. SCREW, CAP, HEX. HD., .250 - 20NC. ..... X .750 LG. (96906)	8		
-36	88303	. NUT, LOCK SEPARATED HD. (16004).....	16		
-37	89131-2	. BRACKET, LATCH (16004).....	4		
-38	274825	. SCREW, MACH., HEX. SERRATED ..... WASHER HD., 250 - 20NC THD. X .750 LG. (16004)	8		
-39	89131-1	. LATCH (16004).....	4		
-40	88251	. DECAL, FUEL (16004)	1		
-41	274825	. SCREW, MACH., HEX ..... SERRATED WASHER HD, .250-20 NC THD. X 0.75 LG. (16004)	8		

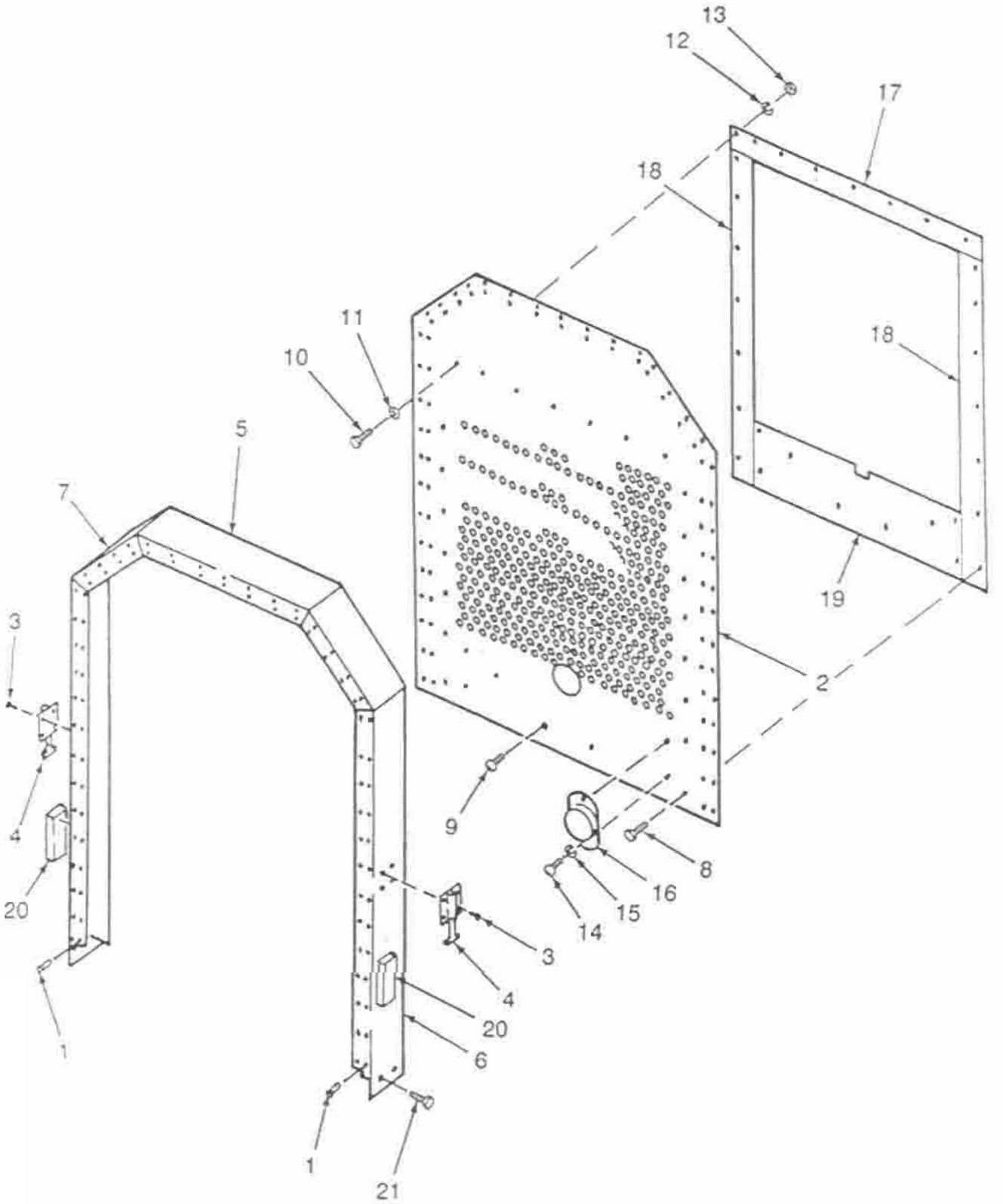


Figure 9-3. Panel Front

INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SMR CODE
9-3-	89224-1	PANEL FRONT (16004) (SEE FIGURE 1 - 5 FOR NHA)	REF		
-1	56062-21	. POP RIVET, DOME HEAD OPEN-END (94833)	22		
-2	89225	. PLATE, FRONT PANEL (16004)	1		
-3	13214E3789-10	. RIVET, BLIND (97403)	8		
-4	1355AS901	. LATCH (30003)	2		
-5	89226	. CHANNEL, SUPPORT (16004)	1		
-6	89227-2	. CHANNEL, SUPPORT (16004)	1		
-7	89227-1	. CHANNEL, SUPPORT (16004)	1		
-8	MS90725-6	. SCREW, CAP, HEX. HD. (96906)	29		
-9	274825	. SCREW, MACHINE, HEX SERRATED, WASHER HD. (16004)	8		
-10	MS90725-6	. SCREW, CAP, HEX. HD. (96906)	7		
-11	MS27813-10	. WASHER, FLAT (96906)	7		
-12	MS35338-44	. WASHER, LOCK (96906)	7		
-13	MS51967-2	. NUT, PLAIN HEXAGON (96906)	7		
-14	MS35207-265	. SCREW, MACHINE PAN HD. (96906)	2		
-15	MS35338-43	. WASHER, LOCK (96906)	2		
-16	MS35387-2	. REFLECTOR, INDICATING (AMBER) (96906)	1		
-17	89245	. GASKET (16004)	1		
-18	89246	. GASKET (16004)	2		
-19	89247	. GASKET (16004)	1		
-	54643	. INDUSTRIAL ADHESIVE (89616)	8 OZ		
-20	82504	. REFLECTOR, AMBER (16004)	2		
-21	274825	. SCREW, MACH., HEX. , SERRATED WASHER HD., .250-20NC THD X 0.75 LG. (16004)	4		

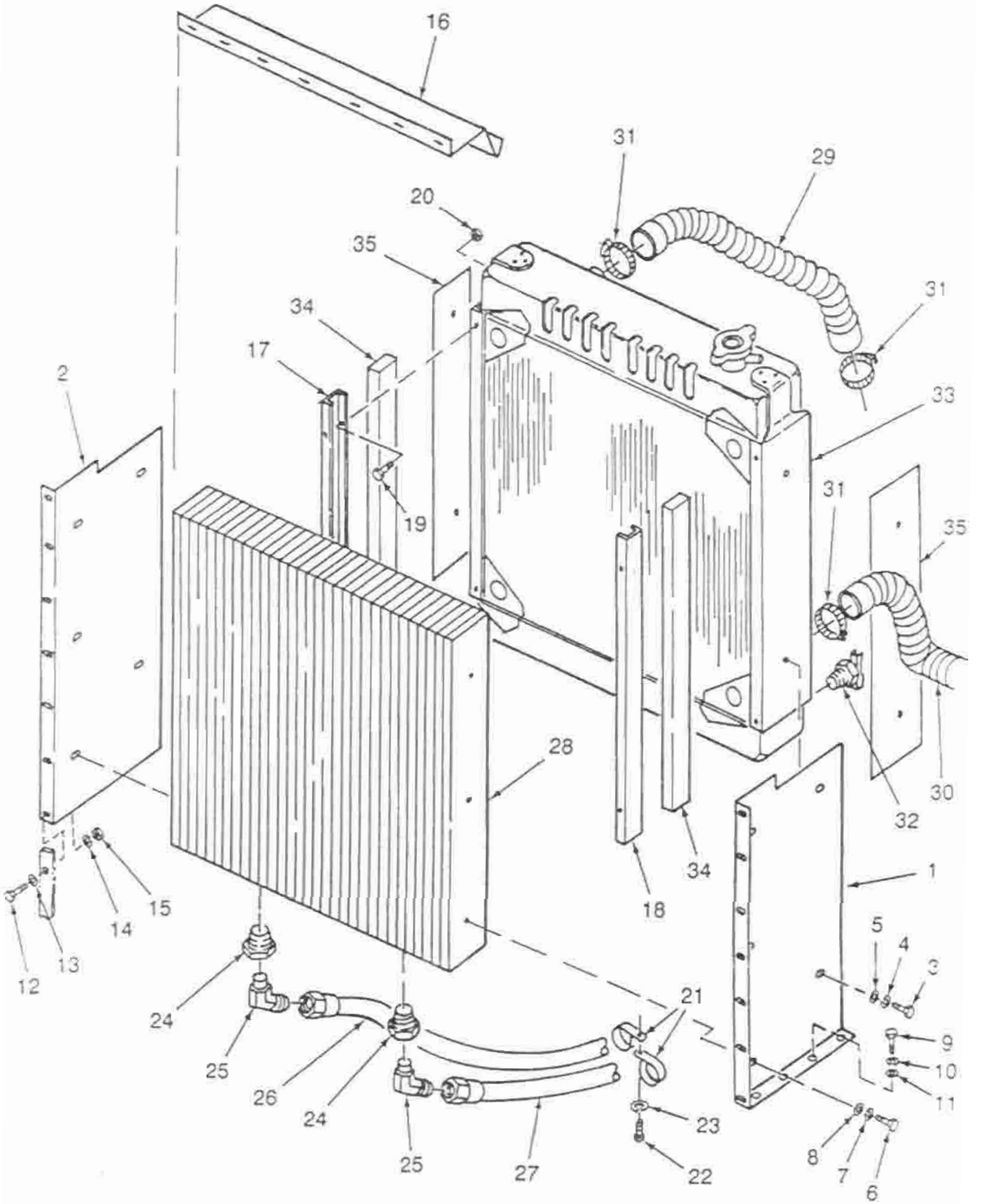


Figure 9-4. Radiator And Oil Cooler Mounting Group (Sheet 1 of 2)

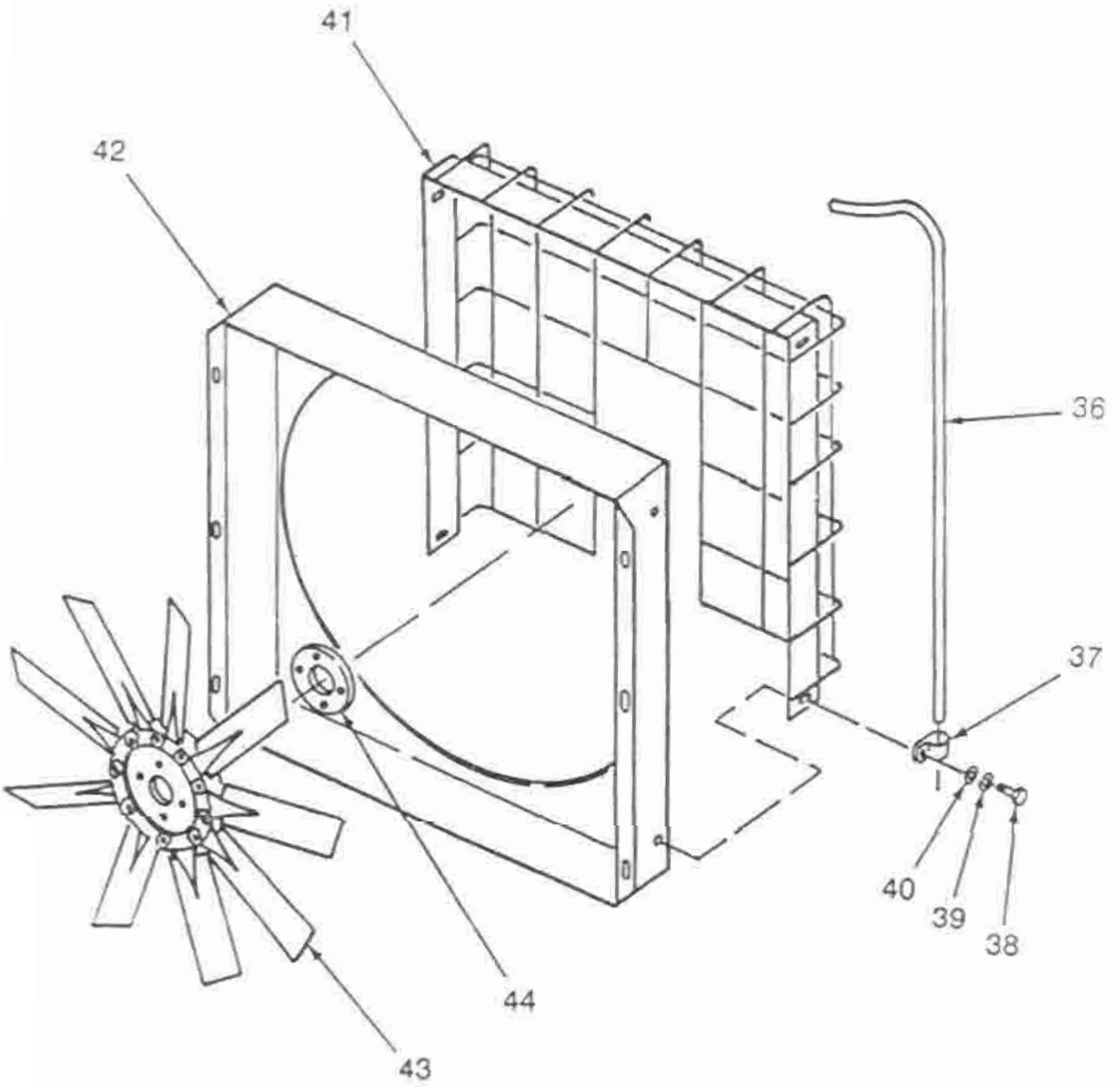


Figure 9-4. Radiator And Oil Cooler Mounting Group (Sheet 2)

INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SMR CODE
9-4-	NO NUMBER	RADIATOR AND OIL COOLER MTG ..... GROUP (SEE FIGURE 1 - 6 FOR NHA)	REF		
-1	89258-1	. BRACKET, OIL COOLER AND ..... RADIATOR R.H. (16004)	1		
-2	89258-2	. BRACKET, OIL COOLER AND ..... RADIATOR L.H. (16004)	1		
-3	MS90725-59	. SCREW, CAP, HEX. HD. (96906)	4		
-4	MS35338-46	. WASHER, LOCK (96906).....	4		
-5	MS27183-14	. WASHER, FLAT (96906))	4		
-6	MS90725-34	. SCREW, CAP, HEX. HD. (96906)	6		
-7	MS35338-45	. WASHER, LOCK (96906).....	6		
-8	MS27183-12	. WASHER, FLAT (96906)	6		
-9	MS90725-33	. SCREW, CAP, HEX. HD. (96906)	8		
-10	MS35338-45	. WASHER, LOCK (96906).....	8		
-11	MS27183-12	. WASHER, FLAT (96906)	8		
-12	MS90725-6	. SCREW, CAP, HEX. HD. (96906)	14		
-13	MS27813-10	. WASHER, FLAT (96906)	14		
-14	MS35338-44	. WASHER, LOCK (96906).....	14		
-15	MS51967-2	. NUT, PLAIN HEXAGON (96906).....	14		
-16	89259-1	. BRACKET, TOP, OIL COOLER (16004).....	1		
-17	89260-2	. CHANNEL RADIATOR (16004).....	1		
-18	89260-1	. CHANNEL, RADIATOR (16004)	1		
-19	MS90725-5	. SCREW, CAP, HEX. HD. (96906)	4		
-20	MS51922-1	. NUT, SELF-LOCKING (96906).....	4		
-21	MS21919WDG19	. CLAMP HOSE (96906)	2		
-22	MS35207-266	. SCREW, PAN HD. (96906).....	1		
-23	MS35338-43	. WASHER, LOCK (96906).....	1		
-24	89356	. ADAPTER (16004)	2		
-25	89329-1	. ELBOW, MALE 45° (16004)	2		
-26	89285-1	. HOSE ASSEMBLY (16004)	1		
-27	89285-3	. HOSE ASSEMBLY (16004)	1		
-28	89130	. THERMO COOLER (16004)	1		
-29	*89811*	. *HOSE, RADIATOR TOP (16004)*	1		
-30	89812	. HOSE, RADIATOR BOTTOM (16004)	1		
-31	MS35842-13	. CLAMP, HOSE (96906).....	4		
-32	14026	. DRAIN COCK (79470).....	1		
-33	89314-1	. RADIATOR, MOD (16004).....	1		
-34	89805	. . GASKET (16004).....	2		
-35	89312	. . GASKET, RADIATOR (16004)	2		
-	54643	. . ADHESIVE, INDUSTRIAL (94833) ..... (USE WITH INDEX 34)	3 OZ		
-36	90121	. HOSE (16004)	1		
-37	11033	. CLIP, TUBING (16004)	1		
-38	MS9316-05	. SCREW, MACH, SLOTTED HEX. HD. ..... (96906)	4		

INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SMR CODE
-39	MS35338-43	. WASHER, LOCK (96906).....	4		
-40	MS27183-42	. WASHER, FLAT (96906)	4		
-41	89181-1	. GUARD, FAN (16004).....	1		
-42	89258-1	. BRACKET, OIL COOLER AND ..... RADIATOR, R.H. (16004)	1		
-43	89372	. FAN, ENGINE (16004)	1		
-44	30TIFS	. SPACER, FAN (SUPPLIED WITH ..... ENGINE (D)) (89135)	1		

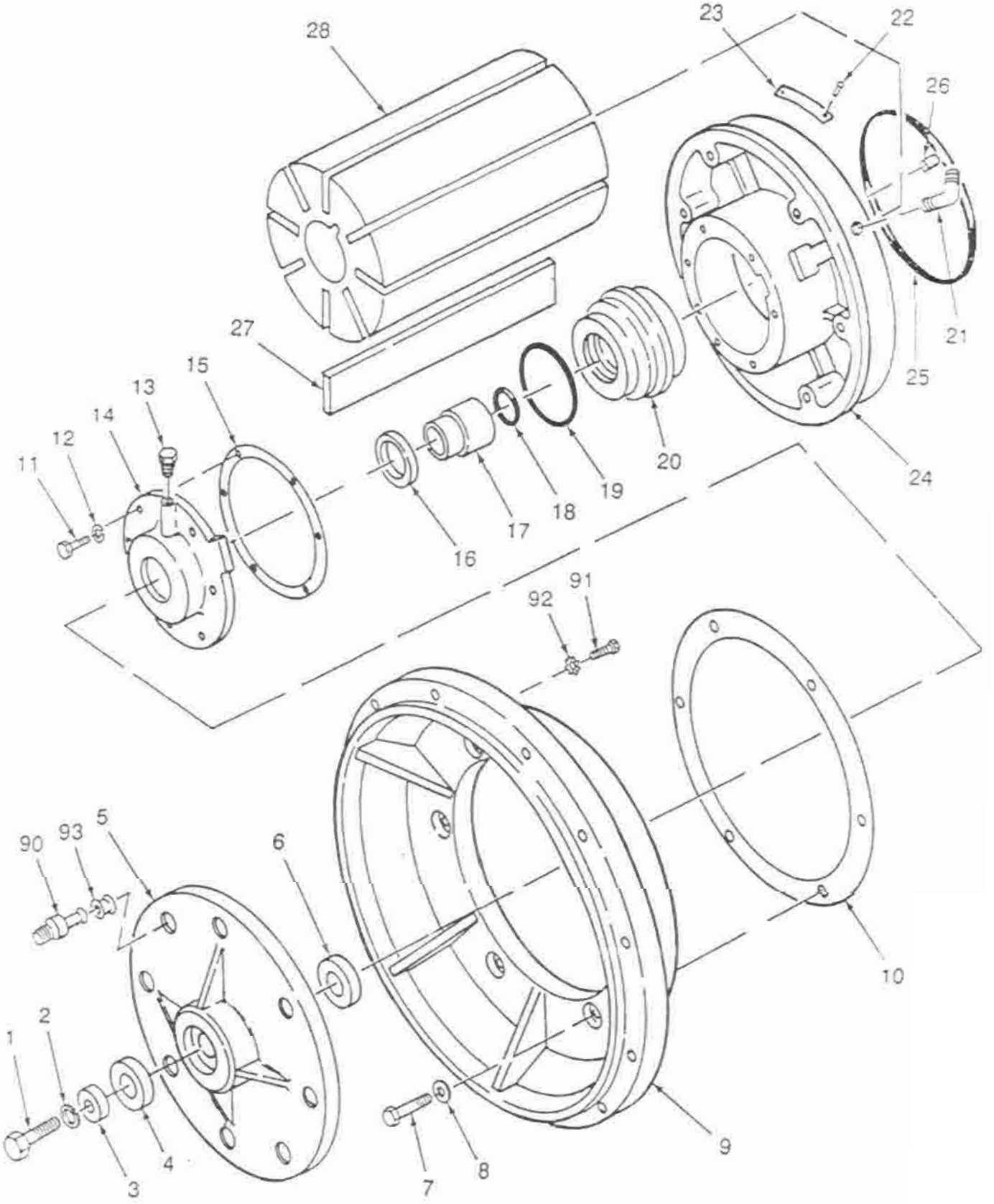


Figure 9-5. Compressor Assembly (Sheet 1 of 4)

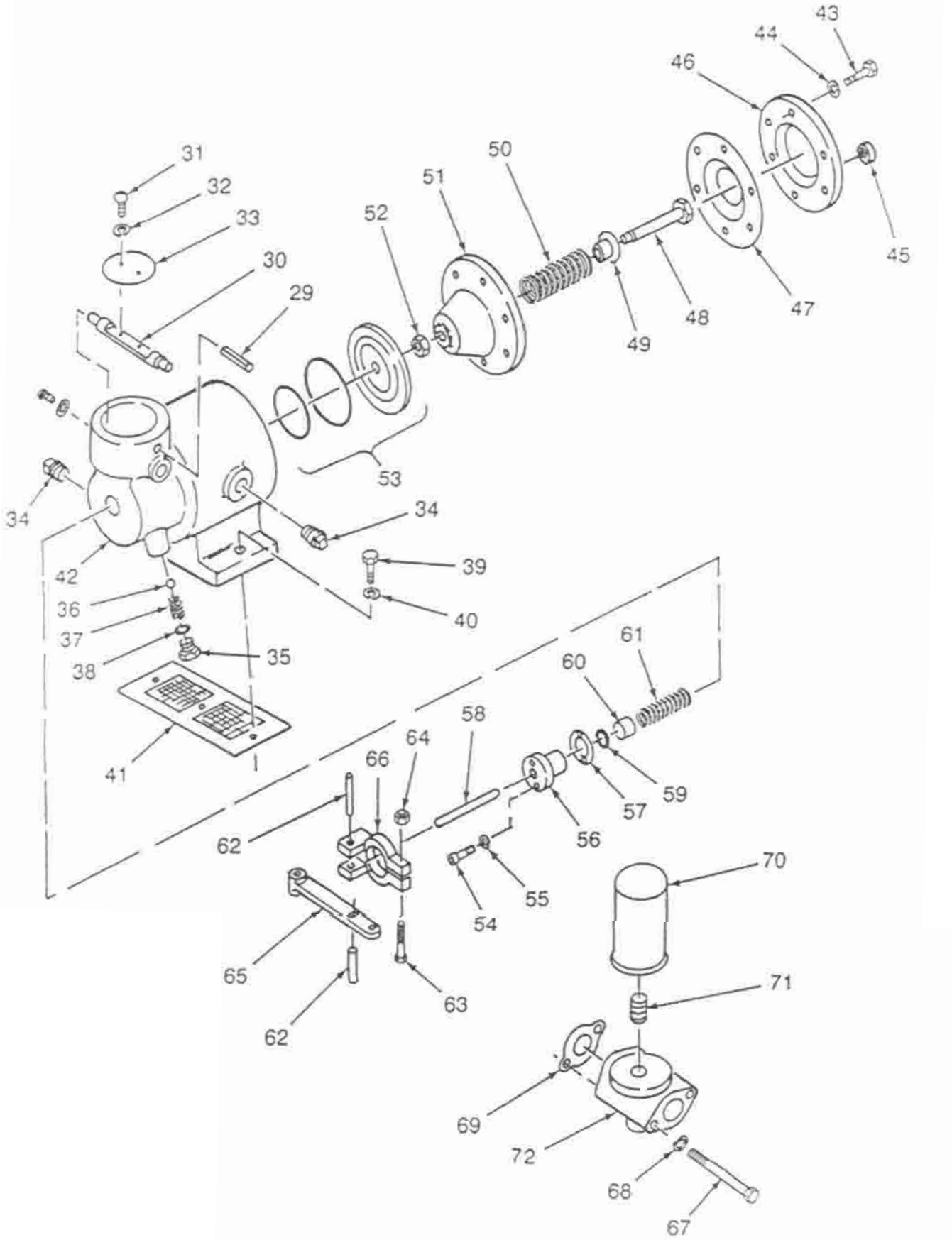


Figure 9-5. Compressor Assembly (Sheet 2)

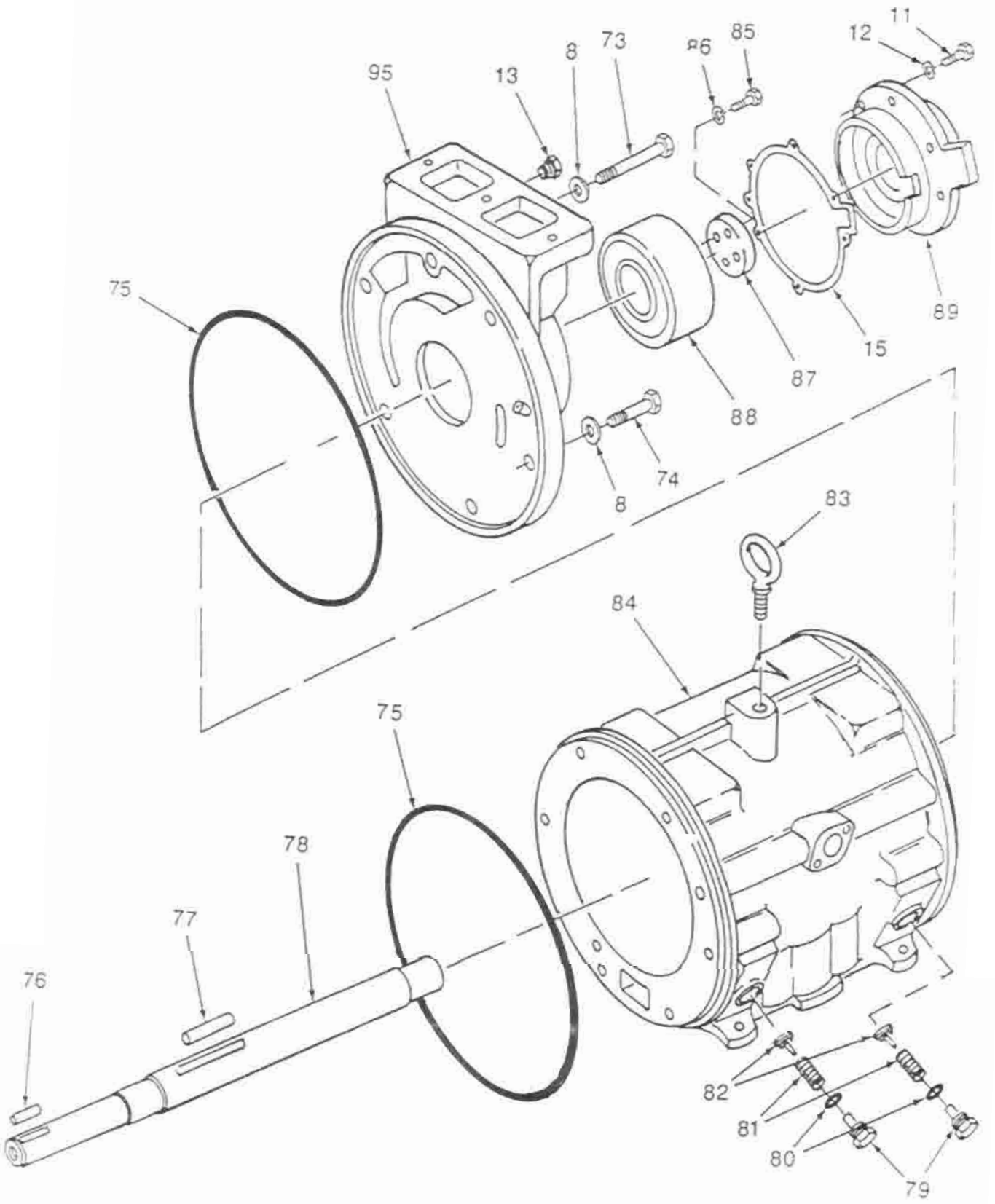


Figure 9-5. Compressor Assembly (Sheet 3)

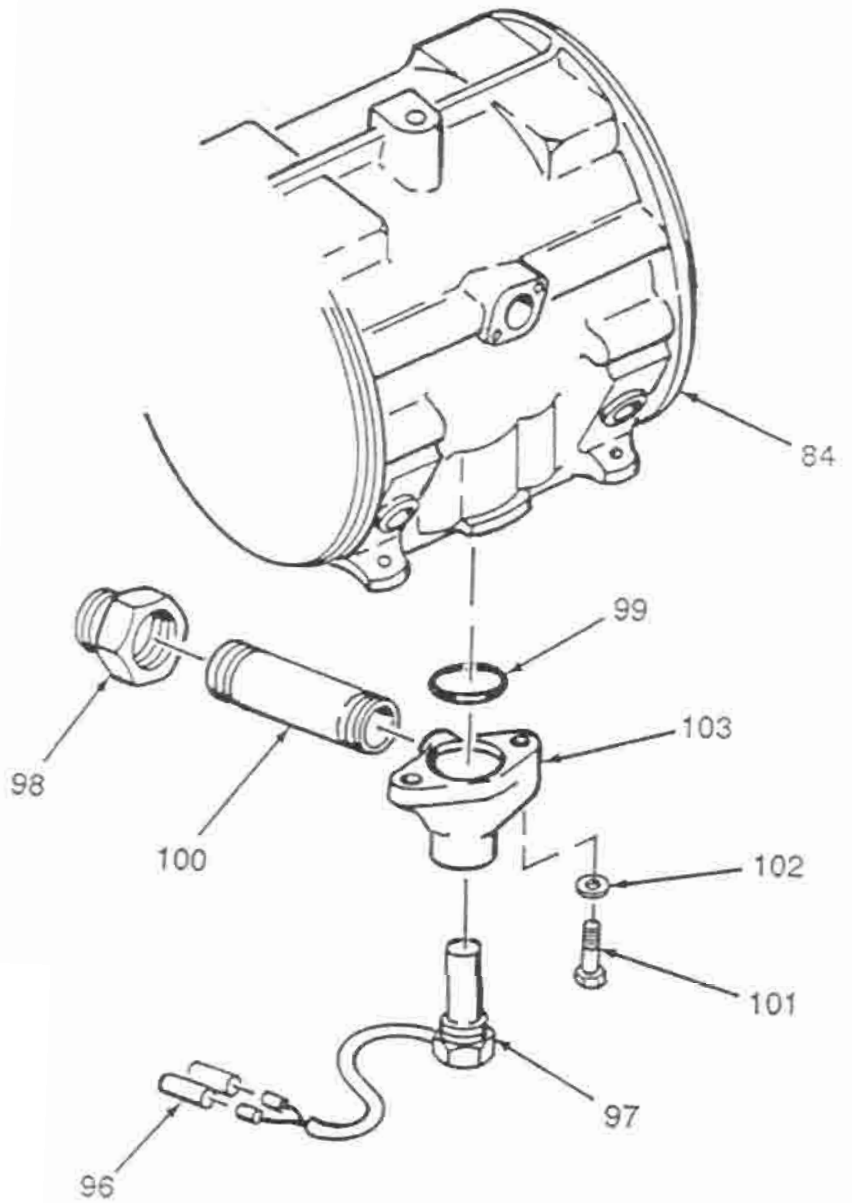


Figure 9-5. Compressor Assembly (Sheet 4)

INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SMR CODE
9-5-	89188-1	COMPRESSOR ASSEMBLY (16004) (SEE FIGURE 1 - 39 FOR NHA)	REF		
-1	MS90725-186	. BOLT, 3/4-10 X 1 3/4 LG. (96906)	1		
-2	131046	. LOCKWASHER (16004)	1		
-3	46882	. RETAINER - GRIP SPRING (16004)	1		
-4	46890	. GRIP SPRING (16004)	1		
-5	48185	. COUPLING (16004)	1		
-6	46890	. GRIP SPRING (16004)	1		
-7	MS90725-168	. BOLT, HEX, HD. 5/8 - 11 X 3.00 LG. (96906)	6		
-8	26393	. SEAL, WASHER (16004)	12		
-9	48187	. ADAPTER, ENGINE (16004)	1		
-10	44443	. GASKET, ADAPTER (16004)	1		
-11	MS90725-36	. BOLT, HEX. HD., 5/16 - 18 X 1 1/4 LG. (96906)	12		
-12	MS35338-45	. LOCKWASHER (96906)	12		
-13	143932	. PIPE, PLUG (16004)	2		
-14	46872	. COVER, OIL SEAL (16004)	1		
-15	47325	. GASKET - COVER (16004)	2		
-16	46879	. SEAL - ROTOR SHAFT (16004)	1		
-17	46878	. SLEEVE, OIL SEAL (16004)	1		
-18	24978	. O-RING (16004)	1		
-19	46886	. O-RING (16004)	1		
-20	47716	. SLEEVE, SEALING (16004)	1		
-21	41000	. ELBOW (16004)	1		
-22	145369	. DRIVE PIN (16004)	2		
-23	44972	. NAME PLATE (16004)	1		
-24	46887-1	. COVER, ASSEMBLY, NON-INTAKE END (16004)	1		
-25	46876	. . COVER, NON-INTAKE END (16004)	1		
-26	44916	. . STOP PIN (16004)	1		
-27	44798	. ROTOR BLADE (16004)	8		
-28	47215	. ROTOR (16004)	1		
-29	30788	. PIN, STOP (16004)	1		
-30	45074	. SHAFT, VALVE (16004)	1		
-31	121832	. SCREW (16004)	2		
-32	40045	. LOCKWASHER (16004)	2		
-33	45073	. VALVE PLATE (16004)	1		
-34	MS20913-2S	. PIPE PLUG (96906)	2		
-35	45121	. PLUG, CHECK VALVE (16004)	1		
-36	24527	. BALL (16004)	1		
-37	46888	. SPRING (16004)	1		
-38	24498	. O-RING (16004)	2		
-39	MS90725-62	. BOLT, HEX. HD. (96906)	3		

INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SMR CODE
-40	MS35338-46	. LOCKWASHER (96906)	3		
-41	44446	. GASKET - INTAKE (16004)	1		
-42	62336	. BODY, INTAKE CONTROL (16004)	1		
-43	MS90725-64	. BOLT, HEX. HD., 3/8 - 16 X 1 1/2 LG. (96906)	6		
-44	MS35338-46	. LOCKWASHER (96906)	6		
-45	40868	. BREATHER (16004)	1		
-46	80261	. COVER, AIR INTAKE (16004)	1		
-47	44753	. DIAPHRAGM (16004)	1		
-48	44756	. STEM, INTAKE CONTROL (16004)	1		
-49	44755	. PISTON - INTAKE CONTROL (16004)	1		
-50	44444	. SPRING - INTAKE CONTROL (16004)	1		
-51	44430	. GASKET, INTAKE CONTROL (16004)	1		
-52	67910	. LOCKNUT (16004)	1		
-53	44758	. INTAKE VALVE SEAT INSERTION ASSEMBLY (16004)	1		
-54	MS16997-60	. BOLT, SOC. HD., 1/4 - 20 X 3/4 LG. (96906)	2		
-55	28149	. LOCKWASHER (16004)	2		
-56	61759	. GUIDE, SPEED CONTROL (16004)	1		
-57	61761	. GASKET (16004)	1		
-58	62047	. PUSH ROD, SPEED CONTROL (16004)	1		
-59	24498	. O-RING (16004)	2		
-60	26981	. BUSHING (16004)	1		
-61	44919	. SPRING - INTAKE CONTROL VALVE (16004)	1		
-62	40596	. PIN-AIR CONTROL (16004)	2		
-63	138208	. BOLT, SOC. HD., 1/4 - 20 X 2 1/2 LONG (16004)	1		
-64	MS51922-1	. LOCKNUT (96906)	1		
-65	62286	. SPEED CONTROL ARM ASSEMBLY (16004)	1		
-66	61757	. THROTTLE CONTROL PIVOT CLAMP ADAPTER (16004)	1		
-67	67724	. BOLT, SOC. HD., 5/16 - 18 X 4 1/2 LG. (16004)	2		
-68	28147	. LOCKWASHER (16004)	1		
-69	44051	. GASKET - OIL FILTER ASSEMBLY (16004)	1		
-70	86810	. OIL FILTER (16004)	1		
-71	86812	. ADAPTER, FILTER TO BRACKET (16004)	1		
-72	86449-1	. CONNECTION, BYPASS AND FILTER TO COMPR. (16004)	1		

INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SMR CODE
-73	428709	. BOLT, HEX. HD., 5/8 - 11 X 3 1/2 LG. ..... (16004)	2		
-74	MS90725-162	. BOLT, HEX. HD., 5/8 - 11 X 1 1/2 LG. ..... (96906)	4		
-75	44428	. O-RING (16004).....	2		
-76	46889	. KEY, SHEAVE (16004).....	1		
-77	24986	. KEY 3/4 DIA. X 3.00 LONG (16004).....	1		
-78	46873	. SHAFT ROTOR (16004)	1		
-79	43392	. PLUG - DRAIN (16004).....	2		
-80	24964	. O-RING (16004).....	2		
-81	43394	. SPRING - DRAIN VALVE (16004).....	2		
-82	43393	. VALVE - DRAIN (16004)	2		
-83	24636	. EYE BOLT (16004).....	1		
-84	47352	. STATOR (16004).....	1		
-85	MS90725-34	. BOLT, HEX. HD., 5/16 - 18 X 1.00 LG. ..... (96906)	4		
-86	MS35338-45	. LOCKWASHER (96906)	4		
-87	63196	. RETAINER, BEARING (16004).....	1		
-88	46869	. BEARING, ROLLER (16004).....	1		
-89	46884	. COVER, BEARING (16004).....	1		
-90	44056	. PIN (16004).....	1		
-91	MS90725-65	. SCREW, CAP, HEX. HD., .375-16NC. ..... X 1.75 LG. (96906)	12		
-92	MS35338-46	. WASHER, LOCK (96906).....	12		
-93	25673	. BUSHING (16004)	8		
-94	47737	. STRAP, LOCKING DRIVE.....	4		
-95	46875	. COVER, INTAKE END (16004)	1		
-96	2323	. CONNECTOR (81257) (16004 PN 23921) ...	2		
-97	48414	. THERMOSWITCH ASSEMBLY (16004)	1		
-98	44891	. ADAPTER, SEPARATOR INLET (16004) ...	1		
-99	PRP56822397575	. PACKING, PREFORMED (77308)..... (16004 PN 24033)	3		
-100	49234	. TUBE, DISCHARGE (16004).....	1		
-101	120233	. SCREW, CAP, HEX. HD. 3/8 - 16 X 1 IN. ... LG. (AP) (24617)	2		
-102	120382	. WASHER, LOCK, SPLIT 3/8 (AP) ..... (24617)	2		
-103	48745	. CONNECTION DISCHARGE (16004).....	1		

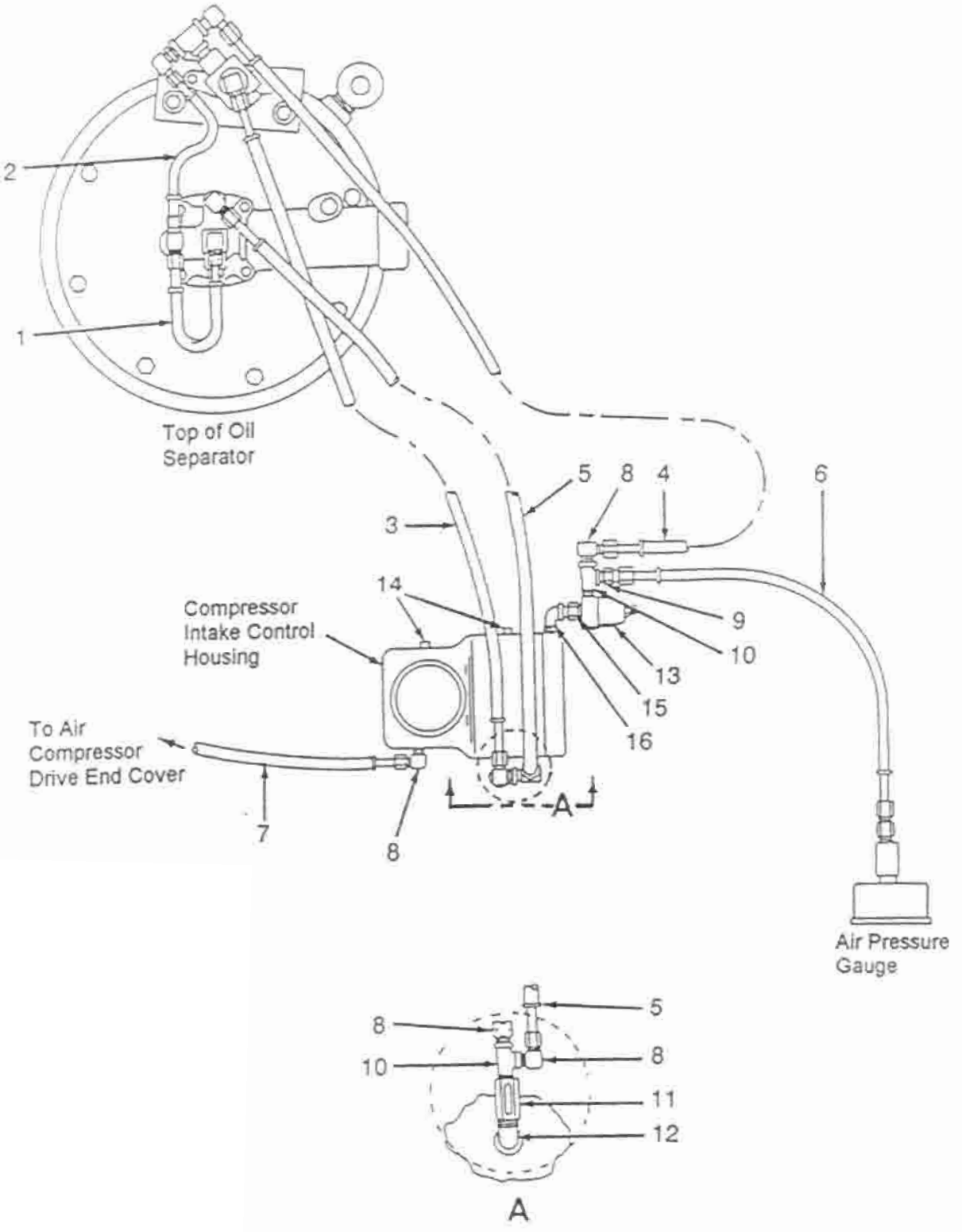


Figure 9-6. Air Lines And Fitting Group

INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SMR CODE
9-6-	NO NUMBER	AIR LINES AND FITTINGS GROUP ..... (SEE FIGURE 1-130 FOR NHA	REF		
-1	61072	. HOSE ASSEMBLY	REF		
-2	61067	. HOSE ASSEMBLY	REF		
-3	61082	. HOSE ASSEMBLY, AIR, BLOWDOWN .... VALVE TO INTAKE CONTROL	1		
-4	61079	. HOSE ASSEMBLY, AIR, BLOWDOWN .... VALVE TEE TO PRESSURE REGULATOR TEE	1		
-5	61084	. HOSE ASSEMBLY, AIR, STRAINER ..... ORIFICE TO SIGHT GAUGE TEE	1		
-6	61090	. HOSE ASSEMBLY, AIR, PRESSURE ..... REGULATOR TEE TO PRESSURE GAUGE	1		
-7	61079	. HOSE ASSEMBLY, AIR, INTAKE ..... HOUSING TO DRIVE END COVER	1		
-8	69X6	. ELBOW, TUBE (79470) ..... (16004 PN 28890)	4		
-9	68X6	. ADAPTER, TUBE (79470) ..... (16004 PN 28888)	1		
-10	67800	. TEE, STREET, 1/4NPT	2		
-11	1821	. GAUGE, FLOW SIGHT (80885) ..... (16004 PN 62234)	1		
-12	65644	. ELBOW	1		
-13	64142	. REGULATOR ASSEMBLY, AIR ..... PRESSURE	1		
-14	144011	. PLUG, PIPE, 1/4NPT, SQ SOC HD ..... (24617)	2		
-15	65610	. NIPPLE, HEX	1		
-16	144112	. ELBOW, 1/4, 90°, STREET (24617)	1		

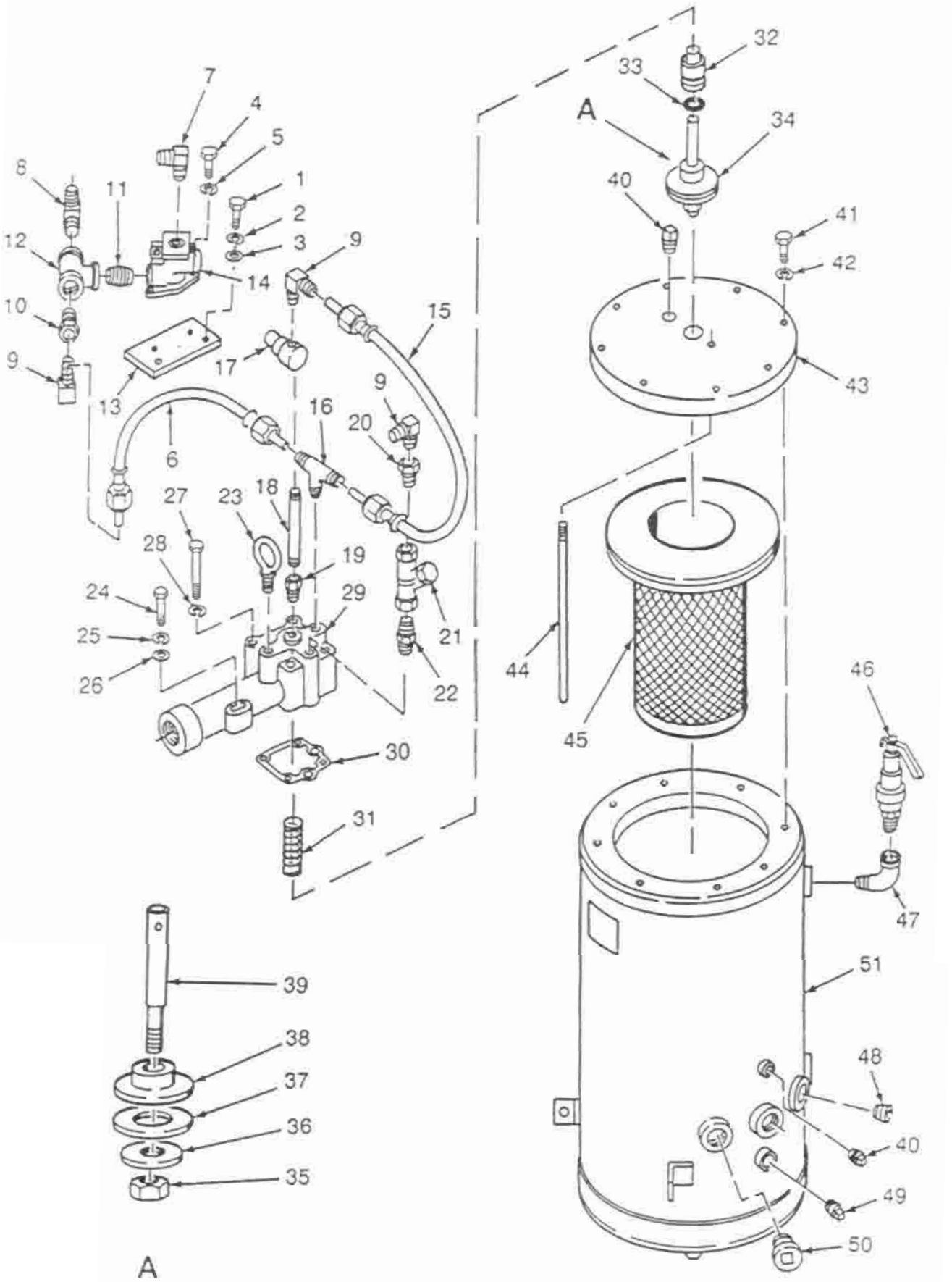


Figure 9-7. Oil Separator Assembly

INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SMR CODE
9-7-	89187-1	OIL SEPARATOR ASSEMBLY (16004) ..... (SEE FIGURE 1 - 38 FOR NHA)	REF		
-1	MS90725-166	. SCREW, CAP, HEX. HD., .625 - 11 ..... UNC X 2.50 LG. (96906)	2		
-2	MS35338-50	. LOCKWASHER, .625 (96906).....	2		
-3	MS27183-21	. WASHER, FLAT (96906)	2		
-4	MS90725-29	. SCREW, CAP HEX. HD., .312-18 UNC ..... X .50 LG. (96906)	2		
-5	MS35338-45	. LOCKWASHER (96906)	2		
-6	61076	. HOSE ASSEMBLY (16004)	1		
-7	41000	. ELBOW (16004)	1		
-8	27691	. ELBOW (16004)	1		
-9	28890	. ELBOW (16004)	3		
-10	144038	. BUSHING (16004)	1		
-11	MS51953-73	. NIPPLE, .50 CLOSE (96906)	1		
-12	144085	. TEE (16004)	1		
-13	68460	. BRACKET, BLOWDOWN VALVE ..... (16004)	1		
-14	68550	. BLOWDOWN VALVE (16004).....	1		
-15	61072	. HOSE ASSEMBLY (16004)	1		
-16	28892	. TEE (16004)	1		
-17	64916	. REGULATOR (16004).....	1		
-18	51768-2-4000	. NIPPLE (94833).....	1		
-19	116332	. BUSHING (16004)	1		
-20	49776	. ORIFACE, "Y" (16004)	1		
-21	47690	. STRAINER (16004).....	1		
-22	65610	. HEX, NIPPLE (16004)	1		
-23	24636	. EYE BOLT (16004).....	1		
-24	MS90725-121	. SCREW, CAP, HEX. HD., .500-13 UNC .... X 3.50 LG. (96906)	1		
-25	MS35338-48	. LOCKWASHER (96906).....	1		
-26	MS27183-19	. WASHER, FLAT (96906)	1		
-27	MS90725-70	. SCREW, CAP, HEX. HD., .375-16 UNC .... X 3.00 LG. (96906)	4		
-28	MS35338-46	. LOCKWASHER (96906).....	4		
-29	60826	. HOUSING (16004)	1		
-30	44088	. GASKET (16004	1		
-31	26283	. SPRING (16004)	1		
-32	26284	. PISTON (16004)	1		
-33	24999	. O-RING (16004).....	1		
-34	62232	. ASSEMBLY, NON RETURN VALVE..... (16004)	1		
-35	21NTU-058	. . NUT, LOCK (30655) ..... (16004 PN 62303)	1		
-36	47371	. . WASHER, VALVE	1		

INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SMR CODE
-37	47373	. . SEAT, VALVE.....	1		
-38	47370	. . FACING, VALVE	1		
-39	47372	. . STEM, VALVE	1		
-40	MS20913-2S	. PLUG (96906)	2		
-41	61874	. SCREW, CAP, HEX. HD. (16004)..... (PART OF TANK 89186-1)	8		
-42	121574	. WASHER, LOCK (24617) (PART OF ..... TANK 89186-1)	8		
-43	48176	. COVER, TANK (16004) (PART OF ..... TANK 89186-1)	1		
-44	51290-2-15000	. PIPE, SCHAVENGER LINE (94833)	1		
-45	64746	. ELEMENT (16004).....	1		
-46	14776	. SAFETY VALVE (16004).....	1		
-47	MS39230-S	. ELBOW, 90° STREET (96906)	1		
-48	MS20913-10S	. PLUG (96906)	1		
-49	MS20913-4S	. PLUG (96906)	1		
-50	143971	. PLUG, PIPE SOCKET HD. (1 1/2 NPT)..... (16004)	1		
-51	89186	. TANK, OIL SEPARATOR (INCLUDES..... COVER 48176) (16004)	1		

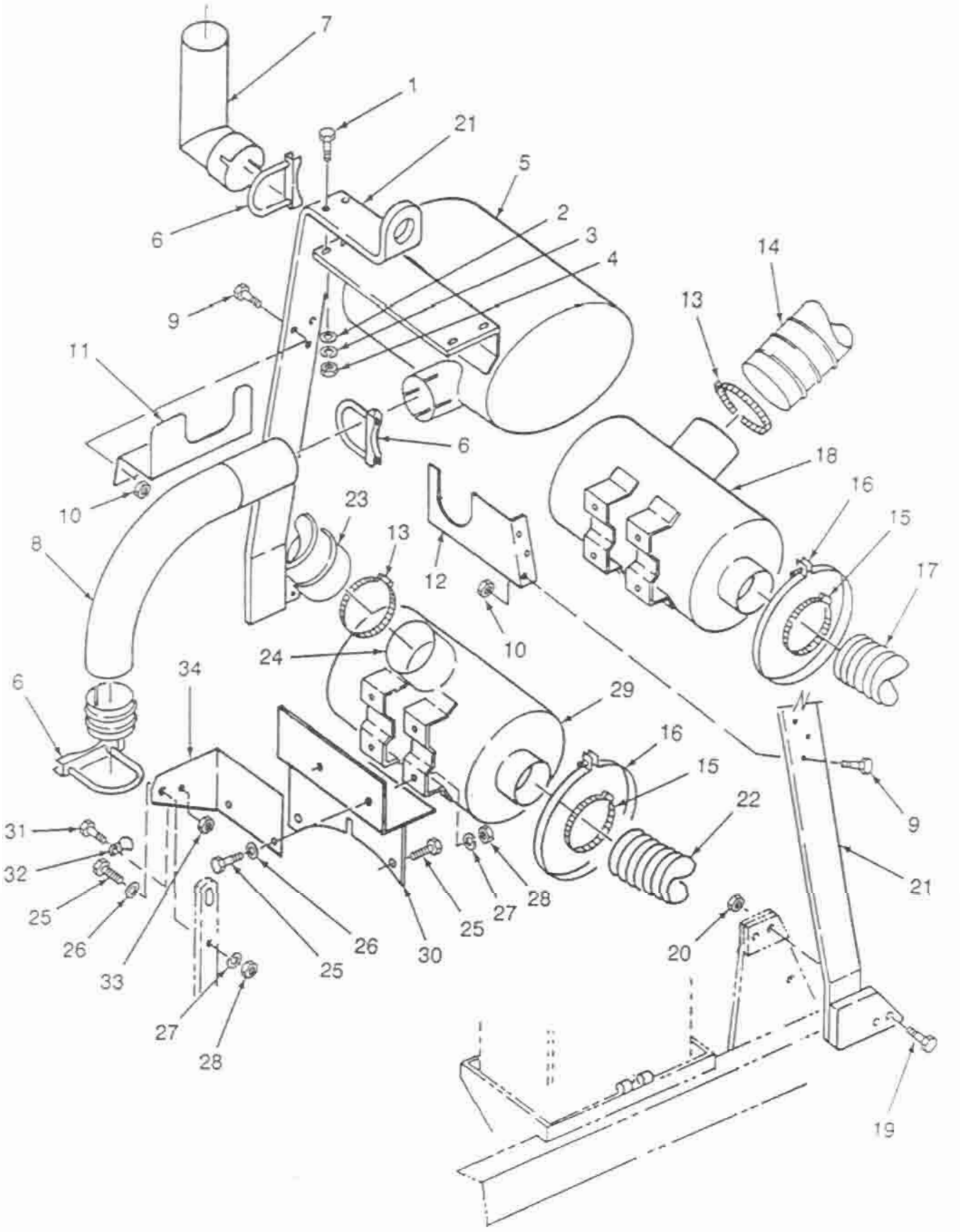


Figure 9-8. Exhaust Muffler And Air Cleaner Assembly

INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SMR CODE
9-8-	NO NUMBER	EXHAUST MUFFLER AND AIR ..... CLEANER ASSEMBLY (SEE FIGURE 1 - 7 FOR NHA)	REF		
-1	MS90725-62	. SCREW, CAP, HEX. HD., .375-16 UNC ..... X 1.25 LG. (96906)	2		
-2	MS27183-14	. WASHER, FLAT (96906)	2		
-3	MS35338	. WASHER, LOCK (96906).....	2		
-4	MS51967-8	. NUT, PLAIN, HEXAGON, .375-16 UNC .... (96906)	2		
-5	89278-1	. MUFFLER, EXHAUST (16004).....	1		
-6	35752	. CLAMP, MUFFLER (16004) ..... (SUPPLIED, PART OF ENGINE 89135)	3		
-7	89299-1	. ELBOW, OUTLET, MUFFLER (16004)	1		
-8	89346-1	. ELBOW, MOD (16004)	1		
-9	MS90725-62	. SCREW, CAP, HEX. HD., .375-16 UNC ..... X 1.25 LG. (96906)	6		
-10	MS51922-17	. NUT, SELF-LOCKING, .375-16 UNC ..... (96906)	6		
-11	89350	. SUPPORT, MUFFLER, OUTLET ..... (16004)	1		
-12	89351	. SUPPORT, MUFFLER, INLET (16004).....	1		
-13	MS35842-16	. CLAMP, HOSE (96906).....	4		
-14	89371-1	. HOSE, FRESH AIR, COMPRESSOR ..... (16004)	1		
-15	MS35842-15	. CLAMP, HOSE (96906).....	4		
-16	P004073	. BANDS, AIR CLEANER (16004) ..... (SUPPLIED PART OF ENGINE 89135)	2		
-17	89335-3	. HOSE, AIR CLEANER (16004).....	1		
-18	89127	. FITTING, BARBED (16004).....	2		
-19	MS90725-164	. SCREW, CAP, HEX. HD., .625-11 UNC .... X 2.00 LG. (96906)	4		
-20	MS51922-49	. NUT, SELF - LOCKING, .625-11 UNC ..... (96906)	4		
-21	89272-1	. LIFTING BAIL (16004)	1		
-22	89335-1	. HOSE, AIR CLEANER (16004).....	1		
-23	89371-3	. HOSE, FRESH AIR, ENGINE (16004).....	1		
-24	89127	. FITTING, BARBED (16004).....	1		
-25	MS90725-60	. SCREW, CAP, HEX. HD., .375-16 UNC ..... X 1.00 LG. (96906)	6		
-26	MS27183-14	. WASHER, FLAT (96906)	4		
-27	MS35338-46	. WASHER, LOCK (96906).....	4		
-28	MS51967-8	. NUT, PLAIN, HEXAGON, .375-16 UNC..... (96906)	4		
-29	G090183	. AIR CLEANER (16004) (SUPPLIED ..... PART OF ENGINE 89135)	1		

INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SMR CODE
-30	89263-1	. BRACKET, AIR CLEANER (16004)	1		
-31	MS90725-5	. SCREW, CAP, HEX. HD., .250-20NC X .... .625 LG. (96906)	1		
-32	60886	. CLIP, CABLE (16004)	1		
-33	MS51922-1	. NUT, SELF - LOCKING, .250-20 UNC ..... (96906)	1		
-34	89271	. ANGLE, SUPPORT (16004)	1		

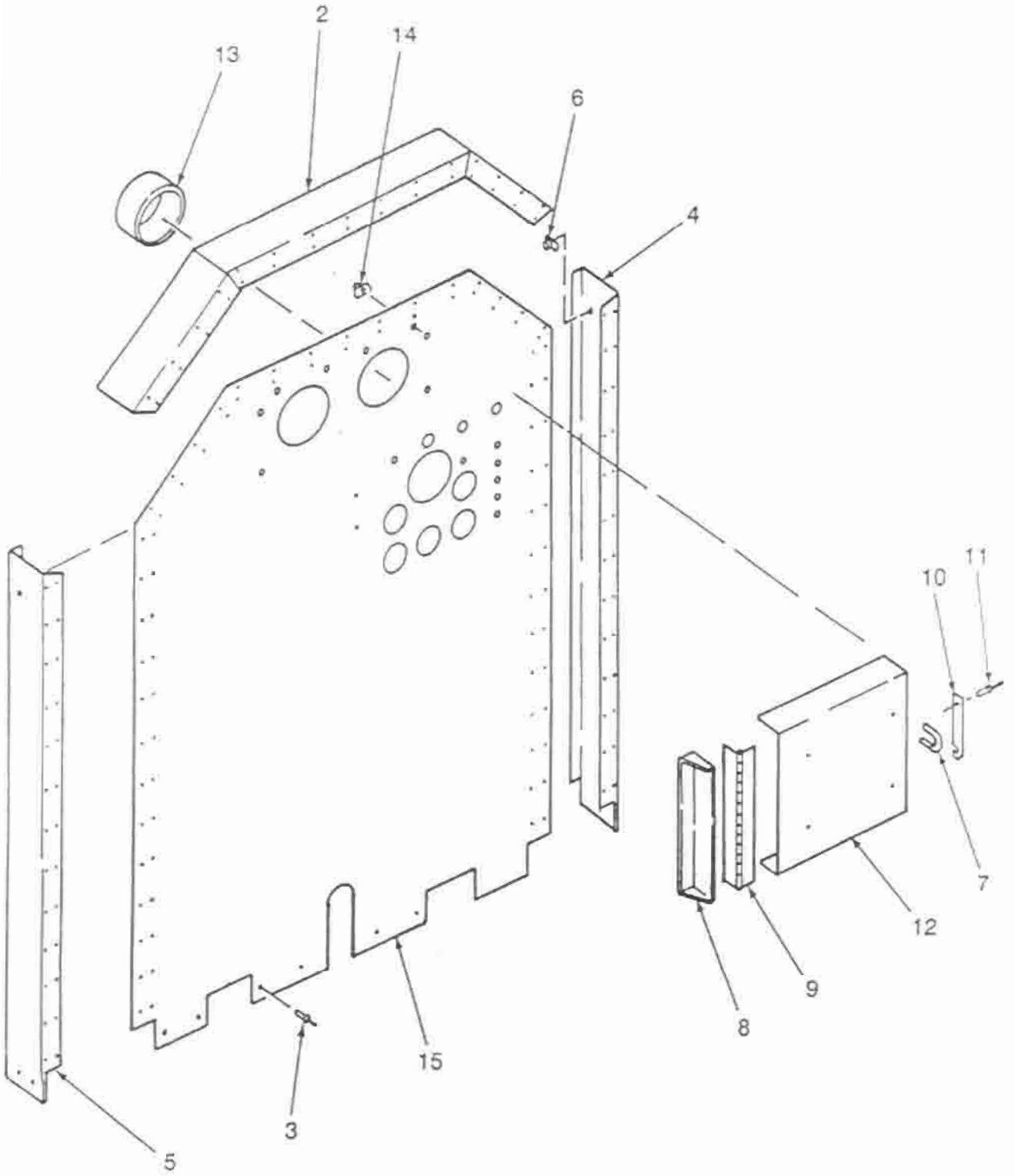


Figure 9-9. Panel Assembly Rear (Sheet 1 of 4)

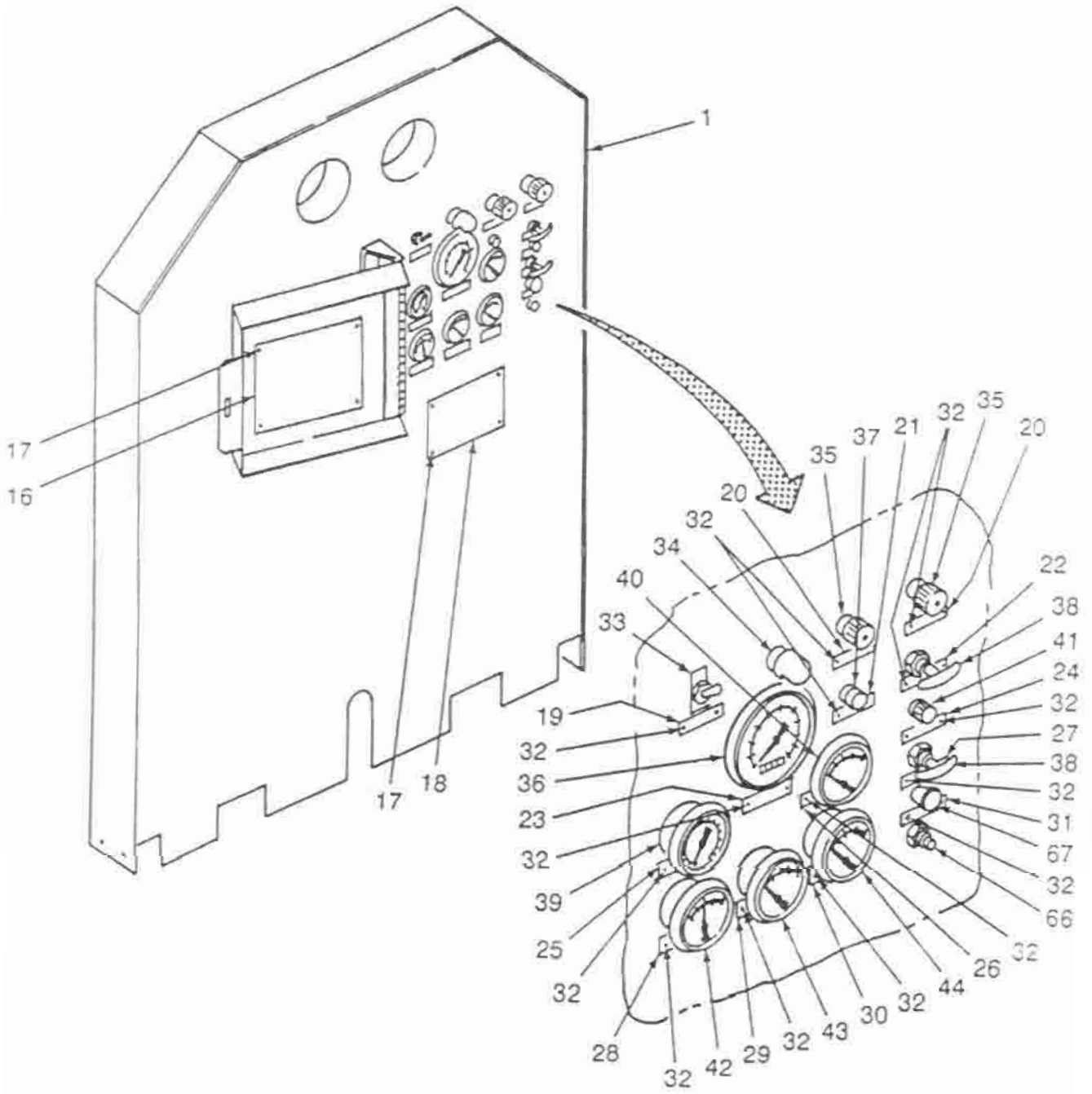


Figure 9-9. Panel Assembly Rear (Sheet 2)

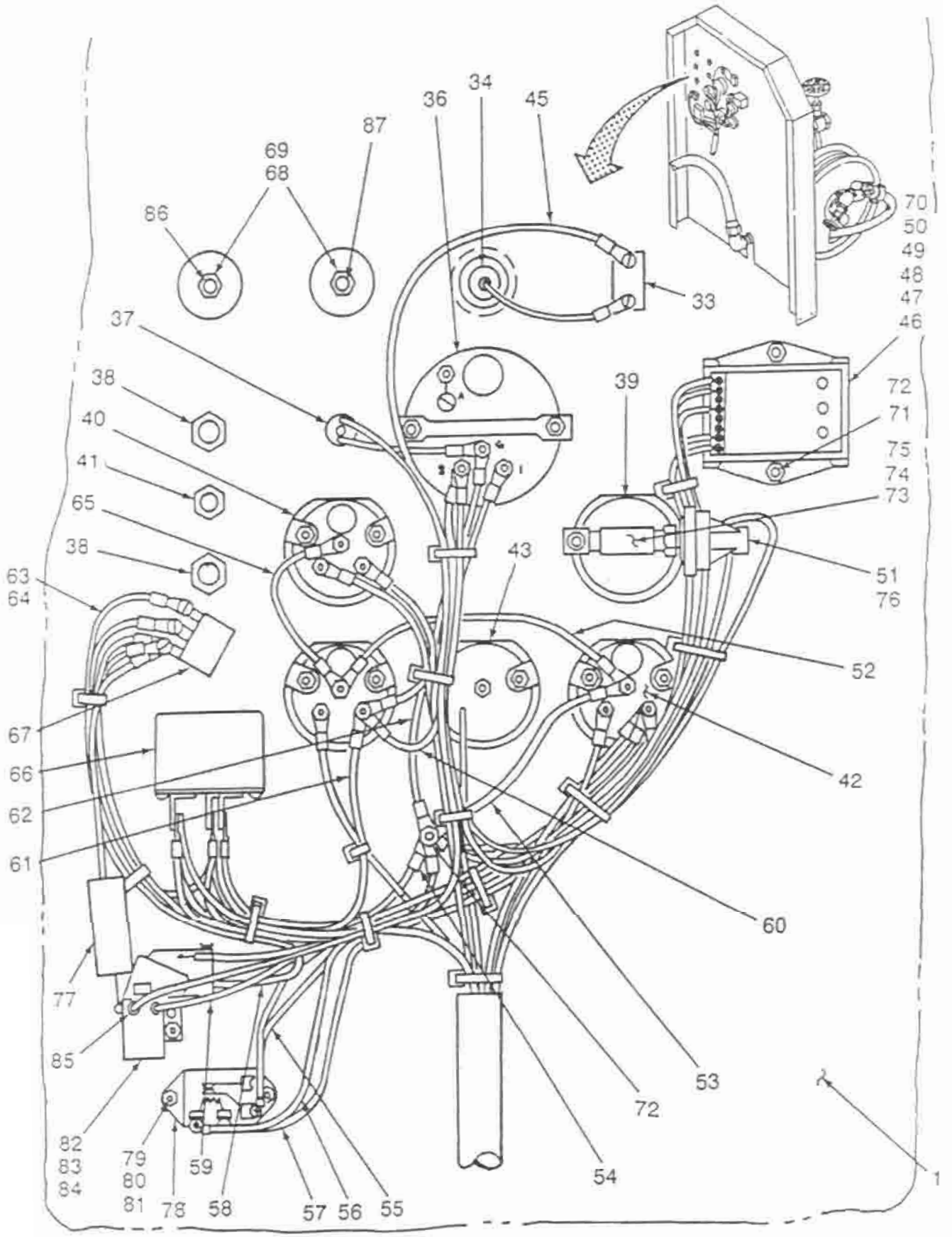


Figure 9-9. Panel Assembly Rear (Sheet 3)

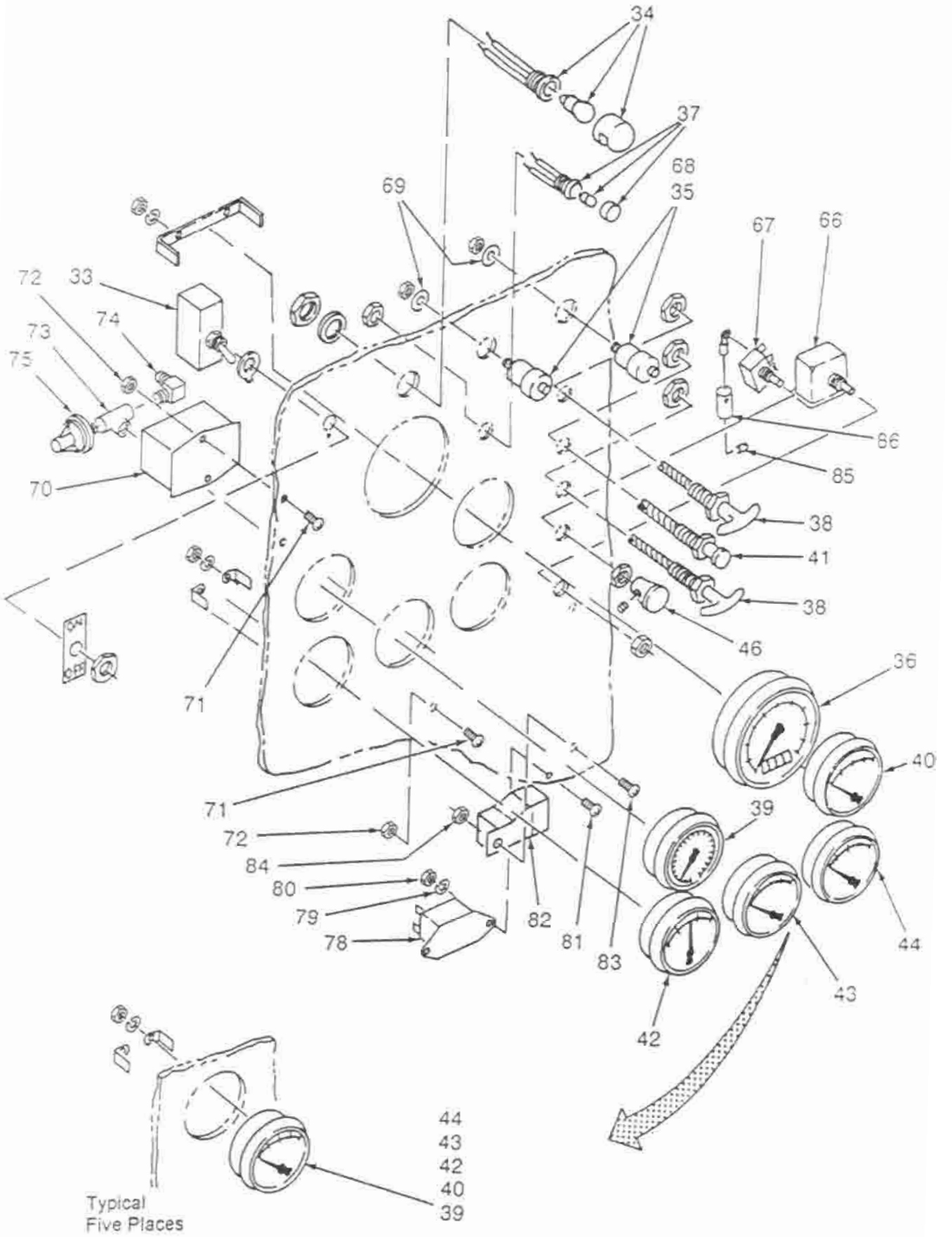


Figure 9-9. Panel Assembly Rear (Sheet 4)

INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SMR CODE
9-9-	89235-1	PANEL ASSEMBLY, REAR ..... (SEE FIGURE 1 - 35 FOR NHA)	REF		
-1	89229-1	. PANEL, REAR (16004)	1		
-2	89226	. . CHANNEL, SUPPORT (16004)	1		
-3	56062-21	. . POP RIVET, DOME HEAD, ... OPEN-END (89833)	86		
-4	89227-4	. . CHANNEL, SUPPORT (16004).....	1		
-5	89227-3	. . CHANNEL, SUPPORT (16004).....	1		
-6	55251-9	. . NUT, WELD (94833)	2		
-7	89359	. . HASP (16004).....	1		
-8	89360	. . ANGLE (16004)	1		
-9	89361	. . HINGE, COVER, CONTROL PANEL ..... (16004)	1		
-10	89363	. . LATCH PLATE (16004).....	1		
-11	56062-25	. . POP RIVET, DOME HEAD..... OPEN-END (94833)	1		
-12	89358	. . COVER, CONTROL PANEL (16004).....	1		
-13	89362	. . TUBE, HOSE ADAPTER (16004))	1		
-14	55251-7	. . NUT, WELD (94833)	8		
-15	89228	. . PLATE, REAR PANEL (16004).....	1		
-16	89813	. PLATE, OPERATING INSTRUCTION ..... (16004)	1		
-17	13214E3789-2	. RIVET, BLIND (97403).....	8		
-18	86464-8	. PLATE, IDENTIFICATION (16004)	1		
-19	41998	. PLATE, NAME (LAMP SWITCH) ..... (16004)	1		
-20	68018	. PLATE, IDENT. (RESTRICTION ..... INDICATOR) (16004)	2		
-21	89817	. PLATE, NAME (START INDICATING ..... LAMP) (16004)	1		
-22	63702	. PLATE, NAME (UNLOADER) (16004).....	1		
-23	60495	. PLATE, NAME (TACHOMETER/ ..... HOURMETER) (16004)	1		
-24	89330	. PLATE, NAME (COLD START) ..... (16004)	1		
-25	60487	. PLATE, NAME (RECEIVER ..... PRESSURE) (16004)	1		
-26	66160	. PLATE, NAME (ENGINE OIL ..... PRESSURE) (16004)	1		
-27	41997	. PLATE, NAME (IDLE CONTROL) ..... (16004)	1		
-28	66161	. PLATE, IDENT. (AMMETER) (16004).....	1		
-29	89355	. PLATE, NAME (COMPRESSOR OIL ..... TEMPERATURE) (16004)	1		

INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SMR CODE
-30	60491	. PLATE, IDENT. (ENGINE WATER TEMPERATURE) (16004)	1		
-31	61618	. PLATE, NAME (START) (16004)	1		
-32	MS51861-12	. SCREW, SELF TAPPING (96906)	28		
-33	MS35058-22	. SWITCH, TOGGLE (96906)	1		
-34	87271	. LIGHT ASSEMBLY (16004)	1		
-35	X002352	. RESTRICTION INDICATOR (SUPPLIED W/ENGINE 89135)	2		
-36	71725-00	. TACH/HOURMETER (SUPPLIED W/ ENGINE 89135)	1		
-37	89816-1	. INDICATING LAMP ASSEMBLY (16004)	1		
-38	27854	. CONTROL, "T" HANDLE - LOCKING (16004)	2		
-39	81667	. GAUGE, AIR PRESSURE (16004)	1		
-40	06340-01	. GAUGE, OIL PRESS (SUPPLIED W/ ENGINE 89135)	1		
-41	-	. CABLE, QUICK START (SUPPLIED W/ ENGINE 89135)	1		
-42	06354-01	. AMMETER (SUPPLIED W/ENGINE 89135)	1		
-43	81668	. GAUGE, OIL TEMPERATURE (16004)	1		
-44	06347-01	. GAUGE, WATER TEMP. (SUPPLIED W/ENGINE 89135)	1		
-	89379-1	. WIRING HARNESS (16004) (SEE FIGURE 1 -3 FOR NHA)	REF		
-45	89378-2	. . WIRE (16004)	1		
-46	89378-15	. . WIRE (16004)	1		
-47	89378-10	. . WIRE (16004)	1		
-48	89378-13	. . WIRE (16004)	1		
-49	89378-8	. . WIRE (16004)	1		
-50	89378-14	. . WIRE (16004)	1		
-51	89378-3	. . WIRE (16004)	1		
-52	89378-17	. . WIRE (16004)	1		
-53	89378-18	. . WIRE (16004)	1		
-54	89378-5	. . WIRE (16004)	1		
-55	89378-21	. . WIRE (16004)	1		
-56	89378-22	. . WIRE (16004)	1		
-57	89378-23	. . WIRE (16004)	1		
-58	88378-19	. . WIRE (16004)	1		
-59	89378-20	. . WIRE (16004)	1		
-60	89378-11	. . WIRE (16004)	1		
-61	89378-7	. . WIRE (16004)	1		
-62	89378-12	. . WIRE (16004)	1		
-63	89378-4	. . WIRE (16004)	1		

INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SMR CODE
-64	89378-1	. . WIRE (16004)	1		
-65	89378-16	. . WIRE (16004)	1		
-66	518APH12V	. SWITCH, MAGNETIC (SUPPLIED W/ ..... ENGINE 89135)	1		
-67	63733	. SWITCH, IGNITION START (16004)	1		
-68	89127	. ADAPTER, .125 FPT X .25 I.D. HOSE ..... (16004)	2		
-69	13216E6138-4	. WASHER, FLAT (94833)	2		
-70	SS-100	. MURPHY SPEED SWITCH (SUPPLIED .... W/ENGINE 89135)	1		
-71	MS35207-265	. SCREW, MACH., PAN HD. (96906)	3		
-72	MS21044N3	. NUT, SELF - LOCKING, HEXAGON ..... (96906).....	3		
-73	144082	. TEE, PIPE, .125 NPT (16004).....	1		
-74	28890	. ELBOW, MALE, .125 NPT X .312 TUBE .... (16004)	1		
-75	88268	. BUSHING (16004)	1		
-76	37989	. SWITCH, PRESSURE (16004).....	1		
-77	89814-1	. DELAY TIMER ASSEMBLY (16004)	1		
-78	500K1916-9	. RELAY, TIME DELAY (94833)	1		
-79	MS35338-42	. WASHER, LOCK (96906).....	2		
-80	MS35649-282	. NUT, HEX., PLAIN (96906).....	2		
-81	MS35206-243	. SCREW, PAN HD., CROSS RECESSED .... (96906)	2		
-82	55966-5	. RELAY, POWER (95833).....	1		
-83	MS35206-245	. SCREW, PAN HD. (96906).....	1		
-84	MS21044N08	. NUT, SELF - LOCKING (96906).....	1		
-85	54489-1	. ADAPTER (94833).....	1		
-86	54090-5-51000	. TUBING TYGON X 51.00 LG (54090)	1		
-87	54090-5-44000	. TUBING TYGON X 44.00 LG (54090)	1		

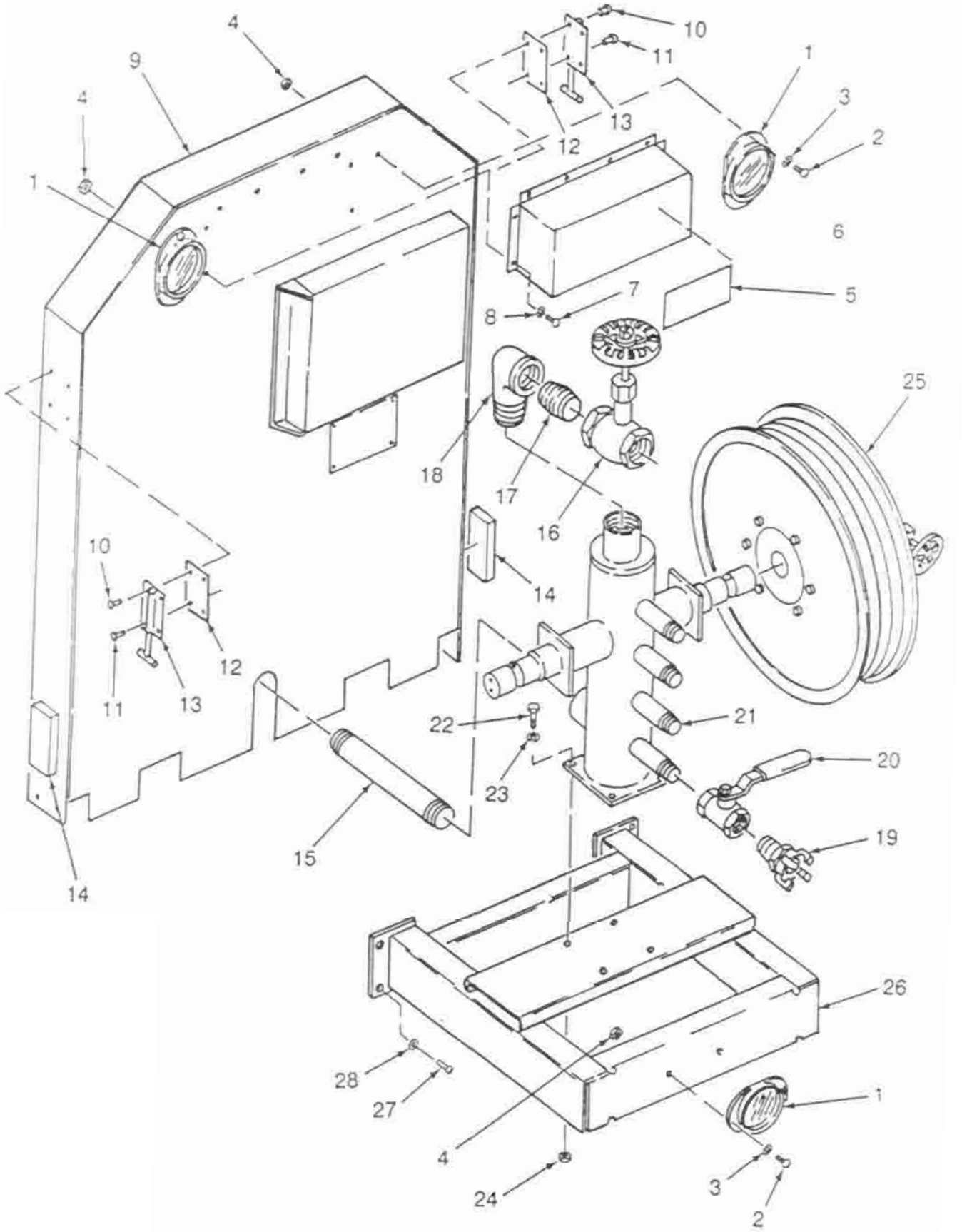


Figure 9-10. Hose Reel Assembly And Service Manifold

INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SMR CODE
9-10-	NO NUMBER	HOSE REEL ASSEMBLY AND SERVICE .... MANIFOLD (SEE FIGURE 1 - 36 NHA)	REF		
-1	MS35387-1	. REFLECTOR, INDICATING (RED) ..... (96906)	3		
-2	MS35207-265	. SCREW, MACH., PAN HD. (96906)	6		
-3	MS35338-43	. WASHER, LOCK (96906).....	6		
-4	MS35650-302	. NUT, PLAIN HEX. (96906)	6		
-5	85423	. BREATHING AIR WARNING LABEL ..... (16004)	1		
-6	89367-1	. PLENUM, AIR INLET (16004)	1		
-7	MS35207-265	. SCREW, MACH., PAN HD. (96906)	8		
-8	MS35338-43	. WASHER, LOCK (96906).....	8		
-9	89229-1	. PANEL, REAR (16004) ..... (SEE FIGURE 8 FOR BREAKDOWN)	REF		
-10	13214E3789-10	. RIVET, POP (97403)	4		
-11	13214E3789-11	. RIVET, POP (97403)	4		
-12	89357	. SPACER, DOOR HOLDER (16004).....	2		
-13	1355AS901	. DOOR HOLDER (30003)	2		
-14	82505	. REFLECTOR, RED (16004).....	2		
-15	51768-8-9500	. NIPPLE (1.50 NPT X 9.50 LG.) (94833)	1		
-16	43132	. GLOBE VALVE (1.50 NPT) (16004).....	1		
-17	MS51953-171	. NIPPLE, PIPE, SHORT (1.50 NPT) ..... (96906)	1		
-18	179444	. ELBOW, STREET, 90° (1.50 NPT) ..... (16004)	1		
-19	24046	. COUPLING, CLAW (16004).....	4		
-20	62565	. VALVE, BALL (16004).....	4		
-21	89195-1	. SERVICE MANIFOLD (16004).....	1		
-22	MS90725-60	. SCREW, CAP, HEX., HD. (96906).....	4		
-23	MS35338-46	. WASHER, LOCK (96906).....	4		
-24	MS51967-8	. NUT, PLAIN, HEXAGON, .375-16 UNC .... (96906)	4		
-25	89219-1	. REEL ASSEMBLY, HOSE (16004) ..... (SEE FIGURE 11 FOR BREAKDOWN)	2		
-26	89212-1	. FRAME, MANIFOLD MOUNT (16004)	1		
-27	MS90725-111	. SCREW, CAP, HEX., HD. (96906).....	4		
-28	MS35338-48	. WASHER, LOCK (96906).....	4		

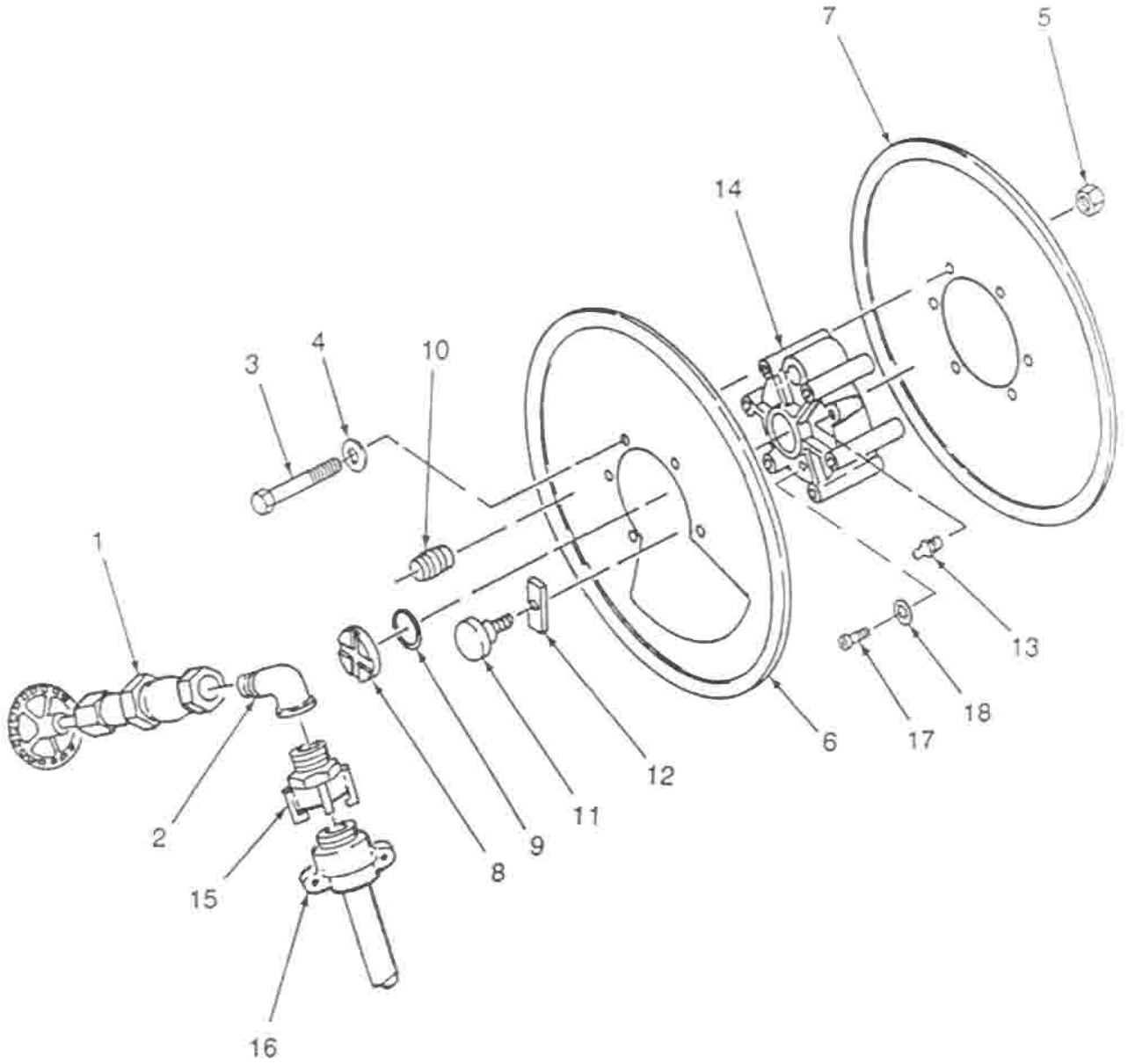


Figure 9-11. Hose Reel Assembly

INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SMR CODE
9-11-	89219-1	HOSE REEL ASSEMBLY..... (SEE FIGURE 10 - 20 NHA)	REF		
-1	66426	. VALVE, ANGLE, .75 NPT (16004).....	1		
-2	MS39230-5	. ELBOW, STREET, 90° 3/4 NPT (96906).....	1		
-3	9420811	. BOLT, HEX. HEAD 5/16 - 18NC X 5 1/4 (16004)	6		
-4	MS27183-12	. WASHER, FLAT, 5/16 (96906)	6		
-5	MS51922-9	. NUT, LOCK, 5/16 - 18NC (96906)	6		
-6	86425	. HOSE REEL END ASSEMBLY (16004).....	1		
-7	86426	. HOSE REEL END ASSEMBLY (16004).....	1		
-8	66421	. RETAINER, HOSE REEL BODY (16004) ...	1		
-9	24936	. O-RING (16004)	1		
-10	219657	. NIPPLE, PIPE, 3/4 NPT X 2.00 LG. ..... (16004)	1		
-11	66425	. KNOB, BRAKING (16004).....	1		
-12	66424	. BLOCK, BRAKING (16004).....	1		
-13	14023	. FITTING, GREASE (95879)	1		
-14	66419	. BODY, HOSE REEL (16004).....	1		
-15	24046	. 3/4" UNIVERSAL COUPLING, CLAW..... (16004)	1		
-16	62400	. HOSE ASSEMBLY, AIR (16004)	1		
-17	MS16997-59	. SCREW, SOCKET HEAD (96906)	2		
-18	MS35338-44	. WASHER, LOCK (96906).....	2		

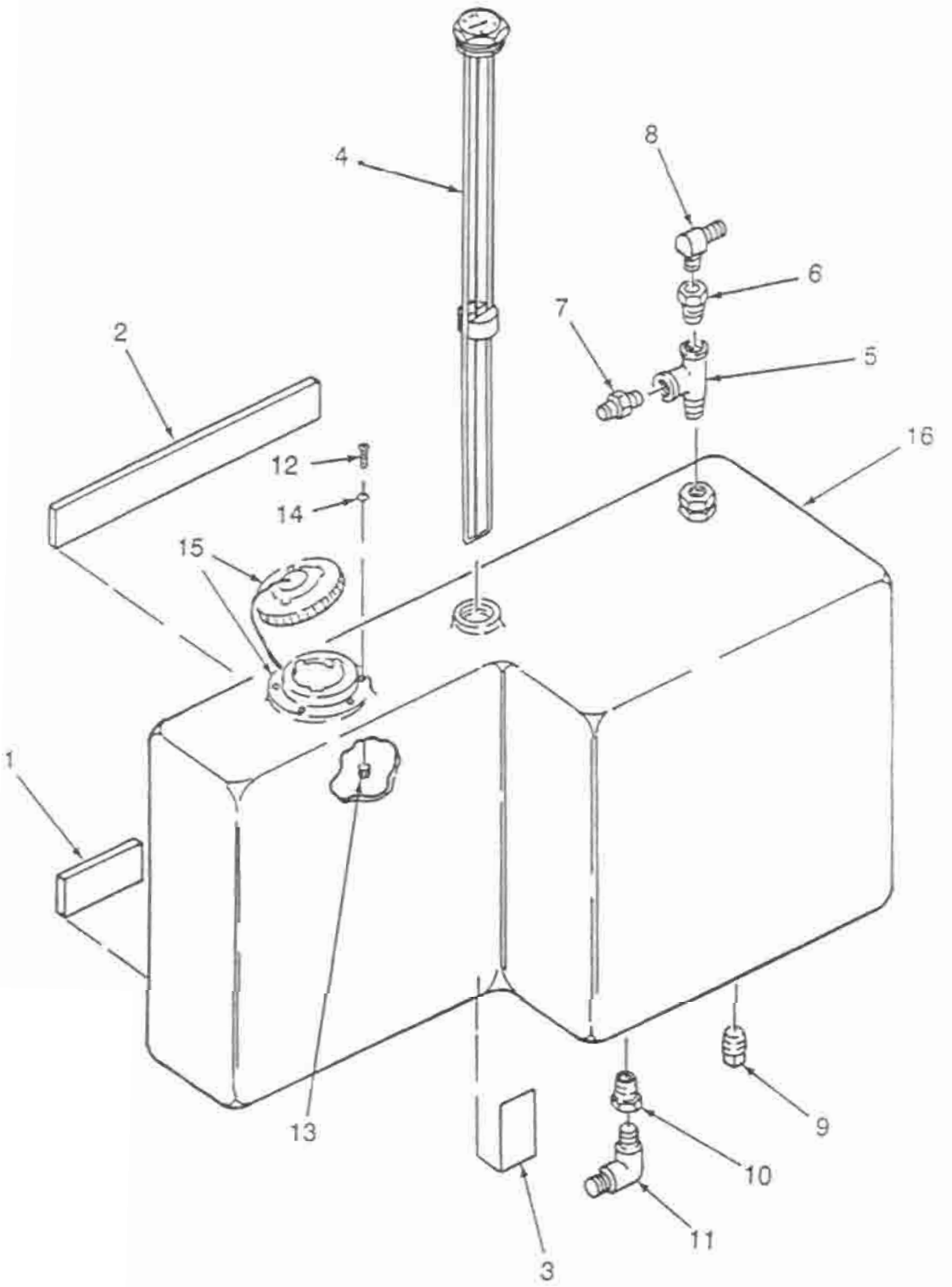


Figure 9-12. Fuel Tank

INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SMR CODE
9-12-	89298-1	FUEL TANK ASSEMBLY (SEE FIGURE 1 - 8 FOR NHA) (16004)	REF		
-1	89380-3	. INSULATION (16004)	1		
-2	89380-1	. INSULATION (16004)	1		
-3	89381	. GASKET (16004)	1		
-	54643	. ADHESIVE, INDUSTRIAL (USE WITH INDEX 1 AND 2)	.5 OZ		
-4	89297	. GAUGE - FUEL LEVEL (16004)	1		
-5	444255	. TEE, STREET - 1/4 NPT (16004)	1		
-6	144035	. BUSHING, REDUCER (16004)	1		
-7	27004	. CONNECTOR - MALE (79470)	1		
-	89302	. SEALER, PIPE THD AND GASKET (16004) (USE WITH INDEX 7)	1.5 OZ		
-8	29784	. ELBOW (16004)	1		
-9	MS20913-2S	. PLUG, SQUARE HD. .250 NPT (96906) (SEE FIGURE 10 FOR BREAKDOWN)	1		
-10	116332	. BUSHING, REDUCER (16004)	1		
-11	44209	. ELBOW (16004)	1		
-12	MS35206-247	. SCREW, MACH., PAN HEAD, #8-32 X .75 LG. (96906)	6		
-13	MS21045-08	. NUT, SELF - LOCKING, #8-32 (96906)	6		
-14	MS27183-7	. WASHER, FLAT, #8 (96906)	6		
-15	88895	. CAP AND NECK - FUEL FILLER (16004)	1		
-16	89136	. FUEL TANK (16004)	1		

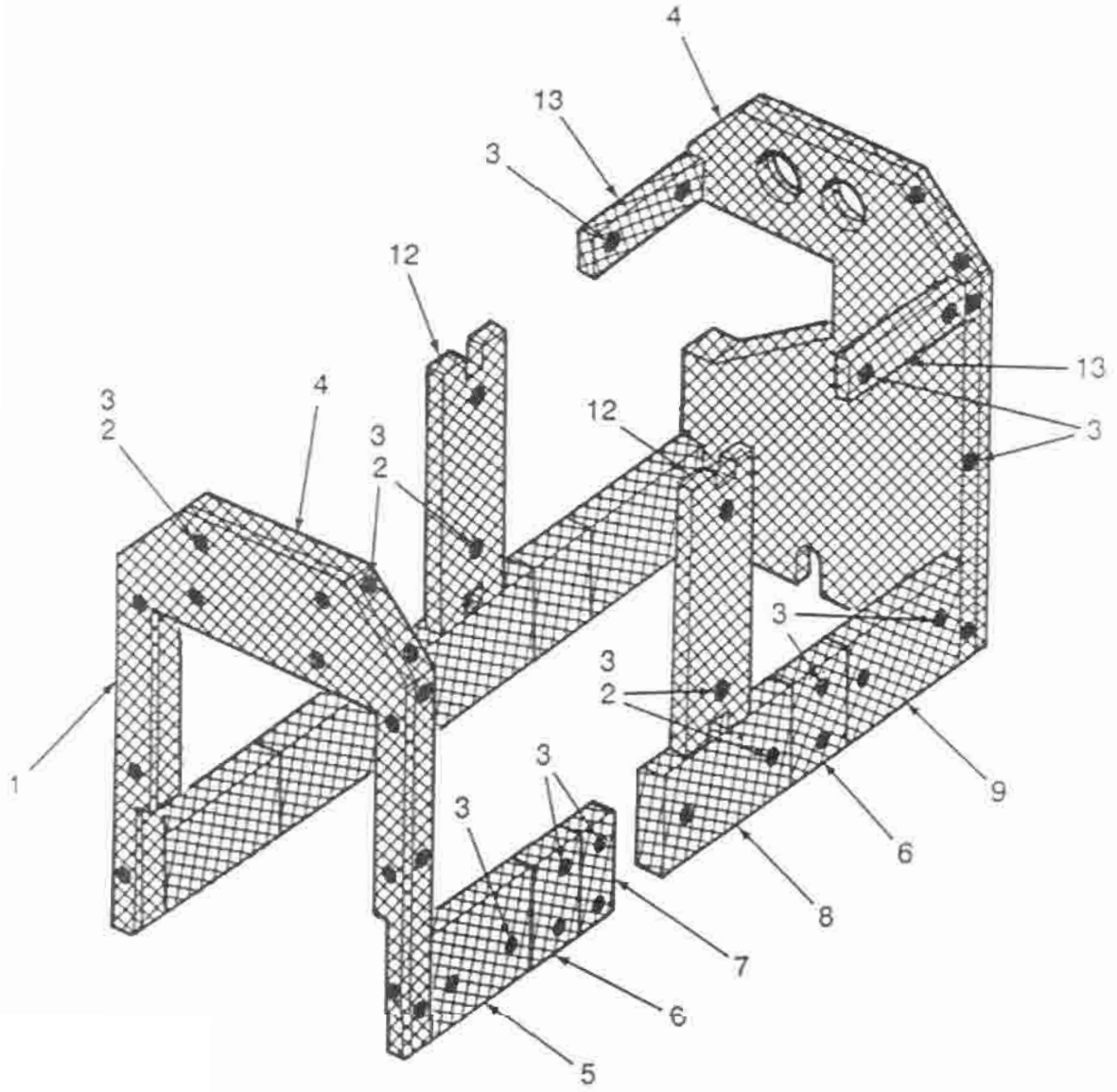


Figure 9-13. Insulation Assy (Sheet 1 of 2)

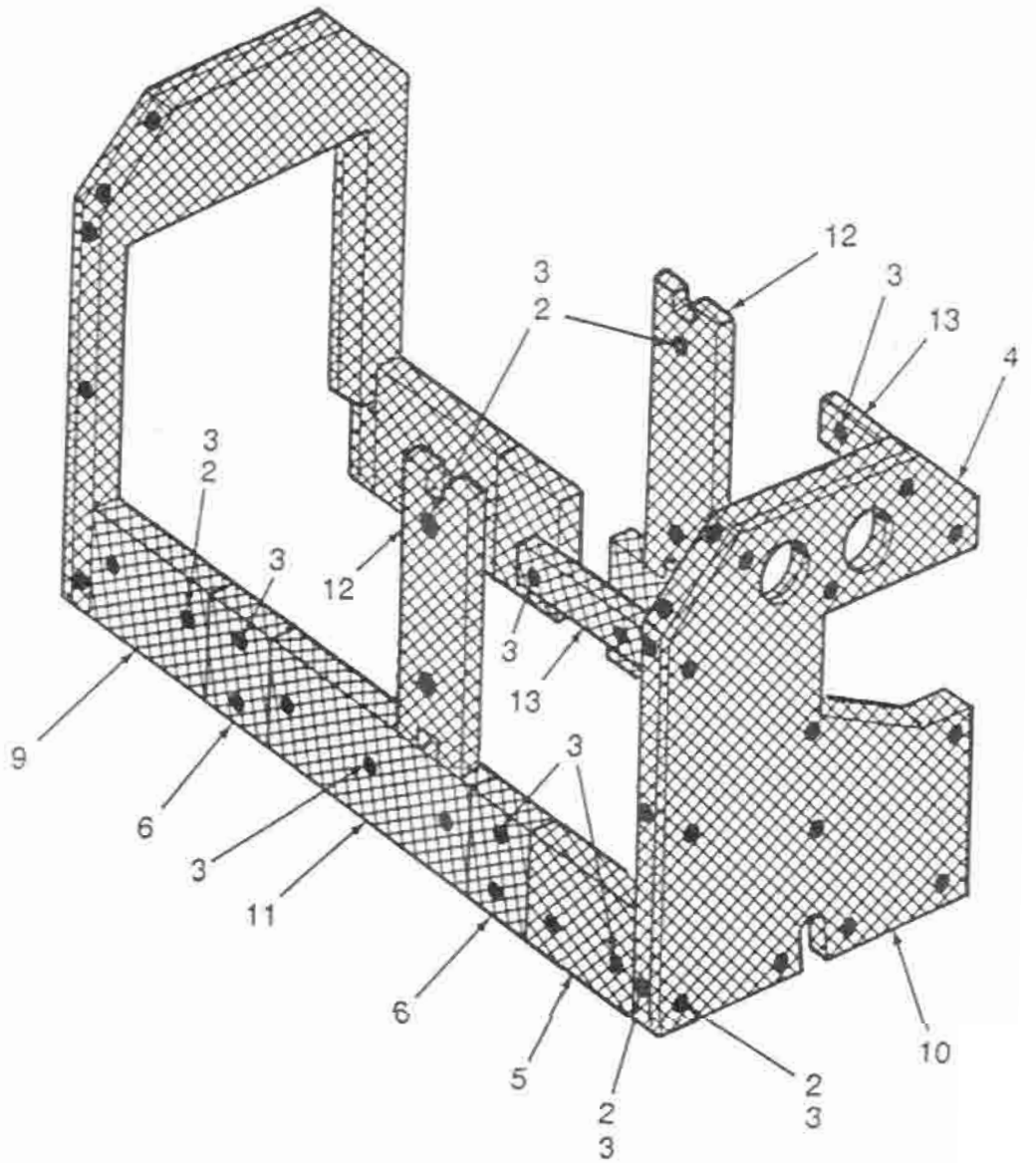


Figure 9-13. Insulation Assy (Sheet 2)

INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SMR CODE
9-13-	NO NUMBER	INSULATION ASSY (16004)..... (SEE FIGURE 1 - 3 FOR NHA)	REF		
-1	90125	. INSULATION, FRONT PANEL (16004)	1		
-2	80052	. PINS (16004)	78		
-3	80053	. CLIP (16004)	78		
-4	90127-15	. INSULATION (16004)	2		
-5	90127-5	. INSULATION (16004)	2		
-6	90127-3	. INSULATION (16004)	4		
-7	90127-9	. INSULATION (16004)	1		
-8	90127-11	. INSULATION (16004)	1		
-9	90127-1	. INSULATION (16004)	2		
-10	90126	. INSULATION, REAR PANEL (16004)	1		
-11	90127-7	. INSULATION (16004)	1		
-12	90124	. INSULATION, DOOR (16004).....	2		
-13	90127-13	. INSULATION (16004)	2		

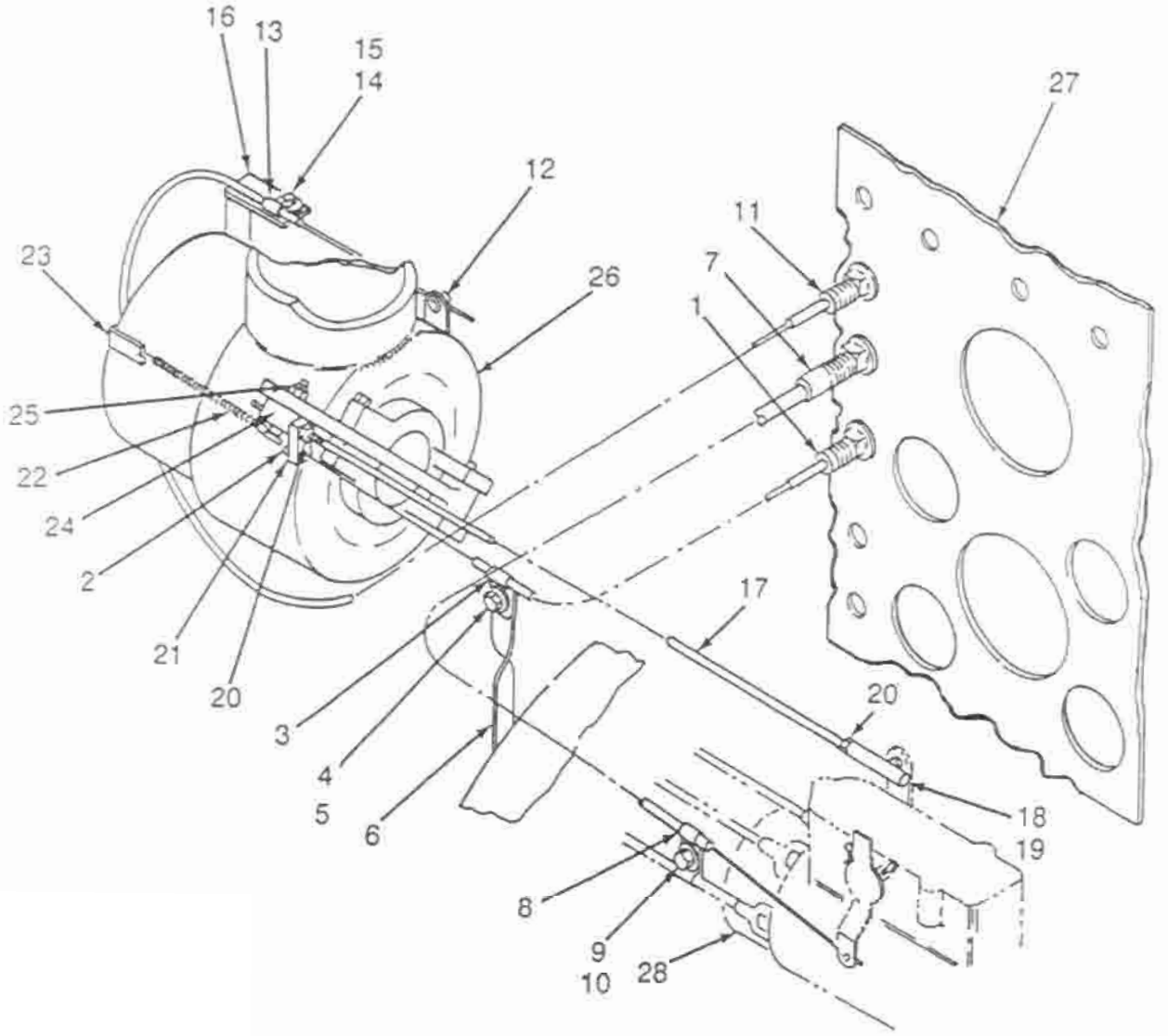


Figure 9-14. Speed Control Linkage Group

INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SMR CODE
9-14-	NO NUMBER	LINKAGE GROUP, SPEED CONTROL ..... (SEE FIGURE 1-131 FOR NHA)	REF		
-1	27854	. CABLE, CONTROL, IDLE	1		
-2	20588	. STOP, WIRE.....	1		
-3	CO-0309	. CLAMP, CABLE (AP) (75272) (16004 ..... PN 60886)	1		
-4	9416918	. NUT, LOCK, HEX SERR FLG, 1/4-20NC.... (AP) (24617)	1		
-5	274473	. SCREW, MACH, HEX SERR WSHR ..... HD, 1/4-20NC X 5/8 IN. LG (AP) (24617)	1		
-6	65878	. BRACKET, CABLE	1		
-7	R21	. CABLE, ENGINE STOP (77574) (16004 .... PN 8188)	1		
-8	CO-0309	. CLAMP, CABLE (AP) (75272) (16004 ..... PN 60886)	1		
-9	9416918	. NUT, LOCK, HEX SERR FLG, 1/4-20NC ... (AP) (24617)	1		
-10	274473	. SCREW, MACH, HEX SERR WSHR HD, ... 1/4-20NC X 5/8 IN LG (AP) (24617)	1		
-11	27854	. CABLE, CONTROL, UNLOADER.....	1		
-12	FT191-4	. STOP, WIRE (70436) (16004 PN 67981).....	1		
-13	CO-0309	. CLAMP, CABLE (AP) (75272) (16004 ..... PN 60886)	1		
-14	9416918	. NUT, LOCK, HEX SERR FLG, 1/4-20NC.... (AP) (24617)	1		
-15	274473	. SCREW, MACH, HEX SERR WSHR ..... HD, 1/4-20NC X 5/8 IN. LG (AP) (24617)	1		
-16	44506	. BRACKET, CABLE	1		
-17	65876	. ROD, CONTROL, SPEED.....	1		
-18	SP1002CP	. BALL JOINT (01428) (16004 PN 9665).....	1		
-19	443332	. NUT, LOCK, HEX, 1/4-28 NF (AP) ..... (24617)	1		
-20	120367	. NUT, HEX, 1/4-28NF (AP) (24617)	5		
-21	27359	. STOP, WIRE.....	1		
-22	27365	. SPRING, RETURN	1		
-23	62620	. BRACKET, SPRING.....	1		
-24	18952	. BLOCK, STOP.....	1		
-25	443332	. NUT, LOCK, HEX, 1/4-28NF (AP) ..... (24617)	1		
-26	62336	. HOUSING, INTAKE, COMPRESSOR	REF		
-27	67831	. PANEL, INSTRUMENT (SEE FIGURE ..... 9-1 FOR NHA)	REF		

INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SMR CODE
-28	DBMFC633-2MQ	. INJECTION PUMP, FUEL (84760).....	REF		

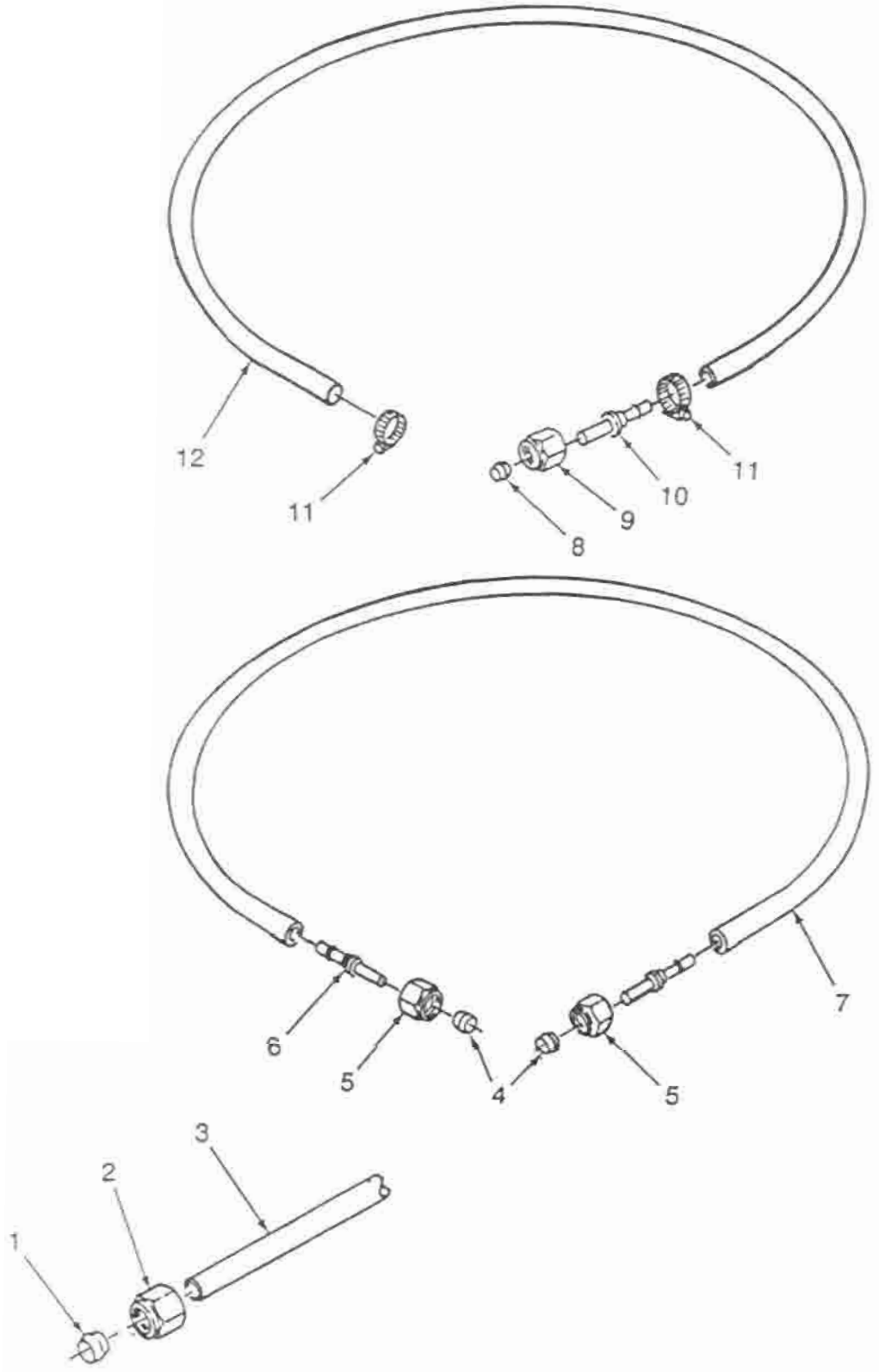


Figure 9-15. Hose And Tube Assemblies

INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SMR CODE
9-15-	NO NUMBER	. HOSE AND TUBE ASSEMBLIES ..... (16004)	REF		
-	88465-3	. TUBE ASSEMBLY, FUEL TANK VENT .... (16004) (SEE FIGURE 1 - 11, FOR NHA)	REF		
-1	28877	. . FERRULE, TUBE (16004)	1		
-2	28882	. . NUT - TUBING (16004)	1		
-3	50901	. . TUBING, BUCK SST, .125 O.D. X 10.36 (16004)	1		
-	89320-1	. HOSE ASSEMBLY - FUEL RETURN ..... (16004) (SEE FIGURE 1 - 10, FOR NHA)	REF		
-4	41958	. . FERRULE (16004)	2		
-5	41959	. . NUT (16004).....	2		
-6	47212	. . END, HOSE (16004).....	2		
-7	89322	. . HOSE (16004)	1		
-	89321-1	. HOSE ASSEMBLY - FUEL TANK TO ..... FUEL PUMP (16004) (SEE FIGURE 1 - 9, FOR NHA)	REF		
-8	41958	. . FERRULE (16004)	1		
-9	41959	. . NUT (16004).....	1		
-10	47212	. . END, HOSE (16004).....	1		
-11	65249	. . CLAMP (16004).....	2		
-12	89323	. . HOSE (16004)	1		

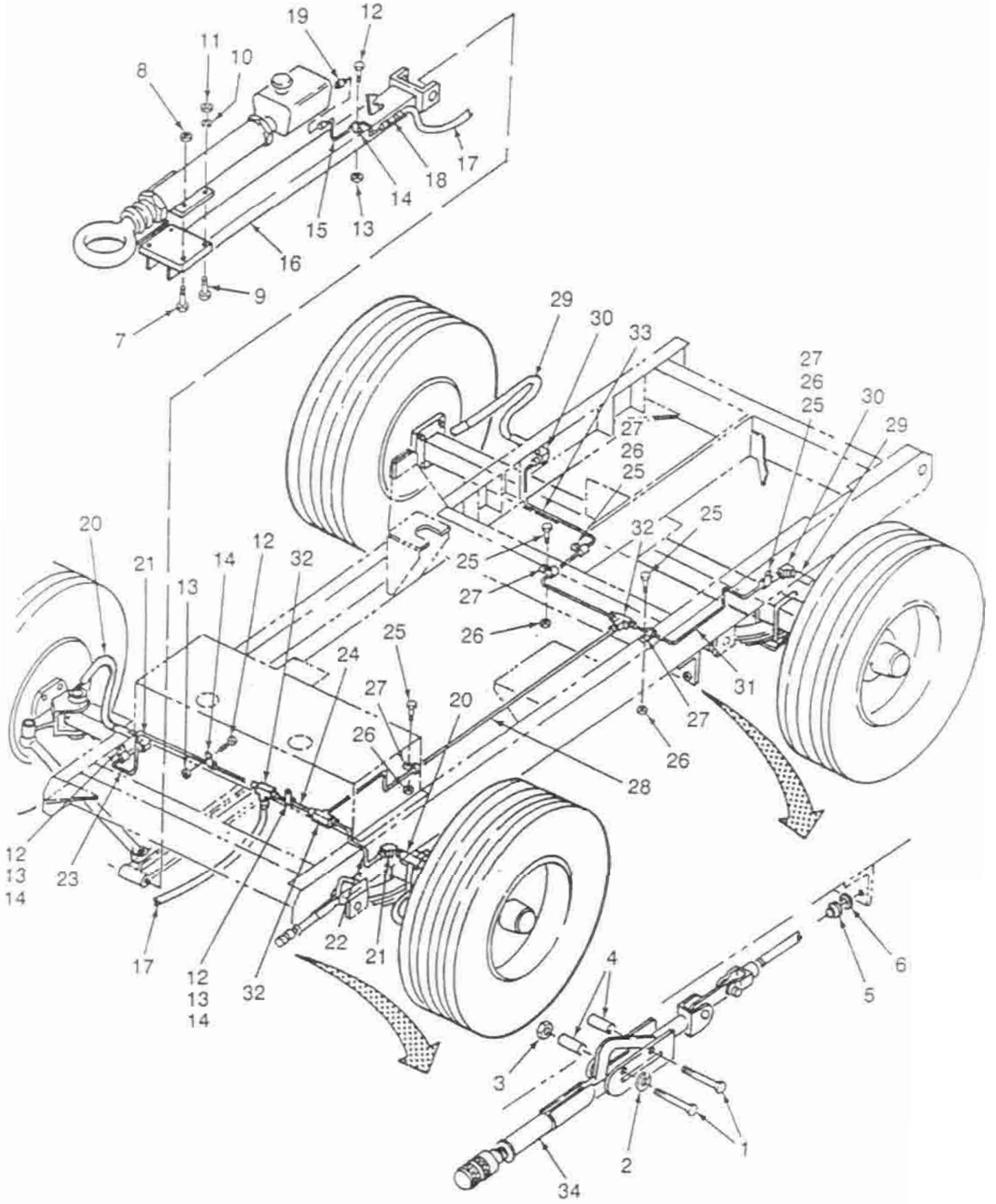


Figure 9-16. Running Gear And Hydraulic Brake Connections

INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SMR CODE
9-16-	NO NUMBER	RUNNING GEAR AND HYDRAULIC ..... BRAKE CONNECTIONS (16004) (SEE FIGURE 1 - 114 FOR NHA)	REF		
-1	MS90725-70	. SCREW, CAP, HEX., HEAD, .375-16 NC .... X 3.00 LG. (96906)	2		
-2	MS35338-46	. WASHER, LOCK (96906).....	2		
-3	MS51967-8	. NUT, PLAIN, HEXAGON, .375-16 UNC .... (96906)	2		
-4	89308	. SPACER, TUBE (16004).....	2		
-5	500K1992-8	. SETSCREW COLLAR (97403)	2		
-6	MS27183-18	. WASHER, FLAT (96906)	2		
-7	MS90725-163	. BOLT HEX. HD. (96906)	2		
-8	1355AS401-2	. NUT, LOCK (96906)	2		
-9	MS90725-71	. BOLT, HEX., HD (96906).....	2		
-10	MS35333-46	. WASHER (96906).....	2		
-11	MS35691-51	. NUT (96906).....	2		
-12	MS9316-08	. SCREW, MACH., SLOTTED HEX. HD., ...190-327 HD X .812 LG. (96906)	1		
-13	MS21044N3	. NUT, SELF - LOCKING 190-327 HD X ..... .812 LG. (96906)	1		
-14	MS21919WCG4	. CLAMP, LOOP TYPE, CUSHIONED ..... (96906)	1		
-15	89382-1	. TUBE ASSEMBLY (16004)	1		
-16	89152	. RUNNING GEAR (16004).....	1		
-17	89803-1	. HOSE ASSEMBLY (16004)	1		
-18	1355AS817	. UNION (30003)	1		
-19	1355AS815	. CONNECTOR, MALE (30003)	1		
-20	89802	. HOSE ASSEMBLY (16004)	2		
-21	89804	. ELBOW, UNION (16004)	2		
-22	89395-1	. TUBE ASSEMBLY (16004)	1		
-23	89398-1	. TUBE ASSEMBLY (16004)	1		
-24	89397-1	. TUBE ASSEMBLY (16004)	1		
-25	MS9316-05	. SCREW, MACH., SLOTTED HEX. HD., ...190-32 THD X .625 LG. (96906)	5		
-26	MS21044N3	. NUT, SELF - LOCKING .190-32 THD..... (96906)	5		
-27	MS21919WCG4	. CLAMP, LOOP TYPE, CUSHIONED ..... (96906)	5		
-28	89403-1	. TUBE ASSY (16004)	1		
-29	89801	. HOSE ASSEMBLY (16004)	2		
-30	89804	. ELBOW, UNION (16004)	2		
-31	89399-1	. TUBE ASSEMBLY (16004)	1		
-32	1355AS816	. TEE, UNION (30003).....	3		
-33	89402-1	. TUBE ASSEMBLY (16004)	1		
-34	NO NUMBER	. HYDRAULIC AND HAND BRAKE ..... CONNECTIONS (95026) (SEE FIGURE 17 FOR BREAKDOWN)	1		

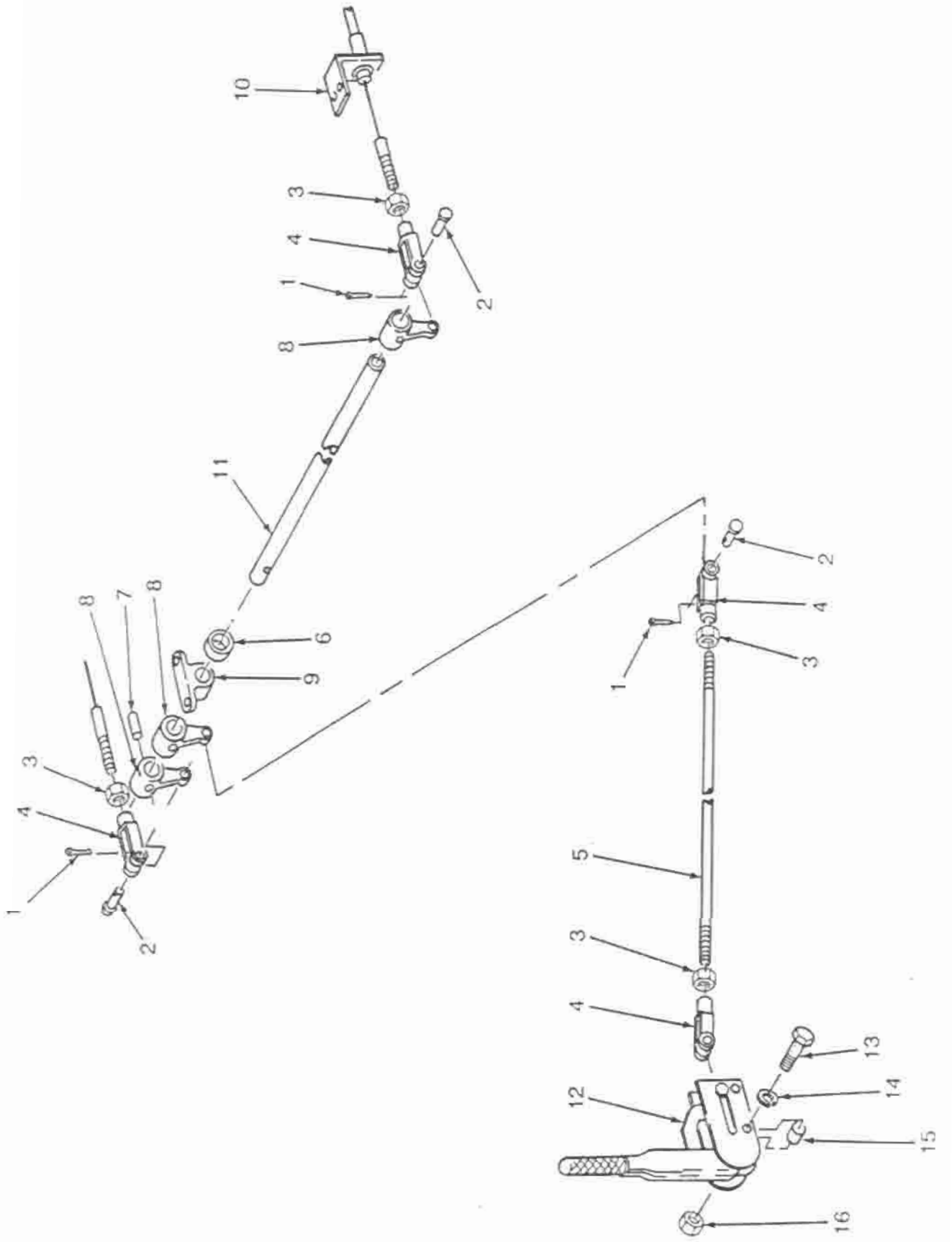


Figure 9-17. Hydraulic And Hand Brake Connections

INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SMR CODE
9-17-	NO NUMBER	HYDRAULIC AND HAND BRAKE ..... CONNECTIONS (SEE FIGURE 14-34 FOR NHA)	REF		
-1	MS24665-283	. PIN, COTTER (96906) (22938 PN 4800-2) ..	3		
-2	5206	. PIN, YOKE (22938).....	3		
-3	MS51967-8	. NUT, YOKE (96906) (22938 PN 4601-5)....	4		
-4	5205	. YOKE (22938).....	4		
-5	8300-430	. ROD, BRAKE (22938)	1		
-6	6319-2	. COLLAR, W/SETSCREW (22938).....	2		
-7	5000-2	. PIN, ROLL (22938)	3		
-8	5909	. LEVER, SHAFT (22938)	3		
-9	5908	. BEARING, SHAFT (22938).....	2		
	443335	. NUT, LOCK 3/8 (AP) (24617).....	4		
	122145	. BOLT, HEX HD 3/8 NC X 1-1/4 (AP)..... (24617)	4		
-10	80998	. SUPPORT, BRACKET RH.....	1		
	80997	. SUPPORT, BRACKET LH.....	1		
	443335	. NUT, LOCK, 3/8 NC (AP) (24617)	4		
	122145	. BOLT, HEX HD 3/8 NC X 1-1/4 (AP)..... (24617)	4		
-11	5910-348	. SHAFT, CROSS (22938).....	1		
-12	1-5919	. LEVER ASSY, HANDBRAKE (22938).....	1		
-13	MS90725-70	. SCREW, CAP, HEX., HD, .375-16 NC ..... X 3.0 LG (96906)	2		
-14	MS35338-46	. WASHER, LOCK (96906)	2		
-15	89308	. SPACER, TUB (16004).....	2		
-16	MS51967-8	. NUT, PLAIN, HEX., .375-16 UNC (96906) ..	2		

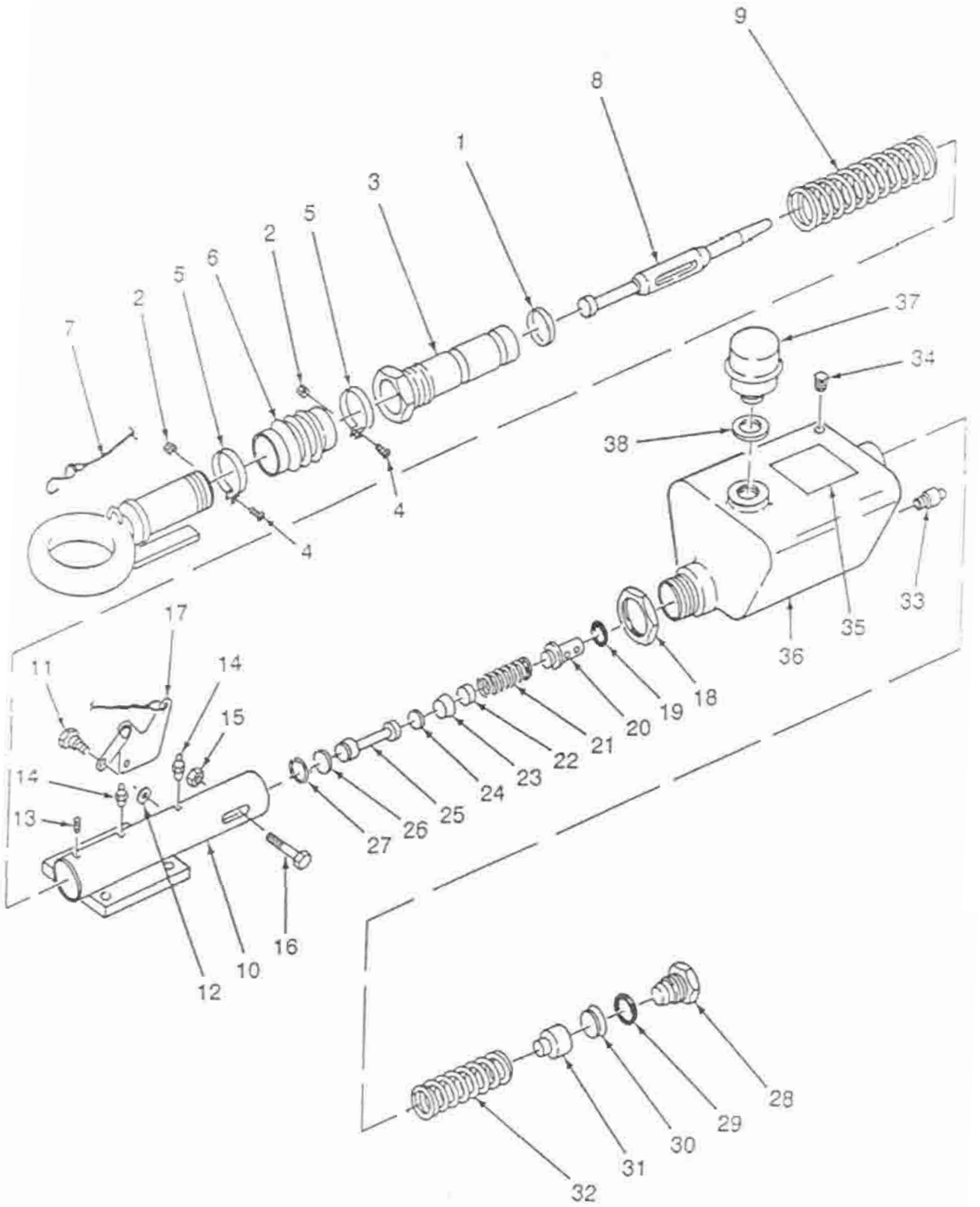


Figure 9-18. Surge Brake Actuator

INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SMR CODE
9-18-	YB-622110	. SURGE ACTUATOR ASSY (17098)..... (SEE FIGURE 1-125 FOR NHA) (REPAIR KIT AVAILABLE) (REF P/N 77718)	REF		
-1	580468	. BUMPER	1		
-2	80921	. #8-32 HEX NUT	2		
-3	622060-2	. LUNETTE AND PLUNGER ASSY (17098)..	1		
-4	80920	. #8-32 X 1" SCREW RD. HD.	2		
-5	580546	. CLAMP-FRONT AND REAR	2		
-6	621001	. BOOT	1		
-7	622279	. CABLE PACKAGE	1		
-8	75318	. PUSH ROD	1		
-9	622214	. SPRING.....	1		
-10	75316-1	. SLEEVE AND MTG. ASSY (17098).....	1		
-11	75308	. STUD.....	2		
-12	80919	. WASHER	2		
-13	8922	. SETSCREW.....	1		
-14	52133-9	. GREASE FITTING.....	2		
-15	1847	. HEX NUT.....	1		
-16	622175	. BOLT.....	1		
-17	801010	. BREAKAWAY ASSY (17098)	1		
	580376	. MASTER CYLINDER ASSY (17098)..... REF P/N 622957	1		
-18	57504	. . LOCK NUT	1		
-19	580383 †	. . VALVE SEAL	1		
-20	580336-2 †	. . VALVE ASSY	1		
-21	580337-1 †	. . SPRING, PISTON RETURN	1		
-22	580863 †	. . CAP, RETURN SPRING.....	1		
-23	580384 †	. . CUP, PRIMARY	1		
-24	580380 †	. . CUP, PROTECTOR	1		
-25	580338 †	. . PISTON ASSY.....	1		
-26	580339-1	. . STOP PLATE.....	1		
-27	580340 †	. . LOCK RING.....	1		
-28	57683	. . NUT, RETAINER	1		
-29	76348 †	. . GASKET.....	1		
-30	580334 †	. . CUP	1		
-31	580382	. . SPRING SEAT.....	1		
-32	622089	. . SPRING - ACCUMULATOR	1		
-33	57470-1	. . PLUG, EXPANSION	1		
-34	580255	. . SCREW, BLEEDER.....	2		
-35	75323	. . NAMEPLATE	1		
-36	57812-2	. . HOUSING, MASTER CYLINDER	1		

INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SMR CODE
-37	77807	. CAP, FILLER.....	1		
-38	580342	. GASKET, FILLER CAP	1		
	622176	. REPAIR KIT, MASTER CYLINDER.....	1		
		† - COMPONENT OF KIT 622176.....			

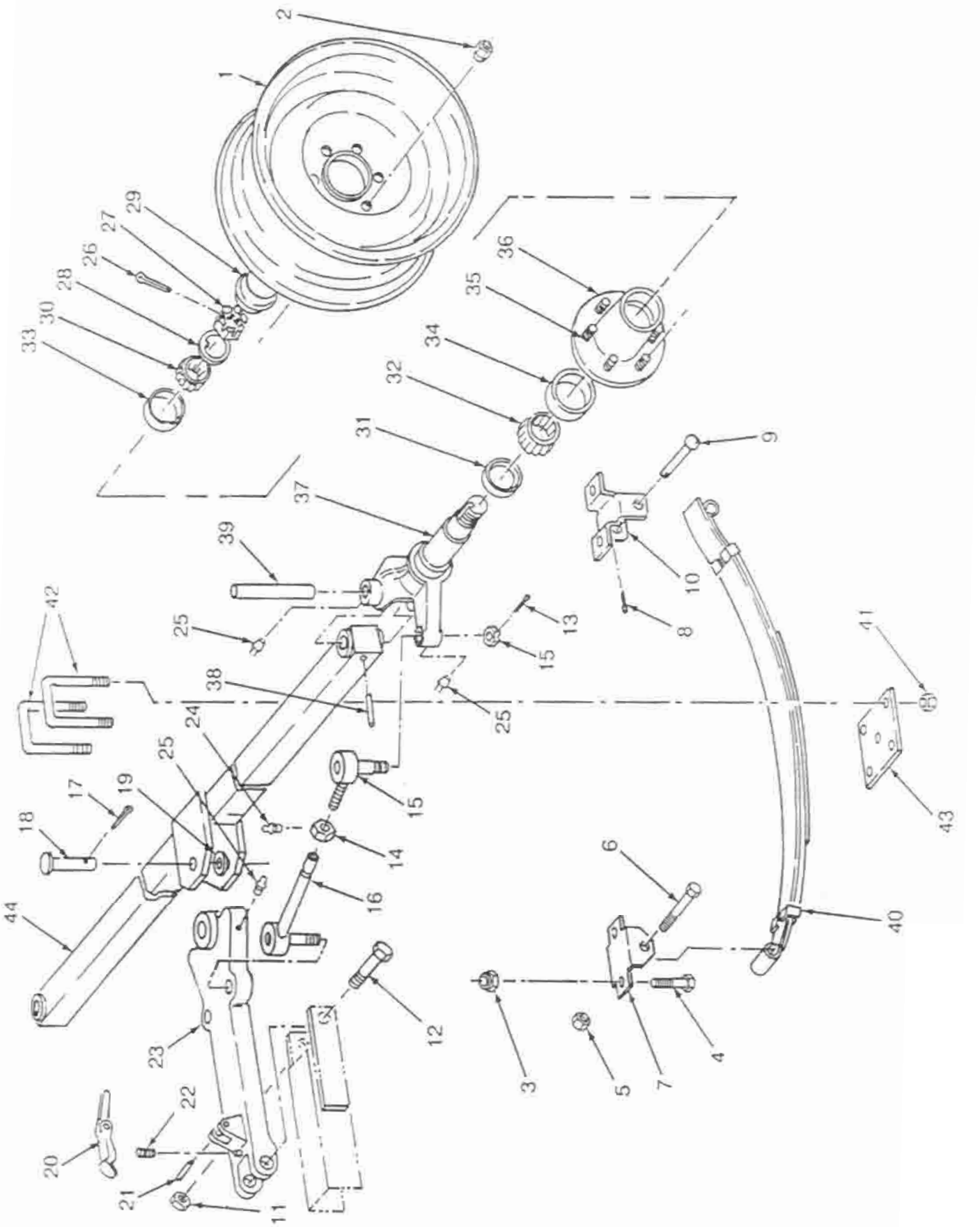


Figure 9-19. Front Axle Group

INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SMR CODE
9-19-	NO NUMBER	FRONT AXLE GROUP (22938) ..... (SEE FIGURE 1-126 FOR NHA)	REF		
-1	81240	. WHEEL (SEE FIGURE 1-127 FOR NHA)....	REF		
-2	4603-1	. NUT, WHEEL (AP) (22938).....	12		
	348-20510	. FRONT AXLE ASSY (22938)	1		
-3	443339	. NUT, LOCK (AP) (24617).....	8		
-4	122433	. SCREW, HEX HD (24617).....	8		
	4-4251	. . BRACKET ASSY, SPRING, EYE END ... (22938)	2		
-5	4601-33	. . . NUT, LOCK (22938).....	1		
-6	4901-19	. . . SCREW, HEX HD (22938)	1		
-7	4251	. . . BRACKET, SPRING (22938).....	1		
	1-4251	. . BRACKET ASSY, SPRING, HOOK ..... END (22938)	2		
-8	MS24665-353	. . . PIN, COTTER (96906) ..... (22938 PN 4800-3)	1		
-9	5403-1	. . . RIVET (22938).....	1		
-10	4251	. . . BRACKET, SPRING (22938).....	1		
-11	06-61126	. . SLOTTED NUT, HEX. 1/4 NF	1		
-12	02-20312	. . QUEEN BOLT WELDMENT, 1/4 NF	1		
	3906-270	. . TIE ROD ASSY (22938)	2		
-13	MS24665-285	. . . PIN, COTTER (96906) ..... (22938 PN 4800-4)	2		
-14	4602-1	. . . NUT, JAM, RH (22938).....	1		
	4602-2	. . . NUT, JAM, LH (22938).....	1		
-15	3950-1	. . . BALL, JOINT RH W/NUT (22938).....	1		
	3950-2	. . . BALL, JOINT LH W/NUT (22938)	1		
-16	3900-233	. . . TUBE, TIE ROD (22938).....	1		
	3-3854	. . CENTER ARM ASSY (22938).....	1		
-17	MS24665-360	. . PIN, COTTER (96906) ..... (22938 PN 4800-6) (AP)	1		
-18	5400-5	. . PIN, CENTER ARM (22938) (AP)	1		
-19	4701-3	. . WASHER, FLAT, CENTER ARM ..... (22938) (AP)	1		
-20	3855	. . . LATCH, DRAWBAR (22938).....	1		
-21	MS9047-300	. . . PIN, ROLL (96906).....	1		
		(22938 PN 5000-1)			
-22	4006	. . . SPRING, LATCH (22938)	1		
-23	3854-1	. . . ARM, CENTER (22938)	1		
-24	MS15002-1	. . FITTING, GREASE, TIE ROD (96906) .... (22938 PN 5801)	4		
-25	MS15003-1	. . FITTING, GREASE, PINS (96906) ..... (22938 PN 5800)	5		

INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SMR CODE
	13-3615	. . HUB ASSY (22938)	2		
-26	MS24665-360	. . PIN, COTTER (96906) ..... (22938 PN 4800-5)	2		
-27	4600-1	. . NUT, SPINDLE (22938)	2		
-28	4702-1	. . WASHER, SPINDLE (22938).....	2		
-29	6323	. . . CAP, GREASE (22938)	1		
	4603-1	. . . NUT, WHEEL (22938) (SEE INDEX .... 2 ABOVE)	REF		
-30	L44649	. . . CONE, BEARING, OUTER (60038)..... (22938 PN 6067)	1		
-31	6317	. . . SEAL, GREASE (22938)	1		
-32	L68149	. . . CONE, BEARING, INNER (60038) ..... (22938 PN 6063)	1		
	3615-13	. . . HUB SUB-ASSY (22938)	1		
-33	L44610	. . . . CUP, BEARING, OUTER (60038) ..... (22938 PN 6158)	1		
-34	L68111	. . . . CUP, BEARING, INNER (60038) ..... (22938 PN 6157)	1		
-35	6251-11	. . . . STUD, HUB, WHEEL (22938)..... (NOT PURCHASED SEPARATELY)	6		
-36	NO NUMBER	. . . . HUB, WHEEL (22938) (NOT ..... PURCHASED SEPARATELY)	1		
-37	3-3800	. . SPINDLE AND KNUCKLE ASSY, RH .... (22938)	1		
	4-3800	. . SPINDLE AND KNUCKLE ASSY, LH .... (22938)	1		
-38	MS16562-81	. . PIN, ROLL (96906) (22938 PN 5000-6)....	2		
-39	5401	. . PIN, KING (22938)	2		
-40	1-4010-2	. . SPRING ASSY (22938)	2		
-41	4601-7	. . NUT, HEX (AP) (22938)	8		
-42	5100-15	. . U-BOLT, SPRING (22938)	4		
-43	5600-8	. . PLATE, SPRING (22938)	2		
-44	348-205X1	. . BEAM, AXLE (22938).....	1		

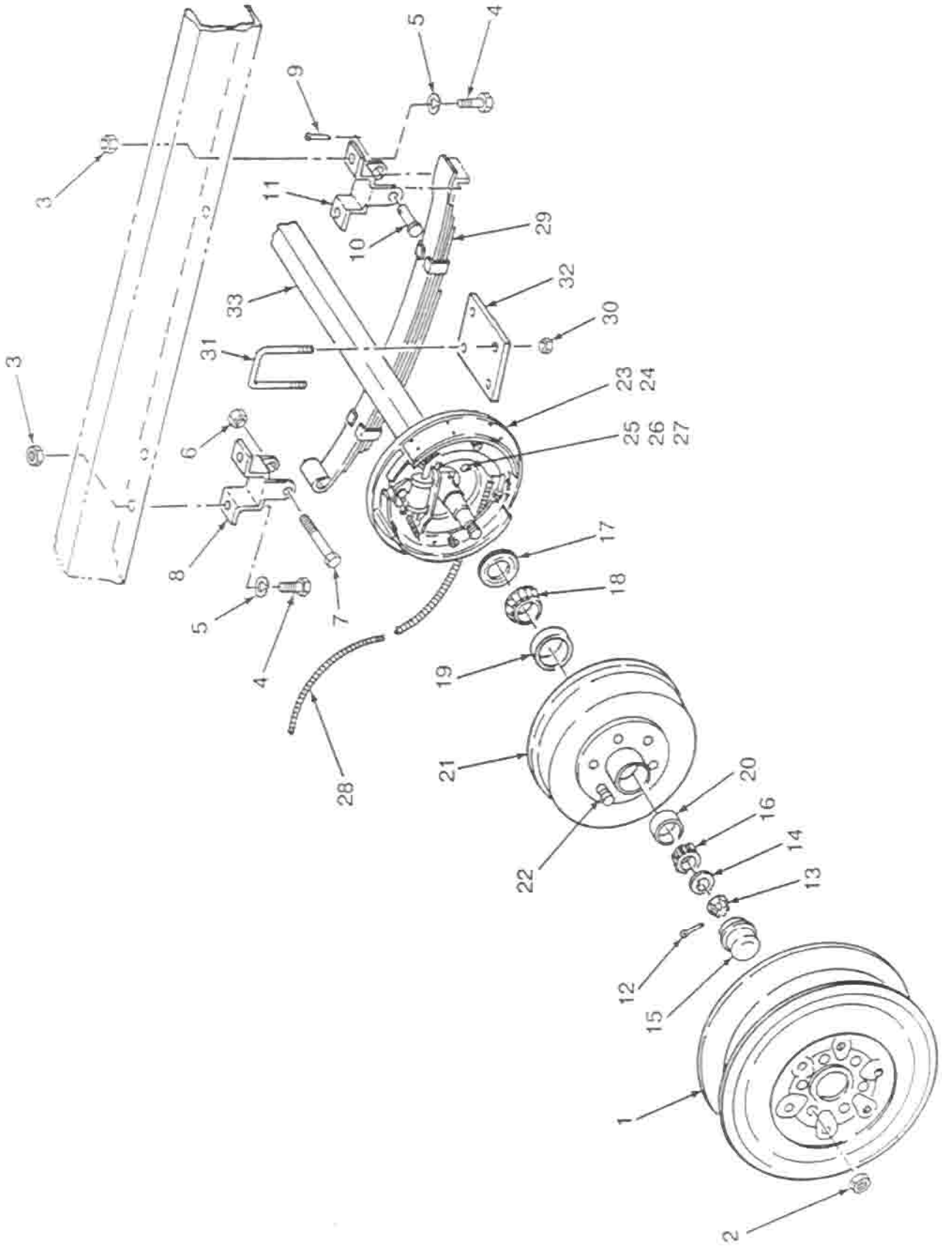


Figure 9-20. Rear Axle Group

INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SMR CODE
9-20-	NO NUMBER	REAR AXLE GROUP (22938) ..... (SEE FIGURE 1-128 FOR NHA)	REF		
-1	81240	. WHEEL (SEE FIGURE 1-129 FOR NHA)....	REF		
-2	4912	. SCREW, CAP, HEX CONE HD 1/2-20 ..... (AP) (22938)	12		
	348-20010	. REAR AXLE ASSY (22938).....	1		
-3	443339	. NUT, LOCK, HEX 1/2 - 13 (AP) (24617)	2		
-4	122433	. SCREW, CAP, 1/2 - 13 X 1-1/2 (AP) ..... (24617)	8		
-5	120384	. WASHER, LOCK, SPLIT 1/2 (AP) (24617) ..	6		
	4-4251	. . BRACKET ASSY, SPRING, EYE END ... (22938)	2		
-6	4601-33	. . . NUT, LOCK, HEX 9/16-12NC ..... (22938)	1		
-7	4901-19	. . . SCREW, CAP, HEX HD (22938).....	1		
-8	4251	. . . BRACKET, SPRING (22938).....	1		
	1-4251	. . BRACKET ASSY, SPRING, HOOK ..... END (22938)	2		
-9	MS24665-353	. . . PIN, COTTER (96906) ..... (22938 PN 4800-3)	1		
-10	5403-1	. . . RIVET, BRACKET (22938)	1		
-11	4251	. . . BRACKET, SPRING (22938).....	1		
	6-3615	. . HUB AND DRUM ASSY (22938).....	2		
-12	MS24665-360	. . PIN, COTTER (AP) (96906) ..... (22938 PN 4800-5)	2		
-13	4600-1	. . NUT, SPINDLE (22938)	2		
-14	4702-1	. . WASHER, SPINDLE (AP) (22938).....	2		
-15	6323	. . . CAP, GREASE (22938)	1		
	4912	. . . SCREW, CAP, HEX CONE HD ..... 1/2-20 (SEE INDEX 2 ABOVE) (22938)	REF		
-16	L44649	. . . CONE, BEARING (60038) ..... (22938 PN 6067)	1		
-17	6317	. . . SEAL, GREASE (22938)	1		
-18	L68149	. . . CONE, BEARING, INNER (60038)..... (22938 PN 6063)	1		
	3615-6	. . . HUB AND DRUM SUB-ASSY..... (22938)	1		
-19	L68111	. . . . CUP, BEARING, INNER (60038) ..... (22938 PN 6157)	1		
-20	L44610	. . . . CUP, BEARING, OUTER (60038) .... (22938 PN 6158)	1		
-21	3615	. . . . HUB AND DRUM (22938) (NOT ..... PURCHASED SEPARATELY)	1		
			1		

INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SMR CODE
-22	6251-11	. . . . STUD, HUB, WHEEL (22938) ..... (NOT PURCHASED SEPARATELY)	6		
-23	3201913LH	. . BRAKE ASSY, LH (14892) ..... (22938 PN 8235-5) (SEE FIGURE 21 FOR BREAKDOWN)	1		
-24	3201914RH	. . BRAKE ASSY, RH (14892) ..... (22938 PN 8235-6) (SEE FIGURE 21 FOR BREAKDOWN)	1		
-25	MS51968-12	. . NUT (96906) (AP) (22938 PN 4601-19)....	8		
-26	MS35338-47	. . WASHER, LOCK (AP) (96906) ..... (22938 PN 4700-6)	8		
-27	MS90726-85	. . SCREW (AP) (96906) ..... (22938 PN 4901-12)	8		
-28	1-8319	. . CABLE ASSY, PARKING BRAKE ..... (22938)	2		
-29	1-4010-2	. . SPRING ASSY (22938)	2		
-30	4601-7	. . NUT (AP) (22938).....	8		
-31	5100-15	. . U-BOLT, SPRING (AP) (22938)	4		
-32	5600-8	. . PLATE, TIE (AP) (22938).....	2		
-33	348-20010-2	. . AXLE, BEAM (22938).....	1		

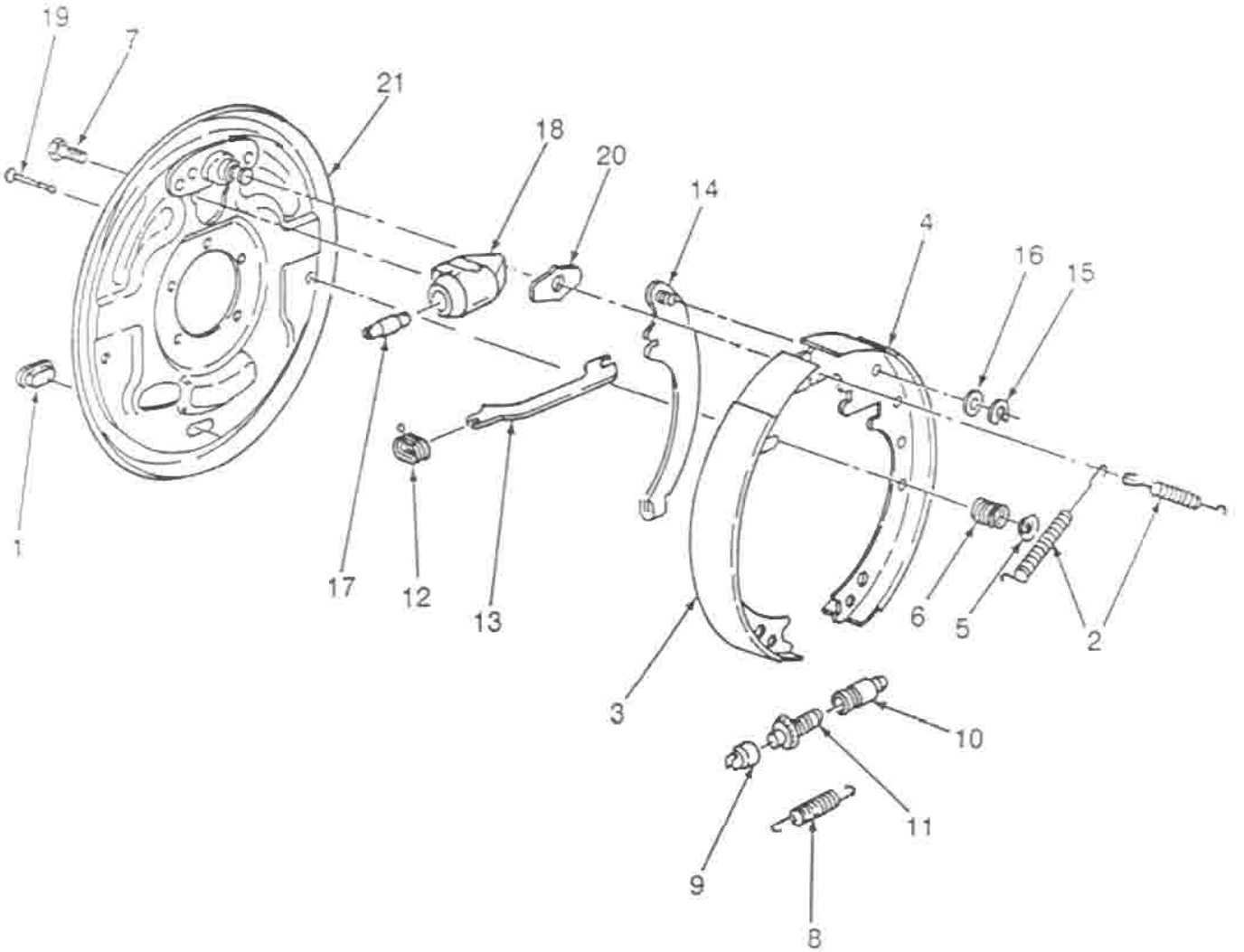


Figure 9-21. Brake Assembly

INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SMR CODE
9-21-	3201913LH	BRAKE ASSEMBLY, LH (14892) ..... (22938 PN 8235-5) (SEE FIGURE 20-22 FOR NHA)	REF		
	3201914RH	BRAKE ASSEMBLY, RH (14892) ..... (22938 PN 8235-6) (SEE FIGURE 20-23 FOR NHA)	REF		
-1	301055	. COVER, BRAKE ADJUSTING HOLE..... (14892)	1		
-2	34852	. SPRING, ANCHOR TO SHOE, 50 LB, ... GREY (14892)	2		
-3	† 3202019	. SHOE AND LINING ASSY, BRAKE, ... PRIMARY (14892)	1		
-4	† 3202023	. SHOE AND LINING ASSY, BRAKE, ... SECONDARY (14892)	1		
-5	23969	. CUP, SHOE HOLDDOWN SPRING..... (14892)	4		
-6	24784	. SPRING, SHOE HOLDDOWN, 18 LB, ... LIGHT BLUE (14892)	2		
-7	49341	. PIN, SHOE HOLDDOWN (14892)	2		
-8	23815	. SPRING, ADJUSTING SCREW, 30 LB, ... BLACK (14892)	1		
	3202026	. ADJUSTING SCREW ASSEMBLY ..... (14892)	1		
-9	304230	. . SOCKET, ADJUSTING SCREW ..... (14892)	1		
	304214	. . SCREW ASSEMBLY (14892)	1		
-10	304229	. . . NUT, ADJUSTING SCREW (14892)	1		
-11	27099	. . . SCREW, ADJUSTING (14892)	1		
-12	39244	. SPRING, STRUT TO SHOE, 8.5 LB, ... BLACK (14892)	1		
-13	49005	. STRUT, PARKING BRAKE LEVER ..... (14892)	1		
-14	321035	. LEVER ASSEMBLY, PARKING BRAKE, ... *LEFT HAND (SHOWN) (14892)*	1		
	321036	. LEVER ASSEMBLY, PARKING BRAKE, ... RIGHT HAND (OPPOSITE) (14892)	1		
-15	41029	. RETAINER, LEVER PIN (14892).....	1		
-16	41647	. WASHER, SPRING (14892).....	1		
-17	47865	. LINK, CONNECTING, WHEEL ..... CYLINDER (14892)	1		
-18	617855	. CYLINDER ASSEMBLY, WHEEL, ... LEFT HAND (SHOWN) (14892)	1		
	617856	. CYLINDER ASSEMBLY, WHEEL, ... RIGHT HAND (OPPOSITE) (14892)	1		
-19	47862	. SCREW, CAP, AND WASHER (14892)	2		
-20	32594	. PLATE, SHOE GUIDE (14892).....	1		

INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SMR CODE
-21	3202038	. BACKING PLATE ASSEMBLY, LEFT ..... HAND (SHOWN) (14892)	1		
	3202039	. BACKING PLATE ASSEMBLY, RIGHT .... HAND (OPPOSITE) (14892)	1		
	3202027	KIT, LINED SHOES PACKAGE (14892)	AR		
		† - COMPONENT OF KIT 3202027			

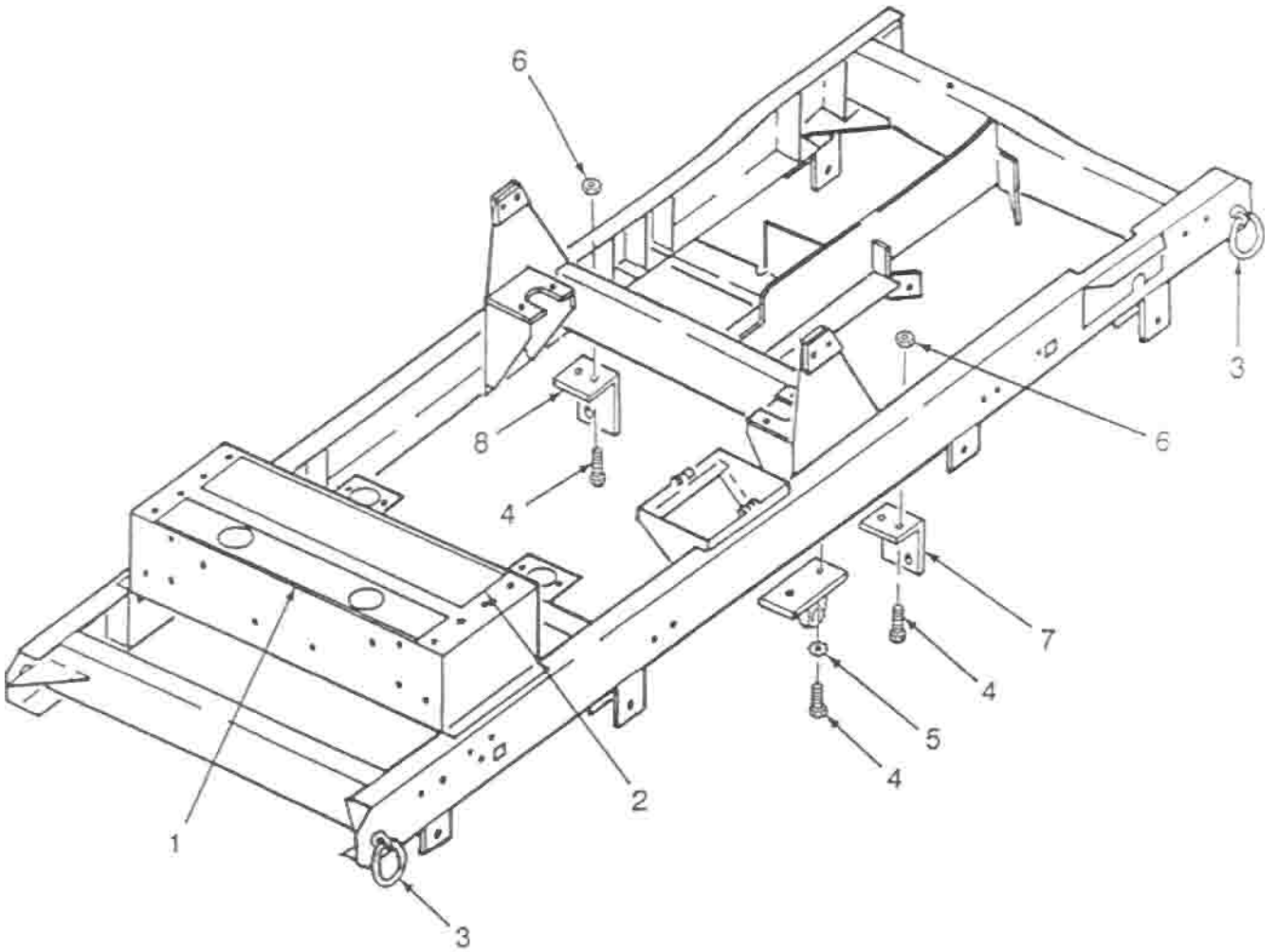


Figure 9-22. Frame

INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SMR CODE
9-22-	89155-1	. FRAME (16004) (SEE FIGURE 1-113 FOR NHA)	REF		
-1	89286	. GASKET, BOTTOM OIL COOLER (16004)	1		
-2	89287	. GASKET, BOTTOM RADIATOR (16004)	1		
-	54643	. ADHESIVE, INDUSTRIAL (94833)	8 OZ		
-3	MS21237-1	. RING, CARGO TIE DOWN, TYPE IV (96906)	4		
-4	MS90725-60	. SCREW, CAP, HEX. HD., .375-16UNC. X 1.00 LG. (96906)	8		
-5	MS35338-46	. WASHER, LOCK (96906)	8		
-6	MS51922-17	. NUT, SELF-LOCKING, .375-16UNC. (96906)	4		
-7	80997	. SUPPORT, BRAKE CABLE (16004)	1		
-8	80998	. SUPPORT, BRAKE CABLE (16004)	1		

SECTION X

DIFFERENCE DATA SHEETS

10-1. INTRODUCTION.
Not Applicable.

10-2. INDEX OF DIFFERENCE DATA SHEETS.
Not Applicable.