

**BOSS INDUSTRIES 8060
PTO AIR COMPRESSOR
OPERATORS, INSTALLATIONS,
AND PARTS MANUAL**

*P/N: 305504
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OPERATORS AND PARTS MANUAL

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GENERAL ARRANGEMENT

BOSS INDUSTRIES Underdeck PTO Compressors are shipped in kit form for field installation. These kits include:

1. Rotary Screw Compressor and Mounting Bracket.
2. Oil Sump with Mounting Brackets.
3. Spin-on Coalescer/Air Manifold Assembly.
4. Compressor Oil Cooler.
5. Air Inlet Filtration System.
6. Hoses and Fittings.
7. All Necessary Safety and Informational Decals.
8. Electrical Components
9. Driveshaft Components
10. Parts, Service, Installation, and Maintenance Manual.

BOSS INDUSTRIES offers factory installation by qualified technicians, as well as a nationwide network of authorized distributors for field installations, parts and service.

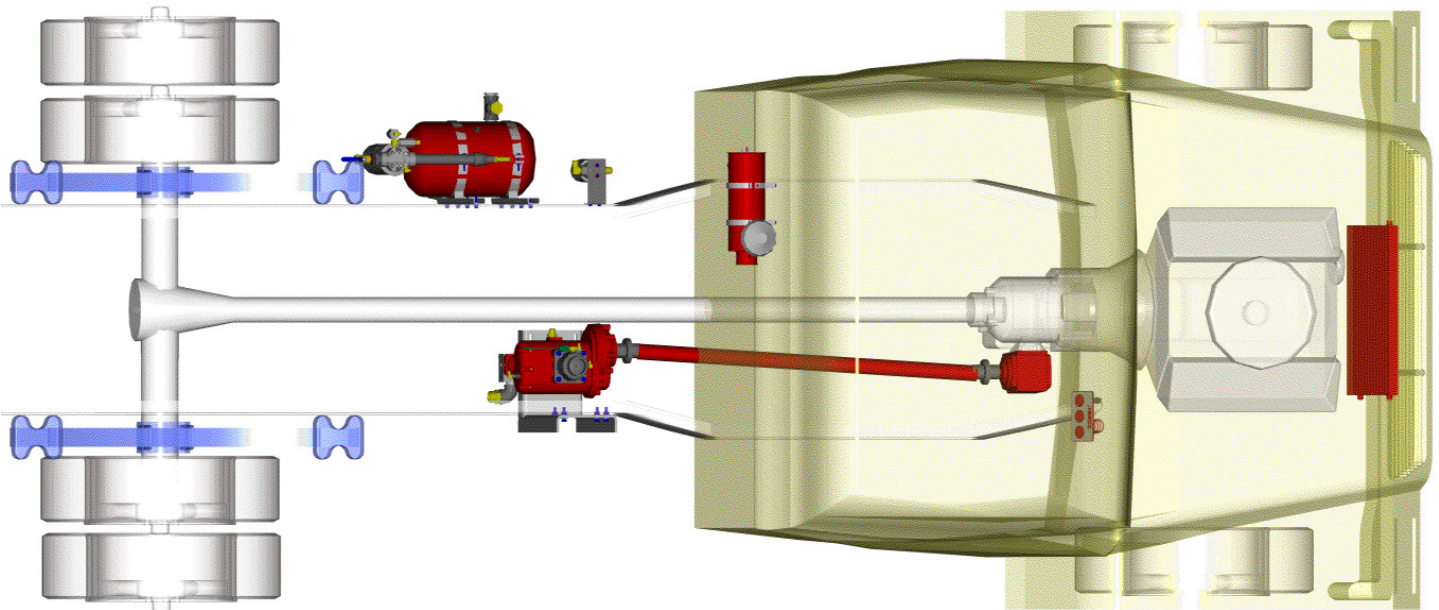
SPECIFICATIONS

BOSS INDUSTRIES 8060/8070 UBI & 8075UHBI COMPRESSOR

Delivery @ 110 PSIG	CFM	60	85	100	125	160	185
Input Speed RPM to Compressor (3.05:1)	RPM	750	1010	1200	1450	1875	2160
Input GPM @ 2200 PSI for 8060-UHBI	GPM	15.2	20.5	24.4	29.4	38.0	43.8
Input Speed RPM to Compressor (2.50:1)	RPM	915	1250	1475	1775	2350	X
Input Speed RPM to Compressor (1.96:1)	RPM	1100	1575	1860	2300	X	X
Input Speed RPM to Compressor (B160 Direct Drive)	RPM	X	X	2000	2500	X	X
Input Speed RPM to Compressor (14D Direct Drive)	RPM	X	X	X	X	2225	2500
Fluid Capacity		4.75 Gallons					
Components - Compressor System		(Overall Dimensions)					
Compressor / Air Inlet		10" W x 16" H x 18" L					
Receiver / Sump		17" Dia x 22" L					
Spin-On Element		5" Dia x 13" H					
Cooler / Fan Assembly		19" W x 12" H x 22" L					
Weight (dry)		423 lbs.					

****CALCULATIONS PERFORMED @ 85% EFFICIENCY MECHANICAL AND 96% EFFICIENCY VOLUMETRIC.***

****SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE***



Typical Installation

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.

AIR COMPRESSOR SAFETY PRECAUTIONS

Safety is basically common sense. While there are standard safety rules, each situation has its own peculiarities that cannot always be covered by rules. Therefore with your experience and common sense, you are in a position to ensure your 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 SUMPOIL LEVEL ONLY WHEN THE COMPRESSOR IS NOT OPERATING AND SYSTEM IS COMPLETELY RELIEVED OF PRESSURE. OPEN SERVICE VALVE TO ENSURE RELIEF OF SYSTEM AIR PRESSURE WHEN PERFORMING MAINTENANCE 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 pressure or speed in excess of its rating as indicated in "Compressor Specifications".

Periodically check all safety devices for proper operation.

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

Exercise cleanliness during maintenance and when making repairs. Keep dirt away from parts by covering parts and exposed openings.

SAFETY

Do not install a shut-off valve between the compressor and compressor oil sump.

DANGER

DO NOT USE BOSS INDUSTRIES COMPRESSOR SYSTEMS TO PROVIDE BREATHING AIR. SUCH USAGE, WHETHER SUPPLIED IMMEDIATELY FROM THE COMPRESSOR SOURCE, OR SUPPLIED TO BREATHING TANKS FOR SUBSEQUENT USE, CAN CAUSE SERIOUS BODILY INJURY. BOSS INDUSTRIES DISCLAIMS ANY AND ALL LIABILITIES FOR DAMAGE FOR LOSS DUE TO PERSONAL INJURIES, INCLUDING DEATH, AND/OR PROPERTY DAMAGE INCLUDING CONSEQUENTIAL DAMAGES ARISING OUT OF ANY BOSS INDUSTRIES COMPRESSORS USED TO SUPPLY BREATHING AIR.

Do not disconnect or bypass safety circuit system.

Do not install safety devices other than authorized BOSS INDUSTRIES replacement devices.

Close all openings and replace all covers and guards before operating compressor unit.

Tools, rags, or loose parts must not be left on the compressor or drive parts.

Do not use flammable solvents for cleaning parts.

Keep combustibles out of and away from the Compressor and any associated enclosures.

The owner, lessor, or operator of the Compressor are hereby notified and forewarned that any failure to observe these safety precautions may result in damage or injury.

BOSS INDUSTRIES expressly disclaims responsibility or liability for any injury or damage caused by failure to observe these specified precautions or by failure to exercise that ordinary caution and due care required when operating or handling the Compressor, even though not expressly specified above.

SAFETY

A compliment of warning decals is supplied with each unit. These decals must be affixed to the vehicle after it has been painted, trimmed, and undercoat, etc. and prior to being put into service. The decals shall be placed so as to be clearly visible to the user and service personnel. (Figures 1 through 6.)

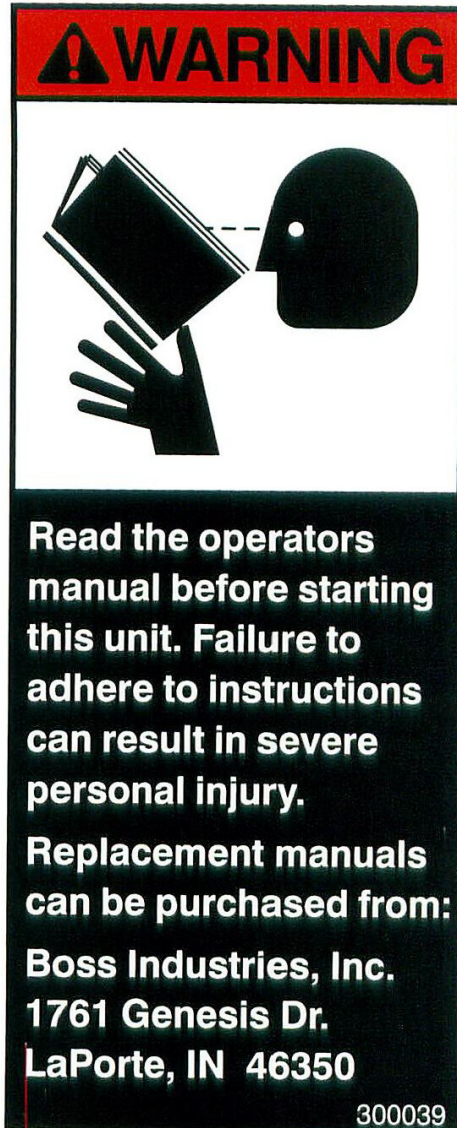


Figure 1. To be placed on visor or dash near start-up procedure decal.
P/N: 300039

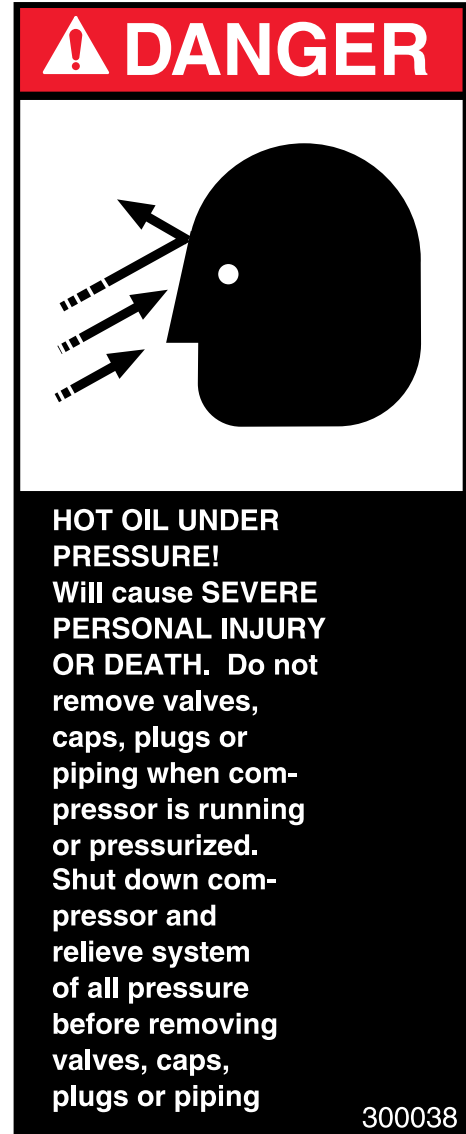


Figure 2. To be placed on body near oil sump filler cap.
P/N: 300038

SAFETY



Figure 3. To be placed on body near air service valve.
P/N: 300040

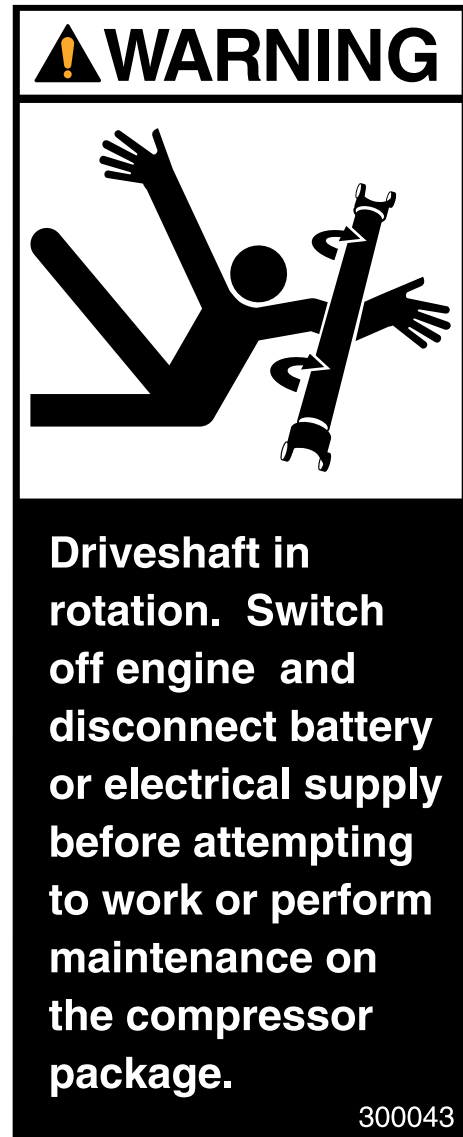


Figure 4. To be placed on body near compressor mounting foot.
P/N: 300043

SAFETY



Figure 5. To be placed near oil cooling fan.
P/N: 300041



Figure 6. To be placed on body near air service valve.
P/N: 300042

SAFETY

COMPRESSOR FLUID

**USE AUTOMATIC TRANSMISSION FLUID
DEXRON III 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**

300047



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COMPRESSOR TERMINOLOGY

ATF - Automatic transmission fluid.

AIR/OIL COALESCER - Performs second stage separation of oil from compressed air feeding air tools. Sometimes referred to as the separator element.

AOM - Air Oil Manifold. Consists of coalescer and oil filter.

CFM - The volume of compressed air produced expressed as cubic feet of air per minute.

LOAD CONTROLLER - Sometimes referred to as the engine speed control.

OIL SUMP - The first stage of oil separation from compressed air. Also serves as reservoir area for compressor lubricant and sometimes referred to as the receiver tank.

PSI - Refers to the operating pressure the system is set up at, expressed as pounds per square inch.

SAFETY VALVE - A valve located on the oil sump which opens in case of excessive pressure. Sometimes referred to as the pop-off or pressure relief valve.

SHUTDOWN SWITCH - Works in conjunction with a temperature and pressure switchgauges, sending a signal to stop the compressor power source in cases of high temperature or pressure.

SIDE MOUNT PTO - Power take off gearbox that bolts to the side of the transmission. The PTO input gear meshes with one of the gears in the vehicle's transmission. The rotation developed by the engine drives the transmission which turns the PTO gear box and rotates the PTO output shaft. Special care during PTO selection should be taken to ensure proper compressor rotation and PTO % is achieved for specific compressor kit.

ADAPTER GEAR ASSEMBLY: SIDE MOUNT PTO - The adapter gear assembly is to be used on the 8060-10G model when installed on manual transmissions that require the PTO rotation to be changed from "Opposite Engine" rotation to "Engine" rotation.

DESCRIPTION OF COMPONENTS

COMPRESSOR ASSEMBLY

The BOSS INDUSTRIES PTO 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 engine is transferred to the male rotor through a drive shaft and gears in the gear housing. The female rotor is driven by the male rotor. There are four lobes on the male rotor while the female rotor has five roots.

PRINCIPLES OF OPERATION

In operation, two helical 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 clearances.

LUBRICATION SYSTEM

Oil from the compressor oil sump, at compressor discharge pressure, is directed through the oil filter, cooling system, and to the side 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.

OIL SUMP

Compressed, oil-laden air enters the sump from the compressor. As the oil-laden air enters the sump, most of the oil is separated from the air as it passes through a series of baffles and de-fusion plates. The oil accumulates at the bottom of the sump for recirculation. However, some small droplets of oil remain suspended in the air and are passed on to 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 is 1/4 tube from the top of the coalescer and goes to an elbow check valve fitting which is located at the compressor.

MINIMUM PRESSURE ORIFICE

The minimum pressure orifice 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.

DESCRIPTION OF COMPONENTS

OIL FILTER

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

COMPRESSOR COOLING SYSTEM (STANDARD)

The compressor cooling system consists of an oil cooler remote mounted aerodynamically designed cooling pressure or a cooler mounted in front of the truck's radiator. Oil temperature is controlled by a thermal switch or a valve located down stream of the oil filter. The switch or valve maintains compressor oil temperatures in the range of 160° - 200° F.

DESCRIPTION OF COMPONENTS

INSTRUMENTATION

The BOSS PTO unit incorporates a gauge panel that monitors temperature, hours of operation and pressure. It is designed to be mounted inside the cab or in a protected area outside of the cab.

COMPRESSOR DISCHARGE PRESSURE SWITCHGAUGE

This switchgauge indicates the discharge air/oil pressure. Operate compressor within the discharge pressure limits as indicated in specifications section. The switchgauge ensures high pressure safety shutdown before the safety relief valve on the sump is discharged, preventing hot pressurized oil spray on the vehicle and/or compressor components.

HOURMETER

The hourmeter records the total number of operating hours. It serves as a guide in 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

This switchgauge indicates compressor air discharge temperature. The switchgauge ensures safety shutdown in case of excessive operating temperatures, preventing compressor damage.

ELECTRICAL AND SAFETY SYSTEM

The BOSS compressor's standard electrical system consists of a gauge panel; a remote mount 12 VDC fan package with fan switch and relay assembly (for standard cooling system only); and a resettable normally closed shutdown switch. These components are integrated together to provide a safety shutdown system that is activated when extreme high temperature or pressure conditions are present. When the temperature or pressure exceeds the maximum set parameter of the respective switchgauge a signal is sent to "trip" the shutdown switch from normally closed to open. This signal will then shut off the engine in vehicles equipped with a CABLE PTO or disengage the PTO in "HOT SHIFT" PTO applications.

ELECTRONIC ENGINE INTERFACE

Electronic engine interface for the compressor speed control incorporates several BOSS supplied electrical components that are chassis specific. A chassis specific wiring diagram and electrical components are supplied per the vehicle application data at the time of the order. Most electronic engines will require programming by your dealer for the truck chassis.

AUTOMATIC BLOW DOWN VALVE

There is one blow down valve in the compressor system. It is located at the downstream side of the coalescer head and will automatically bleed the sump to zero pressure when the compressor is disengaged. Blow down time interval takes between 30 to 60 seconds.

CONTROL SYSTEM

The prime component of the compressor control system is the compressor inlet valve. The control system is designed to match air supply to air demand and to prevent excessive discharge pressure when compressor is at idle. Control of air delivery is accomplished by the inlet valve regulation and modulation as directed by the discharge pressure regulator.

DESCRIPTION OF COMPONENTS

DISCHARGE PRESSURE REGULATOR VALVE

This valve, located on the coalescer head is used to set the desired discharge pressure within the operating pressure range. Turning the regulator screw clockwise increases the working pressure, a counterclockwise movement of the screw reduces the working pressure. This system has a maximum operating pressure of 175 psi.

NOTE: Most air tools operating pressure range is between 90 and 125 psi. Operating above the tools recommended pressures will decrease the life of the tool. Higher operating pressure can also over torque nut and bolts fatiguing the fastener and mating parts. Strictly adhere to tool operating pressures and torque standards set forth by the tool manufacturer and the specifications of the equipment that work is being performed on.

INLET VALVE

The compressor inlet valve is a piston operated disc valve that regulates the inlet opening to control capacity and serving as a check valve at shutdown.

CONTROL SYSTEM OPERATION (ELECTRONIC ENGINES)

The following discussion explains the operation of the control system from a condition of “no load” to a condition of “full capacity” at working pressure. For the working pressure range of your machine, refer to applicable data in “Specifications”.

The pressure regulator, mounted on the coalescer head, operates as follows:

1. As the demand for air decreases, the receiver pressure rises. When this pressure exceeds the set point of the pressure regulator, the regulator opens sending a secondary pressure signal to the inlet valve, and in case of two speed systems, engine speed controls, a timer is activated to slow the engine down to compressor idle. The poppet valve moves towards the valve inlet seat against the force of the modulating spring inside the valve. This regulates the opening area of the inlet valve.
2. If the air demand goes to zero, (service valve closed or air dead headed at tool) the inlet valve will close completely.
3. As the demand for air increases, the secondary pressure signal to the inlet valve is removed and the inlet valve poppet modulates to fully open, and the engine returns to the programmed compressor high RPM.

INSPECTION, LUBRICATION, AND MAINTENANCE

This section contains instructions for performing the inspection, lubrication, and maintenance procedures required 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 interval. 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 avoided 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 ENSURE RELIEF OF SYSTEM AIR PRESSURE. FAILURE TO COMPLY WITH THIS WARNING MAY CAUSE DAMAGE TO PROPERTY AND SERIOUS BODILY HARM.

LUBRICATION AND MAINTENANCE CHART

INTERVAL	ACTION
PERIODICALLY DURING OPERATION	1. Observe all gauge reading. 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 the compressor oil level. 2. Check air filter. 3. Check for oil and air leaks. 4. Check safety circuit switches.
EVERY 25 HOURS OR MONTHLY	1. Drain water from compressor oil.
EVERY 100 HOURS OR 6 MONTHS	1. Grease compressor drive shaft slip yoke assembly.
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. Check compressor supports. 5. Install new air filter element. (Shorter interval may be necessary under dusty conditions.) 6. Check sump safety valve.
EVERY 1000 HOURS OR ANNUALY	1. Change coalescing element.
PERIODICALLY OR AS REQUIRED	1. Inspect and clean air filter element. 2. Inspect and replace spin-on coalescer element if necessary. 3. Inspect and clean oil cooler fins.

NOTE: Compressor oil and filter is to be changed after the first 50 hours of operation. After this, normal intervals are to be followed.

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 COALESCER ELEMENT LOADED WITH DIRT AND OXIDIZED OIL PRODUCTS TOGETHER WITH INCREASED AIR VELOCITY AS A RESULT OF A 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 are general characteristics for a rotary screw lubricant. 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 if they choose not to use the recommended BOSS INDUSTRIES rotary screw lubricant. 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 PTO helical screw type air compressors operating in the particular environment involved.

CAUTION

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

LUBRICANT RECOMMENDATIONS

LUBRICANT CHARACTERISTICS

1. Flash point 400°F minimum.
2. Pour point -40°F.
3. Contains rust and corrosion inhibitors.
4. Contains foam suppressors.
5. Contains oxidation stabilizer.

NOTE

DUE TO ENVIRONMENTAL FACTORS THE USEFUL LIFE OF ALL “EXTENDED LIFE” LUBRICANTS MAY BE SHORTER THAN QUOTED BY THE LUBRICANT SUPPLIER. BOSS INDUSTRIES 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.

COMPRESSOR OIL SUMP FILL, LEVEL, AND DRAIN

Before adding or changing compressor oil make sure that the receiver/sump is completely relieved of pressure. Oil is added at the fill cap on the side of the receiver/sump. A drain plug is provided at the bottom of the receiver/sump. 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 receiver/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 RECEIVER/SUMP. FAILURE TO COMPLY WITH THIS WARNING MAY CAUSE DAMAGE TO PROPERTY AND SERIOUS BODILY HARM.

GREASE

Lubricate the compressor drive shaft every time the truck is lubricated or every 100 hours of compressor operation, whichever comes first.

AIR INTAKE FILTER

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

The filter is equipped with an evacuator cup for continuous dust ejection while operating and when stopped.

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).

MAINTENANCE

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 clogs the element and increases the pressure drop across it.

To replace element proceed as follows:

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

WARNING

DO NOT SUBSTITUTE ELEMENT. USE ONLY A GENUINE BOSS INDUSTRIES REPLACEMENT ELEMENT. THIS ELEMENT IS RATED AT 295 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 top of the air/oil coalescer and flows through a special 1/4 tube elbow located at the air-end. This elbow incorporates an oil return line check valve stopping the flow of oil into the coalescer at shutdown.

MAINTENANCE

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 viewing from bottom) 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 viewing from bottom).
4. Check for leaks in operation.

WARNING

DO NOT SUBSTITUTE ELEMENT. USE ONLY A GENUINE BOSS INDUSTRIES 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 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 BOSS INDUSTRIES compressor lubricant.
4. After cooler is reinstalled and compressor is filled with fresh oil, change compressor oil after 50 hours of normal operation.

MAINTENANCE

SHAFT SEAL

SHAFT SEAL INSTALLATION INSTRUCTIONS:

1. Remove PTO drive shaft, companion flange and key.
2. Remove (5) socket head retaining bolts on cover and slide cover off shaft. Cover has the seal and snap ring assembled in it.
3. Press old snap ring and seal off the cover for assembly of new seal.
4. Pull seal wear sleeve off shaft with puller, adding heat to one area only on wear sleeve will help enlarge and aid in its removal.
5. Clean shaft and surface of bearing removing all burrs from shaft where the wear sleeve gets installed.
6. Press new wear sleeve onto shaft. Oil heating new wear sleeve to 212°F approximately aids in the installation of this ring.
7. Clean seal cover and snap ring with solvent before installation.
8. Press new seal into cover (included in repair kit) and insert snap ring.
9. Place the assembly tool on the drive shaft until it sits on the end of the wear sleeve. Slightly lubricate the assembly tool on the external surface and add Loctite 573 to seal cover.
10. Install cover, seal and snap ring assembly, over shaft and assembly tool. Note: Assembly tool is slip fit on shaft and allows new seal in cover to slide on to wear sleeve without cutting the lip of shaft seal. Reinstall the dirt ring retainer once the new seal and cover assembly is in place.
11. Place seal cover against rotor casting paying attention not to damage the seal and slide off assembly tool.
12. Screw down the socket head retaining bolts on the cover with a torque of 25Nm.
13. Reinstall companion flange, key and drive shaft assembly.

PTO

The PTO should be serviced in accordance with the PTO manual. The SAE side-mount type of PTO is lubricated by the transmission oil and thus requires little maintenance. It is strongly recommended that you periodically torque the fasteners in accordance with the PTO manual.

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 identify 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.

Manual transmissions require our safety shutdown switch to shut off the engine in cases of high temperature or pressure. If this occurs the truck can be restarted by pushing in the reset button on the shutdown switch. If the compressor hi-temperature gauge or the pressure switchgauge has shut off the engine, the compressor truck should be taken in for service/troubleshooting.

Trucks that have automatic transmissions that use hot shift PTO's should be wired so the PTO disengages in the event of a safety shutdown instead of shutting off the truck engine.

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 shutdown switch; it is normally closed. If it is popped out, it had opened the circuit and will need to be reset. Push the button in to reset it. You will then hear the button click if it was tripped by the switchgauges.
3. Check that the compressor oil is at proper level.
4. Check oil cooler for dirt, slush, ice on the fins, or any other obstructions to the cooling air flow.
5. Make a thorough external check for any cause of shutdown such as broken hose, broken oil lines, loose or broken wire, etc.

TROUBLESHOOTING

IMPROPER DISCHARGE PRESSURE

1. If discharge pressure is too low, check the following:
 - A. Too much air demand. (Air tools require more air than what the compressor can produce, air tools are free wheeling without resistance.)
 - B. Service valve wide open to atmosphere.
 - C. Leaks in service line.
 - D. Restricted compressor inlet air filter.
 - E. Faulty control system operation (i.e. regulator is sending a signal to close inlet valve at all times.)
2. If discharge pressure is too high, safety valve blows, or system shuts down on high pressure, check the following:
 - A. Faulty discharge pressure switch.
 - B. Coalescer plugged up.
 - C. Faulty safety valve.
 - D. Faulty regulator (regulator air pressure signal is not getting to inlet valve)
3. Hi pressure shutdown at compressor idle:
 - A. Inlet valve leaking or open
 - B. Faulty regulator

SUMP PRESSURE DOES NOT BLOW DOWN

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

1. Automatic blow down valve may be inoperative at coalescer head.
2. Blockage in air line from side of inlet valve to blow down valve.
3. Muffler at blow down clogged.

OIL CONSUMPTION

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

1. Over filling of oil sump.
2. Leaking oil lines or oil cooler.
3. Plugged oil return line: check entire line, to the compressor.
4. Defective coalescer element.
5. Compressor shaft seal leakage.
6. Discharge pressure below 65 PSI or above 175 PSI.

TROUBLESHOOTING

ENGINE LUGGING

If engine does not accelerate or will not maintain full load speed, check the following:

1. Engine problem (refer to engine manual).
2. Compressor discharge pressure too high.
3. Improper compressor speed. (Compressor running at truck idle.)
4. Operating above maximum altitude rating of compressor and truck.

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 or the compressor oil is breaking down.

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, (4) dirty oil, (5) oil return line plugged.

The complete air inlet system should be checked for leaks.

HIGH COMPRESSOR DISCHARGE TEMPERATURE

1. Check compressor oil level. Add oil if required (see Section for oil specifications).
2. Check thermal valve operation. (Front mounting coolers only).
3. Clean outside of oil cooler.
4. Check fan switch/relay harness.
5. Clean oil system (cooler) internally.

COMPRESSOR OPERATION

STARTING/STOPPING

An operating procedure decal is furnished with every PTO Compressor. The decal should be attached to the dashboard or visor of the truck where it will be visible to the driver. Cable shift PTO's require the use of decal 300045.

The following decal is a sample.

**BE SURE TO FULLY READ MANUAL
PRIOR TO OPERATING EQUIPMENT**



Start-Up Procedure

1. Set brakes per company procedure and chock wheels.
2. Close air service valves. Engine speed control will not elevate if left open.
3. Check compressor oil level, add if low.
4. Place transmission in Park.
5. Engage P.T.O.

Shutdown Procedure

1. Close air service valves.
2. Disengage P.T.O.
3. Verify compressor begins to blow down.

Phone: (219) 324-7776

PN: 308379B

COMPRESSOR OPERATION

Before starting the PTO/compressor, read this section thoroughly. Familiarize yourself with the controls and indicators, their purpose, location, and use.

CONTROL OR INDICATOR	PURPOSE
TEMPERATURE SWITCH GAUGES	Monitors the temperature of the air/fluid mixture leaving the compressor. The normal reading should be approximately 175 to 200 degrees F. Sends signal to high temperature pressure switch when the compressor reaches 240 degrees temperature and the compressor will shut down.
PRESSURE SWITCH GAUGES	Monitors the pressure inside the sump tank. When the pressure reaches 150 PSI the compressor will shut down
HOURMETER	Indicator 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 PSI.
COMPRESSOR INLET CONTROL VALVE	Regulates the amount of air intake in accordance with the amount of compressed air being used. Isolates fluid in compressor unit on shutdown.
PRESSURE REGULATING VALVE	Senses air pressure from sump to provide automatic regulation of the compressor inlet control valve and load controller.
BLOW DOWN VALVE	Coalescer head blow down valve vents the sump pressure to the atmosphere at shut down.
MINIMUM PRESSURE ORIFICE	Resticts air flow to balance sump and service air pressure. Assures a minimum of 65 PSI to maintain compressor lubrication.
RETURN LINE CHECK VALVE	Ensures thst the back flow to coalescer element does not occur during shut down.

COMPRESSOR OPERATION

OPERATING CONDITIONS

The following conditions should exist for maximum performance of the PTO/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 carry over and/or oil starvation may occur if operated beyond this tilt.

NOTE

IF THE COMPRESSOR IS BEING USED TO POWER SANDBLASTING EQUIPMENT, OR AN AIR STORAGE TANK, USE A CHECK VALVE DIRECTLY AFTER THE MINIMUM PRESSURE ORIFICE TO PREVENT BACKFLOW 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 COMPRESSOR.

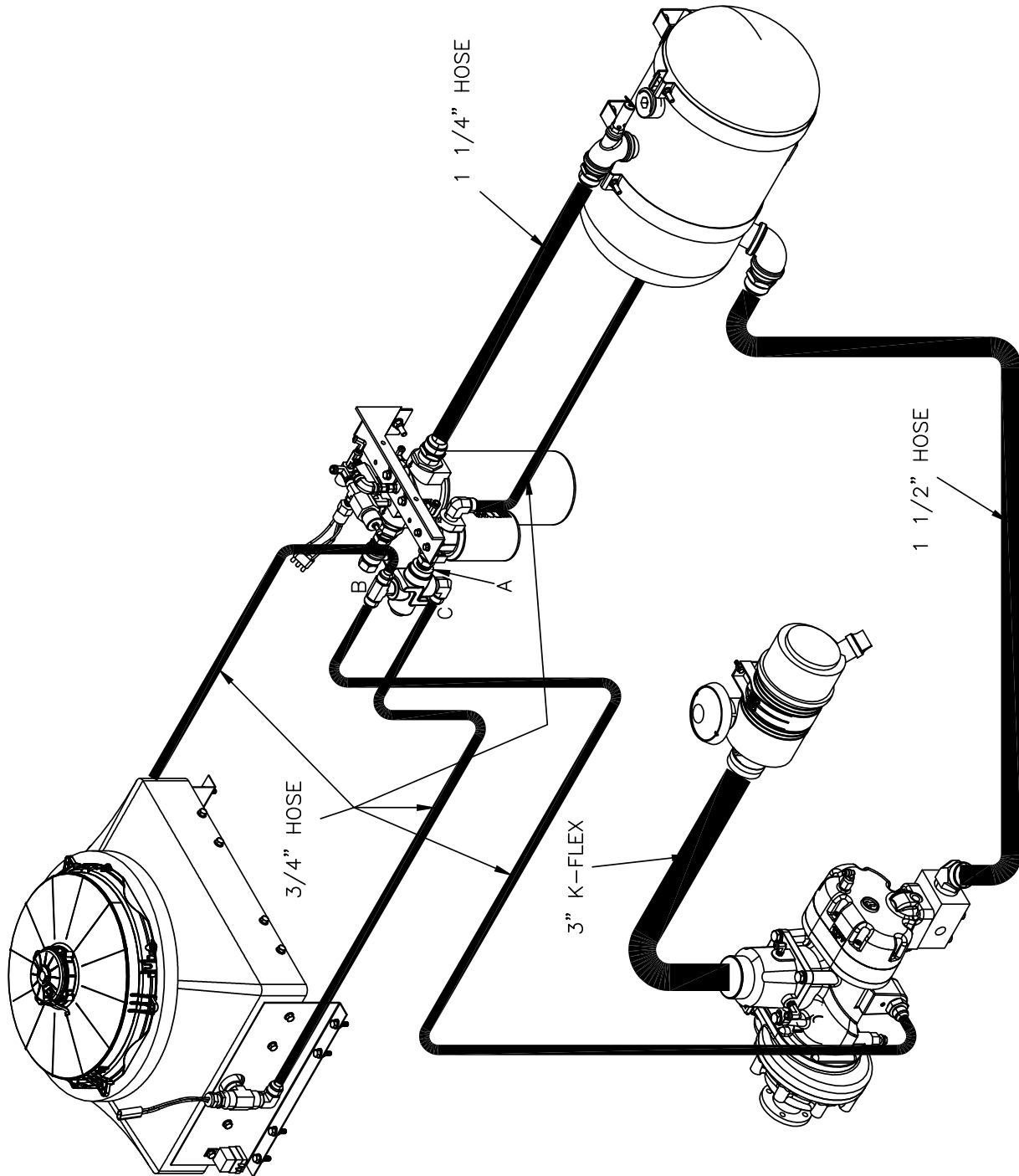
NOTE

THE COMPRESSOR SERVICE VALVE SHOULD BE RELOCATED TO THE HOSE REEL INLET OR BE THE CUSTOMERS AIR CONNECTION PORT WHEN A HOSE REEL IS NOT USED. TYPICAL PLUMBING FROM MINIMUM PRESSURE ORIFICE SHOULD FLOW IN THE FOLLOWING ORDER:

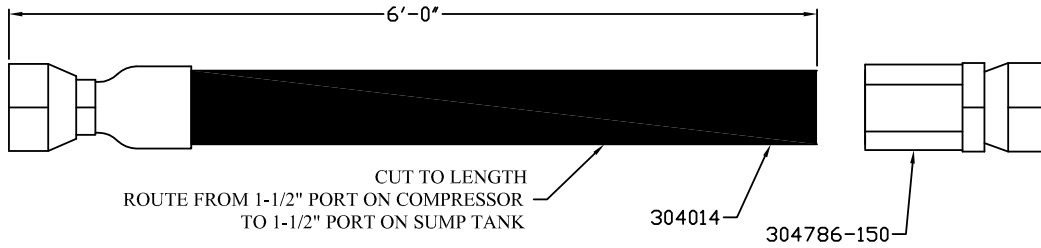
- 1. MINIMUM PRESSURE ORIFICE.**
- 2. CHECK VALVE.**
- 3. AIR TANK (WHEN USED).**
- 4. OSHA VALVE.**
- 5. SERVICE VALVE.**
- 6. MOISTURE TRAP/GAUGE/OILER COMBINATION (WHEN USED).**

**PARTS AND
ILLUSTRATION
SECTION**

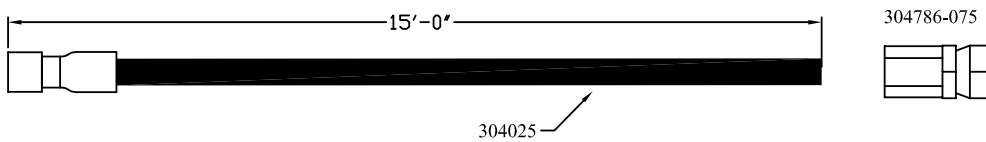
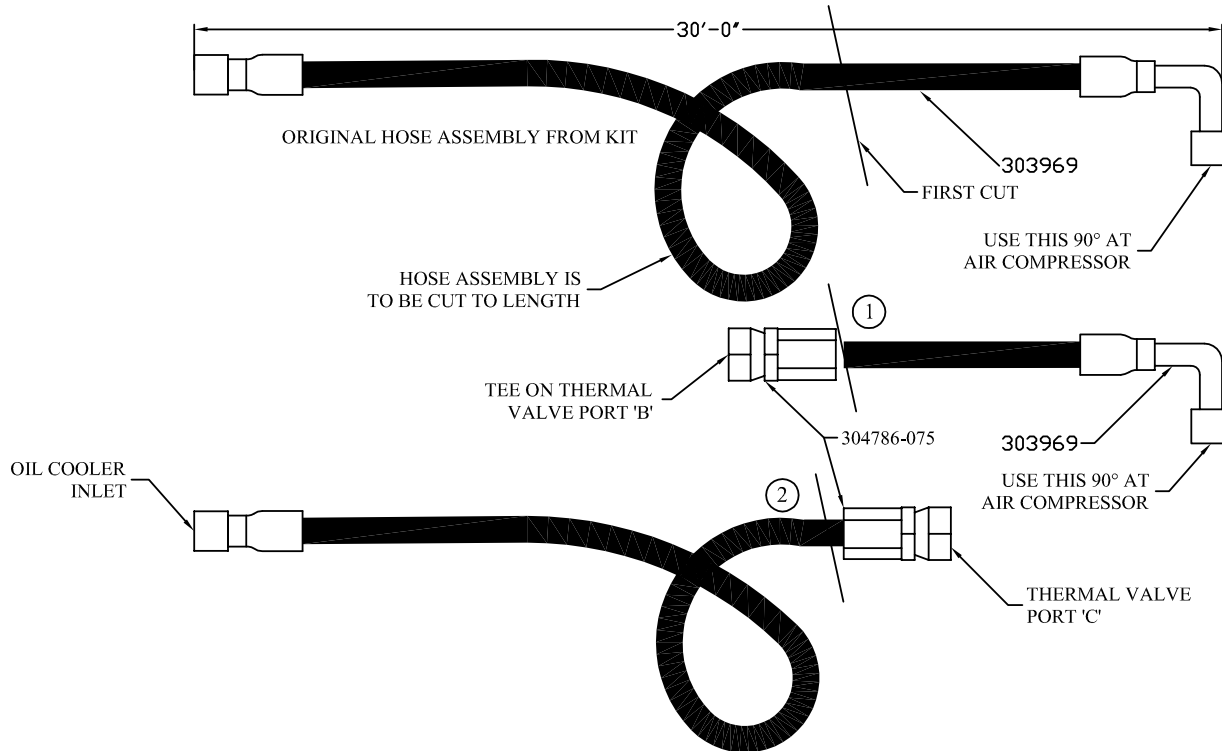
HOSE CONNECTIONS



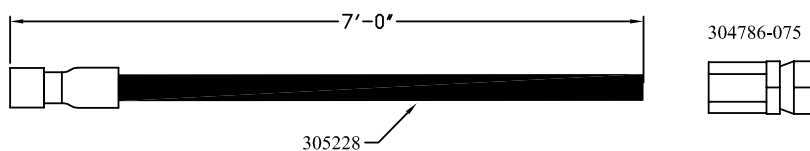
60722 OPTION, HOSE KIT



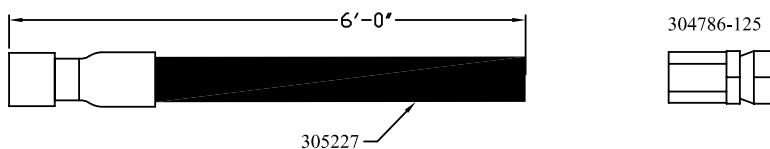
- ① CUT HOSE SO ONE ASSEMBLY HAS THE 90° CRIMP FITTING AND ASSEMBLE A REUSABLE FITTING TO THE OTHER END. USE THIS ASSEMBLY WITH THE 90 DEG CRIMP AT THE COMPRESSOR PORT AND THE STRAIGHT REUSABLE AT THE TEE ON THE THERMAL VALVE PORT 'B'.
- ② CUT REMAINING HOSE TO LENGTH FOR THE HOSE RUN FROM THE THERMAL VALVE PORT 'C' TO THE COOLER INLET. THIS ASSEMBLY WILL USE THE OTHER CRIMP FITTING THAT WAS ATTACHED ON THE ORIGINAL 30" HOSE ASSEMBLY ALONG WITH ONE REUSABLE FITTING.



3/4" HOSE FROM OIL COOLER OUTLET TO TEE ON THERMAL VALVE PORT 'B'. CUT TO LENGTH AND USE REUSABLE STRAIGHT FITTING.

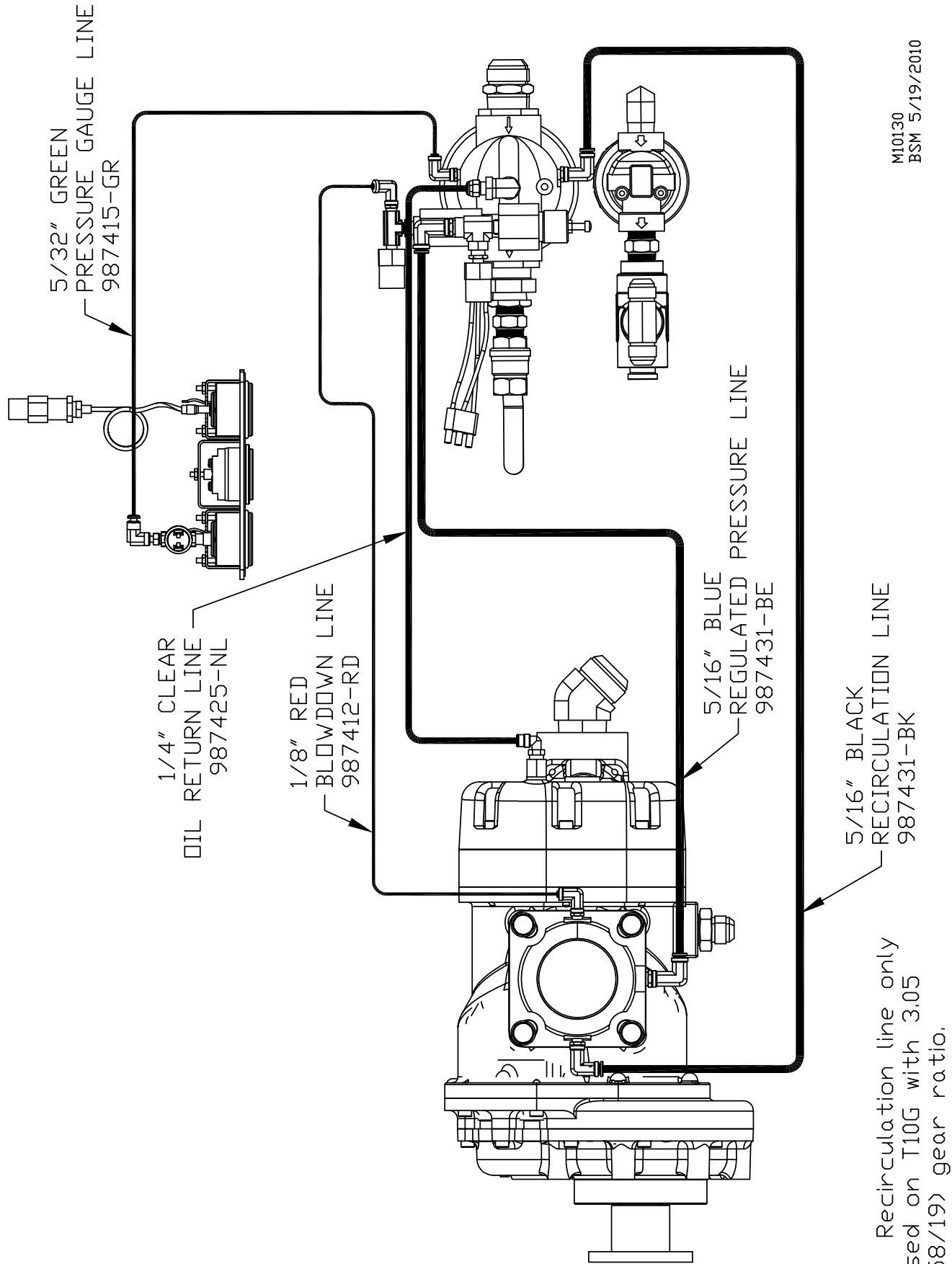


3/4" HOSE FROM RECEIVER TANK TO OIL FILTER HEAD. CUT TO LENGTH AND USE REUSABLE STRAIGHT FITTING.



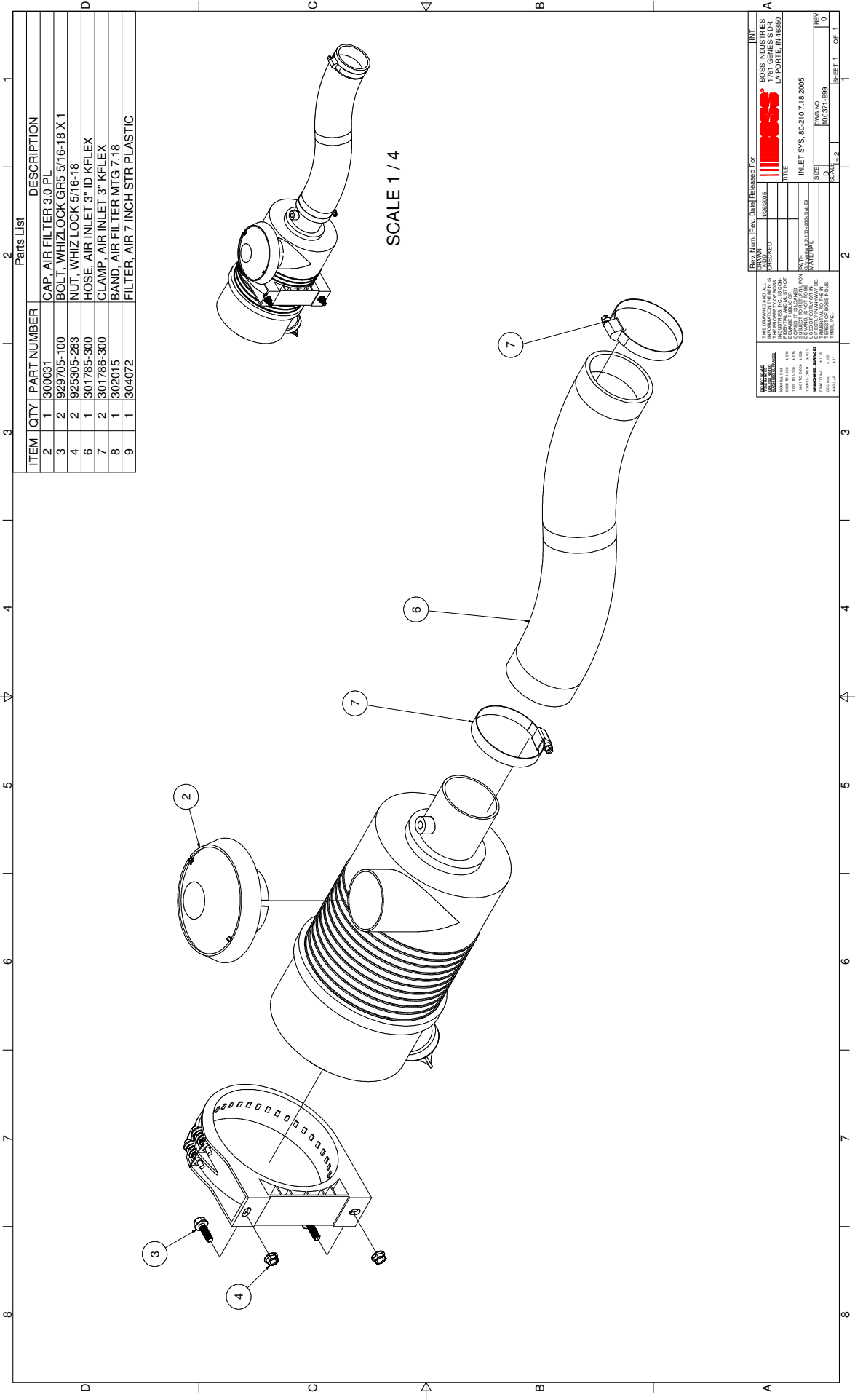
1-1/4" HOSE FROM RECEIVER TANK TO COALESCER HEAD. CUT TO LENGTH AND USE REUSABLE STRAIGHT FITTING.

TUBE CONNECTIONS



* Recirculation line only
used on T10G with 3.05
(58/19) gear ratio.

M10130
BSM 5/19/2010



Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
2	1	300031	CAP, AIR FILTER 3.0 PL
3	2	929705-100	BOLT, WHIZ LOCK GR5 5/16-18 X 1
4	2	925305-283	NUT, WHIZ LOCK 5/16-18
6	1	301785-300	HOSE, AIR INLET 3" ID KFLEX
7	2	301786-300	CLAMP, AIR INLET 3" KFLEX
8	1	302015	BAND, AIR FILTER MTG 7.18
9	1	304072	FILTER, AIR 7 INCH STR, PLASTIC

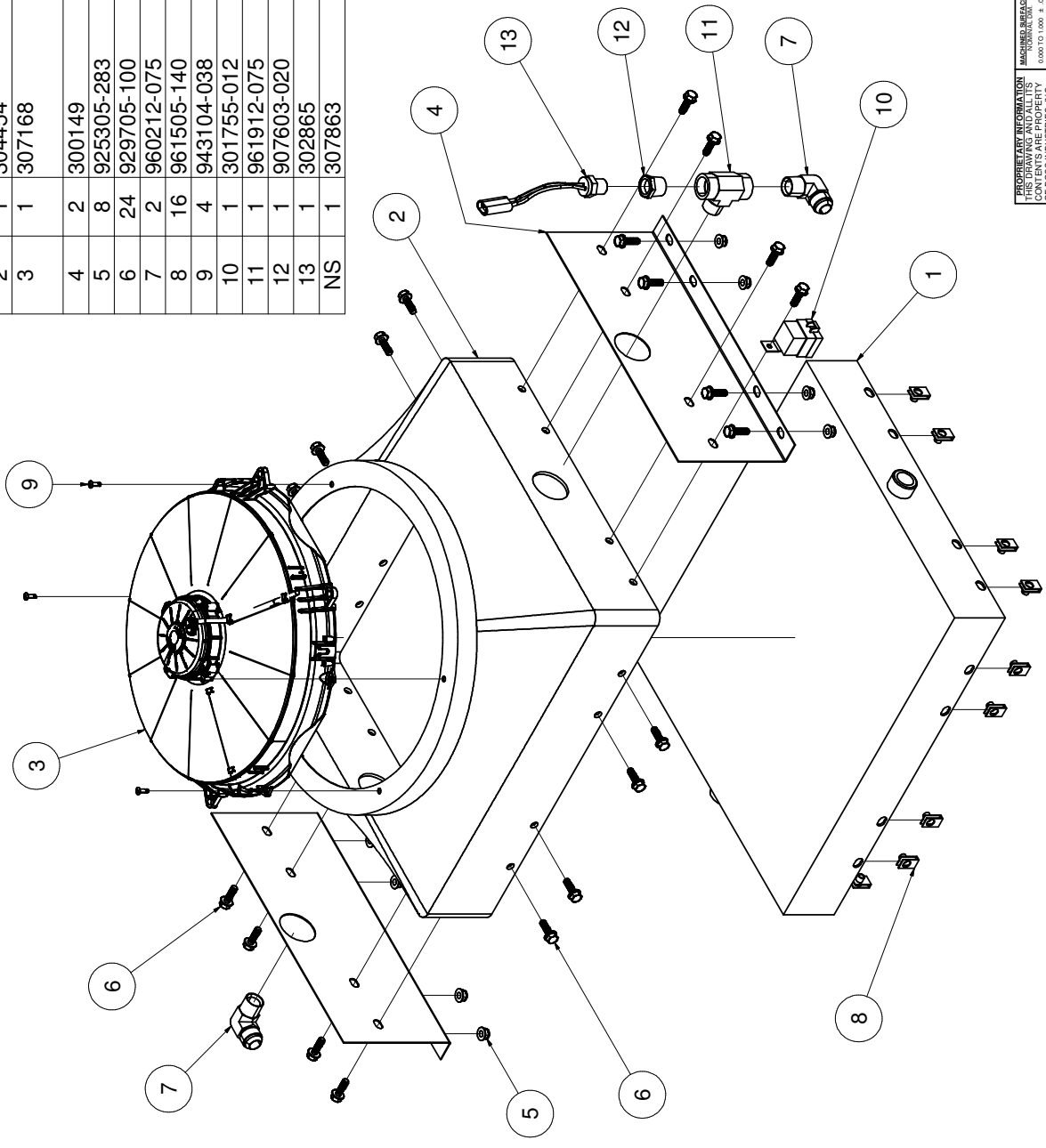
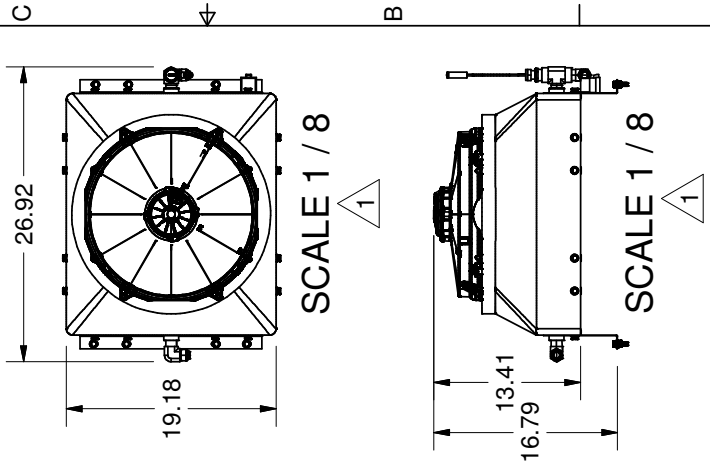
Rev. Num	Rev.	Date	Released For	INT.
1	1/20/2004			

BOSS INDUSTRIES
LA PORTE, IN 46350

TITLE	INLET SYS, 80-210 7.18 2005
PART	
MATERIAL	
SIZE	
DRAWING NO	100571-999
SCALE	1/4
SHEET 1	OF 1

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Parts List		ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	300014	1	300014	COOLER, OIL 18.62
2	1	304454	1	304454	VENTURI, FAN 9 INCH
3	1	307168	1	307168	FAN ASSY. BA W/MOTOR & GRILL 16"
4	2	300149	2	300149	PULLER HIGH PERFORMANCE 12V
5	8	925305-283	8	925305-283	BRACKET, OIL COOLER VENTURI 18
6	24	929705-100	24	929705-100	NUT, WHIZLOCK GR5 5/16-18 X 1
7	2	960212-075	2	960212-075	BOLT, WHIZLOCK GR5 3/4 X 3/4 MNPT
8	16	961505-140	16	961505-140	NUT, TINNERMAN 5/16-18
9	4	943104-038	4	943104-038	RIVET, POP .250 X .375 ALUMINUM
10	1	301755-012	1	301755-012	RELAY, PWR WTHRRPRF 12VDC
11	1	961912-075	1	961912-075	TEE, MB 3/4 F X 3/4 F X 3/4 M
12	1	907603-020	1	907603-020	BUSHING, RED 3/4 X 1/2 GAL
13	1	302865	1	302865	SENSOR, TEMP 175 F NO W/WP CONN
NS	1	307863	1	307863	HARNES, FAN BA UBI MECH GAUGE



BOSS INDUSTRIES
 1761 GENESIS DR.
 LA PORTE, IN 46350

DESCRIPTION: OIL CLING SYS, 8060 UBI MECH BA

SIZE: SCALE C I=4 DWG NO 100730 REV 1

DATE: 7/15/2009

DESIGNED BY: MCM

CHECKED BY: MCM

DRAWN BY: MCM

DATE: 8/26/2009

DESCRIPTION: OIL CLING SYS, 8060 UBI MECH BA

REVISION HISTORY:

REV	DATE	DESCRIPTION
1	8/26/2009	ADDED DIMENSIONAL VIEWS

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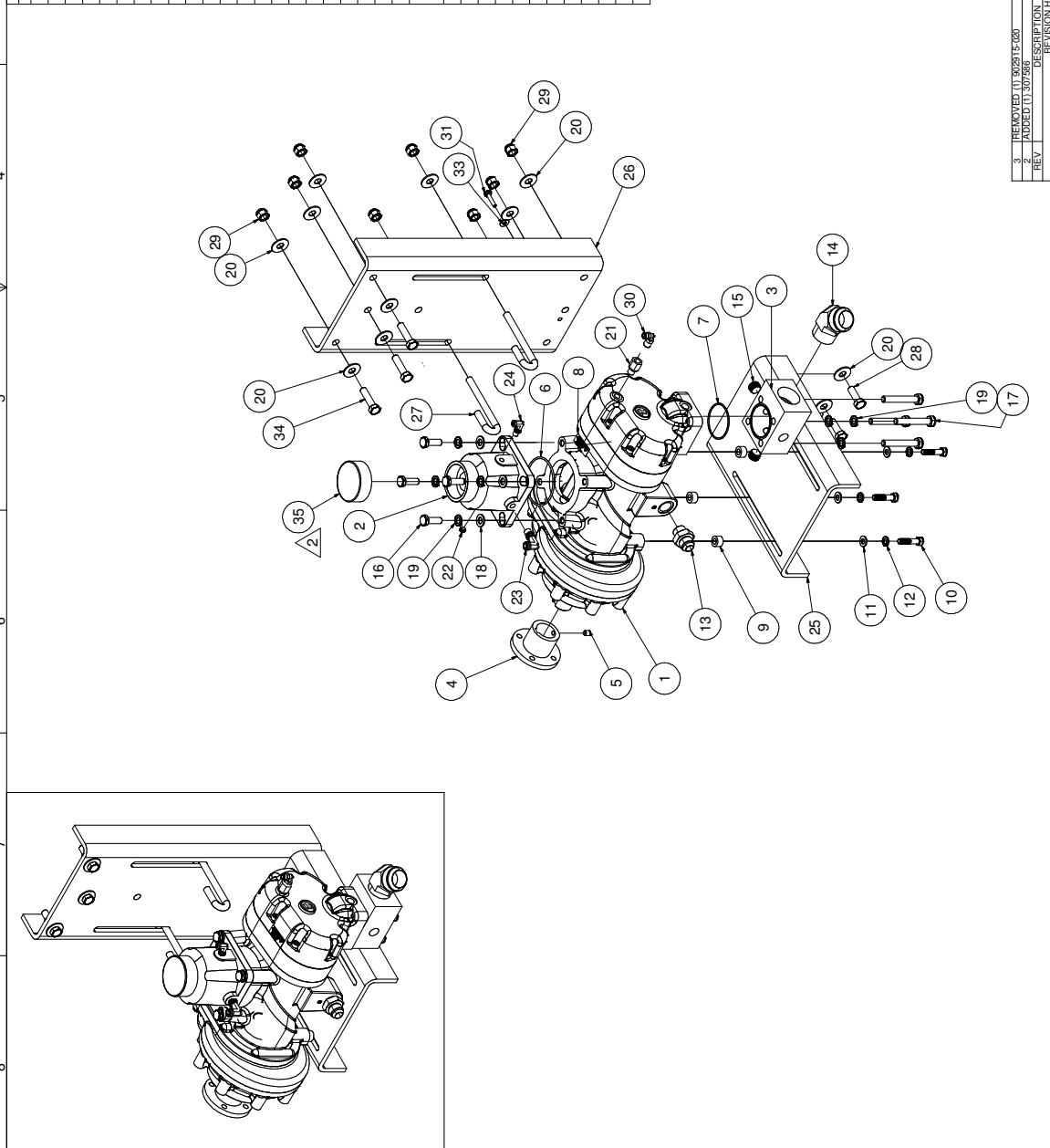
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APPROVALS: APPROVED BY: MCM DATE: 7/15/2009

SCALE: 1/8

SHEET 1 OF 1

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	301677-305	AIREND, SCA10G 58/19 3.05:1 RATIO
2	1	300036	VALVE, INLET CTL
3	1	301703	FLANGE, DISCHARGE T10G
4	1	301917	FLANGE, CMPNN, 40MM T10G BGPWRM
5	1	932206-050	SCREW, SET 3/8 X 1/2
6	1	926102-238	O-RING, INLET VALVE 8060
7	1	926102-145	O-RING, DISCHARGE BLOCK 8060 T10G
8	1	301594	DECAL, TEMP, COMPR.-250 F.
9	3	301713	SPACER, 44 X 5
10	3	929210-450	BOLT, HEX 10MM X 45MM GR 10.9
11	3	938206-071	WASHER, FLAT GR8 3/8
12	3	938810-220	WASHER, LOC 10MM
13	1	973112-075	CONNECTOR, 3/4 JIC X 3/4 BSPP
14	1	960024-150	ELBOW, HYD 45° 1/2 JIC, X 1 1/2 MNPT
15	2	902915-020	PLUG, PIPE 1/2 RECESSED ZINC
16	4	929212-350	BOLT, HEX 12MM X 35MM GR 10.9
17	4	929212-800	BOLT, HEX 12MM X 80MM GR 10.9
18	4	938912-200	WASHER, FLAT 12MM
19	8	938812-250	WASHER, LOC 12MM
20	14	9388208-112	WASHER, FLAT GR8 1/2
21	1	970804-025	ADAPTER, 1/4 MBSPP X 1/4 FNPT
22	1	902915-005	PLUG, PIPE 1/8 RECESSED ZINC
23	1	987305-025M	ELBOW, 1/4 MNPT X 5/16 TUBE 200PSI 250 DEG W/ HOLE
24	1	987302-012	ELBOW, 1/8 MNPT X 1/8 TUBE 200PSI 250 DEG
25	1	304717	FOOT, T10G BASE
26	1	304718	FOOT, T10G BACK
27	2	304719	J-BOLT, 1/2 X 5 1/2 X 9/16
28	3	929808-150	BOLT, HEX GR8 1/2-13 X 1 1/2
29	8	925508-262	NUT, NYLOC GR8 1/2-13
30	1	304720	VALVE, CHECK ELBOW 1/4 TUBE X 1/4 MNPT
31	1	929104-125	BOLT, HEX GR5 1/4-20 X 1 1/4
32	1	924304-145	NUT, NYLOC GR5 1/4-20
33	2	938604-071	WASHER, FLAT GR5 1/4
34	3	929808-200	BOLT, HEX GR8 1/2-13 X 2
35	1	307586	CAP, 3" INLET VALVE



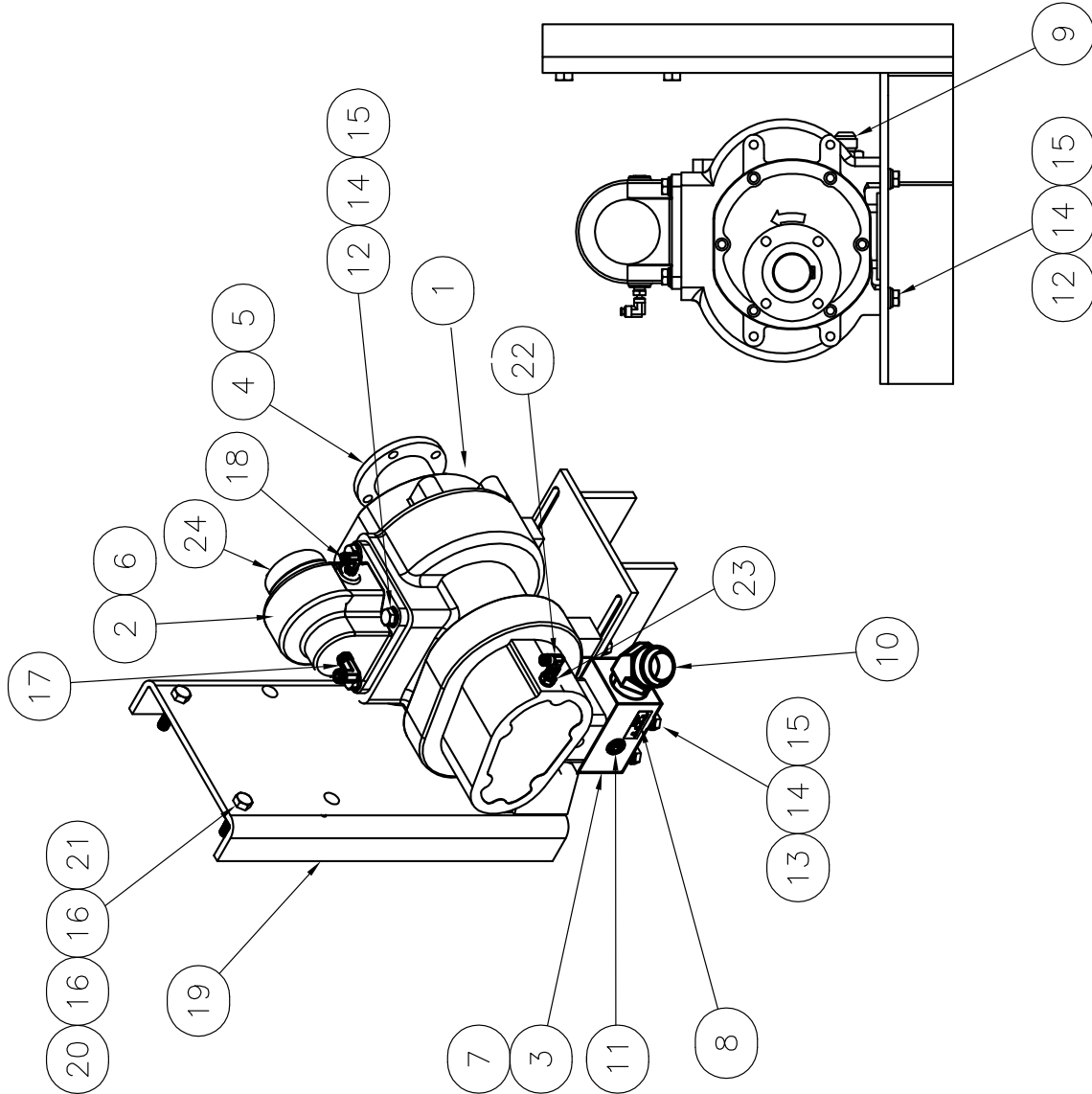
REVISED BY	DATE	DESCRIPTION
3	2/9/2010	REMOVED (1) 802815-000
2	12/18/09	ADDED (1) 307586
1	10/20/09	ISSUED

REVISED BY	DATE	DESCRIPTION
3	2/9/2010	REMOVED (1) 802815-000
2	12/18/09	ADDED (1) 307586
1	10/20/09	ISSUED

REVISED BY	DATE	DESCRIPTION
3	2/9/2010	REMOVED (1) 802815-000
2	12/18/09	ADDED (1) 307586
1	10/20/09	ISSUED

BCS INDUSTRIES
 1900 S. MISSOURI
 LA PORTE, IN 46350
 COMPR & MFG SYS, T10G
 1009888
 1009888
 SHEET 1 OF 1

ITEM QTY	NAME
1	301539 AIREND, B160 DIRECT DRIVE
1	300629 VALVE, INLET ELBOW 90°
3	303820 FLANGE, DISCHARGE B160
4	301549 FLANGE, COMPANION B160
5	932206-050 SCREW, SET .375 X .500
6	301694 GASKET, INLET VALVE .062
7	926102-140 O-RING, DISCHARGE BLOCK
8	301594 DECAL, TEMP COMPR 250 F
9	973112-075 CONNECTOR, FS .750 MJC X .750 MBSPP
10	960024-150 ELBOW, HYD 45 DEG 1.500 MJC X 1.500 MNPT
11	902915-020 PLUG, PIPE .500 RECESSED ZINC
12	8 929212-300 BOLT, HEX GR10.9 12MM X 30MM
13	4 929212-800 BOLT, HEX GR10.9 12MM X 80MM
14	12 938912-200 WASHER, FLAT 12MM
15	12 938812-250 WASHER, LOC 12MM
16	8 938208-112 WASHER, FLAT GR8 .500
17	1 987305-025M ELBOW, .3125 TUBE X .250 MNPT WITH HOLE
18	1 987302-012 ELBOW, .125 TUBE X .125 MNPT
19	1 301548 FOOT, COMPR MTG B160
20	4 929808-200 BOLT, HEX GR8 .500-13 X 2
21	4 925508-262 NUT, NYLOC GR8 .500-13
22	1 987304-012 ELBOW, .250 TUBE X .125 MNPT
23	1 970802-012 ADAPTER, .125 MBSPP X .125 FNPT
24	1 307586 CAP, 3" INLET VALVE
NS-15	302089 LOOM, 1/2 HIGH TEMP
NS-15	987431-BK TUBE, 5/16 OD X .232 ID BLACK
NS	-1 987325-012 ELBOW, 5/32 TUBE X 1/8 MNPT 250 PSI 200 DEG



CHANGE NO.	DATE	RELEASED FOR	EN
6	1/13/11	987431-BK WAS 987431-BE	BSM
5	5/28/10	ADDED (-1) 987325-012	MCM
4	4/8/10	ADDED (-15) 302089 AND (-15) 987431-BE	BSM
3	2/8/10	REMOVED (1) 902915-020	DCL
2	1/14/09	REVISED AND RENUMBERED DRAWING	NDI
1	12/2/08	ADDED (1) 307586	MCM

DR.	RRM	DATE	EN
		4/4/05	

CHK.	DATE	EN
	4/4/05	

ENG.	R.R.M.	DATE	EN
		4/4/05	

MAT'L	SIZE	CODE	IDENT.	REV.

HARDNESS	NEAT ASSY	DRAWING NO.	REV.
		100404	6

BOSS	BOSS INDUSTRIES, LAPORTE, IN 46350
	COMPRESSOR & MTG. SYS
	B160

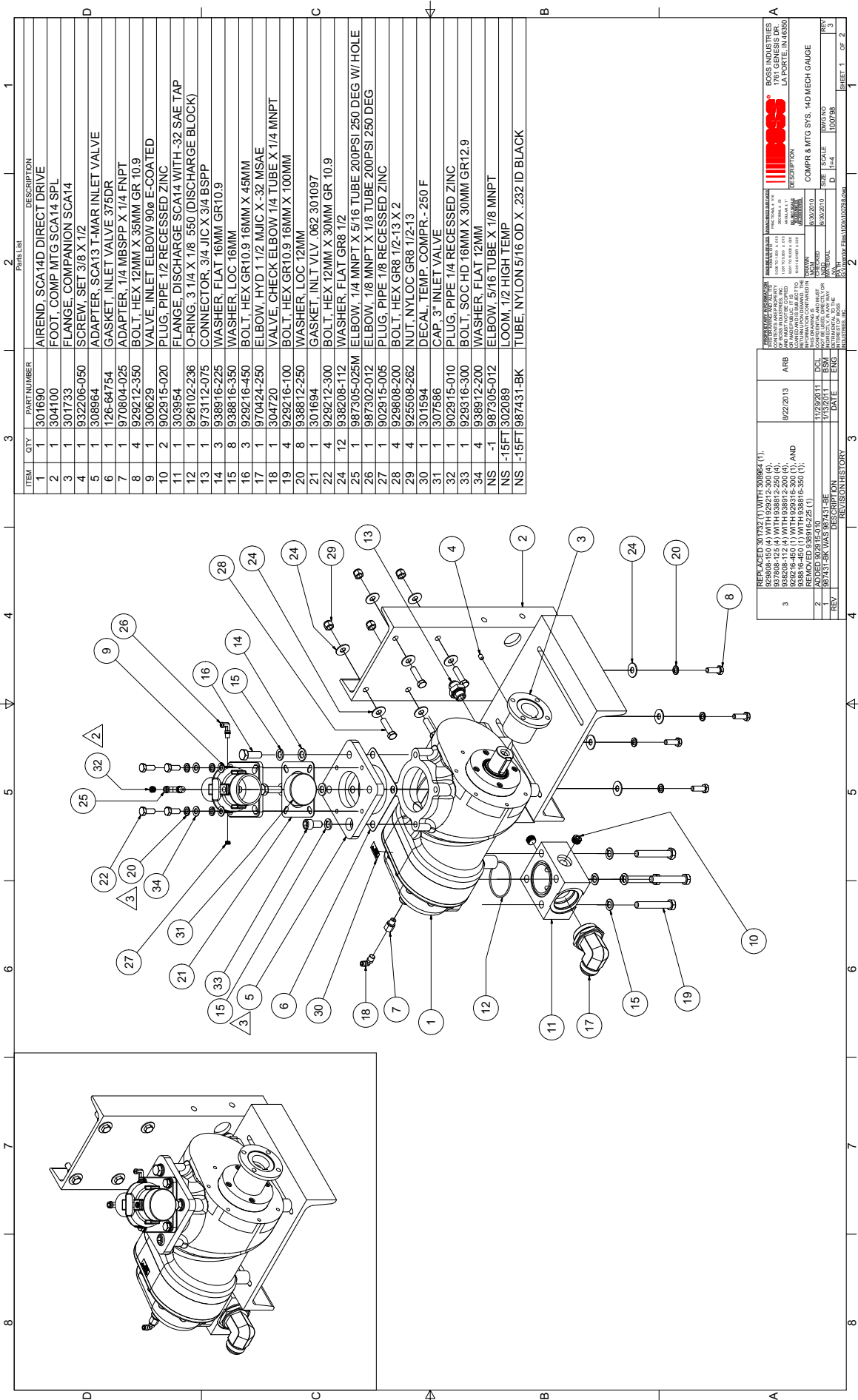
PATH:	G:/Mead/100K-200K

DO NOT SCALE
TOLERANCES
UNLESS INDICATED

MACHINED SURFACES:
NOMINAL DIM ± .011
0.000 TO 1.000 ± .004
1.001 TO 5.000 ± .005
5.001 TO 10.000 ± .006
10.001 & OVER ± .008

UNMACHINED SURFACES:
FRACTIONAL 1/16
DECIMAL .003
ANGULAR 1°

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ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	301690	AIREND, SCA14D DIRECT DRIVE
2	1	304100	FOOT, COMP MTG SCA14 SPL
3	1	301733	FLANGE, COMPANION SCA14
4	1	932206-050	SCREW, SET 3/8 X 1/2
5	1	308964	ADAPTER, SCA13 T-MAR INLET VALVE
6	1	126-64754	GASKET, INLET VALVE, 3/5DR
7	1	970804-025	ADAPTER, 1/4 MBSPP X 1/4 FNPT
8	4	929212-350	BOLT, HEX 12MM X 35MM GR 10.9
9	1	300629	VALVE, INLET ELBOW 90° E-COATED
10	2	902915-020	PLUG, PIPE 1/2 RECESSED ZINC
11	1	303954	FLANGE, DISCHARGE SCA14 WITH -32 SAE TAP
12	1	926102-236	O-RING, 3 1/4 X 1/8 550 (DISCHARGE BLOCK)
13	1	973112-075	CONNECTOR, 3/4 JIC X 3/4 BSPP
14	3	938916-225	WASHER, FLAT 16MM GR10.9
15	8	938816-350	WASHER, LOC 16MM
16	3	929216-450	BOLT, HEX GR10.9 16MM X 45MM
17	1	970424-250	ELBOW, HYD 1 1/2 MJIC X -32 NSAE
18	1	304720	VALVE, CHECK ELBOW 1/4 TUBE X 1/4 MNPT
19	4	929216-100	BOLT, HEX GR10.9 16MM X 100MM
20	8	938812-250	WASHER, LOC 12MM
21	1	301694	GASKET, INLT VLV .062 301097
22	4	929212-300	BOLT, HEX 12MM X 30MM GR 10.9
24	12	938208-112	WASHER, FLAT GR8 1/2
25	1	987305-025M	ELBOW, 1/4 MNPT X 5/16 TUBE 200PSI 250 DEG W/ HOLE
26	1	987302-012	ELBOW, 1/8 MNPT X 1/8 TUBE 200PSI 250 DEG
27	1	902915-005	PLUG, PIPE 1/8 RECESSED ZINC
28	4	929808-200	BOLT, HEX GR8 1/2-13 X 2
29	4	925508-262	NUT, NYLOC GR8 1/2-13
30	1	301594	DECAL, TEMP. COMPR. - 250 F
31	1	307586	CAP, 3" INLET VALVE
32	1	902915-010	PLUG, PIPE 1/4 RECESSED ZINC
33	1	929316-300	BOLT, SOC HD 16MM X 30MM GR12.9
34	4	938912-200	WASHER, FLAT 12MM
NS	-1	987305-012	ELBOW, 5/16 TUBE X 1/8 MNPT
NS	-15FT	902089	LOOM, 1/2 HIGH TEMP
NS	-15FT	987431-BK	TUBE, NYLON 5/16 OD X .232 ID BLACK

REPLACED 30762 (1) WITH 308864 (1), 929808-150 (4) WITH 929212-300 (4), 937806-125 (4) WITH 938816-250 (4), 929216-450 (1) WITH 929216-300 (1), AND 929216-450 (1) WITH 938816-350 (1).		ARB	8/22/2013
2	ADDED 929212-350 (1)	DCL	11/29/2011
1	987431-BK WAS 987431-BE	B5M	1/13/2011
REV	DESCRIPTION	DATE	ENG
DEVISION HISTORY 1 987431-BK WAS 987431-BE			

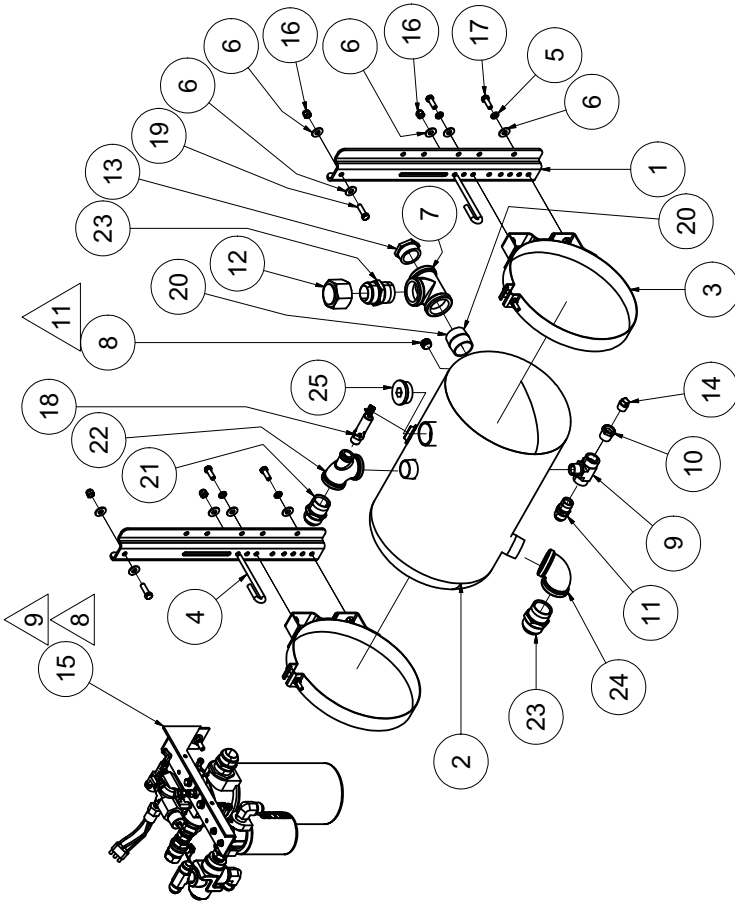
PREPARED BY: BOSS INDUSTRIES, INC. (REVISED) 10/2013
 DRAWING NO: 3035504
 DATE: 10/2013
 SCALE: 1:1
 SIZE: 11" X 17"

BOSS
 BOSS INDUSTRIES, INC.
 1761 GENESIS DR.
 LA PLATA, IL 60540

DESCRIPTION: COMP & MTG SCS 14D MECH GAUGE

SHEET 1 OF 2

ITEM	QTY	PART NUMBER	DESCRIPTION
1	2	304619	BRACKET, RECEIVER TANK EZ
2	1	300225	SUMP, 12 DISCHARGE W/PLATE BAFFLE
3	2	300234	BAND, SUMP MTG 12
4	2	304629	J-BOLT, 3/8 X 5 1/2 X 3/8
5	4	937806-094	WASHER, LOC GR8 3/8
6	10	938206-071	WASHER, FLAT GR8 3/8
7	1	902415-060	TEE, PIPE 1 1/2 GAL 150PSI
8	2	902915-020	PLUG, PIPE 1/2 RECESSED ZINC
9	1	961912-075	TEE, MB 3/4 F X 3/4 F X 3/4 M
10	1	907603-020	BUSHING, RED 3/4 X 1/2 GAL
11	1	960112-075	CONNECTOR, 3/4 MJIC X 3/4 MNPT
12	1	301466-150	CAP, JIC 1 1/2 W/ HOLE
13	1	300107	SIGHTGLASS, OIL LEVEL 1 1/2
14	1	300108	PLUG, MAGNETIC 1/2 NPT
15	1	100476	MANIFOLD, AIR OIL MECH GAUGE
16	4	925506-198	NUT, NYLOC GR8 3/8-16
17	4	929806-100	BOLT, HEX GR8 3/8-16 X 1
18	1	300023-175	RELIEF, 1/2 NPT 175 PSI
19	2	929806-125	BOLT, HEX GR8 3/8-16 X 1 1/4
20	1	922224-000	NIPPLE, PIPE 1 1/2 X CLOSE GAL SCH80
21	1	960120-125	CONNECTOR, 1 1/4 MJIC X 1 1/4 MNPT
22	1	902205-025	TEE, PIPE RED 1 1/4 X 1/2 X 1 1/4 GAL 150PSI
23	2	960124-150	CONNECTOR, 1 1/2 MJIC X 1 1/2 MNPT
24	1	901515-060	ELBOW, PIPE 1 1/2 GAL 150PSI
25	1	984724-188	PLUG, -24 SAE(1 7/8"-12)



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UNMACHINED SURFACES
 0.001 TO 1500 ± .010 FRACTIONAL ± .176
 1.001 TO 5000 ± .015 ANGULAR ± 1°
 5.001 TO 10000 ± .020 DIMENSIONAL ± .005
 10.001 & OVER ± .025

DRAWN NDD
CHECKED NDD
DATE 1/24/2005

MATERIAL N/A
REV 11

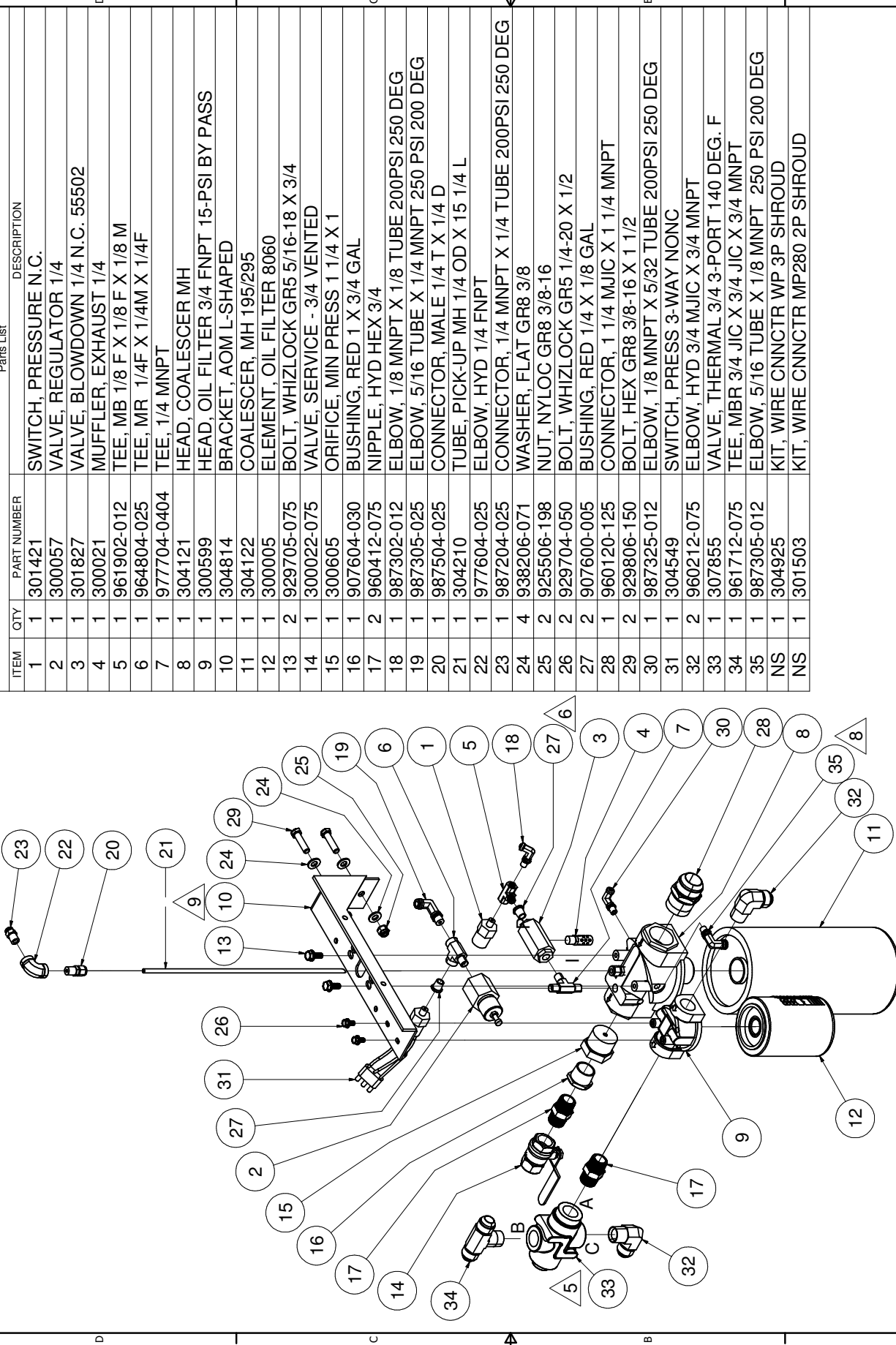
BOSS INDUSTRIES
 1761 GENESIS DR.
 LA PORTE, IN 46350

DESCRIPTION
 DISCHARGE SYS, 8060 MECH GAUGES

SIZE I=8
SCALE C
DWG NO 100475
REV 11

INVENTOR Files\100k\100475.dwg
SHEET 1 OF 1

REV	DESCRIPTION	DATE	ENG
11	ADDED (1) 902915-020	10/11/2012	ARB
9	UPDATED 100476 TO REV 9	5/4/2010	CPH
8	UPDATED 100476 TO REV 8	3/4/2010	BSM
7	UPDATED 100476 TO REV 7	8/20/2009	BSM
6	UPDATED 100476 TO REV 6	7/28/2009	MCW
5	UPDATED 100476 TO REV 5	7/13/2009	BSM



ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	301421	SWITCH, PRESSURE N.C.
2	1	300057	VALVE, REGULATOR 1/4
3	1	301827	VALVE, BLOWDOWN 1/4 N.C. 55502
4	1	300021	MUFFLER, EXHAUST 1/4
5	1	961902-012	TEE, MB 1/8 F X 1/8 F X 1/8 M
6	1	964804-025	TEE, MR 1/4F X 1/4M X 1/4F
7	1	977704-0404	TEE, 1/4 MNPT
8	1	304121	HEAD, COALESCER MH
9	1	300599	HEAD, OIL FILTER 3/4 FNPT 15-PSI BY PASS
10	1	304814	BRACKET, AOM L-SHAPED
11	1	304122	COALESCER, MH 195/295
12	1	300005	ELEMENT, OIL FILTER 8060
13	2	929705-075	BOLT, WHIZLOCK GR5 5/16-18 X 3/4
14	1	300022-075	VALVE, SERVICE - 3/4 VENTED
15	1	300605	ORIFICE, MIN PRESS 1 1/4 X 1
16	1	907604-030	BUSHING, RED 1 X 3/4 GAL
17	2	960412-075	NIPPLE, HYD HEX 3/4
18	1	987302-012	ELBOW, 1/8 MNPT X 1/8 TUBE 200PSI 250 DEG
19	1	987305-025	ELBOW, 5/16 TUBE X 1/4 MNPT 250 PSI 200 DEG
20	1	987504-025	CONNECTOR, MALE 1/4 T X 1/4 D
21	1	304210	TUBE, PICK-UP MH 1/4 OD X 15 1/4 L
22	1	977604-025	ELBOW, HYD 1/4 FNPT
23	1	987204-025	CONNECTOR, 1/4 MNPT X 1/4 TUBE 200PSI 250 DEG
24	4	938206-071	WASHER, FLAT GR8 3/8
25	2	925506-198	NUT, NYLOC GR8 3/8-16
26	2	929704-050	BOLT, WHIZLOCK GR5 1/4-20 X 1/2
27	2	907600-005	BUSHING, RED 1/4 X 1/8 GAL
28	1	960120-125	CONNECTOR, 1 1/4 MJIC X 1 1/4 MNPT
29	2	929806-150	BOLT, HEX GR8 3/8-16 X 1 1/2
30	1	987325-012	ELBOW, 1/8 MNPT X 5/32 TUBE 200PSI 250 DEG
31	1	304549	SWITCH, PRESS 3-WAY NONC
32	2	960212-075	ELBOW, HYD 3/4 MJIC X 3/4 MNPT
33	1	307855	VALVE, THERMAL 3/4 3-PORT 140 DEG. F
34	1	961712-075	TEE, MBR 3/4 JIC X 3/4 JIC X 3/4 MNPT
35	1	987305-012	ELBOW, 5/16 TUBE X 1/8 MNPT 250 PSI 200 DEG
NS	1	304925	KIT, WIRE CNNECTR WP 3P SHROUD
NS	1	301503	KIT, WIRE CNNECTR MP280 2P SHROUD

REV	DESCRIPTION	DATE	ENG
9	UPDATED 304814 TO REV 4	5/3/2010	CRH
8	ADDED 987305-012	3/4/2010	BSM
7	ADDED 301503 AND 304925	8/20/2009	BSM
6	RELOCATED (1) 907600-005	7/28/2009	MCM
5	REPLACED 301662 WITH 307855	7/13/2009	BSM
4	REPLACED 960112-075 WITH 960412-075;	2/11/2009	BSM
3	ADDED 301662, 961712-075, 960212-075;	1/15/2009	MCM
2	REMOVED (1) 960112-075		ENG

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MACHINES SURPASS
NONFUNCTIONAL
0000 TO 0000 # 000
DECIMALS .03
ANGULAR ± 1°
HOLE TO HOLE ± .005
HOLE TO COVER ± .005
UNLESS NOTED

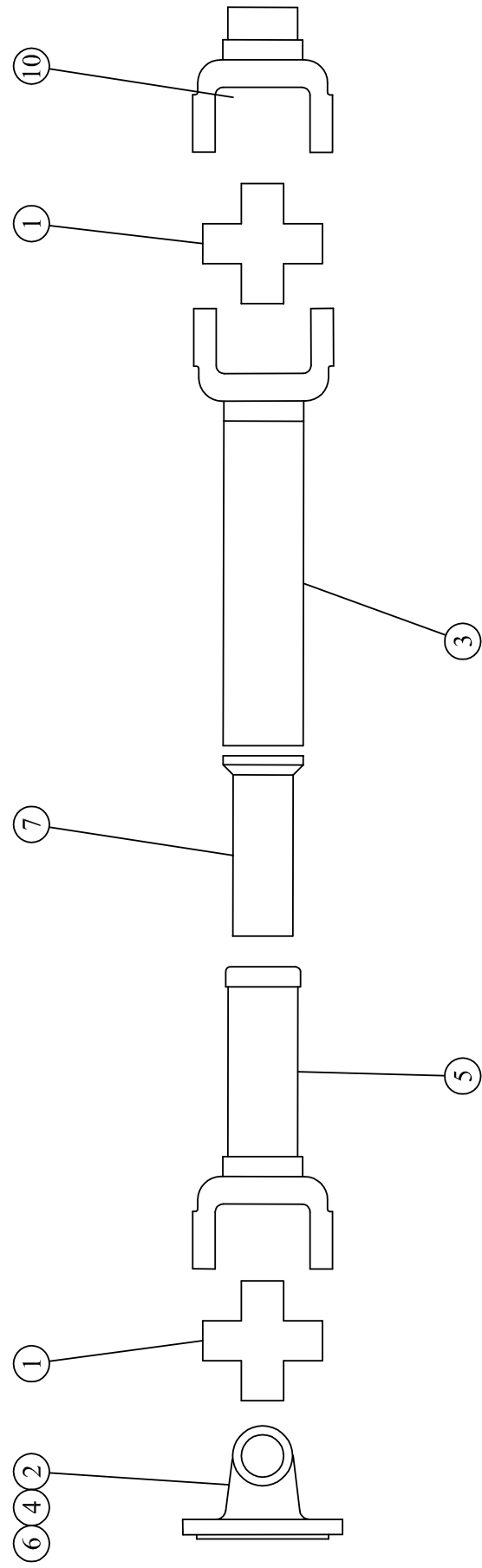
BOSS INDUSTRIES
1761 GENESIS DR.
LA PORTE, IN 46350

DESCRIPTION
MANIFOLD, AIR OIL MECH GAUGE

DATE 1/24/2005
CHECKED
MATERIAL
SCALE 1=8
DWG NO 100476
REV 9
OF 1

REVISION HISTORY

ITEM	QTY.	PART NO.	DESCRIPTION
1	2	300154-785	U-JOINT
2	1	300196-329	YOKE, FLANGE
3	1	300197-000-3083	TUBE AND YOKE ASSY 3.0 X .083
4	4	925706-198	NUT, NYLOC GR8 3/8"-24UNF
5	1	300155-8021	YOKE, SLIP 1 3/8-16SPL
6	4	929406-150	BOLT, HX HD GR8 3/8"-24UNF
7	1	300198-5212	SHAFT, SLIP TUBE 3 x .083
8	1	973406-050	SCREW, SET 3/8" W/HOLE N.S.
9	1	301486	WIRE, SET SCREW 10" LONG N.S.
10	1	300164-473	YOKE, END SR/SB 1.0"



3" DRIVESHAFT, 1" PTO END YOKE, 2-2-329 FLANGE YOKE

1	6/11/08	REPLACED 929406-150 WITH 929406-150	MCM
CHANGE NO.	DATE	RELEASED FOR	EN
DR.	R.R.M.	DATE	7/12/01
OK			
ENG	R.R.M.	DATE	7/12/01
	MAT'L		
HARDNESS	SIZE CODE IDENT.	DRAWING NO.	REV.
NEXT ASSY	C	60000-006	1
PATH: E:\Accounting\	PLDT SCALE: =	SHEET	DF

DD NOT SCALE TOLERANCES UNLESS NOTED MACHINED SURFACES NOMINAL DIM 0.000 TO 1.000 ±.010 1.000 TO 5.000 ±.015 5.000 TO 10.000 ±.020 10.000 & OVER ±.025	THIS DRAWING AND ALL INFORMATION THEREIN IS THE PROPERTY OF BOSS INDUSTRIES, INC., IS CONFIDENTIAL AND MUST NOT BE MADE PUBLIC OR COPIED. IT IS LOANED SUBJECT TO RETURN BEING USED DIRECTLY OR INDIRECTLY IN ANYWAY DE-TRIMENTAL TO THE INTEREST OF BOSS INDUSTRIES, INC.
UNMACHINED SURFACES FRACTIONAL ±.1/16 DECIMAL ±.013 ANGULAR ±1°	 BOSS INDUSTRIES, LAPORTE, IN 46350 OPT, DRIVE LINE KIT 3.0W1.0RD2-2-329

RECOMMENDED SPARE PARTS LIST

PART NUMBER	DESCRIPTION
300005	OIL FILTER ELEMENT
302014	AIR FILTER ELEMENT
304122	SPIN ON COALESCER
307471	REGULATOR REPAIR KIT
307095	SHAFT SEAL REPAIR KIT SCA10G

SERVICE QUESTIONNAIRE

DATE: _____

1. Information given by: _____
2. Information received by: _____
3. Has anyone helped you: Yes _____ No _____
4. Distributor: _____
5. End-User: _____
6. Phone Number: _____
7. Make and Model for PTO: _____
8. BOSS INDUSTRIES Serial #: _____
9. Make and Model of Engine: _____
10. Engine: _____
11. Transmission: _____
12. Nature of Problem: _____

13. Engine RPM: _____
14. Compressor RPM: _____
15. Action Taken: _____

Additional Comments: _____

INSTALLATION

SECTION

Instructional Procedures for the Installation of BOSS INDUSTRIES 8060 UBI Geared Rotary Screw Air Compressor

This air compressor should be installed only by those who have been trained and delegated to do so and who have read and understood both the operators' manual and the installation manual. Failure to follow the instructions, procedures, and safety precautions in this manual may result in accidents and injuries.

Install, 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 and with BOSS INDUSTRIES, Inc. instructions.

Do not modify this compressor except with written factory approval.

GENERAL

The overall installation of the BOSS INDUSTRIES PTO air compressor lends itself well to staging. By handling the installation in various stages, the job becomes much easier and efficient. The following sequence should be adhered to when installing a BOSS INDUSTRIES PTO compressor: All trucks should be road tested prior to installing BOSS INDUSTRIES equipment to determine if trucks have any prior problems.

1. Install the PTO
2. Install the compressor and the mounting bracket
3. Install the drive shaft
4. Install the oil cooler
5. Install the oil sump
6. Install the Air Oil Manifold
7. Install the air cleaner
8. Prepare and install the hoses
9. Prepare and install the electrical components
10. Pre-start up inspection tests
11. Initial start-up and test

The chassis should be scrutinized for the best location of the compressor and it's components with the least amount of relocating equipment previously mounted on the chassis. In most applications, the driver's side is the preferred side, due to the exhaust tubing typically located on the right side. However, if there is only one PTO opening on the transmission, there is no choice. The compressor and mounting bracket is designed for 8060 UBI application of either side. In order to ensure long, trouble-free service of the driveline to the compressor, the compressor must be located such that the angle requirements of the driveshaft are met. The air compressor requires rotation on the output shaft of the PTO (clockwise looking at the compressor shaft) and typically a low shaft PTO is most suitable. Most manual transmissions will require an adapter gear assembly to get the proper rotation to the compressor. When installing on Allison automatic transmissions the Chelsea Hot Switch PTO is recommended. Relocate any equipment that will cause interference with mounting the compressor and driveline.

INSTRUCTIONAL PROCEDURES

1. INSTALL THE PTO

The manual supplied with each PTO gives clear installation instructions. Because of the high level of engine vibration encountered by the PTO, particular attention must be given to proper tightening of all studs, nuts, and cap screws. Tighten to PTO manual specifications. The following are 8060 requirements for mounting PTO's:

1. Drain the transmission into a clean container.
2. Remove the container from the work area and cover to avoid contamination.
3. Remove the PTO port access cover from transmission.
4. Install PTO mounting studs.
5. Temporarily mount PTO gaskets to check backlash and shim accordingly.
6. Once backlash has been determined torque all fasteners to their recommended torque specified in PTO manual.
7. Fill transmission and check for leaks. Shift PTO by hand into PTO mode. Run briefly to check rotation.
8. Check continuity of PTO switch with PTO engaged, but not running. Verify that the light comes on.
9. Install the PTO cable. The engaging cable must be routed such that it is not in the close proximity to the engine exhaust pipes, muffler, or sharp edges. Do not kink cable, no bends smaller than 6" radius. The total bends in the cable should not exceed 360°. The shift lever must be installed so it completes 100% of it's required travel. The cable must be mounted very rigidly to the PTO. If a PTO has a forward and reverse gear, a mechanical block must be added to the outside or inside of the PTO to prevent shifting into the wrong gear. **The air compressor requires engine rotation on the output shaft of PTO for geared units** (counterclockwise looking at PTO shaft). Failure to run the compressor in the proper rotation will damage the compressor and void the warranty.

2. INSTALL COMPRESSOR AND MOUNTING BRACKET

The location on the frame rail is determined by the following factors:

1. Does the drive shaft reach the compressor when the drive shaft is assembled using the supplied components. The maximum length is a function of shaft speed and the true operating angles.
2. Can the proper operating angles (see chart) be obtained and are there any obstructions between the compressor and PTO, i.e. cross-members, transmission bulges, etc.
3. Is there clearance to route the compressor intake hose and do you have acceptable ground clearance in your final compressor location.

The BOSS INDUSTRIES PTO compressor/mounting bracket can be handled and installed as an assembly. Clamp the compressor-mounting bracket to the chassis frame. Using an angle finder, angle the compressor such that the compressor-input shaft is parallel to the PTO output shaft. Comparing the PTO output shaft to the compressor input shaft the compressor must be located such that the true operating angles of the driveline are met. The angle of the PTO output shaft can be measured before the end yoke is on the PTO shaft. The shorter the driveline the smaller the allowable side and top offsets of the two shaft centerlines.

Excessive driveline vibration will occur if operating angles are out of their acceptable range for the speed and overall length.

INSTRUCTIONAL PROCEDURES

3. INSTALL DRIVE SHAFT

The compressor is furnished with a companion flange mounted to the compressor input shaft, which will accept a 1310 series driveline. The PTO box should have the end yoke installed and the splined slip yoke assembly should attach to the PTO end yoke. A pre-made (welded) tube and tube yoke assembly is supplied in the optional driveline kit. Welding of the slip tube shaft into the tube and yoke assembly is required and should be preformed at a qualified Spicer driveshaft distributor. The shaft must meet the minimum balance and run out specifications required by Spicer. Ensure the PTO yoke is engaged onto the PTO shaft so the setscrew in the end yoke lines up with the middle of the undercut on PTO shaft. Install the setscrew so it bottoms out in this groove and secure with the supplied mechanics wire. Bolt the flange yoke to the compressor flange with the four 3/8" x 1 1/4"UNF bolts and lock nuts. After installing the drive shaft, grease the necessary driveshaft components with approved driveline grease.

4. INSTALL THE OIL COOLER/FAN ASSEMBLY

The 12 Volt DC motor-driven fan and oil cooler package is suitable for mounting many positions in several locations on the vehicle. The fan is a pull-type, pulling air through the cooler and past the motor. The motor is designed to run in one direction (note direction arrow decal on motor). Be sure to connect the wires for proper rotation.

STAGES OF INSTALLATION

The best location for the oil cooler package is cantilevered over the top of the truck cab, with the cooling air blowing vertically upwards. The oil cooler will remain clean, and the fan will always work with cool air. A minimum of four inches of clearance between the oil cooler and the top of the cab is required for proper air flow.

Another common location for the oil cooler/fan assembly is under the truck between the frame rails, behind the rear axle, installed so the cooler package will blow the air from the front of the truck toward the rear.

The truck engine muffler may require relocation to keep the exhaust and the heat from entering the oil cooler. It must be recognized that under-the-truck mounting of the oil cooler subjects it to road dirt, mud, slush, and ice. Deflectors, shields, or pans can be installed to protect the oil cooler. The shields must not increase the fans discharge air temperature by more than 5 degrees F. Recirculation of hot air must also be prevented when shielding.

Mounting in the body wall is common in the walk-in van type body. It is recommended to use louvers on the outside wall to help prevent rain and/or snow from entering the body. Sufficient opening in the truck body (i.e. rear doors open) must be provided for the cooling air. Air flow can be changed in this application to pushing instead of pulling if requested. The fan motor has several drain holes. When mounting the package in a wall or behind the frame rail, fan motor leads should point down. Boss Industries can supply cooler package mounting hardware when requested (i.e. wall, louvers, etc.).

INSTRUCTIONAL PROCEDURES

4b. INSTALL THE OIL COOLER (Front mounting cooler option only)

Depending on the chassis, removal of the grill may be required to gain access. Install the oil cooler in front of the radiator. Mount the oil cooler in such a manner that the oil cooler does not rub on the radiator or any other component. The cooler must be mounted to the existing truck's cooler support so that it can move as one unit or such that when the truck's existing radiator moves it does not make contact with the compressor cooler. 8060 UBI brackets are supplied but in some installations these brackets will need to be modified or new mounting hardware will need to be fabricated. Some chassis will not have the necessary room to install the cooler in front of the truck's radiator and a remote mount style oil cooler will need to be exchanged for the front mount and its related components.

5. INSTALL THE OIL SUMP

When beginning the sump mount you will want to consider the following before permanently installing:

1. The PTO oil sump is designed for horizontal mounting only.
2. The sump can be mounted on the inside or outside of the frame rails.
3. The final location must allow for easy access to the oil fill and sight glass. Answer the following questions and the sump mounting will fall into place, How can I plumb the oil fill port so that it is accessible and will remain level? Where is the body in relationship to the fill and sight glass? Will the sight glass be visible with the body on? If mounting to the outside of the frame rail will the body interfere with the tank? The vessel is 12 inches in diameter and approximately 22 inches long. Move the tank assembly around to various locations to see what best fits on your specific chassis and body. Locate a position on the chassis frame rail that will allow the oil sump tank to be mounted as close to the compressor as possible. The sump tank comes equipped with EZ-mounting brackets for bolting to the chassis frame. The EZ-mounting bands are mounted to the frame rail by drilling the top whole for each band, and then securing the bracket into place with a J-Bolt through the slot. Once both bands are mounted, the sump is then lifted into place. The sump bands are mounted to the EZ-mounting brackets using the highest possible set of holes that do not cause interference with the frame rail. It is important to be sure that the sightglass is level on the centerline of the tank from end to end and side to side. Not centering the sightglass can cause possible over or under filling of the tank, and give an inaccurate reading on the oil level display.

6. INSTALL AIR OIL MANIFOLD

The Air Oil Manifold (AOM) is next to be installed. This system contains most of your switches, along with coalescer and oil filter.

INSTRUCTIONAL PROCEDURES

The AOM should be located in an area that allows for easy access to the two canisters for replacement. The AOM must also be mounted so that the canisters are vertical when in place.

THE COALESCER HEAD IS DESIGNED FOR AIRFLOW IN ONE DIRECTION ONLY. CHECK ARROWS FOR FLOW.

A service valve is installed directly after the minimum pressure orifice. The service valve should be relocated to an easy access area that allows the operator to control the flow of air. If a hose reel compartment is on the body the valve should be located before the reel inlet. The automatic blowdown valve and the air pressure regulator are located on the down stream side (outlet side) of the coalescer head.

7. INSTALL THE AIR CLEANER

The air cleaner kit consists of a heavy-duty, 2 stage, dry type air cleaner, suitable for horizontal mounting, two clamps, and ten feet of 3" I.D. air intake hose is supplied with each kit. Locate the air cleaner at a point where it can draw in cool, clean air and that it will reach to the final compressor location. Stay away from areas where the filter can pull in flammable vapors. A preferred location is above the cab. When mounting air intake hose try to have minimum number of bends. The intake hose is extremely flexible for ease of installation. Be sure to check that all clamps are installed properly and that outside unfiltered air cannot enter without going through the filter. Failure to do so could result in dirty air bypassing the filter and entering into the compressor system.

8. PREPARE AND INSTALL HOSES

The hose kit consists of a generous amount of bulk hose in various sizes and fittings. The fittings were selected for their ease of assembly in the field, without special tools. A simple five-step procedure is used to make up the hoses:

- Step 1. Determine the hose length.
- Step 2. Put hose in vise just tight enough to prevent it from turning. Cut hose square with fine tooth hacksaw or cutoff wheel. Clean hose with compressed air.
- Step 3. Screw socket counterclockwise onto hose until it bottoms.
- Step 4. Oil nipple threads and screw clockwise into socket and hose, leaving 1/32" to 1/16" clearance between nipple box and socket.
- Step 5. Clean assembly by blowing with compressed air.

INSTRUCTIONAL PROCEDURES

Be sure to route all hoses so that they do not bind or kink.

Avoid hose contact to exhaust piping, muffler, engine manifold, or any other hot surfaces. Secure hoses with tie downs or clamps. Inspect hose for possible areas where chaffing may occur. It may be necessary to use a protective sleeve on the hose(s) in these areas or to reroute hose. Check that all fittings are tight and secure.

KEEP THE CONTROL AIR LINE HOSES AS SHORT AS POSSIBLE AND RUN THEM SO THEY SLOPE DOWN TOWARD THE AIR COMPRESSOR IN ORDER TO PROMOTE MOISTURE DRAINAGE AT SHUTDOWN, WHICH WILL HELP TO PREVENT ICING IN COLD WEATHER. DO NOT USE OR SUBSTITUTE A DIFFERENT MANUFACTURERS HOSE WITH DIFFERENT MANUFACTURED ENDS/ FITTING. IF ADDITIONAL HOSE IS REQUIRED CONTACT THE FACTORY FOR BOSS INDUSTRIES SPECIFICATIONS.

The 1.5" discharge line runs from the compressor discharge block to the oil sump tank inlet fitting. This is the only 1.5" hose assembly required in the basic kit so there should be no confusion as to what ports to hook the hose assembly up to. There are three 3/4" oil lines originating from the thermal valve. There are four airlines that originate at the coalescer. These lines are also color coded. The 1/4" opaque (white) line starts at the top of the coalescer element pick up tube and runs to the oil return line port on the end of the compressor opposite the drive shaft. The 5/16" blue line starts at the air pressure regulator and runs to the 1/4" NPT elbow at the compressor inlet valve located on top of the compressor. The 1/8" red line starts at the blowdown valve and runs to the 1/8" NPT elbow at the inlet valve. The 5/32" green line runs from the 1/8" NPT elbow on the coalescer head to the elbow on the back of the pressure gauge at the instrument panel. The 5/16" black line runs from the 1/8" NPT elbow on the coalescer head to the 1/8" NPT elbow on the inlet valve.

The 3/4" line from the bottom of the sump feeds the oil filter head/and thermal valve assy. The 3/4" elbow on the thermal valve feeds the lowest port on the front mounting cooler and the cooler return come back to the tee on the thermal valve. The other end of the tee on the thermal valve feeds cool oil back to the compressor. The 12vdc fan/cooler assembly is fed after the oil filter and then back to the compressor.

9. INSTALLING THE WIRING

Depending on the chassis, engine, transmission and PTO used, the wiring requirements will vary. Each kit is supplied with the necessary wiring components if this information has been supplied prior to the order.

Wiring requirements for the following compressor components will always be required.

- Hourmeter
- 12 vdc fan package (not required on front mount coolers)
- Safety shutdown circuit
- Gauge panel

The compressor wiring for these components and the engine speed control should be wired per the Boss supplied diagram. In most cases engine programming is required and can be done by a local dealer or yourself if you own the appropriate hardware and software.

Engine and transmission program parameters are listed on your custom wiring schematic per your chassis.

A generic wiring diagram is included to illustrate the wiring of the above mentioned compressor components.

INSTRUCTIONAL PROCEDURES

10. PRE-START-UP INSPECTION CHECKS

This inspection should be done prior to removing truck from bay. Final testing of the system, including checking for leaks, is to be done outside.

ALL TRUCKS SHOULD BE ROAD TESTED PRIOR TO STARTING INSTALLATION TO ISOLATE ANY PREVIOUS TRUCK PROBLEMS.

- I. Check sales order to verify that all compressor related items originally ordered have been installed or are ready to ship with the truck. This would include any special filters, oils, hoses, options, etc.
- II. Vacuum inside of truck and all areas (including frame and underhood) that have metal or plastic shavings. Wipe all fingerprints off truck.
- III. Apply decals to proper location. Make sure that the area is cleaned prior to applying decals. All decals should have a professional appearance upon application.
- IV. Check all assemblies, clamps, fittings, drivelines, angles, nuts, and bolts to ensure they are properly tied and secured to the vehicle. This is a very critical area of inspection. The vehicle should not be moved until this inspection has been completed.
- V. Record all serial numbers for this installation.
 - A. Truck V.I.N.
 - B. PTO Model Number
 - C. Air-End Serial Number
 - D. BOSS INDUSTRIES Serial Number
 - E. Receiver Tank Serial Number
 - F. Note any special applications relating to specific installations.
 - G. Driveshaft should have an identification number if supplied by a qualified Spicer distributor.
 - H. Record the slopes of the PTO, drive line and the air compressor in the side plane when the truck is on level ground. Record the total offset in the top plane of the PTO shaft to the compressor drive shaft. Record the center to center distance of the drive shaft installed.

INSTRUCTIONAL PROCEDURES

- VI. Check all fluid levels (position the truck on a level surface so that proper amount of fluids can be added).
- A. Fuel - enough 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. Lube for driveline slip yoke assembly. The u-joints are lube for life bearings and do not require any lube.
 - E. Brake fluid.
 - F. Antifreeze – coolant.
 - G. Any other applicable fluids.

The vehicle should be ready for removal from bay at this point. Road test all vehicles after compressor testing.

13. INITIAL START-UP AND TEST

- A. Start truck engine 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 PTO as per the start-up/shutdown decal supplied with the unit. A direction of rotation arrow is attached to the compressor package above the flange. The shaft must be rotating in the direction the arrow is pointing. If for any reason this arrow has been removed the correct compressor rotation is opposite engine rotation of output shaft on PTO or clockwise when looking at the compressor shaft. 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.

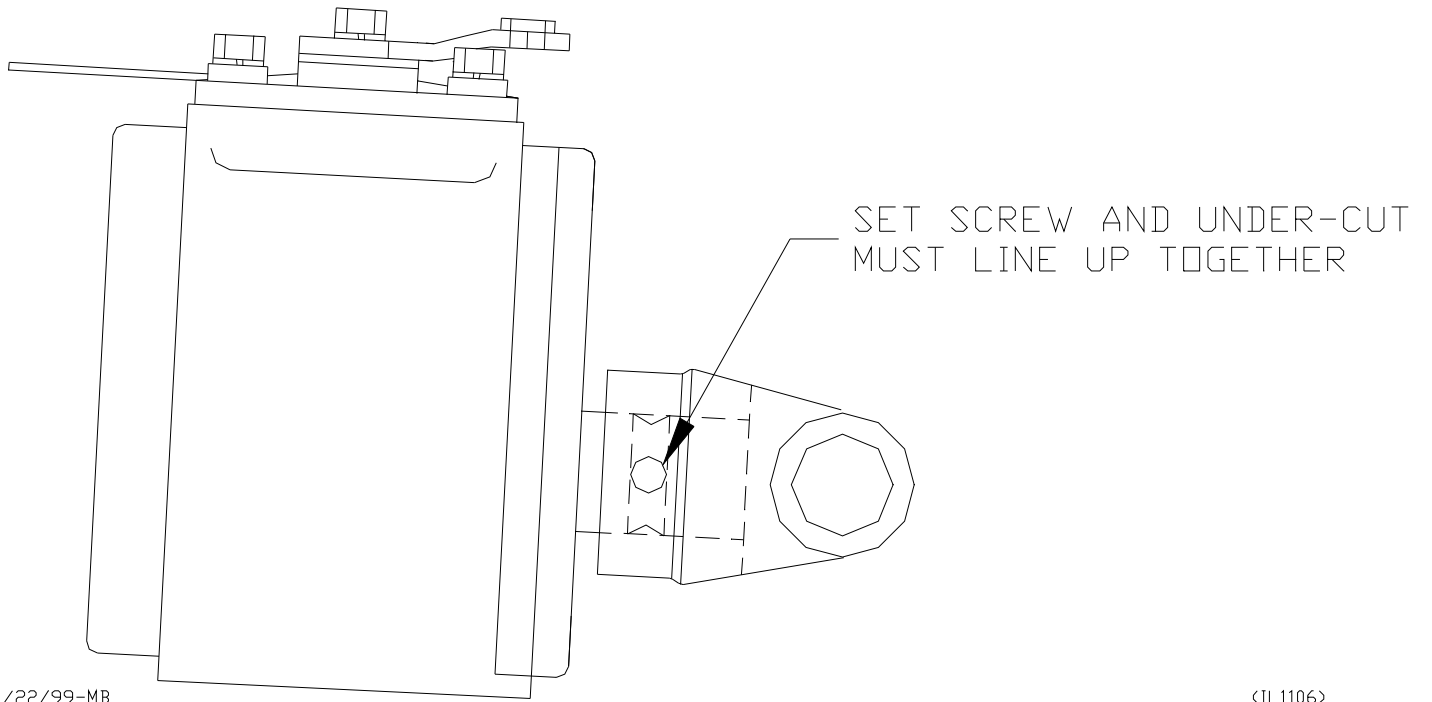
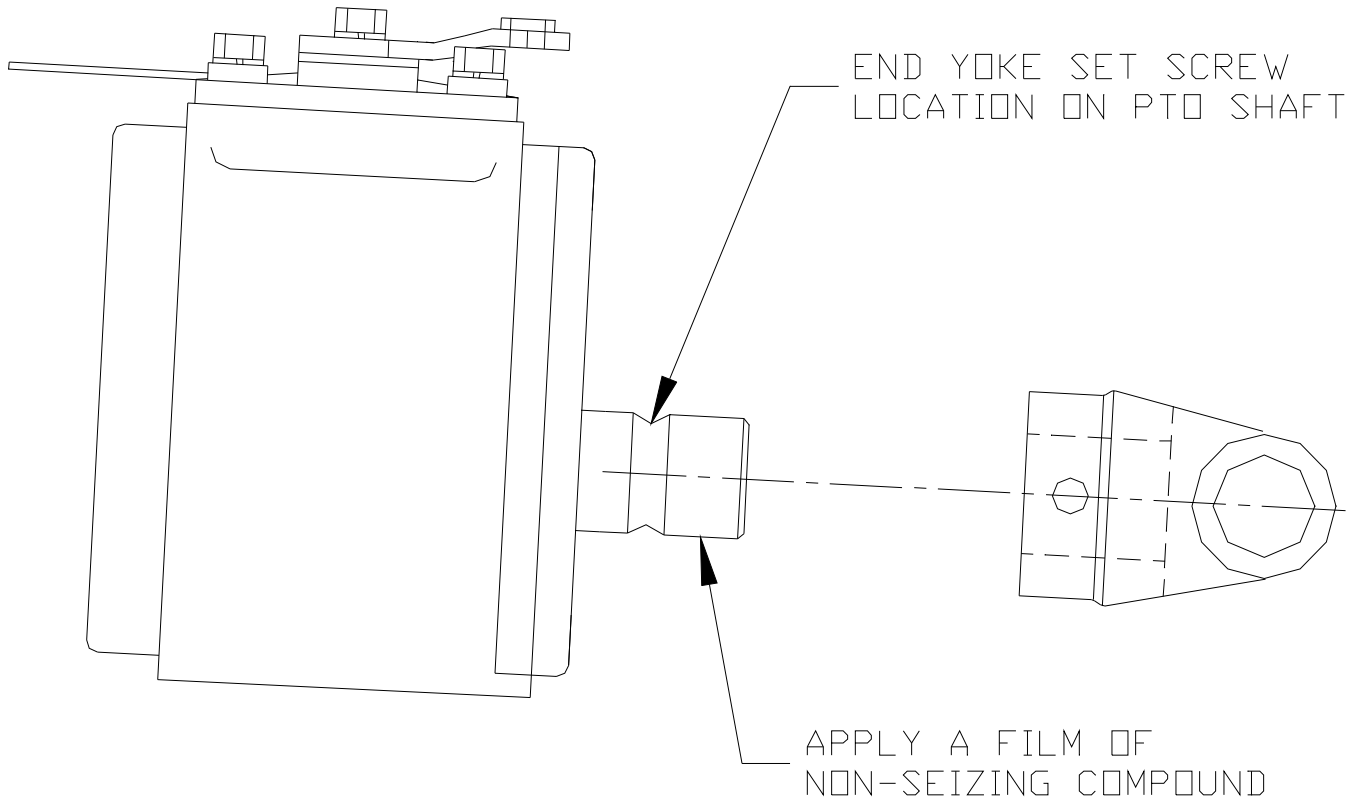
D. SAFETY CIRCUIT TESTING FOR 8060-UBI CABLE OPERATED PTO'S

Safety circuit testing can be done before starting the PTO and compressor when using this model. This model requires the shutdown switch to be wired in series with the ignition coil on vehicles. Using a 1/16" Allen wrench, set the temperature switchgauge shutdown set point at 240 degrees F. This is done on the face of the gauge. The pressure switchgauge will need to be set at 160 PSI and is adjusted at the face of the gauge using a 1/16" Allen wrench also. Start the truck (do not engage the compressor) and take a screw driver and touch the 1/16" Allen head screw on the face of the temperature switchgauge and simultaneously touch the outside ring on the face of the gauge, and this should trip the shut down switch. Push in the button on the shutdown switch to reset. Repeat the test with the pressure switchgauge. If switch does not trip, check compressor wiring.

INSTALLATION

ILLUSTRATIONS

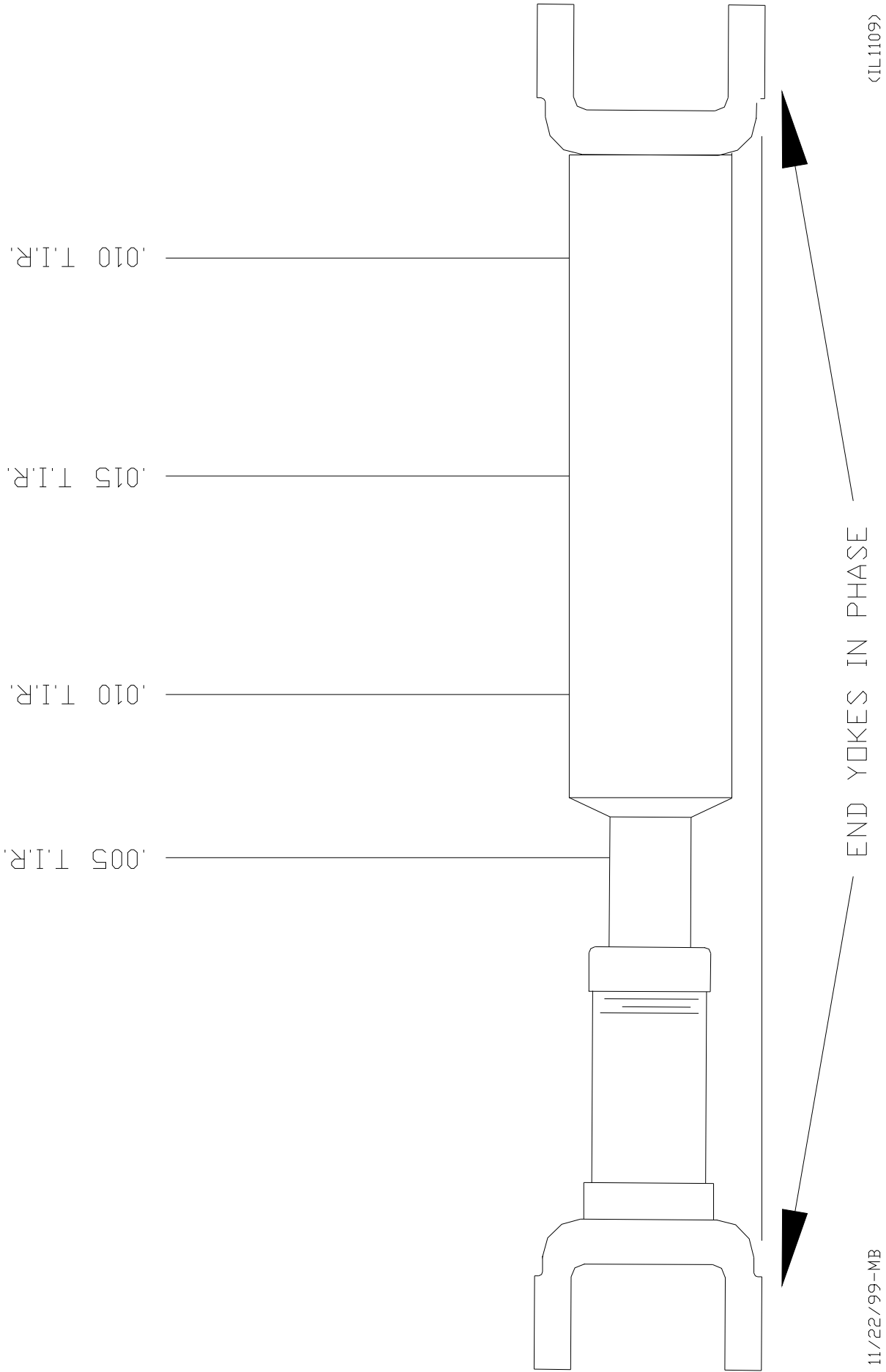
PTO END YOKE INSTALLATION



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(IL1106)

DRIVELINE RUNOUT SPECIFICATIONS



DRIVELINE INSTALLATION TECHNIQUES

1. U-JOINT OPERATING ANGLES

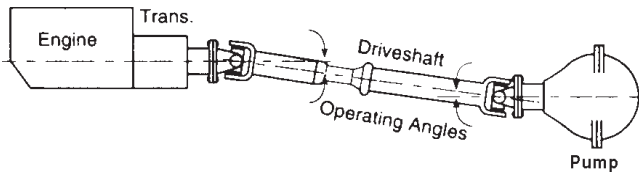
Every U-joint that operates at an angle creates vibration.

U-joint operating angles are probably the most common cause for driveline vibration in vehicles that have been reworked or that have had auxiliary equipment installed.

When reworking a chassis or installing a new driveshaft in a vehicle, make sure that you follow the basic rules that apply to u-joint operating angles, as follows:

1. U-joint operating angles at each end of a shaft should always be at least 1° .
2. U-joint operating angles on each end of a driveshaft should always be equal within 1° of each other.
3. U-joint operating angles should not be larger than 3° . If more than 3° , make sure they do not exceed the maximum recommended angles for the RPM at which they will be operating.

A u-joint operating angle is the angle that occurs at each end of a driveshaft when the output shaft of the transmission and the input shaft of the pump are not in line. See figure.

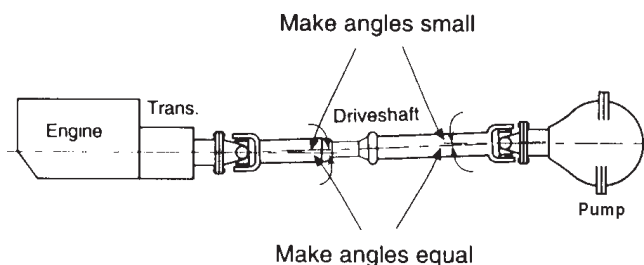


The connecting driveshaft operates with an angle at each u-joint. It is that angle that creates a vibration.

REDUCING AND CANCELING VIBRATION

A key point to remember about u-joint operating angles: To reduce the amount of vibration, the angles on each end of a driveshaft should always be SMALL.

To cancel an angle vibration, the u-joint operating angles need to be EQUAL within 1° at each end of a shaft. See figure.



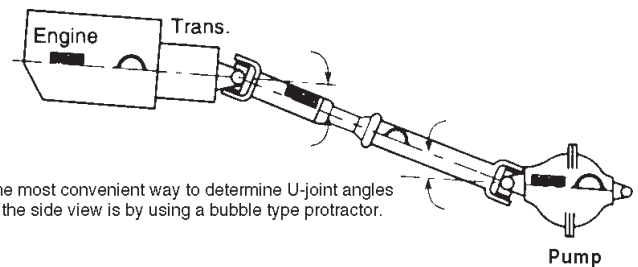
2. SINGLE PLANE AND COMPOUND U-JOINT OPERATING ANGLES

There are two types of u-joint operating angles, single plane and compound.

SINGLE PLANE

Single plane angles occur when the transmission and pump components are in line when viewed from the top or side, but not both.

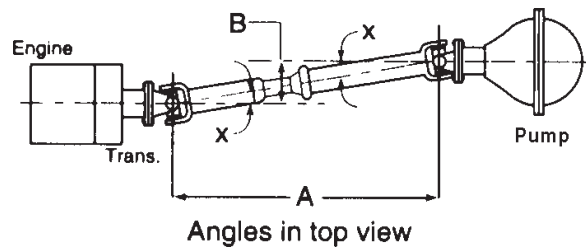
Determine the u-joint operating angle in an application where the components are in line when viewed from the top, but not in line when viewed from the side, is as simple as measuring the slope of the components in the side view, and adding or subtracting those slopes to determine the angle. See figure.



The most convenient way to determine U-joint angles in the side view is by using a bubble type protractor.

These angles should be SMALL and equal within 1° .

Determine the u-joint operating angles on a shaft that is straight when viewed from the side and offset when viewed from the top requires the use of a special chart (See accompanying chart). In this type of application, the centerlines of the connected components must be parallel when viewed from the top, as shown. These angles should also be SMALL and equal within 1° . See figure.



Look at the angle chart and note that the smaller the offset, the smaller the resultant angle.

To reduce the possibility of vibration, keep any offset between connected points to a minimum.

DRIVELINE INSTALLATION TECHNIQUES

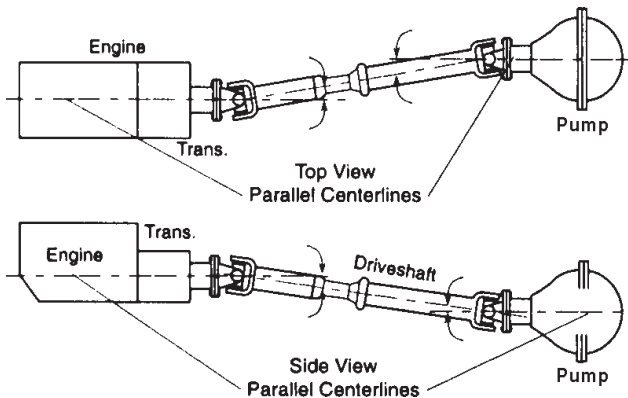
There are two things which can be done to make certain single plane angles are SMALL and EQUAL:

Make sure that the transmission and pump are mounted so that their centerlines are parallel when viewed from both the side and the top.

Make sure the offset between them is small in both views.

COMPOUND ANGLES

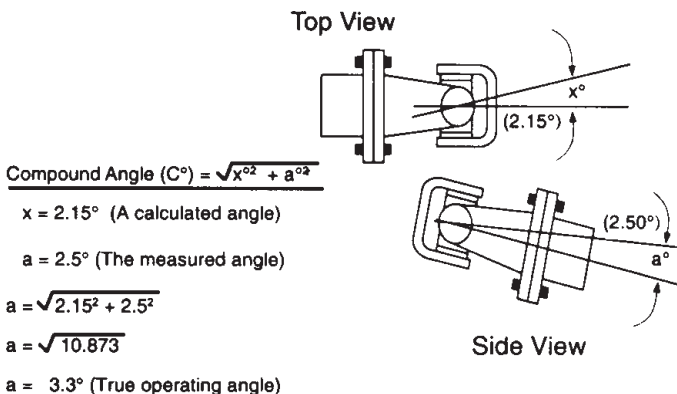
Compound u-joint operating angles occur when the transmission and pump are not in line when viewed from both, the top and side. Their centerlines, however, are parallel in both views. See figure.



TRUE U-JOINT OPERATING ANGLE

The true u-joint operating angle, which must be calculated for each end of the shaft with compound angles, is a combination of the u-joint operating angle in the top view, as determined from the chart, and the measured u-joint operating angle in the side view.

To determine the true u-joint operating angle for one end of a shaft, (compound angle C° in the formula shown in figure below) insert the u-joint operating angle measurement obtained in the side view and the u-joint operating angle obtained from the chart into the formula.



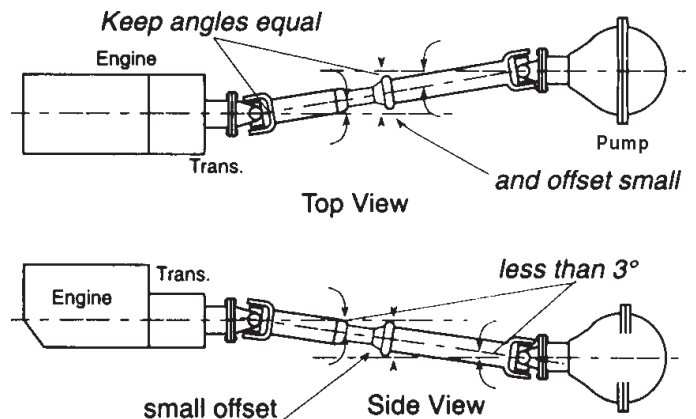
Do the same for the other end of the shaft. Compare the resultant calculated u-joint operating angle for each end. They should be EQUAL within 1° . If they are not, the driveshaft will vibrate.

3. ELIMINATING COMPOUND ANGLE INDUCED VIBRATIONS

Compound u-joint operating angles are one of the most common causes for driveline vibration. To avoid these problems, remember these important considerations:

When setting up an application that requires compound u-joint operating angles, always keep the centerlines of the transmission and pump parallel in both views.

Always keep the offset between their horizontal and vertical centerlines small.



NOTE

CENTERLINES OF TRANSMISSION AND AXLE MUST BE PARALLEL IN BOTH TOP AND SIDE VIEWS TO USE THIS METHOD OF DETERMINING TRUE U-JOINT OPERATING ANGLE. CONTACT BOSS INDUSTRIES TECHNICAL SUPPORT IF YOU HAVE AN APPLICATION WHICH CANNOT BE INSTALLED WITH THEIR CENTERLINES PARALLEL.

DRIVELINE INSTALLATION TECHNIQUES

4. ANGLE SIZE

The magnitude of a vibration created by a u-joint operating angle is proportional to the size of the u-joint operating angle. BOSS INDUSTRIES recommends true u-joint operating angles of 3° or less.

Obtain the true u-joint operating angle, as explained above, and if it is greater than 3°, compare it to the

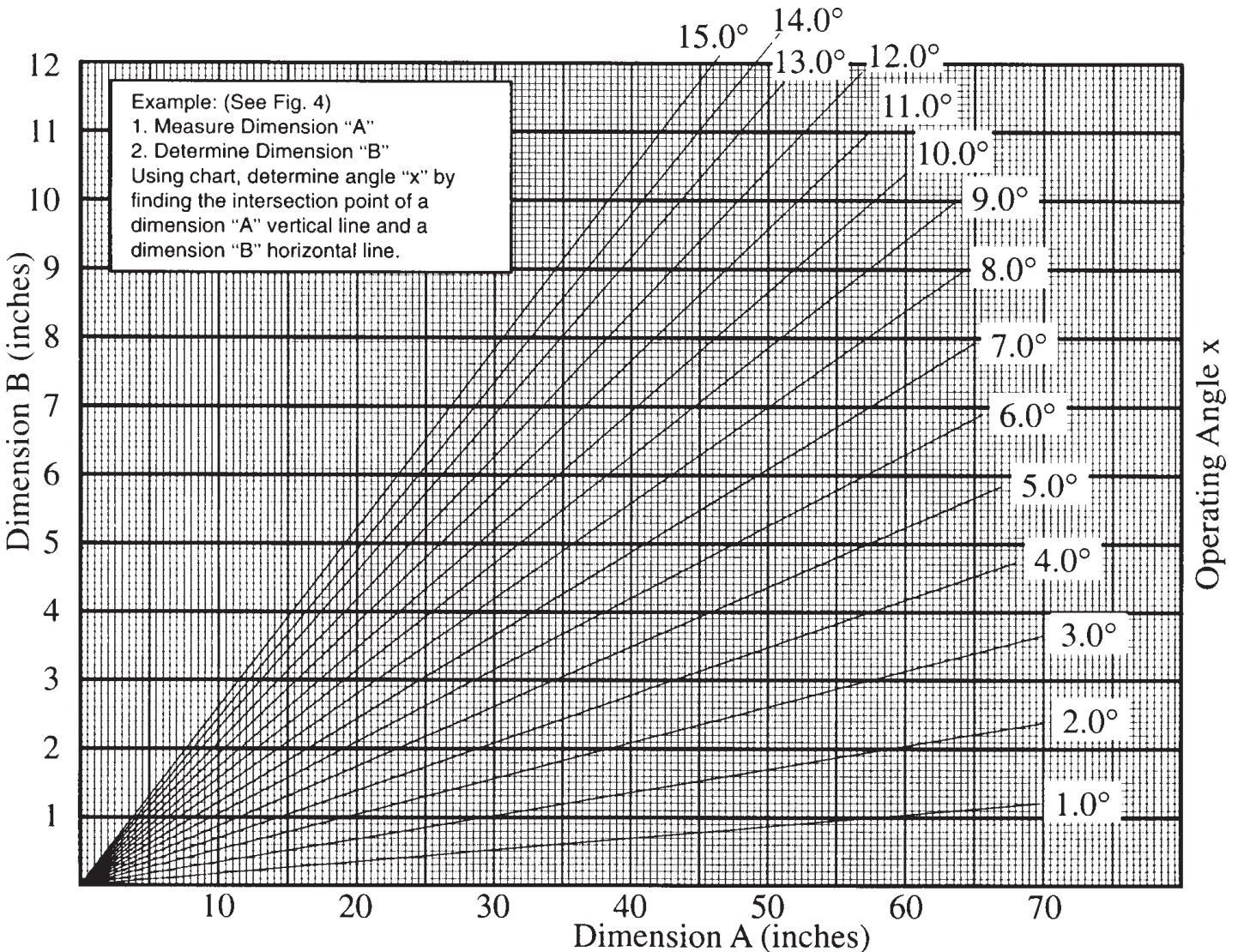
following chart.

The angles shown on the chart are the MAXIMUM u-joint operating angles recommended by BOSS INDUSTRIES and are directly related to the speed of the driveshaft. Any u-joint operating angle greater than 3° will lower u-joint life and may cause vibration. Remember to check maximum safe driveshaft RPM as recommended by the driveshaft manufacturer.

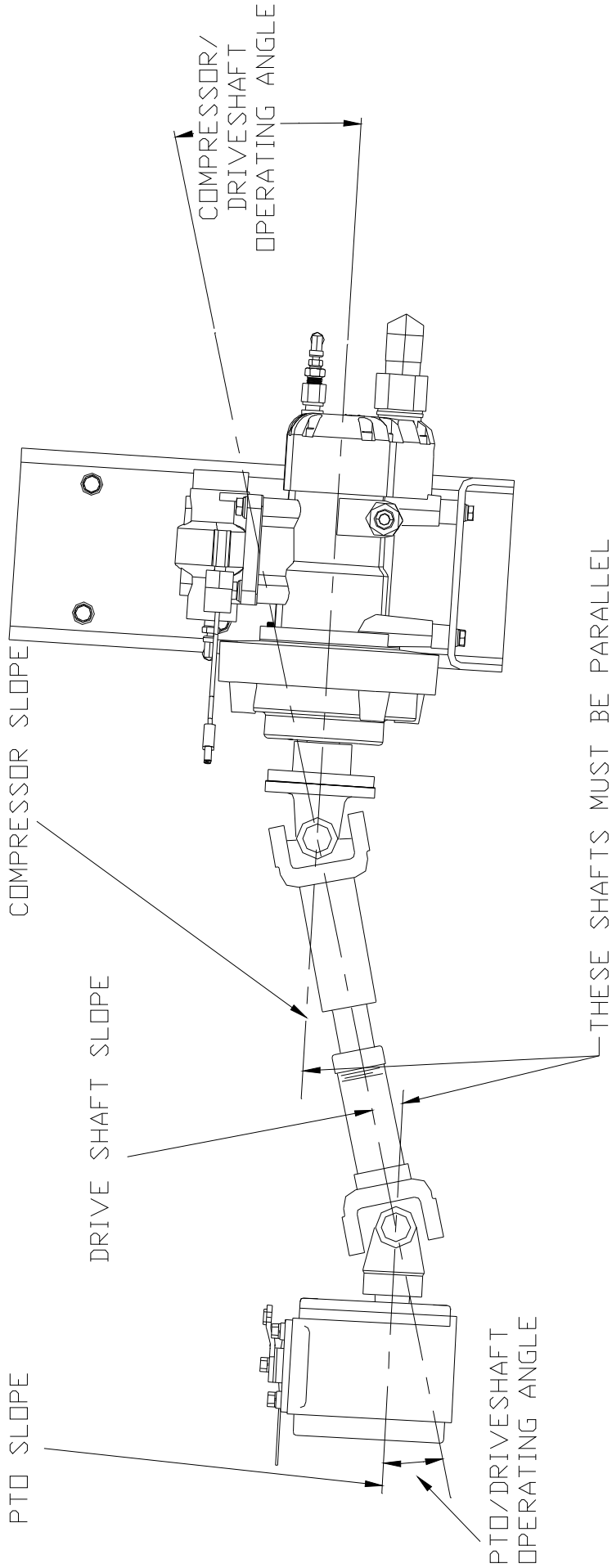
DRIVESHAFT	MAXIMUM
5000	32°
4500	3.7°
4000	4.2°
3500	5.0°
3000	5.8°
2500	7.0°
2000	8.7°

ANGLE CHART

FOR DRIVESHAFTS HAVING AN ANGLE IN THE TOP VIEW



SIDE VIEW OPERATING ANGLE CALCULATIONS WITH UP HILL SHAFT



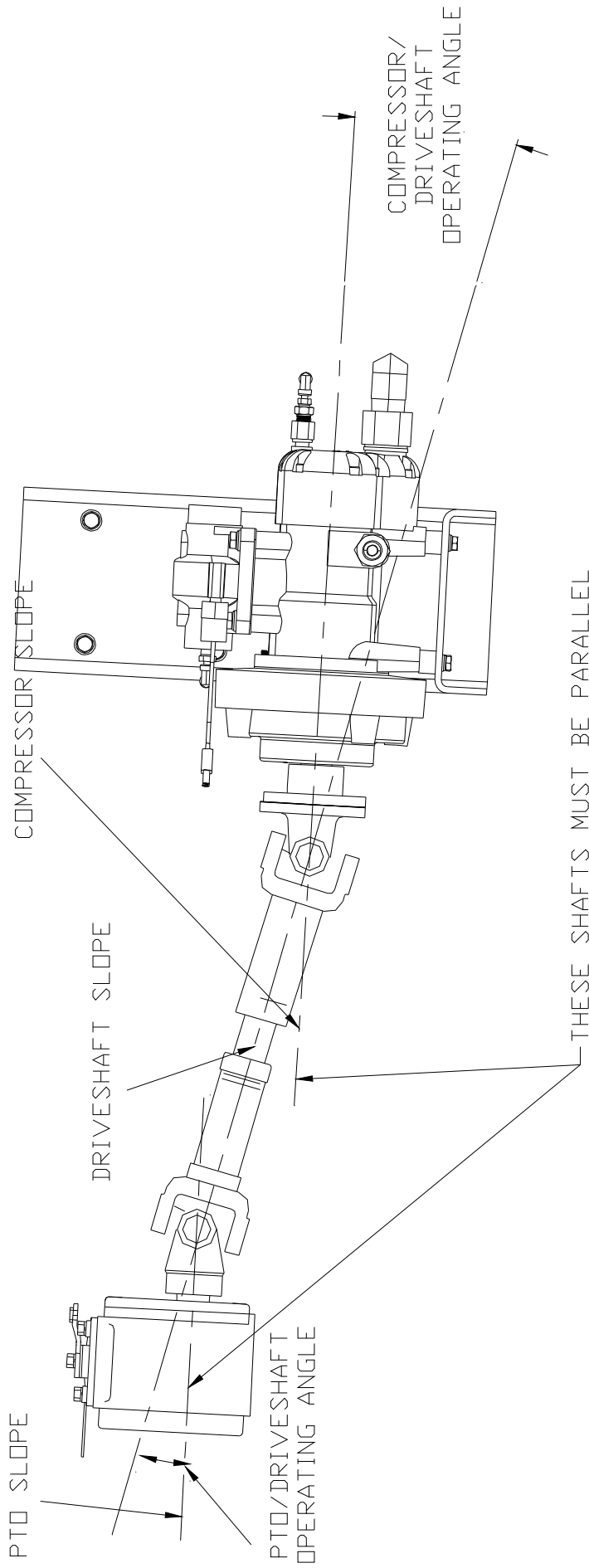
SIDE VIEW OPERATING ANGLE CALCULATIONS

$$\begin{array}{r}
 \text{PTO SLOPE --} \\
 \text{SHAFT SLOPE} \\
 + \\
 \text{DEGREE DOWN} \\
 \text{DEGREE UP} \\
 \hline
 \text{PTO/DRIVE SHAFT} \\
 \text{OPERATING ANGLE} \\
 = \\
 \text{SHAFT SLOPE --} \\
 \text{COMPR. SLOPE} \\
 + \\
 \text{DEGREE UP} \\
 \text{DEGREE DOWN} \\
 \hline
 \text{PTO/DRIVE SHAFT} \\
 \text{OPERATING ANGLE}
 \end{array}$$

OPERATING ANGLES MUST BE WITHIN 1 DEGREE OF EACH OTHER

CL1107

SIDE VIEW OPERATING ANGLE CALCULATIONS WITH DOWN HILL SHAFT



SIDE VIEW OPERATING ANGLE CALCULATIONS

$$\begin{array}{r}
 \text{PTO SLOPE} \text{---} \\
 \text{SHAFT SLOPE} \\
 \text{---} \\
 \text{=} \\
 \text{PTO/DRIVE SHAFT} \\
 \text{OPERATING ANGLE}
 \end{array}
 \quad
 \begin{array}{r}
 \text{SHAFT SLOPE} \text{---} \\
 \text{COMPR. SLOPE} \\
 \text{---} \\
 \text{=} \\
 \text{PTO/DRIVE SHAFT} \\
 \text{OPERATING ANGLE}
 \end{array}
 \quad
 \begin{array}{r}
 \text{DEGREE DOWN} \\
 \text{DEGREE DOWN} \\
 \text{---} \\
 \text{=} \\
 \text{DEGREE DOWN} \\
 \text{PTO/DRIVE SHAFT} \\
 \text{OPERATING ANGLE}
 \end{array}$$

OPERATING ANGLES MUST BE WITHIN 1 DEGREE OF EACH OTHER

09/11/02-CRH

(IL1108)

WARRANTY

SECTION

WARRANTY INFORMATION

BOSS INDUSTRIES, Inc. warrants that this Rotary Screw Compressor unit conforms to applicable drawings and specifications approved in writing by BOSS INDUSTRIES. The unit assembly will be free from defects in material and workmanship for a period of two (2) years from the date of initial operation or thirty (30) months from the date of shipment, whichever period first expires. All other components and parts of BOSS INDUSTRIES manufacture, will be free from defects in material and workmanship for a period of one (1) year from the date of initial operation or eighteen (18) months from the date of shipment, whichever period first expires. If within such period BOSS INDUSTRIES receives from the Buyer written notice of and alleged defect in or nonconformance of the unit, all other components and parts of BOSS INDUSTRIES manufacture and if in the judgment of BOSS INDUSTRIES these items do not conform or are found to be defective in material of workmanship, BOSS INDUSTRIES will at its option either, (a) furnish a Service Representative to correct defective workmanship, or (b) upon return of the item F.O.B. BOSS INDUSTRIES original shipping point, repair or replace the item or issue credit for the replacement item ordered by Buyer, (Defective material must be returned within thirty (30) days of return shipping instructions from BOSS INDUSTRIES. Failure to do so within specified time will result in forfeiture of claim), or (c) refund the full purchase price for the item without interest. Factory installed units will also include warranty on installation for a period of one (1) year. This warranty does not cover damage caused by accident, misuse or negligence. If the compressor unit is disassembled the warranty is void. BOSS INDUSTRIES's sole responsibility and Buyer's exclusive remedy hereunder is limited to such repair, replacement, or repayment of the purchase price. Parts not of BOSS INDUSTRIES manufacture are warranted only to the extent that they are warranted by the original manufacture. BOSS INDUSTRIES shall have no responsibility for any cost or expense incurred by Buyer from inability of BOSS INDUSTRIES to repair under said warranty when such inability is beyond the control of BOSS INDUSTRIES or caused solely by Buyer.

There are no other warranties, express, statutory or implied, including those of merchantability and of fitness of purpose; nor any affirmation of fact or representation which extends beyond the description of the face hereof.

This warranty shall be void and BOSS INDUSTRIES shall have no responsibility to repair, replace, or repay the purchase price of defective or damaged parts or components resulting directly or indirectly from the use of repair or replacement parts not of BOSS INDUSTRIES manufacture or approved by BOSS INDUSTRIES or from Buyer's failure to store, install, maintain, and operate the compressor according to the recommendations contained in the Operating and Parts Manual and good engineering practice. The total responsibility of BOSS INDUSTRIES for claims, losses, liabilities or damages, whether in contract or tort, arising out of or related to its products shall not exceed the purchase price. In no event shall BOSS INDUSTRIES be liable for any special, indirect, incidental or consequential damages of any charter, including, but not limited to, loss of use of productive facilities or equipment, loss of profits, property damage, expenses incurred in reliance on the performance of BOSS INDUSTRIES, or lost production, whether suffered by Buyer or any third party.

**BOSS INDUSTRIES, INC.
1761 Genesis Dr.
LaPorte, IN 46350
(800)635-6587 PHONE**

SUMMARY OF MAIN WARRANTY PROVISIONS

As claims, policies and procedure are governed by the terms of the BOSS INDUSTRIES, Inc. warranty, it is necessary to outline some of the more important provisions.

The BOSS INDUSTRIES warranty applies only to new and unused products which, after shipment from the factory, have not been altered, changed, repaired or mistreated in any manner whatsoever. Normal maintenance items such as lubricants and filters are not warrantable items.

Parts not of BOSS INDUSTRIES manufacture are warranted only to the extent they are warranted by the original manufacturer.

Damage resulting from abuse, neglect, misapplication or overloading of a machine, accessory or part is not covered under warranty.

Deterioration or wear occasioned by chemical and/or abrasive action or excessive heat shall not constitute defects.

Parts replacement and/or correction of defective workmanship will normally be handled by BOSS INDUSTRIES or their authorized distributor.

Failure to file a detailed warranty claim/service report for each occurrence of material defect of defective workmanship will cause warranty claim to be rejected.

Defective material must be returned within 30 days of receipt of shipping instructions. Failure to do so within specified time will result in forfeiture of claim.

The distributor is responsible for the initial investigation and write up of the warranty claim.

Distributor shall be allowed no more than 30 days from date of repair to file a warranty claim/service report.

Warranty for failure of BOSS INDUSTRIES replacement parts covers the net cost of the party only, not labor and mileage.

The BOSS INDUSTRIES warranty does not cover diagnostic calls and travel. That is time spent traveling to the machine to analyze the problem and returning with the proper tools and parts to correct the problem.

BOSS INDUSTRIES will deduct from allowable credits for excess freight caused by sender failing to follow return shipping instructions.

Distributors or end-users automatically deducting the value of a warranty claim from outstanding balances due and payable to BOSS INDUSTRIES prior to receiving written notification of BOSS INDUSTRIES approval of the warranty claim may be subject to forfeiture of the entire claim.

WARRANTY/RETURN GOODS INSTRUCTIONS

The warranty/return procedure outlined below is provided to give the claimant the information necessary to file a warranty/return claim, and enable BOSS INDUSTRIES the ability to best serve its' customers.

Please see the following instructions to initiate a return:

Contact BOSS INDUSTRIES Returns Department by telephone at 219.324.7776 or via email at service@bossair.com. You may also send a fax at 219.324.7470.

WARRANTY CLAIMS – PREPARATION OF PART RETURN

Parts returned to the factory must be properly packaged to prevent damage during shipment. Damage to a part as a result of improper handling or packing could be cause for denial. When addressing the package for shipment, the following information must be on the outside of, or tagged clearly, to the package.

1. Return Goods Authorization #.
2. Distributor or end-users return address.
3. Correct factory address.
4. Number of packages pertaining to each claim.

NOTE: *Our warranty requires that all defective parts be returned to BOSS INDUSTRIES freight prepaid. Items sent without RGA number will not be accepted. Unauthorized Returns Will Immediately Be Refused At Dock.*

RETURN OR WARRANTY CLAIMS – FILING PROCEDURES

1. Initiate through a purchase order for warranty part or request for credit.
2. RGA will accompany replacement part.
3. BOSS INDUSTRIES will confirm disposition of failed part within 30 days of receipt and or request additional information.
4. Claim denial will result in issuance of a letter of denial.
5. BOSS INDUSTRIES will consider each claim on its' own merit and reserves the right to accept or reject claim request. In case of air-ends, these will be returned to the manufacturer for their analysis/input.
6. Send Warranty Claim to:
BOSS INDUSTRIES, INC.
1761 Genesis Drive
LaPorte, IN 46350
Attn: Returns Dept.

GENERAL

An approved claim depends on the following provision:

1. An RGA # must be issued by BOSS INDUSTRIES. (See filing procedures.)
2. Failed part must be returned within 30 days of original invoice date, freight prepaid, with RGA #.
3. Part is determined to be defective.
4. Workmanship is determined to be defective.
5. Machine is within warranty period.
6. Machine has been operated within design conditions.

Claims made through distributors must be verified by distributor prior to contacting BOSS INDUSTRIES.

DAMAGE IN TRANSIT

Do not return damaged merchandise to BOSS INDUSTRIES, please follow claim procedure.

1. Loss in transit:
The merchandise in our kit or provided in our factory installations has been thoroughly inspected or carefully installed and tested before leaving our plant. However, regardless of the care taken at the factory, there is a possibility that damage may occur in shipment. For this reason, it is recommended that the unit be carefully inspected for evidence of possible damage or malfunction during the first few hours of operation. Responsibility for the safe delivery of the kit or factory installed unit was assumed by the carrier at the time of shipment. Therefore, claims for loss or damage to the contents of the kit or factory installed unit should be made upon the carrier.
2. Concealed loss or damage:
Concealed loss or damage means loss or damage, which does not become apparent until the kit is unpacked or the factory-installed unit is run by the end-user. The contents of the kit or factory installed unit may be damaged due to rough handling while in route to its destination, even though the kit or factory installed unit shows no external damage. When the damage is discovered upon unpacking, make a written request for inspection by the carrier agent within fifteen days of delivery date. Then file a claim with the carrier since such damage is the carrier's responsibility.

By following these instructions carefully, we guarantee our full support of your claims, to protect you against loss from concealed damage.

3. Visible Loss or Damage
Any external evidence of loss or damage must be noted on the Freight Bill or Express Receipt, and signed by the carrier's agent. Failure to adequately describe such external evidence of loss, or damage may result in the carrier refusing to honor a damage claim. The carrier will supply the form required to file such a claim.

SCREW COMPRESSOR AIR-END EXCHANGE PROGRAM

Replacement air-ends are available from the factory. For current prices and availability, contact BOSS INDUSTRIES, Inc. or an authorized BOSS INDUSTRIES distributor. Prices are F.O.B. shipping point. Prices do not include labor for removal or installation.