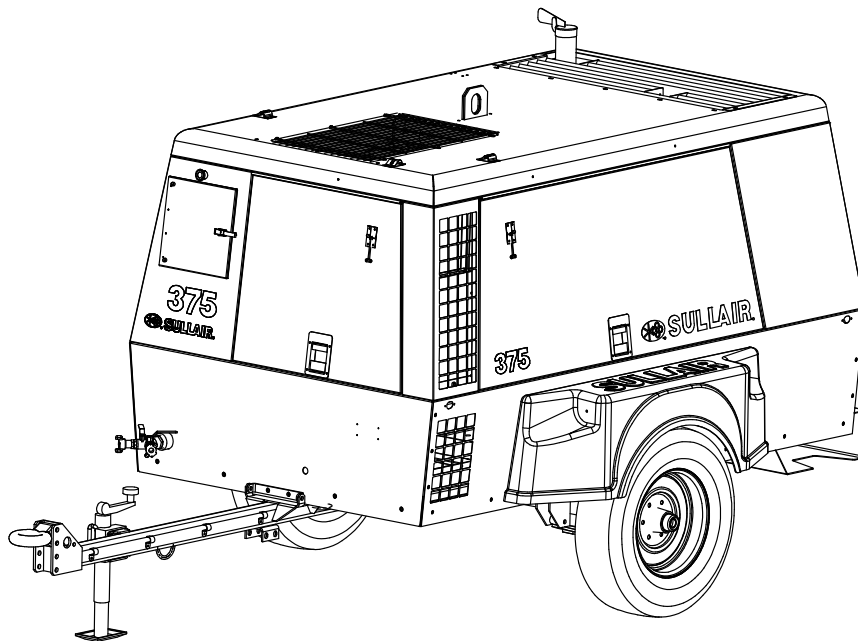




USER MANUAL

PORTABLE AIR COMPRESSOR 300HH, 375, 375H, 375HH, 425 AND 425H

JOHN DEERE STANDARD AND AFTERCOOLED AND FILTERED



WARRANTY NOTICE

Failure to follow the instructions
and procedures in this manual or,
misuse of this equipment will
VOID its warranty!

PART NUMBER:
02250184-068 R00

KEEP FOR
FUTURE
REFERENCE

©SULLAIR CORPORATION

The information in this manual is current
as of its publication date, and applies to
compressor **serial number:**

201205120000

and all subsequent serial numbers.



AIR CARE SEMINAR TRAINING

Sullair Air Care Seminars are courses that provide hands-on instruction for the proper operation, maintenance, and servicing of Sullair products. Individual seminars on portable compressors and compressor electrical systems are offered at regular intervals throughout the year at Sullair's corporate headquarters training facility located at Michigan City, Indiana.

Instruction includes training on the function and installation of Sullair service parts, troubleshooting common faults and malfunctions, and actual equipment operation. These seminars are recommended for maintenance, contractor maintenance, and service personnel.

For detailed course outlines, schedule, and cost information contact:

SULLAIR TRAINING DEPARTMENT

1-888-SULLAIR or
219-879-5451 (ext. 5623)
www.sullair.com
training@sullair.com

- Or Write -

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



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Section 1

SAFETY

NOTE



**OPERATOR IS REQUIRED TO READ
ENTIRE INSTRUCTION MANUAL.**

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. **Read the CIMA Safety Manual prior to compressor operation and towing, if applicable in your area.**

The air compressor should be operated only by those who have been trained and delegated to do so, and who have read and understood 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/or all pertinent Federal, State and Local codes or requirements.

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.

Inspect for torn, frayed, blistered or otherwise deteriorated and degraded hoses. Replace as required.



CAUTION

Estimated hose life based on a 5-day 8-hour work week is 3 years. These conditions exist on an 8-hour shift only. Any other operation of the equipment other than 8-hour shifts would shorten the hose life based on hours of operation.

1.2 TOWING (I)

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 Operator's Manual, and review its instructions and other requirements for safe towing.

(I) 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.

- A. 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.
- B. Back the tow vehicle to the compressor and position it in preparation for coupling the compressor.
- C. 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 with the jack to engage coupling device or otherwise couple the compressor to the towing vehicle.

WARNING

This equipment may be tongue heavy. DO NOT attempt to raise or lower the drawbar by hand if the weight is more than you can safely handle.

Use the screw jack provided or a chain fall if you cannot lift or lower it 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 hands.

- D. Make sure the coupling device is fully engaged, closed and locked.
- E. 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 the front of drawbar before passing them through points of attachment on towing vehicle to support the front of drawbar in case it should accidentally become uncoupled.
- F. 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.

- G. 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 cannot drag or rub on road, terrain or towing vehicle surfaces which might cause wear that could render them inoperative.

WARNING

This equipment may be tongue heavy. DO NOT attempt to raise or lower the drawbar by hand if the weight is more than you can safely handle.

CAUTION

Retract the front screw jack only after attaching the compressor to the tow vehicle. Raise the screw jack to its full up position and pull the pin connecting the jack to the drawbar. Rotate the screw jack to its stowed position, parallel to the drawbar, and reinsert the pin. Make sure the jack is secured in place prior to towing.

If a caster wheel is provided on the screw jack it is part of the screw jack and can not be removed. Follow the same procedure for stowing away the wheeled jack as you would for the standard screw jack. Pull the pin connecting the jack to the drawbar and raise the screw jack to its full up position. Rotate the screw jack to its stowed position, parallel to the drawbar, and reinsert the pin. Make sure the jack is secured in place prior to towing.

- H. On two-wheeled models, fully retract front screw jack and any rear stabilizer legs. If a caster wheel is provided on the screw jack it is part of the screw jack, and can not be removed. Follow the same procedure for stowing away the wheeled jack as you would for the standard screw jack. Pull the pin connecting the jack to the drawbar and raise the screw jack to its full upright position. Rotate the screw jack to its stowed position, parallel to the drawbar, and reinsert the pin. Make sure the jack is secured in place prior to towing.

SECTION 1

- I. 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 torques.
- J. 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.
- K. Make sure all service air hoses (not air brake hoses) are disconnected or are fully stowed and secured on hose reels, if provided.
- L. 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.
- M. Make sure parking brakes in towing vehicle are set, or that its wheels are chocked or blocked, or that it is otherwise restrained from moving. Then, release the compressor parking brakes, if provided.
- N. Make sure the compressor wheels are not chocked or blocked, and that all tie-downs, if any, are free.
- O. Test running brake operation, including break-away switch operation if provided, before attempting to tow the compressor at its rated speed or less when conditions prevail.
- P. **DO NOT** carry loose or inappropriate tools, equipment or supplies on or in the compressor.
- Q. **DO NOT** load this equipment with accessories or tools such that it is unbalanced from side to side or front to back. Such unbalance will reduce the towability of this equipment and may increase the possibility of tipping, rolling over, jackknifing, etc. Loss of control of the towing vehicle may result.

TOWING

- A. Observe all Federal, State, and Local laws while towing this equipment (including those specifying minimum speed).
- B. **DO NOT** exceed the towing speeds listed below under ideal conditions. Reduce your speed

according to posted speed limits, weather, traffic, road or terrain conditions:

1. Two axle four-wheel or three axle six-wheel steerable models: 15 MPH (24 km/h).
 2. All other models: 55 MPH (88 km/h).
- C. Remember that the portable air compressor may approach or exceed the weight of the towing vehicle. Maintain increased stopping distances accordingly. **DO NOT** make sudden lane changes, U-turns or other maneuvers. Such maneuvers can cause the compressor to tip, roll over, jackknife or slide and cause loss of control of the towing vehicle. Tipping, rolling over, etc. can occur suddenly without warning. U-turns especially should be made slowly and carefully.
 - D. Avoid grades in excess of 15° (27%).
 - E. Avoid potholes, rocks and other obstructions, and soft shoulders or unstable terrain.
 - F. 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 vehicle's coupling device and/or adjacent structure whether towing forward or backing up, regardless of the terrain being traversed.
 - G. **DO NOT** permit personnel to ride in or on the compressor.
 - H. 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.
 - I. **DO NOT** permit personnel to stand or ride on the drawbar, or to stand or walk between the compressor and the towing vehicle.

PARKING OR LOCATING COMPRESSOR

- A. Park or locate compressor on a level surface, 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%).
- B. Make sure compressor is parked or located on a firm surface that can support its weight.
- C. 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.
- D. On steerable models, park compressor with front wheels in straight-ahead position.

- E. Set parking brakes and disconnect breakaway switch cable and all other interconnecting electrical and/or brake connections, if provided.
- F. Block or chock both sides of all wheels.
- G. 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.
- H. Lower front screw jack 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.



WARNING

This equipment may be tongue heavy. **DO NOT** attempt to raise or lower the drawbar by hand if the weight is more than you can safely handle.



CAUTION

Retract the front screw jack only after attaching the compressor to the tow vehicle. Raise the screw jack to its full up position and pull the pin connecting the jack to the drawbar. Rotate the screw jack to its stowed position, parallel to the drawbar, and reinsert the pin. Make sure the jack is secured in place prior to towing.

On two-wheeled models, fully retract front screw jack and any rear stabilizer legs. If a caster wheel is provided on the screw jack it is part of the screw jack and can not be removed. Follow the same procedure for stowing away the wheeled jack as you would for the standard screw jack. Pull the pin connecting the jack to the drawbar and raise the screw jack to its full up position. Rotate the screw jack to its stowed position, parallel to the drawbar, and reinsert the pin. Make sure the jack is secured in place prior to towing.

- I. If a caster wheel is provided on the screw jack, it is part of the screw jack and cannot be removed. Follow the same procedure for stowing away the

wheeled jack as you would for the standard screw jack. Raise the screw jack to its full upright position and pull the pin connecting the jack to the drawbar. Rotate the screw jack to its stowed position, parallel to the drawbar and reinsert the pin. Make sure the jack is secured in place prior to towing.

- J. 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 screwjack or chain fall if you cannot lift or raise the drawbar without avoiding injury to yourself or others.
- K. 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.

NOTE

While not towed in the usual sense of the word, many of these instructions are directly applicable to skidmounted 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 1/2" (13 mm) inside diameter is to be connected to the shutoff (throttle) valve, to reduce pressure in case of hose failure, per OSHA Standard 29 CFR 1926.302 (b) (7) or any applicable Federal, State and Local codes, standards and regulations.
- 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 1/2" (13 mm) 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 m) of hose in runs of air hose exceeding 1/2" (13 mm) inside diameter to reduce pressure in case of hose failure.

SECTION 1

- 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 device 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 (2.1 bar) for cleaning purposes, and then only with effective chip guarding and personal protective equipment per OSHA Standard 29 CFR 1910.242 (b) or any applicable Federal, State and Local codes, standards and regulations.
- L. **DO NOT** engage in horseplay with air hoses as death or serious injury may result.
- M. This equipment is supplied with an ASME designed pressure vessel protected by an ASME rated relief valve. Lift the handle once a week to make sure the valve is functional. **DO NOT** lift the handle while machine is under pressure.
- N. If the machine is installed in an enclosed area it is necessary to vent the relief valve to the outside of the structure or to an area of non-exposure.
- O. **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. Remove radiator filler cap only when cool enough to touch with a bare hand.
- P. The ethyl ether in the replaceable cylinders used in diesel ether starting aid systems (optional) 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.

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

1.4 FIRE AND EXPLOSION



WARNING

Do not attempt to operate the compressor in any classification of hazardous environment or potentially explosive atmosphere unless the compressor has been specially designed and manufactured for that duty.

- 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 if 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, checking or adding electrolyte to batteries, checking or adding fluid, checking diesel engine ether starting aid systems, 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 attempt 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, litter 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 of 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 the way and clear of the compressor prior to attempting to start or operate it.

SECTION 1

- F. Shut off engine before adding fuel, fluid, coolant lubricants, air line antifreeze compound or battery electrolyte, or before replacing ether starting aid 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 will not 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 engine off, readjust, then restart the 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**



INHALATION HAZARD!
Death or serious injury can result from inhaling compressed air without using proper safety equipment. See OSHA standards and/or any applicable Federal, State, and Local codes, standards and regulations 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 into 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 is ingested. Wash with soap and water in the event of skin contact.
- G. Wear an acid-resistant apron and a face shield or goggles when servicing the battery. If electrolyte

is spilled on 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 and call a physician immediately.
- I. Wear goggles or a full face shield when testing ether starting aid systems or when adding anti-freeze 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 anti-freeze 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 similar confined 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 administering a tablespoon of salt in a glass of clean warm water. Do this 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 m) 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 lightning.

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 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 condition and has a rated capacity of at least the net weight of the compressor plus an additional 10% allowance for weight of water, snow, ice, mud, stored tools, and equipment. If you 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 bail.
- 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 a level surface capable of supporting at least its net weight plus an additional 10% allowance for the weight of water, snow, ice, mud, stored tools, and/or 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.

SECTION 1

1.10 ENTRAPMENT

- A. Make sure all personnel are out of compressor before closing and engaging 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 others 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 (if 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 having a negative ground electrical system with the same voltage, and is also equipped with a battery or batteries of comparable size or larger than supplied in the compressor. **DO NOT** attempt to jump start using motor generator 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 jumper cables 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 battery in the compressor when jump starting 24V compressors, to the positive (POS) (+) terminal of the ungrounded battery in the compressor.
- Q. Connect one end of the other 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 battery in the starting vehicle or 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.

1.12 IMPLEMENTATION OF LOCKOUT/TAGOUT

The energy control procedure defines actions necessary to lockout a power source of any machine to be repaired, serviced or set-up, where unexpected motion, or an electrical or other energy source, would cause personal injury or equipment damage. The power source on any machine shall be locked out by each employee doing the work except when motion is necessary during setup, adjustment or troubleshooting.

- A. The established procedures for the application of energy control shall cover the following elements and actions and shall be initiated only by Authorized Persons and done in the following sequence:
 - 1. Review the equipment or machine to be locked and tagged out.
 - 2. Alert operator and supervisor of which machine is to be worked on, and that power and utilities will be turned off.
 - 3. Check to make certain no one is operating the machine before turning off the power.

- 4. Turn off the equipment using normal shutdown procedure.
- 5. Disconnect the energy sources:
 - a. Air and hydraulic lines should be bled, drained and cleaned out. There should be no pressure in these lines or in the reservoir tanks. Lockout or tag lines or valves.
 - b. Any mechanism under tension or pressure, such as springs, should be released and locked out or tagged.
 - c. Block any load or machine part prior to working under it.
 - d. Electrical circuits should be checked with calibrated electrical testing equipment and stored energy and electrical capacitors should be safely discharged.
- 6. Lockout and/or Tagout each energy source using the proper energy isolating devices and tags. Place lockout hasp and padlock or tag at the point of power disconnect where lockout is required by each person performing work. Each person shall be provided with their own padlock and have possession of the only key. If more than one person is working on a machine each person shall affix personal lock and tag using a multi-lock device.
- 7. Tagout devices shall be used only when power sources are not capable of being locked out by use of padlocks and lockout hasp devices. The name of the person affixing tag to power source must be on tag along with date tag was placed on power source.
- 8. Release stored energy and bring the equipment to a "zero mechanical state".
- 9. Verify Isolation: Before work is started, test equipment to ensure power is disconnected.
- B. General Security
 - 1. The lock shall be removed by the "Authorized" person who put the lock on the energy-isolating device. No one other than the person/persons placing padlocks and lockout hasps on power shall remove padlock and lockout hasps and restore power. However, when the authorized person who applied the lock is unavailable to remove it his/her Supervisor may remove padlock/padlocks and lockout hasps and restore power only if it is first:

SECTION 1

- a. verified that no person will be exposed to danger.
 - b. verified that the “Authorized” person who applied the device is not in the facility.
 - c. noted that all reasonable efforts to contact the “Authorized” person have been made to inform him or her that the lock-out or tagout device has been removed.
 - d. ensured that the “Authorized” person is notified of lock removal before returning to work.
2. Tagout System—Tags are warning devices affixed at points of power disconnect and are not to be removed by anyone other than the person placing tag on power lockout. Tags shall never be by-passed, ignored, or otherwise defeated

1.13 CALIFORNIA PROPOSITION 65



WARNING




















CALIFORNIA PROPOSITION 65 WARNING



















Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects and other reproductive harm.

Battery posts, terminals and related accessories contain lead and other compounds known to the State of California to cause cancer and birth defects and other reproductive harm. Wash hands after handling.

1.14 SYMBOLS AND REFERENCES





















The symbols below may or may not be used. Please refer to the decals set forth on the machine for applicable symbols.





















	DIESEL PARTICULATE FILTER
	REGENERATION INHIBIT
	HIGH EXHAUST SYS. TEMP
	WAIT TO START
	REMOTE START
	CABIN LIGHTS
	DIESEL FUEL
	FUEL LEVEL
	INTERNAL FUEL
	EXTERNAL FUEL
	BATTERY
	BATTERY DISCONNECT
	SHUT-OFF VALVE WITH SAFETY
	OPERATE WITH FAN GUARDS IN PLACE
	OPERATE WITH BELT GUARDS IN PLACE
	READ/WRITE DATA
	INTAKE AIR
	EXHAUST GAS
	SERVICE POINT

	ENGINE
	ENGINE COOLANT
	ENGINE COOLANT TEMPERATURE
	ENGINE ECM
	ENGINE INTAKE AIR FILTER
	ENGINE OIL
	ENGINE OIL PRESSURE
	ENGINE PREHEAT/LOW TEMPERATURE AID
	ENGINE RPM
	ENGINE START
	ENGINE WARNING / iT4
	ROTARY COMPRESSOR
	COMPRESSOR
	COMPRESSOR AIR PRESSURE
	COMPRESSOR TEMPERATURE / iT4
	INLET VALVE SPRING OIL (AWF)
	ENGINE SHUTDOWN
	COMPRESSOR SHUTDOWN / iT4


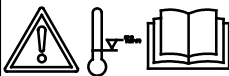




Safety Symbols-1 T4

SECTION 1














	READ MANUAL
	HOUR METER
	START
	ON
	OFF
	RESET
	NO
	EXAMINE, CHECK
	FORK LIFT HERE
	NO FORK LIFT
	FUSE
	CLOSED MECHANICAL
	WATER
	OIL
	FUNCTIONAL ARROW
	FILTER
	RADIATOR
	STRAINER
	AFTERCOOLED AIR
	STANDARD AIR












	DIRECTION OF ROTATION
	PRESSURE
	LIFT POINT
	TIE DOWN
	AIR COOLED OIL COOLER
	LIQUID COOLED OIL COOLER
	CONTROL
	BELOW TEMPERATURE
	AIR-CIRCULATING FAN
	TEST SWITCH
	BELTS
	24 HOURS
	PRESSURE CONTROL
	LOW PRESSURE
	HIGH PRESSURE
	LUBRICATION
	TRAILER TOWING MODE
	AXLE
	LUBRICANT GREASE
	DRAIN

Safety Symbols-2

	SERVICE EVERY 24 HOURS
	WARNING, FOR BELOW 0°C (32°F) READ MANUAL
	WATER CONDENSATE (DO NOT PLUG)
	COMPRESSOR OIL DRAIN
	ENGINE COOLANT DRAIN
	ENGINE OIL DRAIN

Safety Symbols-3

	DO NOT
	DO NOT BREATH COMPRESSOR AIR
	DO NOT REMOVE MANUAL
	DO NOT STAND ON SERVICE VALVE
	DO NOT OPERATE COMPRESSOR WITH DOORS OPEN
	DO NOT OPEN AIR VALVES WITHOUT CONNECTED HOSES
	DO NOT STACK
	DO NOT MAINTENANCE
	DO NOT TOW
	SIDE DOOR T-LATCH
	BRAKES
	DO NOT MIX COOLANTS
	AFTERCOOLER BYPASS VALVE

	WARNING
	WARNING, ELECTRICAL SHOCK
	WARNING, AIR FLOW
	WARNING, HOT SURFACE
	WARNING, PRESSURISED VESSEL
	WARNING, PRESSURISED COMPONENT
	WARNING, DANGEROUS OUTLET
	WARNING, REMOTELY CONTROLLED
	WARNING, LOW TEMPERATURE
	WARNING, CRUSH/PINCH POINT
	CORROSIVE

Section 2

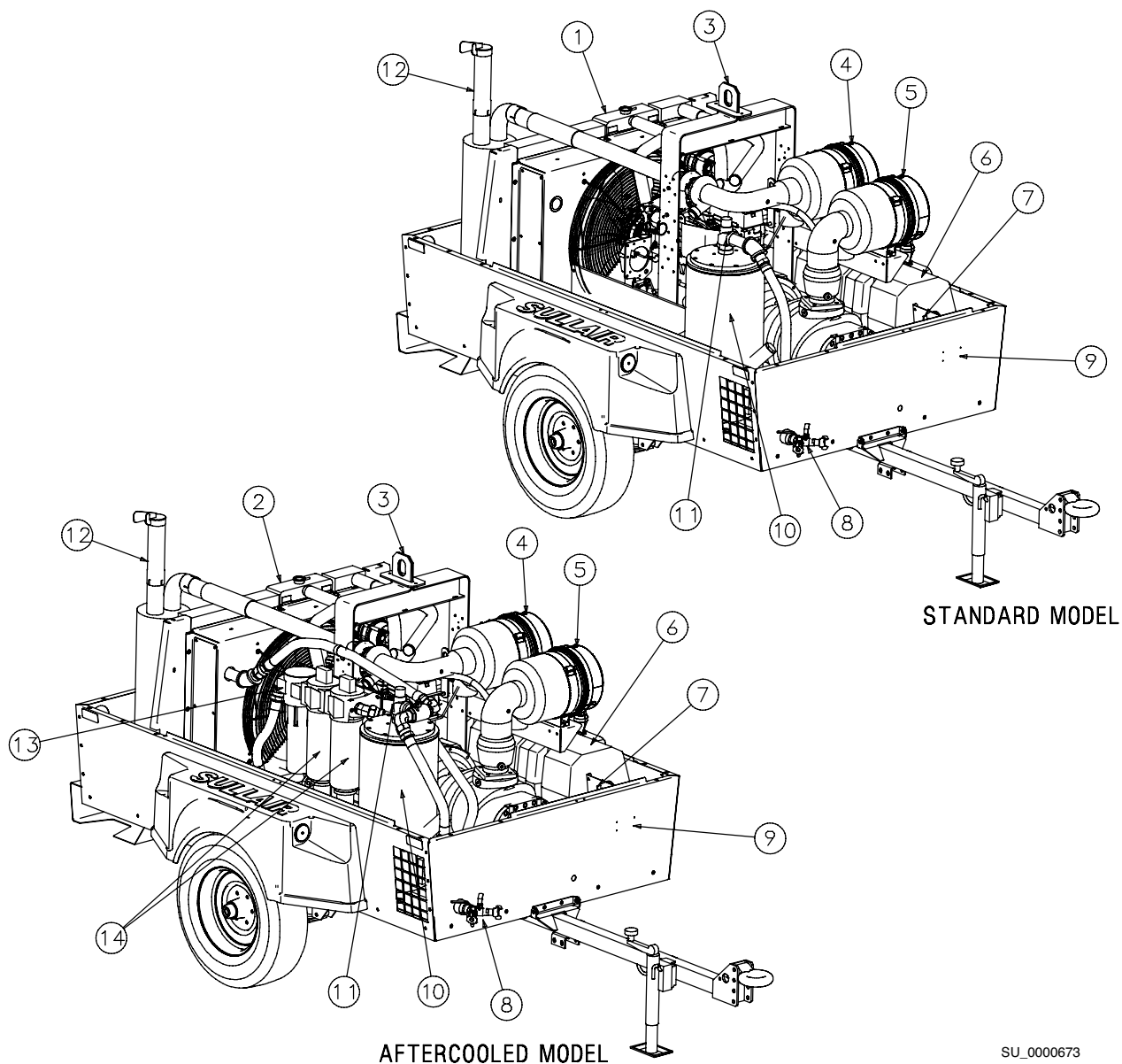
DESCRIPTION

2.1 INTRODUCTION

The Sullair 300HH, 375, 375H, 375HH, 425, and 425H CFM Standard and Aftercooled Portable Air Compressors offer superior performance, reliability and require a minimal amount of maintenance. Compared to other compressors, Sullair's are unique in terms of reliability and durability. Compressor internal components require no routine maintenance inspections.

2.2 DESCRIPTION OF COMPONENTS

Figure 2-1 shows the main components and subassemblies of the Sullair 300HH, 375, 375H, 375HH, 425, and 425H Standard and Aftercooled Portable Air Compressors. These packages include 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 low profile canopy offers improved handling and mobility. Large side service doors provide easy access to all serviceable components.



SU_0000673

- | | |
|---|------------------------------------|
| 1. Radiator/Fluid Cooler Assembly | 8. Service Valves |
| 2. Radiator/Fluid Cooler Assembly With Air To Air Aftercooler | 9. Serial Number Plate Location |
| 3. Lifting Bail | 10. Receiver Tank |
| 4. Engine Air Filter | 11. Minimum Pressure/Check Valve |
| 5. Compressor Air Filter | 12. Engine Exhaust Muffler |
| 6. Fuel Tank | 13. Moisture Separator |
| 7. Battery Shutoff Switch | 14. Optional Discharge Air Filters |

**Figure 2-1: Sullair Rotary Screw Portable Air Compressor—
John Deere Standard and Aftercooled Models**

The control system can easily be adjusted for pressures from 80 to 125 psig (5.6 to 8.6 bar) for standard machines, from 80 to 150 psig (5.6 to 10.3 bar) for "H" machines and from 80 psig to 200 psig (5.6 to 13.8 bar) for "HH" machines. The compressor unit is driven by an industrial diesel engine designed to provide enough horsepower to provide an adequate reserve under rated conditions.

Refer to the **Engine Operator's Manual** for a more detailed description of the engine. The engine cooling system is comprised of a radiator, charge air cooler, high capacity fan, and thermostat. The high capacity fan pushes air through the radiator to maintain the engine's specified operating temperature. The same fan also cools the fluid in the compressor cooling and lubrication system.

The engine radiator, charge air cooler, and the compressor fluid cooler are next to each other allowing the fan air to push through all three simultaneously. As air passes through the fluid cooler, the heat of compression is removed from the fluid. The compressor's high capacity fuel tank contains enough fuel for one eight hour shift under normal operating conditions.

2.3 SULLAIR COMPRESSOR UNIT, FUNCTIONAL DESCRIPTION

Sullair compressors are single-stage, positive displacement, flood lubricated-type compressors that provide continuous (pulse-free) compression to meet various demand loads. Sullair compressors require no routine maintenance or inspection of their internal parts or systems. The compressor works by injecting fluid into the compressor unit where it mixes directly with the air as the rotors turn: the rotor's rotation compresses the air. The fluid flow has three main functions:

1. It acts as a coolant, to control the rise of air temperature which is generated by compression (heat of compression).
2. Seals the leakage paths between the rotors and the stator and also between the rotors themselves.
3. Lubricates the rotors allowing one rotor to directly drive the other.

After the air fluid mixture is discharged from the compressor unit, the fluid is separated from the air. At this time, the air flows to the service line and the fluid is cooled in preparation for re-injection.

2.4 COMPRESSOR COOLING AND LUBRICATION SYSTEM, FUNCTIONAL DESCRIPTION

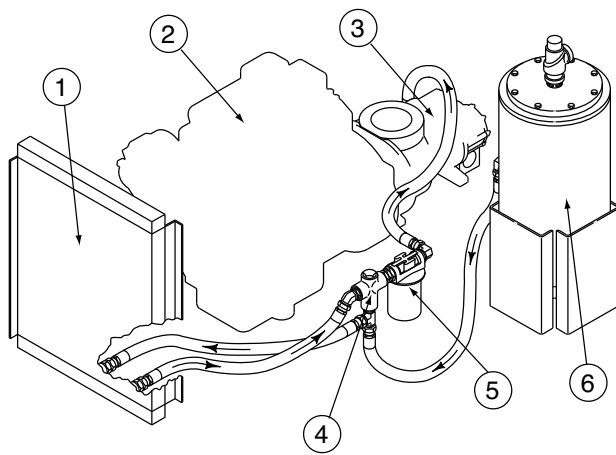
Refer to *Figure 2-2*. The compressor cooling and lubrication system is designed to provide adequate lubrication as well as maintain the proper operating temperature of the compressor. In addition to the fluid cooler and interconnecting piping, the system consists also of three other components: a fluid filter, thermal valve, and a fan which perform the following functions:

- The fluid filter removes and collects any contaminants in the fluid.
- The thermal valve functions as a temperature regulator directing fluid either to the cooler or to the compressor unit.
- The fan pushes air through the cooler dissipating the heat resulting from compression of the fluid.

The functions of the lubrication system are explained in more detail below. Fluid is used in the system as a coolant and as a lubricant: the sump serves as the fluid reservoir. At start-up, fluid flows from the sump to the fluid thermal valve. Fluid circulation is achieved by forcing the fluid from the high pressure region of the sump to a lower pressure area in the compressor unit. A minimum pressure device (See *Compressor Discharge System, Functional Description* on page 20) is provided to assure adequate fluid flow under all conditions. When entering the thermal valve upon start-up, the fluid temperature is cool and thus it is not necessary to route it through the cooler. The fluid flows through the fluid filter and on to the compressor unit bypassing the cooler. As the compressor continues to operate, the temperature of the fluid rises and the thermostatic control opens, allowing a portion of the fluid into the cooler.

When the temperature reaches 155°F (68°C), the thermostat is fully open allowing all fluid entering the thermal valve to flow to the cooler.

The cooler is a radiator type that works in concert with the engine fan. The fan pushes air through the cooler removing the heat from the fluid. From the cooler, the fluid is then routed back through the fluid filter. All fluid flowing to the compressor unit passes through this filter. The fluid leaving the filter flows to the compressor unit where it lubricates, seals and cools the compression chamber; and lubricates the bearings and gears.



SU_0000664

1. Fluid Cooler
2. Engine
3. Compressor
4. Thermal Valve
5. Fluid Filter
6. Receiver Tank

Figure 2-2: Compressor Cooling and Lubrication System

2.5 COMPRESSOR DISCHARGE SYSTEM, FUNCTIONAL DESCRIPTION

Refer to *Figure 2-3*. The Sullair compressor unit discharges a compressed air/fluid mixture into the receiver tank. The receiver tank has three functions:

1. It acts as a primary fluid separator.
2. Serves as the compressor fluid reservoir.
3. Houses the air/fluid separator.

The compressed air/fluid mixture enters the receiver tank and is directed against the side of the sump. Because of a change of direction and reduction of velocity, large droplets of fluid separate and fall to the bottom of the sump. The small amount of fluid remaining in the compressed air collects on the surface of the separator element as the compressed air flows through the separator. As more fluid collects on the element surface, it then flows 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 and unobstructed flow. The receiver tank is code rated at 250 psig (17.1 bar) working pressure. A minimum pressure device located downstream from the separator, ensures a minimum receiver pressure of 80 psig (5.5 bar) during all conditions. Keeping this pressure level stable 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 250 psig (17.1 bar).

Fluid is added to the receiver tank through a capped fluid filler.

WARNING

DO NOT remove caps, plugs and/or other components when the compressor is running or pressurized. Stop the compressor and relieve all internal pressure before removing these items.

2.6 CAPACITY CONTROL SYSTEM, FUNCTIONAL DESCRIPTION

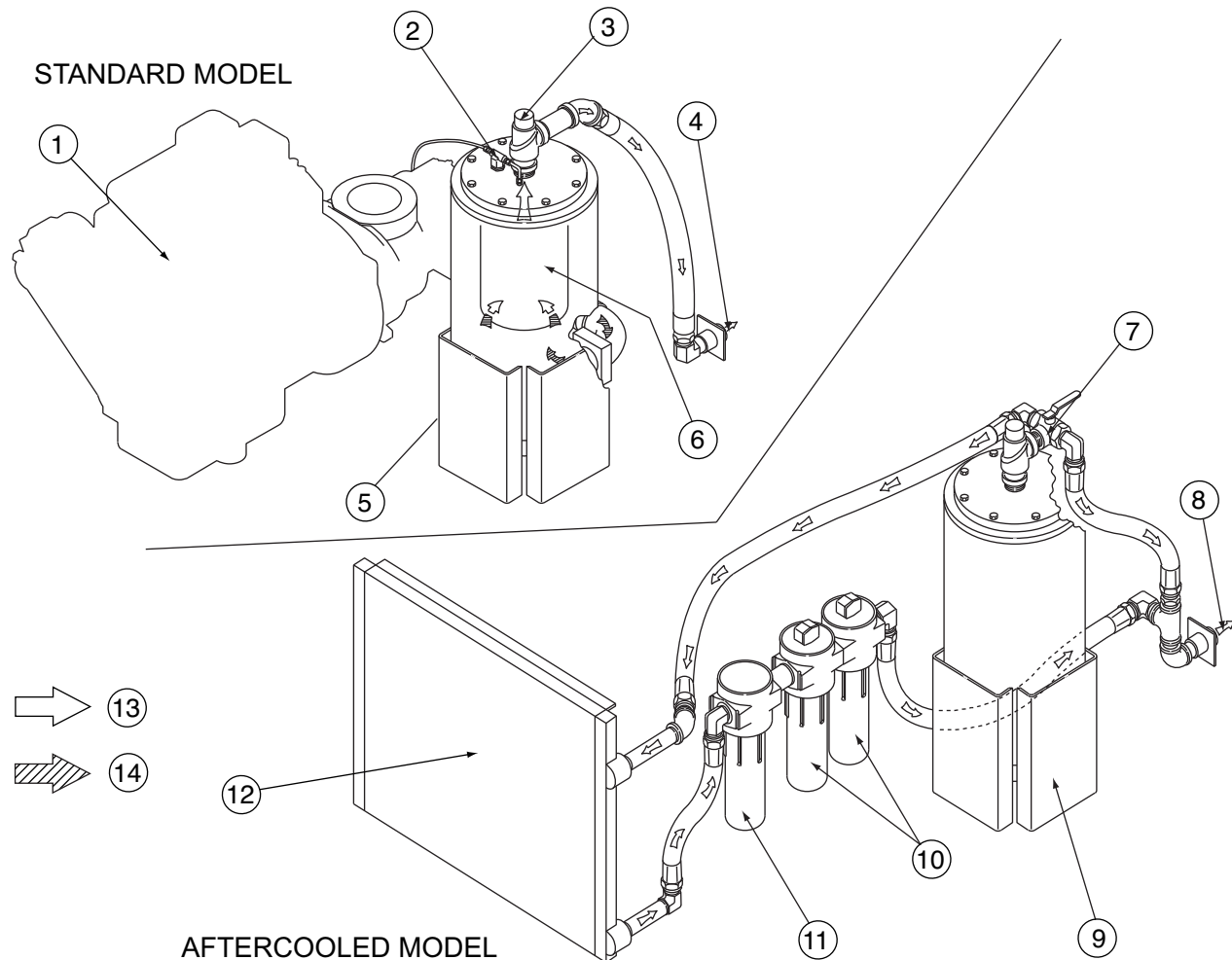
Refer to *Figure 2-4*, *Figure 2-5* or *Figure 2-6*. The purpose of the control system is to regulate the amount of air intake and match it to the demand (required output) on the compressor. The control system consists of a pressure regulating valve(s), air inlet valve, system blowdown valve, pressure transducer, speed control module, and tubing connecting the various components of the compressor and engine. The functional descriptions of the control system are described by relating them to four distinct phases of operation. They apply to any control system with the exception of those with specified pressures which are dependent on pressure requirements. The given values apply to a compressor with an operating pressure range of 100 to 110 psig (6.9 to 7.6 bar).

START—0 TO 40 PSIG (0 To 2.8 BAR)

When the compressor is started, the sump pressure quickly rises from 0 to 40 psig (0 to 2.8 bar). During this period the pressure regulator valve is inactive. At this pressure range the idle warm-up control keeps

the inlet valve closed for engine idle operation. Within 30 seconds of starting the compressor (the instrument panel annunciator light goes off after 30 seconds) turn the handle of the warm-up selector valve (located on the instrument panel) from the

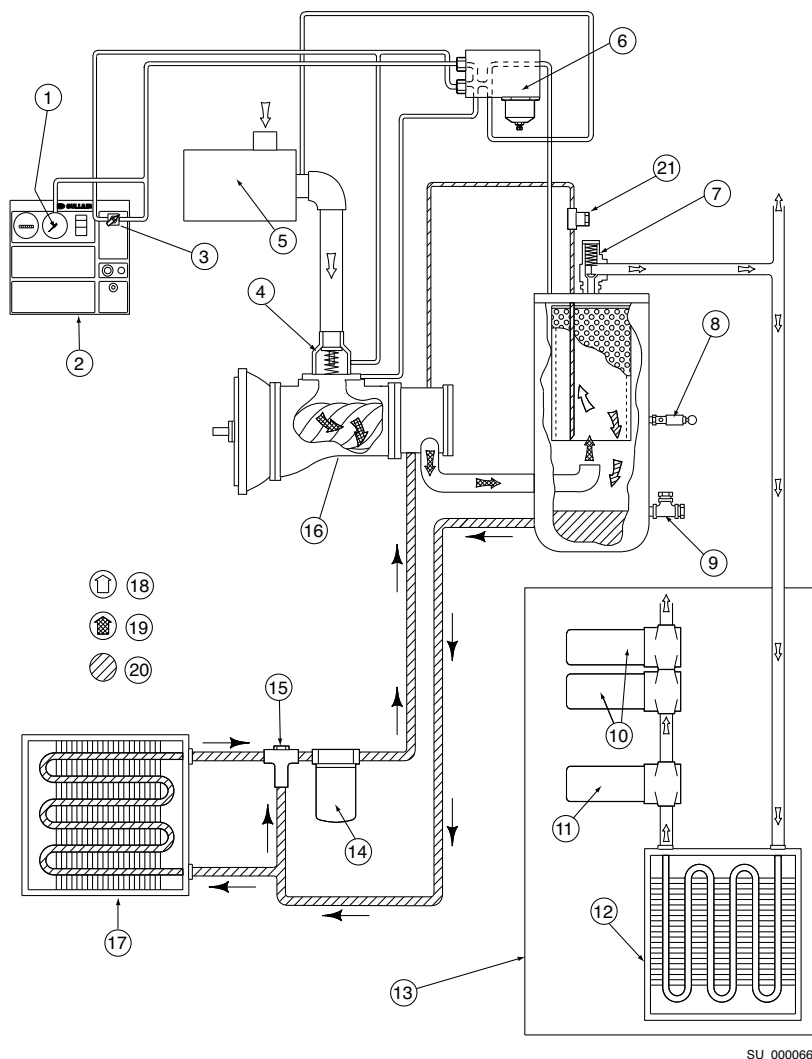
START to the RUN position. The inlet valve is fully open due to inlet pressure, and the compressor operates at full capacity. When the compressor operates at full capacity, the engine runs at full speed.



SU_0000665

- | | |
|--|------------------------------------|
| 1. Engine | 8. Service Air Outlet |
| 2. Strainer | 9. Receiver Tank |
| 3. Minimum Pressure/Check Valve | 10. Optional Discharge Air Filters |
| 4. Service Air Outlet | 11. Moisture Separator |
| 5. Receiver Tank | 12. Aftercooler |
| 6. Separator Element | 13. Air |
| 7. Non-Aftercooled/Aftercooled Service Air Valve | 14. Fluid/Air |

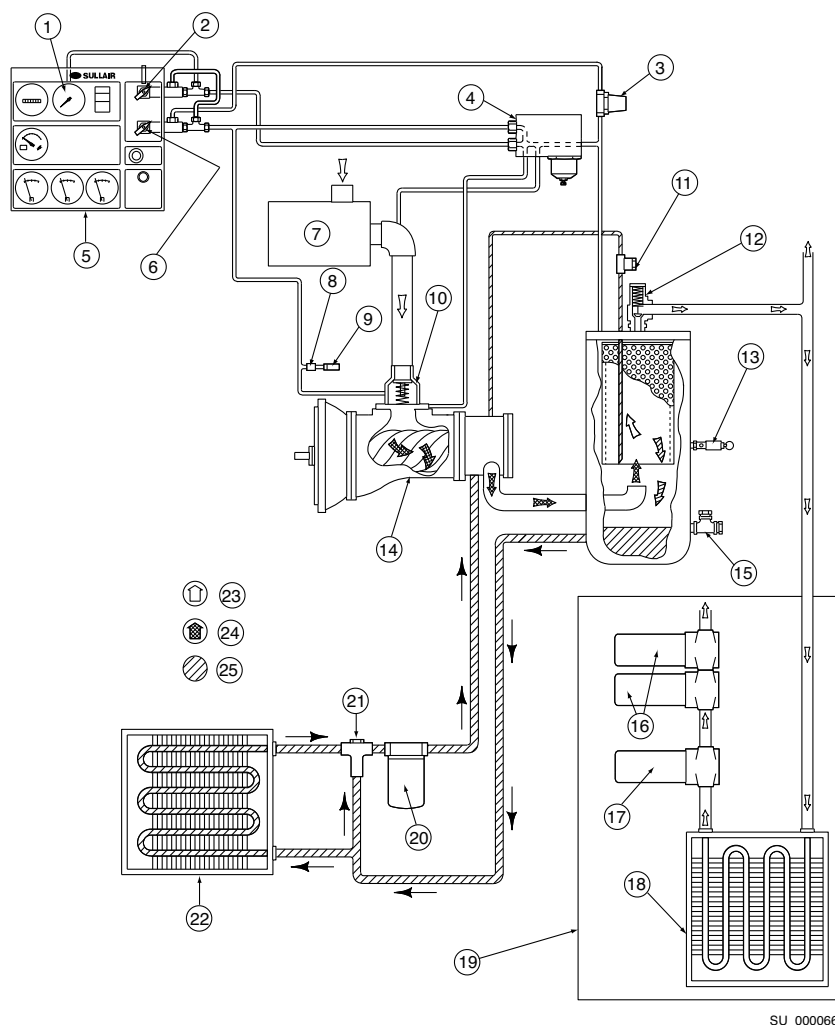
Figure 2-3: Compressor Discharge System—Standard and Aftercooled Models



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- | | |
|---------------------------------------|-------------------------------|
| 1. Air Pressure Gauge | 12. Optional Aftercooler |
| 2. Instrument Panel | 13. Aftercooled Machines ONLY |
| 3. Idle Warm-Up Valve | 14. Fluid Filter |
| 4. Inlet Valve | 15. Thermal Valve |
| 5. Air Filter | 16. Compressor Unit |
| 6. Regulator/Blowdown Valve Manifold | 17. Fluid Cooler |
| 7. Minimum Pressure/Check Valve | 18. Air |
| 8. Pressure Relief Valve | 19. Fluid/Air |
| 9. Fluid Fill/Fluid Level Sight Glass | 20. Fluid |
| 10. Optional Discharge Air Filters | 21. Strainer |
| 11. Optional Moisture Separator | |

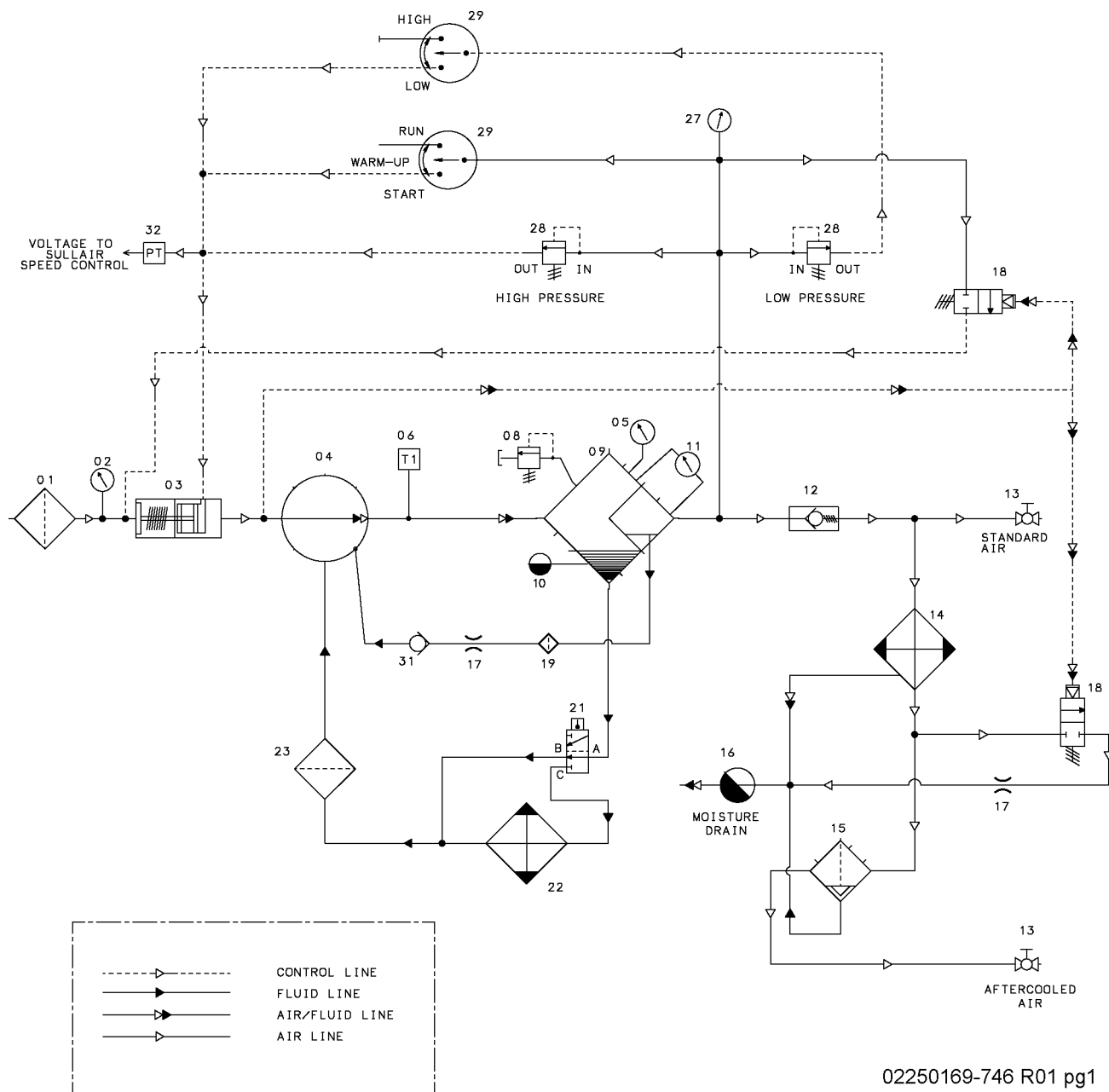
Figure 2-4: Control System with Piping and Instrumentation—375 and 425 Models



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- | | |
|--|--|
| 1. Air Pressure Gauge | 13. Pressure Relief Valve |
| 2. Idle Warm-Up Control Selector Valve | 14. Compressor Unit |
| 3. Low Pressure Regulator Valve | 15. Fluid Fill/Fluid Level Sight Glass |
| 4. High Pressure Regulator/Blowdown Valve Manifold | 16. Optional Discharge Air Filters |
| 5. Instrument Panel | 17. Optional Moisture Separator |
| 6. High/Low Pressure Selector Switch | 18. Optional Aftercooler |
| 7. Air Filter | 19. Aftercooled Machines ONLY |
| 8. Orifice | 20. Fluid Filter |
| 9. Silencer | 21. Thermal Valve |
| 10. Inlet Valve | 22. Fluid Cooler |
| 11. Strainer | 23. Air |
| 12. Minimum Pressure/Check Valve | 24. Fluid/Air |
| | 25. Fluid |

Figure 2-5: Control System with Piping and Instrumentation—300HH, 375H, 375HH and 425H Models



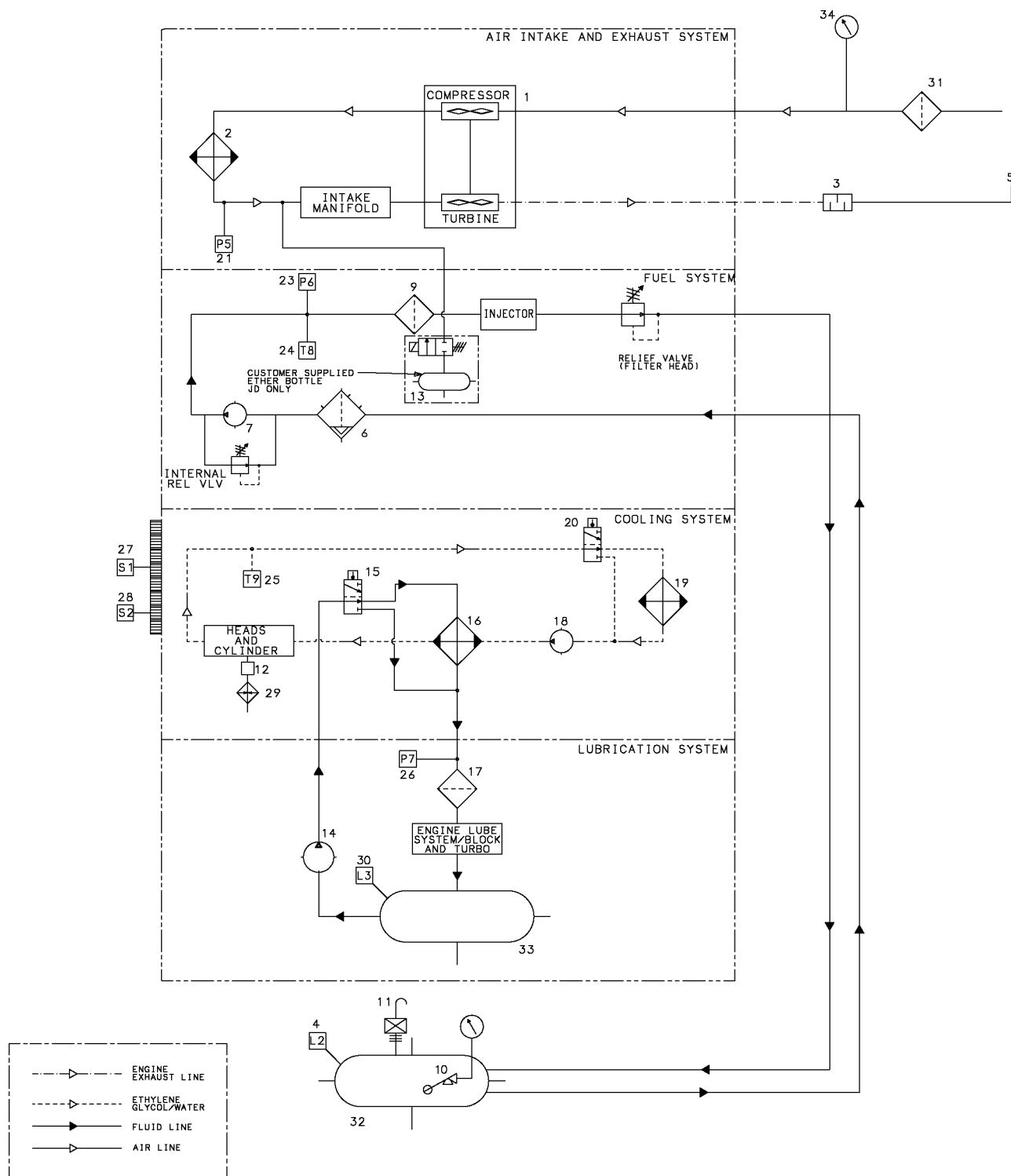
02250169-746 R01 pg1

Figure 2-6: Piping and Instrumentation

SECTION 2

300HH, 375, 375H, 375HH, 425 AND 425H USER MANUAL R00

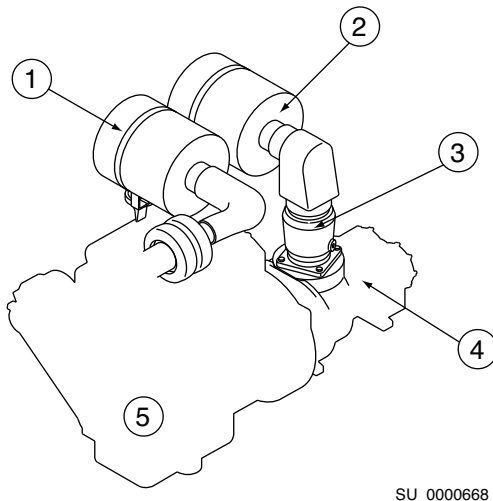
- | | |
|---|--|
| 1. Filter, Air | 16. Trap, Drain |
| 2. Gauge, Filter Restriction (Optional) | 17. Orifice |
| 3. Inlet Valve | 18. Valve, Blowdown N.C. |
| 4. Compressor | 19. Strainer |
| 5. Gauge, Temperature | 21. Valve, Thermal Bypass |
| 6. Switch, Temperature | 22. Cooler, Oil |
| 8. Valve, Relief | 23. Filter, Oil |
| 9. Receiver, Air/Oil | 27. Gauge, Pressure |
| 10. Glass, Sight Oil Level | 28. Valve, Pressure Regulator |
| 11. Indicator, Delta-P | 29. Valve, 3-Way Selector |
| 12. Valve, Minimum Pressure/Check | 31. Valve, Check |
| 13. Valve, Ball | 32. Transducer, Pressure |
| 14. Cooler, Air | |
| 15. Separator, Moisture | T1 Compressor Discharge Temperature Switch |



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Figure 2-7: Piping and Instrumentation

- | | |
|---|------------------------------------|
| 1. Turbocharger, Compressor | 24. Sensor, Fuel Temperature |
| 2. Cooler, Air | 25. Sensor, Coolant Temperature |
| 3. Muffler, Engine | 26. Sensor, Engine Oil Pressure |
| 4. Fuel Level Sender | 27. Sensor, Cam Speed Timing |
| 5. Rain Cap, Exhaust System | 28. Sensor, Crank Speed Timing |
| 6. Fuel Filter W/ Water Separator | 29. Jacket Water Heater (Optional) |
| 7. Fuel Transfer Pump (Internal To Engine) | 30. Oil Level (Dipstick) |
| 8. Hand Operated Fuel Priming Pump | 31. Filter, Air |
| 9. Filter, Fuel | 32. Tank, Fuel |
| 10. Gauge, Fuel Level | 33. Engine Oil Pan |
| 11. Fuel Tank Cap W/Vent | 34. Gauge, Filter Restriction |
| 12. Thermostat, Thermocord (Optional) | |
| 13. Kit, Ether Assembly | L1 Coolant Level |
| 14. Oil Pump (Integral To Engine) | L2 Fuel Level |
| 15. By-Pass Valve (Internal To Engine) | L3 Oil Level (Dipstick) |
| 16. Cooler, Oil (Internal To Engine) | P5 Inlet Manifold Air Pressure |
| 17. Filter, Oil | P6 Fuel Pressure |
| 18. Water Pump (Integral To Engine) | P7 Oil Pressure |
| 19. Radiator, Engine | T8 Fuel Temperature |
| 20. Engine Thermostat (Integral To Engine) | T9 Coolant Temperature |
| 21. Inlet Manifold Air Press Sensor (Turbo Boost) | S1 Cam Speed |
| 23. Sensor, Fuel Pressure | S2 Crank SpeedS2 Crank Speed |



1. Engine Air Filter
2. Compressor Air Filter
3. Air Inlet Valve
4. Compressor
5. Engine

Figure 2-8: Air Inlet System—John Deere

NORMAL OPERATION – 80 TO 100 PSIG (5.6 TO 6.9 BAR) OR 80 TO 150 PSIG (5.6 TO 10.3 BAR) FOR H MACHINES OR 80 TO 200 PSIG (5.6 TO 13.8 BAR) FOR HH MACHINES

When the warm-up control selector valve handle is moved to the RUN position, the sump pressure rises above 80 psig (5.6 bar). 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 (6.9 TO 7.5 BAR) OR 150 TO 165 PSIG (10.3 TO 11.4 BAR) FOR H MACHINES OR 200 TO 220 PSIG (13.8 TO 15.2 BAR) FOR HH MACHINES

If the demand on the compressor is less than its rated capacity, the service line pressure will rise above 100 psig (6.9 bar) - low or single pressure rating: 150 psig (10.3 bar) for "H" rating or 200 psig (13.8 bar) for "HH" dual or high pressure rating. The pressure regulating valve gradually opens, applying pressure to the inlet valve piston and pressure transducer. This causes the inlet valve to partially

close and reduces the engine speed. As the pressure increases, the inlet valve piston will further close the inlet valve and the engine speed will decrease until it reaches its preset idle speed. When the demand on the compressor increases, the sump pressure falls below 110 psig (7.6 bar) or 165 psig (11.4 bar) for "H" machines, or 220 psig (15.2 bar) for "HH" ones. The pressure regulating valve closes, the air inlet valve opens fully, and the engine speed increases to its preset full load rating.

Between the pressure regulating valve and the inlet valve, there is a small orifice that vents a small amount of air into the atmosphere when the pressure regulating valve is open. This allows changes in air output to conform to air demand. This orifice also discharges any accumulated moisture from the regulator. Shutdown

The blowdown valve is normally closed. At shutdown the back pressure in the compressor inlet signals the blowdown valve to vent the sump pressure into the atmosphere.

2.7 AIR INLET SYSTEM, FUNCTIONAL DESCRIPTION

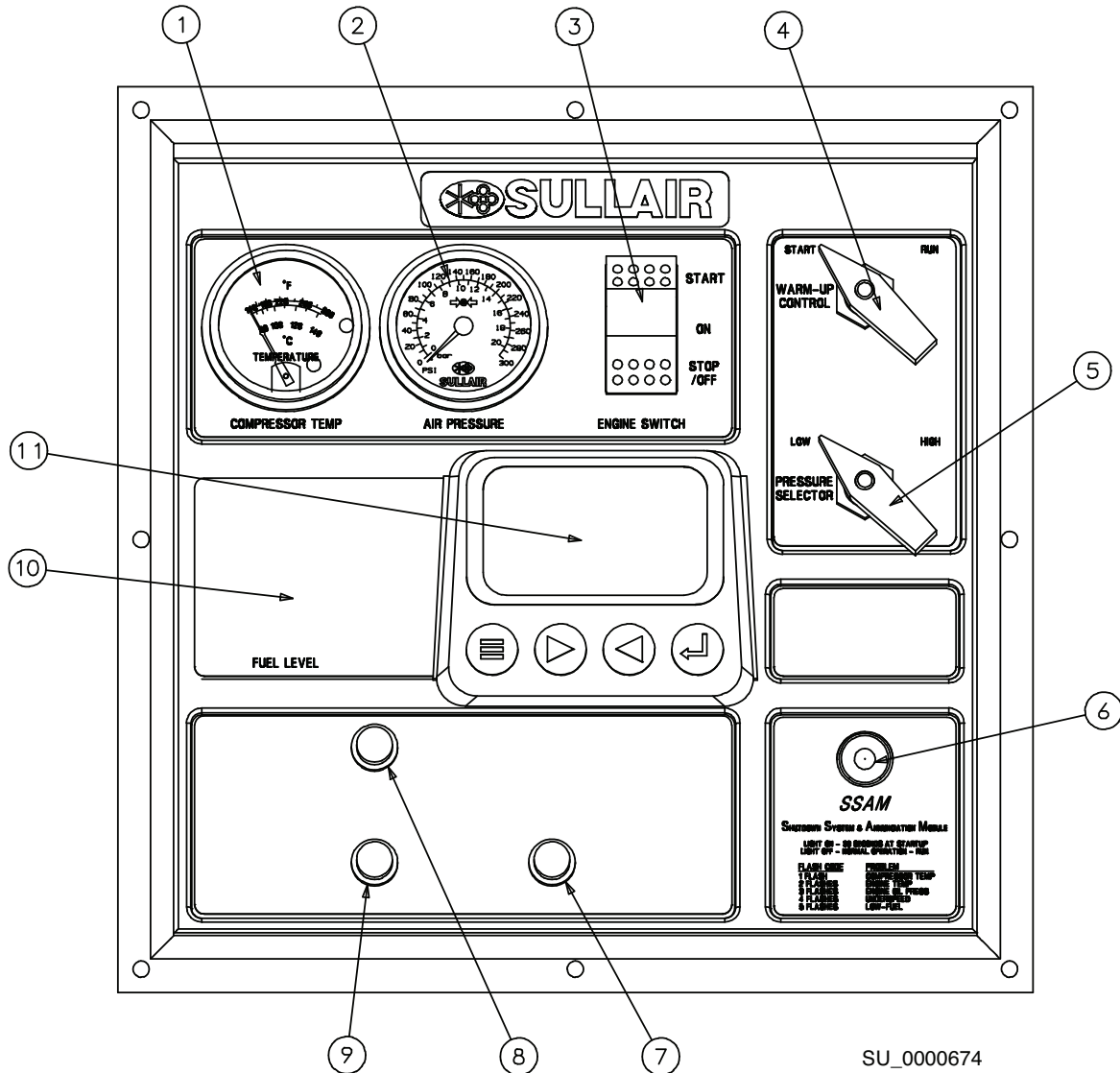
Refer to *Figure 2-8*. The air inlet system consists of two air filters, a compressor air inlet valve and interconnecting piping to the engine and the compressor.

The air filters are three-stage dry element type filters that are capable of cleaning extremely dirty air. However, when operating in dirty environments, the filters should be checked more frequently.

See *Air Filter Maintenance* on page 64 for Air Filter Maintenance Procedures.

2.8 INSTRUMENT PANEL GROUP, FUNCTIONAL DESCRIPTION

Refer to *Figure 2-9*. The instrument panel group consists of a molded panel containing an: air pressure gauge, compressor temperature gauge, ignition/start switch, PowerView, annunciator light, idle warm-up control, engine shutdown light, engine warning light, and a wait to start light. A high-low pressure selector valve is located on the panel for "H" and "HH" compressors.



SU_0000674

- | | |
|---|------------------------------|
| 1. Compressor Discharge Temperature Gauge | 6. Shutdown Indicator |
| 2. System Air Pressure Gauge | 7. Engine Warning Lamp |
| 3. Start/Stop Switch | 8. Engine Wait to Start Lamp |
| 4. Warm-up Control Switch | 9. Engine Stop Lamp |
| 5. High/Low Pressure Selector Switch | 10. Fuel Level (optional) |
| | 11. Engine PowerView Monitor |

Figure 2-9: Instrument Panel Group

Refer to *Figure 2-9* for the locations of the following indicators and controls:

1. The compressor discharge temperature gauge monitors the temperature of the air/oil mixture in the sump.
2. The air pressure gauge continuously monitors the sump pressure under various load conditions.
3. The engine switch energizes the system and starts the compressor. The engine switch is pressed to the ON position to energize the electrical system, and pressed momentarily to the START position to engage the starter and start the compressor.
4. The idle warm-up control is turned from START to RUN after sufficient warm-up is achieved for full compressor operation.
5. The pressure selector valve on “H” compressors allows the selection of the compressor operating pressure range, 80 to 110 psig (5.6 to 7.6 bar) or 80 to 165 psig (5.6 to 11.4 bar) for “H” models, or 80 to 220 psig (5.6 to 15.2 bar) for “HH” models.
6. The shutdown indicator light indicates engine and compressor safety shutdown status.
7. The engine warning lamp indicates when an abnormal condition exists. It is not necessary to shutdown the engine immediately, but the problem should be corrected as soon as possible.
8. The engine wait to start lamp is illuminated when conditions are not right for starting.
9. The engine stop lamp signals when the engine should be stopped immediately or as soon as possible to prevent engine damage. Correct the problem before restarting.
10. The fuel level gauge indicates the fluid level in the fuel tank.
11. The PowerView® is a multifunction tool that allows operators to view a wide range of engine parameters and engine service codes.

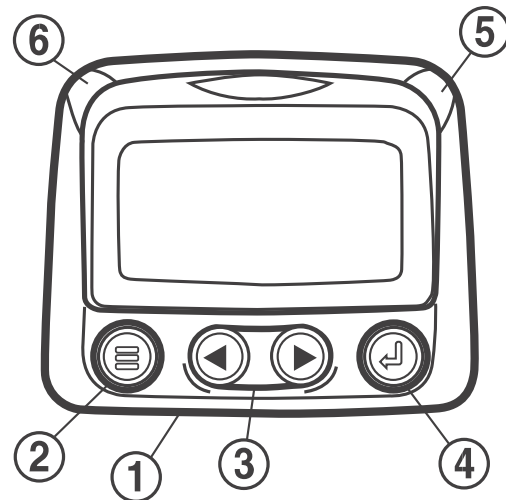
USING THE OPTIONAL DIAGNOSTIC GAUGE TO ACCESS ENGINE INFORMATION

Refer to *Figure 2-10*. The diagnostic gauge (*Figure 2-10*, [1]) displays engine function and trouble codes (DTCs). The display can be set for either English or metric units. It is linked to the electronic control system sensors and allows the operator to monitor engine functions and troubleshoot malfunctions. Press the menu key (*Figure 2-10*, [2]) to view various engine functions in sequence. The following is a list of engine parameters the gauge can display:

- Engine hours
- Engine rpm
- System voltage
- Percent engine load at current rpm
- Coolant temperature
- Oil pressure
- Throttle position
- Intake manifold temperature
- Current fuel consumption
- Active service (diagnostic) codes
- Stored service (diagnostic) codes from the engine
- Set units for display
- View the engine configuration parameters

NOTE

Engine parameters that can be displayed depend upon the engine application. Six readout languages are available and can be selected during gauge setup. The diagnostic gauge has a graphical backlit Liquid Crystal Display (LCD) screen. The display can show a single parameter or four simultaneously (in four quadrants). Two arrow keys (*Figure 2-10*, [3]) scroll through the engine parameter list and menu items. The enter key (*Figure 2-10*, [4]) selects items. The red (*Figure 2-10*, [5]) and amber (*Figure 2-10*, [6]) lights alert the operator to an active trouble code condition.



SU_0000687

Figure 2-10: Diagnostic Gauge

1. Diagnostic Gauge
2. Menu Key
3. Arrow Keys
4. Enter Key
5. Red STOP ENGINE Indicator Light
6. Amber WARNING Indicator Light

NOTE

When viewing engine codes through the PowerView, the SSAM will display a four flash fault code after 30 seconds.

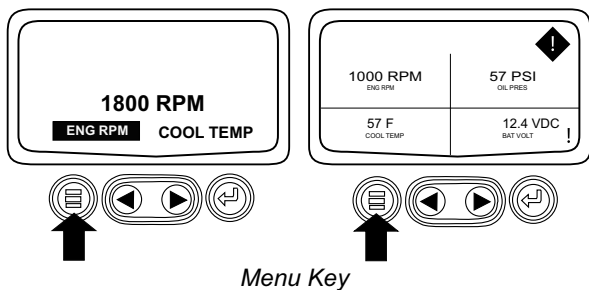
NOTE

When viewing engine codes through the PowerView, the SSAM will display a four flash fault code after 30 seconds.

NOTE

If the engine is not running, the diagnostic screens can be viewed but they will not show any operating or performance data. Once the engine is started, the screens will display the engine's operating information.

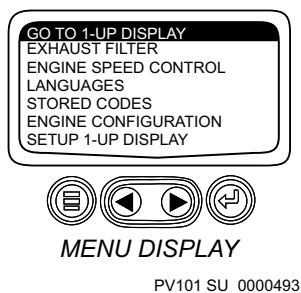
1. Turn the switch to the ON position. Beginning at the single or four parameter engine display, press the MENU key.



PV101 SU_0000492

Figure 2-11

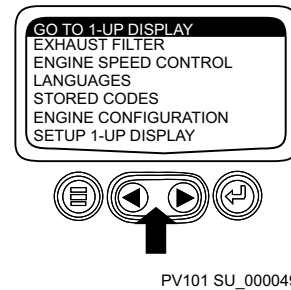
2. The first seven items of the Main Menu will be displayed.



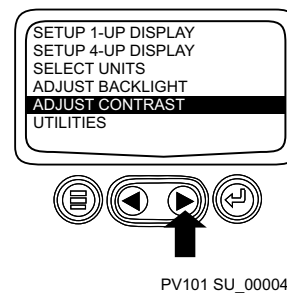
PV101 SU_0000493

Figure 2-12

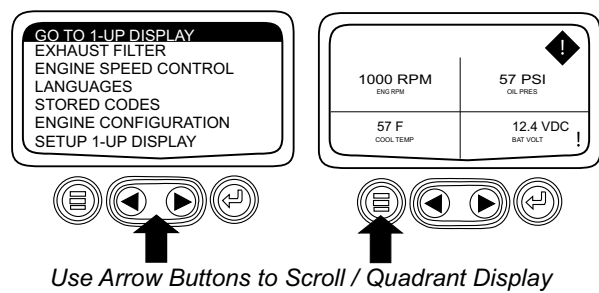
3. Pressing the arrow keys will scroll through the menu selections.

**Figure 2-13**

4. Pressing the right arrow key will scroll down to reveal the last items of the Main Menu screen, highlighting the next item down.

**Figure 2-14**

5. Use the arrow keys to scroll to the desired menu item or press the Menu Button to exit the Main Menu and return to the engine parameter display.



PV101 SU_0000496

Figure 2-15

ENGINE CONFIGURATION DATA

NOTE

The engine configuration data is a read only function.

1. Turn the switch to the ON position. Starting at the single or four engine parameter display, press the Menu key.

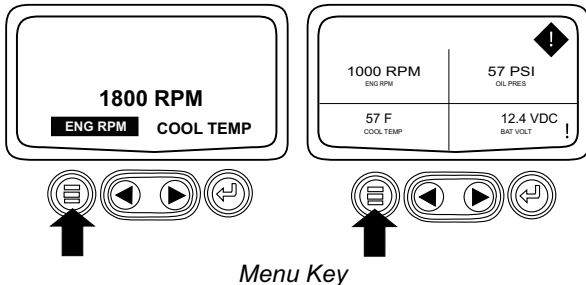


Figure 2-16

PV101 SU_0000497

2. The Main Menu will be displayed. Use the arrow keys to scroll through the menu until ENGINE CONFIG is highlighted.

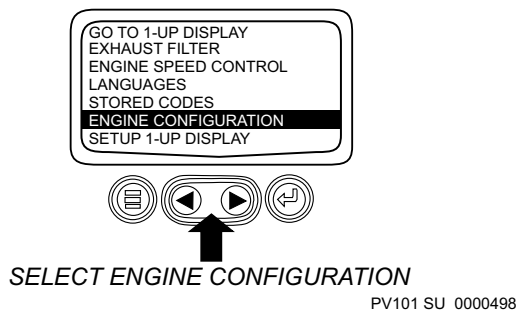


Figure 2-17

PV101 SU_0000498

3. Once the ENGINE CONFIG menu item has been highlighted, press the Enter key to view the engine configuration data.

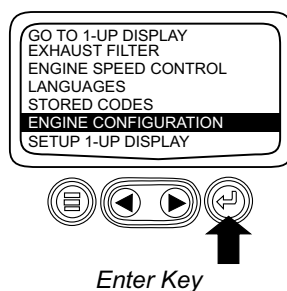
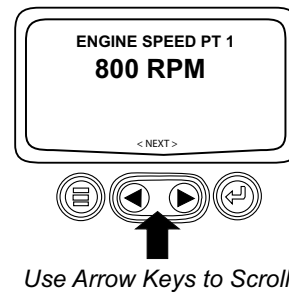


Figure 2-18

PV101 SU_0000499

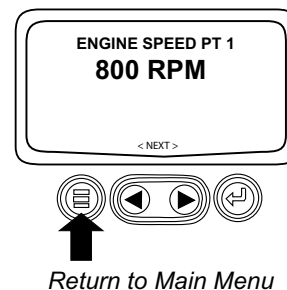
4. Use the arrow keys to scroll through the engine configuration data.



PV101 SU_0000500

Figure 2-19

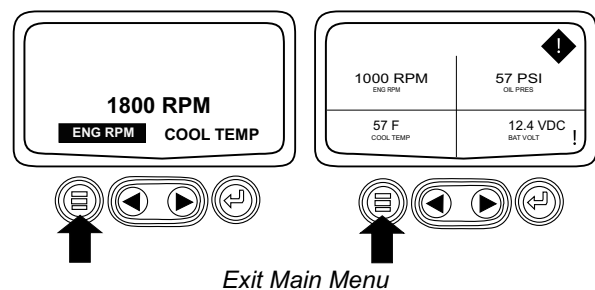
5. Press the Menu key to return to the Main Menu.



PV101 SU_0000501

Figure 2-20

6. Press the Menu key to exit the Main Menu and return to the engine parameter display.



PV101 SU_0000502

Figure 2-21

ACCESSING STORED TROUBLE CODES

NOTE

The engine does not need to be running to navigate the diagnostic gauge screens. If engine start up is desired, See Starting The Engine. All of the engine values shown on the diagnostic gauge indicate the engine is running.

For a description of trouble codes, see the chart in the Troubleshooting Section.

1. Turn the switch to the ON position. Starting at the single or four engine parameter display, press the MENU key.

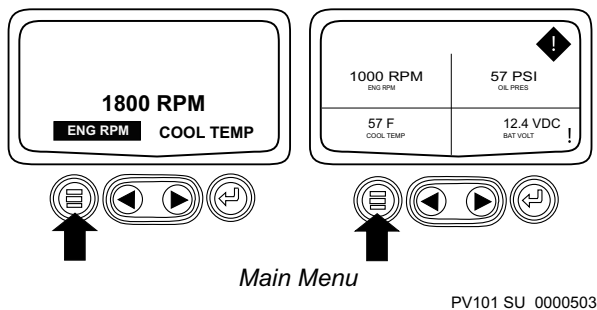


Figure 2-22

2. The Main Menu will be displayed. Use the arrow keys to scroll through the menu until STORED CODES is highlighted.

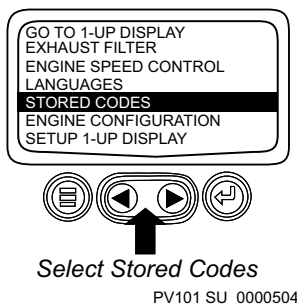


Figure 2-23

3. Once the STORED CODES menu item has been highlighted, press the ENTER key to view the stored codes.

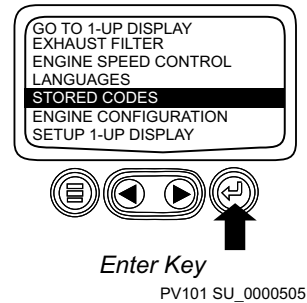


Figure 2-24

4. If the word NEXT appears above the arrow keys, there are more stored codes that can be viewed. Use the arrow key to scroll to the next stored code.

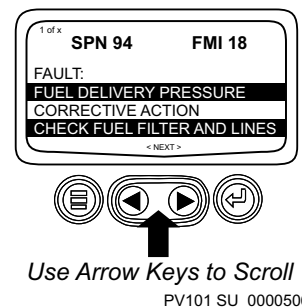


Figure 2-25

5. Press the Menu key to return to the Main Menu.

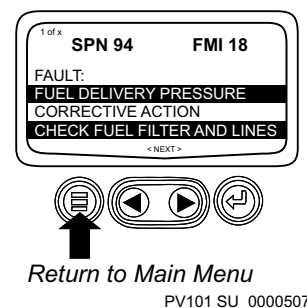


Figure 2-26

- Press the Menu key to exit the Main Menu and return the engine parameter display.

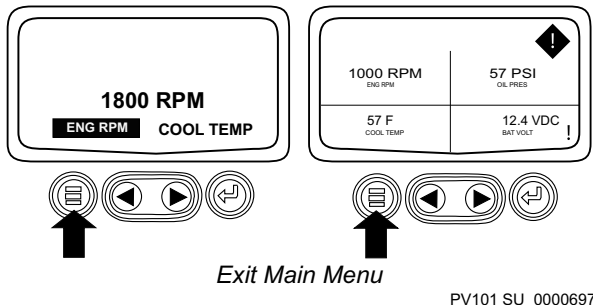


Figure 2-27

ACCESSING ACTIVE TROUBLE CODES

NOTE

The engine does not need to be running to navigate the diagnostic gauge screens. If engine start up is desired, See Starting The Engine. All of the engine values shown on the diagnostic gauge indicate the engine is running.

For a description of trouble codes, see the chart in the Troubleshooting Section.

- During normal operation the single or four parameter screen will be displayed.

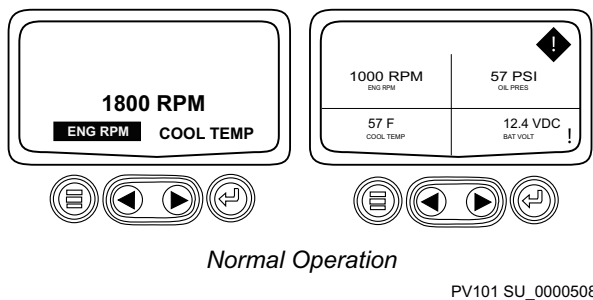


Figure 2-28

- When the diagnostic gauge receives a trouble code from an engine control unit, the single or four parameter screen will be replaced with a WARNING message. The SPN and FMI number will be displayed along with a description of the problem and the required corrective action.

IMPORTANT: Ignoring active trouble codes can result in severe engine damage.

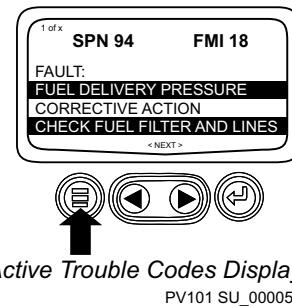


Figure 2-29

- If the word NEXT appears above the arrow keys, there are more trouble codes that can be viewed by using the arrow keys to scroll to the next trouble code

IMPORTANT: Ignoring active trouble codes can result in severe engine damage.

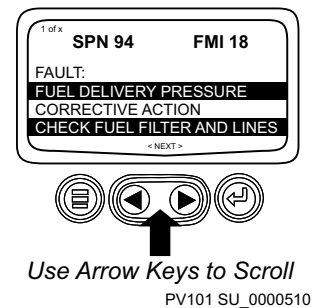


Figure 2-30

- To acknowledge and hide the code and return to the single or four parameter display, press the ENTER key.

IMPORTANT: Ignoring active trouble codes can result in severe engine damage.

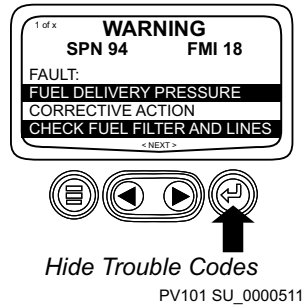


Figure 2-31

5. The display will return to the single or four parameter display, but the display will contain the warning icon. Pressing the ENTER key will redisplay the hidden trouble code.

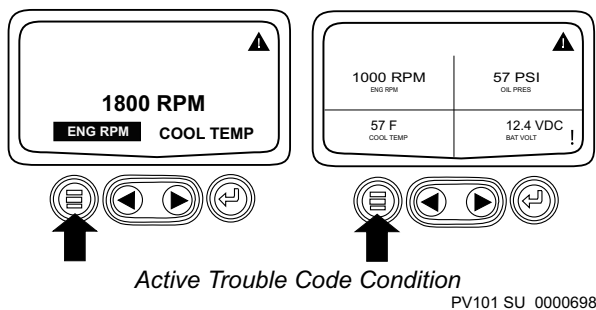


Figure 2-32

6. Pressing the ENTER key once again will hide the trouble code and return the screen to the single or four parameter display.

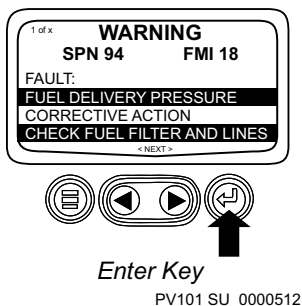


Figure 2-33

7. The single or four parameter screen will display the warning icon until the trouble code condition is corrected.

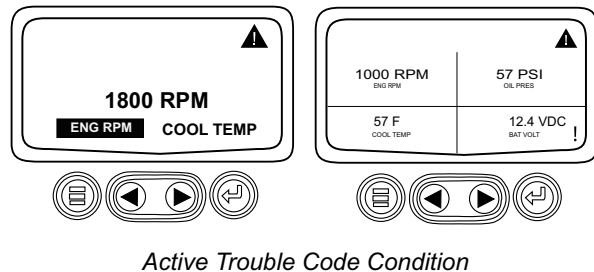


Figure 2-34

ENGINE SHUTDOWN CODES

1. During normal operation the single or four parameter screen will be displayed.

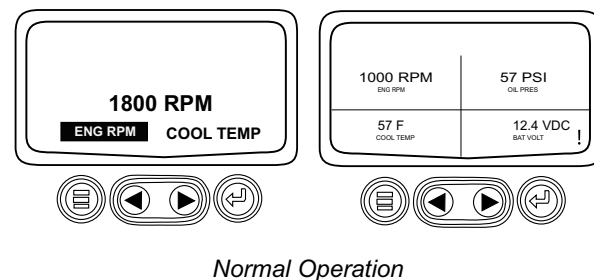


Figure 2-35

2. When the diagnostic gauge receives a severe trouble code from the engine control unit, the single or four parameter screen will be replaced with a SHUTDOWN message. The SPN and FMI number will be displayed along with a description of the problem and the required corrective action.

If the word NEXT appears above the arrow keys, there are more trouble codes that can be viewed by using the arrow keys to scroll to the next trouble code.

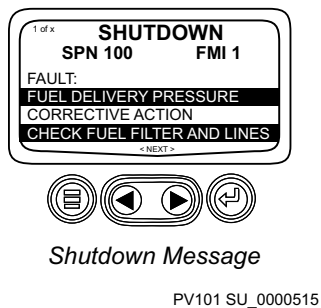


Figure 2-36

3. To acknowledge and hide the trouble code and return to the single or four parameter display, press the ENTER key.

IMPORTANT: Ignoring active trouble codes can result in severe engine damage.

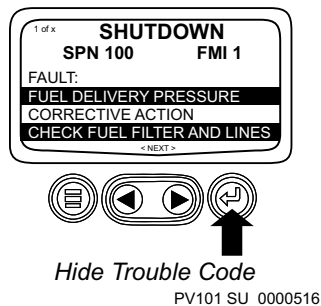


Figure 2-37

4. The display will return to the single or four parameter display, but the display will contain the SHUTDOWN icon. Pressing the ENTER key will redisplay the hidden trouble code.

IMPORTANT: Ignoring active trouble codes can result in severe engine damage.

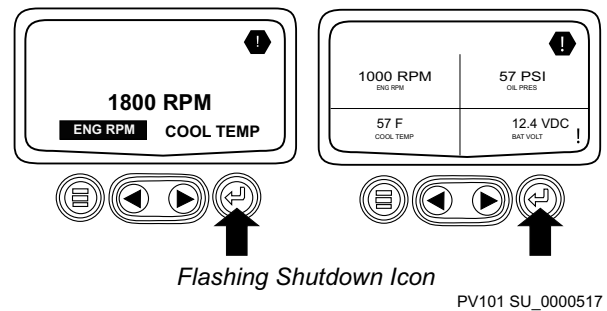


Figure 2-38

5. Pressing the ENTER key once again will hide the trouble code and return the screen to the single or four parameter display.

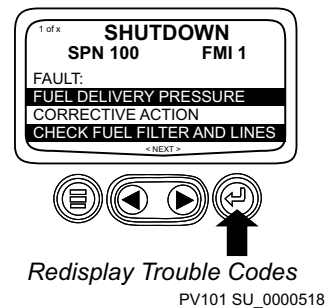


Figure 2-39

6. The single or four parameter screen will display the shutdown icon until the trouble code is corrected

IMPORTANT: Ignoring active trouble codes can result in severe engine damage.

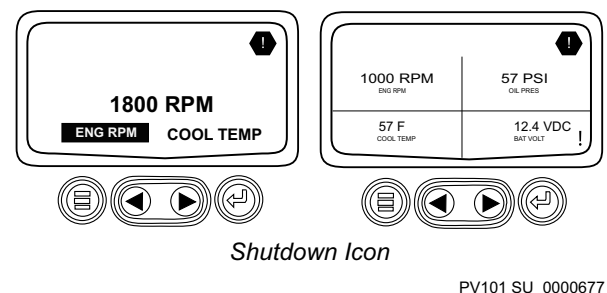
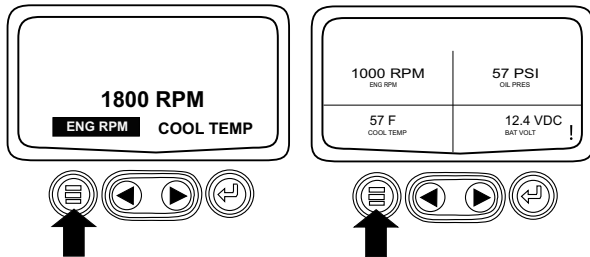


Figure 2-40

ADJUSTING BACKLIGHTING

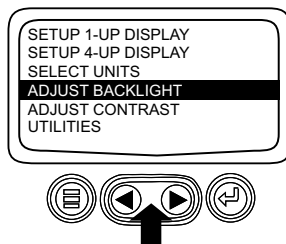
1. Turn the switch to the ON position. Starting at the single or four engine parameter display, press the Menu key.

*Menu Key*

PV101 SU_0000520

Figure 2-41

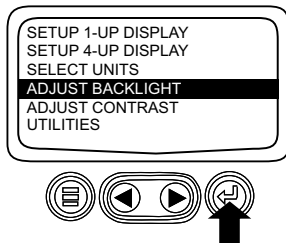
2. The Main Menu will be displayed. Use the arrow keys to scroll through the menu until ADJUST BACKLIGHT is highlighted.

*Select Adjust Backlight*

PV101 SU 0000521

Figure 2-42

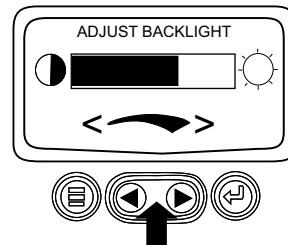
3. Once the ADJUST BACKLIGHT menu item has been highlighted, press the ENTER key to activate the ADJUST BACKLIGHT function.

*Press Enter Key*

PV101 SU 0000522

Figure 2-43

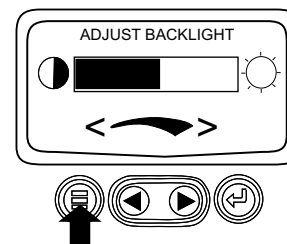
4. Use the arrow keys to select the desired backlight intensity.

*Adjust Backlight Intensity*

PV101 SU 0000523

Figure 2-44

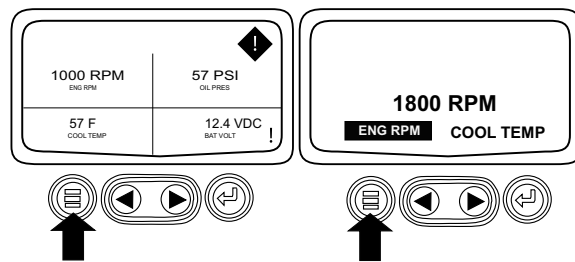
5. Press the Menu key to return to the Main Menu.

*Return to Main Menu*

PV101 SU 0000524

Figure 2-45

6. Press the Menu key to exit the Main Menu and return to the engine parameter display.

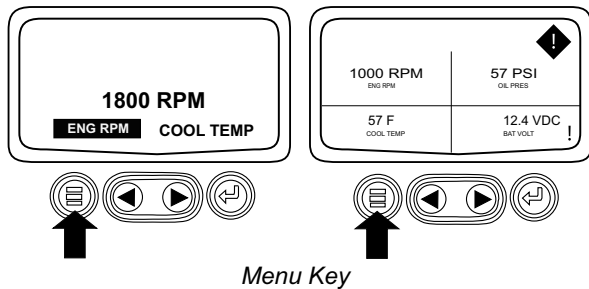
*Exit Main Menu*

PV101 SU_0000519

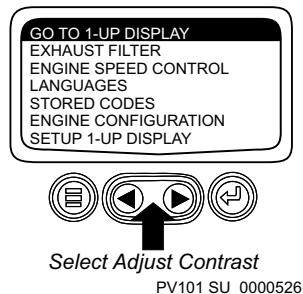
Figure 2-46

ADJUSTING CONTRAST

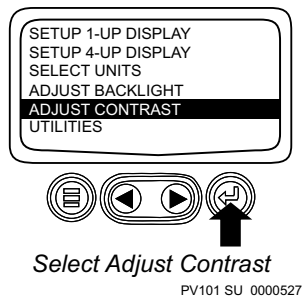
1. Turn the switch to the ON position. Starting at the single or four engine parameter display, press the Menu key.

**Figure 2-47**

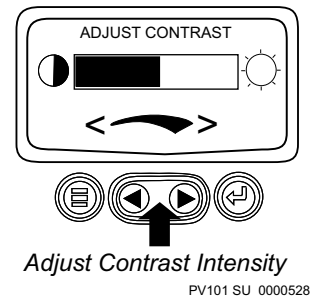
2. The Main Menu will be displayed. Use the arrow keys to scroll through the menu until ADJUST CONTRAST is highlighted.

**Figure 2-48**

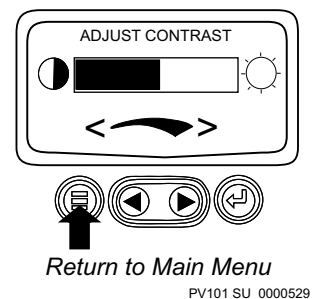
3. Once the ADJUST CONTRAST menu item has been highlighted, press the ENTER key to activate the ADJUST CONTRAST function.

**Figure 2-49**

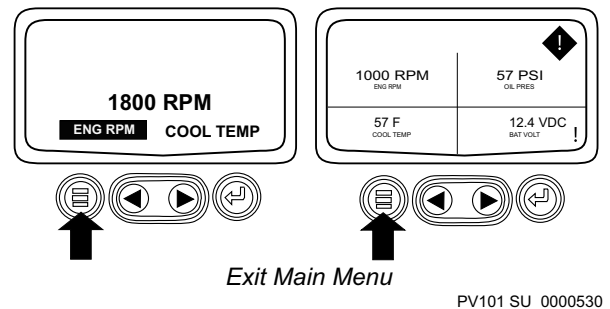
4. Use the arrow keys to select the desired contrast intensity.

**Figure 2-50**

5. Press the Menu key to return to the Main Menu.

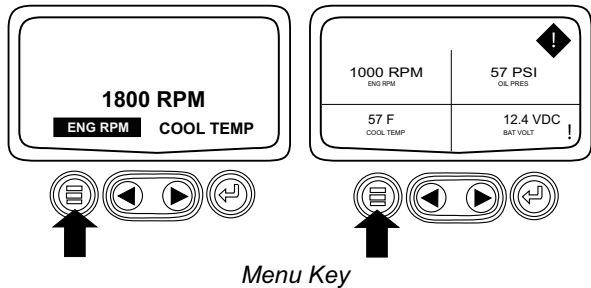
**Figure 2-51**

6. Press the Menu key to exit the Main Menu and return to the engine parameter display.

**Figure 2-52**

SELECTING UNITS OF MEASUREMENT

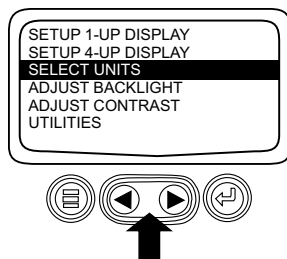
1. Turn the switch to the ON position. Starting at the single or four engine parameter display, press the Menu key.



PV101 SU_0000531

Figure 2-53

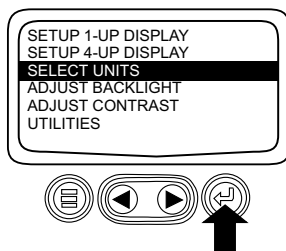
2. The Main Menu will be displayed. Use the arrow keys to scroll through the menu until SELECTED UNITS is highlighted.



PV101 SU_0000532

Figure 2-54

3. Once the SELECT UNITS menu item has been highlighted, press the ENTER key to access the ADJUST CONTRAST function.



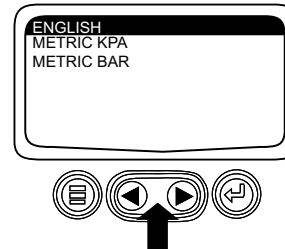
PV101 SU_0000533

Figure 2-55

4. There are three choices for units of measurement: English, Metric kPa, or Metric bar.

English is for Imperial units with pressures displayed in psi and temperatures in °F. Metric kPa and Metric bar are for IS units with pressures displayed in kPa and bar respectively, and temperatures in °C.

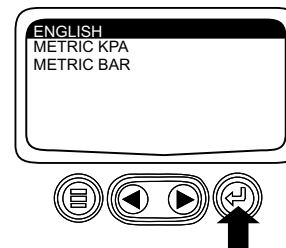
Use the arrow keys to highlight the desired units of measurement.



PV101 SU_0000534

Figure 2-56

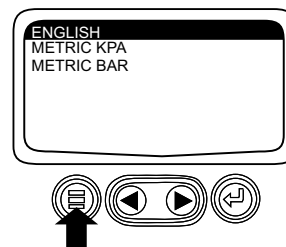
5. Press the ENTER key to select the highlighted units.



PV101 SU_0000535

Figure 2-57

6. Press the Menu key to return to the Main Menu.



PV101 SU_0000536

Figure 2-58

- Press the Menu key to return to the engine parameter display.

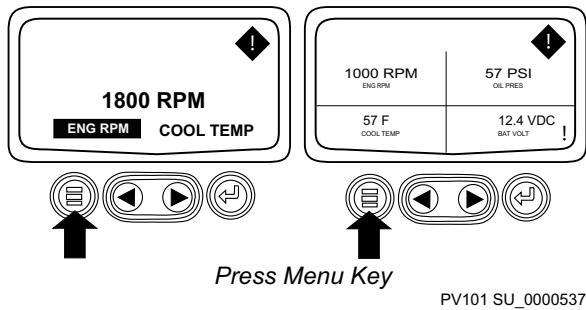


Figure 2-59

SETUP 1-UP DISPLAY

- Turn the switch to the ON position. Starting at the single or four engine parameter display, press the Menu key.

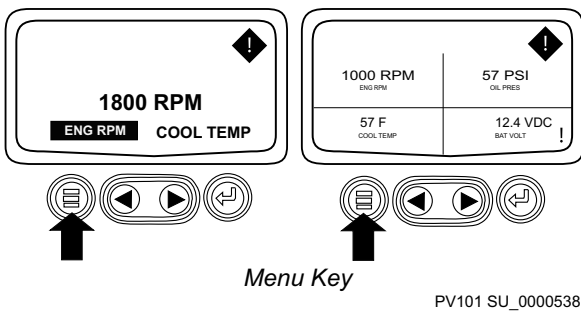


Figure 2-60

- Use the arrow keys to scroll through the menu until SETUP 1-UP DISPLAY is highlighted.

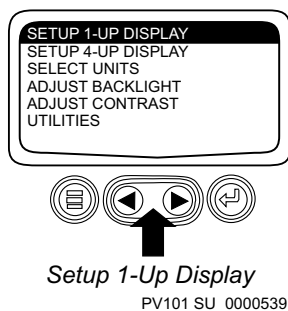


Figure 2-61

- Once the SETUP 1-UP DISPLAY menu item has been highlighted, press the ENTER key to access the SETUP 1-UP DISPLAY function.

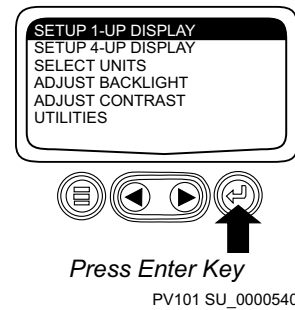


Figure 2-62

- Three options are available for modification of Setup 1-Up Display.
 - Use Defaults**—This option contains the following engine parameters for display: Engine Hours, Engine Speed, Battery Voltage, % Load, Coolant Temperature, and Oil Pressure.
 - Custom Setup**—This option contains a list of engine parameters. Engine parameters from this list can be selected to replace any or all of the default parameters. This option can be used to add parameters available for scrolling in the Setup 1-Up Display.
 - Automatic Scan**—Selecting the scan function will allow the Setup 1-Up Display to scroll through the selected set of parameters one at a time, momentarily pausing at each.

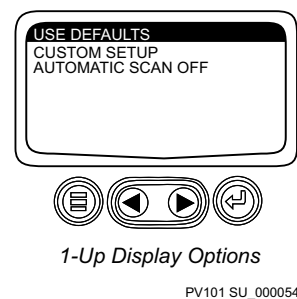


Figure 2-63

5. Use Defaults—To select USE DEFAULTS use the arrow keys to scroll to and highlight USE DEFAULTS in the menu display.

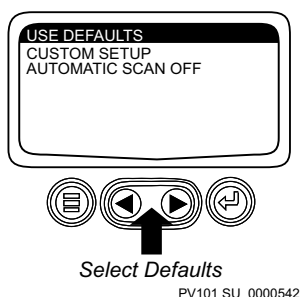


Figure 2-64

6. Press the ENTER key to activate the USE DEFAULTS function.

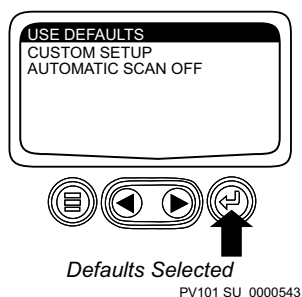


Figure 2-65

7. The display parameters are reset to the factory defaults, then the display will return to the SETUP 1-UP DISPLAY menu.

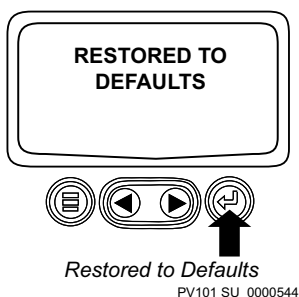


Figure 2-66

8. Custom Setup – To perform a custom setup of the SETUP 1-UP DISPLAY, use the arrow

buttons to scroll and highlight CUSTOM SETUP on the display.

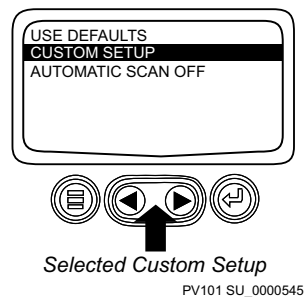


Figure 2-67

9. Press the ENTER key to display a list of engine parameters.

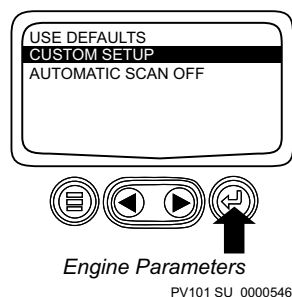


Figure 2-68

10. Use the arrow keys to scroll and highlight a selected parameter (parameter with a number to the right of it).

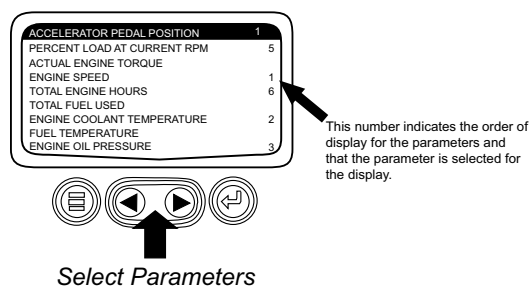


Figure 2-69

11. Press the ENTER key to deselect the selected parameter, removing it from the list

of parameters being displayed on the SETUP 1-UP DISPLAY.

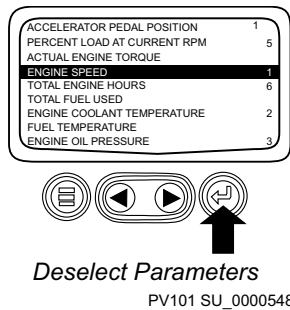


Figure 2-70

12. Use the arrow keys to scroll and highlight the desired parameter that has not been selected for display (parameter with a number to the right of it).

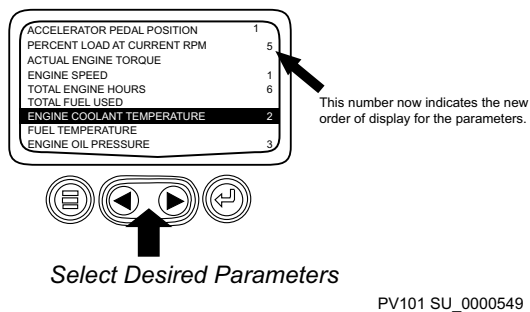


Figure 2-71

13. Press the ENTER key to select the parameter for inclusion in the Single Engine Parameter Display.
14. Continue to scroll through and select additional parameters for the custom SETUP 1-UP DISPLAY. Press the Menu key at any time to return to the Custom Setup menu.

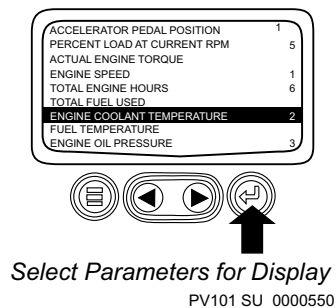


Figure 2-72

15. Automatic Scan—Selecting the scan function will allow the SETUP 1-UP DISPLAY to scroll through the selected set of parameters one at a time. Use the arrow keys to scroll to the AUTOMATIC SCAN function.

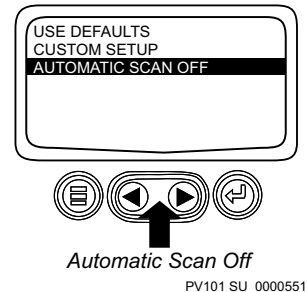


Figure 2-73

16. Press the ENTER key to toggle the AUTOMATIC SCAN function on.

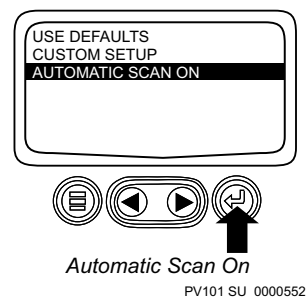


Figure 2-74

17. Press the ENTER key again to toggle the AUTOMATIC SCAN function off.

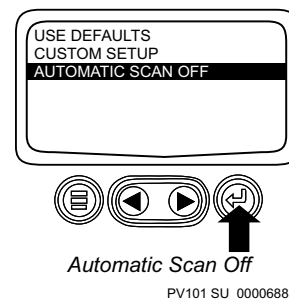


Figure 2-75

18. Once the USE DEFAULTS, CUSTOM SETUP and AUTOMATIC SCAN functions

have been set, press the Menu key to return to the Main Menu.

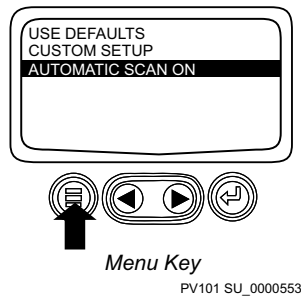


Figure 2-76

19. Press the Menu key to exit the Main Menu and return to the engine parameter display.

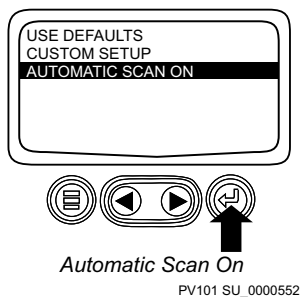


Figure 2-77

SETUP 4-UP DISPLAY

1. Turn the switch to the ON position. From the single or four engine parameter display, press the Menu key.

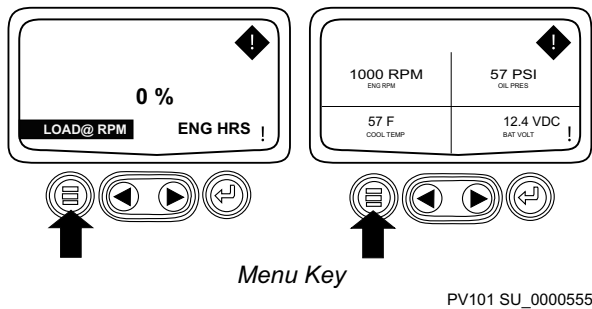


Figure 2-78

2. The Main Menu will be displayed. Use the arrow keys to scroll through the menu until SETUP 4-UP DISPLAY is highlighted.

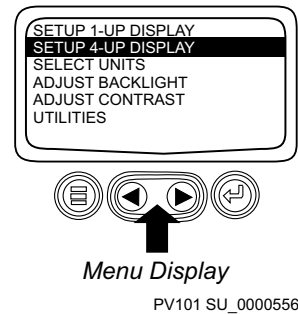


Figure 2-79

3. Once the SETUP 4-UP DISPLAY menu item has been highlighted, press the ENTER key to activate the SETUP 4-UP DISPLAY menu.

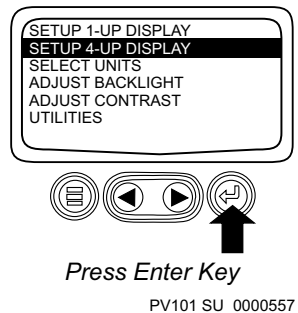


Figure 2-80

4. Two options are available for the SETUP 4-UP DISPLAY.
- Use Defaults**—This option contains the following engine parameters for display: Engine Speed, Battery Voltage, Coolant Temperature, and Oil Pressure.
 - Custom Setup**—This option contains a list of engine parameters. Engine parameters

from this list can be selected to replace any or all of the default parameters.

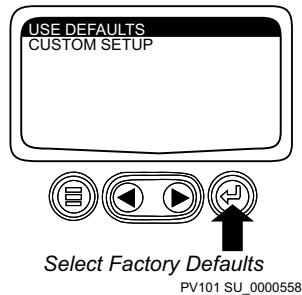


Figure 2-81

5. To reset the display parameters to the factory defaults, scroll to and highlight USE DEFAULTS. Press the ENTER key to activate the USE DEFAULTS function. A message indicating the display parameters are reset to the factory defaults will be displayed, then the display will return to the SETUP 4-UP DISPLAY menu.

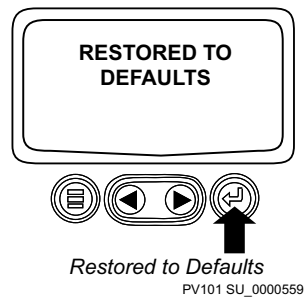


Figure 2-82

6. Custom Setup – To perform a custom setup of the SETUP 4-UP DISPLAY, use the arrow buttons to scroll and highlight CUSTOM SETUP on the display.

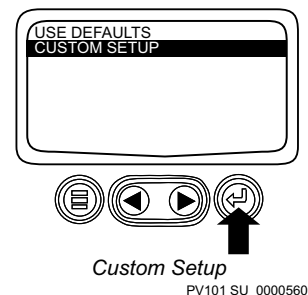


Figure 2-83

7. The quadrant with the highlighted parameter value is the current selected parameter. Use the arrow keys to highlight the value in the quadrant you wish to change to a new parameter.

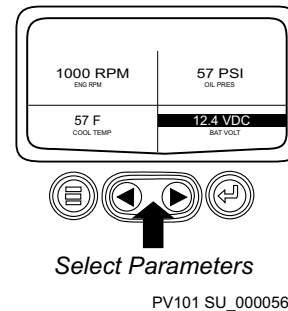


Figure 2-84

8. Press the ENTER key and a list of engine parameters will be displayed.

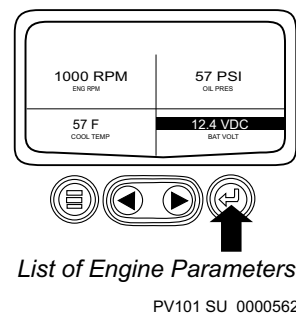


Figure 2-85

9. The parameter that is highlighted is the selected parameter for the screen. Use the arrow keys to highlight the new parameter to be placed in the SETUP 4-UP DISPLAY.

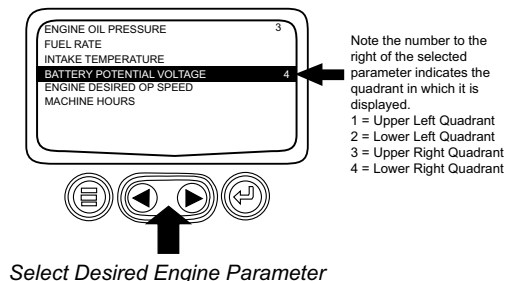


Figure 2-86

10. Press the ENTER key to change the selected parameter in the quadrant to the new parameter.

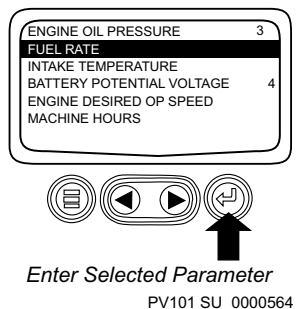


Figure 2-87

11. Use the Menu key to return to the SETUP 4-UP DISPLAY screen.

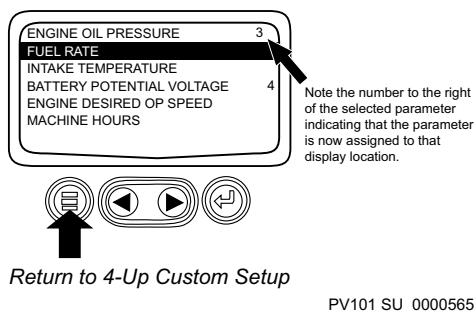


Figure 2-88

12. The selected quadrant has now changed to the new selected parameter.

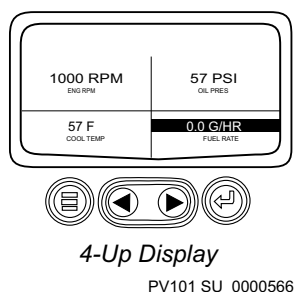


Figure 2-89

13. Repeat the parameter selection process until all spaces are as desired.

14. Press the Menu key to return to the Main Menu.

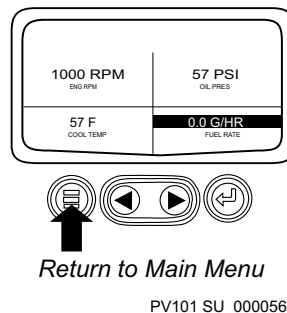


Figure 2-90

15. Press the Menu key to exit the Main Menu and return to the engine parameter display.

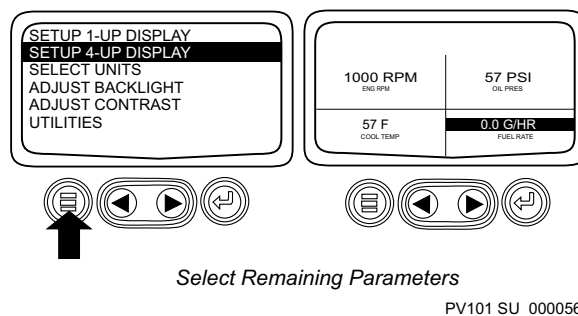


Figure 2-91

02250165-198 R07

NOTE: GROUND WIRES 201, 202, 207, 208, 210, 211, 212 AND L2 ARE WIRED DIRECT TO BATTERYNEGATIVE.

2.10 ELECTRICAL SYSTEM, FUNCTIONAL DESCRIPTION

The electrical system consists of the basic electrical elements required to operate the compressor and also has a system feature that automatically shuts down the compressor when a malfunction occurs. The system's components include: an engine starter, battery, alternator/ voltage regulator, and a fuel solenoid. It also has a compressor discharge temperature switch that will shut the compressor down if the compressor temperature exceeds 250° F (121° C). It has an oil pressure switch that will shut down the compressor if the engine oil pressure goes too low. An underspeed sensor shuts down the compressor if the engine speed falls below 1500 rpm and a low fuel level switch shuts down the engine when fuel level is low to prevent running the engine dry (out of fuel). The engine is also equipped with an ECM (electronic control module).

2.11 COMPRESSOR SHUTDOWN & WARNING SYSTEM, FUNCTIONAL DESCRIPTION

The Shutdown System and Annunciator Module (SSAM) continuously monitors the status of the compressor. In the event of a shutdown condition, the SSAM will shut down the compressor and display (flashing) the appropriate code on the instrument panel annunciator light. The display will continue flashing until the ignition switch is turned OFF. The shutdown codes are:

- One flash: high compressor discharge temperature
- Two flashes: high engine coolant temperature
- Three flashes: low engine oil pressure
- Four flashes: low engine speed
- Five flashes: low fuel level

The SSAM also provides startup logic for the compressor. When the ignition switch is in the ON position, the annunciator light will illuminate for 30 seconds. During this 30 second period, pressing the ignition switch will engage the engine starter. The low engine speed switch is inactive during this startup time interval. By the end of these 30 seconds, the annunciator light goes out and the engine START cycle is disabled. At this time the system runs all safety checks including low fuel level.

The engine is equipped with an electronic speed control and has a shutdown protection/diagnostic capability. A variety of sensors and a speed control module interface with the ECM. These sensors

include the following: oil pressure, coolant temperature, intake manifold, fuel temperature, timing cranking; and a remote shutdown switch. The engine speed control module consists of the module and a pressure transducer. The pressure transducer senses the compressor control pressure and as the control pressure increases, the speed control module decreases the engine speed by lowering the output voltage to the ECM.

2.12 AFTERCOOLED AND FILTERED AIR SYSTEM, FUNCTIONAL DESCRIPTION

Refer to *Figure 2-3*. The purpose of the aftercooled system is to operate the air compressor in conditions when compressed air temperature is required to be within 20° to 25°F (13° to 17°C) of the ambient temperature.

A selector valve is provided on all aftercooled compressors. Choosing the aftercooled air completely forces the airflow from the receiver tank to the aftercooler. The ambient air which is drawn through the aftercooler by the engine fan, cools the compressed air as it passes through the aftercooler core. Cooled air enters the moisture separator where condensation is removed from the cooler air and discharged. **This condensate does carry some oil and it should be disposed of properly in accordance with local regulations.**

From the moisture separator the air enters the (optional) first stage filter. Particles and additional water are removed from the first stage filter. **The condensate should be drained and stored in a suitable container.** From the first stage filter, the air enters the (optional) second stage filter. This filter removes smaller particles and any additional water. **The condensate should be drained and stored in a suitable container.** Upon compressor shutdown, the filters will drain to clear the condensate from the system. This will prevent freezing in cold conditions.

NOTE

The aftercooler system should not be operated when the ambient temperature is below 32°F (0°C). To operate in the non-aftercooled mode close the aftercooler selector valve completely.

2.13 LISTING OF ENGINE DIAGNOSTIC CODES (DTCS)

NOTE

Not all of these codes are used on all OEM engine applications.
Third column below is for Blink Code retrieval method only.

Trouble Codes

DTCs Listing in Ascending SPN/FMI Codes				
SPN	FMI	Blink Code	Description of Fault	Corrective Action
28	3	15	Throttle #3 Signal Out of Range High	Check Sensor and Wiring
	4	—	Throttle #3 Signal Out of Range Low	Check Sensor and Wiring
29	3	13	Throttle #2 Signal Out of Range Low	Check Sensor and Wiring
	4	—	Throttle #2 Signal Out of Range Low	Check Sensor and Wiring
84	31	—	Vehicle Speed Signal Unreliable	Contact Servicing Dealer
91	3	11	Throttle #1 Signal Out of Range High	Check Switch and Wiring
	4	12	Throttle #1 Signal Out of Range Low	Check Switch and Wiring
	9	—	Throttle #1 Communication Signal Erratic	Check Sensor and Wiring
94	3	27	Low Pressure Fuel Signal Out of Range High	Check Sensor and Wiring
	4	28	Low Pressure Fuel Signal Out of Range Low	Check Sensor and Wiring
	10	88	Low Pressure Fuel Rate of Change Abnormal	Contact Servicing Dealer
	13	—	Low Pressure Fuel Out of Calibration	Contact Servicing Dealer
	17	85	High Pressure Fuel System—Pressure Slightly Low	Contact Servicing Dealer
97	0	—	Water in Fuel Continuously Detected	Contact Servicing Dealer
	3	—	Water in Fuel Signal Out of Range High	Check Sensor and Wiring
	4	—	Water in Fuel Signal Out of Range Low	Check Sensor and Wiring
	16	—	Water in Fuel Detected	Stop and Drain Water Separator
100	1	75	Engine Oil Pressure Signal Extremely Low	Check Oil Level
	3	23	Engine Oil Pressure Signal Out of Range High	Check Sensor and Wiring
	4	24	Engine Oil Pressure Signal Out of Range Low	Check Sensor and Wiring
	18	74	Engine Oil Pressure Signal Moderately Low	Check Oil Level
105	0	—	Intake Manifold Air Temp Signal Extremely High	Check Air Cleaner, Aftercooler or Room Temp

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	3	25	Intake Manifold Air Temp Signal Out of Range High	Check Sensor and Wiring
	4	26	Intake Manifold Air Temp Signal Out of Range Low	Check Sensor and Wiring
	16	55	Intake Manifold Air Temp Signal Moderately High	Check Air Cleaner, Aftercooler or Room Temp
107	0	—	Air Filter Pressure Differential Extremely High	Check for Plugged Air Filter
110	0	63	Engine Coolant Temp Extremely High	Check Cooling System, Reduce Power
	3	18	Engine Coolant Temp Signal Out of Range High	Check Sensor and Wiring
	4	19	Engine Coolant Temp Signal Out of Range Low	Check Sensor and Wiring
	15	61	Engine Coolant Temp Signal Slightly High	Check Cooling System, Reduce Power
	16	62	Engine Coolant Temp Signal Moderately High	Check Cooling System, Reduce Power
111	1	64	Engine Coolant Level Low	Check Operator's Manual "Adding Coolant"
158	17	54	ECU Power Down Error (internal ECU problem)	Contact Servicing Dealer
160	2	—	Axle Speed Unreliable	Contact Servicing Dealer
174	0	—	Fuel Temp Signal Extremely High	Add Fuel or Switch Fuel Tanks
	3	37	Fuel Temp Signal Out of Range High	Check Sensor and Wiring
	4	38	Fuel Temp Signal Out of Range Low	Check Sensor and Wiring
	16	71	Fuel Temp Signal Moderately High	Add Fuel or Switch Fuel Tanks
189	0	—	Engine Speed Derate Condition Exists	Check Fault Codes/Contact Servicing Dealer
190	0	42	Engine Speed Extremely High	Reduce Engine Speed
	16	42	Engine Speed Moderately High	Reduce Engine Speed
611	3	98	Injector Shorted to Power	Check Wiring
	4	99	Injector Shorted to Ground	Check Wiring
620	3	98	Sensor Supply 2 Voltage High	Check Wiring
	4	22	Sensor Supply 2 Voltage Low	Check Wiring
627	1	97	All Injector Currents Are Low	Check Battery Voltage and Wiring
629	13	—	ECU Programming Error	Contact Service Dealer
636	2	44	Engine Position Sensor Signal Unreliable	Check Sensor and Wiring
	8	43	Engine Position Sensor Signal Missing	Check Sensor and Wiring
	10	44	Engine Position Sensor Signal Rate of Change—Abnormal	Check Sensor and Wiring
637	2	39	Engine Timing Sensor Signal Unreliable	Check Sensor and Wiring

637	7	45	Engine Position Sensor Signal Rate of Change—Abnormal	Check Sensor and Wiring
	8	41	Engine Timing Sensor Signal Missing	Check Sensor Wiring
	10	39	Engine Timing Signal Rate of Change—Abnormal	Check Sensor and Wiring
639	13	—	CAN Bus Error (Communication Network Problem)	Contact Servicing Dealer
651	5	31	Injector Number 1 Circuit Has High Resistance	Check Injector Wiring or Injector Solenoid
	6	91	Injector Number 1 Circuit Has Low Resistance	Check Injector Wiring or Injector Solenoid
	7	65	Injector Number 1 Not Responding	Injector Failed or Flow Limiter Closed
652	5	29	Injector Number 2 Circuit Has High Resistance	Check Injector Wiring or Injector Solenoid
	6	92	Injector Number 2 Circuit Has Low Resistance	Check Injector Wiring or Injector Solenoid
	7	65	Injector Number 2 Not Responding	Injector Failed or Flow Limiter Closed
653	5	17	Injector Number 3 Circuit Has High Resistance	Check Injector Wiring or Injector Solenoid
	6	93	Injector Number 3 Circuit Has Low Resistance	Check Injector Wiring or Injector Solenoid
	7	65	Injector Number 3 Not Responding	Injector Failed or Flow Limiter Closed
654	5	34	Injector Number 4 Circuit Has High Resistance	Check Injector Wiring or Injector Solenoid
	6	94	Injector Number 4 Circuit Has Low Resistance	Check Injector Wiring or Injector Solenoid
	7	59	Injector Number 4 Not Responding	Injector Failed or Flow Limiter Closed
655	5	35	Injector Number 5 Circuit Has High Resistance	Check Injector Wiring or Injector Solenoid
	6	95	Injector Number 5 Circuit Has Low Resistance	Check Injector Wiring or Injector Solenoid
	7	56	Injector Number 5 Not Responding	Injector Failed or Flow Limiter Closed
656	5	35	Injector Number 6 Circuit Has High Resistance	Check Injector Wiring or Injector Solenoid
	6	96	Injector Number 6 Circuit Has Low Resistance	Check Injector Wiring or Injector Solenoid
	7	68	Injector Number 6 Not Responding	Injector Failed or Flow limiter Closed
898	9	—	Vehicle Speed or Torque Message Unreliable	Contact Servicing Dealer
970	31	83	External Shutdown Commanded	Not Engine Fault—Check Other Shutdown Devices—SSAM Module
971	31	84	External Fuel Derate Switch Active	Not Engine Fault—Check Other Shutdown Devices—SSAM Module

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1069	9	—	Tire Size Invalid	Contact Servicing Dealer
	31	—	Tire Size Error	Contact Servicing Dealer
1079	3	51	Sensor Supply 1 Voltage High	Check Wiring
	4	52	Sensor Supply 1 Voltage Low	Check Wiring
1080	3	49	Fuel Rail Pressure Sensor Supply Voltage High	Check Wiring
	4	48	Fuel Rail Pressure Sensor Supply Voltage Low	Check Wiring
1109	31	—	Engine Protection Shutdown Warning	Shutdown Engine/Check Fault Codes
110	31	82	Engine Protection Shutdown	Shutdown Engine/Check Fault Codes
1347	3	79	High Pres Fuel Pump Control Valve Signal Out of Range High	Contact Servicing Dealer
	5	77	High Pres Fuel Solenoid # 1 Circuit Has High Resistance	Check Pump Wiring
	7	78	High Pres Fuel Pump Not Able to Meet Required Rail Pres	Check Fuel Filter and Lines
1568	2	—	Requested Torque Curve Signal Unreliable	Contact Servicing Dealer
1569	31	—	Engine in Derate Condition	Check Fault Codes
200	13	—	Security Violation	Contact Servicing Dealer
N/A	N/A	32	When reading blink codes, signifies start of active codes	
N/A	N/A	33	When reading blink codes, signifies start of stored codes	
N/A	N/A	88	When reading blink codes, signifies that no fault codes are in the buffer	

Section 3

SPECIFICATIONS

3.1 SPECIFICATIONS—300HH, 375, 375H JOHN DEERE

Table 3-1: Overall Specifications

Model Series	Length (I)		Width		Height (II)		Weight (wet)	
	in	mm	in	mm	in	mm	lb	kg
300HH, 375, 375H 2-Wheel (III)	156.2	3967.5	77.2	1960.9	74.0	1879.6	4440*	2014.0*
300HH, 375, 375H Less Running Gear	98.8	2509.5	59.3	1506.2	63.6	1615.4	4195*	1902.9*
(I) Length over drawbar for 2-wheel version, (III) American models. *Add 115 lbs (52 kg) for Aftercooled Version								

Table 3-2: Compressor Specifications

Compressor	300HH	375	375H
Type	Rotary Screw	Rotary Screw	Rotary Screw
Maximum Operating Pressure	200 psig (13.8 bar)	125 psig (8.6 bar)	150 psig (10.3 bar)
Pressure Delivery	300 Free CFM (142 L/S)	375 Free CFM (177 L/S)	375 Free CFM (177 L/S)
Rated Pressure	200 psig (13.8 bar)	100 psig (6.9 bar)	150 psig (10.3 bar)
Cooling	Pressurized Compressor Fluid	Pressurized Compressor Fluid	Pressurized Compressor Fluid
Lubricating Compressor Fluid	See Figure 3.3	See Figure 3.3	See Figure 3.3
Sump Capacity	7 US gallons (26.5 liters)	7 US gallons (26.5 liters)	7 US gallons (26.5 liters)
Track Width	67.5" (1714.5 mm)	67.5" (1714.5 mm)	67.5" (1714.5 mm)
Tire Size (Load Range)	H78 x 15ST (D)	H78 x 15ST (D)	H78 x 15ST (D)
Tire Pressure	65 psig (4.4 bar)	65 psig (4.4 bar)	65 psig (4.4 bar)
Wheel Size	15 x 6JJ	15 x 6JJ	15 x 6JJ
Lug Nut Torque	60 ft-lbs (81 Nm)	60 ft-lbs (81 Nm)	60 ft-lbs (81 Nm)
Operating Tilt (maximum)	15°	15°	15°
Electrical System	12 volt	12 volt	12 volt
Compressor Discharge Temperature	Shutdown 250°F (121°C)	Shutdown 250°F (121°C)	Shutdown 250°F (121°C)
Service Valves (American)	(2) 3/4"	(2) 3/4"	(2) 3/4"
Service Valves (CE)	(3) 3/4" + (1) 1-1/4"	(3) 3/4" + (1) 1-1/4"	(3) 3/4" + (1) 1-1/4"
Maximum Towing Speed	55 mph (88 kmph)	55 mph (88 kmph)	55 mph (88 kmph)
Axle Rating	5000 lbs (2268 kg)	5000 lbs (2268 kg)	5000 lbs (2268 kg)
Sound Level (US EPA) ¹	76 dBA	76 dBA	76 dBA
Sound Level (CE) ²	71 dBA	71 dBA	

¹ Sound level measured per U.S. CFR Ch. 1 Part 204

² Sound level measure per 2000/14/EC Outdoor Noise Directive
(III) American models.

Table 3-3: Engine Specifications

Engine	300HH	375	375H
Type	Diesel	Diesel	Diesel
Make	John Deere	John Deere	John Deere
Model	JD4045HF285	JD4045HF285	JD4045HF285
Displacement	275 cu/in (4.5L)	275 cu/in (4.5L)	275 cu/in (4.5L)
Cylinders	4	4	4
Bore x Stroke	4.19 x 5.00 (106 mm x 127 mm)	4.19 x 5.00 (106 mm x 127 mm)	4.19 x 5.00 (106 mm x 127 mm)
Rated Speed	2200 rpm	2200 rpm	2200 rpm
Rated Power	140HP/104kW	140HP/104kW	140HP/104kW
Type of Motor Oil	See Engine Operator Manual	See Engine Operator Manual	See Engine Operator Manual
Fuel Tank Capacity	56 gallons (212 liters)	56 gallons (212 liters)	56 gallons (212 liters)
Radiator Capacity	4 gallons (15 liters)	4 gallons (15 liters)	4 gallons (15 liters)
Engine Water Temperature	Shutdown 230°F (110°C)	Shutdown 230°F (110°C)	Shutdown 230°F (110°C)
Minimum Idle Speed	1600 rpm (II)	1600 rpm (II)	1600 rpm (II)
Alternator Rating	65 amp	65 amp	65 amp
(II) DO NOT allow engine idle rpm to drop below minimum idle speed. Compressor and/or coupling damage will occur. The compressor is equipped with a Low Speed Shutdown System that will shutdown the compressor if engine speed falls below 1500 rpm.			

3.2 SPECIFICATIONS—375HH, 425 AND 425H JOHN DEERE

Table 3-4: Overall Specifications

Model Series	Length (I)		Width		Height (II)		Weight (wet)	
	in	mm	in	mm	in	mm	lb	kg
375HH, 425, 425H 2-Wheel	156.2	3967.5	77.2	1960.9	74.0	1879.6	4440*	2014.0*
375HH, 425, 425H Less Running Gear	98.8	2509.5	59.3	1506.2	63.6	1615.4	4195*	1902.9*
(I) Length over drawbar for 2-wheel version *Add 115 lbs (52 kg) for Aftercooled Version								

Table 3-5: Compressor Specifications

Compressor	375HH	425	425H
Type	Rotary Screw	Rotary Screw	Rotary Screw
Maximum Operating Pressure	200 psig (13.8 bar)	125 psig (8.6 bar)	150 psig (10.3 bar)
Pressure Delivery	375 Free CFM (177 L/S)	425 Free CFM (201 L/S)	425 Free CFM (201 L/S)
Rated Pressure	200 psig (13.8 bar)	100 psig (6.9 bar)	150 psig (10.3 bar)
Cooling	Pressurized Compressor Fluid	Pressurized Compressor Fluid	Pressurized Compressor Fluid
Lubricating Compressor Fluid	See Figure 3.3	See Figure 3.3	See Figure 3.3
Sump Capacity	7 US gallons (26.5 liters)	7 US gallons (26.5 liters)	7 US gallons (26.5 liters)
Track Width	67.5" (1714.5 mm)	67.5" (1714.5 mm)	67.5" (1714.5 mm)
Tire Size (Load Range)	H78 x 15ST (D)	H78 x 15ST (D)	H78 x 15ST (D)
Tire Pressure	65 psig (4.4 bar)	65 psig (4.4 bar)	65 psig (4.4 bar)
Wheel Size	15 x 6JJ	15 x 6JJ	15 x 6JJ
Lug Nut Torque	60 ft-lbs (81 Nm)	60 ft-lbs (81 Nm)	60 ft-lbs (81 Nm)
Operating Tilt (maximum)	15°	15°	15°
Electrical System	12 volt	12 volt	12 volt
Compressor Discharge Temperature	Shutdown 250°F (121°C)	Shutdown 250°F (121°C)	Shutdown 250°F (121°C)
Service Valves (American)	(2) 3/4"	(2) 3/4"	(2) 3/4"
Service Valves (CE)	(3) 3/4" + (1) 1-1/4"	(3) 3/4" + (1) 1-1/4"	(3) 3/4" + (1) 1-1/4"
Maximum Towing Speed (III)	55 mph (88 kmph)	55 mph (88 kmph)	55 mph (88 kmph)
Axle Rating	5000 lbs (2268 kg)	5000 lbs (2268 kg)	5000 lbs (2268 kg)
Sound Level (US EPA) ¹	76 dBA	76 dBA	76 dBA
Sound Level (CE) ²	71 dBA	71dBA	71dBA
¹ Sound level measured per U.S. CFR Ch. 1 Part 204 ² Sound level measured per 2000/14/EC Outdoor Noise Directive (III) American models			

Table 3-6: Engine Specifications

Engine	375HH	425	425H
Type	Diesel	Diesel	Diesel
Make	John Deere	John Deere	John Deere
Model	JD4045HF285	JD4045HF285	JD4045HF285
Displacement	275 cu/in (4.5L)	275 cu/in (4.5L)	275 cu/in (4.5L)
Cylinders	4	4	4
Bore x Stroke	4.19 x 5.00 (106 mm x 127 mm)	4.19 x 5.00 (106 mm x 127 mm)	4.19 x 5.00 (106 mm x 127 mm)
Rated Speed	2200 rpm	2200 rpm	2200 rpm
Rated Power	140HP/104kW	140HP/104kW	140HP/104kW
Type of Motor Oil	See Engine Operator Manual	See Engine Operator Manual	See Engine Operator Manual
Fuel Tank Capacity	56 gallons (212 liters)	56 gallons (212 liters)	56 gallons (212 liters)
Radiator Capacity	4 gallons (15 liters)	4 gallons (15 liters)	4 gallons (15 liters)
Engine Water Temperature	Shutdown 230°F (110°C)	Shutdown 230°F (110°C)	Shutdown 230°F (110°C)
Minimum Idle Speed	1600 rpm (II)	1600 rpm (II)	1600 rpm (II)
Alternator Rating	65 amp	65 amp	65 amp
(II) DO NOT allow engine idle rpm to drop below minimum idle speed. Compressor and/or coupling damage will occur. The compressor is equipped with a Low Speed Shutdown System that will shutdown the compressor if engine speed falls below 1500 rpm.			

3.3 LUBRICATION GUIDE— COMPRESSOR

FLUID TYPE	CHANGE PERIOD/HOURS	AMBIENT TEMPERATURE RANGE °F (°C)
Sullair AWF (I)	1500	-20 to 120 (-29 to 49)
SAE 10W SE, SF, SG, CD	250	0 to 100 (-18 to 38)
MIL-L-2104E 10W	250	0 to 100 (-18 to 38)
(I) Sullair part numbers for Sullair AWF are 250030-757 (5 gallons/18.9 liters) and 250030-758 (55 gallon drum/280 liters)		

3.4 APPLICATION GUIDE

Sullair air compressors are supplied with Sullair AWF which is a heavy duty multi-viscosity, all weather fluid which provides an extended change interval when compared to other fluids. Detergent motor oils (SAE 10W Class SE, SF, SG, or CD) can also be used. Any of these oils are suitable under conditions where severe oil oxidation can occur.

Water must be drained from the receiver tank periodically. In high ambient temperature and humidity conditions, condensed moisture can emulsify with the oil forming a “milky” color. SAE 10W is especially prone to this condition. The fluid should be changed if this condition develops. DO NOT mix different fluids. Combinations of different

fluids can lead to operational problems such as foaming, plugged filters, blocked orifices or lines.

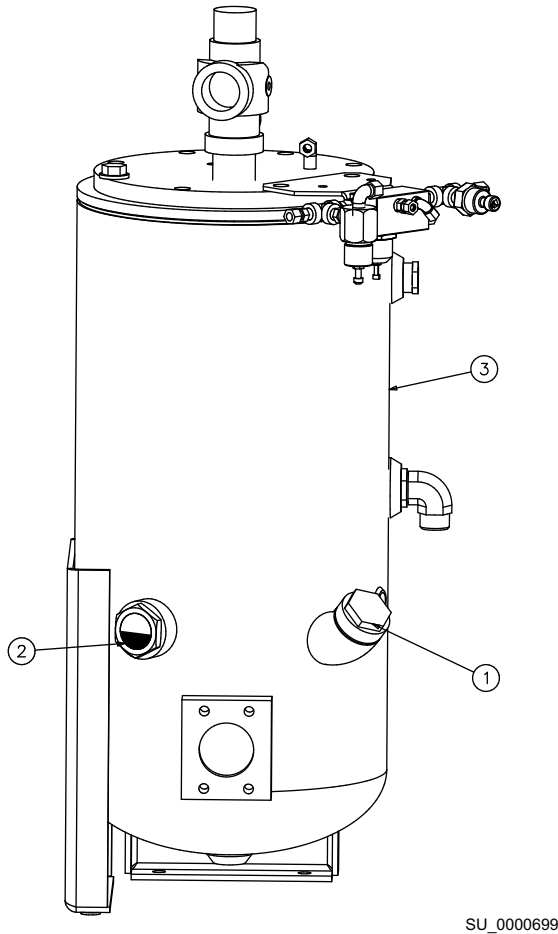
When ambient conditions exceed the recommended ranges, or if other conditions warrant the use of other extended life lubricants, contact your local Sullair representative for recommendations.

Sullair encourages users to participate in a fluid analysis program. The analysis might indicate a need for change intervals different from those recommended in this manual. Sullair Corporation offers a fluid analysis for Sullair AWF. Contact Sullair for details.

D-A Lubricant® Company Inc. offers an analysis for users of Sullair AWF. Contact your Sullair representative for details.

3.5 LUBRICATION GUIDE— ENGINE

Refer to the **Engine Operator's Manual** for oil specifications.



- 1. Fluid Fill Port
- 2. Sight Glass
- 3. Receiver Tank

Figure 3-1

NOTE

Proper Compressor Fluid Level

Visible halfway in fluid sight glass when checked on a level surface with the compressor not running.

NOTES

Section 4

GENERAL

4.1 GENERAL

While Sullair has built into this compressor a complete set of controls and indicators that allow the operator to control and monitor the compressor's operation and performance. Operators should learn to recognize indications which identify a service requirement or conditions that could lead to (or show) a (current) malfunction. Before starting the compressor, read this section thoroughly to gain familiarity with the controls and indicators—their function and location.

4.2 PURPOSE OF CONTROLS

CONTROL OR INDICATOR PURPOSE

ENGINE SWITCH

Press this switch to the ON (ignition) position to energize the electrical system of the compressor. Press the switch to the START position to momentarily engage the starter and start the compressor. Press the switch to the OFF position to shut the compressor down. This switch is located on the instrument panel.

EMERGENCY STOP SWITCH

Press in case of emergency when immediate shutdown is required.

PRESSURE TRANSDUCER

Monitors the system control pressure.

SPEED MODULE

Monitors the pressure transducer output and determines the appropriate speed signal for the engine.

AIR PRESSURE GAUGE

Continuously monitors the pressure inside the receiver tank at various load and unload conditions.

FLUID SIGHT LEVEL GLASS

Indicates the fluid level in the receiver tank. Proper level is marked halfway up the sight glass. Check the level when the compressor is shutdown and on level ground.

COMPRESSOR DISCHARGE TEMPERATURE SWITCH

Opens the electrical circuit to shut down the compressor when the discharge temperature reaches a specific value (See Specifications on page 53 and on page 55).

THERMAL VALVE

Functions as a temperature regulator by directing the compressor fluid either to the cooler or to the compressor unit.

MINIMUM PRESSURE DEVICE

Maintains the minimum of 80 psig (5.6 bar) in the compressor sump.

PRESSURE RELIEF VALVE

Vents sump pressure to the atmosphere if pressure inside the sump exceeds 250 psig (17.3 bar).

AIR INLET VALVE

Regulates the amount of air allowed to enter the air compressor inlet. Regulation is determined by a signal from the pressure regulator(s).

PRESSURE REGULATOR(S)

Allows the pressure signal to reach the engine speed transducer and the air inlet valve to control air delivery according to demand.

DISCHARGE AIR FILTER DIFFERENTIAL PRESSURE GAUGE (OPTIONAL AFTERCOOLED AND FILTERED MODELS ONLY)

Monitors the air filter (first and second stage) condition. A reading over 10 psig (0.7 bar) in the red zone indicates the air filters require servicing.

SHUTDOWN SYSTEM/ANNUNCIATOR MODULE (SSAM)

Monitors the compressor safety system for conditions requiring shutdown. The annunciator on the instrument control will flash the applicable shutdown code.

BLOWDOWN VALVE

Vents sump pressure to the atmosphere at shutdown.

IDLE WARM-UP CONTROL

Keeps the compressor inlet valve closed for reduced compressor load at start-up. When the compressor is warmed-up, the handle is turned from the START to the RUN position for full operation.

PRESSURE SELECTOR SWITCH (H AND HH MODELS)

Sets compressor operation in the LOW range from 80 to 110 psig (5.6 to 7.6 bar), or in the HIGH range from 80 to 165 psig (5.6 to 11.4 bar) on H models, and from 80 to 220 psig (5.6 to 15.2 bar) on HH models.

**4.3 INITIAL STARTUP/
SHUTDOWN PROCEDURE****STARTUP**

Perform the following actions when starting the compressor for the first time:

1. Ensure that the compressor is on a level surface. (If the compressor is on an uneven surface, the fluid sight gauge readings will not be accurate, and it will not be possible to determine if fluid levels are too low.) (I)
 2. Check the oil and fluid levels in the engine and compressor: add oil and/or fluid if necessary.
 3. Fill the fuel tank and drain any water from the fuel/water separator.
 4. Crack open one service line.
 5. Place the WARM-UP control in the START position.
 6. Place the PRESSURE SELECTOR switch to the LOW position (H and HH models).
 7. Press the ENGINE SWITCH to the ON position.
 8. Momentarily press the ENGINE SWITCH to the START position to engage the starter: release the switch when the engine starts.
 9. After 30 seconds (the annunciator light will go off after 30 seconds) Turn the IDLE WARM-UP SWITCH from START to RUN to put the compressor in full operation.
 10. Close all doors to maintain proper noise level.
- (I) See *Section 5.2* for proper engine coolant.

SHUTDOWN

1. Close the service valves and run the compressor for approximately five minutes to allow the compressor to cool down.
2. Place the pressure selector switch in the low position (H and HH models)

3. Press the ENGINE SWITCH to the OFF position after five minutes. When an emergency shutdown is required, IMMEDIATELY press the EMERGENCY SHUTDOWN BUTTON.

4.4 RESTART PROCEDURE

After running and shutting down the compressor for the first time, perform the following actions when restarting the compressor:

1. Check engine oil, engine coolant, and fuel levels.
2. Check the compressor fluid level (sight glass) and drain any water from the fuel/water separator.
3. Check the dust collectors and clean if necessary.
4. Crack open the service valve.
5. Place the WARM-UP control in the START position.
6. Place the PRESSURE SELECTOR switch to the LOW position (H and HH models).
7. Press the ENGINE SWITCH to the ON position.
8. Momentarily press the ENGINE SWITCH to the START position to engage the starter: release the switch when the engine starts.
9. After 30 seconds (the annunciator light will go off after 30 seconds) Turn the IDLE WARM-UP SWITCH from START to RUN to put the compressor in full operation.
10. Close all doors to maintain proper noise level.
11. To shut down the compressor, see *Section 4.3: Initial Startup/Shutdown Procedure*.

**WARNING**

DO NOT use aerosol types of starting aids such as ether.

Such use could result in an explosion and personal injury.

If the engine fails to start within 30 seconds, release the starter switch or button and wait two minutes to allow the starting motor to cool before attempting to start the engine again.

Section 5

MAINTENANCE



WARNING

DO NOT remove caps. Plugs and/or other components when the compressor is running or pressurized. Shutdown the compressor before removing any components.



WARNING

Follow lockout/tagout procedures of Section 1 SAFETY.

5.1 GENERAL

Consistent and correctly performed maintenance will ensure the compressor's performance and extend its operational life. See *Part Replacement And Adjustment Procedures* on page 63 for a detailed description of specific compressor components. Before performing maintenance actions, read the CIMA Safety Manual, if applicable. For engine maintenance requirements and procedures, refer to the **Engine Operator's Manual**.

5.2 ENGINE COOLANT REQUIREMENTS



WARNING

Please note: not following the recommendations of the coolant requirements may induce cooling system inefficiencies which may result in engine overheating. Nonrecommended coolant can drastically reduce the life expectancy of the cooling circuit and engine.

This machine is factory filled with Mobil Delvac Extended Life Coolant. It is an ethylene glycol based, OAT inhibited coolant. This coolant is able to protect the cooling system from freezing, extend the boiling point, provide corrosion protection for all metals within the cooling system; especially for systems with aluminum radiators, provide liner cavitation protection for heavy duty diesel engines, and be safe to use with all seals/gasket materials.

This coolant should never be mixed with a different coolant type, color, or brand. If radiator coolant is to be added, for any reason, be sure that the coolant added is the same as what is in the cooling system, as well as what is recommended.

The Engine Coolant type should follow these recommended specifications:

- Organic acid technology (OAT)
- Premixed coolant pH range of 8.0 to 9.5.
- Contains no silicates, phosphates, borates, nitrates and amines
- Solution states that it is formulated for use in heavy duty diesel applications
- Protects all standard metals within the cooling system (i.e. brass, copper, steel, solder, cast iron, and aluminum.)
- Meets specification requirements of current industry standards which include: ASTM D 3306, Cat EC-1

- Meets or exceeds performance requirements of current industry standards which include: ASTM D 6210, John Deere H24A2 and H24C2.

If you are not sure of the coolant that is installed originally or want to change to a different type, the cooling system must be cleaned with a commercial cleaning agent (such as CAT Cooling System Cleaner p/n 4C-4611) and then completely flushed and filled with water (preferably distilled) several times to remove all traces of cleaner and old coolant. Finally, fill the system with the recommended coolant using only one brand/type. Cross contamination, which is caused by adding different types of engine coolants, may result in the depletion or dropout of coolant additives; thus leaving cooling system surfaces unprotected against corrosion.

Corrosion to radiator surfaces may reduce cooling efficiency and radiator life expectancy. It is extremely important to evacuate/purge all air within the cooling system before replacing the radiator cap.

Engine coolant must not only maintain proper freeze protection levels but also maintain proper corrosion inhibitor levels. Please contact the coolant manufacture for specifics on testing methods and suggested coolant maintenance intervals.

Coolant Service Life	
Coolant Type	Service Life
Mobil Delvac EXTENDED LIFE Coolant/Antifreeze	*Six Years/12,000 Hours
Caterpillar ELC	*Six Years/12,000 Hours

*(using manufactures extender additive to system at 3 years or 6000 hours)

5.3 MAINTENANCE AFTER INITIAL 50 HOURS OF OPERATION

After the initial 50 hours of operation, the following maintenance actions are required to eliminate contaminants from the system:

1. Clean the return line orifice and change the strainer.
2. Change the compressor fluid filter.
3. Check the Engine Operator's Manual for service requirements.

4. Check the fuel filter for water.
5. Confirm that the sump cover bolts are tightened to 160 lb-ft (215N•m).

5.4 MAINTENANCE EVERY 50 HOURS

1. Inspect air filter elements and replace if necessary.
2. Check the fuel filter for water.

5.5 MAINTENANCE EVERY 100 HOURS

1. Clean the radiator and cooler exterior surfaces.
2. Check the Engine Operator's Manual for service requirements.

5.6 MAINTENANCE EVERY 250 HOURS

1. Check fan belt tension.
2. Clean the radiator and cooler exterior surfaces. (Where dust and other atmospheric contaminants are present, it might be necessary to clean these parts more frequently.)
3. Check the Engine Operator's Manual for service requirements.
4. Change the engine oil and filter.:

NOTE

The fluid change period varies by fluid brand. Refer to the *Lubrication Guide—Compressor* on page 56.

5. Change the compressor fluid if it is not Sullair AWF
 - a. Run the compressor for five to ten minutes to warm the fluid.
 - b. Shut the compressor down and relieve all internal pressure.
 - c. Drain the fluid sump by removing the plug, or opening the valve at the bottom of the sump tank.

- d. Remove any dirt from the fluid filter cap before filling the sump.
- e. Fill the receiver tank with fluid in accordance with the specifications in *Section 3*.
- 6. Clean or replace the return line strainer.
- 7. Change the air filter primary elements.
- 8. Change the compressor fluid filter.
- 9. Clean the return line orifice.
- 10. Change the fuel filter. (If the filter tends to clog more often than what is expected, change the filter more frequently.)
- 11. Change the engine fuel/water separator.
- 12. Check the engine rpm idle speed. The idle speed should be at the specified minimum idle speed listed in *Section 3*.



WARNING

Operating the compressor at below its minimum specified idle speed will damage the compressor. Operating the compressor in this condition will cause coupling and/or compressor failure.

5.7 MAINTENANCE EVERY 1500 HOURS

1. If the compressor fluid is Sullair AWF, change the fluid and replace the fluid filter element. (See *Compressor Fluid Filter Element Replacement* on page 63.)
2. Service the engine cooling system.
3. Lubricate axle bearings on wheel-mounted units.

5.8 PART REPLACEMENT AND ADJUSTMENT PROCEDURES

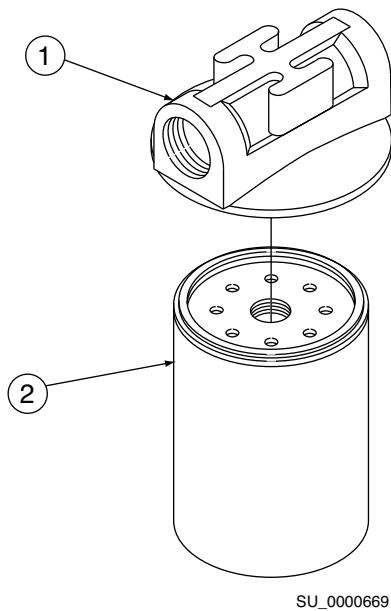
COMPRESSOR FLUID CHANGE PROCEDURE

1. Run the compressor five to ten minutes to warm the fluid.
2. Shut the compressor down and relieve all internal pressure.
3. Drain the fluid sump by removing the plug, or opening the valve at the bottom of the sump tank.
4. Change the compressor fluid and replace the fluid filter element (For element replacement see the filter servicing procedure in this Section.)
5. Fill the sump with fluid in accordance with the specifications in *Section 3*.

COMPRESSOR FLUID FILTER ELEMENT REPLACEMENT

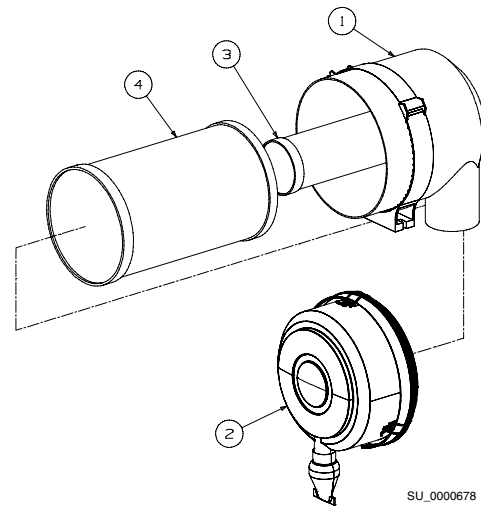
Refer to *Figure 5-1*.

1. Remove the old element with a strap wrench.
2. Clean the gasket seating surface.
3. Apply a light coating of fluid to the new gasket.
4. Hand tighten the new element (P/N 250025-525) until the new gasket is seated.
5. Continue tightening the element by hand an additional 1/2 to 3/4 turn.
6. Restart the compressor and check for leaks.



1. Filter Head
2. Fluid Filter

Figure 5-1: Fluid Filter



1. Filter Body
2. Filter Cover
3. Safety (Secondary) Element**
4. Primary Element*

*Replacement Primary Element

P/N 02250164-532

**Replacement Safety (Secondary) Element

P/N 02250164-533

Figure 5-2: Air Filter

AIR FILTER MAINTENANCE

Refer to *Figure 5-2*. Air filter maintenance should be performed as often as conditions require. If the filters are equipped with optional maintenance indicators, change the filters every time the indicators show a change is necessary.

AIR FILTER REPLACEMENT

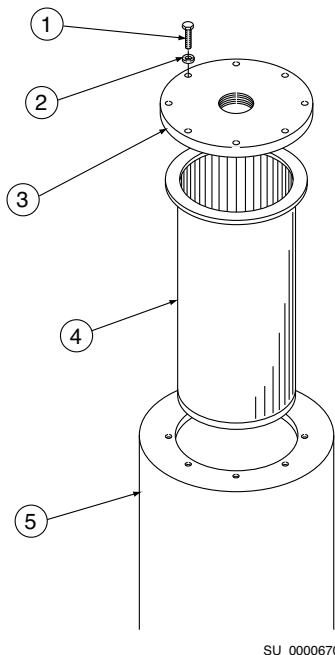
1. Loosen and remove the air filter and cover.
2. Remove the primary and secondary elements.
3. Clean the body, inside and out, with a damp cloth.
4. Reinstall (if clean) or replace the secondary element.
5. Replace the new primary filter element.
6. Reposition the cover and lock it into the position.
7. Reset the filter restriction indicator (if equipped).

ELEMENT INSPECTION

1. Insert a bright light source into the element and look for any light leaks which indicate the presence of damage (holes, cracks, etc.)
2. Inspect all gaskets and gasket contact surfaces of the housing and replace any damaged ones.
3. Store clean elements for later use in a clean container.
4. After installing the element, inspect and tighten all air inlet connections before operating the compressor.

SEPARATOR ELEMENT REPLACEMENT

Refer to *Figure 5-3*. When compressor fluid carryover is evident, after replacing or inspecting the fluid return line strainer and orifice, the blowdown valve and checking the oil; and all are in satisfactory condition, the separator element must be replaced with Kit number 250034-087 (element for air/fluid separator).



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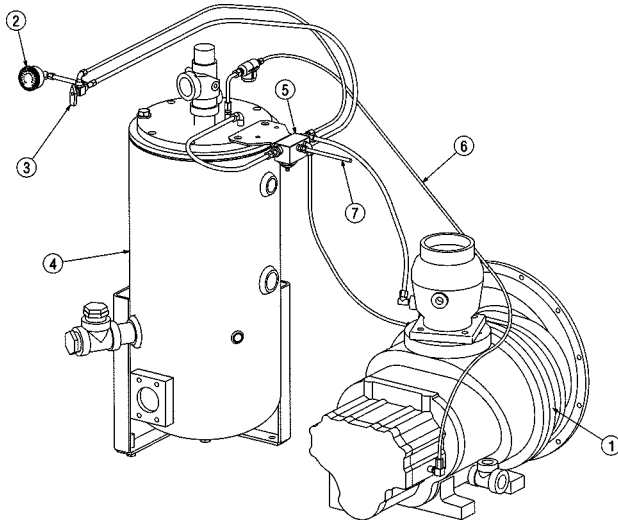
1. Capscrew
2. Washer
3. Cover
4. Separator Element with Gaskets
5. Receiver Tank

Figure 5-3: Air/Fluid Separator

1. Disconnect all sump cover piping connections to permit removal (return line, service line, etc.).
2. Remove the fluid return line from the fitting on the cover.
3. Remove the eight (8) cover bolts and washers and lift the cover off the sump.
4. Remove the separator element.
5. Scrape the old gasket material from the cover and the flange on the sump. Do not allow the scrapings to fall into the tank.
6. Install the new element.
7. Replace the sump cover and bolts. Lightly tighten all the bolts and then gradually tighten them alternating between bolts which are diagonally opposite each other. Torque the bolts to 160 ft-lbs (215 N•m).
8. Reconnect all piping. The fluid return line tube should extend to the bottom of the separator element which will ensure proper return line flow.
9. Clean the fluid return line strainer and clear the orifice before starting the compressor.
10. After 24 hours of operation, tighten the sump cover bolts to the value given in step 7.

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

Refer to *Figure 5-4* and *Figure 5-5*. Before adjusting the compressor's control system, the rated full-load pressure and the high/low rpm settings must be determined. This information is provided in *Section 3* or can be obtained by contacting a Sullair representative.



1. Compressor Unit
2. Air Pressure Gauge
3. Warm-Up Control Valve
4. Receiver Tank
5. Pressure Regulator/Blowdown Manifold
6. Oil Return Line
7. Blowdown Line (To Fitting At Filter Hose)

**Figure 5-4: Control System Adjustment—
Standard Pressure**

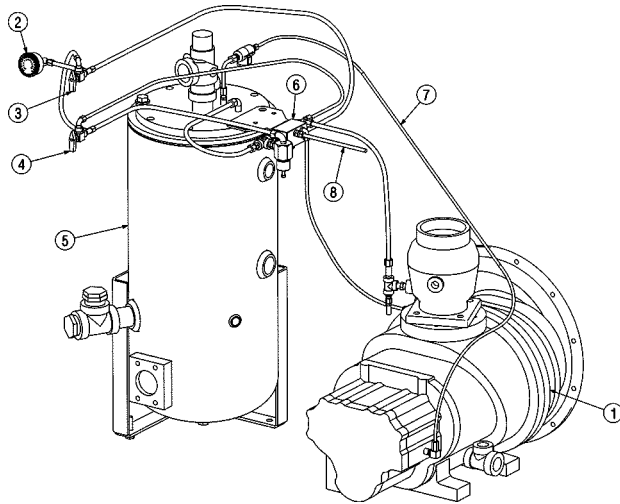
The following procedure applies to a compressor with full- load pressure rating of 100 psig (6.9 bar).

1. Remove the speed control module (mounted on lifting bail) mounting screws and lift the module away from the mounting surface. Turn the module over to expose the engine speed adjustment buttons.
2. Start the compressor and allow the engine to warm- up to its normal operating temperature with the service valve closed.
3. With service valve closed, set the engine low speed (idle) to it's specified setting with the LO (+) or LO (-) buttons on the speed control module. Holding the LO (+) button will increase the idle speed: holding the LO (-) butting decreases the idle speed setting.

! WARNING

Operating the compressor at below its minimum specified idle speed will damage the compressor. Operating the compressor in this condition will cause coupling and/or compressor failure.

4. Adjust the pressure regulator setting to maintain 115 psig (8 bar) receiver tank pressure.
5. Gradually open the service valve to atmosphere until the engine speed increases and the receiver tank pressure stabilizes at 100 psig (6.9 bar). Adjust the engine high idle speed to its specified setting with the HI (+) or HI (-) buttons on the speed control module. Holding the HI (+) button will increase the high idle speed: holding the HI (-) butting decreases the high idle speed setting.
6. Open the service valve to 100 psig (6.9) (rated full- load pressure) and recheck maximum engine speed and control response. Close the service valve and allow the compressor to cycle and recheck the low engine idle speed.
7. To reset the speed control module to the default values, press the LO (+) and LO (-) buttons at the same time.



1. Compressor Unit
2. Air Pressure Gauge
3. Warm-Up Control Valve
4. High/Low Pressure Valve
5. Receiver/Sump Tank
6. Pressure Regulator/Blowdown Manifold
7. Oil Return Line
8. Blowdown Line (To Fitting At Filter Hose)

Note: For additional clarification see page 30 of the Parts Manual.

Figure 5-5: Control System Adjustment – Dual Pressure

The following steps apply to “H” and “HH” compressors equipped with dual pressure controls.

1. Start the compressor and allow the engine to warm up to its normal operating temperature with the service valve closed and the pressure selector valve set to the LOW position.
2. Follow the procedure for setting the controls to 100 psig (6.9 bar) rated full load pressure as describe in preceding steps 2 through 6.
3. Turn the pressure selector valve to the HIGH position with the service valve closed.
4. Adjust the high pressure regulator so that the compressor maintains a receiver tank pressure of 165 psig (11.4 bar) on “H” models or 220 psig (15.2 bar) on “HH” models.
5. Gradually open the service valve to atmosphere until the engine speed increases and the receiver tank pressure stabilizes at 150 psig (10.3 bar) on “H” models or 200 psig on “HH” models. At this point the engine should be operating at its rated speed. If necessary use the HI (+) or HI (-) buttons on the speed control module to set the specified idle speed.

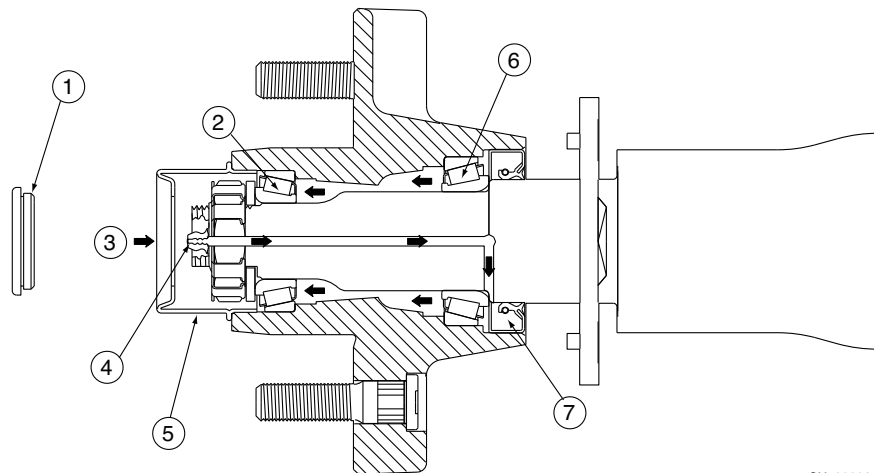
BEARING LUBRICATION (AMERICAN MODELS)

Refer to *Figure 5-6*. Proper lubrication of the portable compressor's bearing axle is critical to its proper

function and reduction of wear on this part. Wheel bearings should be lubricated at least every 12 months, or more, to ensure proper performance and minimize wear. Use a wheel bearing grease that conforms to MILSPEC MIL-G-10924 or a high temperature one such as lithium complex NLGI consistency #2.

Axles with the E-Z Lube feature can be periodically lubricated without removing the hubs from the axle. This feature consists of axle spindles that have been fitted with a grease zerk in their ends. When grease is pumped into the zerk, it is channeled to the inner bearing and then flows back to the outer bearing, and then back out of the grease cap hold (see *Figure 5-6*).

1. Remove the rubber cap from the grease cap's end.
2. Using a full charged grease gun, place the gun onto the grease zerk located on the end of the spindle. Make sure the nozzle is fully engaged on the fitting.
3. Pump grease into the zerk. The old grease will be displaced and flow out of the cap around the grease gun nozzle.
4. When the new grease starts flowing out of the cap, disengage the gun and wipe off any excess off the cap; and replace the rubber plug.



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- | | |
|-------------------|----------------------------------|
| 1. Rubber Plug | 5. Metal End Cap |
| 2. Outer Bearing | 6. Inner Bearing |
| 3. Grease Flow | 7. Spring Loaded Double Lip Seal |
| 4. Grease Fitting | |

Figure 5-6: Typical E-Z Lube Axle (American model shown)

FIRST AND SECOND STAGE DISCHARGE AIR FILTER MAINTENANCE—AFTERCOOLED & FILTERED MODELS

GENERAL

Refer to *Figure 5-7*. Familiarity with the filtration process and the unit's monitoring system (consisting of a complete set of gauges) will enable the operator to locate and analyze malfunctions.

The first and second stage filter element should be changed when the pressure drop reaches the red band on the pressure differential gauge.

DAILY OPERATION

Check the automatic drain trap daily to ensure it is operating properly.

FIRST AND SECOND STAGE ELEMENT REPLACEMENT

1. Depressurize the filter and remove the filter housing.
2. Remove the element.
3. Clean the inside of the filter housing, if necessary.
4. Install a new element and gaskets (P/N 02250153-294 FIRST STAGE)
(P/N 02250153-305 SECOND STAGE)
5. Reassemble the unit and check for air leaks.
6. Record the initial pressure drop when the compressor is started.

SAFETY

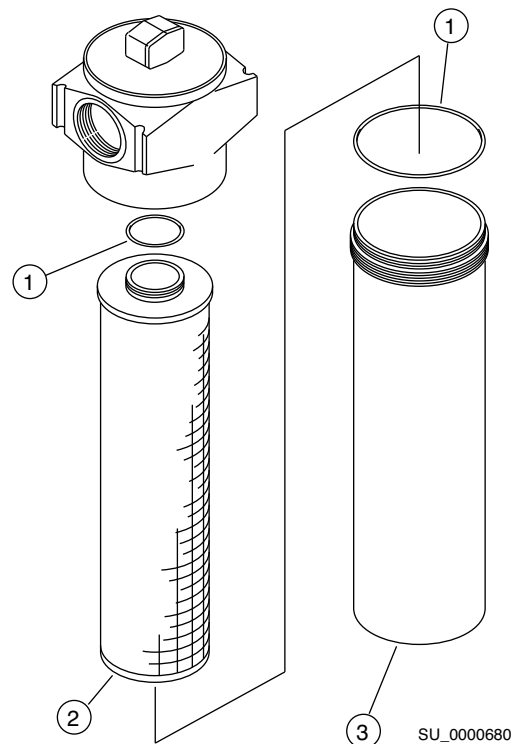
TOXIC AND IRRITATING SUBSTANCES



WARNING

Death or serious injury can result from inhaling compressed air without using proper safety equipment. (See applicable OSHA Standards)

DO NOT use air from this filter as a source for respiration (breathing air) except when in compliance with OSHA STANDARDS 29 CFR 1910, and all other applicable Federal, state, or local codes or regulations.



1. O-Ring
2. Filter Element
3. Filter Housing

Figure 5-7: First and Second Stage Discharge Air Filter (Optional)

These filters will not remove water vapor, oil vapor, carbon monoxide, or other toxic gases.

The first stage filter efficiently removes contaminants such as ash, dust, water aerosols, lubricant mist, carbon particles, rust and other contaminants (0.3 microns and larger).

The second stage filter removes particulates and all lubricant aerosols of 0.01 micron size and larger.

DESIGN RATINGS

Design ratings are 150°F (66°C) maximum air inlet temperature. All welded filter housings are code stamped for 250 psig (17.3 bar) maximum working pressure.

5.9 TROUBLE SHOOTING

The following Trouble Shooting chart is based upon data obtained from factory tests and information from the field. It lists symptoms, probable causes and remedies. This chart does not cover all possible malfunctions or cases of abnormal operation. Before undertaking repairs or replacement actions, analyze all of the available data.

Performing a detailed visual inspection in all cases can prevent additional damage or abnormal operation.

Always:

1. Check for loose wiring or connections.
2. Check for damaged piping.
3. Check for heat damage to parts (electrical short circuits can cause heat damage) which can appear as discolorations or the presence of a burnt odor.

If the troubleshooting remedy does not work, or the malfunction is not covered in this Trouble Shooting chart, contact your nearest Sullair representative or Sullair for technical assistance.

<i>Table 5-1: Troubleshooting</i>		
ENGINE STOPS, DOES NOT CRANK OR CRANKS BUT DOES NOT START		
SYMPTOM	PROBABLE CAUSE	REMEDY
NO SSAM FLASH CODE	Low voltage or battery disconnected	Check battery cables and tighten if loose
		Check ground wire for proper attachment to frame. Tighten if required.
		Recharge or replace battery if required.
	Blown fuse in wiring harness	Remove and inspect fuse. Replace if necessary.
	Instrument panel connectors loose or disconnected.	Check instrument panel connectors and reattach if required
		Check instrument panel wires for broken connections or corrosion. Clean and/or replace if damaged.
	Faulty SSAM module	Replace the module
SSAM FLASH CODE: ONE FLASH	Compressor temperature switch is open	Check wiring connection to the switch and tighten if loose
		Check switch continuity to ground and replace if necessary
	Low receiver tank fluid level	Add fluid to receiver tank as required
	Loose or broken fan belt	Tighten or replace belt
	Cooling air flow is insufficient, dirty fluid cooler core	Clean core thoroughly and check for proper ventilation
	Clogged compressor fluid filter	Change fluid filter element
	Faulty fluid thermostat	Change fluid thermostat element
	Plugged fluid cooler tube (internal)	Replace cooler

SSAM FLASH CODE: TWO FLASHES	Engine coolant temperature switch is open	Check wiring connection to the switch and tighten if necessary
		Check switch continuity to ground and replace if necessary
	Cooling air flow is insufficient	Clean cooler and check for proper ventilation
	Loose or broken fan belt	Tighten or replace belt
	Low engine coolant	Fill with proper water/glycol mixture as required
	Faulty water pump	Change pump
	Defective engine thermostat	Change thermostat element
	Engine problems might be present	Refer to the Engine Operator's Manual
SSAM FLASH CODE: THREE FLASHES	Engine oil pressure switch is open	Check wiring connection to switch and tighten if necessary
		Install gauge in parallel with the switch. Replace the switch if the pressure exceeds 15 psig and stays open. If the pressure is less than 15 psig, refer to the Engine Operator's Manual.
SSAM FLASH CODE: FOUR FLASHES	Did not start compressor within the 30 seconds from turning the ignition switch to the ON position	After turning the ignition switch to the ON position, press the switch to the START position within 30 seconds
	Low battery voltage	Check the battery cables and tighten if necessary
		Recharge or replace battery if necessary
	No fuel	Refuel
	Water or dirt in the fuel and/or filter	Drain water from the fuel/water separators on the fuel filters. Siphon water from the fuel tank and clean the tank if necessary
	Plugged air filter	Clean and replace if necessary
	Plugged fuel filter	Replace the fuel filter
	Engine problems	Turn the compressor OFF. Use the PowerView menu to determine the engine fault. Ignore the SSAM Flash Code. See the Engine Warning/Shutdown Table for probable causes
		Check alternator "W" terminal 7.5 +/- 2.50 VAC > than 300HZ.
Replace relay	Starter solenoid relay does not engage	Check wiring and tighten all connectors
	No input frequency from alternator	Check alternator "W" terminal (7.5 ± 2.50 VAC greater than 300 HZ)
SSAM FLASH CODE: FIVE FLASHES	No fuel	Check fuel level and fill tank if empty
	Defective fuel switch	Replace switch

Compressor does not achieve full discharge pressure	Run/start switch not in run position	For compressors with idle warm-up controls, switch toggle to RUN for full operation
	Air demand is excessive	Check service lines for leaks or open valves
	Dirty air filter	Check the filter and change the element if required
	Defective pressure regulator	Check the diaphragm and replace with Kit if necessary
	Defective idle warm-up control	Replace control
	Engine Warning/Shutdown lamp flashing—engine is derating	Turn the compressor OFF. Use PowerView menu and arrow keys to determine engine fault. Ignore the SSAM Flash Code. See the Engine Warning/Shutdown table for probable cause
Improper unloading with an excessive pressure build-up causing the pressure relief valve to open	Pressure regulating valve is set too high	Readjust
	Control system leak causing loss of pressure signal	Check control lines
		Defective pressure regulating valve. Repair valve (kit available)
	Inlet valve jammed	Free or replace valve
	Restriction in the control system	Check all control lines and components—ice and/or other contaminants could be the cause
	Defective pressure relief valve opens when pressure is too low	Replace the pressure relief valve
	Defective pressure regulator	Check the diaphragm and replace with Kit if necessary
Insufficient air delivery	Run/start switch not in run position	For compressors with idle warm-up controls, switch toggle to RUN for full operation
	Plugged air filter	Replace
	Defective idle warm-up control	Replace control
	Plugged air/fluid separator	Replace separator element and also change compressor fluid and fluid filter
	Defective pressure regulator	Adjust or repair
	Engine speed too low	Readjust engine speed
	Engine Warning/Shutdown lamp flashing—engine is derating	Turn the compressor OFF. Use PowerView menu and arrow keys to determine engine fault. Ignore the SSAM Flash Code. See the Engine Warning/Shutdown table for probable cause
Excessive compressor fluid consumption	Clogged return line	Clear orifice and return line strainer
	Lubrication system leak	Check all pipes, connections and components
	Separator element damaged or malfunctioning	Change separator element

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 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 THE NOISE CONTROL SYSTEM IS PROHIBITED

U.S. 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.
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.

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 by ordering 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 Operator's 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 by ordering 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 by ordering 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. Make sure there are not any missing or deformed members, including all hinged doors, covers and their fastening devices. DO NOT operate compressor with defective frame, canopy and parts. Remove and replace defective parts by ordering 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. Make sure that there is not any material 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 by ordering with part numbers indicated in the Parts List.

Maintenance Performed

By

Location

Date

Maintenance Performed

By

Location

Date

6. ANNUAL INSPECTIONS FOR PROPER OPERATION OF ALL SYSTEMS.
In addition to other instructions in the Operator's Manual, 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 Operator's Manual, as required.
Maintenance Performed
By
Location
Date
Maintenance Performed
By
Location
Date



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