

B600
BOSS ROTARY SCREW
AIR SYSTEM
MANUAL

BOSS ROTARY SCREW AIR SYSTEM OPERATORS AND PARTS MANUAL

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BOSS ROTARY SCREW AIR SYSTEM MODULE SPECIFICATIONS

COMPRESSOR

DELIVERY @ 110 PSIG	30 CFM	40 CFM	50 CFM	60 CFM
HYDRAULIC FLUID REQUIRED AT 1850 PSI APPROX.	11 GPM	14.5 GPM	17.75 GPM	20.5 GPM
OIL FLUID CAPACITY SUMP (SYSTEM)	1 1/4 GALLON (1 3/4 GALLON)	1 1/4 GALLON (1 3/4 GALLON)	1 1/4 GALLON (1 3/4 GALLON)	1 1/4 GALLON (1 3/4 GALLON)

COMPONENTS (All mounted on a common frame)

AIR-END, HYDRAULIC MOTOR & MOUNTING BASE	11.60" W X 21.75" H X 23.38" L
RECEIVER SUMP	8.0" DIA. X 15.0" H
SPIN-ON COALESCER	5.0" DIA. X 13.0" H
COOLER/FAN ASSEMBLY	14.0" W X 16.0" H X 6.0" L
GAUGE PACKAGE	4.25" W X 13.75" L X 3.0 DEEP
OVERALL DIMENSIONS	14.85" W X 22.25" H X 30.25" L

HYDRAULIC DRIVE MODULE*

CFM @ 110 PSI	HP	HYD. MOTOR RPM	HYD PRESS	HYD GPM
30	7.3	1960	1700	8.6
40	10.0	2573	1800	11.3
50	12.3	3186	1800	14.0
60	14.5	3600	1850	15.8

*Hydraulic Pressure and flow requirements may vary depending on hydraulic system components and their related efficiencies.

NOTE: SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE.

SAFETY

WARNING

ALL UNITS ARE SHIPPED WITH A DETAILED OPERATORS, AND PARTS MANUAL. THIS MANUAL CONTAINS VITAL INFORMATION FOR THE SAFE USE AND EFFICIENT OPERATION OF THIS UNIT. CAREFULLY READ THE OPERATORS MANUAL BEFORE STARTING THE UNIT. FAILURE TO ADHERE TO THE INSTRUCTIONS COULD RESULT IN SERIOUS BODILY INJURY OR PROPERTY DAMAGE.

GENERAL

The compressor is designed and manufactured to operate with relative safety. 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.

This air compressor should be operated only by those who have been trained and delegated to do so, and who have read and understand this operator's manual. Failure to follow the instructions, procedures and safety precautions in this manual may increase the possibility of accidents and injuries.

Never start this 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 power supply so others who may not know of the unsafe condition will not attempt to operate it until the unsafe condition is corrected.

Use and operate this air compressor only in full compliance with all pertinent O.S.H.A. requirements and all pertinent Federal, State and Local codes or requirements.

Do not modify this compressor except with written factory approval. Any unauthorized modification automatically voids the factory warranty.

SAFETY

The operation of hydraulic-powered equipment will always be somewhat dangerous. Do not consider this section to be complete, but always continue to be alert for hazards.

Safety is basically common sense. There are standard safety rules but each situation has its own peculiarities which cannot always be covered by rules. Therefore with your experience and common sense, you are in a position to do something about safety. Lack of attention to safety can result in: accidents, personal injury, reduction of efficiency and worst of all - loss of life. Watch for safety hazards. Correct them promptly. Use the following safety precautions as a general guide to safe operation:

Do not attempt to remove any compressor parts without first relieving the entire system of pressure.

Do not attempt to service any part while machine is operating.

DANGER

CHECK THE COMPRESSOR SUMP OIL LEVEL ONLY WHEN THE COMPRESSOR IS NOT OPERATING AND SYSTEM IS COMPLETELY RELIEVED OF PRESSURE. OPEN SERVICE VALVE TO INSURE RELIEF ON COMPRESSOR AIR/OIL SYSTEM. FAILURE TO COMPLY WITH THIS WARNING MAY CAUSE DAMAGE TO PROPERTY AND SERIOUS BODILY HARM.

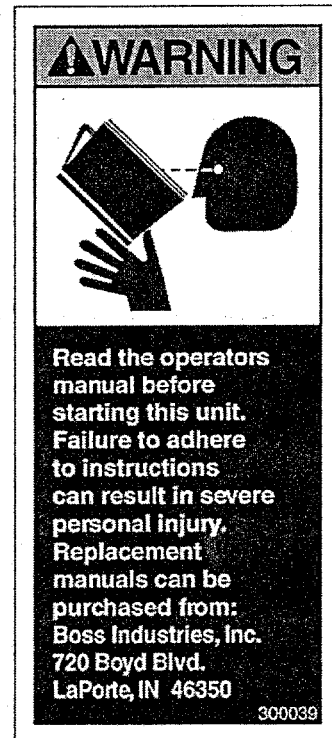
Do not operate the compressor at pressures or speeds in excess of its rating as indicated in "Compressor Specification".

Periodically check all safety devices for proper operation.

Do not play with compressed air. Pressurized air can cause serious injury to personnel.

A compliment of warning decals are supplied with each unit. The decals are affixed to the assembly in the areas noted on the following pages.

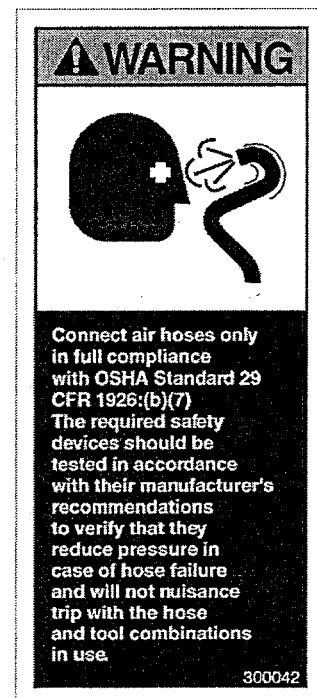
SAFETY



Decal placed on Housing



Decal placed on Fan Housing

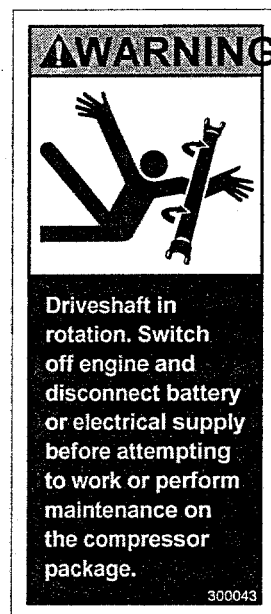


Decal placed on Fan Housing

SAFETY



Decal placed on Fan Housing



Decal placed on Belt Guard

COMPRESSOR FLUID

**USE AUTOMATIC TRANSMISSION FLUID
DEXRON II OR EQUIVALENT.**

- 1. CHECK FLUID LEVEL WITH TRUCK OFF AND PARKED ON LEVEL GROUND BEFORE STARTING COMPRESSOR.**
- 2. ADD FLUID IF NONE IS SHOWING IN SIGHTGLASS.**
- 3. DO NOT FILL ABOVE LINE ON SIGHTGLASS**

BOSS 300047

Decal placed on Receiver tank

DESCRIPTION OF COMPONENTS

COMPRESSOR ASSEMBLY

The BOSS compressor assembly is a positive displacement, oil flooded, rotary screw type unit employing one stage of compression to achieve the desired pressure. Components include; a housing (stator), two screws (rotors), bearings, and bearing supports. Power from the hydraulic motor is transferred to the male rotor through a belt drive arrangement. There are five lobes on the male rotor while the female rotor has six roots.

PRINCIPLES OF OPERATION

In operation, two helically grooved rotors mesh to compress air. Inlet air is trapped as the male lobes roll down the female grooves, pushing trapped air along, compressing it until it reaches the discharge port in the end of the stator and delivers smooth-flowing, pulse-free air to the receiver.

During the compression cycle, oil is injected into the compressor and serves these purposes:

1. Lubricates the rotating parts and bearings.
2. Serves as a cooling agent for the compressed air.
3. Seals the running clearance.

LUBRICATION SYSTEM

Oil from the compressor oil sump, at compressor discharge pressure, is directed through the cooling system, and to the bottom of the compressor stator, where it is injected into the compressor. At the same time oil is directed internally to the bearings and shaft seal of the compressor. The oil-laden air is then discharged back into the sump.

DESCRIPTION OF COMPONENTS

OIL SUMP

Compressed, oil-laden air enters the sump from the compressor. As the oil-laden air enters the sump, 1st stage air/oil separation occurs. The oil accumulates at the bottom of the sump for re-circulation. However, some small droplets of oil remain suspended in the air and are passed on the coalescer.

SAFETY VALVE

The pop safety valve is set at 175 PSI and is located at the top of the air/oil sump. This valve acts as a backup to protect the system from excessive pressure that might result from a malfunction.

AIR/OIL COALESCER

The coalescer is self-contained within a spin-on housing and is independent of the sump. When air is demanded at the service line, it passes through the coalescer which efficiently provides the final stage of oil separation.

OIL RETURN LINE

The oil that is removed by the coalescer accumulates at the bottom of the can and is returned through an oil return line leading to the compressor. The oil return line also contains a check valve which is located in a hose elbow at the compressor.

MINIMUM PRESSURE VALVE

The minimum pressure valve is located at the outlet of the coalescer head and serves to maintain a minimum discharge pressure of 65 PSIG in operation, which is required to assure adequate compressor lubrication pressure.

OIL FILTER

The compressor oil filter is the full-flow replaceable element type and has a safety by-pass built into it.

DESCRIPTION OF COMPONENTS

COMPRESSOR COOLING SYSTEM

The compressor cooling system consists of an oil cooler, electric fan motor, and fan. The fan/cooler package is self-contained in an aerodynamically designed housing.

An automated thermostatic control system maintains a continuous temperature check of the lubricant. It then sends an electrical signal to the fan/motor drawing ambient air thru the cooler fins then across the fan assembly to the outside of the fan shroud, ensuring a proper operating temperature.

ELECTRICAL AND SAFETY CIRCUIT SYSTEM

The BOSS unit is supplied with a 12 volt DC fan switch, electric fan motor, temperature switchgauge, hourmeter, and a pressure switchgauge. The switchgauges activate a shutdown relay in cases of high discharge temperature or high sump pressure. When relay grounds, hydraulic oil flow stops flowing to compressor hydraulic motor.

INSTRUMENTATION

The BOSS unit is equipped with a discharge air pressure switchgauge, a discharge air/oil temperature switchgauge, and a 12 volt DC electronic hourmeter with pressure switch. All components are mounted on a compact instrument panel that can be located where desired.

COMPRESSOR DISCHARGE PRESSURE SWITCHGAUGE

This switchgauge indicates the discharge air/oil pressure. Operate compressor within, pressure limits as indicated in specifications section. The switchgauge ensures safety shutdown in case of excessive operating pressure before the safety relief valve on the sump is discharged, preventing hot pressurized oil spray on the vehicle and/or compressor components. This switch will activate if 110/150 air pressure switch malfunctions.

DESCRIPTION OF COMPONENTS

110/150 AIR PRESSURE SWITCH

This switch controls the hydraulic solenoid valve and engine speed control. When the total amount of air being produced is not being used, (ie... service valve closed or the tool is at idle) the air pressure will rise to 150 psig and the system will shut off. The switch will return the engine speed control to truck idle and bypass the hydraulic flow back to tank. When air pressure drops to 110 psig the system will start up again.

HOURMETER

The hourmeter records the total number of operating hours. It serves as a guide towards following the recommended inspection and maintenance schedule. The hourmeter will only run when there is pressure in the system.

COMPRESSOR DISCHARGE AIR/OIL TEMPERATURE SWITCHGAUGE AND DISCHARGE PRESSURE SWITCHGAUGE

These switchgauges indicates the compressor air/oil discharge temperature and pressure. The switchgauges ensure safety shutdown in cases of excessive operating temperature and pressure preventing compressor damage.

AUTOMATIC BLOWDOWN VALVE

The blowdown valve in the compressor system is located at the downstream side of the coalescer head. It will automatically bleed the sump to zero pressure when the compressor is disengaged, or the 110/150 air pressure switch reaches 150 psig.

INLET VALVE

The compressor inlet valve is a piston operated disc valve that serves as a check valve at shutdown.

INSPECTION, LUBRICATION, & MAINTENANCE

This section contains instructions for performing the inspection, lubrication, and maintenance procedures to maintain the compressor in proper operating condition. The importance of performing the maintenance described herein cannot be over emphasized.

The periodic maintenance procedures to be performed on the equipment covered by this manual are listed below. It should be understood that the intervals between inspections specified are maximum intervals. More frequent inspections should be made if the unit is operating in a dusty environment, in high ambient temperature, or in other unusual conditions. A planned program of periodic inspection and maintenance will help to avoid premature failure and costly repairs. Daily visual inspections should become a routine.

The LUBRICATION AND MAINTENANCE CHART lists serviceable items on this compressor package. The items are listed according to their frequency of maintenance, followed by those items which need only "As Required" maintenance.

The maintenance time intervals are expressed in hours. The hourmeter shows the total number of hours your compressor has run. Use the hourmeter readings for determining your maintenance schedules. Perform the maintenance at multiple intervals of the hours shown. For example, when the hourmeter shows "100" on the dial, all items listed under "EVERY 10 HOURS" should be serviced for the tenth time, and all items under "EVERY 50 HOURS" should be serviced for the second time, and so on.

DANGER

COMPRESSOR MUST BE SHUT DOWN AND COMPLETELY RELIEVED OF PRESSURE PRIOR TO CHECKING FLUID LEVELS. OPEN SERVICE VALVE TO ASSURE RELIEF OF SYSTEM AIR PRESSURE FAILURE TO COMPLY WITH THIS WARNING MAY CAUSE DAMAGE TO PROPERTY AND SERIOUS BODILY HARM.

INSPECTION, LUBRICATION, AND MAINTENANCE

LUBRICATION AND MAINTENANCE CHART

INTERVAL	ACTION
PERIODICALLY DURING OPERATION	1. Observe all gauge readings. Note any change from the NORMAL reading and determine the cause. Have necessary repairs made. (Note: "Normal" is the usual gauge reading when operating at similar conditions on a day to day operation.)
EVERY 10 HOURS OR DAILY	1. Check compressor oil level. 2. Check air filter. 3. Check for oil and air leaks.
EVERY 50 HOURS OR WEEKLY	1. Drain water form compressor oil. 2. Check safety circuit switches.
EVERY 500 HOURS OR 6 MONTHS	1. Change compressor oil and oil filter. 2. Check compressor shaft seal for leakage. 3. Check air filter piping, fittings and clamps. 4. Install new air filter element. (Shorter interval may be necessary under dusty conditions.) 5. Check sump safety valve.
PERIODICALLY OR AS REQUIRED	1. Inspect and clean air filter element. 2. Inspect and replace spin-on coalescer element if necessary.

LUBRICANT RECOMMENDATIONS

WARNING

IT IS IMPORTANT THAT THE COMPRESSOR OIL BE OF A RECOMMENDED TYPE AND THAT THIS OIL AS WELL AS THE AIR FILTER, OIL FILTER, AND COALESCER ELEMENTS BE INSPECTED AND REPLACED AS STATED IN THIS MANUAL.

THE COMBINATION OF A COALESCING ELEMENT LOADED WITH DIRT AND OXIDIZED OIL PRODUCTS TOGETHER WITH INCREASED AIR VELOCITY AS A RESULT OF THIS CLOGGED CONDITION MAY PRODUCE A CRITICAL POINT WHILE THE MACHINE IS IN OPERATION WHERE IGNITION CAN TAKE PLACE AND COULD CAUSE A FIRE IN THE OIL SUMP.

FAILURE TO COMPLY WITH THIS WARNING MAY CAUSE DAMAGE TO PROPERTY AND SERIOUS BODILY HARM.

The following general characteristics categorize BOSS Rotary lubricants which have been found to be satisfactory for use in screw type air compressors. Due to the impossibility of establishing limits on all physical and chemical properties of lubricants which can affect their performance in the compressor over a broad range of environmental influences, the responsibility for recommending and consistently furnishing a suitable heavy duty lubricant must rest with the individual supplier. The lubricant supplier's recommendation must, therefore, be based upon not only the following general characteristics, but also upon his own knowledge of the suitability of the recommended lubricant in Rotary screw type air compressors operating in the particular environment involved.

CAUTION

MIXING DIFFERENT TYPES OF BRANDS OF LUBRICANTS IS NOT RECOMMENDED DUE TO THE POSSIBILITY OF A DILUTION OF THE ADDITIVES OR A REACTION BETWEEN ADDITIVES OF DIFFERENT TYPES.

INSPECTION, LUBRICATION, AND MAINTENANCE

APPLICATION GUIDE

Not all lubricating oils are suitable for rotary screw compressor use. The most satisfactory oils are the detergent types which contain high levels of corrosion, oxidation, and foam inhibitors.

BOSS factory installations use Dextron II automatic transmission fluid. Other detergent motor oils, SAE 10W, class SF or CD, and SAE 30 meet these requirements.

The viscosity of the oil chosen depends largely on the ambient operating temperature range. The oil must provide sufficient lubrication for bearings and rotors at operating temperature, and it must have a pour point low enough to provide fluidity at low starting temperatures. In general, the viscosity range represented by these SAE grades is satisfactory for the temperature range shown:

+40 F To + 120 F	SAE 30
-10 F To + 75 F	SAE 10 W (-20 F Pour Point)
-40 F To + 100 F	ATF (-50 F Pour Point)

PRIME LUBRICANT CHARACTERISTICS

1. Flash point 400 degrees F minimum (ASTM D-92 -- COC).
2. Pour point must be at least 20 degrees F lower than the lowest expected ambient temperature.
3. Contain rust and oxidation inhibitors.
4. Contain foam suppressers.

SYNTHETIC DIESTER AND SYNTHESIZED HYDROCARBON LUBRICANTS OIL

Insofar as know, all elastomeric components and all metal used in the compressor are fully compatible with synthetic diester and synthesized hydrocarbon lubricants. The viscosity grade chosen for synthetic diester base or SHC lubricants should be based upon the suggested viscosity ranges listed under prime lubricant characteristics and the lubricant supplier.

INSPECTION, LUBRICATION, AND MAINTENANCE

NOTE

DUE TO UNKNOWN INFLUENCES OF ENVIRONMENTAL FACTORS SUCH AS THE INTAKE OF REACTIVE GASES OR VAPORS IN THE AIR WHICH MAY LEAD TO CHEMICAL CHANGES IN ANY OIL AND PREMATURE FAILURE OF THE LUBRICANT, THE USEFUL LIFE OF ALL "EXTENDED LIFE" LUBRICANTS MAY BE SHORTER THAN QUOTED BY THE LUBRICANT SUPPLIER. BECAUSE THE NORMAL "DRAIN AND REPLACE" PERIOD MAY BE EXCEEDED USING SYNTHETIC LUBRICANTS, DIFFERING FROM THOSE SPECIFIED IN THIS MANUAL, BOSS ENCOURAGES THE USER TO CLOSELY MONITOR THE LUBRICANT CONDITION AND TO PARTICIPATE IN AN OIL ANALYSIS PROGRAM WITH THE SUPPLIER.

NOTE

NO LUBRICANT, HOWEVER GOOD AND/OR EXPENSIVE, CAN REPLACE PROPER MAINTENANCE AND ATTENTION. SELECT AND USE IT WISELY.

MAINTENANCE

If some of the maintenance intervals in the schedule outlined in this manual seem to be rather short, it should be considered that one hour's operation of a compressor is equal to about 40 road miles on an engine. Thus, eight hours operation is equal to 320 road miles, 250 hours is equal to 10,000 road miles, etc.

AIR INTAKE FILTER

The air intake filter is a heavy-duty dry type high efficiency filter designed to protect the compressor from dust and foreign objects.

Frequency of maintenance of the filter depends on dust conditions at the operating site. The filter element must be serviced when clogged (maximum pressure drop for proper operation is 15" H₂O).

INSPECTION, LUBRICATION, AND MAINTENANCE

COMPRESSOR OIL SUMP FILL, LEVEL, AND DRAIN

Before adding or changing compressor oil make sure that the sump is completely relieved of pressure. Oil is added at the fill cap in the tee on the side of the receiver/sump. A drain plug is provided at the bottom of the oil cooler. The proper oil level, when unit is shut down and has had time to settle, is at the midpoint of the oil sightglass. The truck must be level when checking the oil. DO NOT OVERFILL. The oil sump capacity is given in "Compressor Specifications".

DANGER

DO NOT ATTEMPT TO DRAIN CONDENSATE, REMOVE THE OIL LEVEL FILL PLUG, OR BREAK ANY CONNECTION IN THE AIR OR OIL SYSTEM WITHOUT SHUTTING OFF COMPRESSOR AND MANUALLY RELIEVING PRESSURE FROM THE SUMP. FAILURE TO COMPLY WITH THIS WARNING MAY CAUSE DAMAGE TO PROPERTY AND SERIOUS BODILY HARM.

AIR /OIL COALESCER

The air/oil coalescer employs an element permanently housed within a spin-on canister. This is a single piece unit that requires replacement when it fails to remove the oil from the discharge air, or pressure drop across it exceeds 15 PSI. Dirty oil increases the pressure drop across the coalescer element.

To replace element proceed as follows:

1. Shutdown compressor and wait for complete blowdown (zero pressure).
2. Disconnect drain line.
3. Turn element counterclockwise for removal.
4. Install new rubber seal in head and supply a film of fluid directly to seal.
5. Rotate element clockwise by hand until element contacts seal.
6. Rotate element approximately one more turn clockwise with band wrench near the top of element.
7. Reconnect drain line.
8. Run system and check for leaks.

INSPECTION, LUBRICATION, AND MAINTENANCE

WARNING

DO NOT SUBSTITUTE ELEMENT. USE ONLY A GENUINE BOSS REPLACEMENT ELEMENT. THIS ELEMENT IS RATED AT 200 PSI WORKING PRESSURE. USE OF ANY OTHER ELEMENT MAY BE HAZARDOUS AND COULD IMPAIR THE PERFORMANCE AND RELIABILITY OF THE COMPRESSOR, POSSIBLY VOIDING THE WARRANTY AND/OR RESULTING IN DAMAGE TO PROPERTY AND SERIOUS BODILY HARM.

OIL RETURN LINE

This line originates at the bottom of the air/oil coalescer and flows through a check valve located at the air-end. The check valve ensures that back flow to coalescer element does not occur during shutdown. If excessive oil consumption or carry over is present, check to make certain this line is not clogged or plugged at the check valve.

OIL FILTER

The compressor oil filter is a spin-on, throw away type.

To replace filter proceed as follows:

1. Make sure system pressure is relieved.
2. Remove filter by unscrewing from filter head (turn counterclockwise by hand) and discard.
3. Install a new filter by applying a little oil to the seal and then screw the filter on by hand -- turning it clockwise until hand tight, plus one -- third turn. Do not use tools to tighten the filter.
4. Check for leaks in operation.

WARNING

DO NOT SUBSTITUTE ELEMENT. USE ONLY A GENUINE BOSS REPLACEMENT ELEMENT. THIS ELEMENT IS RATED AT 200 PSI WORKING PRESSURE. USE OF ANY OTHER ELEMENT MAY BE HAZARDOUS AND COULD IMPAIR THE PERFORMANCE AND RELIABILITY OF THE COMPRESSOR, POSSIBLY VOIDING THE WARRANTY AND/OR RESULTING IN DAMAGE TO PROPERTY AND SERIOUS BODILY HARM.

INSPECTION, LUBRICATION, AND MAINTENANCE

OIL COOLER

The interior of the oil cooler should be cleaned when the pressure drop across it at full flow exceeds 25 PSI. The following procedure has been recommended by the vendor who supplies the cooler:

1. Remove cooler.
2. Circulate a suitable solvent to dissolve and remove varnish and sludge.
3. Flush generously with oil.
4. After cooler is replaced and compressor is filled with fresh oil, change compressor oil after 50 hours of normal operation.

TROUBLESHOOTING

This section contains instructions for troubleshooting the equipment following a malfunction.

The troubleshooting procedures to be performed on the equipment are listed below. Each symptom of trouble for a component or system is followed by a list of probable causes of the trouble and suggested procedures to be followed to eliminate the cause.

In general, the procedures listed should be performed in the order in which they are listed, although the order may be varied if the need is indicated by conditions under which the trouble occurred. In any event, the procedures which can be performed in the least amount of time and with the least amount of removal or disassembly of parts, should be performed first.

TRUCK ENGINE WILL NOT START

Most problems in this area will not be connected with the compressor, and should therefore be checked out with the engine manual. In most cases the safety shutdown is wired to a hydraulic solenoid valve that controls the hydraulic flow to the hydraulic motor driving the compressor.

The safety shutdown in some cases can be wired to shut off the truck engine or kick out a hot shift or power clutch style PTO in order to disengage the power source to the compressor. In all cases of unplanned shutdown the truck should be taken in for service.

UNPLANNED SHUTDOWN

When the operation of the machine has been interrupted by an unexplained shutdown, check the following:

1. Check the fuel level and truck dash gauges and indications for possible engine problems.
2. Check the compressor discharge temperature/pressure safety shutdown. Verify if either gauge indicator is hitting the preset trip needle.

TROUBLESHOOTING

3. Check oil cooler for dirt, slush, ice on the fins, or any other obstructions to cooling the air flow.
4. Make a thorough external check for any cause of shutdown such as broken hose, broken oil lines, loose or broken wire, etc.
5. Check to determine if the compressor oil is at proper level.
6. Check the electric fan motor and wiring.

IMPROPER DISCHARGE PRESSURE

1. If discharge pressure is too low, check the following:
 - a. Too much air demand.
 - b. Service valve open.
 - c. Leaks in service line.
 - d. Restricted compressor inlet air filter.
2. If discharge pressure is too high or safety valve blows, check the following:
 - a. 110/150 pressure switch is out of operating range.
 - b. Faulty discharge pressure switchgauge.
 - c. Coalescer plugged up.
 - d. Faulty safety valve.

SUMP PRESSURE DOES NOT BLOWDOWN

If after the compressor is shutdown, pressure does not automatically blowdown, check for:

1. Automatic blowdown valve may be inoperative at coalescer head.
2. Blockage in air line from compressor inlet to blowdown valve.
3. Muffler at blowdown clogged.

OIL CONSUMPTION

Abnormal oil consumption or oil in service line, check for the following:

1. Over filling of oil sump.
2. Leaking oil line or oil cooler.

TROUBLESHOOTING

3. Plugged oil return line: check entire line, check valve at air-end.
4. Defective coalescer element.
5. Compressor shaft seal leakage.
6. Discharge pressure below 65 PSI or above 150 PSI.

COALESCER PLUGGING

If the coalescer element has to be replaced frequently because it is plugging up, it is an indication that foreign material may be entering the compressor inlet and the compressor oil is breaking down. The complete inlet system should be checked for leaks.

Compressor oil can break down prematurely for a number of reasons.

(1) Extreme operating temperature, (2) negligence in draining condensate from oil sump, (3) using the improper type of oil, and (4) dirty oil

HIGH COMPRESSOR DISCHARGE TEMPERATURE

1. Check compressor oil level. Add oil if required (see section for oil specifications).
2. Check electric fan and switch.
3. Clean inside and outside of oil cooler.

COMPRESSOR OPERATION

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

CONTROL OR INDICATOR	PURPOSE
AIR PRESSURE SWITCHGAUGE	Continually monitors the sump pressure at various load and unload conditions. Sends signal to shutdown relay to interrupt flow to hydraulic motor and power to the electric throttle control in cases of excessive pressure. Normal operating pressure range is 100 to 150 PSIG.
COMPRESSOR DISCHARGE TEMPERATURE SWITCHGAUGE	Monitors the temperature of the air/fluid mixture leaving the compressor unit. The normal reading should be approximately 165 to 230 degrees F. Sends signal to shutdown relay to interrupt flow to hydraulic motor and power the electric throttle control in cases of excessive temperature.
HOURMETER	Indicates accumulated hours of actual compressor operation.
FLUID LEVEL SIGHTGLASS	Indicates fluid level in the sump. Proper level should fill half the glass. Check this level when the compressor is disengaged and the vehicle is parked on level ground.
PRESSURE RELIEF VALVE	Vents sump pressure to the atmosphere if the pressure inside the sump exceeds 175 PSIG.
COMPRESSOR INLET VALVE	Isolates fluid in compressor unit on shutdown.
BLOWDOWN VALVE	Coalescer head blowdown valve vents the sump pressure to the atmosphere at shutdown.
MINIMUM PRESSURE VALVE	Restricts air flow to balance sump and service air pressure. Assures a minimum of 65 PSIG to maintain compressor lubrication.
RETURN LINE CHECK VALVE	Ensures that back flow to coalescer element does not occur during shutdown.
110/150 PRESSURE SWITCH	Engages and disengages the hydraulic flow and power to electric throttle when the minimum and maximum air pressure setting are reached.

COMPRESSOR OPERATION

OPERATING CONDITIONS

The following conditions should exist for maximum performance of the compressor. The truck should be as close to level as possible when operating. The compressor will operate on a 15 degree sideward and lengthwise tilt without any adverse problems. Fluid carryover and/or oil starvation may occur if operated beyond this tilt.

NOTE

IF THE COMPRESSOR IS BEING USED TO POWER SANDBLASTING EQUIPMENT, USE A CHECK VALVE DIRECTLY AFTER THE SERVICE VALVE TO PREVENT BACK FLOW INTO THE SUMP. THIS CHECK VALVE SHOULD HAVE A MAXIMUM PRESSURE DROP RATING OF 2 PSIG (13.78kPa) OPERATING AND A CAPACITY RATING EQUAL TO THE MAXIMUM RATING OF THE COMPRESSOR.

ILLUSTRATION DRAWINGS

INSTRUCTIONAL PROCEDURES

- VI. Check all fluid levels (position the unit on a level surface so that proper amount of fluids can be added).
- A. Fuel to provide for three hours of operation.
 - B. Transmission fluid and PTO box.
 - C. Compressor.
Fill the compressor oil sump (see lubricant section of the operator and parts section for type of lubricant to use). 1. Capacity is approximately 2.5 gallons. 2. Add one quart of oil into the compressor thru the compressor intake valve prior to start-up. 3. Additional oil may need to be added after test. 4. Top off oil level to half the sightglass when finished with the test.
 - D. Any other applicable fluids.

4. INITIAL START-UP AND TEST

- A. Start power source and allow for warm-up.
- B. Read the operation section in the operator and parts manual carefully before proceeding onto the initial start-up.
- C. Engage hydraulic system. A direction of rotation arrow is located on the compressor unit near the input shaft. The belt system must be rotating in the direction the arrow is pointing.
Check the direction of rotation by quickly engaging and then disengaging the compressor.

CAUTION

DO NOT RUN THE COMPRESSOR IN A REVERSE ROTATION FOR PERIODS LONGER THAN 5 SECONDS. CONTINUED OPERATION IN THIS MANNER WILL RESULT IN EXTENSIVE COMPRESSOR UNIT DAMAGE.

The safety shutdown switch should be wired in series with the solenoid that opens the flow of the hydraulic oil to the compressor drive motor. In cases of high temperature and/or pressure, the closing of the valve will stop the compressor operation.

Safety circuit testing for BH 600

Safety circuit testing can be done in the following manner. Start the truck. Engage the compressor. Take a screwdriver and touch the 1/16" allen head screw on the face of the temperature gauge and simultaneously touch the outside ring on the face of the gauge. This should shut off the power to the solenoid of the hydraulics. Push the button in on the shutdown switch to reset. Repeat the test with the pressure gauge if solenoid does not stop flow to compressor, check wiring.

BOSS AIR, OIL & ELECTRICAL SCHEMATIC

- AIR
- OIL
- AIR/OIL MIX

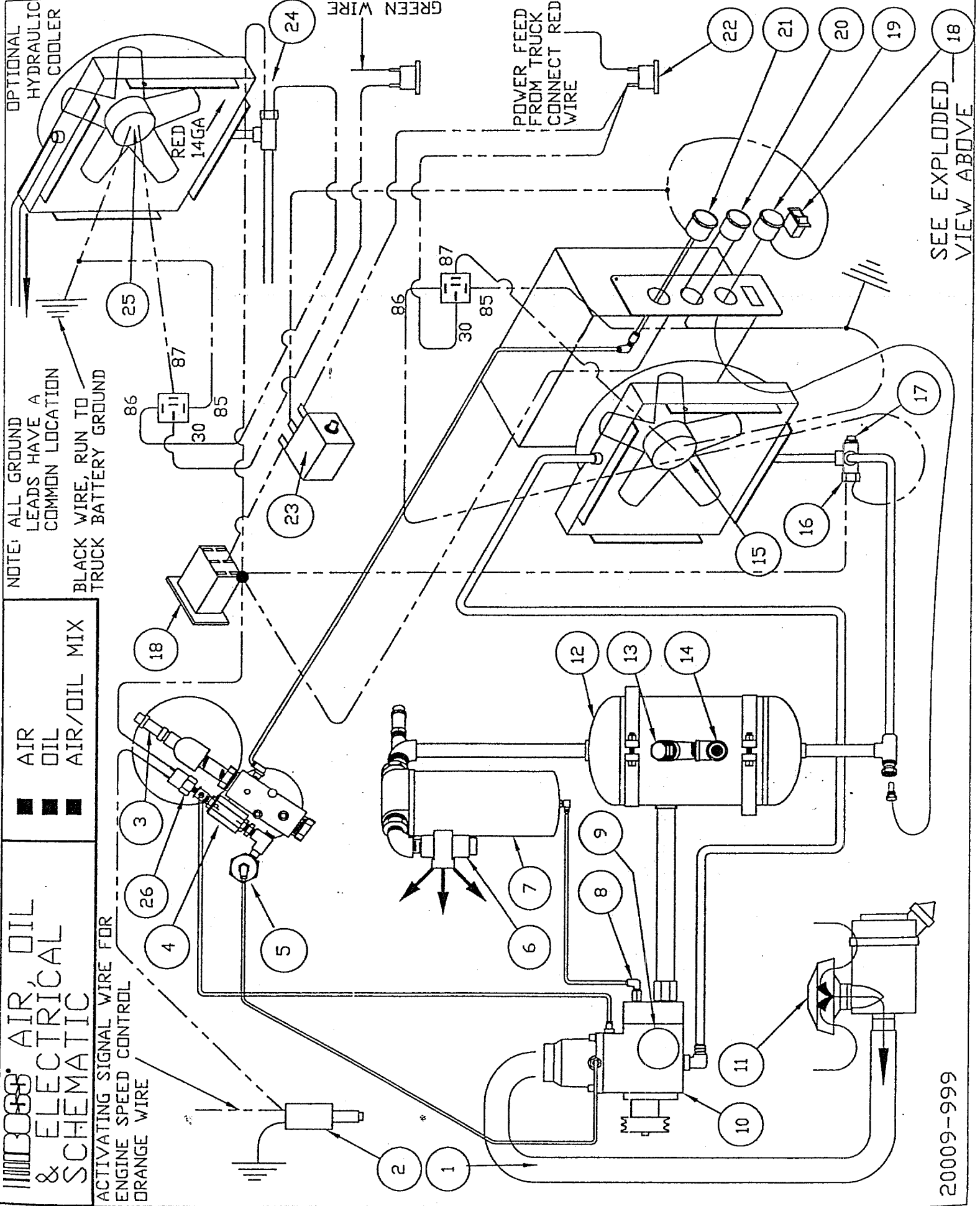
ACTIVATING SIGNAL WIRE FOR ENGINE SPEED CONTROL ORANGE WIRE

NOTE: ALL GROUND LEADS HAVE A COMMON LOCATION
BLACK WIRE, RUN TO TRUCK BATTERY GROUND

OPTIONAL HYDRAULIC COOLER
RED 14GA
GREEN WIRE

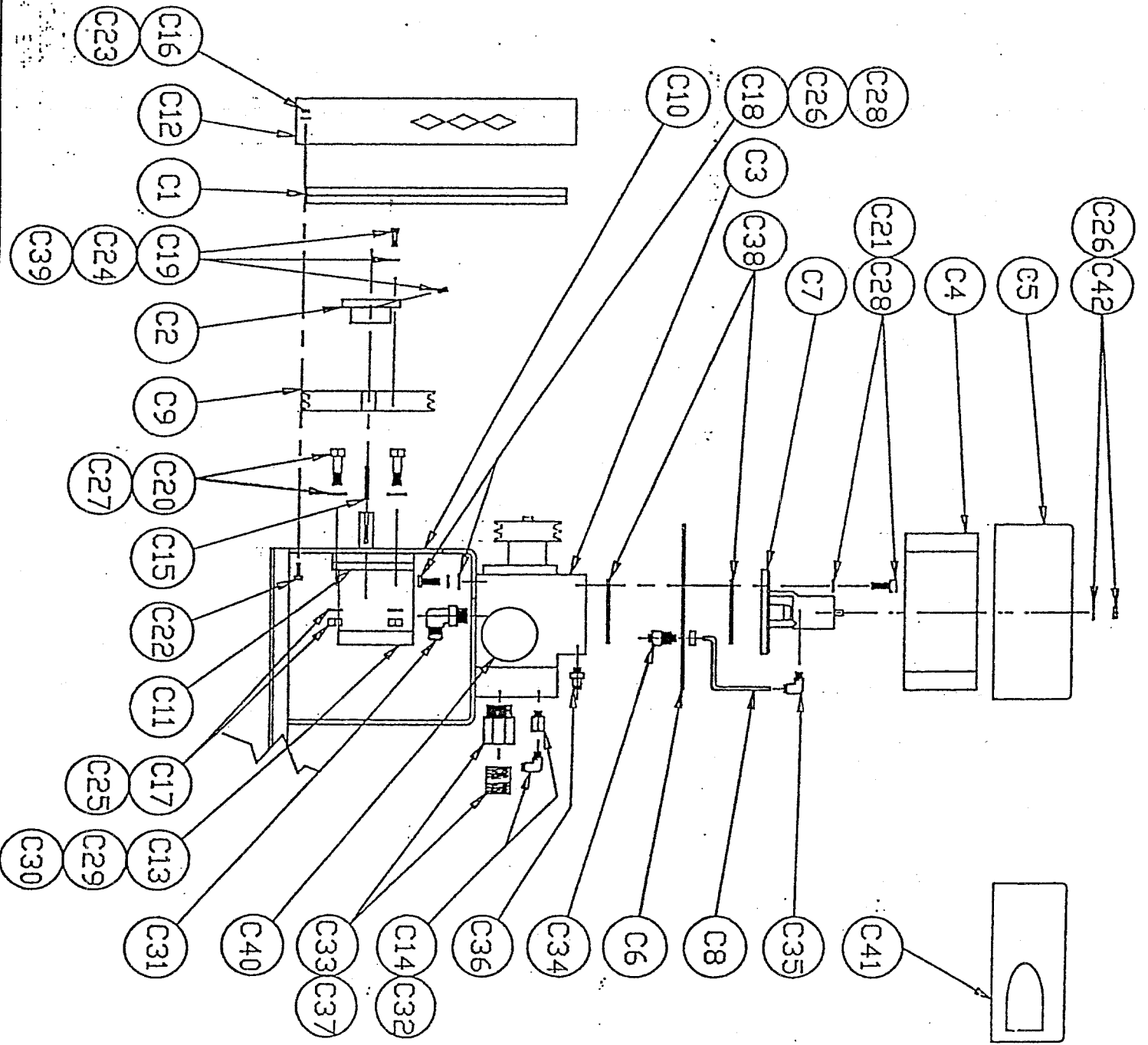
POWER FEED FROM TRUCK CONNECT RED WIRE

SEE EXPLODED VIEW ABOVE



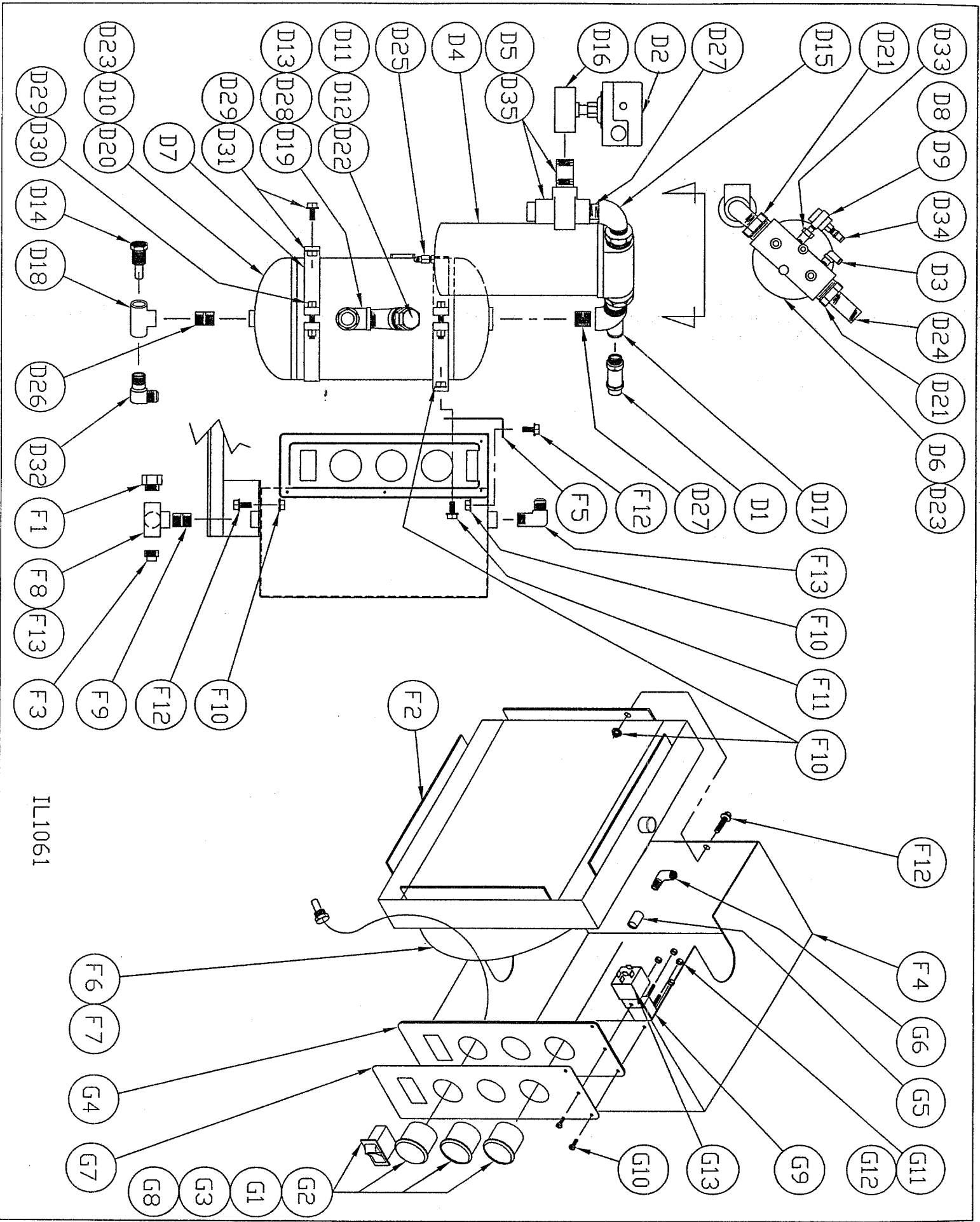
BOSS AIR, OIL, AND ELECTRICAL COMPONENTS

ITEM	DESCRIPTION
1	1.75" AIR INLET HOSE
2	N.O. HYD SOLENOID VALVE
3	1/2" NPT X 175# RELIEF VALVE
4	N.C. 1/4" BLOWDOWN VALVE
5	150/100 PRESSURE SWITCH
6	MINIMUM PRESSURE VALVE
7	SPIN-ON COALESCER
8	ELBOW CHECK VALVE
9	OIL FILTER ELEMENT
10	AIR COMPRESSOR
11	AIR FILTER ASSY
12	AIR/OIL SUMP
13	SUMP FILL CAP
14	SUMP SIGHTGLASS
15	COMPRESSOR COOLING FAN MOTOR
16	COMPRESSOR FAN SENSOR
17	MAGNETIC DRAIN PLUG
18	COMPRESSOR ON/OFF SWITCH
19	TEMPERATURE SWITCHGAUGE
20	HOURMETER
21	PRESSURE SWITCHGAUGE
22	CIRCUIT BREAKER
23	SAFETY POWER RELAY
24	HYDRAULIC FAN SENSOR
25	HYDRAULIC COOLING FAN MOTOR



COMPRESSOR MOUNTING SYSTEM

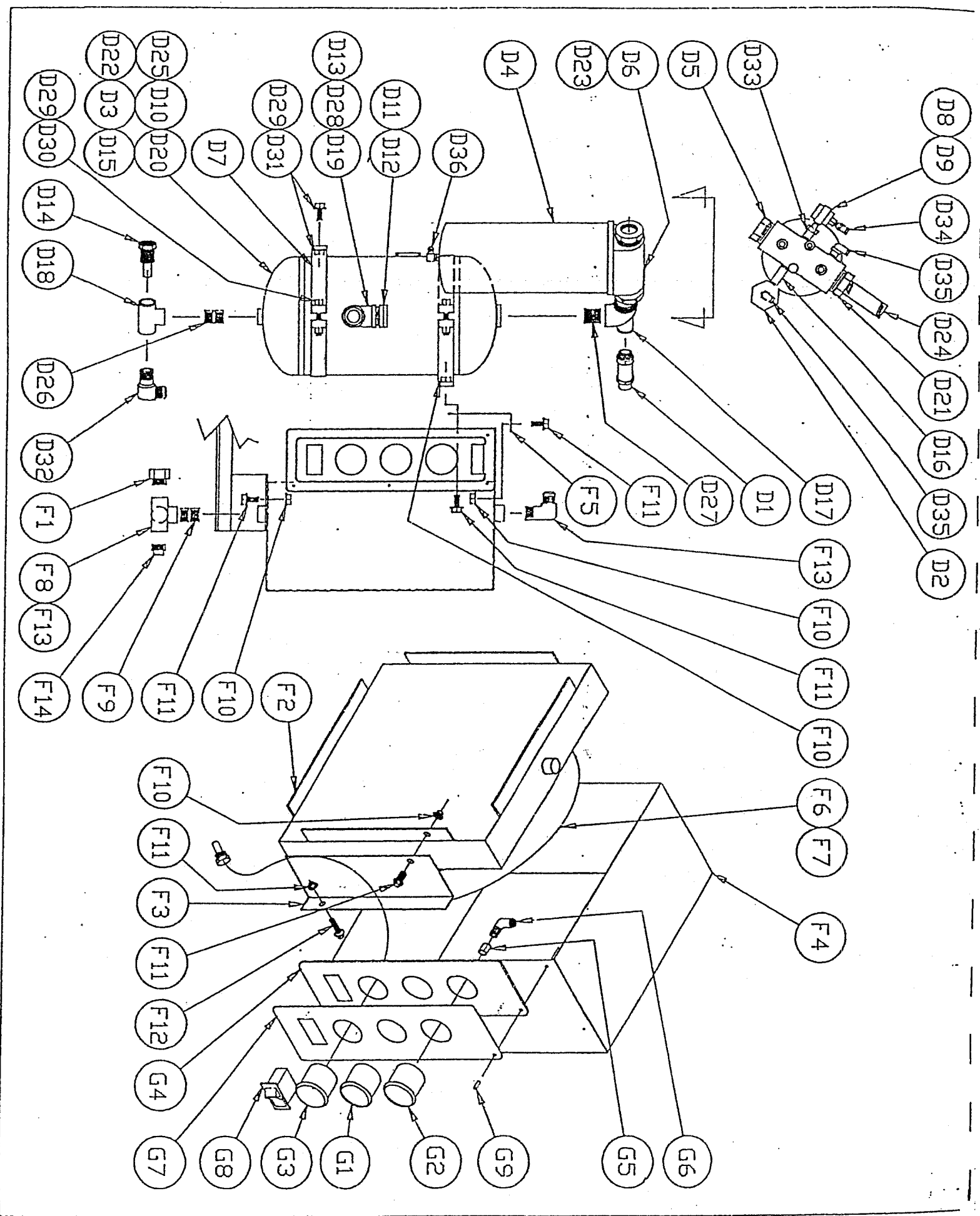
PART NUMBER	CODE	DESCRIPTION	UNIT	QUANTITY
300742-355	C1	BELT, 3VX355	EACH	2.00
300745-075	C2	BUSHING, SDS 3/4 X 3/16 KEY	EACH	1.00
300749	C3	COMPRESSOR, AIR E-3	EACH	1.00
300942	C4	SLEEVE, INLET HOSE 1-3/4	EACH	1.00
300912	C5	CLAMP, AIR INLET 1-3/4	EACH	2.00
300769	C6	PLATE, BOTTOM INLET FILTER E-3	EACH	1.00
300778	C7	VALVE, INLET E-3	EACH	1.00
300780	C8	TUBE, NYLON 5/32	EACH	1.00
300807-002	C9	PULLEY, 7.0 - 2GR 3V	EACH	1.00
300808	C10	BASE, B-600	EACH	1.00
300809	C11	ADJUSTER, BELT B-600	EACH	1.00
300815	C12	GUARD, BELT B-600	EACH	1.00
300818	C13	MOTOR, HYD 2016/1.01	EACH	1.00
300721	C14	VALVE, CHECK AND OIL RETURN ELBOW	EACH	1.00
921103-100	C15	KEY, SQUARE 3/16 X 1	EACH	1.00
925200-114	C16	NUT, HEX GR5 #6-32	EACH	4.00
926007-385	C17	NUT, GR8 7/16-14	EACH	2.00
928008-025	C18	BOLT, HEX M8 X 25MM	EACH	3.00
929104-138	C19	BOLT, HEX 1/4-20 X 1-3/8	EACH	3.00
929807-150	C20	BOLT, HEX GR8 7/16-14 X 1-1/2	EACH	2.00
929308-025	C21	BOLT, SOCKET 8MM X 25MM	EACH	4.00
931600-075	C22	SCREW, MACHINE RO.HD. #6-32 X 3/4	EACH	4.00
938000-031	C23	WASHER, LOC #6-32	EACH	4.00
938004-062	C24	WASHER, LOC 1/4	EACH	3.00
938007-109	C25	WASHER, LOC 7/16	EACH	2.00
938108-200	C26	WASHER, FLAT M8	EACH	4.00
938207-071	C27	WASHER, FLAT 7/16	EACH	2.00
938808-200	C28	WASHER, LOC M8	EACH	7.00
300755	C29	COVER, INLET VALVE	EACH	1.00
925408-400	C30	NUT, NYLOC M8 GR 6.8	EACH	1.00
970608-050	C31	ELBOW, 1/2 BSPP M X 1/2 37° FL	EACH	1.00
970802-012	C32	ADAPTER, 1/8 BSPP M X 1/8 NPT F	EACH	1.00
970816-100	C33	ADAPTER, 1 BSPP M X 1 NPT F	EACH	1.00
300856	C34	HOSE, INLET 1-3/4 X FT.	EACH	5.00
300857	C35	CAP, AIR FILTER 4.8	EACH	1.00
971104-012	C36	CONNECTOR, TUBE 4 MM T X 1/8M BSPP	EACH	1.00
922216-000	C37	NIPPLE, PIPE 1 X CLOSE	EACH	1.00
926202-235	C38	O-RING 3-1/8 X 1/8 -235	EACH	2.00
932204-050	C39	SET SCREW	EACH	1.00
300324	C40	ELEMENT, OIL 3070	EACH	1.00
300854	C41	ELEMENT, AIR FILTER 4.8	EACH	1.00
300916	C42	HOUSING, AIR FILTER 4.8	EACH	1.00
300855	C43	BAND, AIR FILTER MTG. 4.8	EACH	1.00



IL1061

COMPRESSOR DISCHARGE SYSTEM

PART NUMBER	CODE	DESCRIPTION	UNIT	QUANTITY
300023	D1	VALVE, RELIEVE 175# 1/2 NPT	EACH	1.00
300904	D2	SWITCH, PRESSURE	EACH	1.00
971325-025	D3	ELBOW, TUBE 5/32 TUBE X 1/4NPT	EACH	1.00
300093	D4	COALESCER, SPIN-ON ELEMENT	EACH	1.00
300845	D5	VALVE, MINIMUM PRESSURE	EACH	1.00
300331	D6	HEAD, COALESCER	EACH	1.00
300343	D7	BAND, TANK 8	EACH	2.00
300715	D8	VALVE, BLOWDOWN 1/8 NPT	EACH	1.00
300716	D9	MUFFLER, BLOWDOWN VALVE 1/8 NPT	EACH	1.00
300741	D10	SUMP, 8 X 15 VERTICAL	EACH	1.00
300781	D11	ADAPTER, OIL FILL 1	EACH	1.00
300782	D12	PLUG, OIL FILL 1	EACH	1.00
300783	D13	SIGHTGLASS, OIL LEVEL	EACH	1.00
300824	D14	THERMALWELL, SWITCHGAUGE	EACH	1.00
901115-030	D15	PIPE STREET 3/4	EACH	1.00
902203-013	D16	TEE, PIPE RED. 3/4 X 1/4 X 3/4	EACH	1.00
902203-023	D17	TEE, PIPE RED. 3/4 X 1/2 X 3/4	EACH	1.00
902415-020	D18	TEE, PIPE 1/2	EACH	1.00
902415-040	D19	TEE, PIPE 1	EACH	1.00
902900-040	D20	PLUG, PIPE HEX SOCKET 1	EACH	1.00
907605-030	D21	BUSHING, REDUCING	EACH	2.00
903315-040	D22	ELBOW, PIPE STREET 1 X 45°	EACH	1.00
907800-010	D23	PLUG, PIPE 1/4	EACH	3.00
922112-035	D24	NIPPLE, PIPE 3/4 X 3-1/2	EACH	1.00
960401-012	D25	CONNECTOR, 1/4 X 1/8 37° FL	EACH	1.00
922208-000	D26	NIPPLE, PIPE 1/2 X CLOSE	EACH	1.00
922212-000	D27	NIPPLE, PIPE 3/4 X CLOSE	EACH	2.00
922216-000	D28	NIPPLE, PIPE 1 X CLOSE	EACH	1.00
925305-283	D29	NUT, HEX WHIZ LOCK 5/16-18	EACH	4.00
929105-150	D30	BOLT, HEX GR.5 5/16-18 X 1-1/2	EACH	2.00
929705-075	D31	BOLT, WHIZ 5/16-18	EACH	2.00
960208-050	D32	ELBOW, 1/2 X 1/2 37° FL	EACH	1.00
961604-012	D33	NIPPLE, HEX RED 1/4 X 1/8	EACH	1.00
971225-012	D34	CONNECTOR, 5/32 TUBE X 1/8 NPT M	EACH	1.00
922112-025	D35	NIPPLE, PIPE 3/4 X 2-1/2	EACH	1.00

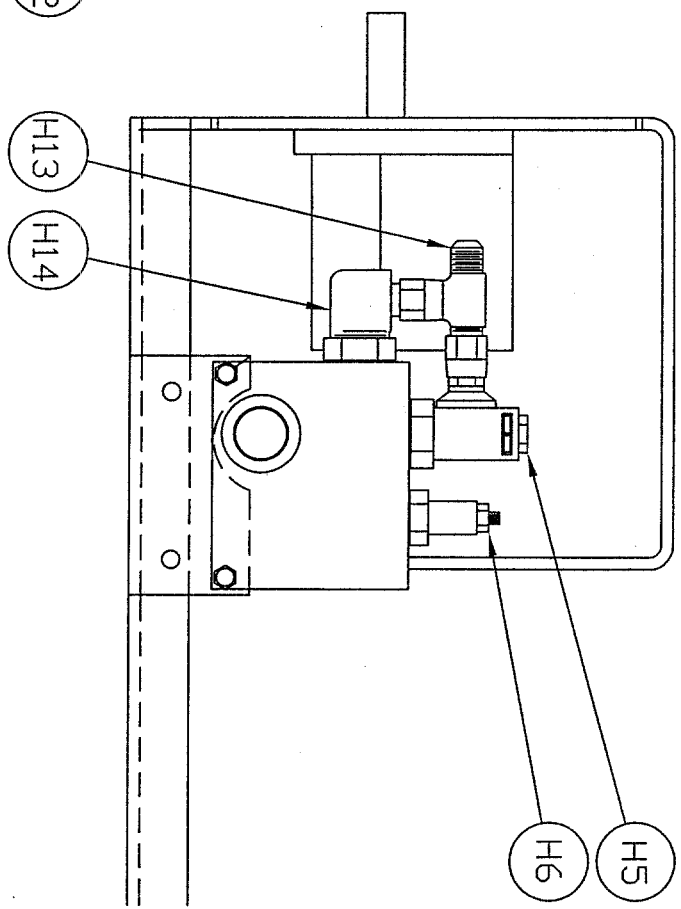
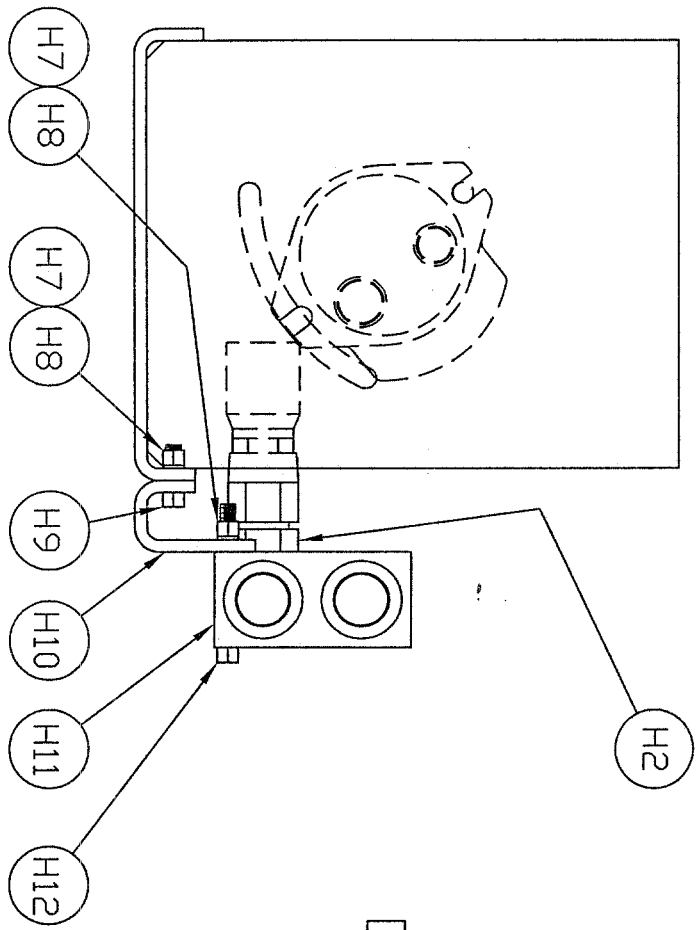
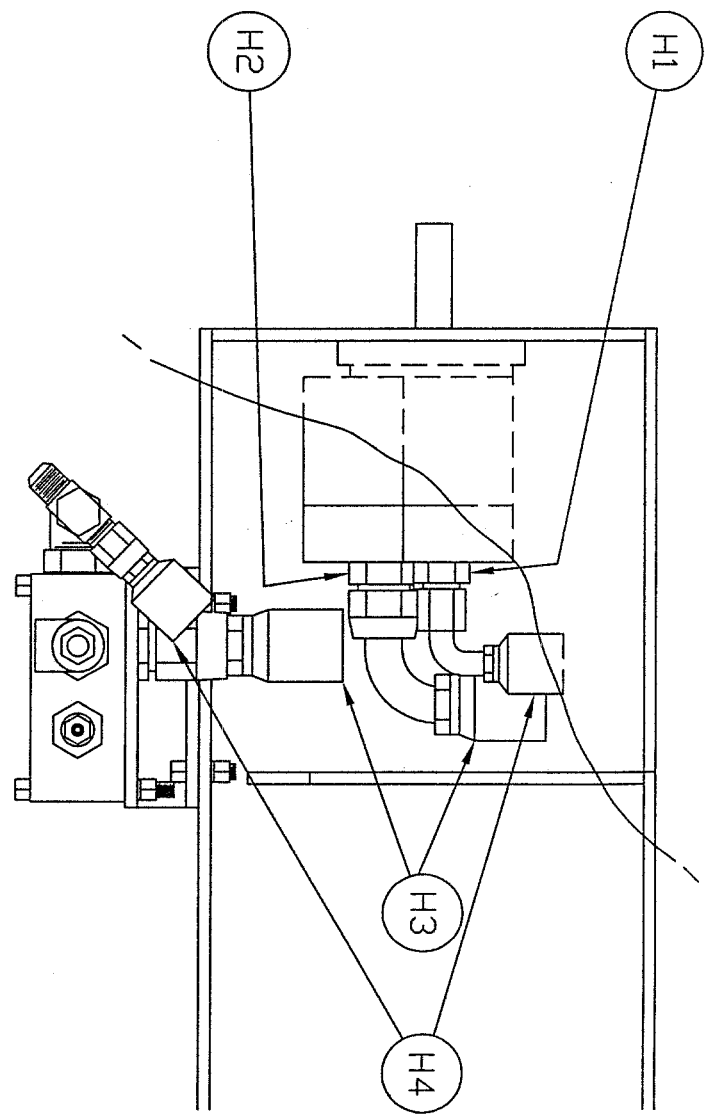


COMPRESSOR COOLING SYSTEM

PART NUMBER	CODE	DESCRIPTION	UNIT	QUANTITY
300072	F1	SENSOR, FAN	EACH	1.00
300836	F2	COOLER, OIL 14 X 16	EACH	1.00
300108	F3	PLUG, MAGNETIC 1/2 NPT	EACH	1.00
300812	F4	GUARD, OIL COOLER B-600 ST	EACH	1.00
300775	F5	BRACKET, TANK TO OIL COOLER	EACH	1.00
300816	F6	ASSY, FAN W/MTR & GRILL 12	EACH	1.00
300817	F7	MTG KIT, 12 FAN	EACH	1.00
902715-020	F8	TEE, PIPE SIDE OUTLET 1/2	EACH	1.00
922208-000	F9	NIPPLE, PIPE 1/2 X CLOSE	EACH	1.00
925305-283	F10	NUT, HEX WHIZ LOCK 5/16-18	EACH	9.00
929705-050	F11	BOLT, WHIZ 5/16-18 X 1/2	EACH	2.00
929705-075	F12	BOLT, WHIZ 5/16-18 X 3/4	EACH	7.00
960208-050	F13	ELBOW, 1/2 X 1/2 37° FL	EACH	2.00

ELECTRICAL SYSTEM

PART NUMBER	CODE	DESCRIPTION	UNIT	QUANTITY
300074	G1	GAUGE, HOUR METER	EACH	1.00
300075	G2	SWITCHGAUGE, PRESSURE	EACH	1.00
300076	G3	SWITCHGAUGE, TEMPERATURE	EACH	1.00
300814	G4	PANEL, GAUGE B-600 ST	EACH	1.00
901215-015	G5	COUPLING, PIPE 1/8 NPT	EACH	1.00
971325-012	G6	ELBOW, 5/32 TUBE X 1/8 NPT M	EACH	1.00
300829	G7	DECAL, GAUGE PANEL ST	EACH	1.00
300830	G8	SWITCH, ON/OFF ST	EACH	1.00
300909-025	G9	BREAKER, CIRCUIT 25 AMP	EACH	1.00
931600-075	G10	SCREW, MACHINE RD. HD. #6-32 X 3/4	EACH	4.00
925200-114	G11	NUT, HEX GR5 #6-32	EACH	4.00
938000-031	G12	WASHER, LOC #6	EACH	3.00
300211	G13	RELAY, POWER	EACH	1.00



HYDRAULIC SYSTEM

PART NUMBER	CODE	DESCRIPTION	UNIT	QUANTITY
970510-050	H1	ADAPTER, STRAIGHT THREAD 7/8-14 X 1/2JIC	EACH	1.00
970512-075	H2	ADAPTER, STRAIGHT THREAD 1-1/16-16 X 3/4	EACH	2.00
300943	H3	HOSE ASSY, 3/4 90° CR X 3/4 STR. ST.	EACH	1.00
300944	H4	HOSE ASSY, 1/2 90° CR X 1/2 STR. ST.	EACH	1.00
300945	H5	VALVE, N.O. HYDRAULIC SOLENOID	EACH	1.00
300946	H6	VALVE, HYDRAULIC RELIEF	EACH	1.00
938005-078	H7	WASHER, LOC 5/16	EACH	4.00
925205-273	H8	NUT, HEX GR.5 5/16-18	EACH	4.00
929105-100	H9	BOLT, HEX GR5 5/16-18 X 1	EACH	2.00
300842	H10	BRACKET, SOLENOID VALVE BLOCK MTG	EACH	1.00
300947	H11	BLOCK, HYDRAULIC VALVE	EACH	1.00
929105-275	H12	BOLT, HEX GR5 5/16-18 X 2-3/4	EACH	2.00
972208-050	H13	TEE, SWIVEL NUT RUN	EACH	1.00
970412-050	H14	ELBOW, REDUCING STR. THRD 1-1/16-16 X 1/2	EACH	1.00

RECOMMENDED SPARE PARTS

PART NUMBER	DESCRIPTION	AMOUNT
300324	OIL FILTER ELEMENT	1
300093	SPIN-ON COALESCING ELEMENT	1
300854	AIR FILTER ELEMENT	1
300869	INLET VALVE REPAIR KIT	1
300904	REGULATOR REPAIR KIT	1
300828	COMPRESSOR SHAFT SEAL REPAIR KIT	1
300072	FAN SENSOR	1
300742-335	DRIVE BELTS	2
300948	HYDRAULIC MOTOR SEAL KIT	1