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AIR COMPRESSOR TROUBLESHOOTING

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MEC-159 EXAM PREVIEW

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Exam Preview:

1. Gasoline or kerosene should never be used to clean air filter elements as it causes explosive fumes to collect in the air receiver.
    a. True
    b. False
2. Using Figure 8-2. —Compression cycle in a reciprocating air compressor, which of the following letters corresponds to the intake stroke of a reciprocating air compressor?
    a. A
    b. D
    c. C
    d. E
3. Sliding vane air compressors used to produce breathable air used in diving operations use special lubricating oil. Failure to observe these specific precautions set by NAVSEA maintenance instructions could lead to fatal injury of the diver.
    a. True
    b. False
4. According to the reference material, Currently, the most common industrial air compressor in the NCF is the oil-injected _____type.
    a. Axial
    b. Reciprocating
    c. Screw design
    d. Sliding vane

5. According to the reference material, the safety valve is mounted in plain view on the air receiver and is normally set at ___ psi (special-duty air compressors may have different psi settings).
    a. 75
    b. 100
    c. 125
    d. 150
6. According to the reference material, screw type air compressors do not require oil separators because oil is not circulated through the air system.
    a. True
    b. False
7. Satisfactory operation of the compressor depends on a clean supply of air. One way to clean the filter is to use LOW-PRESSURE AIR, and blow the debris trapped in the filter against the direction of airflow from the inside to the outside. Never exceed pressures of 30 psi when using this method of cleaning, and never use this method of cleaning more than __ times on the same filter.
    a. 6
    b. 8
    c. 10
    d. 15
8. According to the reference material, if you remove the heat generated by compressing air, the total horsepower required for additional air compression is reduced up to __ percent.
    a. 5
    b. 10
    c. 15
    d. 20
9. According to the reference material, a properly maintained unit will perform reliably for 10,000 hours or more.
    a. True
    b. False
10. Preventive maintenance procedures for all three types of air compressors are outlined in current manuals for the unit you are working on or operating. Oil should be changed according to these manuals, in most cases, at ___ hour intervals.
    a. 250
    b. 500
    c. 750
    d. 1,000

AIR COMPRESSOR

THE OPERATION OF AIR COMPRESSORS IS DANGEROUS!!!! The chance of fatal injury is high. High pressure air escaping from air valves during testing or normal operation is of such a high pitch sound that PERMANENT EAR INJURY AND HEARING LOSS ARE A DIRECT RESULT. High pressure air can CUT THROUGH THE SKIN, DESTROY TISSUE, CAUSE AIR EMBOLISM, AND DEATH.

Air compressors are used throughout the Naval Construction Force (NCF). They supply compressed air for numerous pneumatic tools, rock drilling, well drilling, diving, and cleaning operations. Certain automotive and construction equipment use air-brake systems in which you will find an air compressor (fig. 8-1) and air compressor controls. In these systems the compressor may be smaller than others described in this chapter, but the operating principles are the same. As a CM-1, it is your job to make sure these units are maintained properly and to troubleshoot, repair, and overhaul them. In the *Construction Mechanic 3 & 2,*

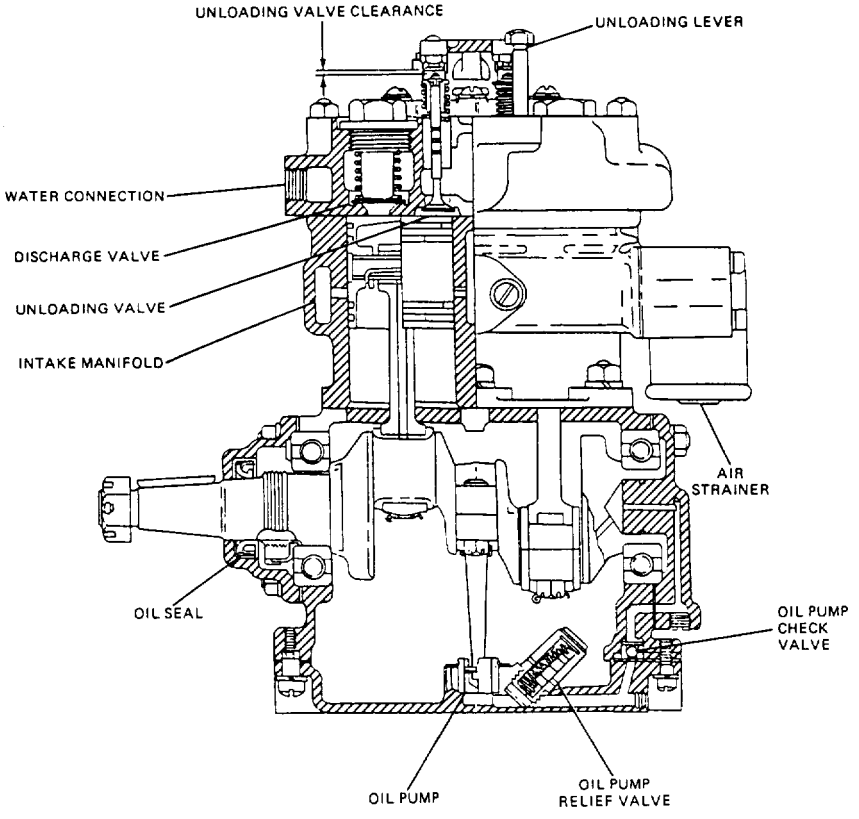

Figure 8-1.—Typical reciprocating air compressor used in vehicular air-brake systems.

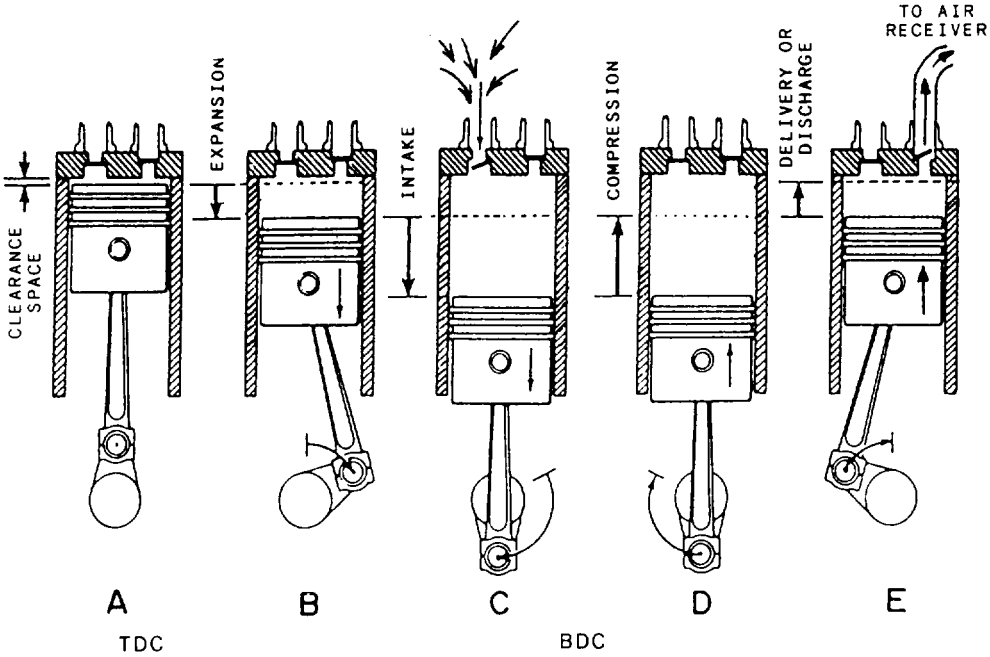

Figure 8-2.—Compression cycle in a reciprocating air compressor.

NAVEDTRA 10644-G1, air compression systems are described as to basic design, operation, and preventive maintenance. In this chapter we will review some of the earlier material and discuss troubleshooting and overhaul of air compressors and their related controls. So put your ear protection on and come with me.

TYPES OF AIR COMPRESSORS

The three types of air compressors are reciprocating, sliding vane, and screw design. The driving unit provides power to operate the air compressor and is usually a diesel engine. Air

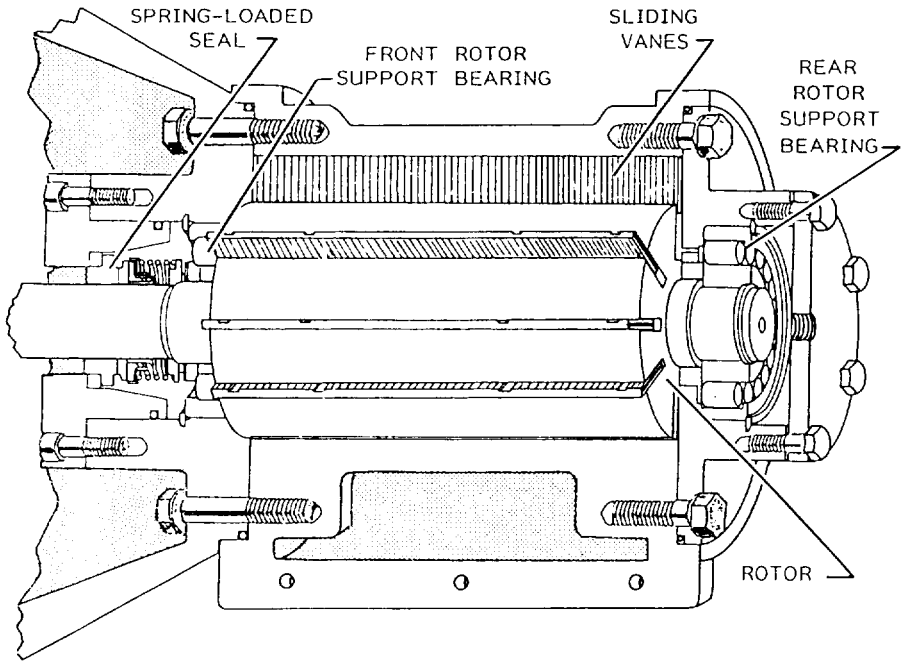

Figure 8-3.—Typical rotary vane compressor.

compressors may be air or liquid-cooled. The compressors used by the NCF are almost identical to those used in private industry. The difference is not in the compressor, but in the trailer that carries the unit. For example, a Sullair 750 cfm 250 psi unit is carried on a specially modified trailer. This is done to allow the unit to be mobile loaded on a C-130 type of aircraft for air detachment exercises and other contingency purposes.

RECIPROCATING COMPRESSOR

The cylinder block of the reciprocating compressor is designed much like that of an internal combustion engine found in most automobiles. The similarity ends at the cylinder head that is constructed specifically for air compression purposes. Figure 8-2 shows the basic movement of air through the reciprocating unit. As the piston moves down, air is drawn into the cylinder through a one-way intake valve. Once the piston reverses direction and begins upward motion, the intake valve is forced closed, and the compression of air forces the discharge valve open, passing the air out of the cylinder and into the air receiver. The most common intake and discharge valves are simple spring-loaded devices, varying in design and size according to the size of the air compressor. The reciprocating compressor is most likely to be found at public works stations, in a shop supplying air for industrial use, or under the hood of CESE with air actuated brakes

SLIDING VANE (ROTARY) COMPRESSOR

Currently, the most common industrial air compressor in the NCF is the oil-injected rotary vane type. This particular type of air compressor, simple in design, has fewer moving parts than the reciprocating unit, making maintenance less of a problem. It gives a more constant flow of compressed air, is compact, and is almost vibration-free. The common sizes range from 125 to 750 cfm. Figure 8-3 shows an oblique view of the rotor with the vanes in place, and figure 8-4 shows the basic operation. The rotor turns about the center of its shaft which is offset from the center of the compressor casing. Centrifugal force keeps the vanes extended, maintaining a wiping contact between the compressor casing and the edge of the vanes. This action forces the vanes to slide in and out as the rotor rotates (fig. 8-4). The crescent-shaped space between the compressor casing and the rotor is divided into compartments which increase and decrease in size as the rotor rotates. Thus, when free air enters each compartment as it passes the air intake opening, it is trapped as the compartment rotates closed. The air is then carried around in each

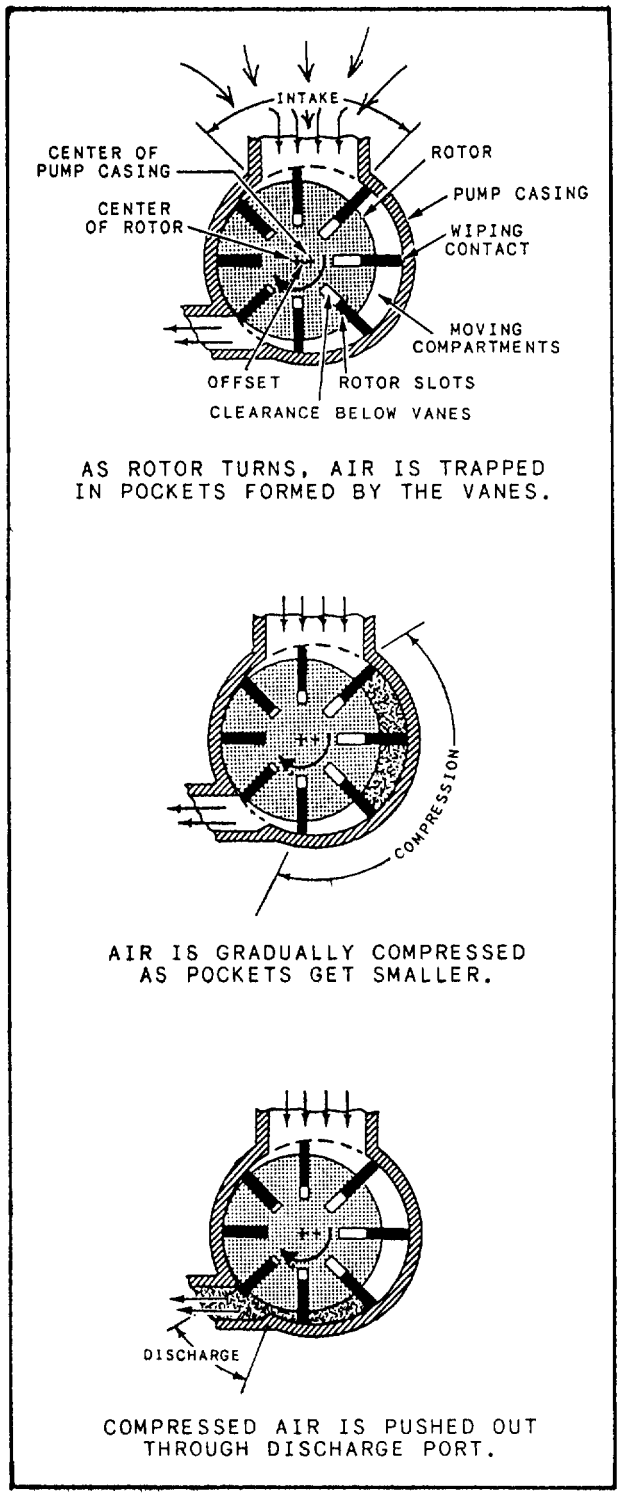

Figure 8-4.—Steps in the compression cycle of a rotary vane compressor.

successive compartment and is discharged at a higher pressure due to the decreasing volume of the moving compartments as they progress from one end to the other of the crescent-shaped space. Oil is injected into and circulated through the air compressor to seal the vanes against the casing walls, to lubricate the internal parts,

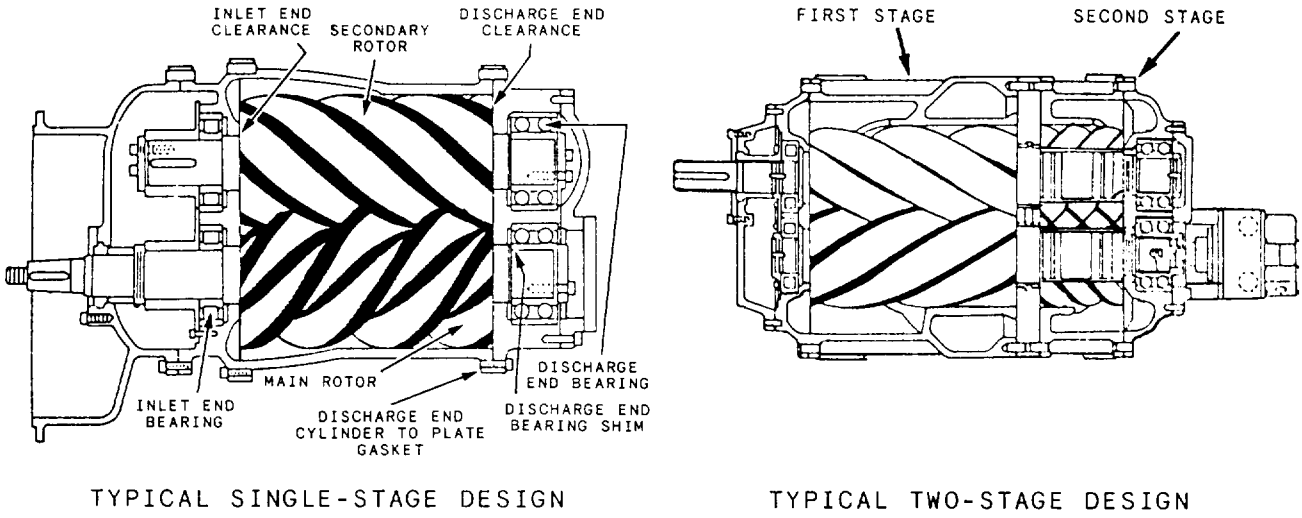

Figure 8-5.—Typical screw type of air compressor.

and to cool the air during the compression cycle. Oil is removed from the compressed air by an oil separator before it leaves the service valves.

SCREW TYPE OF COMPRESSOR

The screw type of air compressor is an oil-injected, helical screw, direct drive, positive displacement air compressor. It maybe single or dual stage (fig. 8-5). The design is relatively simple, being a pair of precisely matched spiral-grooved rotors (fig. 8-6) turning within a single-piece twin-bore cylinder. The rotors provide positive-displacement-internal compression-smoothly, without surging. The matched rotors, one lobed and one grooved, intermesh in the twin bores of the single-piece cylinder. As the rotors turn and unmesh at one end, air is taken in, compressed, and moved through the twin-bore cylinder by the rotors as they rotate. Figure 8-7 shows the steps of airflow past the rotors; figure 8-8 shows aside view of the airflow through the compressor. Compression takes place within the twin-bore cylinder

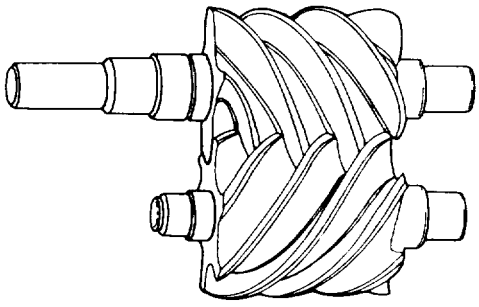

Figure 8-6.—Male and female screw type of air compressor rotors (matched set).

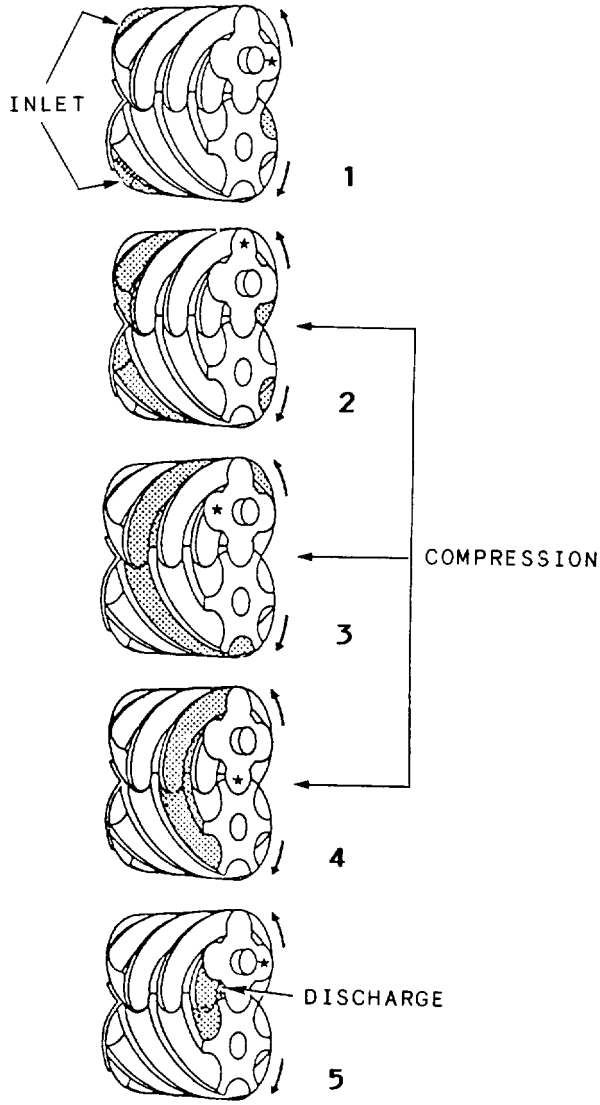

Figure 8-7.—The compression cycle of a screw type of air compressor.

as the volume decreases between the turning mated rotors. Compression is completed as the air is passed out of the discharge end of the twin-bore cylinder. The process is continuous as long as the rotors turn; thus we have an extremely smooth flow of compressed air. As with the vane type of unit, compressor oil is injected into the twin-bore cylinder and picked up by the mating rotors. The oil serves to seal the rotor surfaces and to cool the air in its compression stages. The oil that mixes with the air during compression is passed into a receiver separator where it is removed and returned to the oil sump.

COMPONENTS OF COMPRESSORS

Air compressors consist of basic systems and components such as the air filter, the air control system, the compressing element, and the air receiver and lubrication systems. Other components are safety devices, cooling systems, and air/oil separators. These systems and components allow the air compressor to perform its design function efficiently and safely. The following sections detail the purpose of these different components and systems, and their relationship to efficient air compression.

SAFETY DEVICES OF COMPRESSORS

Air compressors have automatic safety control devices that shut the unit down in the event of a mechanical malfunction.

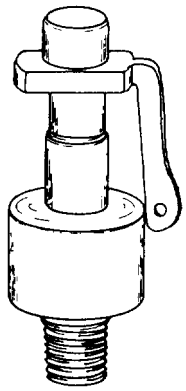

Figure 8-9.—Typical pressure release valve.

CAUTION

Safety devices on air compression systems are not to be bypassed FOR ANY REASON.

Engine overspeeding, overheating, low oil pressure, and low or high fuel pressure are all reasons for the prime mover to be shut down. These safety devices are placed on the power source to protect it.

On the compressor, a pressure release (safety relief) valve (fig. 8-9) releases excess air pressure to protect personnel, the compressor, tanks, and piping from damage if the air pressure exceeds the design limits. The safety valve is mounted in plain view on the air receiver and is normally set at 125 psi (special-duty air compressors may have different psi settings). The

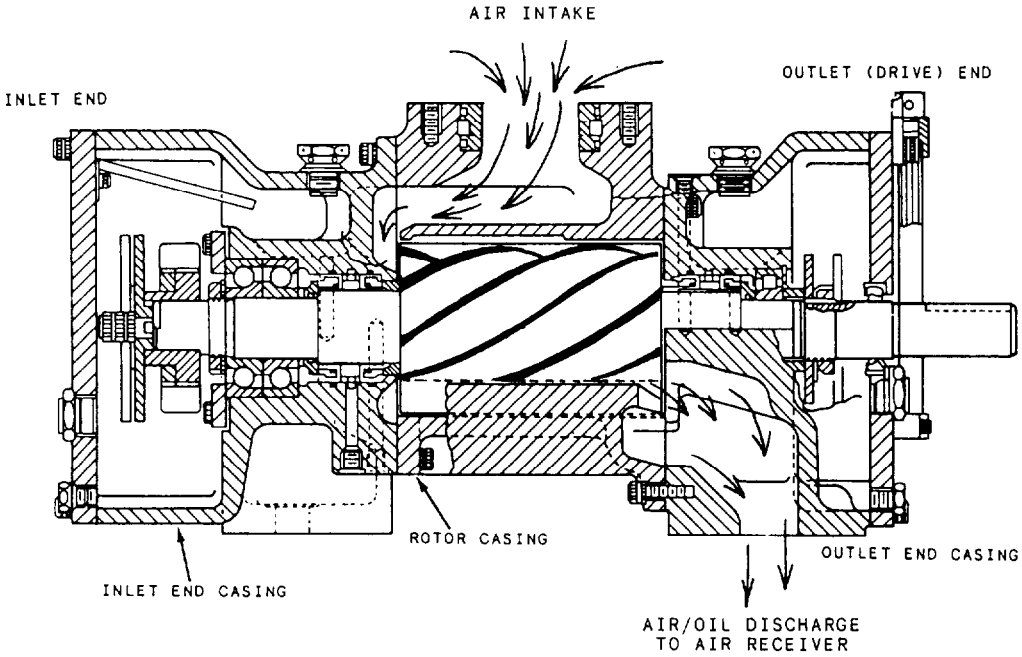

Figure 8-8.—Example of airflow through a screw type of air compressor.

pressure settings may be stamped on tags and wired to the valve. DO NOT REMOVE THE TAGS.

Air discharge temperatures of 220°F to 250°F (temperature ratings vary to manufacturer) will cause the engine to shut down. To activate this system, the operator is not required to act. Restart should not be attempted until the oil has cooled and the reason for the high oil temperature has been determined. This switch is located on the intercooler (two-stage units) or on the aftercooler (single-stage and two-stage units). Your repair manual will show the exact locations.

Check safety controls periodically to be sure they are functioning properly. Check them according to the manufacturer's specifications.

PRESSURE CONTROL SYSTEM

Air compressors are governed by a pressure control device. In a reciprocating compressor, the pressure control system causes the suction valves to remain open and the engine to idle when the air pressure reaches a set maximum. The discharge valve then acts as a check valve and air is trapped in the receiver at maximum required pressure. With the suction valve held open by receiver air pressure, the compressor cannot function (if it did, it would raise the receiver pressure above the design pressure and blow the safety valve). At the same time, receiver air pressure is fed to a speed control unit that returns the power source to idle (if the power source is an electric motor, the motor is shut off). As the air pressure in the receiver drops below the set minimum, the pressure control unit causes the engine to increase speed, the suction valves to close, and the compression cycle to resume.

The rotary type of air compressors control pressure by using a pneumatic, mechanical system (fig. 8-10) to select proper engine speed and air intake opening to suit demand. The air intake control assembly is modulated by receiver air pressure, depending on the need for air. When the engine slows to idle as a result of low demand, the air intake valve closes to lessen the amount of free air entering the compressor; first, by slowing, then by stopping the compression cycle. As the air pressure in the air receiver drops, it causes the control system to open the air intake valve and to apply the throttle at the same time, but only enough to return the receiver air pressure to its maximum limit.

The screw type of compressor uses a pressure control system similar to that of the rotary compressor

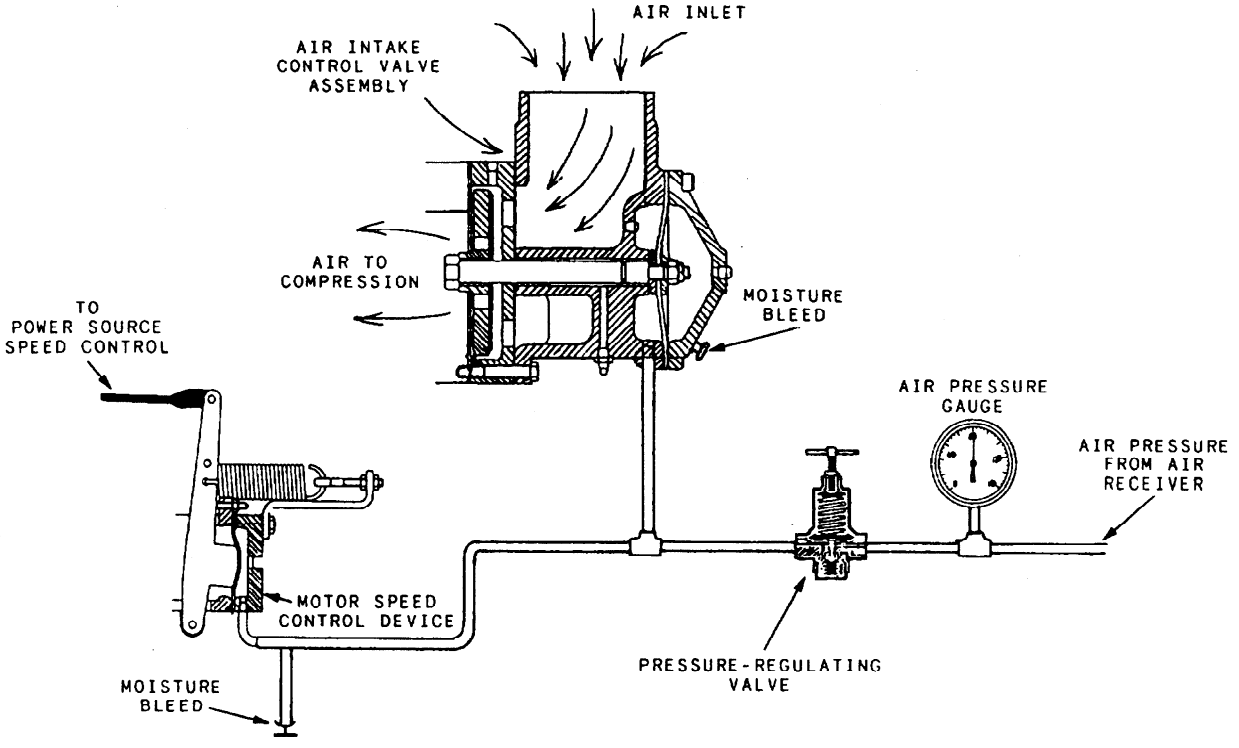

Figure 8-10.—Pressure control system for a rotary vane air compressor.

as it varies engine speed and air intake opening to meet the demand for compressed air.

Because of the great variety of throttle control and pressure-regulating devices used with compressors, detailed instructions on their adjustment and maintenance should be obtained from the manufacturer's maintenance and repair manual. When a control valve fails to work properly, disassembly and a thorough cleaning are necessary. Some control valves are fitted with filters filled with sponge or woolen yarn to prevent dust and grit from entering into the valve chamber and to remove gummy deposits that come from the oil used in the compressor cylinders. Replace the filter with the specified material each time a valve is serviced.

WARNING

Do NOT use cotton as a filter element as it will pack down and stop the airflow.

AIR INTAKE SYSTEM

Air compressors are protected against ingestion of dust and foreign particals by air cleaners. These maybe oil bath or dry-filter type. The filtration system maybe a single falter serving both the power source and the air compressor, or each unit may have an individual filter. Larger air compressors working in dirty conditions may use a two-stage system (fig. 8-11). In most cases, the falters are the same as those used on automotive and construction equipment engines, just larger.

Satisfactory operation of the compressor depends on a clean supply of air. Unless the filters are inspected and cleaned regularly they become clogged, lose their efficiency, become damaged, and compressor capacity is lost. Air filters can be replaced or cleaned. Oil bath air falter cleaning instructions can be found in the relevant maintenance and repair manual. This type of air filter is no longer common. The dry-type filter can be replaced or cleaned. Before cleaning, check the filter for damage

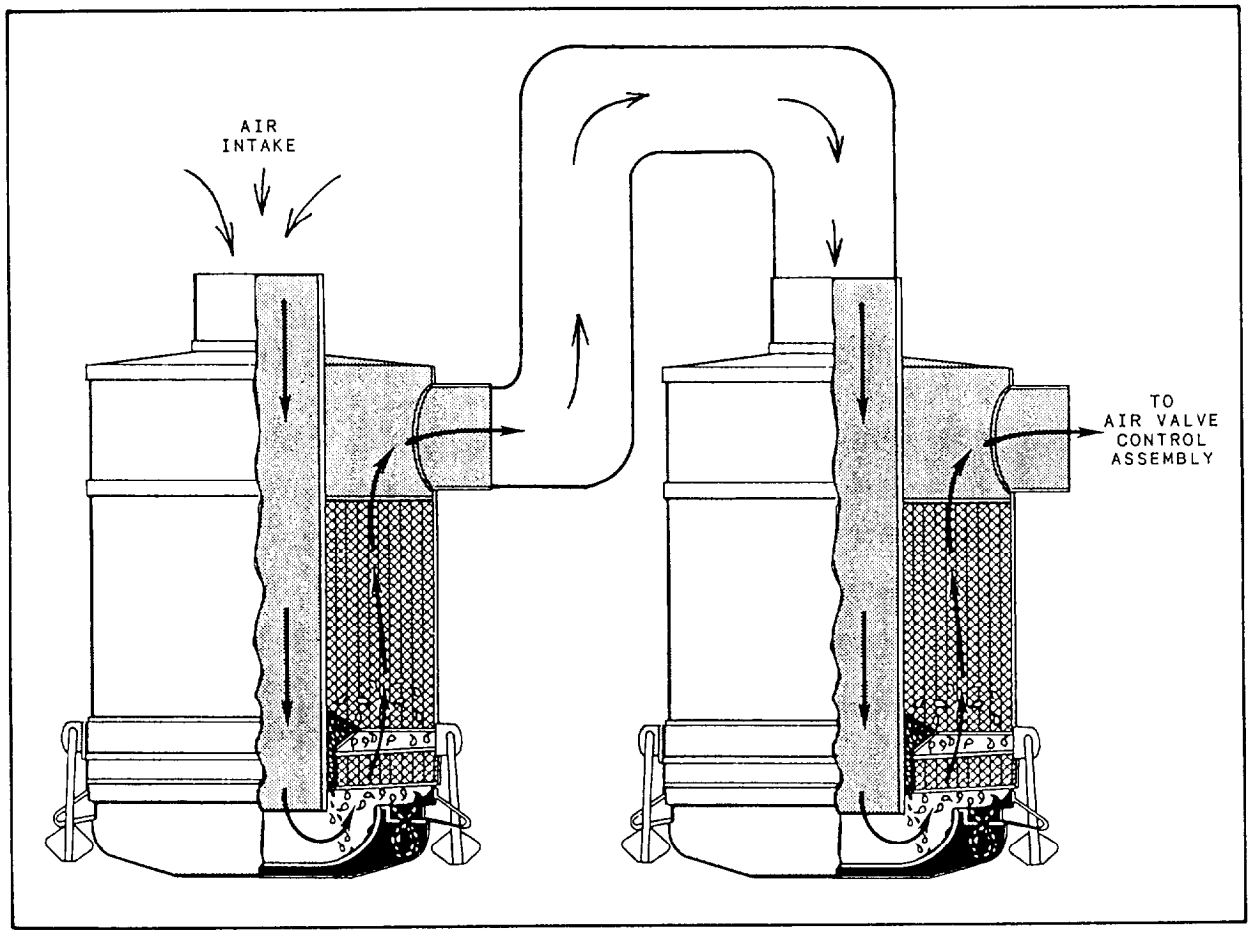

Figure 8-11.—Two-stage, oil bath, air filter system.

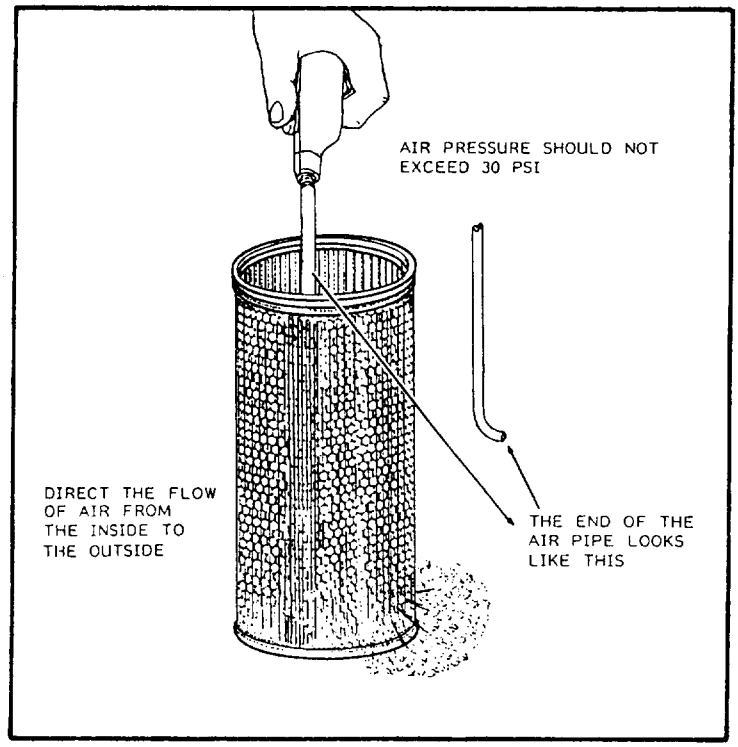

Figure 8-12.—Cleaning an air filter with low pressure air.

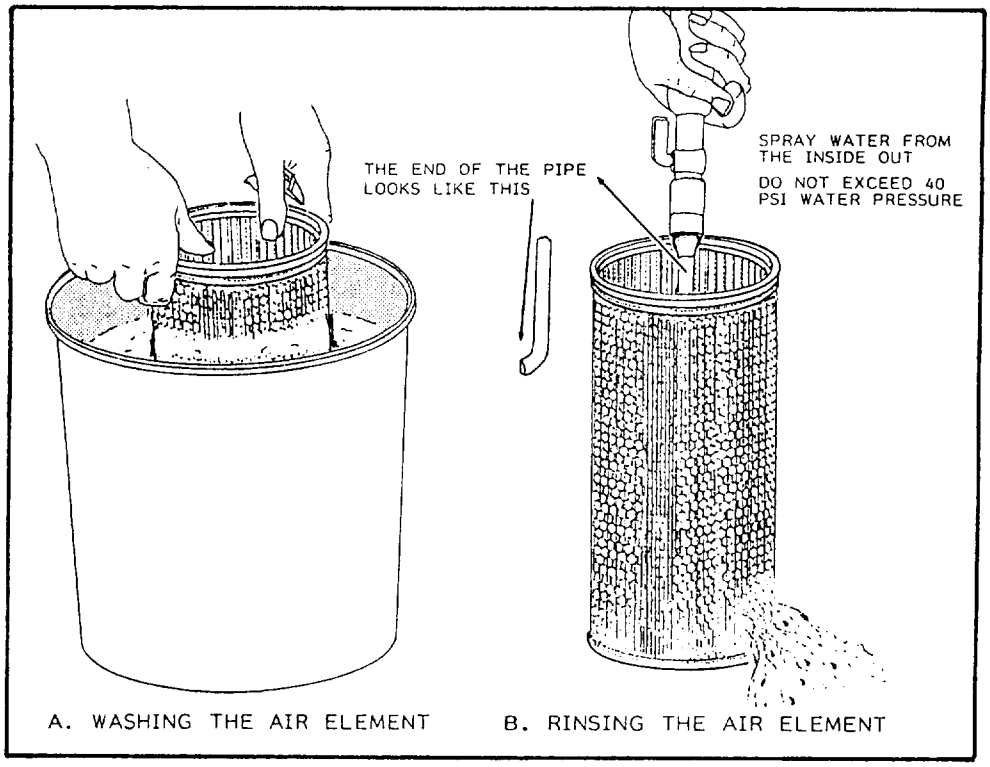

Figure 8-13.—Cleaning an air filter with soap and water.

that would require replacement, such as broken gaskets or dents that prevent sealing. One way to clean the filter is to use LOW-PRESSURE AIR, and blow the debris trapped in the filter against the direction of airflow from the inside to the outside (fig. 8-12). Never exceed pressures of 30 psi when using this method of cleaning, and never use this method of cleaning more than six times on the same filter. Another way you may clean the filter is to wash it with water and a mild detergent (fig. 8-13). This is useful if compressed air is unavailable or if the filter is clogged with grease or oily dirt. When you are using water, do not exceed water pressures of 40 psi.

WARNING

Gasoline or kerosene should never be used to clean air filter elements as it causes explosive fumes to collect in the air receiver.

Dry the filter and hold a bright light on the inside of it. Remember, concentrated light shining through the filter element indicates holes that require replacement of the filter. Following service to the air cleaning system, check and reset the air restriction indicator if required.

THE AIR RECEIVER

The air receiver is a welded steel tank installed on the discharge side of the compressor. It acts as an oil sump and a condensation chamber for the removal of oil and water vapors. It stores air during the operation to actuate the pressure control system. The oil separator element is in the tank; and on top, are the safety valve, automatic blow-down valve, and at least one outlet for a service valve. Figure 8-14 is an example of a typical air receiver-oil separator.

NOTE

Reciprocating air compressors do not require oil separators because oil is not circulated through the air system. NAVSEA approved reciprocating air compressors are the only systems used to compress air for diving operations.

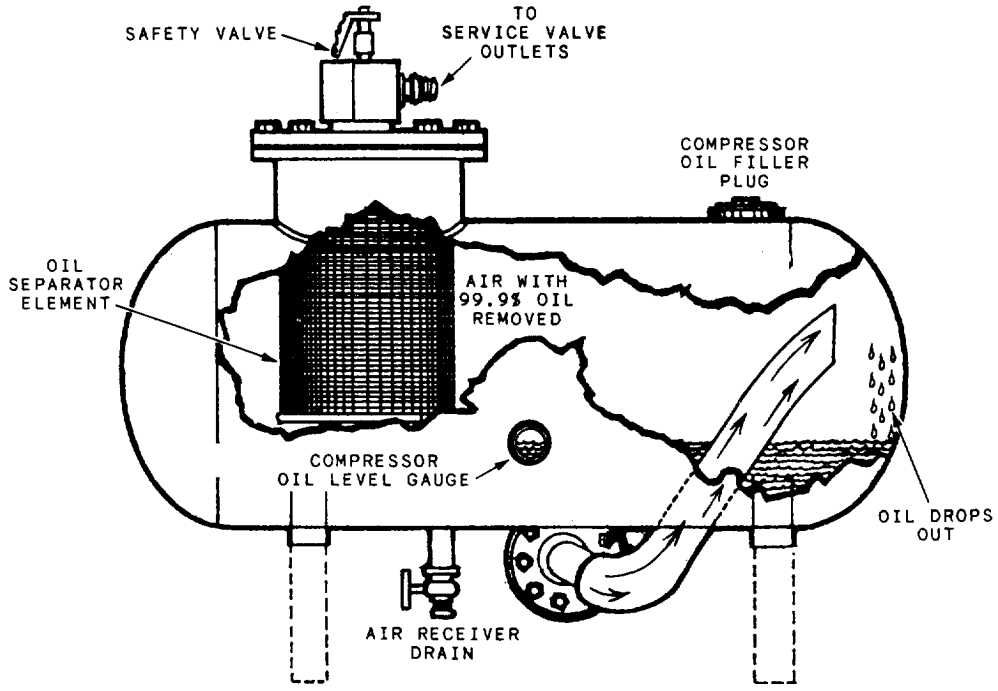

Figure 8-14.-Typical air receiver/oil separator.

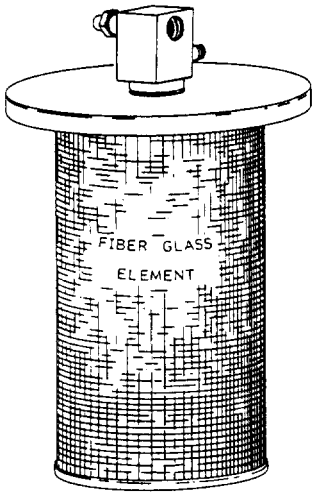

Figure 8-15-Oil separator element.

Maintenance for the air receiver is not complicated and is limited to visual inspection of flanges and threaded fittings. The demister (fig. 8-15), or oil separator, should be removed and replaced according to the manufacturer's recommendations for the unit you are working on.

INTERCOOLERS

As the air compressor compresses air, heat is generated which causes the air to expand requiring an increase of horsepower for further air compression. If you remove the heat generated by compressing air, the total horsepower required for additional air compression is reduced up to 15 percent. In multistage reciprocating compressors, heat is removed by the use of intercoolers (fig. 8-16) or heat exchangers placed between each stage of compression.

NOTE

In the rotary and screw types of air compressors, oil is injected into the compressor at the first stage-cooling the air. Thus, the intercooler is not required.

Some intercoolers have a condensation drain that should be serviced daily (at a minimum), and some have a safety relief. If the safety relief valve is opening due to overpressure, it is an indication of possible leakage in the high-pressure suction valves. You should keep the intercooler clean.

AFTERCOOLERS

Water or moisture is not desirable in the transmission lines of an air compression system. Water carried through the lines washes away lubricating oil from the tools the compressed air is running. This causes the tools to operate sluggishly and increases the need for maintenance. The effect is compounded in high-speed tools, where the wearing surfaces are limited in size and excessive wear reduces efficiency by creating air leakage. Further problems result from the decrease of temperature caused by the sudden expansion of air at the ted. This low temperature creates condensation which freezes around ports and valves and impairs efficiency. These conditions can be minimized by removing the moisture from the air directly after compression, before the air enters the distribution systems. Through the use of an aftercooler or air radiator, heat is transfered from

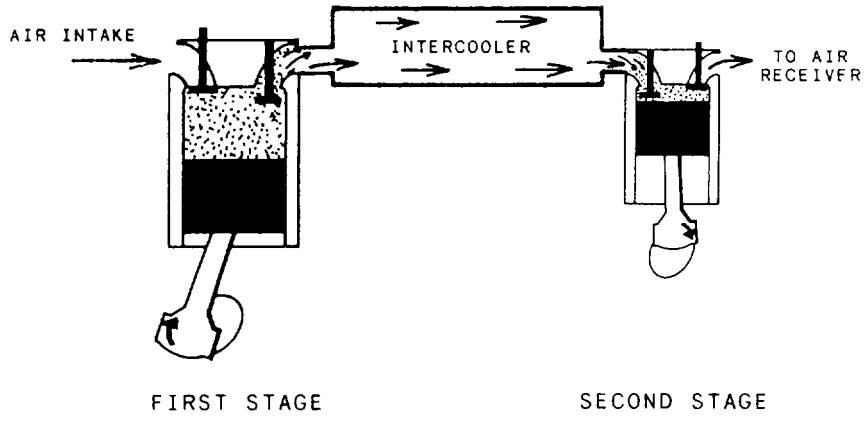

Figure 8-16.-Example of an intercooler on a two-stage reciprocating air compressor.

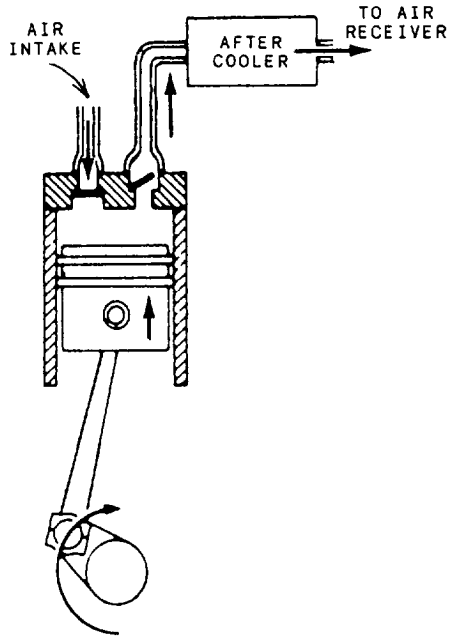

Figure 8-17.-Example of an aftercooler on a reciprocating type of air compressor.

the compressed air to the atmosphere reducing the temperature to a point where most of the moisture is removed. This eliminates the difficulties that moisture causes throughout the system and at the point where the air is used. Aftercoolers are normally found only on reciprocating units and are placed between the discharge valve and the air receiver (fig. 8-17).

LUBRICATION SYSTEM

The lubrication system in the reciprocating compressor is much like that of an automobile engine–a pressurized system force feeding oil to lubrication points (fig. 8-18). Oil assists the piston rings in forming a tight seal in the cylinders and performs a certain amount of cooling. Typical small compressors use a splash type of lubrication system.

As we have seen, vane and screw type of air compressors depend on oil for more than just lubrication. The oil lubricates the rotor bearings and internal working parts and adds to the efficiency of the compressor by forming a tight seal between each air compartment of the vanes or screws. Circulating oil also acts as a cooling medium absorbing the heat generated

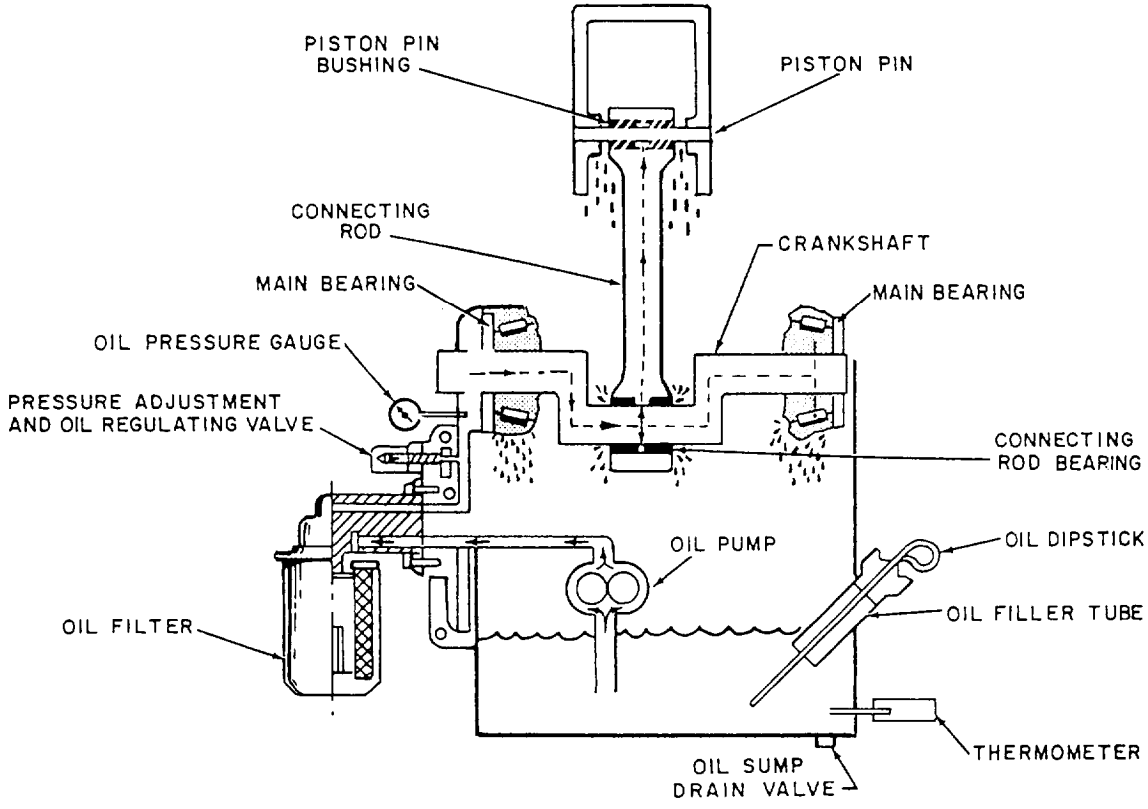

Figure 8-18.-Pressure type of lubricating system on a reciprocating type of air compressor.

by the air as it is being compressed. The lubricating oil is force fed to the required lubricating points by a means called a pressure differential system. Figure 8-19 shows the operation of this lubrication system, trace it as you follow the text. As the unit is started, air begins the compression cycle leaving the compressor and entering the air receiver. A factory-set minimum pressure valve, located on the air receiver, remains closed to allow rapid buildup of air pressure. The high pressure air in the air receiver is the force that moves the oil through the oil lines to the working parts of the compressor. An oil filter is placed in the system to remove impurities. After leaving the filter, a thermostatic control valve directs heated oil through an oil cooler to keep the oil temperature between 130°F and 180°F. Oil already cool bypasses this step. The oil is then directed to the intake side of the compressor where it is injected into the cylinder (vane type) or dual-bore cylinders (screw type) for sealing purposes and to cool the air as it is being compressed. Oil is also directed into the air intake control assembly and all bearings and other moving parts at the same time. The air-oil mix exits the compressor at the discharge end and re-enters the air receiver. The oil is removed from the air by means of an air-oil-labyrinth-separator which returns it to the sump where it starts the cycle again.

Some vane and screw type of air compressors use a mechanical type of oil pump in the lubrication system. You should check the level of the compressor oil daily, before operation. Refer to the manufacturer's maintenance manual for the correct type of oil and the proper procedure for checking and topping off.

CAUTION

Because the system is under high pressure, the vane and screw types of air compressors must be shut down and unloaded before oil is added to the system.

Preventive maintenance procedures for all three types of air compressors are outlined in current manuals for the unit you are working on or operating. USE THEM!!! Oil should be changed according to these manuals, in most cases, at 500 hour intervals. The compressor oil filter and air separator should not be overlooked and the air filter, taking into account operating conditions, should be inspected daily. When you operate air compressors at any time, do not leave the unit unattended while it is running.

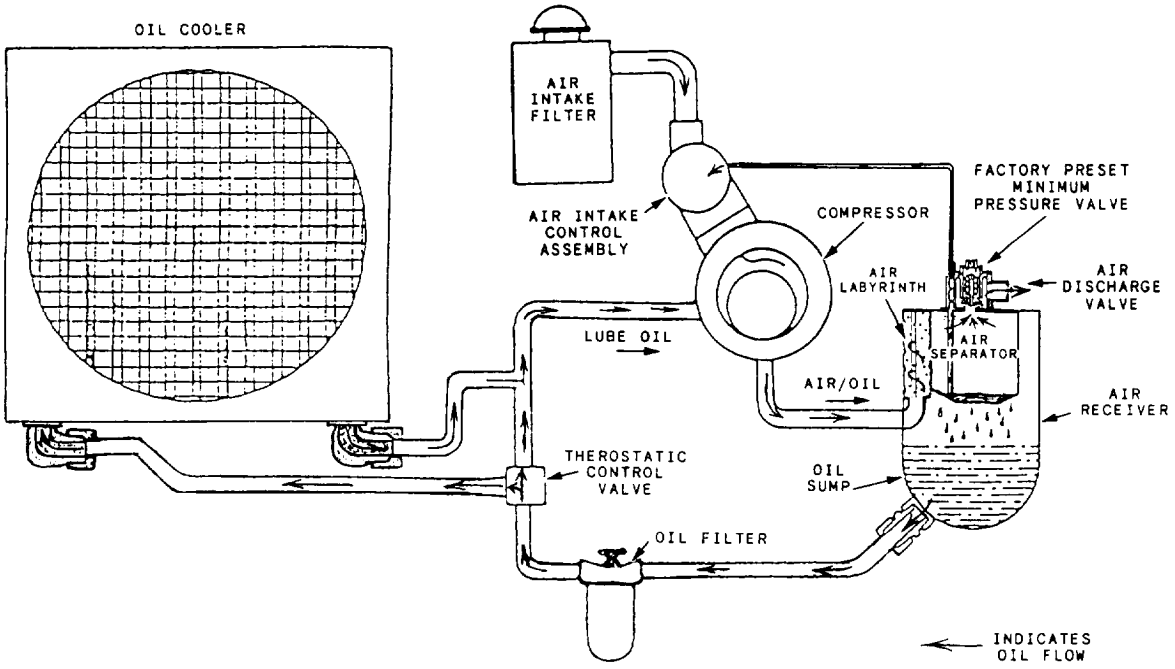

Figure 8-19.-Rotary vane air compressor lubrication system.

Table 8-1.-Air Compressor Troubleshooting Chart

PROBLEM	CAUSE
Overheating compressor	Oil cooler dirty Defective thermostatic bypass valve Insufficient oil in the unit Rotor blades sticking or broken Clogged oil filter Oil cooler is dirty
Air compressor is noisy during operation	Low oil level Worn or damaged internal parts
Compressor does not reach design pressure or capacity	Air pressure safety valve is leaking Receiver air valve is open Unloader valve is leaking Loose piping or fittings
Compressor will not load or unload	Unloader valve defective Air control valve is sticking or dirty Unloader pressure is improperly set (too high or too low) Water in the control lines Plugged control lines
Drive engine shuts down when idling	Idle speed is improperly set (too low) The equipment is not warmed up Check for proper operating procedures
The air compressor CFM is low	Dirty air compressor air filter Defective air intake control valve High idle on power source improperly set Damaged or worn rotor blades
Oil in the discharge lines	Saturated oil separator Damaged oil separator
Engine stalls during operation	Overheated compressor oil High discharge air pressure Low or no engine oil pressure High engine coolant temperature Engine overspeeding

WARNING

Reciprocating air compressors used to produce breathable air used in diving operations use special lubricating oil. Failure to observe these specific precautions set by NAVSEA maintenance instructions could lead to fatal injury of the diver.

AIR COMPRESSOR TROUBLESHOOTING

Years of development have made the air compressor a rugged and dependable machine. However, as with any machine, problems do arise. As a CM-1, it is your job to troubleshoot the air compressor once it has malfunctioned.

Now, the large reciprocating type of air compressor (used for construction purposes) is rarely found in the NCF. For this reason, the following troubleshooting procedures detailed in this chapter are for the vane and screw types of air compressors.

CAUTION

For exact information on the equipment you are working on, go to the manufacturer's maintenance and repair manual.

There are several ways to troubleshoot equipment to eliminate possible problems. The best way is to first ask the operator the following questions: Did it start at all? How did it shut down? What noises did it make? Was there any smoke or unusual smell? Next, get the book and do some reading! DO NOT JUST GET IN THERE AND REPLACE A FEW PARTS. Sure, you may correct the problem, but this type of "repair" work wastes government money, and you did not do your job as a troubleshooter. After your short study period, check the machine and be sure it is safe to start. Look for obvious damage, open discharge lines, broken air or oil lines, oil leaks, and clogged air filters. Prestart check the unit. If you determine the unit is safe to start, do so, but watch the engine oil pressure, and if it does not come up immediately, the power source is the problem. Shut the unit down quickly and take it to the shop for a detailed inspection by the mechanics. If the oil pressure is correct, watch the air pressure buildup next. If the air pressure buildup does not come up, stop the unit because the vane and screw types of air compressors depend on air pressure for lubrication. If the air pressure comes up slowly or if the compressor fails to unload, finally stalling the unit, check for a sticking air intake control valve. If the compressor does start and there is no apparent problem, do not leave the scene right away. The problem could be that the unit has tripped to shutdown due to overheating oil. Let the unit thoroughly cool down. Then simulate the conditions by starting and working the unit. Watch the gauges to see how fast the oil temperature rises. From the book (You did read it didn't you?), you know the limits for oil temperature. Return the unit to the shop if you see these limits exceeded Finally, noise. If the unit starts and the noise level exceeds that of a normal running unit, return the unit to the shop for inspection and repair. DO NOT JEOPARDIZE THE HEALTH OF THE CESE FOR THE SAKE OF THE PROJECT. See table 8-1 for a more detailed listing of troubleshooting the vane and screw types of air compressors.

AIR COMPRESSOR OVERHAUL

Because of the durability of the vane and screw types of air compressors, major overhaul is seldom required. A properly maintained unit will perform reliably for 10,000 hours or more. When a major overhaul is required, the following preparations apply to air compressors as to other components discussed in this TRAMAN; have a clean work area; obtain all special tools; get the manufacturer's repair manual; preclean the unit. Once you have done this-think SAFETY, use a hoist for the heavier parts. You are now ready to start your overhaul.

The primary wear point on the rotary type of air compressor is the rotor vanes. For this reason, the unit has been designed to allow for simplified inspection of the vanes by the removal of the rear cover of the compressor (fig. 8-20).

ATTENTION

Before the rotor vanes can be removed from most rotary compressors, the rotor must be positioned correctly (fig. 8-21).

The rotor vanes should slide out easily offering little or no resistance. Rotor vanes that resist removal indicate problems. Once you remove the rotor vanes, shine a light inside the rotor compartment and slots. Inspect the condition of the rotor slots. The slots should be clean and have straight edges. A worn-rotor slot would most likely have a slight saw-toothed effect on the trailing edge–a condition that can cause rapid rotor vane wear. Next, inspect the inside of the rotor compartment for

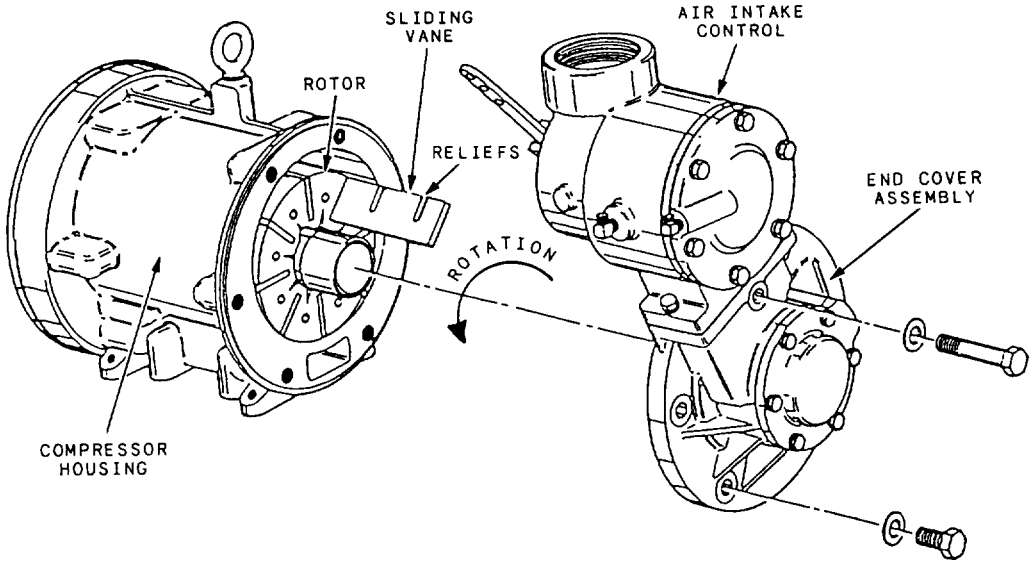

Figure 8-20.-Removing vanes for inspection and replacement.

irregularities, such as scoring, heat cracks, or gouging. Damage to the rotor compartment usually means the replacement of this part is necessary.

Inspect the individual rotor vanes, look for excessive wear, chipping, cracking, or breakage. Rotor vanes worn beyond specifications set by individual manufacturers should be replaced (fig. 8-21). If the rotor vanes have broken in the compressor, it is of extreme importance that ALL DEBRIS BE REMOVED. Chips and other foreign matter left in the compressor will be ingested into the lubrication system, causing further damage to the air control system and the compressor. Following rotor vane breakage, flush the cylinder and rotor with steam or high-pressure water. The oil tank or air receiver must be drained and flushed. Air and oil lines should be purged and entirely free of rotor vane chips.

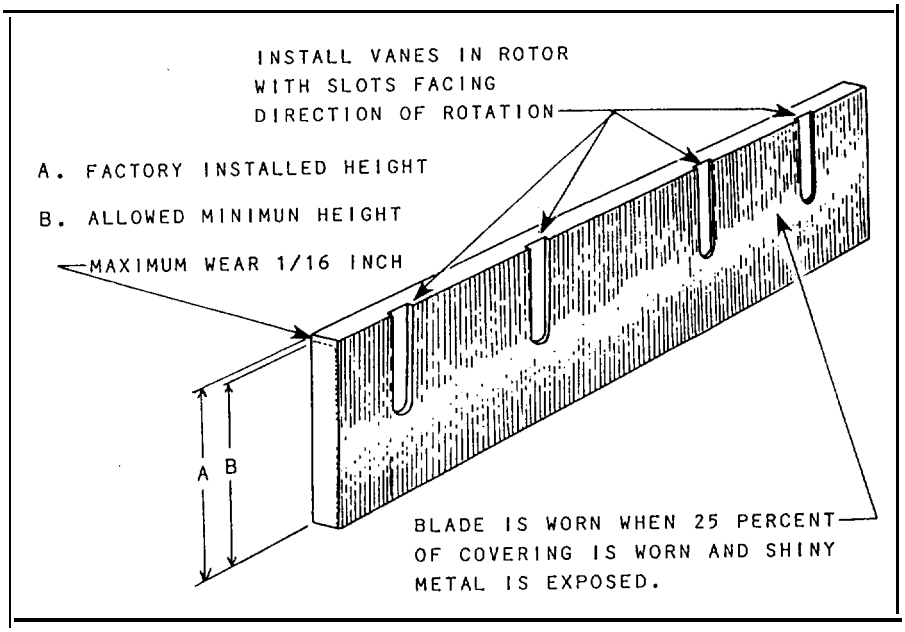

Figure 8-21.-Rotor vane inspection.

Dry all parts with compressed air and relubricate them with compressor oil.

If you must change the rotor bearings and races, you should do so with suitable pullers and installers. In extreme circumstances, some manufacturers recommend heating the inner races to ease removal. Disgard bearing races that have been heated in this type of removal process.

Some rotary and screw types of air compressors have an oil pump in the lubrication system. Disassemble, inspect, and overhaul the oil pump according to the manufacturer's specifications.

Before you reassemble the air compressor, make sure all the air and oil passages are clean. All parts should be lightly oiled and ready for use. The reassembly process of air compressors is not complicated, but stick to the instructions in the manufacturer's repair and maintenance manual.

The manufacturers of the screw type of air compressors do not recommend that overhaul be done in the field.

As a parting shot, you can get the most out of this machinery by PERFORMING PREVENTIVE MAINTENANCE AS REQUIRED. The importance of timely oil, oil filter, and air filter changes cannot be overstressed. Do your job and this unit will do its job.

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