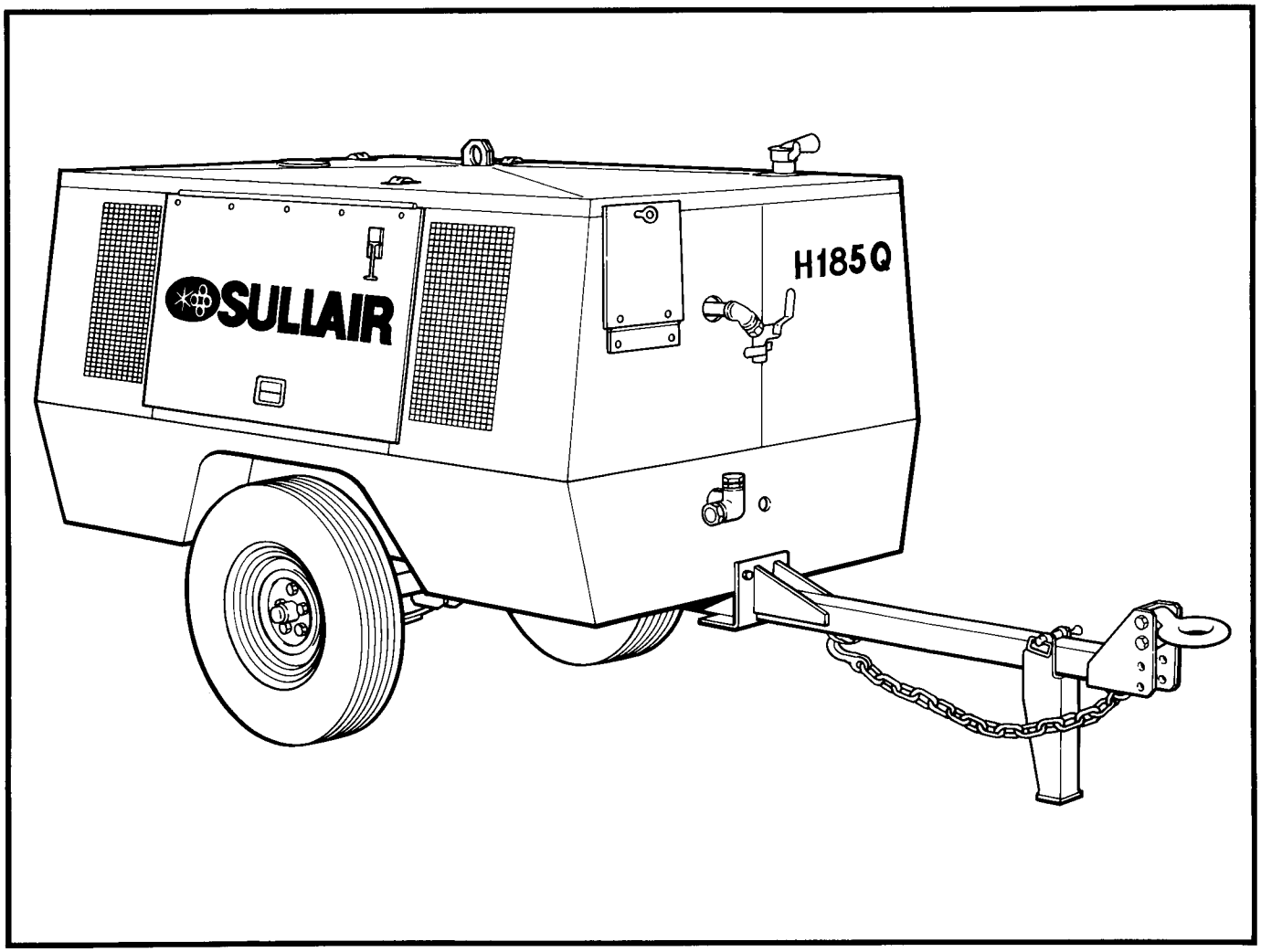
Operators Manual and Parts List

253015 5/11/01
MAN, H185/150 DPQ - JD

SULLAIR®
COMPRESSOR

H185 CFM/150 PSI Portable Screw Air Compressor



PRICE $50.00

STATEMENT OF WARRANTY

Sullair Corporation ("Sullair") warrants that, under normal use and service, if properly stored, handled, installed, operated, and maintained, its portable and stationary air compressors ("Compressors") shall, for a period of twelve (12) months ("Warranty Period") (1) beginning at machine start-up if the registration card is returned within ten (10) days after start-up and the start-up occurs within twelve (12) months after shipment by Sullair from the factory, or (2) if not, beginning thirty (30) days after shipment by Sullair from the factory, be free of defects in materials and workmanship, under normal use and service; and that its rotary screw air-end ("Air end") utilized in Compressors, shall, for a period of twenty-four (24) months ("Warranty Period"), (1) beginning at machine start-up if the registration card is returned within ten (10) days after start-up and the start-up occurs within twelve (12) months after shipment by Sullair from the factory, or (2) if not, beginning thirty (30) days after shipment by Sullair from the factory, be free of defects in materials and workmanship, under normal use and service. Should any such defect become apparent within such time, and written notice of each and every such defect is promptly provided to Sullair, and Sullair reasonably determines that any such product is defective in material or workmanship, Sullair will, at its option, replace or repair such product. Sullair's obligation with respect to such product shall be limited to repair or replacement, F.O.B. Sullair's place of business, without any further expense to Sullair, and except as expressly provided herein, Sullair shall not in any event be liable for any other labor, transportation, installation, adjustment or other expenses which may arise in connection with such product. Any misuse or abuse of the product(s) voids this limited warranty.

The Sullair warranty does not extend to products not assembled by Sullair. As to such products by others, Purchaser shall be entitled to proceed only upon the terms of that particular manufacturer's warranty. Warranty does not apply to defects in materials provided by Purchaser or design stipulated by Purchaser.

Used products, and products not assembled by Sullair, are sold AS IS with no representation or warranty, and ALL WARRANTIES OF QUALITY, WRITTEN, ORAL OR IMPLIED, other than may be expressly agreed to by Sullair in writing, INCLUDING WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY OR FITNESS, ARE HEREBY DISCLAIMED.

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THE FOREGOING LIMITED WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

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PRODUCT SAFETY POLICY

May 15, 1984

It is Sullair Corporation's policy to produce and market the best product available commensurate with the safety and health needs of the customer.

Sullair's objective is to furnish a product that is safe for it's designed and intended use. It is Sullair's corporate desire that no Sullair product be the direct cause of an accident when used for its intended application.

Product safety shall be assured through systematic application of sound engineering and management principles in the conception, design, development, testing, manufacturing, sale and servicing of all products.

Adequate instructions and cautionary labels shall be utilized.

This is a reaffirmation of a policy existing at Sullair since its origin.

R. T. Bloomberg

Robert T. Bloomberg
President and Chief
Executive Officer

AIR CARE
SEMINAR TRAINING

Sullair Air Care Seminars are 2-day courses that provide hands-on instruction in the proper operation, maintenance and service of Sullair Portable Compressors. Individual seminars on Portable compressors are presented at regular intervals throughout the year at a dedicated training facility at Sullair's corporate headquarters in Michigan City, Indiana.

Instruction includes discussion of the function and installation of Sullair service parts, troubleshooting of the most common problems, and actual equipment operation. The seminars are recommended for rental house and Contractor Maintenance and service personnel.

For detailed course outlines, schedule and cost information contact:

Sullair Corporate Training Department
1-800-348-2722 or 219-874-1800

- Or Write -

Sullair Corporation
3700 E. Michigan Blvd.
Michigan City, IN 46360
Attn: Service Training Department

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Section 1
SAFETY

1.1 GENERAL

Sullair® Corporation designs and manufactures all of its products so they can be operated safely. However, the responsibility for safe operation rests with those who use and maintain these products. The following safety precautions are offered as a guide which, if conscientiously followed, will minimize the possibility of accidents throughout the useful life of this equipment.

The air compressor should be operated only by those who have been trained and delegated to do so, and who have read and understand this Operator's Manual. Failure to follow the instructions, procedures and safety precautions in this manual can result in accidents and injuries.

NEVER start the air compressor unless it is safe to do so. **DO NOT** attempt to operate the air compressor with a known unsafe condition. Tag the air compressor and render it inoperative by disconnecting the battery so others who may not know of the unsafe condition will not attempt to operate it until the condition is corrected.

Use and operate the air compressor only in full compliance with all pertinent OSHA requirements and all pertinent Federal, State, and Local codes or requirements. Read your CIMA Safety Manual prior to operation or performing maintenance on this equipment.

DO NOT modify the compressor except with written factory approval.

Each day walk around the air compressor and inspect for leaks, loose or missing parts, damaged parts or parts out of adjustment. Perform all recommended daily maintenance.

1.2 TOWING*

A. PREPARING TO TOW

⚠WARNING

DO NOT tow the compressor should its weight exceed the rated limit of the tow vehicle, as the vehicle may not brake safely with excess weight. See rated limit in tow vehicle Operators Manual, and review its instructions and other requirements for safe towing.

1. Prior to hitching the air compressor to the tow vehicle, inspect all attachment parts and equipment, checking for (i) signs of excessive wear or corrosion, (ii) parts that are cracked, bent, dented or otherwise deformed or degraded, and (iii) loose nuts, bolts or other fasteners. Should any such condition be present, **DO NOT TOW** until the problem is corrected

2. Back tow vehicle to the compressor and position it in preparation for coupling the compressor.

3. If the compressor is provided with a drawbar latched in the vertical upright position, carefully unlatch drawbar and lower it to engage the coupling device. If not, raise drawbar to engage coupling device or otherwise couple the compressor to the towing vehicle. **DO NOT** attempt to raise or lower drawbars by hand if the weight is more than you can safely handle. Use a lifting device such as a jack or chain fall if you can't lift or lower without avoiding injury to yourself or others. Keep hands and fingers clear of the coupling device and all other pinch points. Keep feet clear of drawbar to avoid injury in case it should slip from your hand.

4. Make sure the coupling device is fully engaged, closed and locked.

5. If chains are provided, pass each chain through its point of attachment on the towing vehicle; then hook each chain to itself by passing the grab hook over (not through) a link. Cross chains under front of drawbar before passing them through points of attachment on towing vehicle to support front of drawbar in case it should accidentally become uncoupled.

6. Make sure that the coupling device and adjacent structures on the towing vehicle (and also, if utilized, chain adjustment, brake and/or electrical interconnections). **DO NOT** interfere with or restrict motion of any part of the compressor, including its coupling device, with respect to the towing vehicle when maneuvering over any anticipated terrain.

7. If provided, make sure chain length, brake and electrical interconnections provide sufficient slack to prevent strain when cornering and maneuvering, yet are supported so they can not drag or rub on road, terrain or towing vehicle surfaces which might cause wear that could render them inoperative.

8. On two-wheeled models, fully retract front screw jack (if provided) and any rear stabilizer legs. If a retractable caster wheel is provided, pull the lock pin and fold and raise the caster wheel, then make sure pin is re-engaged to secure caster wheel in full up and lock position with the wheel horizontal.

9. Make sure tires are in good condition and are the size (load range) specified and are inflated to the specified pressures. **DO NOT** change the tire size or type. Also, make sure wheel bolts, lugs or nuts are tightened to the specified torque.

10. If provided, make sure all dual stop, tail directional and clearance lights are operating properly and that their lenses are clean and functional. Also, make sure all reflectors and reflecting surfaces, including the slow moving vehicle emblem on compressors provided with same, are clean and functional.

11. Make sure all service air hoses (not air brake hoses) are disconnected or are fully stowed and secured on hose reels, if provided.

12. Make sure all access doors and tool box covers are closed and latched. If the compressor is large enough to hold a man, make sure all personnel are out before closing and latching access doors.

13. Make sure parking brakes in towing vehicle are set, or that its wheel are chocked or blocked, or that it is otherwise restrained from moving. Then, release the compressor parking brakes, if provided.

14. Make sure the compressor wheels are not chocked or blocked, and that all tiedowns, if any, are free.

15. Test running brake operation, including breakaway switch operation if provided, before attempting to tow the compressor at its rated speed or less when conditions prevail.

16. **DO NOT** carry loose or inappropriate tools, equipment or supplies on or in the compressor.

B. TOWING

1. Observe all local and Federal traffic laws, including those specifying minimum speed.

2. Tow at appropriate speed listed below, or less, under ideal conditions. Reduce speed accordingly, as dictated by posted signs, weather, road or terrain conditions.

a. Two axle four-wheel steerable models: 15MPH (24KMPH)
b. All other models: 55 MPH (88KMPH)

3. Remember that the portable air compressor may approach or exceed the weight of the towing vehicle. Maintain increased stopping distance accordingly.

4. Avoid grades in excess of 15° (27%)

5. Avoid potholes, rocks and other obstructions, and soft shoulders or unstable terrain.

6. Maneuver in a manner that will not exceed the freedom of motion of the compressor's drawbar and/or coupling device, in or on the towing vehicles coupling device and/or adjacent structure whether towing forward or backing up, regardless of the terrain being traversed.

7. **DO NOT** permit personnel to ride in or on the compressor.

8. Make sure the area behind, in front of, and under the compressor is clear of all personnel and obstructions prior to towing in any direction.

9. **DO NOT** permit personnel to stand or ride on the drawbar, or to stand or walk between the compressor and the towing vehicle.

C. PARKING OR LOCATING COMPRESSOR

1. Park or locate compressor on level areas, if possible. If not, park or locate compressor across grade so the compressor does not tend to roll downhill. **DO NOT** park or locate compressor on grades exceeding 15° (27%).

2. Make sure compressor is parked or located on a firm surface that can support its weight.

3. Park or locate compressor so the wind, if any, tends to carry the exhaust fumes and radiator heat away from the compressor air inlet openings, and also where the compressor will not be exposed to excessive dust from the work site.

4. On four-wheel models, park compressor with front wheels in straight ahead position.

5. Set parking brakes and disconnect breakaway switch cable and all other interconnecting electrical and/or brake connections, if provided.

6. Block or chock both sides of all wheels.

7. If provided, unhook chains and remove them from the points of chain attachment on the towing vehicle, then hook chains to bail on drawbar or wrap chains around the drawbar and hook them to themselves to keep chains off the ground which might accelerate rusting.

8. If provided, lower front screw jack drawbar stabilizer and/or any front and rear stabilizer legs. Make sure the surface they contact has sufficient load bearing capability to support the weight of the compressor.

9. If the compressor is provided with a swivel caster wheel, pull pin and lower caster wheel, then make sure pin is re-engaged to secure caster wheel in the full down and locked position.

10. Disconnect coupling device, keeping hands and fingers clear of all pinch points. If the compressor is provided with a drawbar, **DO NOT** attempt to lift the drawbar or if hinged, to raise it to the upright position, by hand, if the weight is more than you can safely handle. Use a lifting device such as a jack or chain fall if you can't lift or raise the drawbar without avoiding injury to yourself or others.

11. When possible, stow hinged drawbars in the vertical upright position. Make certain it is securely latched in the vertical upright position. Keep feet clear of drawbars at all times to

avoid crushing accidents in case is should slip from your hands or otherwise fall to the ground.

12. Move the towing vehicle well clear of the parked compressor and erect hazard indicators, barricades and/or flares (if at night) if compressor is parked on or adjacent to public roads. Park so as not to interfere with traffic.

* While not towed in the usual sense of the word, many of these instructions are directly applicable to skid mounted portable air compressors as well.

1.3 PRESSURE RELEASE

A. Open the pressure relief valve at least weekly to make sure it is not blocked, closed, obstructed or otherwise disabled.

B. Install an appropriate flow limiting valve between the compressor service air outlet and the shutoff (throttle) valve, when an air hose exceeding ½" (13mm) inside diameter is to be connected to shut-off (throttle) valve, to reduce pressure in case of hose failure, per OSHA Standard 20 CFR 1926.302 (a) (7).

C. When the hose is to be used to supply a manifold, install an additional appropriate flow limiting valve between the manifold and each air hose exceeding ½" (13mm) inside diameter that is to be connected to the manifold to reduce pressure in case of hose failure.

D. Provide an appropriate flow limiting valve for each additional 75 feet (23 meters) of hose in runs of air hose exceeding ½" (13mm) inside diameter to reduce pressure in case of hose failure.

E. Flow limiting valves are listed by pipe size and rated CFM. Select appropriate valve accordingly.

F. **DO NOT** use tools that are rated below the maximum rating of this compressor. Select tools, air hoses, pipes, valves, filters, and other fittings accordingly. **DO NOT** exceed manufacturer's rated safe operating pressures for these items.

G. Secure all hose connections by wire, chain or other suitable retaining devices to prevent tools or hose ends from being accidentally disconnected and expelled.

H. Open fluid filler cap only when compressor **is not running and is not pressurized.** Shut down the compressor and bleed the sump (receiver) to zero internal pressure before removing the cap.

I. Vent all internal pressure prior to opening any line, fitting, hose, valve, drain plug, connection or other component, such as filters and line oilers, and before attempting to refill optional air line anti-icer systems with antifreeze compound.

J. Keep personnel out of line with and away from the discharge opening of hoses, tools or other points of compressed air discharge.

K. **DO NOT** use air at pressures higher than 30 PSIG (207kPa) for cleaning purposes, and then only with effective chip guarding and personal protective equipment per OSHA Standard 29 CFR 1910.242 (b).

L. **DO NOT** engage in horseplay with air hoses as death or serious injury may result.

M. **DO NOT** remove radiator filler cap until the coolant temperature is below its boiling point. Then loosen cap slowly to its stop to relieve any excess pressure and make sure coolant is not boiling before removing cap completely.

N. The ethyl ether in the replaceable cylinders used in diesel ether starting aid systems is under pressure. **DO NOT** puncture or incinerate those cylinders. **DO NOT** attempt to remove the center valve core or side pressure relief valve from these cylinders regardless of whether they are full or empty.

O. If a manual blowdown valve is provided on the receiver, open the valve to insure all internal pressure has been vented prior to servicing any pressurized component of the compressor air/fluid system.

1.4 FIRE AND EXPLOSION

A. Refuel at a service station or from a fuel tank designed for its intended purpose. If this is not possible, ground the compressor to the dispenser prior to refueling.

B. Clean up spills of fuel, fluid, battery electrolyte or coolant immediately when such spills occur.

C. Shut off air compressor and allow it to cool. Then keep sparks, flames and other sources of ignition away and **DO NOT** permit smoking in the vicinity when adding fuel, or when checking or adding electrolyte to batteries,or when checking or adding fluid, or when checking diesel engine ether starting aid systems or replacing cylinders,or when refilling air line anti-icer systems antifreeze compound.

D. **DO NOT** permit liquids, including air line anti-icer system antifreeze compound or fluid film to accumulate on bottom covers or on, under or around acoustical material, or on any external or internal surfaces of the air compressor. Wipe down using an aqueous industrial cleaner or steam clean as required. If necessary remove acoustical material, clean all surfaces and then replace acoustical material. Any acoustical material with a protective covering that has been torn or punctured should be replaced immediately to prevent accumulation of liquids or fluid film within the material. **DO NOT** use flammable solvents for cleaning purposes.

E. Disconnect the grounded (negative) battery connection prior to attempting any repairs or cleaning inside the enclosure. Tag the battery connections so others will not unexpectedly reconnect it.

F. Keep electrical wiring, including the battery terminals and other terminals, in good condition. Replace any wiring that has cracked, cut abraded or otherwise degraded insulation or terminals that are worn, discolored or corroded. Keep all terminals clean and tight.

G. Turn off battery charger before making or breaking connections to the battery.

H. Keep grounded conductive objects such as tools away from exposed live electrical parts such as terminals to avoid arcing which might serve as a source of ignition.

I. Replace damaged fuel tanks or lines immediately rather than attempting to weld or otherwise repair them. **DO NOT** store or attempt to operate the compressor with any known leaks in the fuel system. Tag the compressor and render it inoperative until repair can be made.

J. Remove any acoustical material or other material that may be damaged by heat or that may support combustion prior to attempting weld repairs. Remove diesel engine ether starting aid cylinders and air line anti-icer system components containing antifreeze compound prior to attempting weld repairs in any place other than the fuel system. **DO NOT** weld on or near the fuel system.

K. Keep a suitable fully charged class BC or ABC fire extinguisher or extinguishers nearby when servicing and operating the compressor.

L. Keep oily rags, trash, leaves, liter or other combustibles out of and away from the compressor.

M. Open all access doors and allow the enclosure to ventilate thoroughly prior to attempting to start the engine.

N. **DO NOT** operate compressor under low overhanging leaves or permit such leaves to contact hot exhaust system surfaces when operating the compressor in forested areas.

O. Ethyl ether used in diesel engine ether starting aid systems is extremely flammable. Change cylinders, or maintain or troubleshoot these systems only in well ventilated areas away from heat, open flame or sparks. **DO NOT** install, store or otherwise expose ether cylinders to temperatures above 160°F (71°C). Remove ether cylinder from the compressor when operating in ambient temperatures above 60°F (16°C).

P. **DO NOT** attempt to use ether as a starting aid in gasoline engines or diesel engines with glow plugs as serious personnel injury or property damage may result.

Q. **DO NOT** spray ether into compressor air filter or into an air filter that serves both the engine and the compressor as serious damage to the compressor or personal injury may result.

R. Antifreeze compound used in air line anti-icer systems contains methanol which is flammable. Use systems and refill with compound only in well ventilated areas away from heat, open flames or sparks. **DO NOT** expose any part of these systems or the antifreeze compound to temperatures above 150°F (66°C). Vapors from the antifreeze compound are heavier than air. **DO NOT** store compound or discharge treated air in confined or unventilated areas. **DO NOT** store containers or antifreeze compound in direct sunlight.

S. Store flammable fluids and materials away from your work area. Know where fire extinguishers are and how to use them, and for what type of fire they are intended. Check readiness of fire suppression systems and detectors if so equipped.

1.5 MOVING PARTS

A. Keep hands, arms and other parts of the body and also clothing away from belts, pulleys and other moving parts.

B. **DO NOT** attempt to operate the compressor with the fan or other guards removed.

C. Wear snug fitting clothing and confine long hair when working around this compressor, especially when exposed to hot or moving parts inside the enclosure.

D. Keep access doors closed except when making repairs or adjustments, performing service or when starting or stopping the compressor.

E. Make sure all personnel are out of and clear of the compressor prior to attempting to start or operate it.

F. Shut off engine before adding fuel, fluid, coolant lubricants, air line antifreeze compound or battery electrolyte, or before replacing ether starting air cylinders.

G. Disconnect the grounded negative battery connection to prevent accidental engine operation prior to attempting repairs or adjustments. Tag the battery connection so others won't unexpectedly reconnect it.

H. When adjusting the controls, it may require operation of the equipment during adjustment. **DO NOT** come in contact with any moving parts while adjusting the control regulator and setting the engine RPM. Make all other adjustments with the engine shut off. When necessary make adjustment,

other than setting control regulator and engine RPM, with the engine shut off. If necessary, start the engine and check adjustment. If adjustment is incorrect, shut off engine, readjust, then restart engine to recheck adjustment.

I. Keep hands, feet, floors controls and walking surfaces clean and free of fluid, water, antifreeze or other liquids to minimize possibility of slips and falls.

1.6 HOT SURFACES, SHARP EDGES AND SHARP CORNERS

A. Avoid bodily contact with hot fluid, hot coolant, hot surfaces and sharp edges and corners.

B. Keep all parts of the body away from all points of air discharge and away from hot exhaust gases.

C. Wear personal protective equipment including gloves and head covering when working in, on or around the compressor.

D. Keep a first aid kit handy. Seek medical assistance promptly in case of injury. **DO NOT** ignore small cuts and burns as they may lead to infection.

1.7 TOXIC AND IRRITATING SUBSTANCES

A. **DO NOT** use air from this compressor for respiration (breathing) except in full compliance with OSHA Standards 29 CFR 1920 and any other Federal, State or Local Codes or regulations.

⚠ DANGER

Death or serious injury can occur from inhaling compressed air without using proper safety equipment. See OSHA standards on safety equipment.

B. **DO NOT** use air line anti-icer systems in air lines supplying respirators or other breathing air utilization equipment and **DO NOT** discharge air from these systems in unventilated or other confined areas.

C. Operate the compressor only in open or well ventilated areas.

D. If the compressor is operated indoors, discharge engine exhaust fumes outdoors.

E. Locate the compressor so that exhaust fumes are not apt to be carried towards personnel, air intakes servicing personnel areas or towards the air intake of any portable or stationary compressor.

F. Fuels, fluids, coolants, lubricants and battery electrolyte used in the compressor are typical of the industry. Care should be taken to avoid accidental ingestions and/or skin contact. In the event of ingestion seek medical treatment promptly. **DO NOT** induce vomiting if fuel ingested. Wash with soap and water in the event of skin contact.

G. Wear any acid resistant apron and a face shield or goggles when servicing the battery. If electrolyte is spilled or skin or clothing, immediately flush with large quantities of water.

H. Ethyl ether used in diesel engine ether starting aid systems is toxic, harmful or fatal if swallowed. Avoid contact with the skin or eyes and avoid breathing the fumes. If swallowed, **DO NOT** induce vomiting but call a physician immediately.

I. Wear goggles or a full face shield when testing ether starting aid systems or when adding antifreeze compound to air line anti-icer systems. Keep openings of valve or atomizer tube of ether starting aid system pointed away from yourself and other personnel.

J. If ethyl ether or air line anti-icer system antifreeze compound enters the eyes or if fumes irritate the eyes, they should be washed with large quantities of clean water for 15 minutes. A physician, preferably any eye specialist, should be contacted immediately.

K. **DO NOT** store ether cylinders or air line anti-icer system antifreeze compound in operator's cabs or in other areas.

L. The antifreeze compound used in air line anti-icer systems contains methanol and is toxic, harmful or fatal if swallowed. Avoid contact with the skin or eyes and avoid breathing the fumes. If swallowed induce vomiting by administrating a tablespoon of salt in each glass of clean warm water until vomit is clear, then administer two tablespoons of baking soda in a glass of clean water. Have patient lay down and cover eyes to exclude light. Call a physician immediately.

1.8 ELECTRICAL SHOCK

A. Keep the towing vehicle or equipment carrier, compressor hoses, tools and all personnel at least 10 feet (3 meters) from power lines and buried cables.

B. Keep all parts of the body and any hand-held tools or other conductive objects away from exposed live parts of electrical system. Maintain dry footing, stand on insulating surfaces and **DO NOT** contact any other portion of the compressor when making adjustments or repairs to exposed live parts of the electrical system.

C. Attempt repairs only in clean, dry and well lighted and ventilated areas.

D. Stay clear of the compressor during electrical storms! It can attract lightening.

1.9 LIFTING

A. If the compressor is provided with a lifting bail, then lift by the bail provided. If no bail is provided, then lift by sling. Compressors to be air lifted by

Section 1
SAFETY

1.8 ELECTRICAL SHOCK

A. Keep the towing vehicle or equipment carrier, compressor hoses, tools and all personnel at least 10 feet (3 meters) from power lines and buried cables.

B. Keep all parts of the body and any hand-held tools or other conductive objects away from exposed live parts of electrical system. Maintain dry footing, stand on insulating surfaces and **DO NOT** contact any other portion of the compressor when making adjustments or repairs to exposed live parts of the electrical system.

C. Attempt repairs only in clean, dry and well lighted and ventilated areas.

1.9 LIFTING

A. If the compressor is provided with a lifting bail then lift by the ball provided. If not bail is provided then lift by sling. Compressors to be air lifted by helicopter must not be supported by the lifting bail, but by slings instead. In any event, lift only in full compliance with OSHA Standards 29 CFR 1910 subpart N or any other Local, State, Military and Federal regulations that may apply.

B. Inspect lifting bail and points of attachment for cracked welds and for cracked, bent, corroded or otherwise degraded members and for loose bolts or nuts prior to lifting.

C. Make sure entire lifting, rigging and supporting structure has been inspected, is in good conditions and has a rated capacity of at least the net weight of the compressor plus an additional 10% allowance for weight of snow, ice, mud or stored tools and equipment. If your are unsure of the weight, then weigh compressor before lifting.

D. Make sure lifting hook has a functional safety latch or equivalent, and is fully engaged and latched on the ball.

E. Use guide ropes or equivalent to prevent twisting or swinging of the compressor once it has been lifted clear of the ground.

F. **DO NOT** attempt to lift in high winds.

G. Keep all personnel out from under and away from the compressor whenever it is suspended.

H. Lift compressor no higher than necessary.

I. Keep lift operator in constant attendance whenever compressor is suspended.

J. Set compressor down only on level surfaces capable of supporting at least its net weight plus an additional 10% allowance for the weight of snow, ice, mud or stored tools and equipment.

K. If the compressor is provided with parking brakes, make sure they are set, and in any event, block or chock both sides of all running wheels before disengaging the lifting hook.

1.10 ENTRAPMENT

A. Make sure all personnel are out compressor before closing and latching enclosure doors.

B. If the compressor is large enough to hold a man and if it is necessary to enter it to perform service adjustments, inform other personnel before doing so, or else secure the access door in the open position to avoid the possibility of other closing and possibly latching the door with personnel inside.

1.11 JUMP STARTING

A. Observe all safety precautions mentioned elsewhere in this manual.

B. Batteries may contain hydrogen gas which is flammable and explosive. Keep flames, sparks and other sources of ignition away.

C. Batteries contain acid which is corrosive and poisonous. **DO NOT** allow battery acid to contact eyes, skin, fabrics or painted surfaces as serious personal injury or property damage could result. Flush any contacted areas thoroughly with water immediately. Always wear an acid resistant apron and face shield when attempting to jump start the compressor.

D. Remove all vent caps (is so equipped) from the battery or batteries in the compressor. **DO NOT** permit dirt or foreign matter to enter the open cells.

E. Check fluid level. If low, bring fluid to proper level before attempting to jump start (not applicable to maintenance-free batteries).

F. **DO NOT** attempt to jump start if fluid is frozen or slushy. Bring batteries up to at least 60°F (16°C) before attempting to jump start or it may explode.

G. Cover open cells of all compressor batteries with clean dampened cloths before attempting to jump start.

H. Attempt to jump start only with a vehicle with a negative ground electrical system with the same voltage and that is equipped with a battery or batteries of comparable size or larger than supplied in the compressor. **DO NOT** attempt to jump start using motor generators sets, welders or other sources of DC power as serious damage may result.

I. Bring the starting vehicle alongside the compressor, but **DO NOT** permit metal to metal contact between the compressor and the starting vehicle.

J. Set the parking brakes of both the compressor (if provided) and the starting vehicle or otherwise block both sides of all wheels.

K. Place the starting vehicle in neutral or park, turn off all non-essential accessory electrical loads and start its engine.

L. Use only jumpers cable that are clean, in good condition and are heavy enough to handle the starting current.

M. Avoid accidental contact between jumper cable terminal clips or clamps and any metallic portion of either the compressor or the starting vehicle to minimize the possibility of uncontrolled arcing which might serve as a source of ignition.

N. Positive battery terminals are usually identified by a plus (+) sign on the terminal and the letters POS adjacent to the terminal. Negative battery terminals are usually identified by the letters NEG adjacent to the terminal or a negative (–) sign.

O. Connect one end of a jumper cable to the positive (POS) (+) battery terminal in the starting vehicle. When jump starting 24V compressors and if the starting vehicle is provided with two (2) 12V batteries connected in series, connect the jumper cable to the positive (POS) (+) terminal of the ungrounded battery.

P. Connect the other end of the same jumper cable to the positive (POS) (+) terminal of the starter motor (starter relay on Ford gas) battery in the compressor, or when jump starting 24V compressor, to the positive (POS) (+) terminal of the ungrounded battery in the compressor.

Q. Connect one end of the outer jumper cable to the grounded negative (NEG) (–) terminal of the battery in the starting vehicle. When jump starting 24V compressors and if the starting vehicle is provided with two (2) 12V batteries connected in series, connect the jumper cable to the negative (NEG) (–) terminal of the grounded battery.

R. Check your connections. **DO NOT** attempt to start a 24V compressor with one 12V battery in the starting vehicle. **DO NOT** apply 24V to one 12V battery in the compressor.

S. Connect the other end of this same jumper cable to a clean portion of the compressor engine block away from fuel lines, the crank case breather opening, and the battery.

T. Start the compressor in accordance with normal procedure. Avoid prolonged cranking.

U. Allow the compressor to warm up. When the compressor is warm and operating smoothly at normal idle RPM, disconnect the jumper cable from the engine block in the compressor, then disconnect the other end of this same cable from the grounded negative (NEG) (–) terminal of the battery in the starting vehicle. Then disconnect the other jumper cable from the positive (POS) (+) terminal of the battery in the compressor, or if provided with two (2) 12V batteries connected in series, from the ungrounded battery in the compressor, and finally, disconnect the other end of this same jumper cable from the positive (POS) (+) terminal of the ungrounded battery in the starting vehicle, if it is provided with two (2) 12V batteries connected in series.

V. Remove and carefully dispose of the dampened cloths, as they may now be contaminated with acid, then replace all vent caps.

Section 2
DESCRIPTION

2.1 INTRODUCTION

Your new Sullair® 185CFM Portable Air Compressor will offer superior performance and reliability along with a minimal amount of maintenance requirements.

The compressor is equipped with a Sulliscrew® rotary screw compressor unit. Compared to other compressors, the Sullair® is unique in mechanical reliability and compressor unit wear. No inspection is required of the working parts within the compressor unit.

As you continue reading this manual and come to learn how the compressor operates and is cared for, you will see how surprisingly easy it is to keep a Sullair® compressor in top operating condition.

Read Section 5 (Maintenance) to keep your compressor in top operating condition. Should any problem or question arise which cannot be answered in the text, contact your nearest Sullair® representative or the Sullair® Corporation.

2.2 DESCRIPTION OF COMPONENTS

Refer to Figures 2-1 and 2-2. The components and assemblies of the Sullair® 185CFM Utility Air compressor are clearly shown. The package includes a heavy duty rotary screw air compressor, a diesel engine, fuel tank, compressor inlet system, compressor cooling and lubrication system, compressor discharge system, capacity control system, instrument panel and electrical system.

A one-piece low profile canopy offers improved installation. Large side service doors provide easy access to all serviceable components. (On Quiet models, sound deadening insulation is installed to meet EPA regulations for 76dbA at 7 meters [23 ft.]).

The Sulliscrew® air compressor is capable of delivering 100 PSIG (690kPa), and the control sys-

Figure 2-1 Sullair Rotary Screw Utility Air Compressor

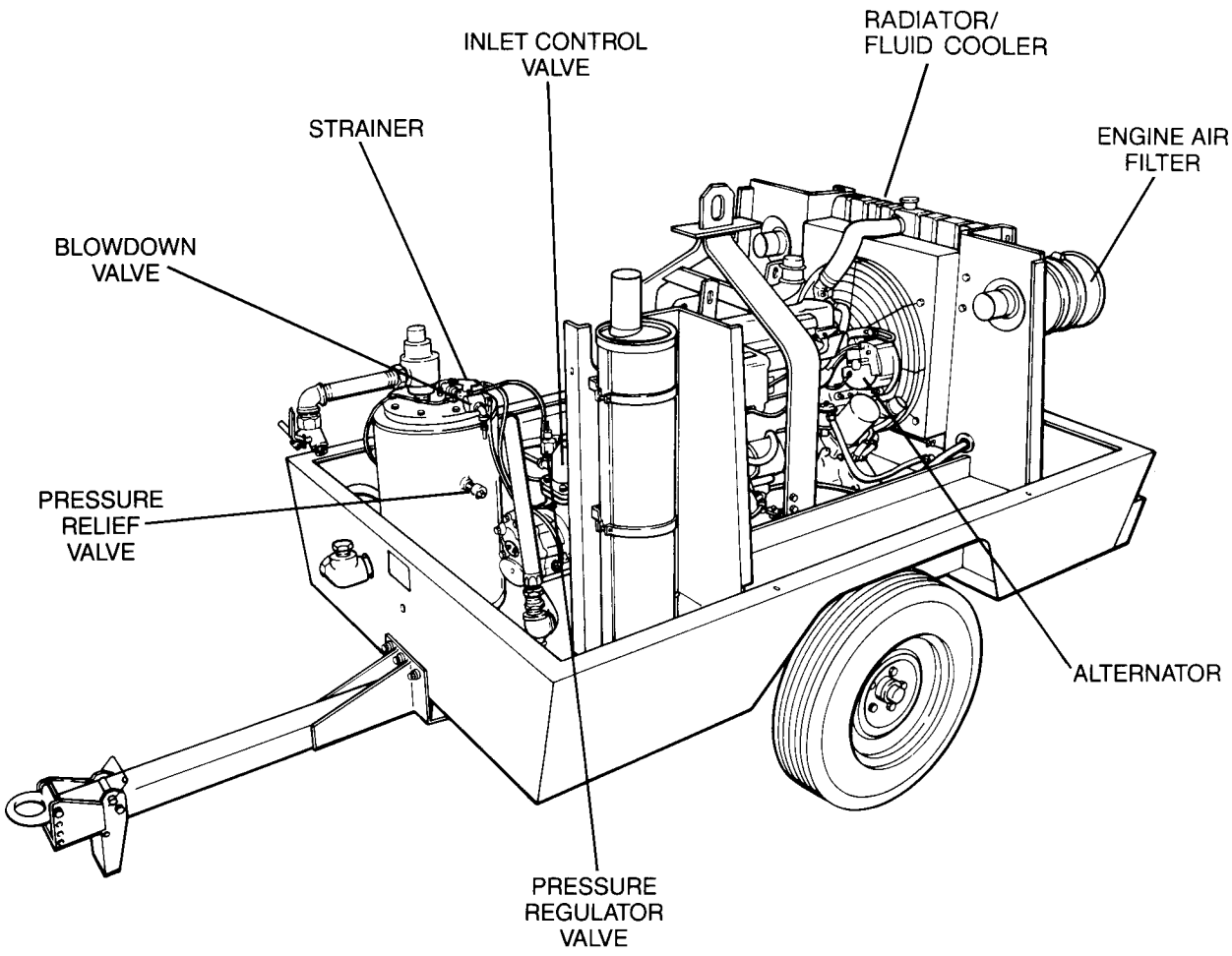
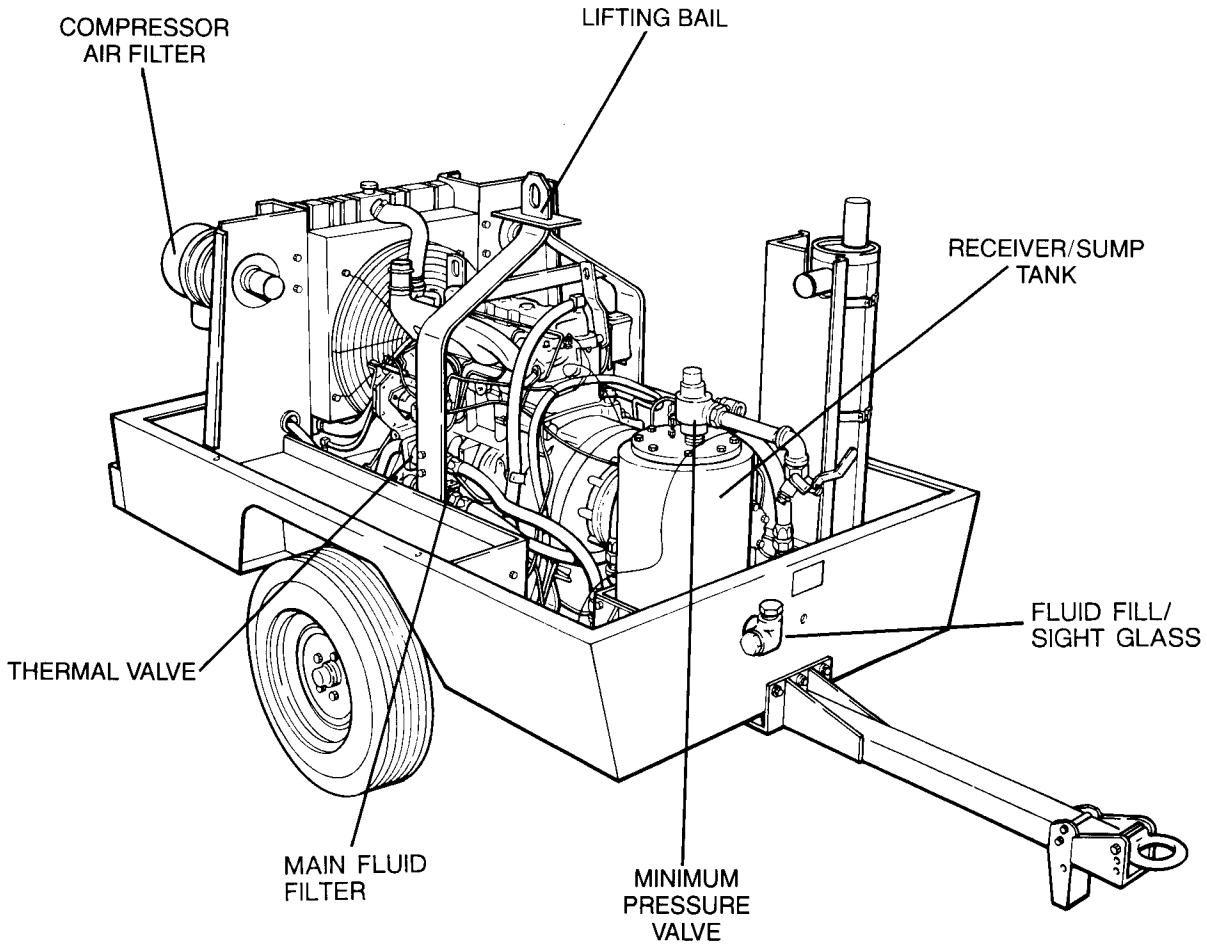


Figure 2-2 Sullair Rotary Screw Air Compressor



tem can be easily adjusted for pressures from 70 to 125 PSIG (482 to 861kPa). The compressor unit is driven by an industrial engine designed to provide enough horsepower for more than adequate reserve at rated conditions. Refer to the Engine Operators Manual for a more detailed description of the engine.

The engine cooling system is comprised of a radiator, high capacity fan and thermostats. The high capacity fan draws air through the radiator, keeping the engine at the proper operating temperature.

The same fan also cools the fluid in the compressor cooling and lubrication system. Prior to passing through the radiator, the fan air passes through the compressor fluid cooler (mounted in front of the radiator). As air passes through the cooler, the heat of compression is removed from the fluid.

The machine is supplied with a large capacity fuel tank with a visible tank mounted fuel gauge and will keep the machine running through one eight hour shift.

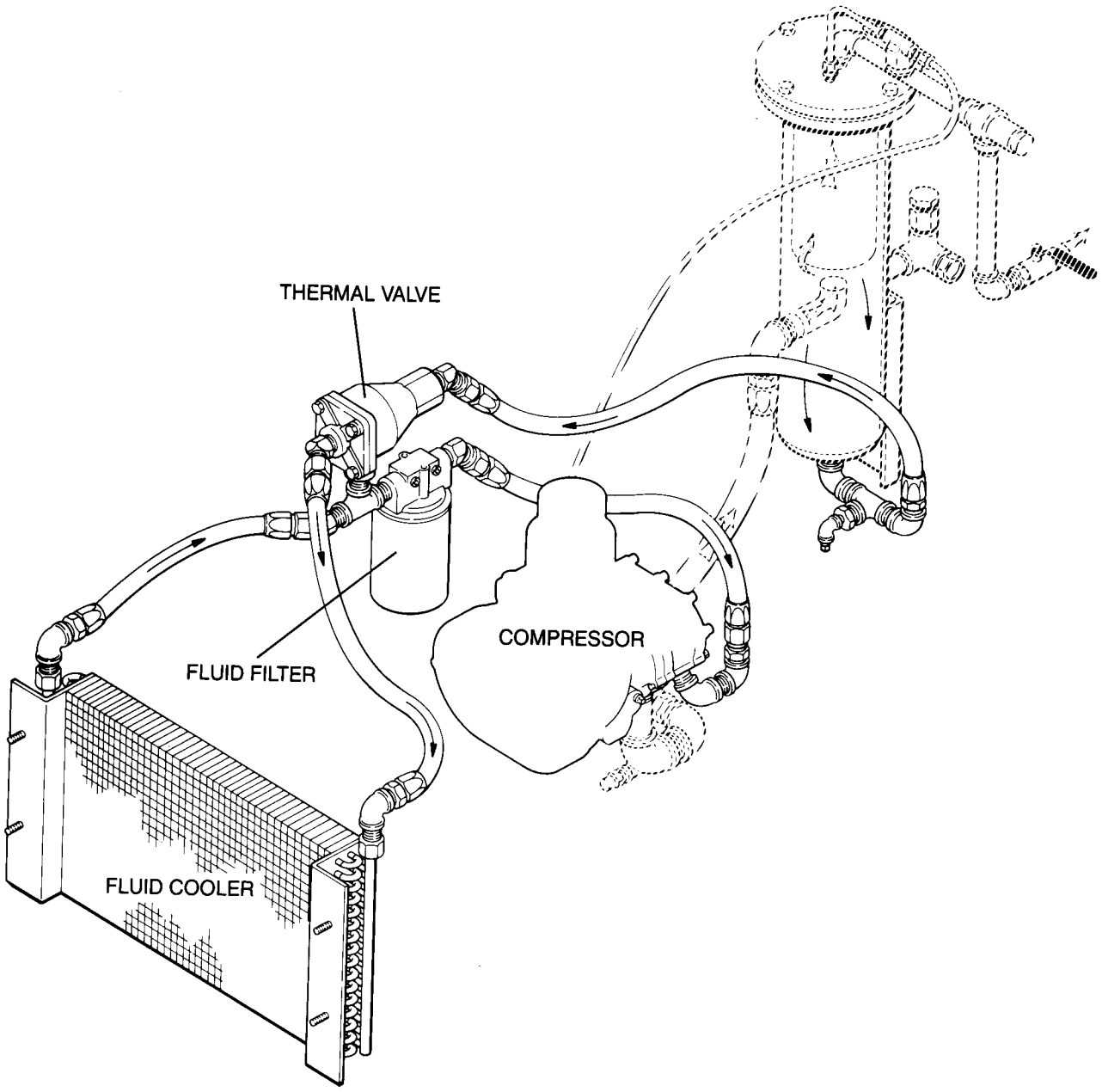
2.3 SULLISCREW® COMPRESSOR UNIT, FUNCTIONAL DESCRIPTION

Sullair® compressors feature the Sulliscrew® compressor unit, a single-stage, positive displacement, flood lubricated-type compressor. This unit provides continuous pulse-free compression to meet your needs. With a Sullair® compressor, no maintenance or inspection of the internal parts of the compressor unit is required with the warranty.

Fluid is injected into the compressor unit and mixes directly with the air as the rotors turn compressing the air. The fluid flow has three primary functions:

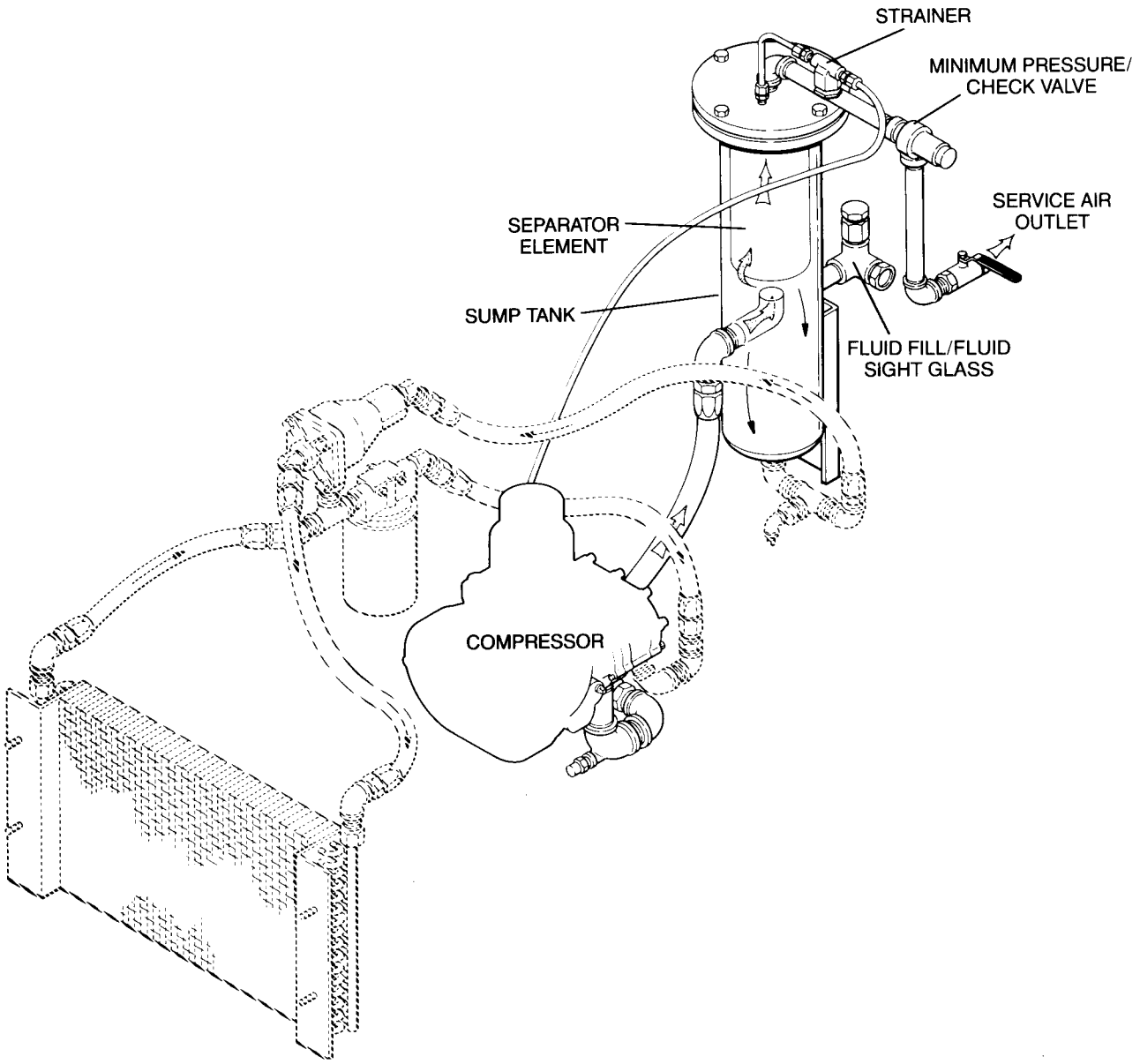
Section 2
DESCRIPTION

Figure 2-2 Compressor Cooling and Lubrication System (Typical)



compressed air collects on the surface of the final separator element as the compressed air flows through the separator. As more and more fluid collects in the element surface, the fluid descends to the bottom of the separator. A return line (or scavenge tube) leads from the bottom of the separator element to the inlet region of the compressor unit. Fluid collecting on the bottom of the separator element is returned to the compressor by the pressure difference between the area surrounding the separator element and the compressor inlet. An orifice (protected by a strainer) is included in this return line to assure proper flow.

Figure 2-3 Compressor Discharge System (Typical)

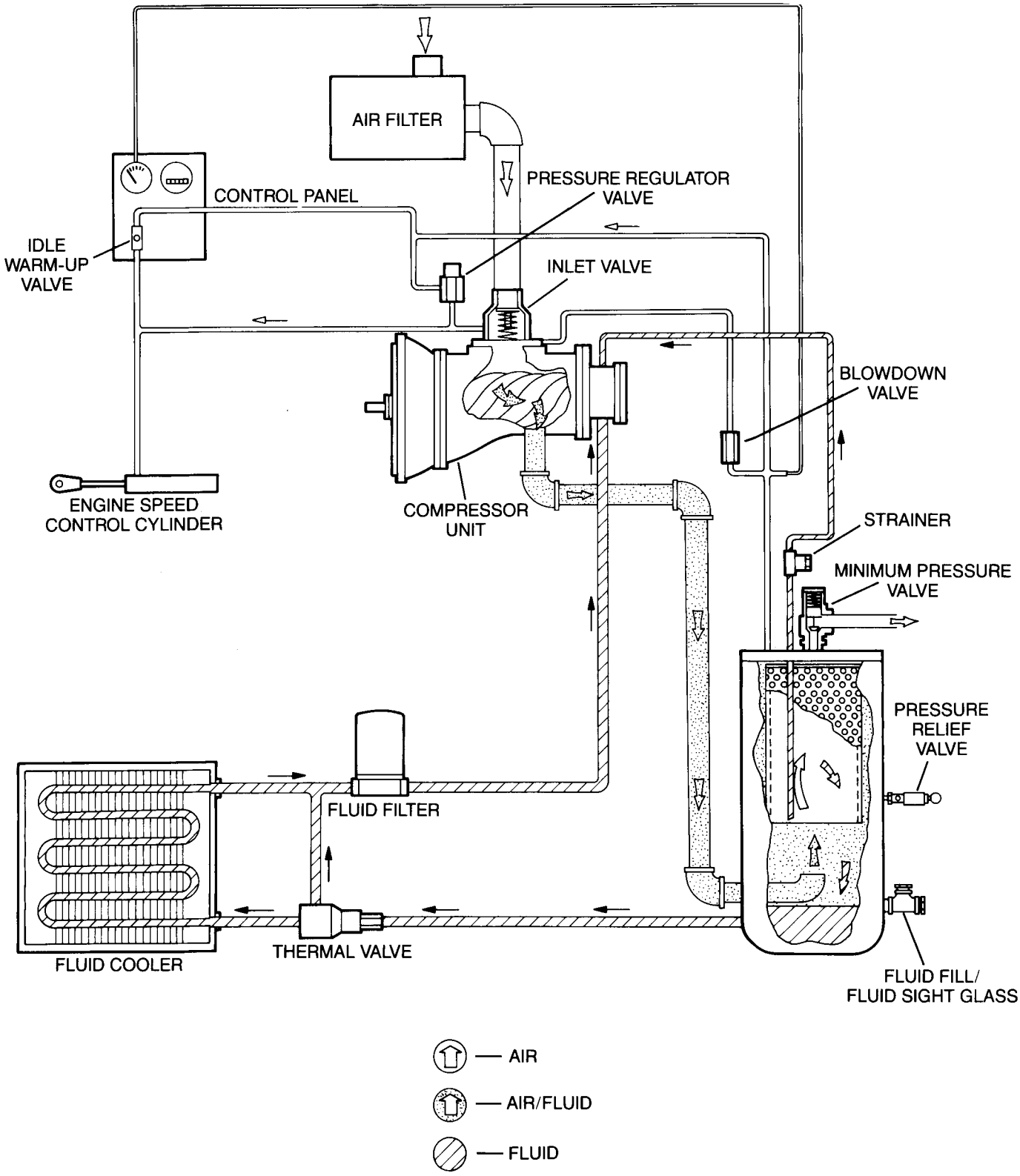


A minimum pressure/check valve, located downstream from the separator, assures a minimum receiver pressure of 55 PSIG (379kPa) during all conditions. This pressure is necessary for proper air/fluid separation and proper fluid circulation. The minimum pressure/check valve also incorporates a check to prevent compressed air in the service line from bleeding back into the receiver upon machine shutdown.

A pressure relief valve (located on the wet side of the separator) is set to open if the sump pressure exceeds 140 PSIG (965kPa). A temperature switch will shut down the compressor if the discharge temperature reaches 250°F (121°C).

Fluid is added to the sump via a capped fluid filler.

Figure 2-5 Control System with Piping and Instrumentation



- It acts as a primary fluid separator.
- Serves as the compressor fluid sump.
- Houses the final fluid separator.

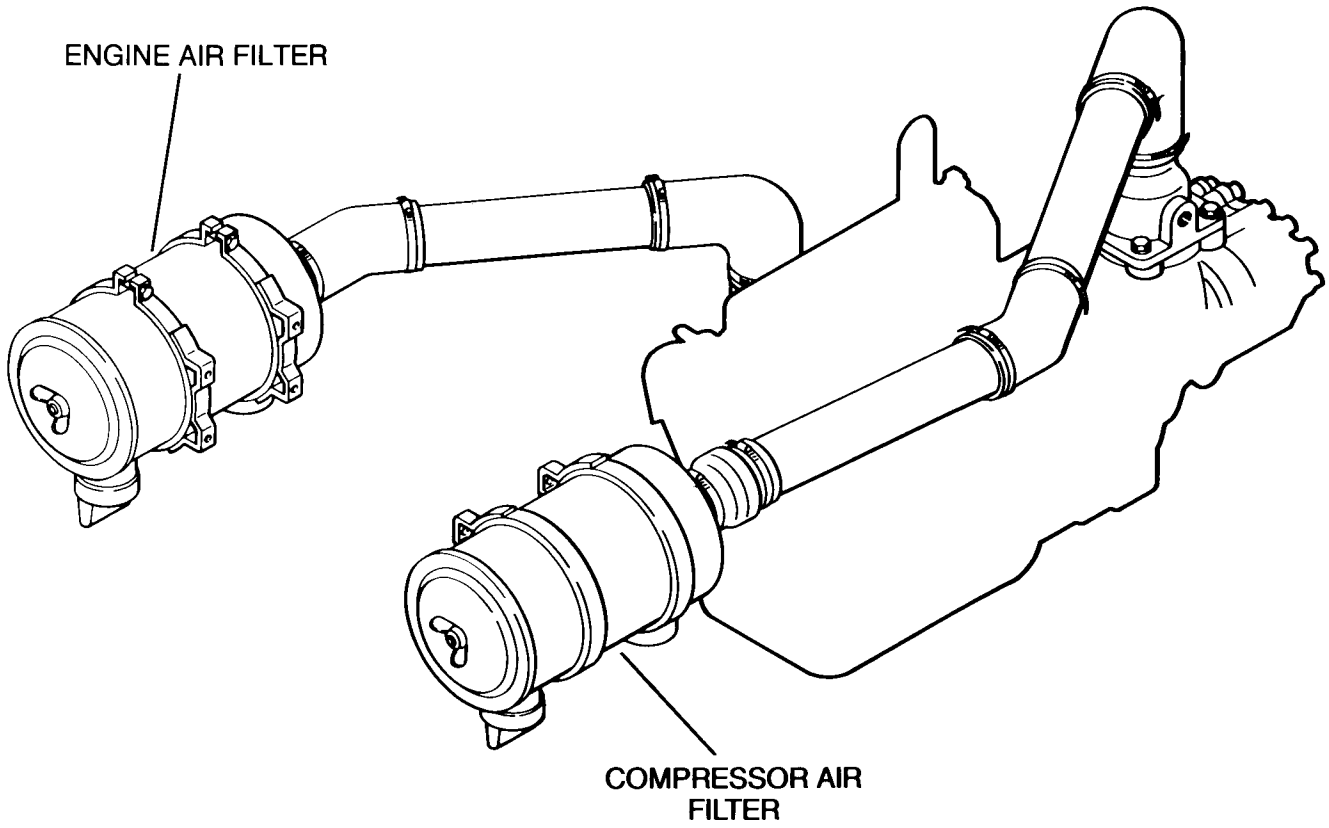
The compressed air/fluid mixture enters the sump and is directed against the side wall. By change of direction and reduction of velocity, larger droplets of fluid fall to the bottom of the sump. The fractional percentage of fluid remaining in the compressed air collects on the surface of the final separator element as the compressed air flows through the separator. As more and more fluid collects in the element surface, the fluid descends to the bottom of the separator. A return line (or scavenge tube) leads from the bottom of the separator element to the inlet region of the compressor unit. Fluid collecting on the bottom of the separator element is returned to the compressor by the pressure difference between the area surrounding the separator element and the compressor inlet. An orifice (protected by a strainer) is included in this return line to assure proper flow.

The sump is ASME code rated at 200 PSIG (1380kPa) working pressure. A minimum pressure/check valve, located downstream from the separator, assures a minimum receiver pressure of 55 PSIG (380kPa) during all conditions. This pressure is necessary for proper air/fluid separation and proper fluid circulation.

A pressure relief valve (located on the wet side of the separator) is set to open if the sump pressure exceeds 185 PSIG (1275kPa). A temperature switch will shut down the compressor if the discharge temperature reached the specified limit given in Section 3, Specifications.

Fluid is added to the sump via a capped oil filler.

Figure 2-6 Air Inlet System



Section 2
DESCRIPTION

⚠WARNING

DO NOT remove caps, plugs, or other components when compressor is running or pressurized.

Stop compressor and relieve all internal pressure before doing so.

2.6 CONTROL SYSTEM, FUNCTIONAL DESCRIPTION

Refer to Figure 2-5. The purpose of the control system is to regulate the amount of air intake in accordance with the amount of compressed air being used. The control system consists of an inlet valve, a pressure regulating valve, blowdown valve and air lines which connect the inlet valve and engine cylinder and an idle warm-up valve. The functional description of the control system is described below in 4 distinct phases of operation. This description will apply to all control systems with the exception of the stated pressures which may vary depending on your pressure requirements. The pressures stated will be in accordance with a compressor having a operating pressure range of 100 to 110 PSIG (690 to 760kPa).

START - 0 TO 40 PSIG (0 TO 276kPa)

When the compressor is started, the sump pressure will quickly rise from 0 to 40 PSIG (0 TO 276kPa). During this period the pressure regulator valve is inoperative. At this pressure the idle warm-up valve maintains a closed inlet valve for engine idle operation. After sufficient machine warm-up is achieved, push idle warm-up valve button, then inlet valve will open for full capacity operation. The inlet valve is fully open due to inlet air pressure, and the compressor operates at full capacity. As the compressor operates at full capacity, the engine runs at full speed.

NORMAL OPERATION - 40 TO 100 PSIG (276 TO 690kPa)

When the sump pressure rises above 55 PSIG (380kPa), the minimum pressure valve opens and delivers compressed air to your service line. At this time, the inlet valve remains fully open for maximum air output. The engine will continue to run at full speed during this phase of operation.

MODULATION - 100 TO 110 PSIG (690 TO 760kPa)

Should less than the rated capacity of air be used, the service line pressure will rise above 100 PSIG (690kPa). The pressure regulating valve gradually opens, applying pressure to the inlet valve piston and speed control cylinder. This causes the inlet valve to partially close and reduces the speed of the engine. As the pressure increases, the inlet valve piston will further close the inlet valve and continue reducing the engine speed until it reaches a pre-set idle speed. Now as air demand increases, the sump pressure will fall below the 110 PSIG (760kPa).

The pressure regulating valve will close, the air inlet valve will be fully open and the engine will once again run at a pre-set full load speed.

SHUTDOWN

The blowdown valve is normally closed. Upon shutdown, the back pressure in the compressor inlet signals the blowdown valve venting sump pressure to the atmosphere. After the sump pressure has vented, the idle warm-up valve will automatically reset from normal operation mode to start mode.

2.7 AIR INLET SYSTEM, FUNCTIONAL DESCRIPTION

Refer to Figure 2-6. The air inlet systems consists of two air filters, a compressor air inlet valve and interconnecting piping to the engine and compressor.

The air filters are 2-stage dry element-type filters. These filters are capable of cleaning extremely dirty air. However, in such cases, frequent checks of the air filter will be required.

See Section 5 for Air Filter Maintenance Procedures. Dust collectors should be checked and cleaned daily. The indicator should be checked daily, after start-up under normal conditions.

2.8 INSTRUMENT PANEL GROUP, FUNCTIONAL DESCRIPTION

Refer to Figure 2-7. The instrument panel group consists of a heavy gauge panel containing an air

Figure 2-7 Instrument Panel Group

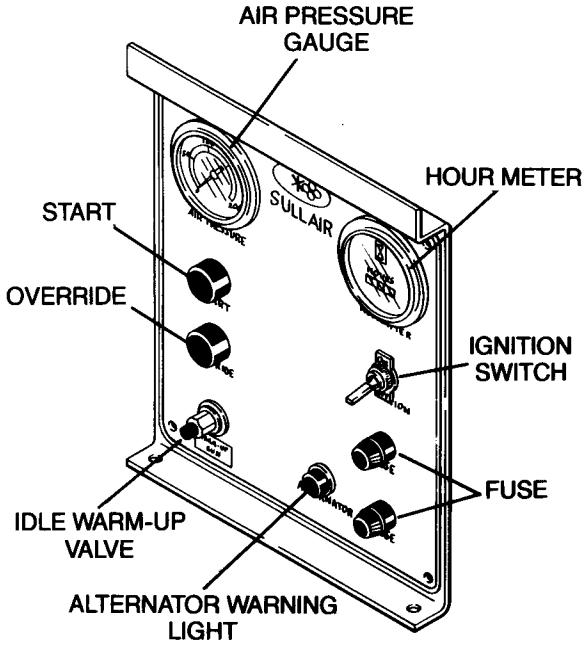
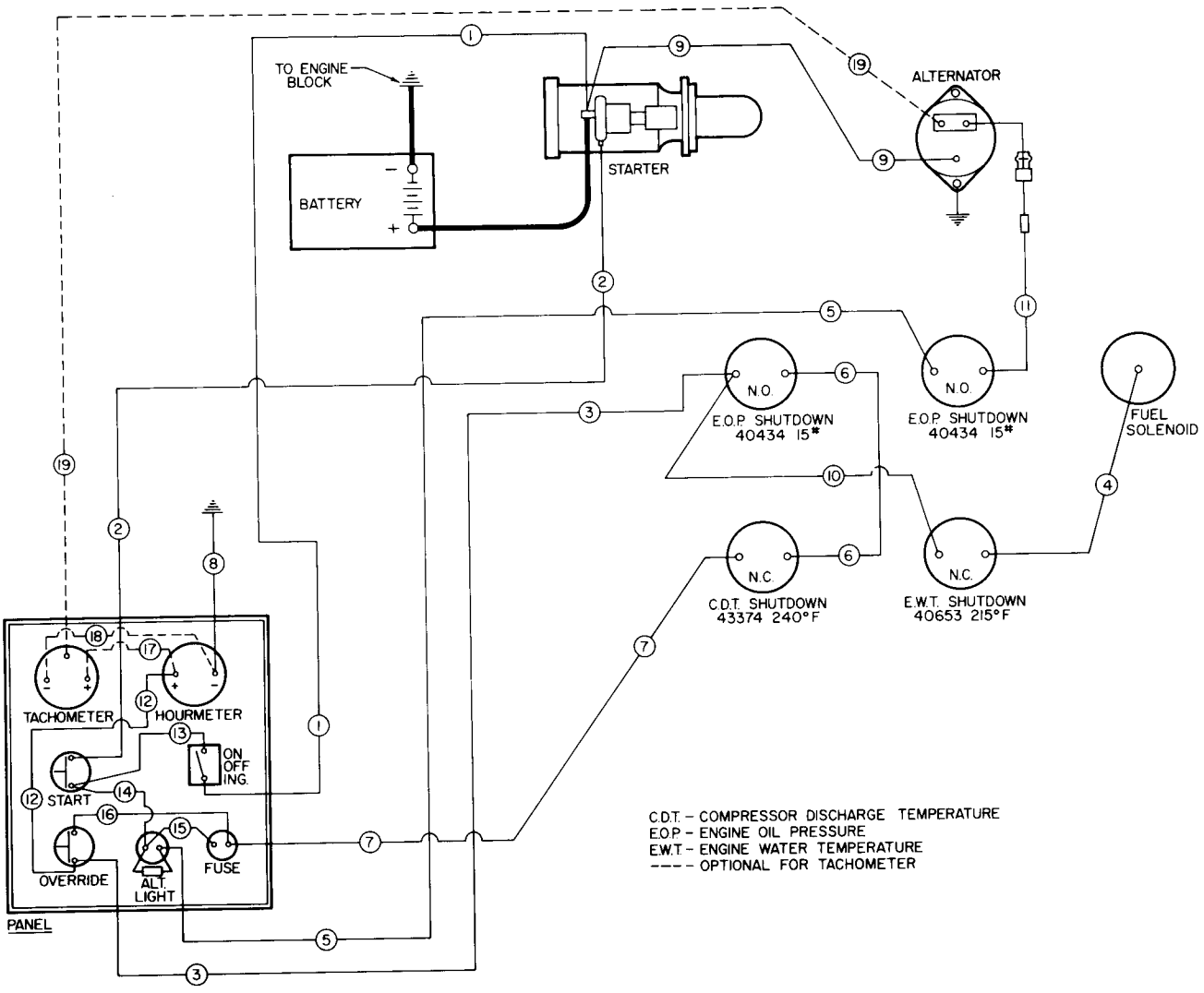


Figure 2-8 Electrical System



pressure gauge, hourmeter, starter pushbutton, toggle ignition switch, circuit override button, fuse and alternator malfunction.

Refer to Figure 2-7 for locations of the following indicators and controls:

- The air pressure gauge continually monitors the sump pressure at various load and/or unload conditions.
- The hourmeter indicates the accumulative hours of compressor operation.
- The toggle ignition switch is used to energize the electrical system. The starter button is used in conjunctions with the override button. These are used to start the engine (refer to the compressor's particular starting instructions for proper procedure). When the toggle switch is placed in the "off" position, it will shut the compressor down.
- The circuit override button is depressed simultaneously with pushing the starter switch. This switch allows the electrical circuit to bypass the engine oil pressure switch when starting. Without this switch, the engine cannot be started, as no oil pressure is present until the engine is running.
- The idle warm-up valve button is depressed after sufficient warm-up is achieved for full compressor operation.

2.9 ELECTRICAL SYSTEM, FUNCTIONAL DESCRIPTION

Refer to Figure 2-8. The electrical system is comprised of not only the necessary equipment required to operated the compressor, but also a system is included to shut down the compressor in the event of a malfunction. The components of the electrical system are an engine starter, a battery, an alternator with a voltage regulator, a fuel solenoid, a compressor discharge temperature switch which will shut down the compressor should the compressor temperature exceed 240°F (115°C), an engine water temperature switch set to shut down the compressor when water temperature reaches 210°F (100°C), and an engine oil pressure switch. The engine oil pressure switch is provided to shut down the compressor when the engine oil pressure becomes insufficient. Upon start-up, it is necessary to override or bypass the engine oil pressure switch by pressing the override button on the instrument panel until the oil pressure throughout the system is high enough to close the switch and complete the circuit to the fuel solenoid valve (diesels).

SPECIFICATIONS

DIMENSIONAL:

Model Series	Length		Width		Height		Weight (wet)	
	in	mm	in	mm	in	mm	lb	kg
185 2 Wheel	**133**	3380	**58**	1475	**64**	1625	**2840**	1290
185 LRG	**89**	2260	**58**	1475	**34**	865	**2280**	1035

COMPRESSOR:	**185**
Type	Rotary Screw
Maximum Operating Pressure	150 PSIG (1035kPa)
Delivery at 100 PSIG (689kPa)	185 Free CFM (5.2 M^3/minute)
Cooling	Pressurized Compressor Fluid
Lubricating Compressor Fluid	See Table 1
Sump Capacity	5 U.S. Gallons (19 Liters)
Track Width	46" (1170mm)
Tire Size (Load Range)	F78-14 (C)
Tire Pressure	50 PSIG (345kPa)
Wheel Size	14 x 6.5
Operating Tilt (maximum)	15°
Electrical System	12 Volt
Alternator (John Deere)	42 amp
Compressor Discharge Temp.	Shutdown 240° (115°C)
Service Valves	(2) ¾"
Maximum Towing Speed	55 MPH (88 KMPH)

ENGINE:	
Type	Diesel
Make	John Deere
Model	JD4.239
Displacement	237 cu. in. (3870 cc)
Cylinders	4
Bore x Stroke	4.19 x 4.33 (106 x 110 mm)
Rated Speed	2300 RPM
Rated Power	78HP (58KW)
Type of Motor Oil	See Engine Operators Manual
Fuel Tank Capacity	25 Gallons (94 Liters)
Radiator Capacity	4 Gallons (15 Liters)
Engine Water Temperature	Shutdown 215°F (102°C)
Minimum Idle Speed	1400 RPM
Alternator Rating	35 amp

Section 3
SPECIFICATIONS

LUBRICATION GUIDE - COMPRESSOR

FLUID TYPE	CHANGE PERIOD, HOURS	AMBIENT TEMPERATURE RANGE °F (°C)
Sullair AWF*	600	-20 to 120 (-29 to 49)
D-A Torque Fluid	300	10 to 110 (-12 to 43)
Dexron II ATF	300	-20 to 100 (-29 to 38)
SAE10W SE, SF, SG, CD	300	0 to 100 (-18 to 38)
MIL-L-2104E 10W	300	0 to 100 (-18 to 38)

* Sullair part numbers for Sullair AWF are 250030-757 (5 gallons) and 250030-758 (55 gallon drum).

APPLICATION GUIDE

Sullair® Air Compressors are supplied with Sullair AWF which is heavy duty multi-viscosity, all-weather fluid. Sullair AWF also allows an extended change interval. Detergent motor oils (SAE 10W Class SE,SF, SG or CD) or Dexron II Automatic Transmission Fluid (ATF) can also be used. Any of these oils are suitable under conditions where severe oil oxidations can occur.

Water must be drained from the receiver periodically. In high ambient temperature and high humidity conditions, condensed moisture may emulsify with the oil forming a "milky" color. ATF or SAE 10W is especially prone to this condition. The fluid should be changed if this condition develops.

DO NOT mix types of fluids. Combinations of different fluids may lead to operational problems such as foaming, filter plugging, orifice or line plugging.

When ambient conditions exceed those noted or if conditions warrant use of other extended life lubricants, contact Sullair® for recommendations.

Sullair® encourages the user to participate in a fluid analysis program. This could result in a fluid change interval differing from that stated in the manual. Sullair Corporation offers a fluid analysis program for Sullair AWF. Contact your local Sullair representative for details.

D-A Lubricant® Company Inc. offers an analysis program for users of D-A products and Sullair AWF. Contact your D-A lubricant supplier or Sullair representative for details.

LUBRICATION GUIDE - ENGINE

For engine oil specifications, refer to the Engine Operators manual.

Section 4
OPERATION

4.1 GENERAL

While Sullair has built into this compressor a comprehensive array of controls and indicators to assure you that it is operating properly, you will want to recognize and interpret the readings which will call for service or indicate the beginning of a malfunction. Before starting your Sullair compressor, read this section thoroughly and familiarize yourself with the controls and indicators – their purpose, location and use.

4.2 PURPOSE OF CONTROLS

Control or Indicator	*Purpose*
TOGGLE IGNITION SWITCH	Turn this switch to the "on" position to energize the electrical system of the compressor. Turn to the "off" position to shut the compressor down. This switch is located on the instrument panel.
START PUSHBUTTON	Push this button along with the override button to start the compressor. Release the starter switch as soon as the engine engage, but hold the override button for 5 to 10 seconds or until the engine oil pressure reaches 20 PSIG (140kPa).
OVERRIDE PUSHBUTTON	Located on the instrument panel, it is used to bypass the oil pressure switch when starting the engine. Must be pressed simultaneously with pushing the start button.
AIR PRESSURE GAUGE	Continually monitors the pressure inside the receiver pump at various load and unload conditions.
HOURMETER	Indicates the accumulated hours of operation. Useful for planning and logging service schedules.
FLUID LEVEL SIGHT GLASS	Monitors the fluid level in the sump. Proper level is always visible in the sight glass. Check the level when the compressor is shut down and on level ground.
COMPRESSOR DISCHARGE TEMPERATURE SWITCH	Opens the electrical circuit to shut down the machine when the discharge temperature reaches a specific value (see Section 3, Specifications).
THERMAL VALVE	Functions as a temperature regulator directing the compressor fluid either to the cooler or to the compressor unit.
MINIMUM PRESSURE/CHECK VALVE	Maintains the minimum of 55 PSIG (380kPa) in the compressor sump. This valve restricts receiver air discharge from receiver/sump when pressure falls to 55 PSIG (380kPa), however, full flow is allowed at normal operating pressures.
PRESSURE RELIEF VALVE	Opens sump pressure to the atmosphere should pressure inside the sump exceed 185 PSIG (1275kPa).

Section 4
OPERATION

4.2 PURPOSE OF CONTROLS (continued)

Control or Indicator	*Purpose*
AIR INLET VALVE	Regulates the amount of air allowed to enter the air inlet valve. This regulation is determined by pressure signal from the pressure regulator.
PRESSURE REGULATOR	Allows a pressure signal to reach the engine speed control cylinder and the air inlet valve to control air delivery according to demand.
BLOWDOWN VALVE	Vents sump pressure to the atmosphere at shutdown.
ALTERNATOR WARNING LAMP	Indication of impending shutdown of machine due to alternator failure.
IDLE WARM-UP VALVE	Maintains a closed air inlet valve for reduced compressor load on start-up. When sufficient warm-up is reached, push idle warm-up button on control panel for full operation. The valve will reset automatically for start mode after machine shutdown and air pressure is released.

4.3 START-UP PROCEDURE

The following procedure should be used to make the initial start-up of your compressor:

1. Position the compressor on a level surface so that proper amounts of liquid can be added if necessary.*
2. Check engine oil level and the cooling system levels and add oil if necessary.
3. Fill the fuel tank.
4. Crack open one service line.
5. Bleed fuel injection lines if necessary (see Engine Operators Manual.
6. Turn toggle switch to the "on" position.
7. Push override and start buttons. As engine engages, release start button, but hold the override button for approximately 5 to 10 seconds or until engine oil pressure reaches 20 PSIG (140kPa) and then release.
8. Allow for sufficient warm-up of compressor, then push idle warm-up valve button for full compressor operation.
9. On all quiet compressors, close all doors in order to maintain proper noise control.
10. After the initial run, shut the compressor down and refill the radiator and compressor fluid sump as required. Tighten any loose fittings and check fan belt tension.

* The radiator is filled with a 60/40 mixture of ethylene glycol and water at the factory before shipment.

4.4 SUBSEQUENT START-UP PROCEDURE

On subsequent starts, follow the procedure explained below:

1. Check engine oil, water and fuel levels.
2. Check compressor fluid level (should be half of sight glass.
3. Check dust collectors and clean if necessary.
4. Crack open service valve.
5. Bleed fuel injection lines if necessary (see Engine Operators Manual.
6. Turn toggle switch to the "on" position.
7. In cold weather use starting aid.
8. Push override and start buttons. As engine engages, release start button, but hold the override button for approximately 5 to 10 seconds or until engine oil pressure reaches 20 PSIG (138kPa) and then release.
9. Allow for sufficient warm-up of compressor before operating, then push idle warm-up valve button for full compressor operation.

4.5 SHUTDOWN PROCEDURE

To shut the compressor down, close the service valves and turn the start-run control valve to the start position. Run the compressor for approximately 5 minutes, and turn the "on/off" switch to the "off" position. In case of emergency where immediate shutdown is required, this procedure is not necessary. The "on/off" switch should be put in the "off" position immediately.

Section 5
MAINTENANCE

5.1 GENERAL

A good maintenance program is the key to long machine life. Below is a program that when adhered to, should keep the machine in top operating condition. For maintenance requirements on engine, refer to the Engine Operators manual for a detailed description of service instructions. See Section 5.9, Parts Replacement and Adjustment Procedures for a detailed description of specific compressor system components. Prior to performing maintenance, read the CIMA Safety manual.

⚠WARNING

DO NOT remove caps, plugs and other components when compressor is running or pressurized.

Stop compressor and relieve all internal pressure before doing so.

5.2 DAILY OPERATION

Prior to starting the compressor, it is necessary to check the fluid level in the sump. Should the level be low, simply add the necessary amount. If the addition of fluid becomes too frequent, a simple problem has developed which is causing this loss. See the Troubleshooting Section (5.10) under Excessive Fluid Consumption for a probable cause and remedy. Also check the engine oil level and the radiator coolant level prior to starting.

NOTE

The radiator and engine cooling system must be drained and flushed every two (2) years. Replace the coolant with a solution of 50% ethylene glycol and 50% water. DO NOT use a leak sealing type of anti-freeze. Should a 100% water solution be used, a rust inhibitor must be added.

After a routine start has been made, observe the instrument panel gauge and be sure it monitors the correct reading for that particular phase of operation. After the compressor has warmed up, it is recommended that a general check on the overall compressor and instrument panel be made to assure that the compressor is running properly.

5.3 MAINTENANCE AFTER INITIAL 50 HOURS OF OPERATION

After the initial 50 hours of operation, a few maintenance requirements are needed to rid the system of any foreign materials which may have accumulated during compressor assembly. Perform the following maintenance operations to prevent unnecessary problems.

1. Clean the return line orifice and strainer.
2. Change compressor fluid filter.

5.4 MAINTENANCE EVERY 100 HOURS

After 100 hours of operation, it will be necessary to perform the following:

1. Clean the radiator and cooler exteriors.
2. Check Engine Operators manual for required service.

5.5 MAINTENANCE EVERY 200 HOURS

Perform the following after every 200 hours of operation:

1. Change the fuel filter. Should persistent clogging be evident, change the fuel filter more frequently.
2. Check fan belt tension.
3. Clean the radiator and cooler exterior. Depending on how contaminated the atmosphere may be, more frequent cooler and radiator cleaning may be necessary.
4. Check Engine Operators Manual for required service.

5.6 MAINTENANCE EVERY 300 HOURS

Perform the following after every 300 hours of operation:

1. Change the compressor fluid and fluid filter. Run the compressor for 5 to 10 minutes to warm the fluid and drain the fluid sump by removing the plug at the bottom of the sump. For fluid filter element replacement, see Filter Element Replacement under the Maintenance Section 5.9 Parts Replacement and Adjustment Procedures. Fill the sump with fluid according to specifications in Section 3. Remove any accumulated dirt from the fluid filler cap prior to filling the sump.
2. Clean return line strainer.
3. Check Engine Operators manual for required service.

5.7 MAINTENANCE EVERY 400 HOURS

Perform the following after every 400 hours of operation:

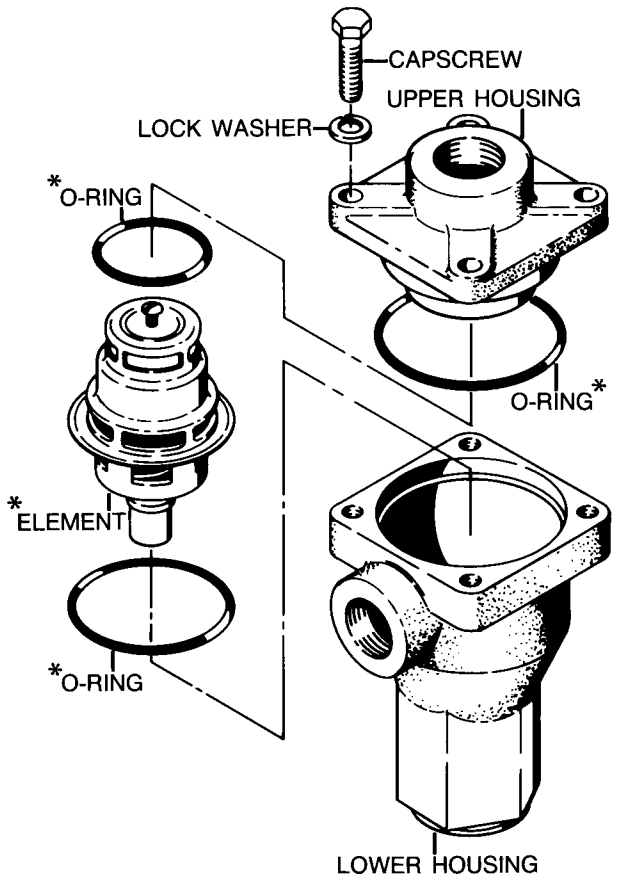
1. Check the engine RPM. Idle speeds should never be allowed to fall below the minimums (see Section 3, Specifications).

NOTE

Operation at speeds below the minimum idle speeds shown in the Table in Section 3, Specifications will damage the compressor. Extended operation below those speeds will induce coupling and/or compressor failures.

Section 5
MAINTENANCE

Figure 5-1 Thermal Valve (P/N 409193)



*Repair Kit P/N 250017-340

2. Lubricate the control linkage.
3. Check Engine Manual for required service.

5.8 MAINTENANCE EVERY 1000 HOURS

Perform the following after every 1000 hours of operation:

1. Clean the return line orifice.
2. Repack the wheel bearings on wheel mounted units.

5.9 PARTS REPLACEMENT AND ADJUSTMENT PROCEDURES

THERMAL VALVE MAINTENANCE

Refer to Figure 5-1. Before installing a new or existing element, be sure that all of the threads on the housing are clean and free of dirt. For thermal valve maintenance, use repair kit No. 250017-340 and follow the procedure below.

1. Remove all necessary piping to valve for disassembly of the thermal valve housing.
2. Remove the four (4) capscrews which hold the housing together and separate the upper housing from the lower housing.
3. Remove o-rings and thermostat element.
4. Clean assembly parts as needed.
5. Replace the o-ring in the upper housing, and the o-rings and element in the lower housing.
6. Reassemble the upper and lower housings and install capscrews and lockwashers. Torque to 10 to 15 ft./lbs. (14 to 20 Nm).

COMPRESSOR FLUID FILTER ELEMENT REPLACEMENT

1. Using a strap wrench, remove the old element and gasket.
2. Clean the gasket seating surface.
3. Apply a light film of fluid to the new gasket.
4. Hand tighten the new element (P/N 408107) until the new gasket is seated in the gasket groove.
5. Continue tightening the element by hand an additional ½ to ¾ turn.
6. Restart the compressor and check for leaks.

AIR FILTER MAINTENANCE

Refer to Figure 5-2. Air filter (P/N 250022-887) maintenance should be performed as often as conditions require. If the filters are equipped with an optional maintenance indicator, cleaning should be done when the indicator shows red. The air filter supplied with the compressor has cleanable-type elements. The following procedures will explain how to replace and how to clean the air filter element.

AIR FILTER ELEMENT REPLACEMENT

1. Loosen and remove the wingnut from the end of the compressor air filter cover.
2. Remove filter cap. Loosen and remove wingnut which holds filter element in place. Remove element.
3. Clean the body and cover with a damp cloth inside and out.
4. Replace new filter element.
5. Replace the element retaining wingnut.
6. Reposition the cover and tighten the clamp.
7. Reset the air filter restriction indicator, if so equipped, and the compressor will be ready for operation.

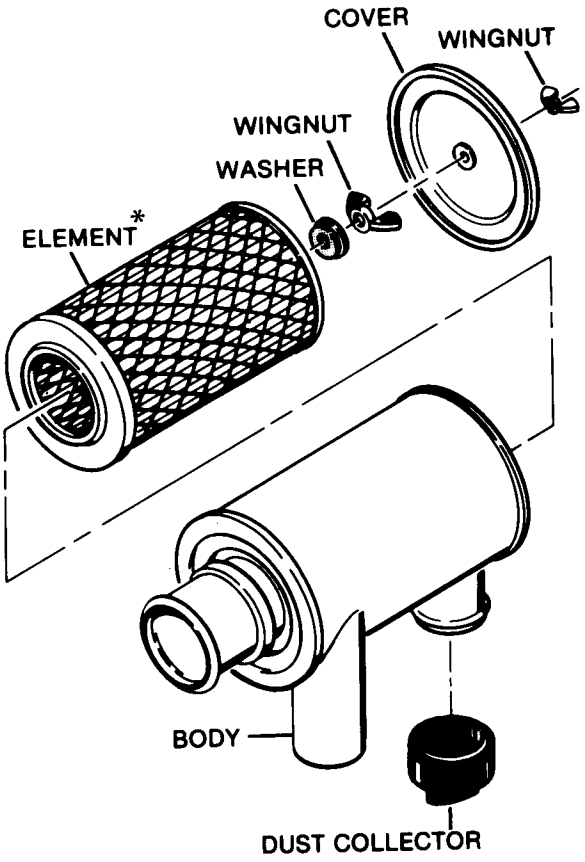
AIR FILTER ELEMENT CLEANING

The air filter element is cleanable by using compressed air. The maximum amount of times that an element should be cleaned is six (6) times however, the element should be used no longer than a period of one (1) year without changing.

Prior to, and after, cleaning an element, check the element for damage. Damaged elements must be replaced. Compressed air shall be used for cleaning except in full compliance with OSHA Std. 29 CFR 1910.242(b)

DO NOT strike the element against any hard surface to dislodge dust. This will damage the sealing surfaces and possibly rupture the element.

Figure 5-2 Air Filter (P/N 250022-887)



Filter Element P/N 250022-888
See Parts List for proper replacement part numbers.

DO NOT blow dirt out of the interior of the filter housing. This may introduce dust downstream of the filter. Instead, use a clean damp cloth.

DO NOT oil the element.

CLEANING THE ELEMENT WITH COMPRESSOR AIR

When cleaning the element with compressed air, never let the air pressure exceed 30 PSI (200kPa). Reverse flush the element by directing the compressed air up and down the pleats in the filter media from the "clean side" of the element. Continue reverse flushing until all dust is removed. Should any fluid or greasy dirt remain on the filter surface, the element should then be replaced. When the element is satisfactorily cleaned, inspect thoroughly prior to installation (see Element Inspection).

ELEMENT INSPECTION

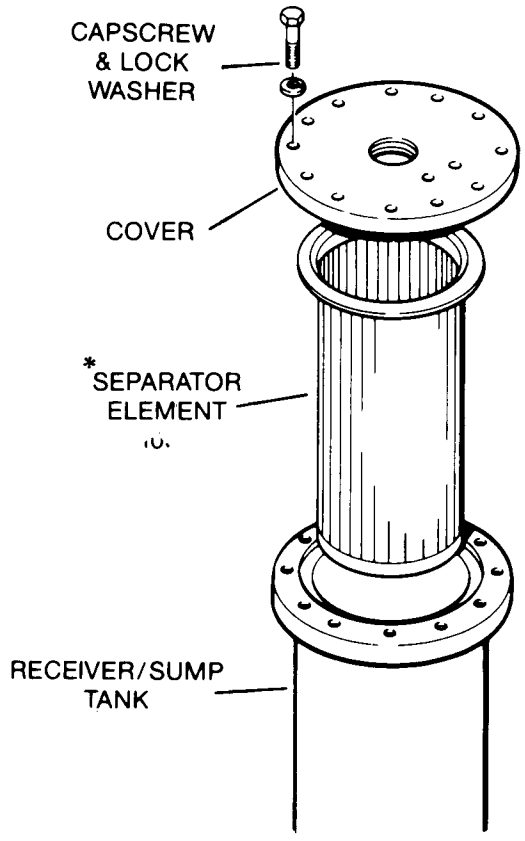
1. Place a bright light inside the element to inspect for damage or leak holes. Concentrated light will shine through the element and disclose any holes.
2. Inspect all gaskets and gasket contact surfaces of the housing. Should faulty gaskets be evident, correct the condition immediately.
3. If the clean element is to be stored for later use, it must be stored in a clean container.
4. After the element has been installed, inspect and tighten all air inlet connections prior to resuming operation.

SEPARATOR ELEMENT REPLACEMENT

Refer to Figure 5-3. When fluid carryover is evident after the fluid return line strainer and orifice as well as the blowdown valve diaphragm have been inspected and found to be in satisfactory condition, separator element replacement is necessary. Use element No. 410333, and follow the procedure explained below.

1. Remove all piping connected to the sump cover to allow removal (return line, service line, etc.).

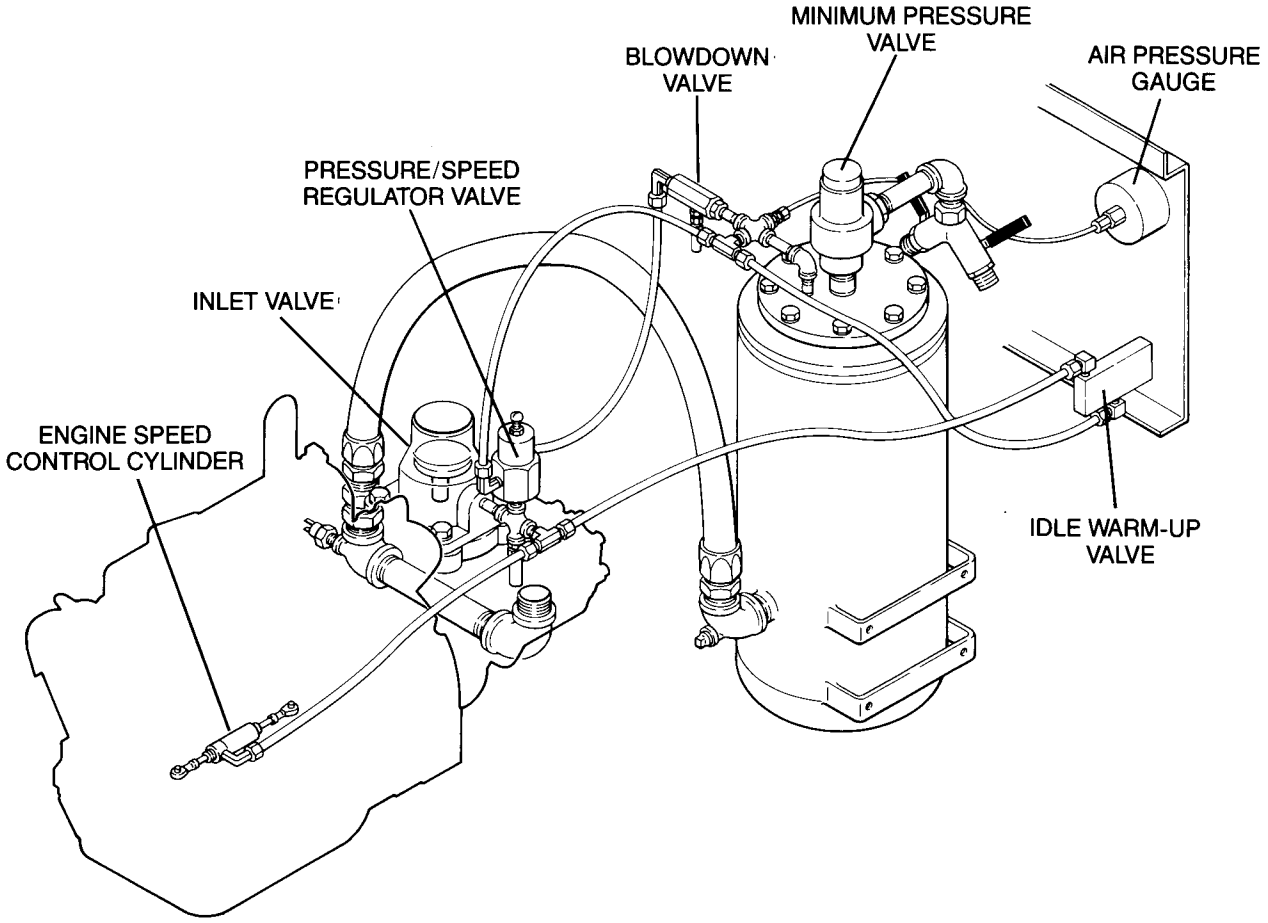
Figure 5-3 Air/Fluid Separator (P/N 410333)



*Replacement Kit P/N 410333

3. Remove the eight (8) cover bolts and lockwashers and lift the cover from the sump..
4. Remove the separator element.
5. Scrape the old gasket material from the cover and the flange on the sump. Be sure to keep all scrapings from falling inside tank.
6. Install the new element.
7. Replace the sump cover and bolts. Run the cover bolts in finger tight, then gradually tighten in a crisscross pattern in 4 to 5 steps. Always tighten the bolts alternately at opposite sides of the cover. Never tighten bolts adjacent to each other. Torque bolts to 100 to 120 ft./lbs. (136 to 163Nm).
8. Reconnect all piping. The fluid return line should extend to the bottom of the separator element. This will assure the proper fluid return flow.
9. Clean the fluid return line strainer and clear the orifice prior to restarting the compressor.

Figure 5-4 Control System Adjustment



PROCEDURE FOR SETTING SPEED AND PRESSURE CONTROLS ON PORTABLE COMPRESSORS WITH POPPET VALVE

Refer to Figure 5–4. Prior to adjusting the Control System, it is necessary to determine the rated full load pressure and the high low RPM settings for a particular compressor. This information can be obtained from the Operators Manual or by contacting your local authorized Sullair Representative. The following explanation apples to a compressor with 150 PSIG (1034kPa).

1. Start the compressor and allow the engine to warm-up to normal operating temperature with the service valve closed.
2. With the service valve closed, set the engine low speed (idle) to its specified setting with the idle stop screw on the engine pump.

NOTE

Operation at speeds below the minimum idles speeds will damage the compressor. Extended operation below those speeds will induce coupling and/or compressor failures.

3. Adjust the pressure regulator so the compressor maintains 150 PSIG (1034kPa).
4. Gradually open the service valve to atmosphere until the engine comes up in speed and sump pressure is held at 150 PSI (1034kPa). At this point, set the engine high speed to its specified setting by adjusting the threaded rod on the end of the engine speed control cylinder. To raise speed, lengthen the rod; to decrease speed, shorten the rod.
5. Open service valve to 150 PSI (1034kPa) the rated full load pressure and recheck top engine speed and control response. Close the service valve and allow the compressor to cycle and recheck low engine speed (idle).

OPERATING ADJUSTMENTS

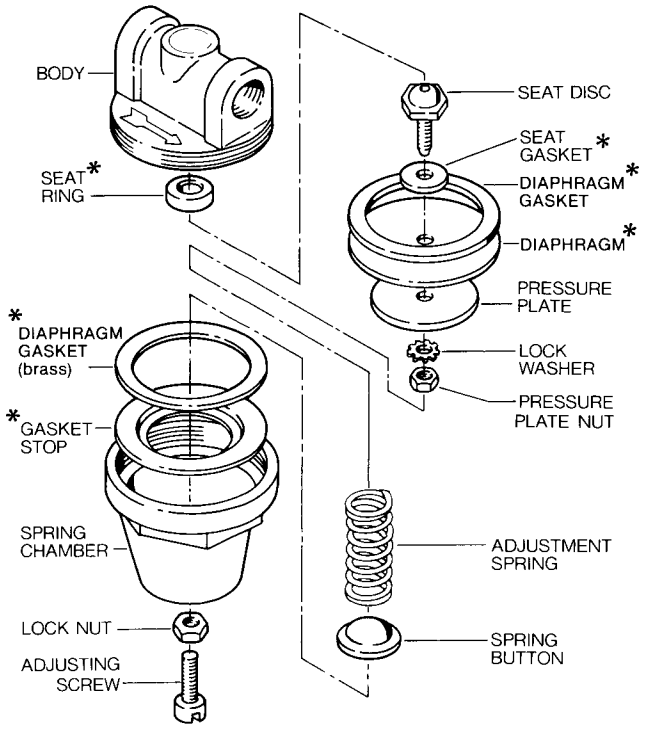
The first step is to start the compressor according to the instructions in Section 4, Subsequent Start-up. Allow the engine to operate until it reaches the normal operating temperature. Open the service valve until the engine speed increases to. or approximately to, the maximum specified operating speed.

PRESSURE REGULATOR VALVE MAINTENANCE

Refer to Figure 5–5. Pressure control regulator (P/N 041517) maintenance normally requires the replacement of the internal diaphragm. Use repair kit No. 041742 and follow the procedure below for proper installation

1. Loosen the locknut and turn the adjusting screw counterclockwise until the inner spring tension is relieved. The adjusting screw should turn freely when the spring tension is relieved.
2. Remove the spring chamber from the body to allow access to internal parts.
3. Next, remove the spring button and the spring.
4. After removing the spring, remove the gasket stop and brass gasket.
5. At this time, remove the pressure plate nut and disassemble the pressure plate, diaphragm, diaphragm gasket (rubberized asbestos), seat disc and seat gasket.
6. Remove and discard the seat ring.
7. The next step is to reassemble the regulator using the new parts provided in the repair kit.
8. Reassemble the diaphragm, pressure plate, gasket, seat disc and seat disc gasket. Tighten the nut. All of these parts with the exception of the pressure plate are provided in the repair kit.
9. Replace the old seat ring with the new seat ring provided.
10. Replace the existing brass gasket and diaphragm gasket stop.
11. Next, place these parts in their proper place on the body and replace the spring as it was prior to disassembly.

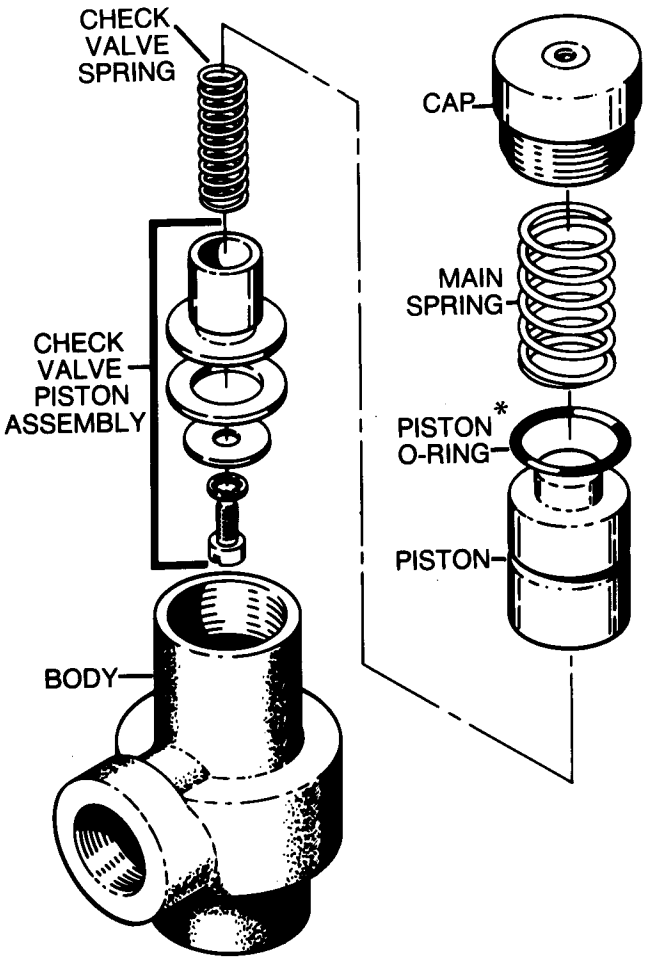
Figure 5–5 Pressure Regulator Valve (P/N 041517)



* Repair Kit P/N 041742

Section 5
MAINTENANCE

Figure 5-6 Minimum Pressure/Check Valve (P/N 241581)



* Repair Kit P/N 001177

12. Place the spring button over the spring as shown.
13. With all parts in order, replace the spring chamber and tighten.
14. Tighten the adjusting screw until the tension is realized.
15. At this time, refer to the Control System Adjustment procedure and readjust the low pressure control regulator.

MINIMUM PRESSURE/CHECK VALVE MAINTENANCE

Refer to Figure 5-6. Minimum pressure/check valve (P/N 241581) maintenance is quite minimal. The only part which normally requires replacement is the seal ring on the piston. Order seal repair kit No. 001177 and follow the procedure below for proper installation.

⚠WARNING

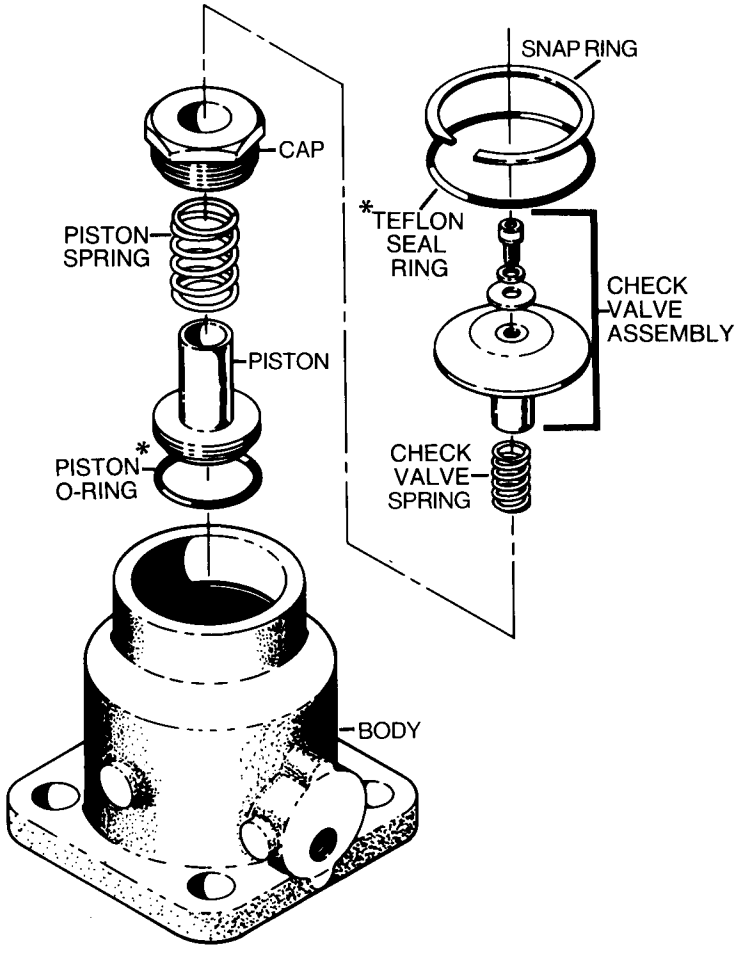
Before performing maintenance on the valve, be sure that all pressure has been relieved in the compressor sump, and all downstream pressure has been vented to the atmosphere. Also be sure that the components of the compressor are cool to the touch.

1. Remove compressor piping connected to the valve and remove the valve from receiver cover.
2. The minimum pressure/check valve cap is secured to the body with two (2) capscrews. Remove capscrews and cap using appropriate tools.

⚠WARNING

Extreme caution should be used when removing the capscrews and cap from the body because there is spring tension on the cap.

Figure 5-7 Inlet Valve (P/N 250017-279)



* Repair Kit P/N 250019-451

3. With cap removed, the main spring can be remove from the body.
4. Turn assembly over and press the piston/o-ring assembly out of the valve body.
5. Clean the valve body and reusable parts as needed.
6. Install new piston/o-ring on piston and lightly oil. Place piston in the valve body and install new piston spring.
7. Install valve body cap. Apply Loctite to valve body cap, capscrews and install. Torque to 22 to 28 ft./lbs. (30 to 38Nm).

INLET VALVE MAINTENANCE
Refer to Figure 5-7. The inlet valve (P/N 250017-279) maintenance usually requires the replacement of the piston spring, piston o-ring, seal ring, and check valve spring. Use repair kit No. 250019-451, and follow the procedure below for proper installation.

1. Remove all piping connected to inlet valve assembly.
2. Remove the four (4) capscrews and lockwashers that attach the valve body to the compressor unit and remove from compressor.
3. Remove snap ring and Teflon o-ring inside valve body.
4. Lift and remove check valve assembly and spring from valve body.
5. Remove piston cap, piston spring, and piston.
6. Clean valve body as needed, making sure all air passages are clear and old seal ring is removed from the inlet body flange.
7. The next step is to reassemble the inlet valve using the new parts supplied in the repair kit.
8. Install o-ring on piston, lightly oil piston, and install in valve body.
9. Install new piston spring and replace piston cap.
10. Place new check valve spring into piston and install check valve assembly.
11. Position new Teflon o-ring in valve body and install snap ring.
12. Clean compressor/inlet valve flanges, before installing new flange seal ring.

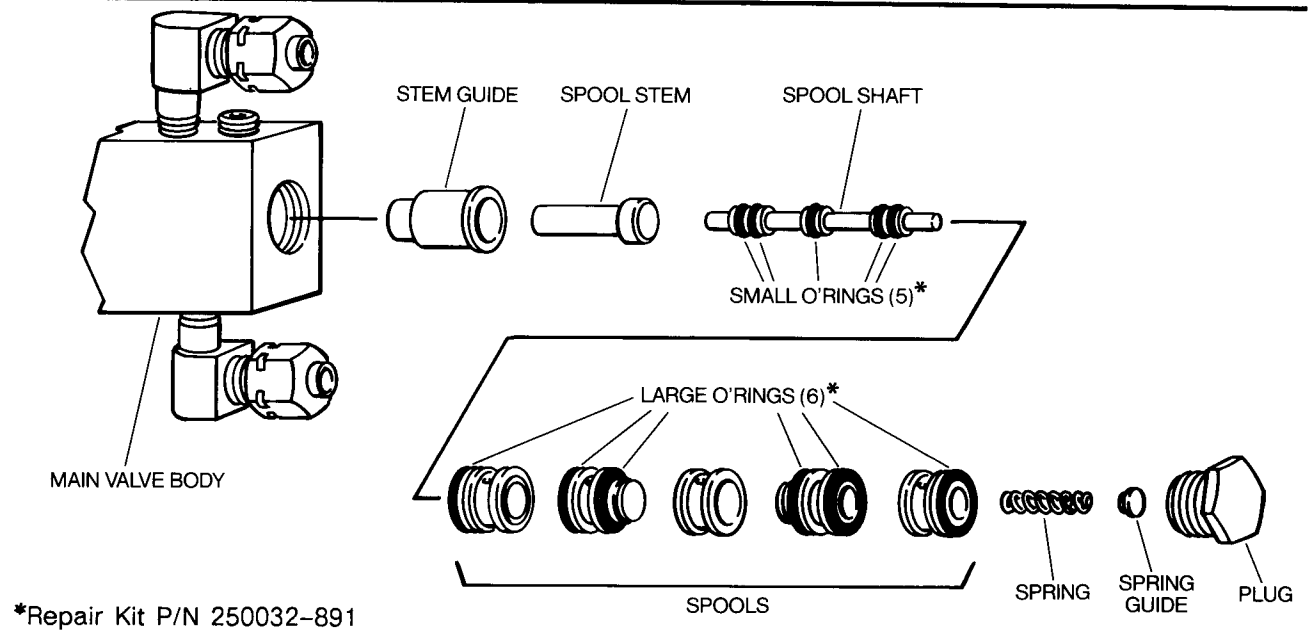
IDLE WARM-UP VALVE DISASSEMBLY AND ASSEMBLY PROCEDURES
Refer to Figure 5-8 and follow these instructions.

1. Remove tube connections and remove vavle from instrument panel.
2. Carefully remove plug, spring, spring guide, spool and spool assembly from main valve body.
3. Clean valve body and spool assembly is needed. All air passages must be clear.
4. Install spool assembly, with new o-rings, into the main valve body.
5. Position spring and spring guide onto spool shaft and install plug, (apply Locktite® to plug threads) and tighten.
6. Install assembled valve onto instrument panel. Connect and tighten tubing.

5.10 TROUBLESHOOTING

The information contained in the Troubleshooting chart has been compiled from field report data and factory experience. It contains symptoms and usual causes for the described problems, however **DO NOT** assume that these are the only problems that may occur. All available data concerning the trouble should be systematically ana-

Figure 5-8 Idle Warm-up Valve (P/N 250032-545)



*Repair Kit P/N 250032-891

Section 5
MAINTENANCE

lyzed before undertaking any repairs or component replacement procedures.

A detailed visual inspection is worth performing for almost all problems and may avoid unnecessary additional damage to the compressor.

- Check for loose wiring.
- Check for damaged piping.
- Check for parts damaged by head or an electrical short circuit, usually apparent by discoloration or a burnt order.

Should you problem persist after making the recommended check, consult you nearest Sullair representative or the Sullair Customer Service Division.

TROUBLESHOOTING

SYMPTOM	*PROBABLE CAUSE AND REMEDY*
1. Compressor will not start.	1. No fuel. a. Check fuel level and add fuel if necessary. b. Check fuel shut-off valve. 2. Plugged fuel filter. a. Replace the filter. 3. Low battery voltage. a. Recharge or replace if necessary. b. Loose battery cables; tighten cables. c. Dirty battery cables; clean thoroughly. 4. Plugged air filter. a. Clean or replace the element. 5. Engine problems may have developed. a. Refer to Engine Operators Manual. 6. Defective engine oil pressure switch. a. Check continuity flow and replace if necessary. 7. Blown fuse in wiring harness. a. Check continuity and replace if necessary.
2. Compressor shuts down with air demand present.	1. No fuel. a. Check fuel gauge and add fuel if necessary. 2. Compressor discharge temperature switch is open. a. Cooling air flow is insufficient; clean cooler and check for proper ventilation. b. Low fluid sump level; add fluid. c. Clogged fluid filter; change element. d. The temperature regulating section of the fluid control center is not functioning properly; change the thermostat element. e. Defective discharge temperature switch; check for a short or open circuit to the engine fuel rack solenoid. Should this check out normal, it would be possible that the temperature switch itself is defective. 3. Defective engine oil pressure switch. a. Check continuity and replace if necessary. 4. Blown fuse in wiring harness. a. Check continuity and replace if necessary.

TROUBLESHOOTING (continued)

SYMPTOM	*PROBABLE CAUSE AND REMEDY*
3. Compressor will not build up full discharge pressure.	1. Engage idle warm-up valve for full compresor operation. 2. Air demand is too great. 3. Dirty air filter. a. Check the filter indicator and change or clean element if required. 4. Pressure regulator out of adjustment. a. Adjust regulator according to control adjustment instructions in the Maintenance section. 5. Defective pressure regulator. a. Check diaphragm and replace if necessary (kit available). 6. Defective idle warm-up valve. a. Order kit or replace valve.
4. Improper unloading with an excessive pressure buildup causing pressure relief valve to open.	1. Pressure regulating valve is set too high a. Readjust. 2. Leak in control system causing loss of pressure signal. a. Check control lines. b. Defective pressure regulating valve; repair valve (kit available). 3. Inlet valve jammed. a. Free or replace valve. 4. Restriction in the control system. a. Check all control lines and components. Ice and other contaminants could cause restrictions. 5. Defective pressure relief opening at to low of pressure. a. Replace pressure relief valve.
5. Insufficient air delivery.	1. Engage idle warm-up valve for full compressor operation. 2. Plugged air filter. a. Clean or replace. 3. Plugged air/fluid separator. a. Replace separator element and also change compressor fluid and fluid filter at this time. 4. Defective pressure regulator. a. Adjust or repair. 5. Engine speed to low. a. Readjust engine speed. 6. Defective idle warm-up valve. a. Order kit or replace valve.

TROUBLESHOOTING (continued)

SYMPTOM	*PROBABLE CAUSE AND REMEDY*
6. Excessive compressor fluid consumption.	1. Clogged return line. a. Clean orifice and return line strainer. 2. Leak in lubrication system. a. Check all pipes, connections and components. 3. Separator element damaged or not functioning properly. a. Change separator element.
7. Compressor overheating.	1. Low sump fluid level. a. Fill. 2. Loose or broken fan belt. a. Tighten or change belt. 3. Dirty fluid cooler core. a. Clean core thoroughly. 4. Plugged compressor fluid filter. a. Change element. 5. Faulty thermostat. a. Change thermostat element. 6. Plugged fluid cooler tube (internal). a. Replace cooler.
8. Engine overheating.	1. Loose or broken fan belt. a. Tighten or change belt. 2. Dirty radiator core. a. Clean thoroughly. 3. Low water level. a. Refill. 4. Low fluid level. a. Refill. 5. Faulty water pump. a. Change pump. 6. Plugged radiator. a. Clean and flush thoroughly.

Section 6
NOISE CONTROL

6.1 NOISE EMISSIONS WARRANTY

Sullair Corporation warrants to the ultimate purchaser and each subsequent purchaser that this air compressor was designed, built and equipped to conform at the time of sale to the first retail purchaser, with all applicable U.S. E.P.A. noise control regulations.

This warranty is not limited to any particular part, component, or system of the air compressor. Defects in the design, assembly, or in any part, component, or system of the compressor which, at the time of sale to the first retail purchaser, caused noise emissions to exceed Federal standards are covered by this warranty for the life of the air compressor.

6.2 TAMPERING WITH NOISE CONTROL SYSTEM PROHIBITED

Federal Law prohibits the following acts or the causing thereof:

1. The removal or rendering inoperative by any persons, other than for purposes of maintenance, repair, or replacement, of any device or element of design incorporated into any new compressor for the purpose of noise control prior to its sale or delivery to the ultimate purchaser or while it is in use; or

2. The use of the compressor after such device or element of design has been removed or rendered inoperative by any person.

Among those acts included in the prohibition against tampering are the acts listed below:

1. Removal or rendering inoperative any of the following:

a. Engine exhaust system or parts thereof
b. Compressor air intake system or part thereof
c. Enclosure of part thereof

2. Removal of any of the following:

a. Vibration isolators
b. Control silencer
c. Floor panel
d. Fan shroud
e. Acoustical materials including fiberglass foam or foam tape

3. Operation with canopy doors open for any purpose other than starting, stopping, adjustment, repair, replacement of parts or maintenance.

6.3 NOISE EMISSIONS MAINTENANCE AND MAINTENANCE RECORD LOG

The following instructions and maintenance record log book, for the proper maintenance, use and repair of this compressor, is intended to prevent noise emission degradation (refer to Figure 6-1).

Figure 6-1 Noise Emission Maintenance and Maintenance Record Log

1. ANNUAL MUFFLER AND EXHAUST SYSTEM INSPECTION

At least annually inspect muffler(s) and engine exhaust system to make sure all parts are securely mounted, that all joints and connections are tight, and that the muffler is in good condition. **DO NOT** operate compressor with defective exhaust system. Remove and replace any defective parts with part numbers indicated in the Parts List.

Maintenance Performed	
By	
Location	
Date	

Maintenance Performed	
By	
Location	
Date	

2. ANNUAL AIR FILTER(S) AND AIR INLET SYSTEM INSPECTION
In addition to the instructions in the Maintenance section of the Operators Manual, the air filter(s) and entire air inlet system should be inspected at least annually, to make sure all parts are securely mounted, that all joints and connections are tight, that there are no other leaks in the system, and that the filter element(s) are intact. **DO NOT** operate compressor with defective air inlet system. Remove and replace defective parts with part numbers indicated in the Parts List.

Maintenance Performed

By

Location

Date

Maintenance Performed

By

Location

Date

●●●●●●●●●●●●●●●

3. ANNUAL ENGINE VIBRATION MOUNT INSPECTION
At least annually inspect engine vibration mounts for security of attachment and to make sure the resilient parts are intact. **DO NOT** operate compressor with defective engine mounting system. Remove and replace defective parts with part numbers indicated in Parts List.

Maintenance Performed

By

Location

Date

Maintenance Performed

By

Location

Date

●●●●●●●●●●●●●●●

4. ANNUAL FRAME, CANOPY, AND PARTS INSPECTION
At least annually inspect frame, canopy and parts, for security of attachment to make sure there are no missing members, and to make sure there are no badly deformed members, including all hinged doors and covers and their fastening devices. **DO NOT** operate compressor with defective frame, canopy and parts. Remove and replace defective parts with part numbers indicated in Parts List.

Maintenance Performed

By

Location

Date

Maintenance Performed

By

Location

Date

●●●●●●●●●●●●●●●●

5. ANNUAL ACOUSTICAL MATERIALS INSPECTION
At least annually inspect all acoustical materials, if any, for security of attachment and to make sure not material is missing or damaged (refer to Parts List). Clean or replace, if necessary. **DO NOT** operate compressor with defective acoustical material. Remove and replace defective parts with part numbers indicated in the Parts List.

Maintenance Performed

By

Location

Date

Maintenance Performed

By

Location

Date

●●●●●●●●●●●●●●●●

Section 6

NOISE CONTROL

6. ANNUAL INSPECTIONS FOR PROPER OPERATION OF ALL SYSTEMS.
In additions to other instructions in the Operators Manuals, at least annually, operate compressor and inspect to make sure all systems are operating properly and that engine runs at rated speed and pressure. **DO NOT** operate malfunctioning or improperly adjusted compressor. Repair or adjust, per instructions in Operators Manual, as required.

Maintenance Performed
By
Location
Date

Maintenance Performed
By
Location
Date

Section 7
ILLUSTRATIONS AND PARTS LIST

7.1 PROCEDURE FOR ORDERING PARTS

Parts should be ordered from the nearest Sullair Representative or the Representative from whom the compressor was purchased. If for any reason parts cannot be obtained in this manner, contact the factory directly at the address below.

When ordering parts always indicate the **Serial Number** of the compressor. This can be obtained from the Serial Number Plate located on the compressor or from the Bill of Lading for the compressor.

SULLAIR CORPORATION

Subsidiary of Sundstrand Corporation
3700 East Michigan Boulevard
Michigan City, Indiana 46360
Telephone: (219) 879-5451
Telex: 4946922

SULLAIR CORPORATION

Parts Distribution
1625 E. Second Street
Michigan City, Indiana 46360
Telephone: (219) 879-5451 or
1-800-348-2722 (U.S. except Indiana)
1-800-225-6226 (Indiana)
1-800-525-5506 (Canada)
Telex: 4320147
FAX: 1-219-874-1835

7.2 RECOMMENDED SPARE PARTS LIST

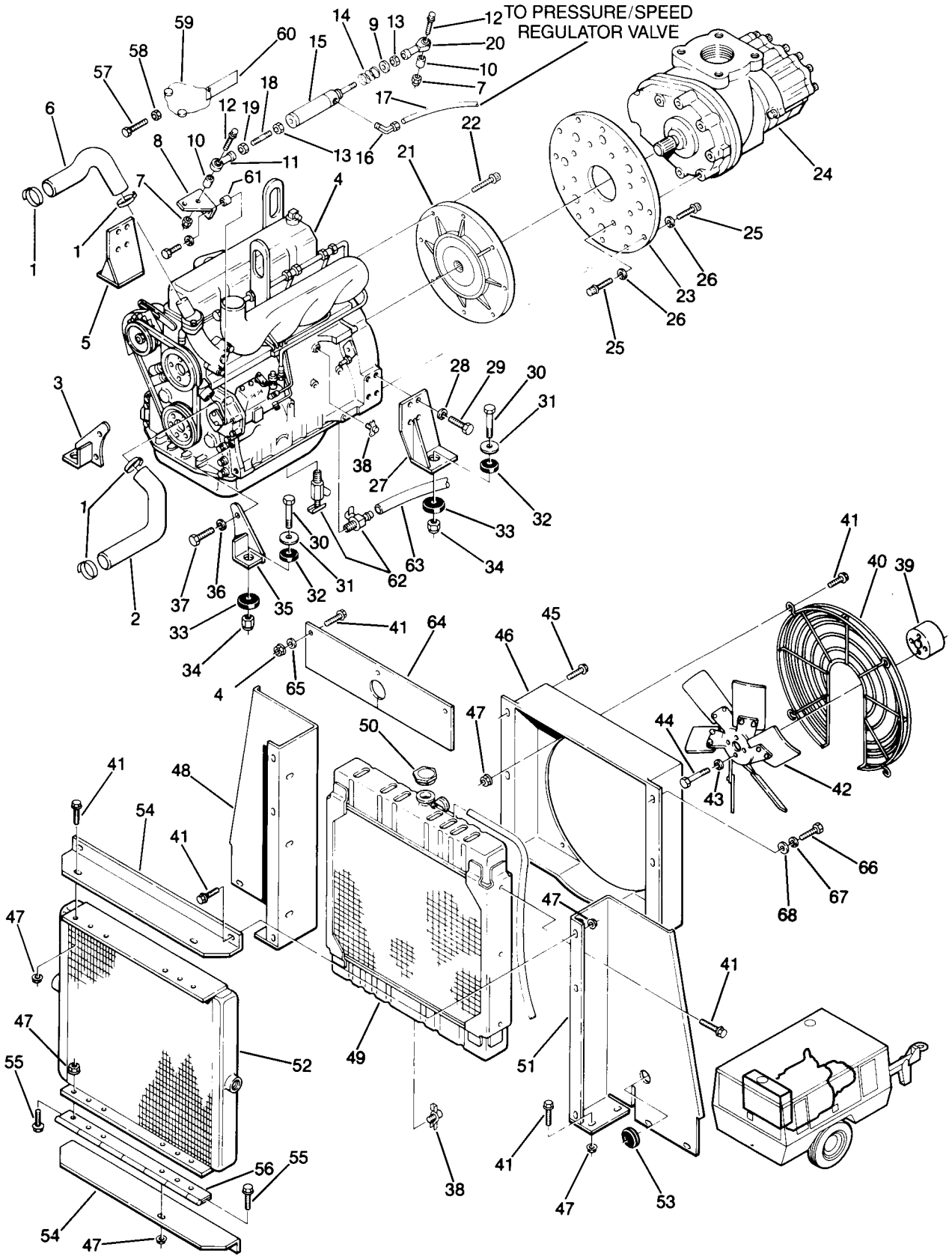
Description	*Assembly Part Number**	Kit Number	Quantity
element, air filter	250022-887	**250022-888**	**2**
element, main compressor filter	250025-520	**250025-524**	**1**
element, air/fluid separator	410333	**410333**	**1**
repair kit, thermal valve	409193	**250017-340**	**1**
repair kit, pressure regulator valve	041517	**041742**	**1**
repair kit, inlet valve	250017-279	**250019-451**	**1**
repair kit, return line strainer	241771	**241772**	**1**
repair kit, minimum pressure/check valve	241581	**001177**	**1**
element, main fuel filter		**250016-002**	**1**
repair kit, idle warm-up valve	250032-545	**250032-891**	**1**
Sullair AWF (5 gallons)		**250030-757**	**1**
Sullair AWF (55 gallon drum)		**250030-758**	**1**

* Sullair complete assembly part number needs indicated repair kit number.

Section 7

ILLUSTRATIONS AND PARTS LIST

7.3 COMPRESSOR, ENGINE AND PARTS



7.3 COMPRESSOR, ENGINE AND PARTS

key number	*description*	*part number*	*quantity*
1	clamp, hose	040014	4
2	hose, radiator - lower	250004-127	1
3	bracket, front engine mount rh	250018-582	1
4	engine, John Deere	250020-725	1
5	bracket, rear engine mount rh	250020-310	1
6	hose, radiator - upper	250024-126	1
7	nut, hex locking ¼"-20	825504-145	2
8	bracket, speed cylinder	250020-332	1
9	washer, regulating ¼"	837204-071	2
10	spacer, speed cylinder mounting	250022-765	2
11	joint, ball ¼" rh	250011-597	1
12	capscrew, ferry head ¼"-20 x ¾"	828404-075	2
13	nut, hex jam ¼"-28	824604-164	2
14	spring, speed cylinder	250022-782	1
15	cylinder, speed	250021-405	1
16	elbow, ¼"c ⅛"npt	250018-429	1
17	tubing, nylon ¼"	250018-426	10
18	rod, threaded ¼"-28 x 2½"	250011-590	1
19	nut, hex jam ¼"-28 lh	824704-164	1
20	joint, ball ¼" lh	250011-578	1
21	coupling, assembly	250031-457	1
22	capscrew, ferry head ⅜"-16 x 1¼"	828406-125	8
23	adapter, flywheel	250019-804	1
24	compressor unit*	251260-001	1
25	capscrew, ferry head ⅜"-16 x 1"	828406-100	13
26	washer, springlock ⅜"	837506-094	16
27	bracket, rear engine mount lh	250020-311	1
28	washer, springlock ½"	837508-125	1
29	capscrew, hex head ½"-13 x 1" gr5	828608-100	8
30	capscrew, hex head ⅝"-11 x 3½" gr5	828610-350	4

(continued)

* There is an exchange program whereby a remanufactured compressor unit can be obtained from Sullair distributors or the factory at less cost than the owner could repair the unit. For information regarding the unit exchange program, contact your nearest Sullair representative or the Sullair Corporation.

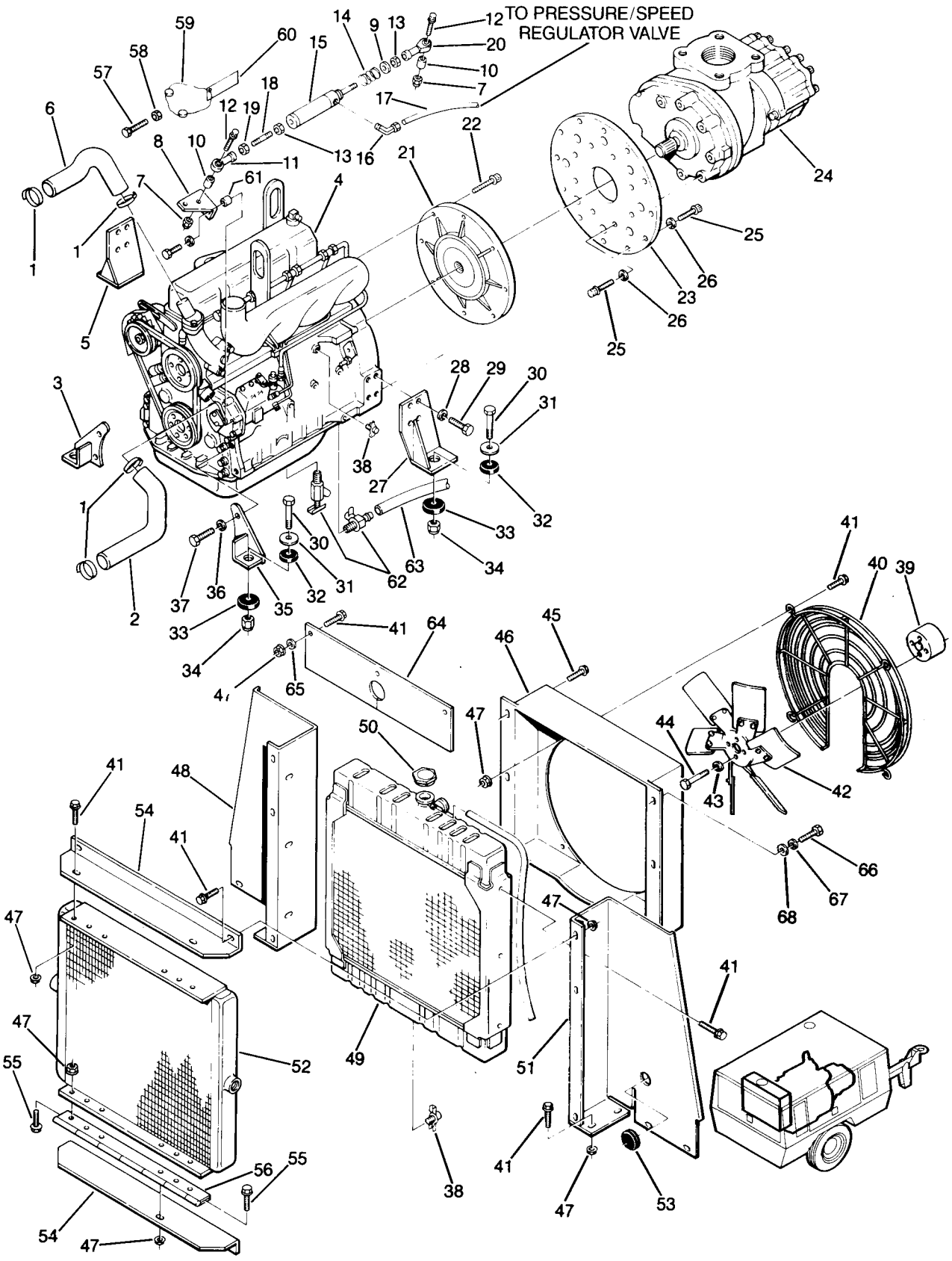
The shaft seal is not considered part of the compressor unit in regard to the 2 year warranty. The normal Sullair parts warranty applies. For shaft seal repairs, order shaft seal repair kit No. 001837-007. When ordering the shaft seal kit, please supply part number of the compressor unit.

WHEN ORDERING PARTS, INDICATE SERIAL NUMBER OF COMPRESSOR

Section 7

ILLUSTRATIONS AND PARTS LIST

7.3 COMPRESSOR, ENGINE AND PARTS

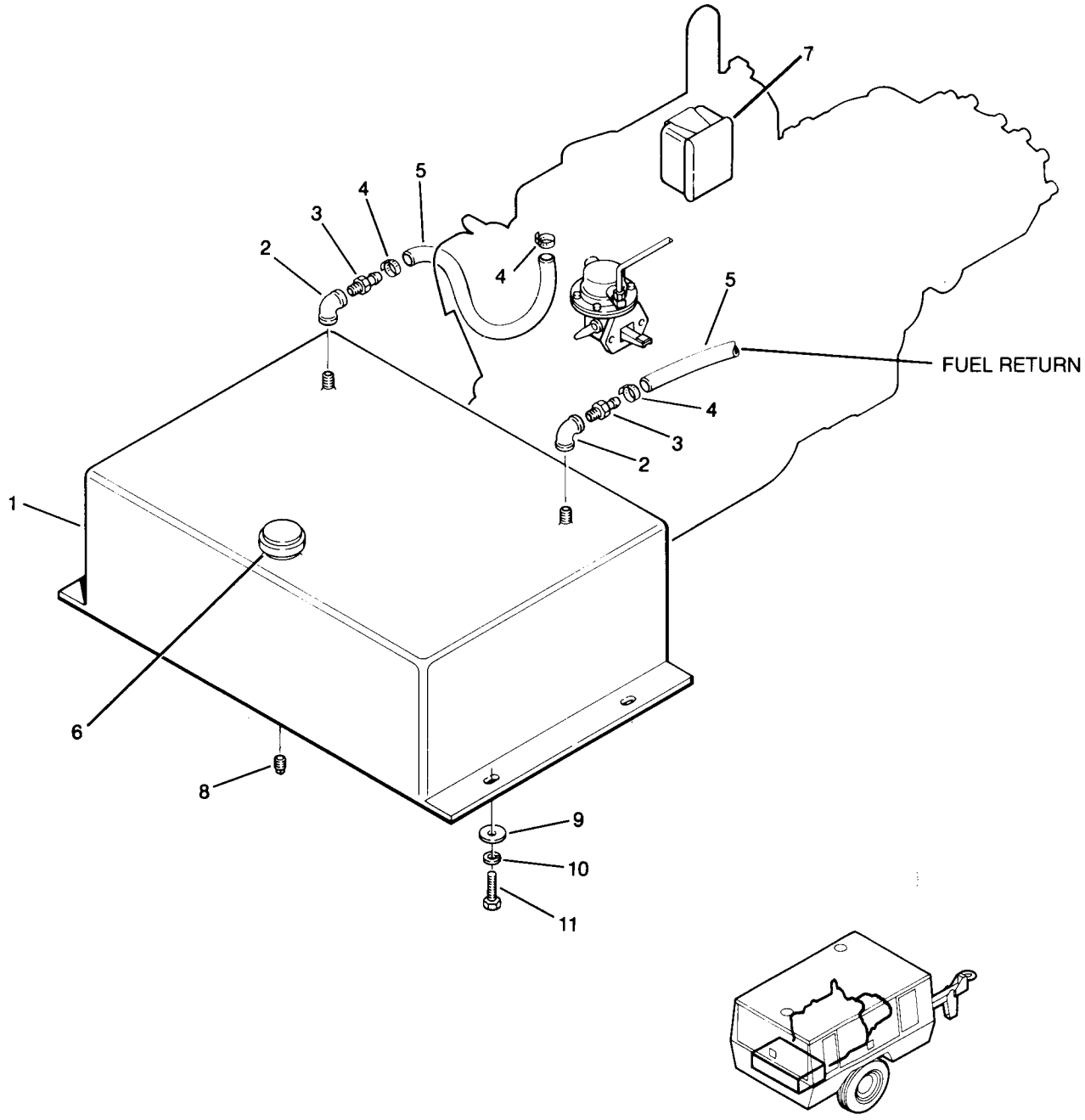


7.3 COMPRESSOR, ENGINE AND PARTS (continued)

key number	*description*	*part number*	*quantity*
31	washer, plain wide 5/8"	837310-174	8
32	mount, vibration	047628	4
33	mount, vibration	047630	4
34	nut, hex locking 5/8"-11	825510-329	4
35	bracket, front engine mount	250018-581	1
36	washer, springlock 5/8"	837210-100	4
37	capscrew, hex head 5/8"-11 x 1" gr8	828210-100	4
38	drainlock 1/4"	040061	1
39	spacer, fan	409984	1
40	guard, fan 20" x 2 3/4"	250003-882	1
41	screw, hex serrated washer 5/16" x 3/4"	829705-075	54
42	fan, suction	250005-178	1
43	washer, springlock 5/16"	837505-078	4
44	capscrew, ferry head 3/8"-16 x 1 1/2"	828406-150	4
45	screw, hex serrated washer 5/16" x 1/2"	829705-050	6
46	shroud, fan	250005-179	1
47	nut, hex flanged 5/16"-18	825305-283	18
48	baffle, rear - street side	250021-384	1
49	radiator	250003-676	1
50	cap, radiator	040140	1
51	baffle, rear - curb side	250021-383	1
52	cooler, oil	040866	1
53	grommet	250020-358	2
54	angle, cooler mounting	250002-633	2
55	capscrew, 5/16"x 3/4"	829705-075	12
56	hinge, 3" x 22" x 1/4"	250009-470	1
57	screw, machine hex head #10-32 x 1.5	250027-621	1
58	nut, hex locking plated #10-24	825502-083	1
59	wire, seal wiith lead disc	250026-962	1
60	tag, RPM warranty void	250025-437	1
61	spacer, speed cylinder bracket	250024-764	1
62	valve, drain m1/2"-14npt	250022-666	1
63	hose, heater 5/8" (ft.)	842115-062	2
64	baffle, top radiator - rubber	250028-453	1
65	capscrew, hex head 1/4"-20 x 3/4"	829404-075	6
66	capscrew, springlock 1/4"	837804-062	6
67	washer, springlock 1/4"	837804-062	6
68	washer, regulating 1/4"	837204-071	6

Section 7
ILLUSTRATIONS AND PARTS LIST

7.4 FUEL SYSTEM



7.4 FUEL SYSTEM

key number	*description*	*part number*	*quantity*
1	tank, fuel 24 gallon	250020-728	1
2	elbow, pipe ¼" 90°	801515-010	2
3	connector, hose ¼"	043258	1
4	clamp, hose ⅜"	047235	2
5	hose, fuel line 5/16" (ft.)	842315-031	5
6	cap, fuel filter*	250006-063	1
7	element, fuel filter*	250016-002	1
8	plug, pipe ¼"	807800-010	1
9	washer, regulating ½"	837208-112	9
10	washer, springlock ½"	837508-125	9
11	capscrew, hex head ½"-13 x 1¼" gr8	828208-125	8

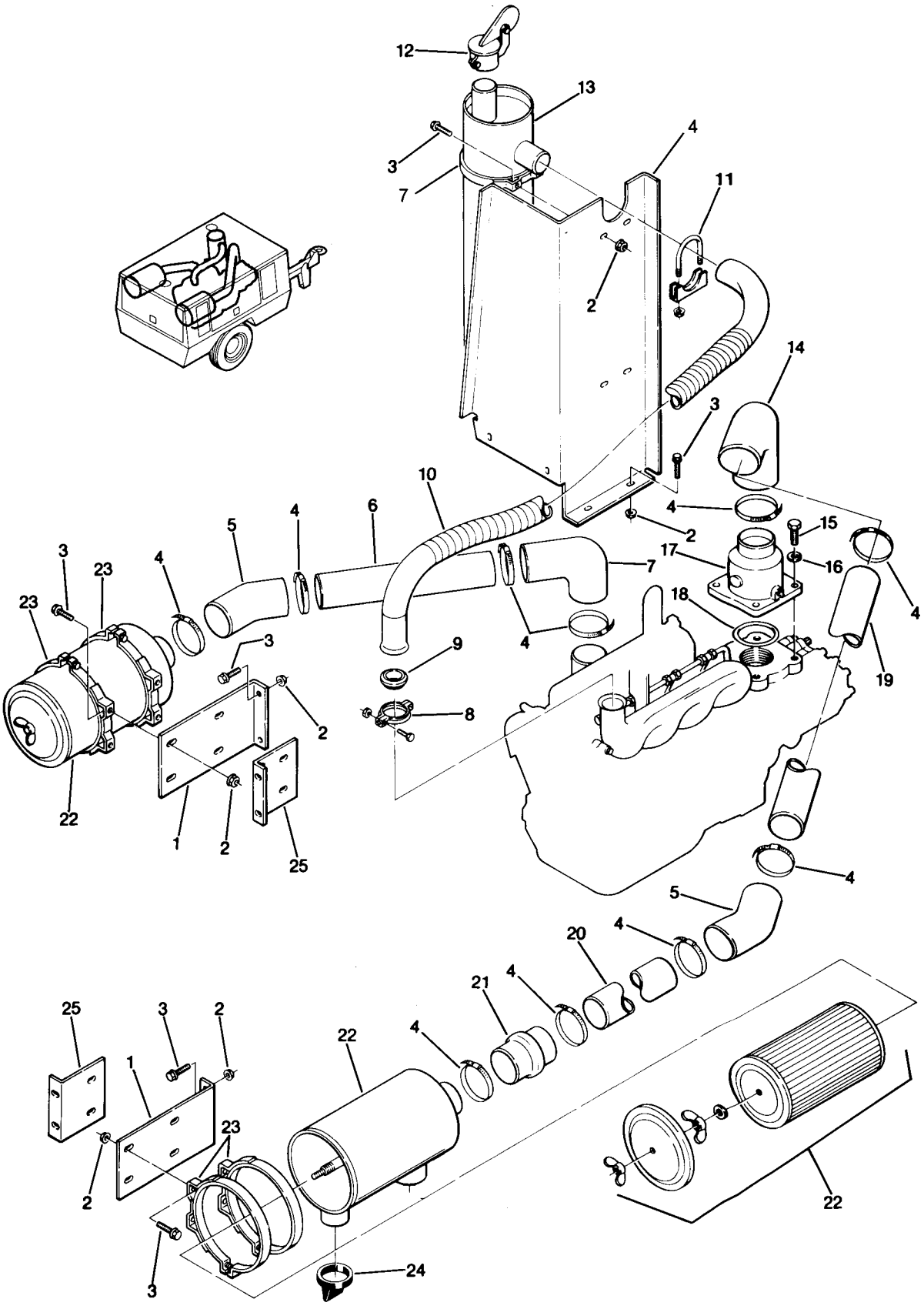
* For cap with built-in fuel gauge, order part number 250022-951 .

WHEN ORDERING PARTS, INDICATE SERIAL NUMBER OF COMPRESSOR

Section 7

ILLUSTRATIONS AND PARTS LIST

7.5 AIR INLET EXHAUST SYSTEM



7.5 AIR INLET EXHAUST SYSTEM

key number	*description*	*part number*	*quantity*
1	bracket, filter mounting	250026-241	2
2	nut, hex flanged 5/16"-18	825305-283	45
3	screw, hex serrated washer 5/16" x 3/4"	829705-075	54
4	panel, muffler	250021-385	1
5	elbow, rubber 3" 45°	041960	2
6	duct, steel 3" x 14"	250005-954	1
7	band, mounting	043370	2
8	clamp, exhaust	046780	2
9	gasket, exhaust	046781	1
10	tube, flex exhaust	250020-548	1
11	clamp, exhaust 2½"	250004-198	1
12	raincap	045344	1
13	muffler, exhaust	250020-726	1
14	elbow, rubber reducing 3" x 2½" 90°	250003-840	1
15	capscrew, ferry head 5/16"-18 x 2¼"	828405-225	4
16	washer, springlock 5/8"	837510-156	4
17	valve, air inlet*	250017-279	1
18	o-ring, 3½" x 1/8"	826202-238	1
19	duct, steel 3" x 20"	250005-954	1
20	duct, steel 3" x 24"	250005-372	1
21	hose, hump 3"	042121	1
22	filter, air 8"	250022-887	2
23	band, mounting 8"	040598	4
24	valve, unload air filter	250024-144	2
25	bracket,	250026-242	2

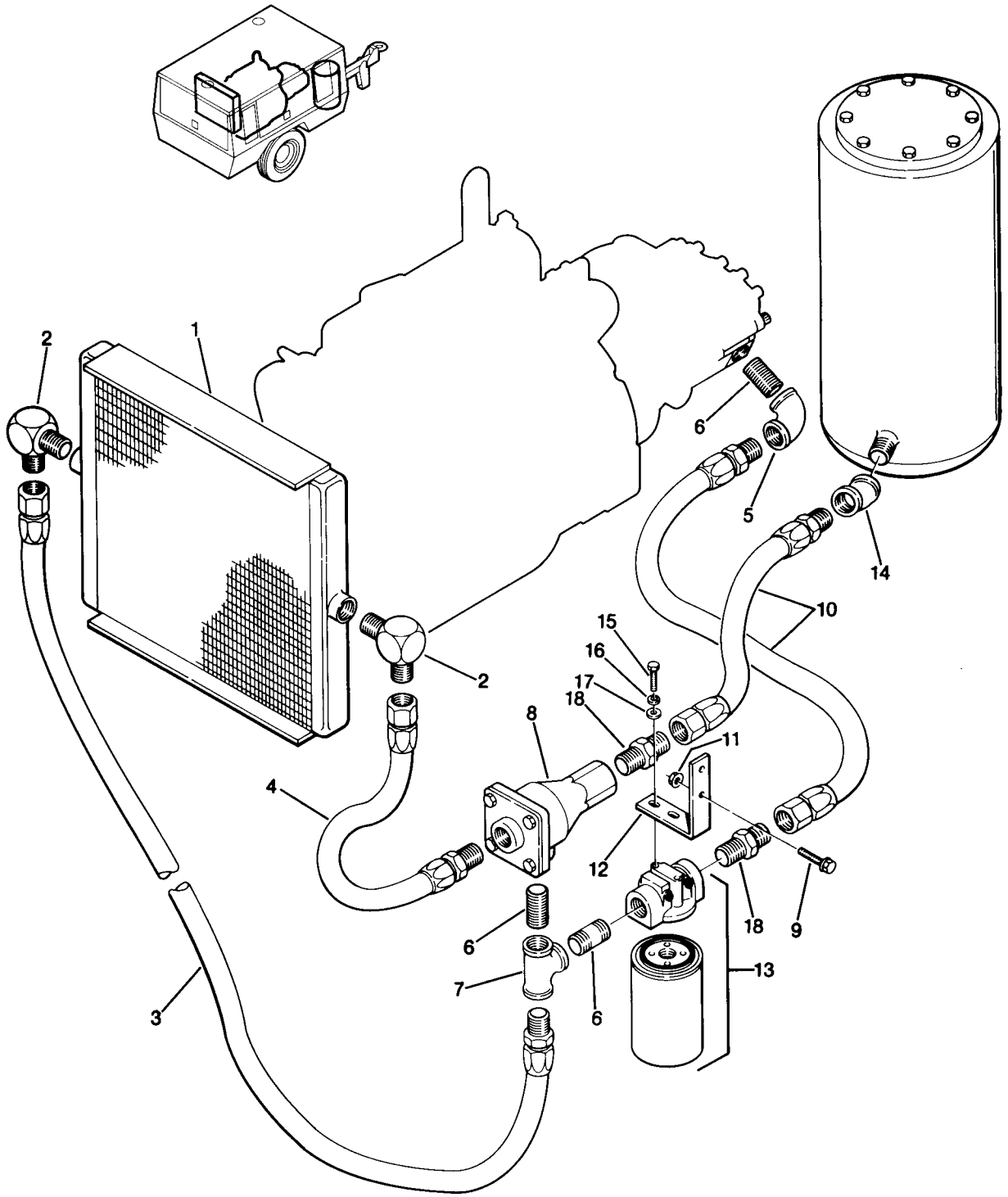
* For maintenance on air inlet valve No. 250017-279, order repair kit No. 250019-451.

** For maintenance on air filter No. 250022-887, order element kit No. 250022-888.

WHEN ORDERING PARTS, INDICATE SERIAL NUMBER OF COMPRESSOR

Section 7
ILLUSTRATIONS AND PARTS LIST

7.6 COMPRESSOR COOLING AND LUBRICATION



7.6 COMPRESSOR COOLING AND LUBRICATION

key number	*description*	*part number*	*quantity*
1	cooler, fluid	040866	1
2	elbow, male ¾" x 1" 90°	860212–100	2
3	hose, medium pressure 72"	249612–013	1
4	hose, medium pressure 40"	249612–022	1
5	elbow, pipe ¾" 90°	801515–030	2
6	nipple, pipe ¾" x close	822212–000	3
7	tee, pipe ¾"	802415–030	1
8	valve, thermal*	409193	1
9	screw, hex serrated washer ¼" x ¾"	829704–075	4
10	hose, hydraulic 30"	250020–338	2
11	nut, hex flange ¼"–20	825304–236	2
12	bracket, fluid filter	250018–632	1
13	filter, fluid	250025–520	1
14	elbow, pipe ¾" 45°	801415–030	1
15	capscrew ¼" x ¾"	829704–075	2
16	washer, springlock ¼"	837504–062	2
17	washer, regular flat ¼"	838204–071	2
18	connector, 37 foot npt ¾" x ¾"	860112–075	2

* For maintenance on thermal valve No. 409193, order repair kit No. 250017–340.

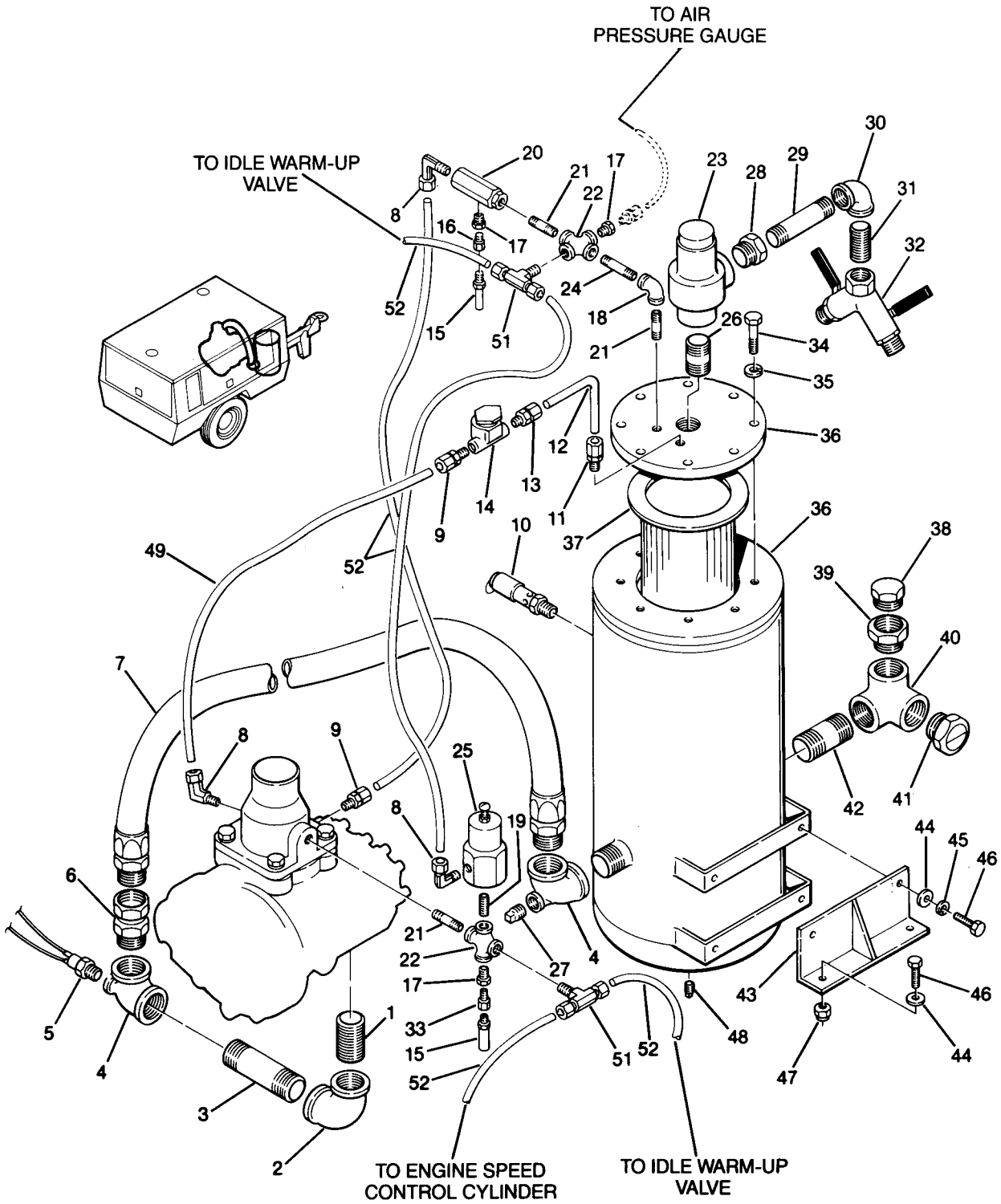
** For maintenance on fluid filter No. 250025–520, order repair kit No. 250025–524.

WHEN ORDERING PARTS, INDICATE SERIAL NUMBER OF COMPRESSOR

Section 7

ILLUSTRATIONS AND PARTS LIST

7.7 COMPRESSOR DISCHARGE SYSTEM



7.7 COMPRESSOR DISCHARGE SYSTEM (continued)

key number	*description*	*part number*	*quantity*
33	orifice, .062 x .125 x .125f	040127	1
34	capscrew, hex head ½"-13 x 1¼" gr8	828208-125	8
35	washer, springlock ½"	837508-125	8
36	receiver, air/fluid separator****	250015-641	1
37	element, separator	410333	1
38	plug, o-ring 1¼"	040029	1
39	adapter, filler	020044	1
40	elbow, side outlet 1½"	802615-060	1
41	glass, fluid level sight 1½"	040279	1
42	nipple, pipe 1½" x 3½"	822124-035	1
43	bracket, receiver mounting	250002-575	1
44	washer, regulating ⅜"	838206-071	4
45	washer, springlock ⅜"	837506-094	4
46	capscrew, hex head ⅜"-16 x 1¼" gr5	828606-125	4
47	nut, hex locking ⅜"-16	825506-198	2
48	plug, pipe ⅜"	807800-015	1
49	tubing, nylon ¼" (ft.)	250018-426	10
50	elbow, tube	250018-429	1
51	tee, male ¼" tube x ¼" npt	250028-582	2
52	tubing, nylon ¼" (ft.)	250030-039	6

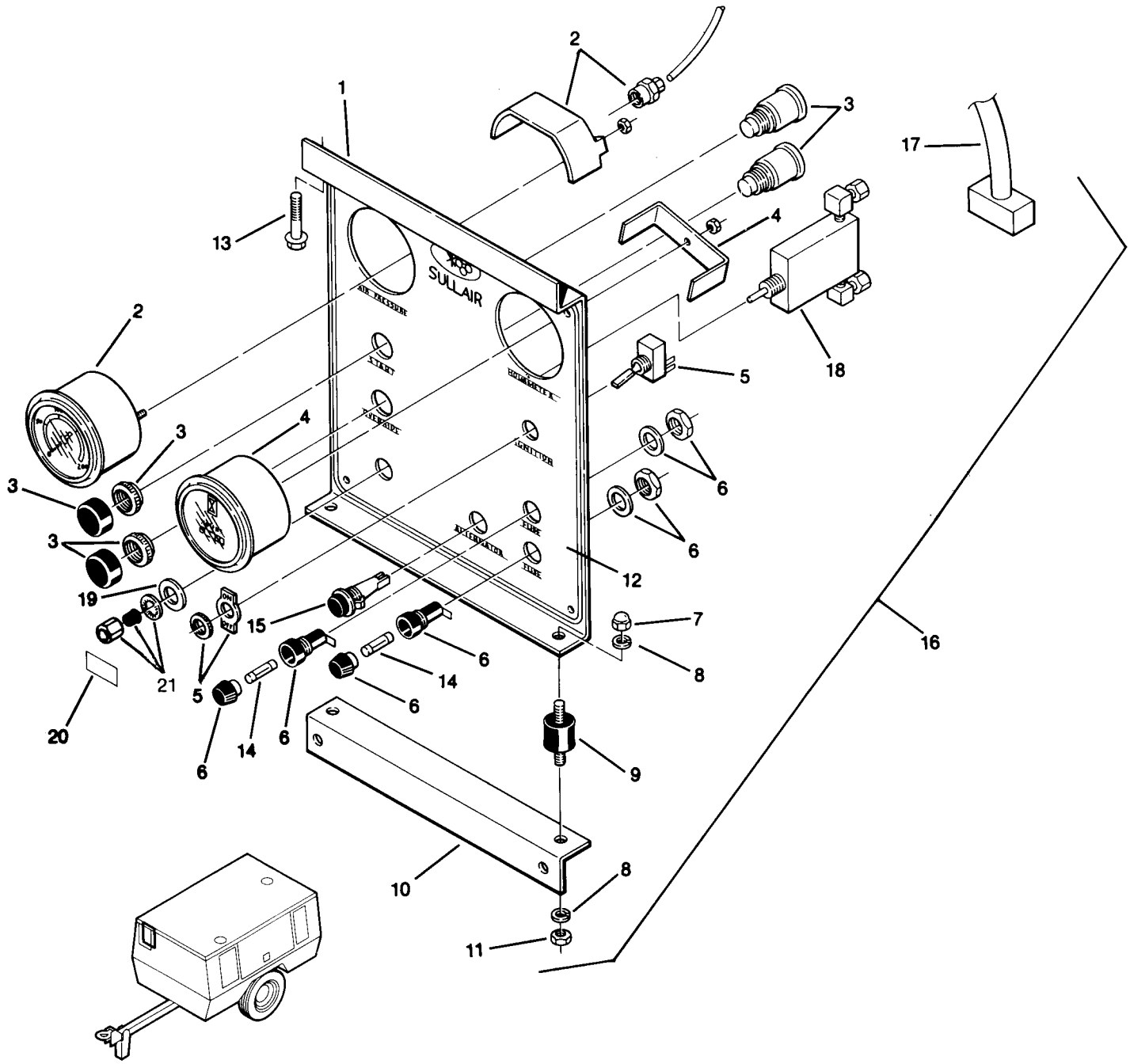
**** For maintenance on air/fluid separator No. 250015-641, order element kit No. 410333.

WHEN ORDERING PARTS, INDICATE SERIAL NUMBER OF COMPRESSOR

Section 7

ILLUSTRATIONS AND PARTS LIST

7.8 INSTRUMENT PANEL



7.8 INSTRUMENT PANEL

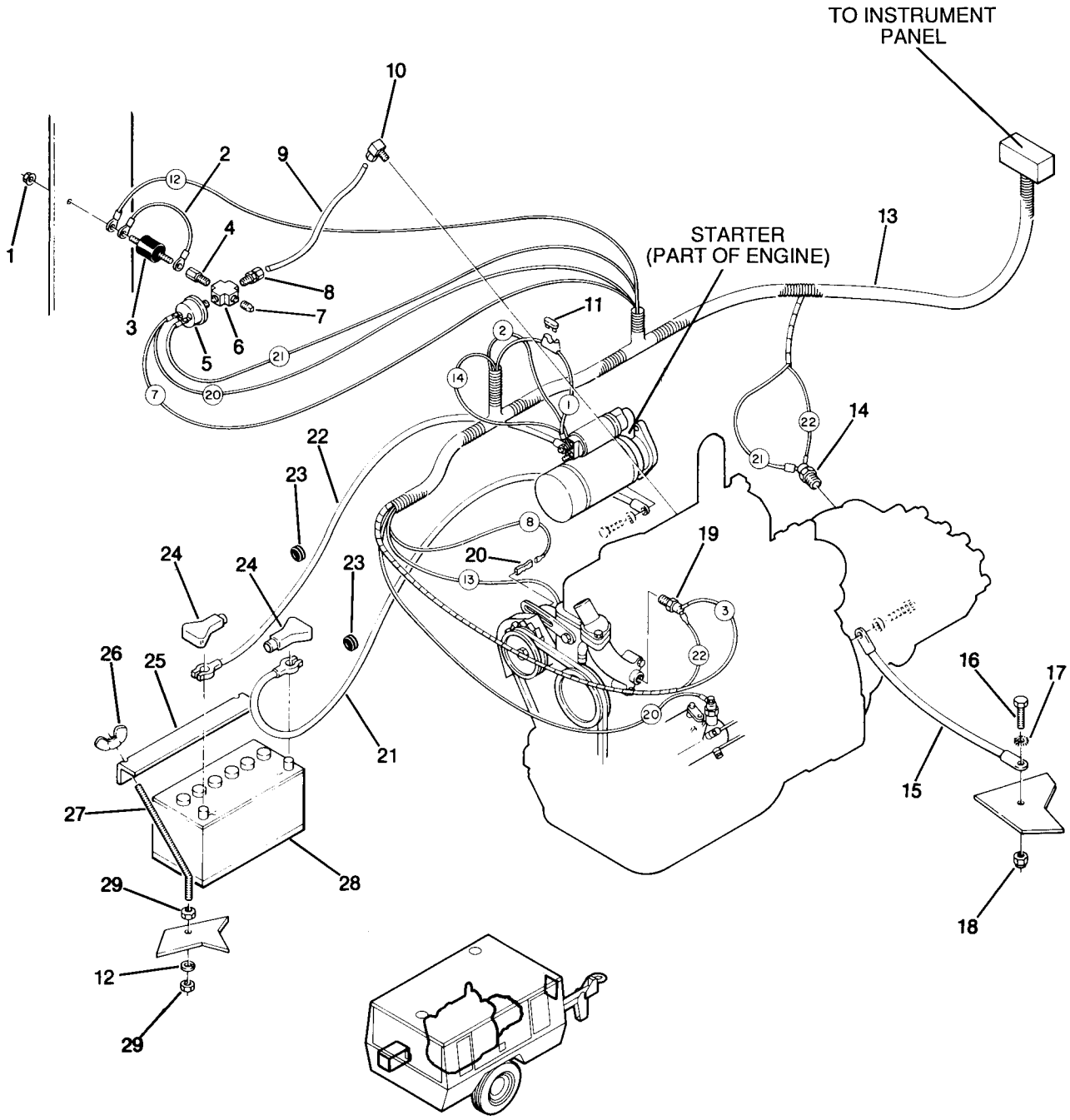
key number	*description*	*part number*	*quantity*
1	panel, instrument	250002-951	1
2	gauge, air pressure	250021-755	1
3	switch, start and override	040038	2
4	gauge, hourmeter	250006-773	1
5	switch, on-off ignition	250017-556	1
6	holder, fuse	041304	1
7	nut, acorn ¼"-20	825615-004	2
8	washer, springlock ¼"	838504-062	4
9	isolator, vibration	040091	2
10	support, panel	250002-953	1
11	nut, hex ¼"-20	825204-226	2
12	decal, instrument panel overlay	250021-353	1
13	screw, hex serrated washer 5/16" x ¾"	829705-075	2
14	fuse, 3ag	041305	1
15	lamp, warning indicator	250003-117	1
16	panel, instrument assembly	250025-454	1
17	harness, instrument panel	250024-661	1
18	valve, idle warm-up*	250032-545	1
19	washer, plated	250032-765	1
20	decal, warm/run button	250032-759	1
21	button, idle warm-up valve assembly	250033-176	1

* For maintenance on warm-up idle valve No. 250032-545, order repair kit No. 250032-891.

WHEN ORDERING PARTS, INDICATE SERIAL NUMBER OF COMPRESSOR

Section 7
ILLUSTRATIONS AND PARTS LIST

7.9 ELECTRICAL SYSTEM



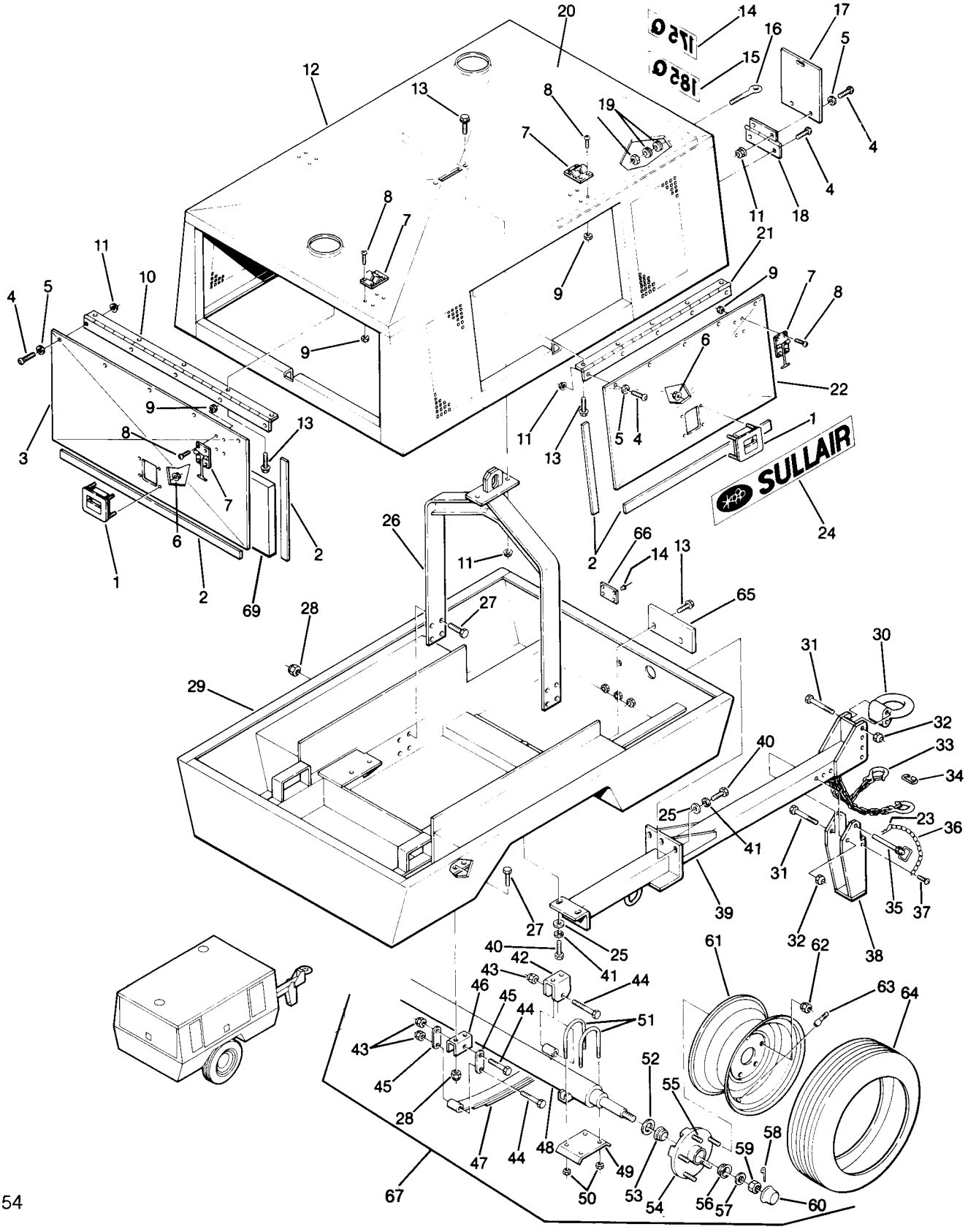
7.9 ELECTRICAL SYSTEM

key number	*description*	*part number*	*quantity*
1	nut, hex locking plated ¼"–20	825504–145	1
2	wire, jumper 12 ga x 4¼" ring	250018–112	1
3	isolator, vibration	040091	1
4	adapter, .125NPT x .25–20 unc	250026–295	1
5	switch	040434	1
6	cross, female .125 npt	250026–298	1
7	plug, pipe	807800–005	1
8	connector, ⅛"p x ¼"t	250018–427	1
9	tube, nylon ¼" (ft.)	250018–426	2
10	elbow, 90° ⅛"p x ¼"t	250018–429	1
11	fuse	250023–996	1
12	washer, springlock ⅜"	837506–094	2
13	harness, wiring	250024–661	1
14	switch, temperature 240°nc	001104	1
15	cable, ground	250018–671	1
16	capscrew, ⅜" x 1"	828606–100	1
17	washer, star lock ⅜"	838406–040	1
18	nut, hex locking ⅜"	825506–198	1
19	switch, temperature	040653	1
20	diode	049146	1
21	cable, battery	250018–962	1
22	cable, battery	250023–024	1
23	grommet, rubber 1"	250023–395	2
24	boot, battery terminal	041561	2
25	angle, holddown battery	250019–104	1
26	nut, wing ⅜"–16	824815–006	2
27	rod, ⅜"–16 x 12"	020130	2
28	battery	250019–105	1
29	nut, hex ⅜"–16	824206–337	6

WHEN ORDERING PARTS, INDICATE SERIAL NUMBER OF COMPRESSOR

Section 7
ILLUSTRATIONS AND PARTS LIST

7.10 FRAME, CANOPY AND RUNNING GEAR



7.10 FRAME, CANOPY AND RUNNING GEAR

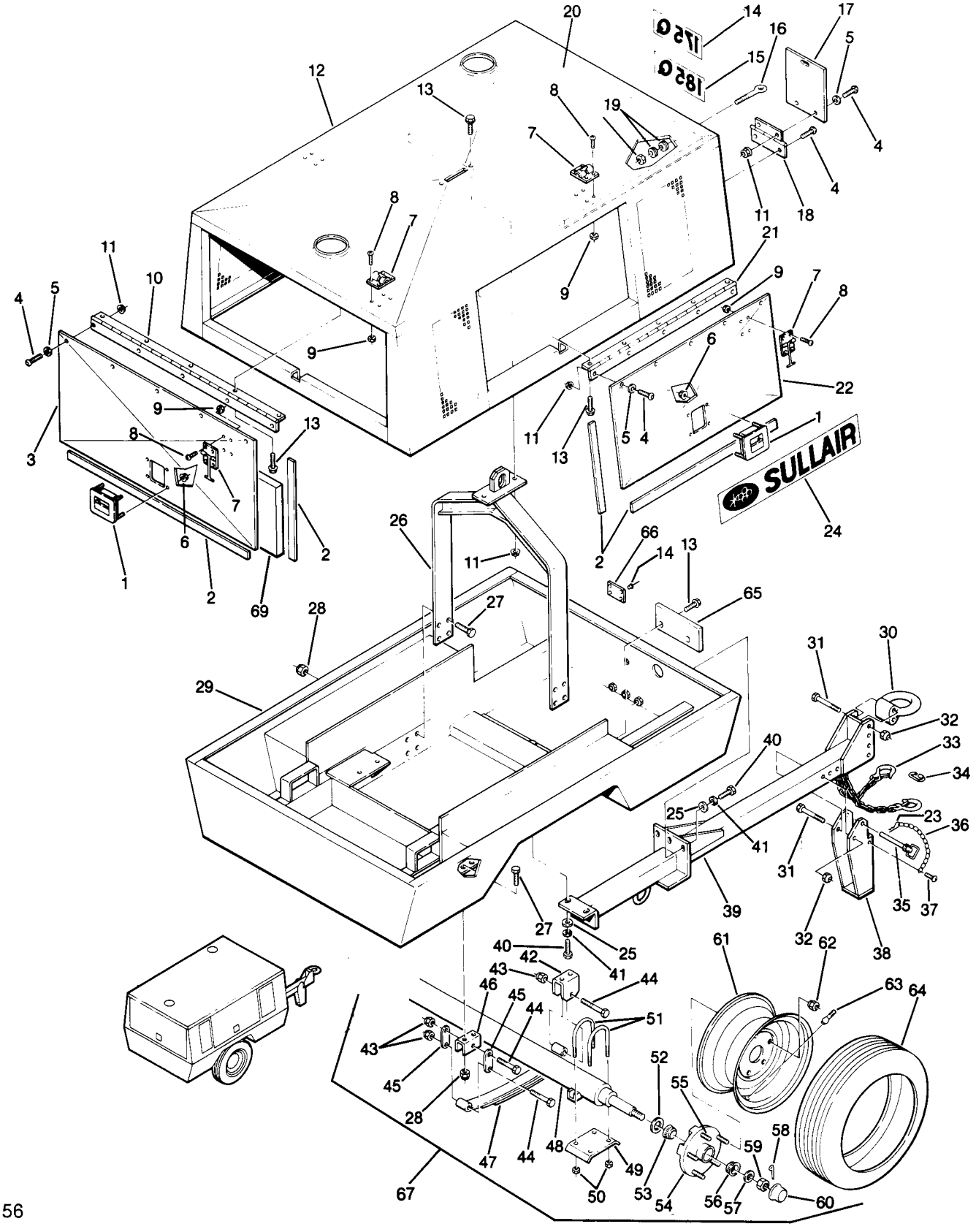
key number	description	part number	quantity
1	latch, slam pad lockable	250018-607	3
2	weatherstrip, 3/16" x 3/8" (ft.)	250022-436	18
3	door, canopy - rear	250029-755	1
4	capscrew, button head 5/16"-18 x 3/4"	250004-144	15
5	washer, nylon 5/16"	250011-537	15
6	nut, hex locking 5/16"-18	825505-166	12
7	hook, door latch	409801	3
8	screw, phillips head 10-24 x 1/2"	250018-600	24
9	nut, hex locking 10-24	825503-083	24
10	hinge, door - rear	250019-463	1
11	nut, hex flanged 5/16"-18	825305-283	18
12	canopy	250021-305	1
13	screw, hex ser washer 5/16" x 3/4"	829705-075	12
14	rivet, pop 1/8" x 3/8"	843102-038	4
15	decal, 185Q	250003-207	1
16	eyebolt, regulating 5/16"-18	839105-112	1
17	door, instrument panel	250003-293	1
18	hinge, instrument panel door	250003-294	1
19	grommet, rubber	040125	2
20	panel, fiberglass	242538-154	1
21	hinge, door side	250019-462	2
22	door, canopy	250028-338	2
23	pin, hair	250022-859	1
24	decal, "Sullair" logo	250003-206	3
25	washer, regular flat 1/2"	838308-112	5
26	bail, lifting	250027-089	1
27	capscrew, hex head 1/2"-13 x 1 1/4" gr8	828208-262	8
28	nut, hex locking 1/2"-13	825508-125	8
29	frame, assembly	250019-564	1
30	eye, 3" lunette	250002-221	1
31	capscrew, hex head 5/8"-11 x 4 3/4" gr8	828210-475	2
32	nut, hex locking 5/8"-11	825510-329	2
33	chain, w/hook 3/8" x 71"	250018-492	1
34	link, quick 5/16"	250017-836	1
35	pin,	250017-918	1
36	chain, sash	242780	1

(continued)

Section 7

ILLUSTRATIONS AND PARTS LIST

7.10 FRAME, CANOPY AND RUNNING GEAR



7.10 FRAME, CANOPY AND RUNNING GEAR (continued)

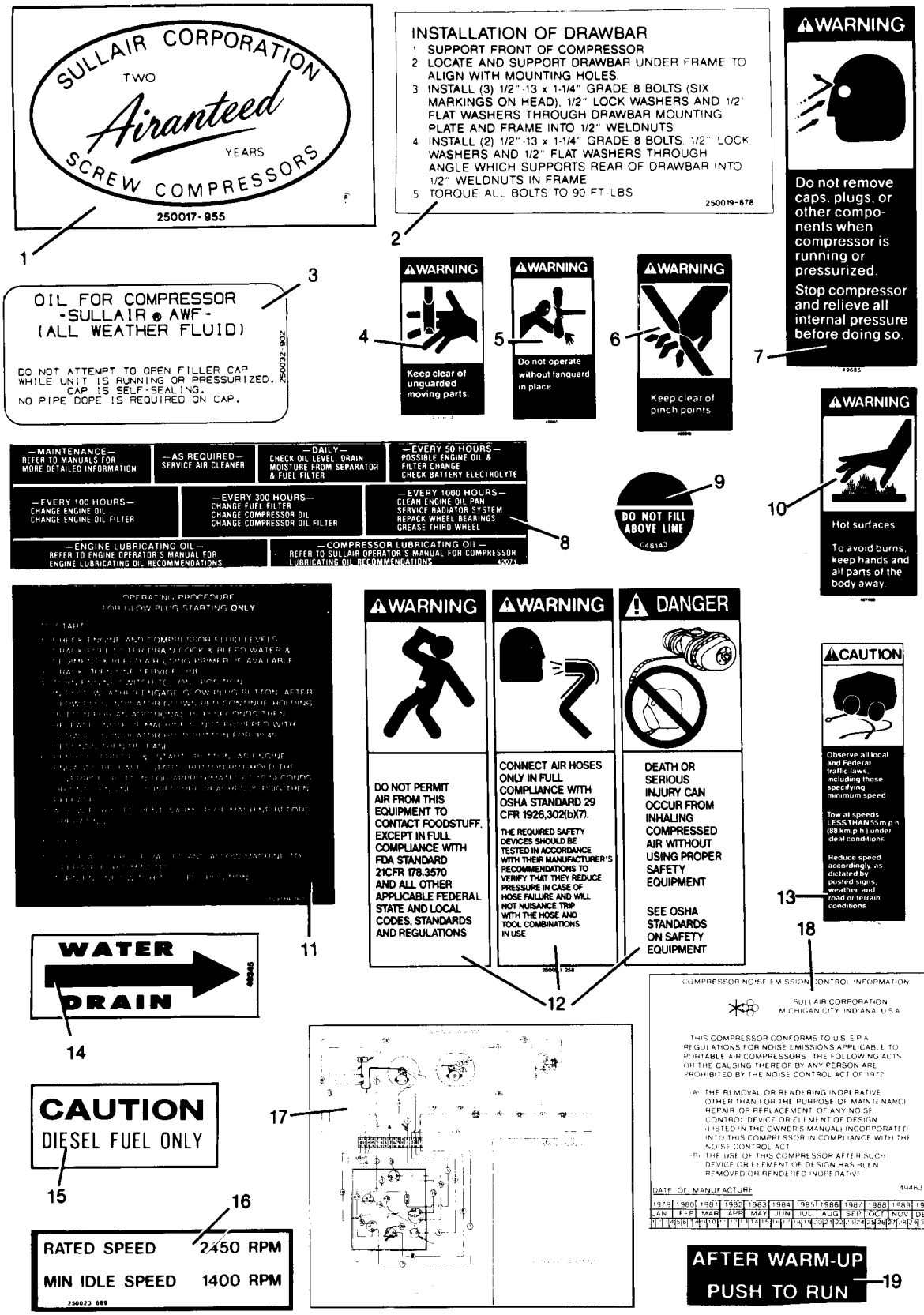
key number	*description*	*part number*	*quantity*
37	screw, drive rod #4 x 5/16"	839604-050	1
38	leg, drop drawbar	250018-284	1
39	drawbar, adjust hitch	250002-081	1
40	capscrew, hex head ½"-13 x 1½" gr8	828208-150	5
41	washer, springlock ½"	837508-125	5
42	bracket, spring hanger - front	250002-071	2
43	nut, shackle bolt	047886	6
44	bolt, shackle	047885	6
45	link side	242215	4
46	bracket, spring hanger - rear	250002-070	2
47	spring, underslung	250005-542	1
48	axle, beam	250030-573	1
49	plate, tie	045839	2
50	nut, u-bolt ½"-20	047881	8
51	u-bolt	242486	4
52	seal, grease	242037	2
53	bearing, inner 3500# axle	250023-467	2
54	hub, wheel 5" x 4½" cl	250023-469	2
55	stud, wheel ½"-20	250023-468	10
56	bearing, outer 3500# axle	250023-466	2
57	washer, spindle	047874	2
58	pin, cotter	047876	2
59	nut, spindle	047875	2
60	cap, grease	242045	2
62	nut, wheel ½"-20	250023-470	10
63	valve, rim	250003-394	2
64	tire, rubber	250002-218	2
65	panel, tool tray end	250022-889	1
66	nameplate, serial number	044052	1
67	axle, assembly	250020-727	1

WHEN ORDERING PARTS, INDICATE SERIAL NUMBER OF COMPRESSOR

Section 7

ILLUSTRATIONS AND PARTS LIST

7.11 DECAL GROUP



7.11 DECAL GROUP

key number	*description*	*part number*	*quantity*
1	decal, airanteed - white	043067	1
2	decal, installation of drawbar	250019-678	1
3	decal, Sullair AWF	250032-902	1
4	sign, warning sever belt drive	049964	1
5	sign, warning sever fan port	049965	2
6	decal, sign warning crush/sever	408919	1
7	decal, sign warning fluid fill cap	049685	1
8	decal, maintenance	042071	1
9	decal, receiver fluid fill level	048143	1
10	decal, sign warning hot surface	407408	2
11	decal, operating procedure	250018-787	1
12	decal, warning/danger 100/1600	250028-258	1
13	sign, caution towing 55MPH	250005-578	1
14	decal, water drain	040345	2
15	decal, diesel fuel	040248	2
16	decal, rated and idle speed	250023-931	1
17	decal, W.D. maintenance 185JD std	250026-104	1
18	decal, noise emission control	049463	1
19	decal, idle warm-up	250032-759	1

WHEN ORDERING PARTS, INDICATE SERIAL NUMBER OF COMPRESSOR

NOTES

WORLDWIDE SALES AND SERVICE

SULLAIR CORPORATION

A SUBSIDIARY OF SUNDSTRAND CORPORATION

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Printed in U.S.A. Effective 9/89

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