OPERATING AND PARTS MANUAL

INDUSTRIAL ELECTRIC AIR COMPRESSORS

MODELS

15D, 20D, 25D, 25D4, 30D7, AND 40D

7/98

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SECTION 1 - SAFETY

1.1 GENERAL

PALATEK, INC. designs all its compressors so they can be operated safely despite the fact that operating a motor driven air compressor is inherently hazardous. Responsibility for continued safe operation rests with those who install, use and maintain the equipment. The precautions offered in this section will minimize the inherent hazards and reduce the likelihood of accidental damage and injuries.

The operation of air compressors should be limited to personnel who have been so trained and specifically assigned to do so, and who have read and understand this operator's manual. Failure to follow the instructions and safety precautions in this manual may increase the possibility of accidents or injuries.
Never start this compressor unless it is safe to do so. Do not attempt to operate the air compressor with an unsafe condition relative to the compressor, the electrical system, the air piping, filtering, regulating, preparation, conditioning, valving, hosing or components. Open the main disconnect switch or circuit breaker, then lock it out and tag it to prevent anyone else from starting the compressor until the unsafe condition has been corrected.

Operate compressors only in full compliance with all applicable Federal, State and Local codes and requirements such as OSHA, NEC, NFPA, CSA, etc.

Do not modify this compressor without specific written approval from the factory.

1.2 PRESSURE RELEASE

Open the pressure relief valve(s) at least weekly to be sure there is no blockage, obstruction, or inability to operate.

Remove oil filler cap only when compressor has been turned off, the disconnect switch locked open and there is no pressure in the oil separation tank. Bleed off any residual pressure by opening the pressure relief valve. REMEMBER, compressors may re-start AUTOMATICALLY if not properly taken off the power line! Shut machine off, open and lock-out disconnect switch and vent all pressure before opening or removing any filter element, line, tube, fitting, valve, plug, cover, connection or any other component on the air compressor or in the plant's compressed air system.

Do not use accessories such as tools, valves, filters, hoses, piping, dryers, etc. that are rated lower than the maximum pressure or temperature rating of this compressor. Do not exceed the accessory component manufacturer's rated safe, continuous working pressure or temperature.

Install appropriate velocity-limiting valves (rated by pipe size and CFM) whenever air hose larger than ½ inch (102.5 mm) inside diameter is used anywhere in the system to reduce pressure in case of hose or connection failure. Install additional velocity limiting valves, in series, whenever 75 feet (22.8 m) of hose length is exceeded. Must comply with pertinent OSHA requirements.

Do not use air pressure greater than 30 PSI (207 kPa) for blow-off or cleaning purposes, and then only with effective chip guarding and personal protective equipment as may be required by OSHA.

Compressed air filters or lubricators with plastic bowls should not be used. Steel bowls are recommended.

Keep personnel out of line with, and away from, the discharge opening of air lines, or tools, or other areas of direct, or deflected, compressed air discharge.

Do not allow anyone to engage in horseplay with air hoses as serious bodily injury or death may result.

Do not substitute bolts with material or markings different from original equipment.

Do not over-tighten any bolt, nut, fitting, connection, or spin-on filter element.

1.3 FIRES / EXPLOSIONS

Clean up any spilled oil or oil leakage, and repair oil leaks as soon as they are discovered.

Do not allow oil to accumulate on, in, or around acoustic noise material. Immediately replace any oil-soaked material after cleaning enclosure surface with nonflammable solvent.

Do not operate compressor when there is a possibility of its ingesting flammable, toxic or explosive fumes, mists or particulates.

Do not operate compressor with its temperature switch or any of three pressure switches inoperative or incorrectly connected.

Keep conductive objects away from explosive live electrical parts such as terminals to avoid sparks that might serve as a source of ignition.

Replace the air/oil separator element only with factory original equipment replacement parts to be certain that anti-static provisions are present.

Ground the machine in accordance with National Electrical Code (NEC) requirements.

Do not use plastic pipe for compressed air.

1.4 MOVING PARTS

Do not operate the compressor with its fan guard removed.

Keep clothing, hands, arms, and other parts of the body, away from the fan and drive coupling.

Wear snug-fitting protective clothing (no neckties) and confine long hair when working around compressor.

1.5 PHYSICAL DANGERS

Wear OSHA approved personal protective gear including gloves, safety shoes, safety glasses, head covering and ear protection when working on or around the compressor.

Avoid bodily contact with hot oil, hot surfaces, sharp edges and corners. Keep all parts of the body away from all potential points of air discharge, including pressure relief valve ports.

Keep an adequate first-aid kit nearby. Obtain medical assistance promptly in case of injury. Do not ignore small cuts, burns or minor eye injuries as they may lead to infection.

Perform repairs and maintenance only in clean, dry conditions in a well-lighted and ventilated area.

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

Monitor the point-of-use location for adequate ventilation.

1.6 TOXICITY

Do not use air from this compressor for breathing, as it may contain colorless, odorless yet lethal gases. Severe injury or death may result within a few seconds.
Carefully analyze the compressor inlet conditions to be certain that no dangerous levels of contaminants are being ingested by the compressor.
Do not permit air from this compressor to contact foodstuff except in compliance with FDA Standard 21 CFM 178.3570 and all other applicable regulations.

1.7 ELECTRIC SHOCK

Keep all parts of the body as well as any tools or other conductive objects away from exposed live parts of the electrical system. Maintain dry footing, stand on insulating surfaces and do not contact any other portion of the compressor when making adjustments.

Be certain that the equipment is properly grounded in accordance with NEC.

Initial installation and wiring must be done by a trained and qualified electrician and be in accordance with all Federal, State and Local codes, standards and regulations.
Improper installation or unsafe servicing could result in serious bodily injury or death.

If a fuse should blow for any reason, replace it with a fuse of the same size, type and ampere rating. Doing otherwise may result in an unsafe condition.

1.8 LIFTING

Lift or move the compressor only with equipment of sufficient load capacity which has been inspected and is in good condition.

Use extreme care when moving tank-mounted compressors.

Firmly restrain the compressor to prevent tipping or rolling.

Keep personnel out from under and away from the area when lifting or moving the compressor.

Do not lift in high winds.

Lift no higher than necessary. Carry as low as possible when moving.

Keep lifting operator in attendance whenever the compressor is suspended.

Set compressor down only on level surface capable of supporting several times the machine's weight.

Do not lift entire machine by motor lifting eyes, as they are intended only for lifting the motor.

Drain condensate from Auxiliary Air Receiver prior to lifting.

1.9 AUTOMATIC START

Do not assume that any air compressor is ready for maintenance, service, or trouble-shooting if it is not running. It may be in the "Automatic-Start" mode of its dual-control system and suddenly re-start, thereby creating a hazardous condition.

Close air valves and shut machine off. Open main disconnect; lock it out and tag it to prevent others from inadvertently re-closing it.

1.10 NOISE

Working near an open air compressor (or an enclosed machine with doors and/or access panels open or removed), can prove hazardous even during short-term exposure. The noise may interfere with hearing verbal warnings or other sounds off impending dangers. For prolonged exposure to machinery noise, hearing protection is recommended and may be required by OSHA.

1.11 HAZARD WARNING SIGNS

PALATEK, INC. compressors are all equipped with brightly colored, weather-resistant, pictorial/verbal self-adhesive decals. These are designed to warn the operator against potential hazards in order to minimize risk of property damage, bodily injury or death. All operators must be aware of the Warning Signs and follow the instructions thereon.

If any Warning Signs are missing, damaged or painted over, or located in such a position as to be unreadable in a given installation, new Warning Signs must be ordered. Be sure they are properly positioned and installed correctly. If any operators are not fully conversant with the English language and/or cannot comprehend the intended pictorial warnings, it becomes incumbent upon the owner, lessor or other responsible administrator to be sure the operator is properly trained and also made aware of, and understands, the meaning of all Warning Signs.

SIGN	LOCATION
WARNING SIGN	MOTOR STARTER
HIGH VOLTAGE/MOVING PARTS	MOTOR STARTER
WARNING SIGN	INSTRUMENT PANEL
COMPRESSED AIR	INSTRUMENT PANEL
WARNING SIGN	SEPARATOR TANK
HOT OIL/PRESSURIZED AIR	SEPARATOR TANK

SECTION 2 - SPECIFICATIONS

2.1 DATA AND DIMENSIONS

MODEL(D=DIRECT DRIVE)	15D	20D	25D	25D4	30D7	40D
MOTOR SIZE (HP)	15	20	25	25	30	40
FULL LOAD AMPS 460/230	19.5/39	24.5/49	30/60	34/68	38.5/77	49/98
MAX. FULL LOAD PRESSURE	140	125	125	150	150	125
MIN. FULL LOAD PRESSURE	50	50	50	50	50	50
LUBRICANT CAPACITY, GAL	3.0	3.0	3.0	3.0	3.0	3.0
WEIGHTS: BASE MOUNT	700	800	900	950	950	1000
DIMENSIONS: BASE MOUNTED						
LENGTH	56	56	59	59	58	60
WIDTH	29	29	29	29	30	34
HEIGHT	34	38	35	38	35	39
DIMENSIONS: TANK MOUNTED*	120 G				200 G	
LENGTH	69	69	69	69	72"	72"
WIDTH	29	29	29	29	36	36
HEIGHT	59	63	60	63	68	70
WEIGHTS: TANK MOUNTED	1050	1150	1250	1300	1350	1400

PALATEK, INC. reserves the right to change the design or construction of the above compressors, or to offer them with options which will cause the subject equipment to differ from the above specifications, without reference to any descriptions in this manual.

2.2 LUBRICATION GUIDE

PALATEK, INC. recommends using Palasyn 45, Pallube 32 or AFX 32 synthetic lubricoolant for normal plant-air service, combined with a program of oil/fluid analysis every 1000 hours in severe environment conditions. Only by this method can the maximum life of the lubricoolant be realized, and the full cost-savings and improved compressor reliability associated with the use of a synthetic fluid be obtained. (Caustic, acidic or oxidant atmospheres will shorten the life of all lubricants.) For extreme environments or for compressing gases other than air, contact the factory for lubricoolant recommendations. Mixing of any other type of oil or synthetic fluid will void the 5-year compressor unit warranty and could result in greatly increased maintenance and service expenses.

2.3 APPLICATION GUIDE

Ambient Temperature Range: +35 to +104° F (+1 to 40° C). The lower temperature limit is to prevent freeze-up of condensate in the aftercooler and/or control lines. When operating these compressors for plant air in food or beverage processing industries, contact the factory for a Lubricoolant that is FDA approved for "incidental contact with foodstuffs". For instrument-grade air, contact the factory for recommendations related to specialized compressed air preparation accessories. Contact the factory for heat-recovery equipment, or any other specialized compressor-related accessories. Whenever a PALATEK, INC. rotary screw air compressor is installed in parallel with a reciprocating type compressor, it is imperative that the PALATEK, INC. be the "lead" machine and the reciprocating the "lag" machine. That is, the PALATEK, INC. machine should be the first to start and the last to stop when being operated in the "automatic stop/start" mode; or the first to load and the last to unload, when in the "continuous run" mode. This will result in extending the life of the reciprocating machine, with no adverse effect on the life of the rotary. It should also require the least electrical power consumption for the combination.

SECTION 3 - DESCRIPTION

3.1 INTRODUCTION

PALATEK, INC. Plant Air Compressors are electric motor driven, single-stage rotary screw type, continuous-duty compressors. The compressor's design and construction offer the greatest value and lowest life-cycle cost of operation. The compressor package includes a direct connected electric motor driven compressor, air intake capacity control system air cooled cooling system, including a standard air cooled aftercooler, discharge system, instrument panel and electrical system. They are available base mounted or tank mounted with or without enclosures. These machines are intended for indoor installation, or protected outdoor operation in moderate climates. For outdoor operation, contact your nearest Palatek distributor or the factory for specific options.

3.2 COMPRESSOR UNIT

All PALATEK, INC. compressors feature direct connected, single stage, positive displacement, flood lubricated rotary screw air compressor units with heavy duty long life tapered roller bearings. The lubricoolant fluid is injected directly into the compressor unit and mixes with the air as it is compressed by the rotors. The lubricoolant lubricates the rotors, bearings and shaft seal; cools the compressor by absorbing much of the heat of compression and acts to block slippage of compressed air through the compressor's internal clearances.

3.3 MOTOR

The electric motor used to power each PALATEK, INC. D-Series 15, 20, 25, 30 and 40 horsepower compressor is a standard three phase 60 Hertz AC induction type motor, fitted with a C-face register at the compressor drive end to assure proper coupling alignment at all times and double-extended to provide a simple, reliable fan drive without an additional fan motor, starter or wiring. The standard motor is connectable for 230 or 460 volts and satisfactory for use at 208 volts. (200/400 volt motors available on request) Contact the factory for any other requirements.

Maximum number of starts per hour:

MOTOR HP	15	20	25	30	40
STARTS/HR	6	6	6	4	4

3.4 INTAKE/CONTROL SYSTEM

The intake/control system consists of an air filter, connecting rubber sleeve, clamps, a combination compressor inlet valve/reverse-flow check valve, control signal regulator valve, solenoid control/blowdown valve, and a control pressure switch. (See Intake

Control Schematic.) The air filter is a multi-stage dry-type with a high efficiency cleanable/replaceable element. The element should be cleaned periodically, depending upon the amount of particulates in the air, and replaced annually. This filter is adequate for areas of high air-borne dust concentrations and has a tubular intake to facilitate remote intake connection to cooler, cleaner air and/or for reduced noise level. The intake valve controls the capacity or air delivery of the compressor in direct response to the plant air system demand via a varying signal from the control regulator valve. During periods of very low or zero air usage the inlet valve is held shut by an air signal from the solenoid control/blowdown valve. This air signal simultaneously reduces the pressure in the oil separation tank, allowing the compressor to run unloaded with minimum power consumption.

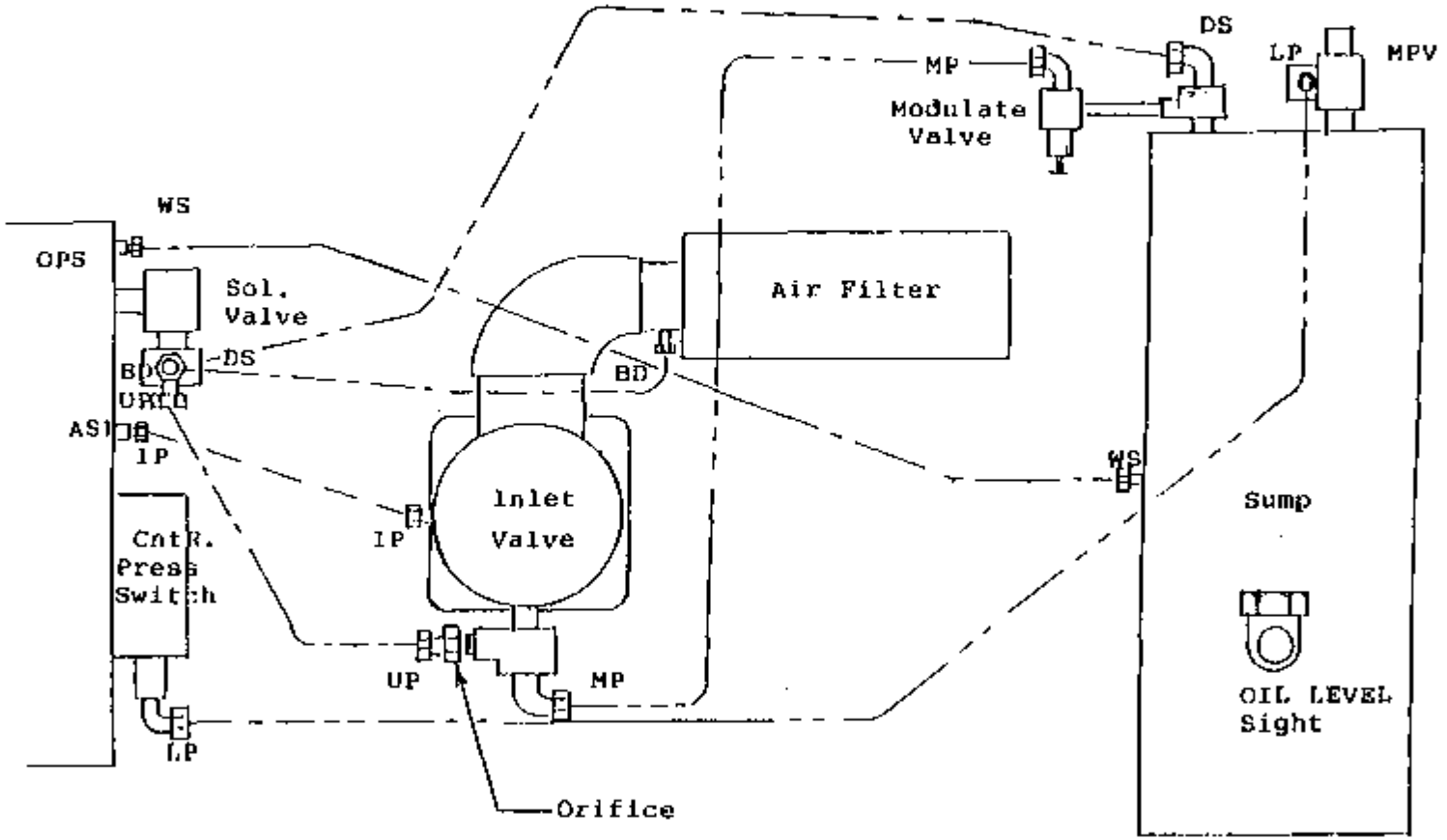
Control operation - start mode: When the compressor is turned on, or starts automatically, the pressure will quickly rise to 60 psi (415 kPa), which is the setting of the minimum pressure valve. The control regulator and solenoid valve are both closed; therefore, the compressor inlet valve is wide open. The compressor is then drawing in its full rated capacity, but the air is held back by the minimum pressure valve.

Normal full load mode: From 60 to 115 psi (415 to 790 kPa) the minimum pressure valve is open and the compressor delivers its full rated capacity to the air receiver and/or the plant air piping system.

Modulating mode: Whenever less than the rated capacity of the compressor is being used, the service air pressure will continue to rise until the control regulator gradually opens. This applies pressure to the inlet valve piston that partially closes the inlet valve disc reduces the amount of air entering the compressor air inlet until it matches the amount of air being used. The control will function continually in this manner between the adjustable limits of 115 to 125 psi (750 to 860 kPa) in response to varying demands from the plant air service line. The control regulator has an orifice in the controller piston which vents a small amount of control air whenever it is sending a pressure signal to the intake controller capacity control. This orifice is vital to the smoothness of the control operation.

Unloaded/Shutdown modes: When little or no air is being used, the service line pressure will rise to the "cut-out" setting of the control pressure switch. This opens the control solenoid which sends a pressure signal directly to the inlet valve piston. The inlet valve is held shut, while air is vented through an orificed fitting which reduces the pressure in the separation tank. With the selector switch in the "Run" position, the shutdown function of the control pressure switch is by-passed and the motor continues to run. With the resumption of plant air usage, the line pressure reduces to the "cut-in" setting of the control pressure switch where it closes. This allows the control air signal to the inlet valve to dissipate the inlet valve to reopen; thus returning the compressor to normal full load operation. Selecting the "Auto" position on the selector switch allows the motor to shut off whenever the "cut-out" pressure setting of the control pressure switch is reached. It remains in this "unloaded" mode for 10 minutes before shutting off. The compressor will restart whenever the line pressure drops to its "cut-in" pressure. A timer is provided to limit the number of starts per hour. (See Page 11 - Section 3.3)

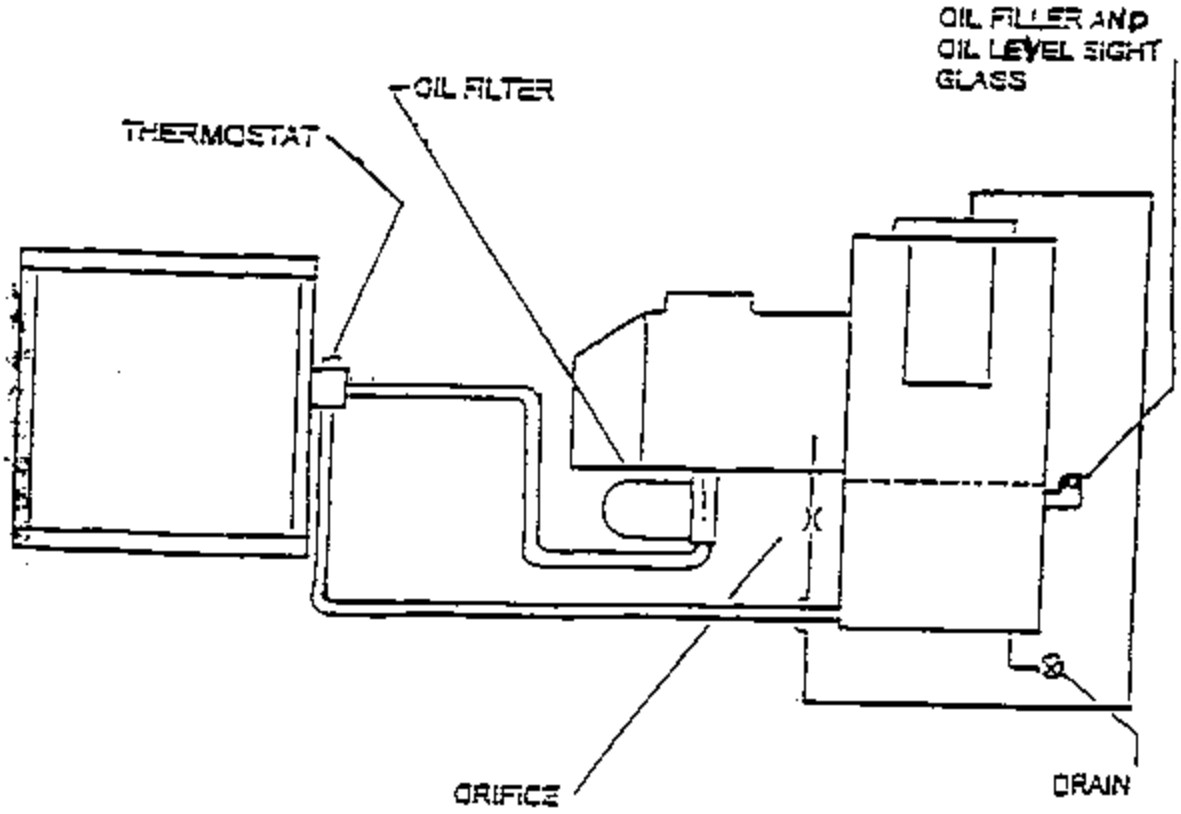
CONTROL SCHEMATIC



3.5 COMPRESSOR LUBRICATION/COOLING SYSTEM

The cooling system consists of a fan, finned-tube radiator-type fluid cooler, thermal valve to accelerate warm-up, a full-flow filter, an oil drain valve and interconnecting tubing. Pressure in the oil separation tank causes the lubricoolant to flow from this region of relatively high pressure, through the system to an area of lower pressure at the compressor unit. Fluid flows from the oil separation tank to the cooler, from the cooler to the filter, and from the filter to the compressor. During cold starts, the fluid will by-pass the oil cooler and go directly to the filter. While warming gradual change occurs where the fluid flow is split, partial flows being shared by both the oil cooler and by-pass through the thermal valve. When fully warmed up, the thermal valve is closed and all the lubricoolant flows through the cooler. The fluid filter is of the spin-on replacement element type. The element should be changed in accordance with the Maintenance Schedule on page 24. A drain valve is provided to drain the lubricoolant at change-out time.

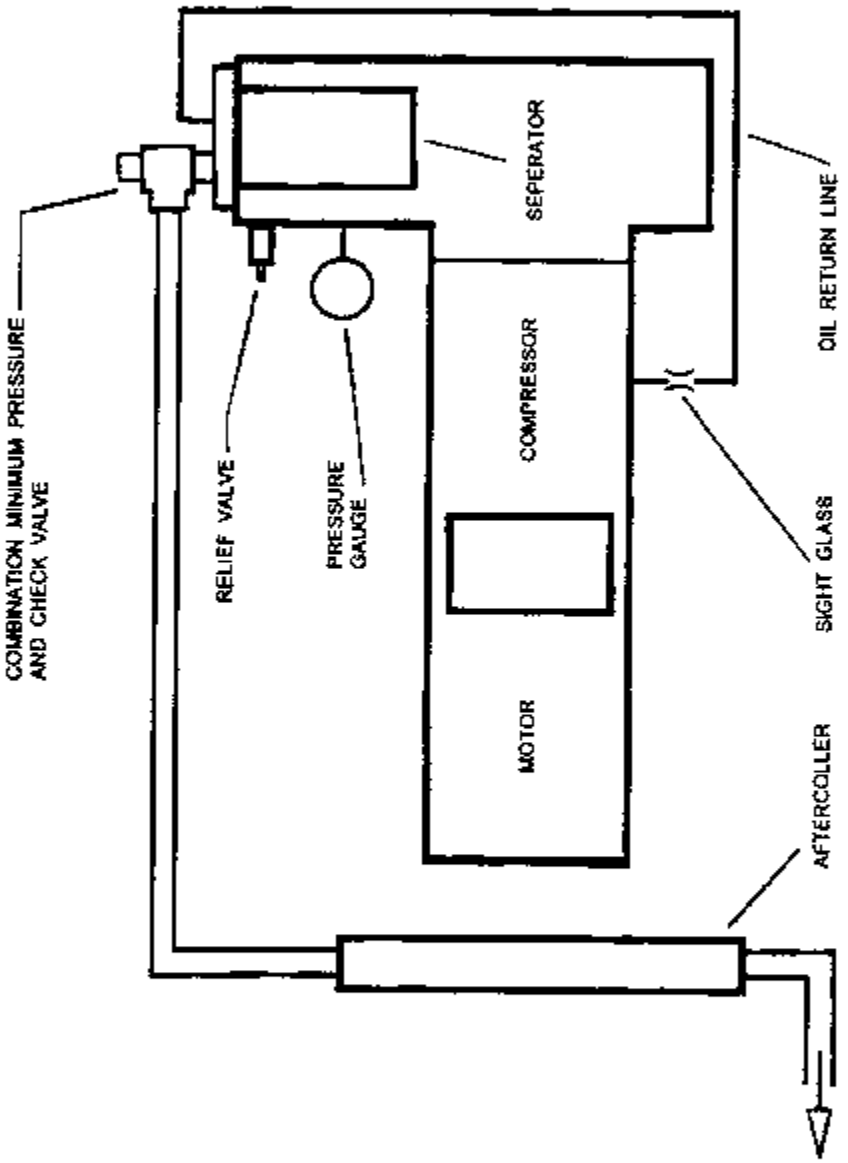
COOLING SYSTEM SCHEMATIC



3.6 COMPRESSOR DISCHARGE SYSTEM

The compressor unit discharges a mixture of compressed air and lubricoolant directly into the oil separation tank where it accomplishes the following three functions: A) Primary Separation - by change of direction and reduction of velocity, which allow the heavier droplets of lubricoolant to fall. B) Serves as the lubricoolant sump - by collecting the hot lubricoolant, prior to re-circulation through the cooling system. C) Houses the final oil separation element - a replaceable, multi-layered, multi-stage coalescing element with pleated initial stage for reduced velocity, improved separation performance and extended service life. Separated oil is returned to the compressor oil system via a small diameter return line, or scavenger tube. A sight gauge is provided to monitor the lubricoolant level in the oil separation tank. A capped oil fill port is provided to keep the oil at the proper level and to refill the system after changing the lubricoolant. WARNING: Do not remove caps, plugs or other components or connections while the compressor is running or pressurized. Shut compressor off, open and lock electrical disconnect and relieve all pressure before doing so. The oil separation tank is ASME rated for 200 psi (1379 kPa) maximum working pressure. A combination minimum-pressure/check valve in the separator cover assures a minimum pressure of 60 psig (415 kPa) for proper lubricoolant circulation and separation. It prevents reverse flow of compressed air from the auxiliary air receiver and/or the plant air back through the compressor at shutdown or during periods of unloaded operation. A pressure relief valve (located upstream, or on the "wet" side of the separator) is set to open if a control malfunction would allow the pressure to exceed 150 psig (1035 kPa). (High pressure units can be set to operate at control pressures from 175 to 190 psig.) However, since the opening of this valve is noisy and results in hot oil being expelled, a pressure switch has been installed to shut the motor off at 140 psig (190 psi on high pressure units.). The panel-mounted pressure gauge shows the pressure in the oil separation tank only. The compressor discharge temperature gauge is also panel-mounted for ease of record-keeping and trouble-shooting. Normal discharge temperature should be approximately 180-220° F (82-105° C), or about 100° F (55° C above ambient). A switch is provided to shut the motor off if the compressor discharge temperature exceeds 240° F (115° C) in the event of gradual reduction in cooling system efficiency coupled with unattended operation. However, the reaction time of the switch is not rapid enough to stop the compressor in the event of a sudden or complete loss of lubricoolant.

DISCHARGE SYSTEM SCHEMATIC



3.7 STARTER AND ELECTRICAL PARTS

The three-phase electric motor starter supplied with the PALATEK, INC. Plant Air Compressor has a NEMA-1 rated enclosure. This is also is the location of: the control power transformer, the On-Off/Reset-Auto Start selector switch, a control relay, the control pressure switch, the over-pressure shutdown switch and the anti-restart pressure switch. The starter is amp-rated to match the motor power at 230 volts for the 15, 20, and 25 hp machines and 460 volts for the 30 and 40 HP. Overloads must be selected and set to match the motor voltage/full load amp rating, and in the case of 200 volt operation (and 230 volts for the 30 and 40 HP), a larger starter must be specified. The selector switch allows the operator to select "Run" for continuous operation mode wherein the motor runs continuously while the compressor loads and unloads, as required, to match air demand. This mode should be used when there is insufficient compressed air storage capacity relative to air usage, which would cause frequent starts if operating in "Auto Start" mode. The "Off-Reset" position is used to shut the compressor off and to reset the electrical control system following an automatic shutdown due to an over-temperature or over-pressure condition. The "Auto-Start" position allows the compressor to shut down automatically whenever the auxiliary air receiver or plant air system pressure reaches the top ("Cut-out") setting of the control air solenoid valve. This relays a signal to the control pressure switch, thereby cutting off power to the control relay and releasing the motor starter pull-in coil and the motor stops. The motor restarts as soon as the plant air pressure drops to the "cut-in" setting on the pressure switch, provided that the oil separation tank pressure has been relieved via the blowdown valve so that the anti-restart switch is in its normally-closed mode. (This control mode saves power during periods of little or no air usage, and a timer is utilized for motor starts.) The maximum number of starts for the 15 HP, 20 HP, and 25 HP is 6 per hour, 4 per hour for the 30 HP and 40 HP. The over-pressure shutdown switch acts to stop the compressor in the event of control malfunction or improper adjustment in order to prevent the pressure relief valve on the oil separation tank from suddenly opening. The control relay is used to prevent heavy surges of current from passing through the contacts of the pressure switches, thereby greatly improving their reliability. The control power transformer converts power from one phase of the incoming motor power to a lower voltage. This is to minimize the potential for arcing at the contact points of switches or relays, or in the case of accidental contact with live control voltage terminals. The primary (high voltage) incoming power and the secondary (control voltage) circuits are both provided with fuses to minimize the potential for damage due to overloading or short-circuit faults. Always replace fuses with the same size, type and rating.

3.8 INSTRUMENTATION

Each PALATEK, INC. Plant Air Compressor is equipped with a pressure gauge to monitor the oil separation tank pressure. A temperature gauge which senses compressor discharge temperature and an hourmeter for use in scheduling routine maintenance and to balance the number of operating hours on each compressor in a multiple machine installation. Tank-mounted machines also have a receiver pressure gauge in addition to those listed above.

SECTION 4 - INSTALLATION

4.1 RECEIVING

Carefully inspect for any signs of possible shipping damage.

4.2 LOCATION

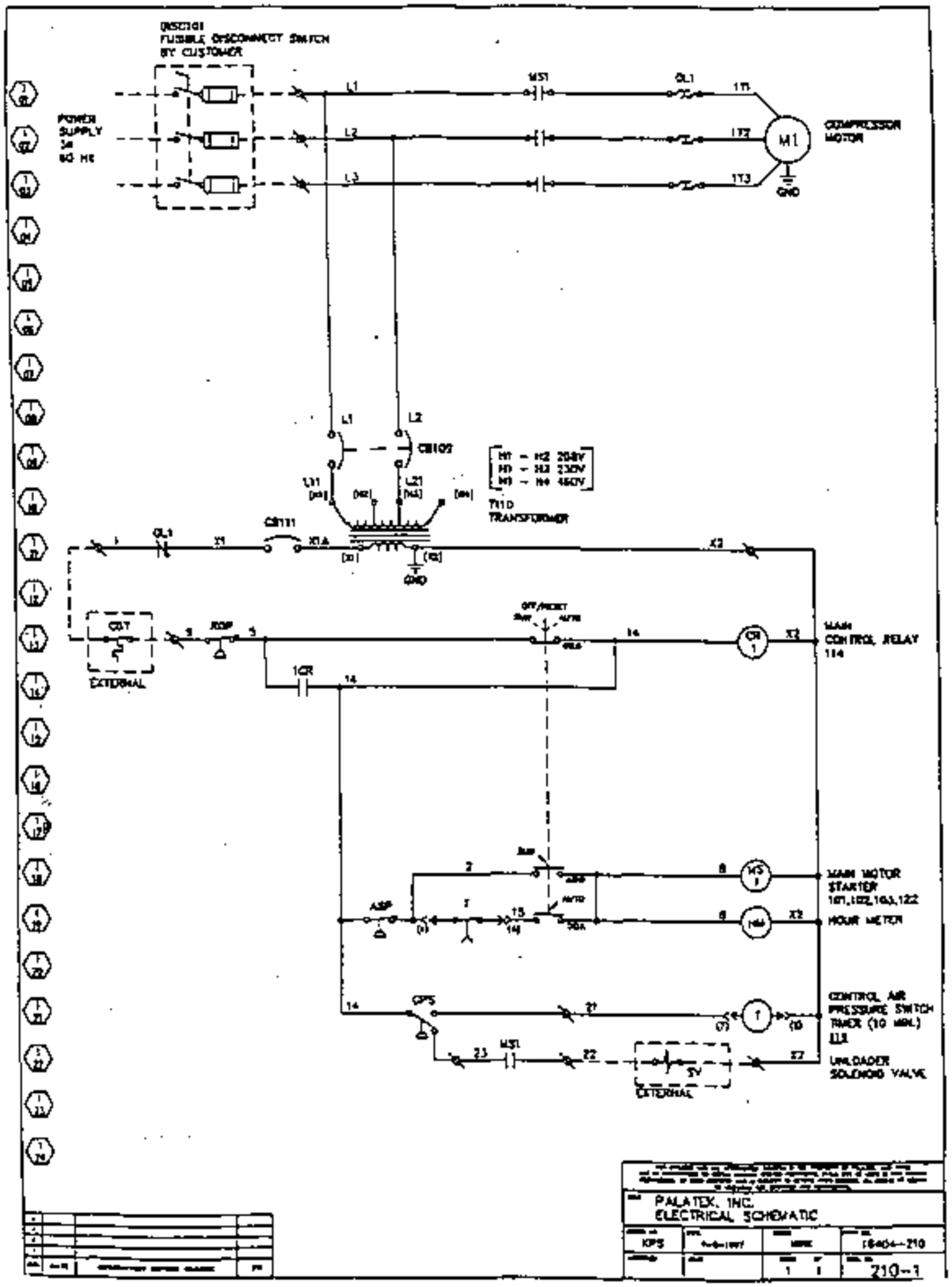
The compressor is designed for indoor operation or protected outdoor site with an ambient temperature range of 35 to 104° F (1 to 40° C). It is important that there be sufficient unobstructed ventilation airflow to prevent re-circulation of hot fan air. The compressor should be in a clean, dry and well lighted area with ample space for maintenance and servicing. Duct the hot air outside if necessary to prevent excessively high ambient temperatures. Below is a listing of heat loads and fan air volumes that must be accommodated to keep machines operating normally. It is possible to utilize this heat for space heating, combustion air pre-heating, product drying, etc., –providing that no additional restriction is imposed upon the compressor cooling fan. Consult the factory for assistance if heat recovery is desired, or if other ambient temperatures are present.

MODEL	15D	20D	25D	25D4	30D7	40D
AIR FLOW (CFM)	1000	2200	2600	2250	2600	5000
HEAT REJECTION BTU/HR	34,700	51,600	68,500	59,200	71,600	106,000

Locate compressor as close as practical to where the compressed air is to be utilized. This saves piping and reduces power requirements necessary to transmit compressed air long distances.

4.3 SUPPORT

The compressor may be mounted on any level surface capable of supporting its weight. In the case of tank-mounted machines, be sure to consider the possibility of the auxiliary receiver filling with water in the event of inadequate condensate drainage. It is recommended that the machine be bolted to the floor to prevent movement due to external forces, which could result in damage to electrical wiring and/or compressed air piping.



4.5 WIRING DIAGRAM, FULL VOLTAGE STARTER (STANDARD)

4.4 ELECTRICAL CONNECTIONS

Electrical wiring to the motor starter must be done by a qualified electrician in accordance with all pertinent Federal, State and Local codes concerning isolation switches, short circuit protection, grounding, etc. Check all electrical connections for tightness. Check incoming voltage to be sure the motor is properly connected to match the starter and the overloads are properly set. Open, lock out, and tag the Main Power Disconnect switch, then disconnect the three motor leads from the overload section of the starter. Close the Main Disconnect and energize the electrical control circuit to be sure that the starter coil pulls in. De-energize the control circuit, open main disconnect and remove one lead (#1 or #9) from the compressor discharge high temperature switch. Reclose the Main Disconnect and attempt to energize the control circuit and pull in motor starter coil. Removing one wire from the normally closed temperature switch will emulate an over-temperature condition, i.e., open contacts, and the starter coil should not pull in. Replace the disconnected temperature switch wire and repeat this procedure with the over-pressure switch. These are the initial checks which can be run with the motor disconnected.

Open main power disconnect and tag while re-connecting the motor leads to the starter. Once the motor has been re-connected, the compressor is ready to run, but motor direction of rotation MUST be checked prior to normal operation (see section 5.2 initial start).

4.6 DIRECTION OF ROTATION

Once the control circuit has been checked, all piping installed, and the compressor lubricant level has been checked - reconnect the three motor leads by momentarily moving the selector switch to the "Run" position and then back to the "Off/Reset" position to check for correct compressor rotation. Rotation should be as follows when viewed from the oil separation/sump tank end:

Counter - Clockwise	Clockwise
20D	15D
25D4	H15D
H25D	H20D
40D	25D
	H30D7
	30D7
	H40D

Note: In all cases, the fan air should blow out, away from the motor.

4.7 COMPRESSED AIR PIPING

Connect the compressor to the plant air system with a flexible connector rated for at least 200 psi (1400 kPa) and 275° F (135° C). Support the piping to insure that no pipe stress is transmitted to any compressor component. Piping should be as large as possible to provide extra air storage capacity and minimize transmission losses. Air dryers and filters may be required. Piping should be in a "closed loop" configuration, sloping to drain points, with service air outlets taken from the side, or preferably, the top of the pipe. Point-of-use filters, coalescers, regulators and/or lubricators are often required. (Note: never use plastic air piping or plastic bowls on filters or lubricators. See Section 1.) Inspect piping and air hoses frequently for leaks.

4.8 ADDITIONAL HELP

By supplying the cleanest, coolest air available to the compressor inlet, maintenance and power consumption will be minimized. The heavy duty air filter is locally mounted with provision for remote connection. Use a flexible connector at the filter inlet. (15, 20, 25 , 30 and 40 = 3" diameter.) Keep the piping as short and as straight as possible. Intake duct must be the same size as filter inlet, or larger, to accommodate long runs and several bends. Support intake ducting properly to prevent its weight being transmitted to the compressor air filter. For multiple machine installation, contact the factory for special sequencing controls that can reduce power cost during part-load operation. Fan air ducted outside will reduce the machine noise somewhat, but care must be taken not to impose additional restriction to the fan air flow. With proper attention to the ducting, this fan air can also be utilized for heating purposes.

SECTION 5 - OPERATION

5.1 INTRODUCTION

Read this entire Operator's Manual to familiarize yourself with the PALATEK, INC. Plant Air Compressor, giving special attention to the SECTION 1 - SAFETY.

5.2 INITIAL START

1. Open main disconnect to be sure there is no power to the compressor.
2. Review all the steps covered in Section 4 - INSTALLATION to be certain all instructions have been complied with.
3. Inspect for any visible signs of damage that could have occurred during installation.
4. Check lubricoolant level. Tighten oil-fill cap.
5. Close main disconnect.
6. Jog motor (move selector switch to the "Run" position momentarily, then immediately back to "Off/Reset") to check direction of rotation - looking at the fan from the tank end, rotation should be as indicated on page 22. If rotation is wrong, open main disconnect and then exchange any two of the three incoming leads L1, L2 or L3.

   CAUTION: Reverse rotation will cause damage that is not covered by warranty. Rotation must be checked whenever the compressor has been moved to a new location, or after any change or reconnection of the main electrical wiring.

7. After closing the starter cover door, close the main disconnect and start the compressor in either the "Run" or "Auto Start/Stop mode.
8. With service air valve closed, allow machine to pump up to normal operating pressures and observe operation of automatic controls, and check for any possible leaks.
9. Open service air valve, check operation throughout a range of pressures and observe operating temperatures.
10. Turn selector switch to "Off-Reset" and check lubricoolant level after it has been allowed to settle for a few minutes. If it is necessary to add lubricoolant, be sure to relieve all oil separation tank pressure prior to removing fill cap.
11. If unloaded pressure is incorrect, re-adjust pressure switch settings as required.

5.3 NORMAL OPERATION

1. Open and lock out main power disconnect.
2. Check lubricoolant level. Refill if necessary.
3. Reclose disconnect switch.
4. Start machine in either "Run" or "Auto Start/Stop" mode.
5. Fully open service air valve.
6. Observe pressures and temperature. If unloading pressure is incorrect, re-adjust pressure switch. If temperature is incorrect, refer to Section 6.7 - TROUBLE SHOOTING.

5.4 SHUTDOWN

To stop compressor, move selector switch to "off-Reset" position. If motor does not stop, open disconnect switch, then repair as necessary.

5.5 RESTARTS

After a power failure, open and lock out the main disconnect, check all fuses and move selector switch to "Off-Reset" position. Close disconnect switch and follow Normal Operation start-up procedure. Following a shutdown caused by either of the protective switches, open and lock out the main disconnect switch. Correct the cause of shutdown and reset electrical controls. Then close the disconnect and follow Normal Operation start-up procedure. If the overload has tripped the motor off, first open and lock out the disconnect, then push the starter overload reset button and check to be sure it is set properly and correctly adjusted. NOTE: Never adjust the overload higher than indicated by starter manufacturer to match motor nameplate amperage rating; an unsafe operating condition will result!

SECTION 6 - MAINTENANCE

6.1 SCHEDULE

Daily -

1. Check lubricoolant level prior to start-up.
2. Drain condensate from auxiliary receiver, if so equipped.
3. Observe the instrument panel gauges.
4. Keeping a daily log of all operating parameters is recommended.

First 50 hours -

1 Change compressor lubricoolant filter.

Every 1000 hours -

1. Change compressor lubricoolant filter.
2. Take sample of lubricoolant and submit for analysis if operating in severe environment.

When using Palasyn 45: Every 4000 hours or once a year, whichever occurs first -

1. Drain lubricoolant and replace with a fresh charge. Inspect interior of tank. Clean tank if any build-up of deposits are present. This may have to be done sooner depending upon results of lubricoolant analysis. Replace air/oil separator element and the air filter element.

When using Pallube 32 or AFX Ideal 32: Every 8,000 hours -

1. Change Pallube 32 lubricoolant and inspect tank interior. Replace air/oil separator element. Replace air and oil filter.

As Required -

1. Clean or replace air filter element #00521-065 for 15 to 40 HP; 15 - 25 HP units shipped before 9/1/97 use P/N 00521-007SP, unless they are equipped with a heavy duty air filter.
2. Clean exterior surfaces of oil cooler/aftercooler.
3. Lubricate motor. (Refer to motor manufacturer's instructions.)
4. Lubricate coupling (15HP only) at least annually.

6.2 OIL FILTER

1. Open and lock-out main disconnect.
2. Loosen and remove oil filter (spin on) type.
3. Replace element with new PALATEK, INC. oil filter; P/N 00520-017. If oil filter is not directly connected to stator housing, use #00520-012 (prior to 1/98).
4. Check for leaks after compressor is up to temperature.

6.3 AIR FILTER

1. Open and lock out main disconnect.
2. Remove wing nut from air filter.
3. Carefully remove cover.
4. Remove air filter element, taking care to prevent dirt which has collected on the outer surface of the element from falling into the open compressor inlet. Blow or wipe dust from inside of housing.
   NOTE: To minimize down-time, it is recommended that a spare element be kept on hand. Check model and serial number for proper element number.
5. Replace element as needed. When reinstalling the element, be sure it is seated squarely against both the base and the lid so that dust cannot bypass the filter media.

6.4 AIR/OIL SEPARATOR

1. Open and lock out main disconnect.
2. Disconnect main air line to aftercooler.
3. Disconnect control air.
4. Disconnect oil return scavenge line.
5. Unbolt cover in a diagonal criss-cross pattern.
6. Remove cover and separator element.
7. Drain lubricoolant and clean interior of oil separation tank if element appears dirty.
8. Clean flange and cover surfaces.
9. Coat surfaces of gasket lightly with lithium grease.
10. Install new element.
11. Replace cover.

12. Tighten all cover bolts progressively in a diagonal criss-cross pattern until all bolts are properly torqued to 50ft lbs for 3/8" bolts and125 ft lbs for 1/2" bolts. These separator cover bolts are a special high-strength alloy, designated "SAE GRADE 8." Only grade 8 bolts are allowed. No substitutions!.
13. Reconnect all tubing.

6.5 BOLT TORQUE SPECS

TORQUE SPECIFICATIONS:

GRADE 5 BOLTS 3/8" 38 ft. lb.

GRADE 8 BOLTS 3/8" 50 ft. lb.

GRADE 5 BOLTS 1/2" 85 ft. lb.

GRADE 8 BOLTS 1/2" 125 ft. lb.

6.6 PRESSURE ADJUSTMENT

Only the throttling and unload or cut-out (automatic stop) pressures can be adjusted. If the plant air service main pressure falls when the compressor is running at full load, more air is being used than the compressor can supply.

To raise the pressure at which intake throttling occurs, loosen jam nut on control regulator valve and turn adjustment screw clockwise. To lower, turn counter-clockwise. Re-tighten jam nut when pressure is satisfactory.

If no throttling is desired, that is, to achieve strictly "Full Load/Shut Off" in the "Auto" mode, merely continue to raise the throttling pressure until it is just higher than the cut-out setting of the pressure switch, (where it will act as a back-up). Unload or shut-off pressure settings are modified by adjustments of the pressure switch. Turn adjusting screw clockwise to raise setting; turn counter-clock-wise to reduce it.

NOTE: For "Continuous Run" mode, it is best to keep control settings as low as possible - consistent with plant air requirements. Higher pressure settings when in the "Auto" mode should result in longer shut off periods (to save kilowatts) and fewer starts (to minimize motor "in-rush" heating).

6.7 TROUBLESHOOTING

SYMPTOM	PROBABLE CAUSES AND REMEDY
A. Machine will not start	1. Main disconnect switch open. Close switch. 2. Line fuse(s) blown. Replace fuse(s). 3a. Control transformer fuse(s) blown. Replace fuse(s). 3b. Circuit breaker tripped. Reset circuit breaker 4. Motor starter overloads tripped. Reset. Should trouble persist, check sizing and adjustment of overloads. Check motor starter contacts are functioning properly. 5. Low incoming line voltage. Check voltage. Should voltage check low, consult your power company. 6. Defective discharge temperature switch. see section B-4. 7. Faulty control relay. Replace 8. Faulty selector switch. Repair or replace. 9. Power failure; see start-up. 10. Unit locked up: Replace

SYMPTOM	PROBABLE CAUSE AND REMEDY
B. Machine shuts down	1. Loss of control voltage. Reset overload relay. If trouble persists, make sure that line pressure does not exceed the operating pressure of your machine. 2. Low incoming voltage. Consult power company. 3. Excessive operating pressure. Readjust control pressure switch and control regulator.

TROUBLESHOOTING

SYMPTOM	PROBABLE CAUSES AND REMEDY
B. Machine Shuts Down	4. Discharge temperature switch open. Monitor temperature gauge readings: normal operating pressure discharge temperature should be 160-220° F (71-104° C); switch is set to trip at 235-245° F (112-118°C). a. Cooling air flow restricted. Remove restriction b. Ambient temperature is too high. Provide sufficient ventilation.. Make sure cooler is clean. c. Low lubricoolant level. Add fluid. d. Clogged lubricoolant filter. Change Filter. e. Thermal valve not functioning properly. Replace valve. f. Defective discharge temperature switch. Replace. Also check for an open circuit.
C. Machine Will Not Build Up Full Discharge Pressure	1. Air demand too great. Repair system air leaks. Add compressor capacity to satisfy demand. 2. Dirty air filter. Change or clean air filter element if required. 3. Control pressure regulator out of adjustment Adjust regulator by loosening lock nut and turning screw. 4. Defective control regulator. Check diaphragm and replace if necessary. 5. Solenoid valve not operating properly. Check wiring, replace coil. 6. Failed coupling. Replace flex element and coupling hubs if needed.

TROUBLESHOOTING, CONT.

SYMPTOM	PROBABLE CAUSES AND REMEDY
B. Machine Shuts Down	4. Discharge temperature switch open Monitor temperature gauge readings: normal operating pressure discharge temperature should be 160-220° F (71-104° C); switch is set to trip at 235-245° F (112-118°C).
	a. Cooling air flow restricted. Remove restriction.
	b. Ambient temperature is too high. Provide sufficient ventilation. Make sure cooler is clean.
	c. Low lubricoolant level. Add fluid.
	d. Clogged lubricoolant filter. Change filter.
	e. Thermal valve not functioning properly. Replace valve.
	f. Defective discharge temperature switch. Replace.

SYMPTOM	PROBABLE CAUSES AND REMEDY
C. Machine Will Not Build Up Full Discharge Pressure	
	1. Air demand too great. Repair system air leaks. Add compressor capacity to satisfy demand.
	2. Dirty air filter. Change or clean air filter element if required.
	3. Control pressure regulator out of adjustment. Adjust regulator by loosening lock nut and turning screw in 1/2 to 1 turn.
	4. Defective control regulator. Check diaphragm and replace if necessary.
	5. Solenoid valve not operating properly. Check wiring, replace coil.

SECTION 7 - PARTS LISTING

7.1 PARTS ORDERING

Parts should be ordered from the nearest full-service Distributor or Factory Authorized Compressor Center. If parts cannot be obtained locally, contact the factory.

PALATEK, INC.
3501 W. Dunes Hwy.
Michigan City, IN 46360
Telephone: 219-874-2497 FAX: 219-872-5043
E-mail: pal@mail.netnitco.net

When ordering parts, be prepared to indicate the MODEL and SERIAL NUMBER of the machine(s). This can be obtained from the Bill of Lading or the Serial Number Plate. Standard commercial hardware items such as fasteners or fittings may not be listed since it is usually more convenient and economical to obtain such items locally.

7.2 RECOMMENDED SPARE PARTS

DESCRIPTION	PART NO.	QUANTITY
**Element, Air Filter (15, 20, 25, 25D4, 30D7, 40D)	00521-065	2
+ Element, Oil Filter Before 9/97	00520-012	3
+ If oil filter is horizontal (new style stator) - consult factory with serial #	00520-017	3
Element, Air/Oil Separator (15, 20, 25, 25D4, 30D7)	08000-019	1
Element, Air/Oil Separator (40D)	08000-009	1
Valve, Solenoid, 2 way, 115 vac	40529-002	1
Valve, Control Regulator	09661-002	1
Valve, Pressure Relief, 150 psi	03100-001	1
O Ring, Inlet to Stator	90660-344	1
MPV (Repair Kit) 15 hp	17701-002	
MPV (Repair Kit) (20,25,30, 40)	17701-001	1
Switch, Compressor Temperature	00438-008	1
Switch, Pressure Anti-Restart	09344-001	1
Switch, Control Pressure	09345-007	1
Switch, Compressor Overpressure	09344-003	1
Seal, Shaft (Repair Kit)	K09147-175	1
Relay, Timer, 10 minutes	69500-120	1
Fuse, Primary 230V/460V	00715-014	2
Fuse, Secondary 230V/460V	00715-015	1
Element Thermostat	09505-004	1
***Palasyn 45 Lubricoolant (5 Gal)	00061-005A	1
***Pallube 32 Lubricoolant (5 Gal)	00064-005A	1
***AFX Ideal 32 Lubricoolant (5 Gal)	00051-005A	1
**15-25HP units shipped before 9/1/97	00520-007SP	2

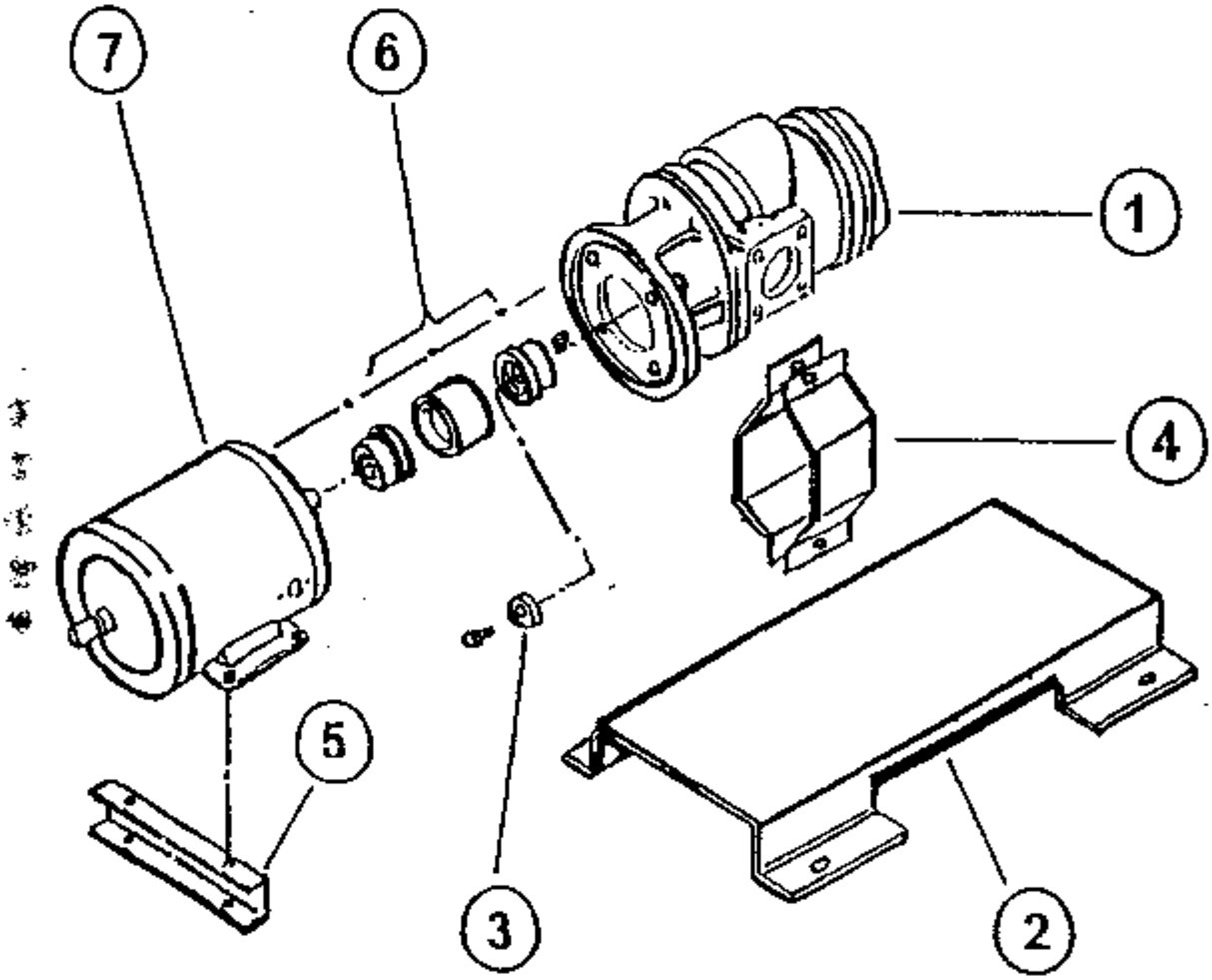
QUANTITIES BASED ON 2000 HOURS PER YEAR

SCREW COMPRESSOR AIR-END EXCHANGE PROGRAM

After the warranty period has expired a factory re-manufactured air-end can be purchased on an exchange basis. All bearings and seals have been replaced. All other parts not meeting our quality standards are also replaced. The air end is then factory tested prior to shipment. A re-manufactured air-end has a warranty which is 24 months from start up date or 27 months from date of shipment in accordance with the terms set forth in the new air-end warranty found on page 43.

7.3 MOTOR, COMPRESSOR AND MOUNTING PARTS – BASE MOUNTED

KEY	DESCRIPTION	QTY	MODEL 15D	MODEL 20D	MODEL 25D	MODEL 25D4	MODEL 30D7	MODEL 40D
1	COMPRESSOR	1	50000-725	50000-720	50000-725	50000-727	50000-735	50000-740
1A	SHAFT SEAL	1	09147-175	09147-175	09147-175	09147-175	09147-175	09147-175
1B	SLEEVE	1	00371-003	00371-003	00371-003	00371-003	00371-003	00371-003
1C	SEAL REPAIR KIT	1	K09147-175	K09147-175	K09147-175	K09147-175	K09147-175	K09147-175
2	BASE	1	00144-025	00144-025	00144-025	00144-025	00144-025	00144-025
3	RETAINER	1	01208-005	01208-005	01208-005	01208-005	01208-005	01208-005
4	COUPLING GUARD	2	00697-010	00697-010	00697-010	00697-010	00697-009	00697-009
5	SUPPORT, MOTOR	1	18339-008	18339-008	18339-008	18339-004	18339-004	08339-001
6	COUPLING	1	18515-005	18516-025	18516-025	18516-025	18516-025	18516-025
6A	COUPLING ELEMENT	1	N/A	08516-052	08516-052	08516-052	08516-052	08516-052
7	MOTOR 230/460	1	08741-015	08741-020	08741-025	08741-425	08741-230	08741-040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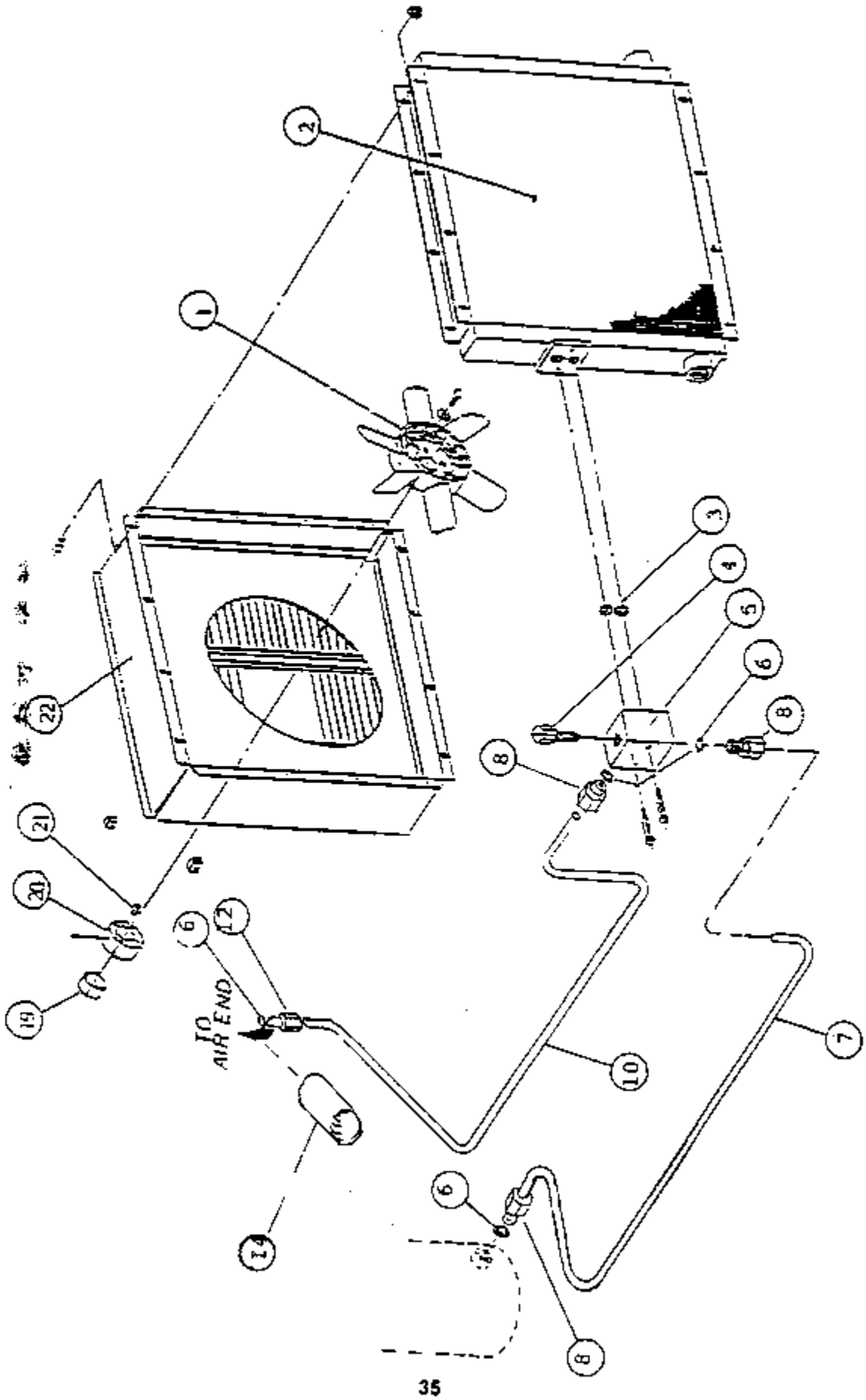
7.4 LUBRICATION & COOLING SYSTEM

KEY	DESCRIPTION	QTY	MODEL 15D	MODEL 20D	MODEL 25D	MODEL 25D4	MODEL 30D7	MODEL 40D
1	FAN, COOLING	1	08080-016	08080-017	08080-025	08080-018	08080-031	08080-042
2	OIL COOLER/ AFTERCOOLER	1	07711-202	07711-202	07711-202	07711-202	07711-202	07711-203
3	'O' RING, VITON	2	90659-121	90659-121	90659-121	90659-121	90659-121	90659-121
4	THERMOSTAT	1	09505-004	09505-004	09505-004	09505-004	09505-004	09505-004
5	HOUSING, THERMOSTAT	1	08207-055	08207-055	08207-055	08207-055	08207-055	08207-055
6	'O' RING, 7/8 VITON	2	00660-010	00660-010	00660-010	00660-010	00660-010	00660-010
7	TUBE SUMP TO THERMOSTAT	1	09612-015	09612-020	09612-025	09612-026	09612-025	09612-042
8	CONN., TUBE, SUMP	1	80120-010	80120-010	80120-010	80120-010	80220-010	80220-012
9	'O' RING, 1" VITON	1	00660-010	00660-010	00660-010	00660-010	00660-010	00660-012
10	TUBE, THERMOSTAT TO UNIT	1	09612-016	09612-021	09612-027	09612-028	09612-027	09612-043
12	CONN., UNIT	1	80120-012	80120-012	80120-012	80120-012	80120-012	80220-012
13	HEAD, OIL FILTER+	1	08415-003	08415-003	08415-003	08415-003	08415-003	08415-003
14	ELEMENT, OIL FILTER	1	00520-017	00520-017	00520-017	00520-017	00520-017	00520-017
15	ELBOW, ¾" MALE	1	96399-012	96399-012	96399-012	96399-012	96399-012	96399-012
16	SPACER, FAN	1	00418-002	00418-002	00418-006	N/A	00418-003	N/A
17	HUB, FAN	1	00851-001	00851-001	00851-001	00851-002	00851-002	00851-002
18	KEY, FAN	1	90947-252	90947-252	00858-001	00858-001	00858-001	00858-001
19	SHROUD & FANGUARD	1	13400-101	13400-101	13400-101	13400-101	13400-101	13400-102

N/A NOT APPLICABLE

+ If equipped with oil filter head (#08415-003), use oil filter #00520-012.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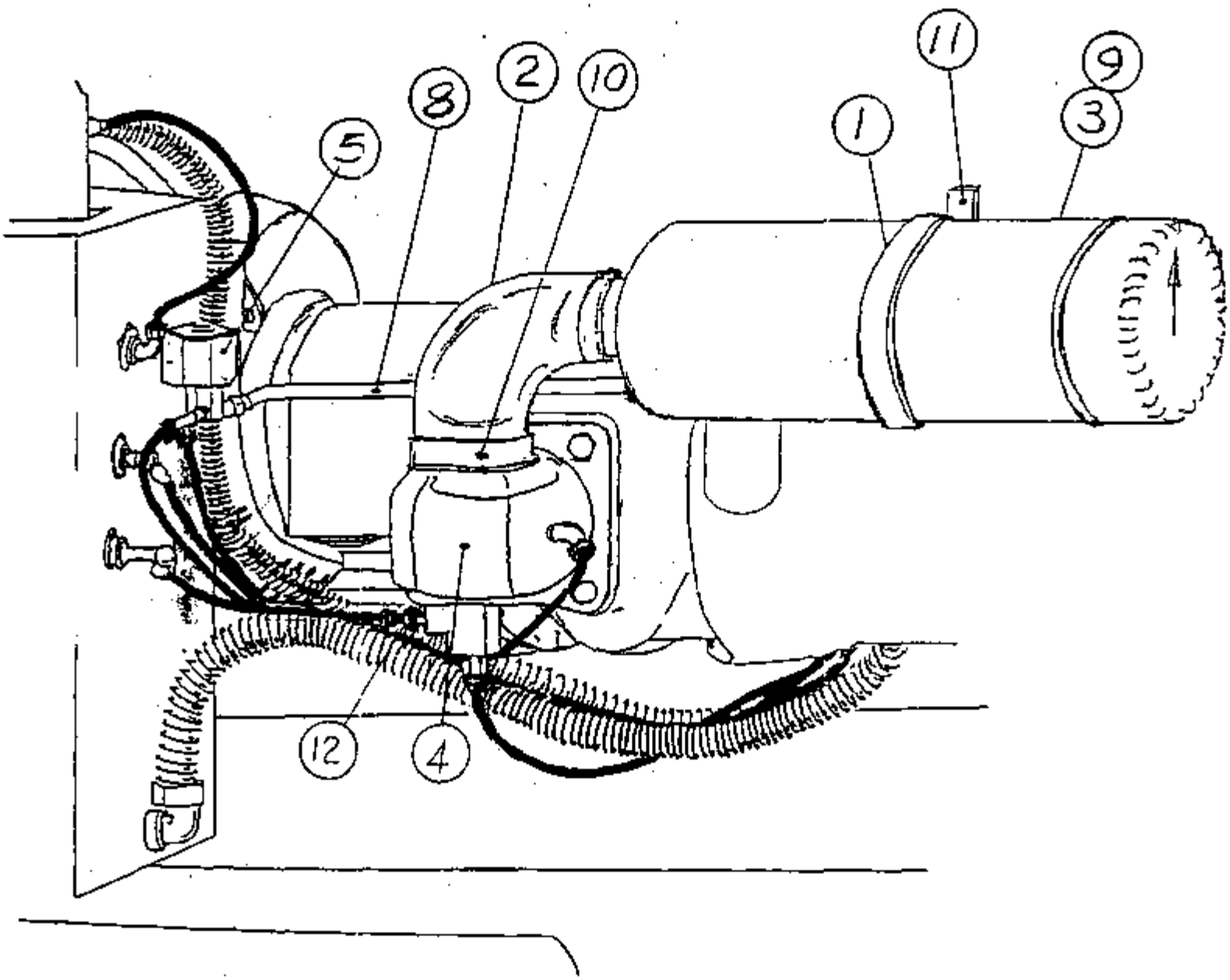
7.5 INTAKE AND CAPACITY CONTROL SYSTEM

ITEM	DESCRIPTION	QTY	MODEL 15D	MODEL 20D	MODEL 25D	MODEL 25D4	MODEL 30D7	MODEL 40D
1	BAND, MOUNTING	1	00131-065	00131-065	00131-065	00131-065	00131-065	00131-065
2	ELBOW, RUBBER	1	91411-005	91411-005	91411-005	91411-005	91411-005	91411-005
3	ELEMENT, AIR FILTER	SP	00521-065	00521-065	00521-065	00521-065	00521-065	00521-065
4	VALVE, INTAKE	1	09790-007	09790-007	09790-007	09790-007	09790-007	09790-007
5	VALVE, BLOWDOWN	1	40529-002	40529-002	40529-002	40529-002	40529-002	40529-002
6	VALVE, REGULATOR (N.I.)	1	09661-002	09661-002	09661-002	09661-002	09661-002	09661-002
7								
8	TUBE, CONTROL (FROM TNK)	1	90082-006	90082-006	90082-006	90082-006	90082-006	90082-006
9	ASSEMBLY, FILTER, AIR	1	28174-065	28174-065	28174-065	28174-065	28174-065	28174-065
10	CLAMP, HOSE	2	92320-128	92320-128	92320-128	92320-128	92320-128	92320-128
11	BRACKET	1	00216-014	00216-014	00216-014	00216-014	00216-014	00216-014
12	ORIFICE	1	03100-063	03100-063	03100-063	03100-063	03100-063	03100-063

N.I. - NOT ILLUSTRATED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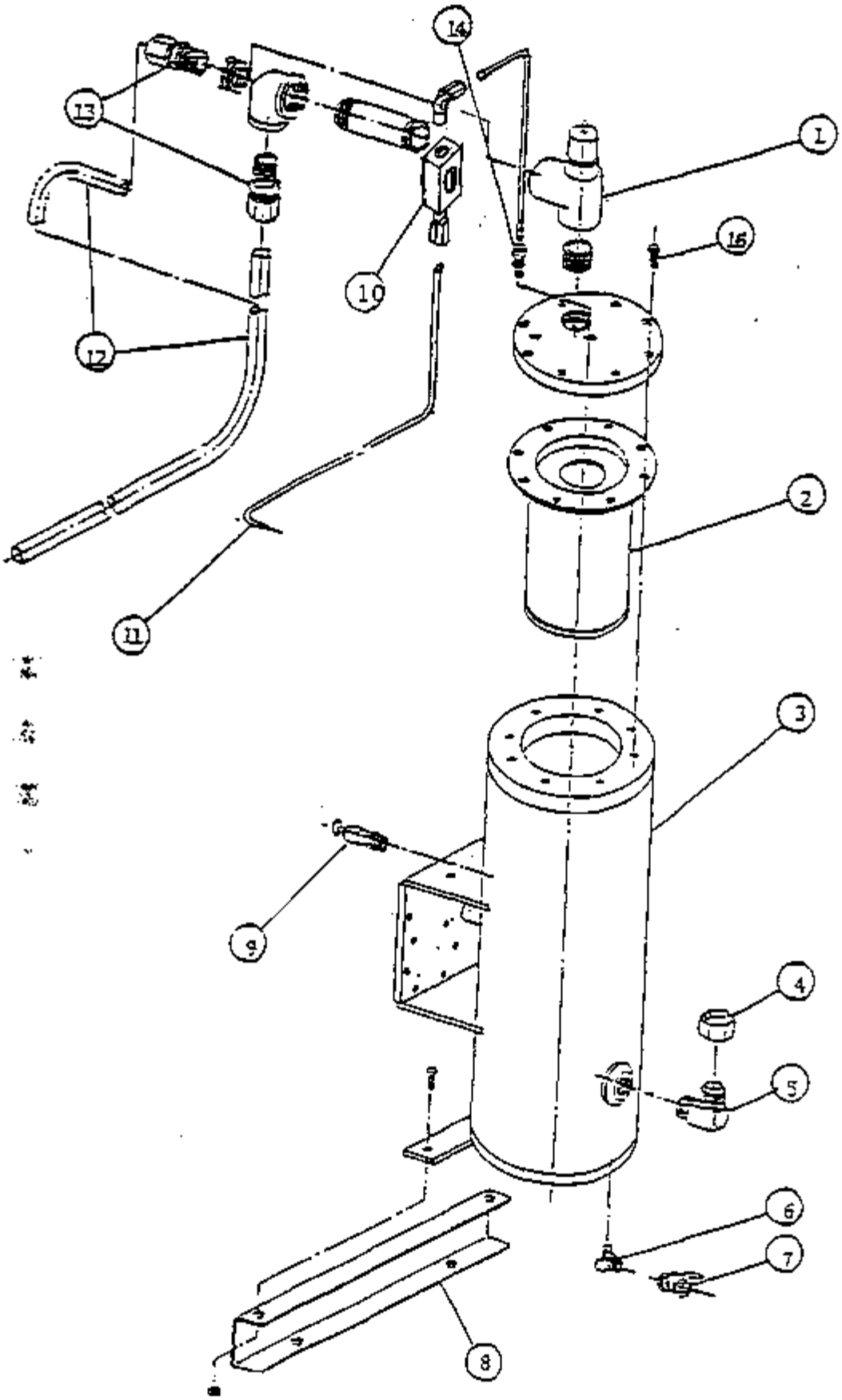
7.6 DISCHARGE SYSTEM

KEY	DESCRIPTION	QTY	MODEL 15D	MODEL 20D	MODEL 25D	MODEL 25D4	MODEL 30D7	MODEL 40D
1	VALVE, MINIMUM PRESSURE	1	09610-002	09610-001	09610-001	09610-001	09610-001	09610-001
2	SEPARATOR	1	08000-019	08000-019	08000-019	08000-019	08000-019	08000-009
3	TANK, SUMP DISCH.-SUMP GASKET	1 1	03448-028 00633-001	03448-028 00633-001	03448-028 00633-001	03448-028 00633-001	03448-028 00633-001	03448-043 00633-001
4	CAP, VENTED	1	07255-016	07255-016	07255-016	07155-016	07255-016	07255-016
5	ELBOW, OIL SIGHT	1	17254-016	17254-016	17254-016	17254-016	17254-016	17254-016
6	ELBOW, ¼" MALE	1	96399-004	96399-004	96399-004	96399-004	96399-004	96399-004
7	VALVE, OIL DRAIN	1	95784-004	95784-004	95784-004	95784-004	95784-004	95784-004
8	SPACER CHANNEL	1	N/A	08399-002	N/A	08399-002	N/A	N/A
9	VALVE, RELIEF 150 PSI	1	03100-001	03100-001	03100-001	03100-001	03100-001	03100-001
9A	VALVE, RELIEF 175 PSI	1	03100-003	03100-001	03100-003	03100-003	03100-003	03100-003
9B	VALVE, RELIEF 200 PSI	1	03100-008	03100-008	03100-008	03100-008	03100-008	03100-008
10	KIT-OIL RETURN SIGHT GLASS	1	29349-041	29349-041	29349-064	29349-064	29349-064	29349-064
10A	ORIFICE, OIL RETURN	1	03001-041	03001-041	03001-064	03001-064	03001-064	03001-064
10B	STRAINER	1	18577-001	18577-001	18577-001	18577-001	18577-001	18577-001
10C	SIGHT GLASS	1	09349-001	09349-001	09349-001	09349-001	09349-001	09349-001
10D	ADAPTER	1	00023-001	00023-001	00023-001	00023-001	00023-001	00023-001
11	TUBE, OIL RETURN	1	09602-011	09602-011	09602-011	09602-011	09602-013	09602-012
12	TUBE, MINIMUM PRESSURE VALVE TO AFTERCOOLER	1	09600-126	09600-112	09600-122	09616-254	09600-122	09600-048
13	CONNECTOR	1	96363-160	96363-161	96363-161	96363-161	96363-161	96363-202
14	FITTING, SIPHON	1	03286-003	03286-003	03286-003	03286-003	03286-003	03286-003
15	ELBOW, AC (N.I.)	1	96390-160	96390-161	96390-161	96390-161	96390-161	96390-202
18	BOLT, GRD 5 OR 8	8	3/8 X 1 1/4	3/8 X 1 1/4	3/8 X 1 1/4	1/2 X 1 1/2	1/2 X 1 1/2	1/2 X 1 1/2

N/A NOT APPLICABLE
N.I. NOT ILLUSTRATED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7.7 GAUGE PANEL & ELECTRICAL PARTS

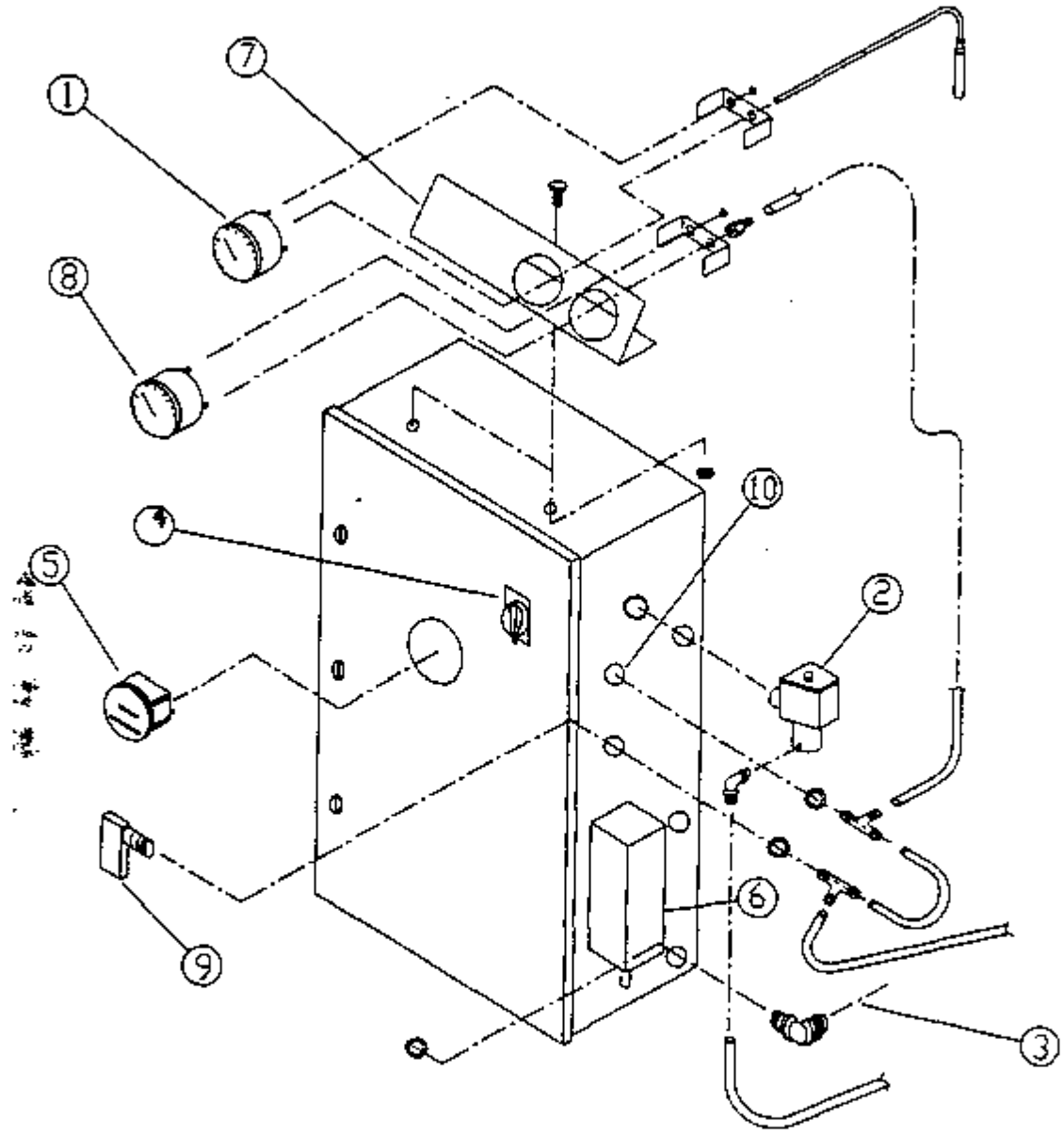
KEY	DESCRIPTION	QTY	MODEL 15D	MODEL 20D	MODEL 25D	MODEL 25D4	MODEL 30D7	MODEL 40D
1	GAUGE, TEMPERATURE	1	08312-001	08312-001	08312-001	08312-001	08312-001	08312-001
2	SOLENOID VALVE	1	40529-002	40529-002	40529-002	40529-002	40529-002	40529-002
3	SWITCH CDT 120V	1	00438-008	00438-008	00438-008	00438-008	00438-008	00438-008
4	SWITCH 3-POSITION	1	00701-795	00701-795	00701-795	00701-795	00701-795	00701-795
5	HOURMETER AC 120V	1	00735-120	00735-120	00735-120	00735-120	00735-120	00735-120
6	SWITCH, CONTROL PRESSURE	1	09345-007	09345-007	09345-007	09345-007	09345-007	09345-007
7	PANEL 2 GAUGE	1	00944-002	00944-002	00944-002	00944-002	00944-002	00944-002
7A	PANEL 3 GAUGE	1	00944-003	00944-003	00944-003	00944-003	00944-003	00944-003
8	GAUGE, PRESSURE	1	09174-020	09174-020	09174-020	09174-020	09174-020	09174-020
9	SWITCH, PRESSURE ANTI-START	1	09344-001	09344-001	09344-001	09344-001	09344-001	09344-001
10	SWITCH, OVER PRESSURE	1	09344-003	09344-003	09344-003	09344-003	09344-003	09344-003
	STARTER ASSEMBLY	1	C/F	C/F	C/F	C/F	C/F	C/F

C/F CONSULT FACTORY

OPTIONAL GAUGES:

LINE PRESSURE GAUGE - 09174-020
DIFFERENTIAL INDICATORS.

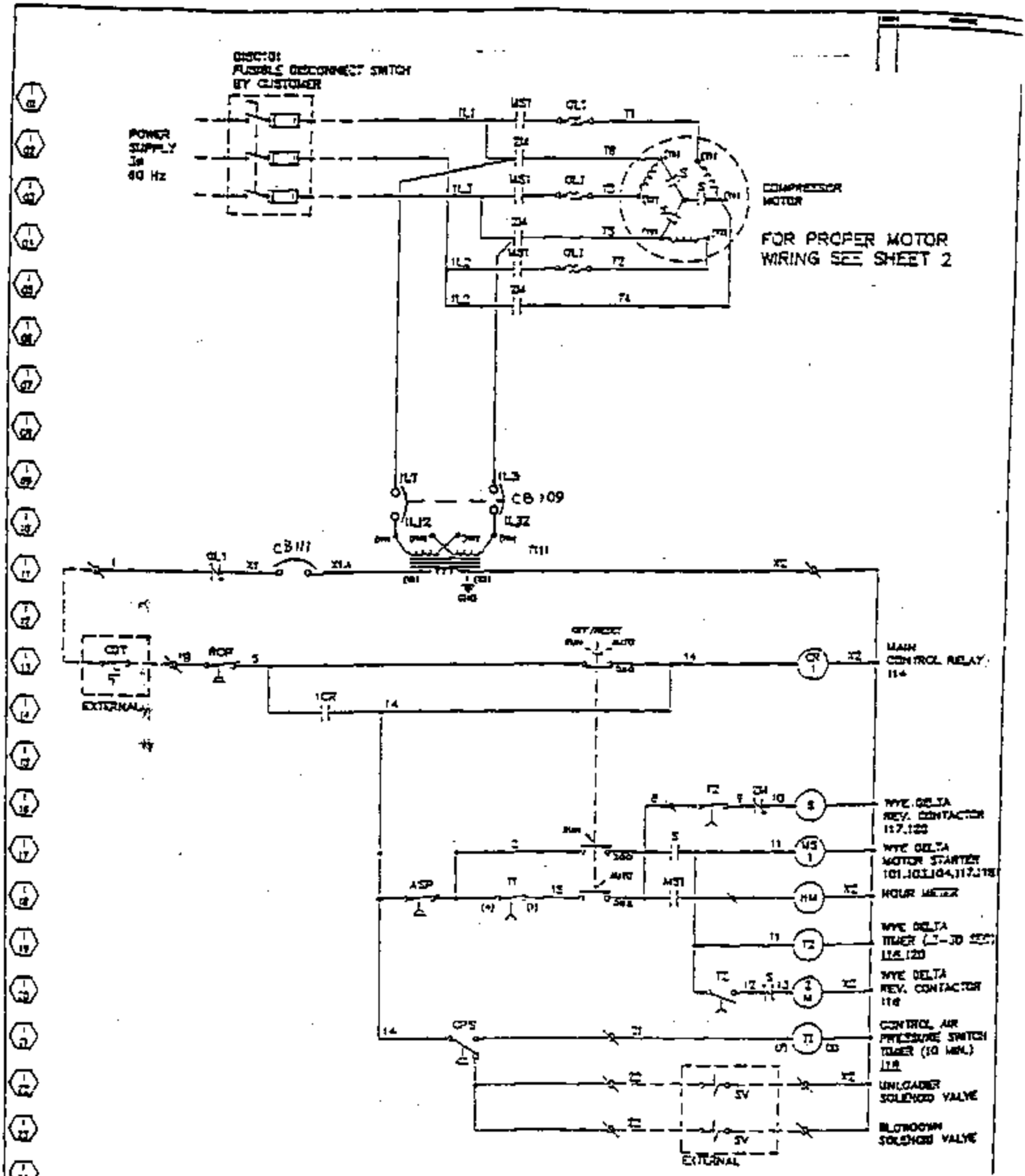
A. SEPARATOR - 09175-001
B. OIL FILTER - 09175-001
C AIR FILTER - 07103-015 (00596-001 MTG. FLNG.)



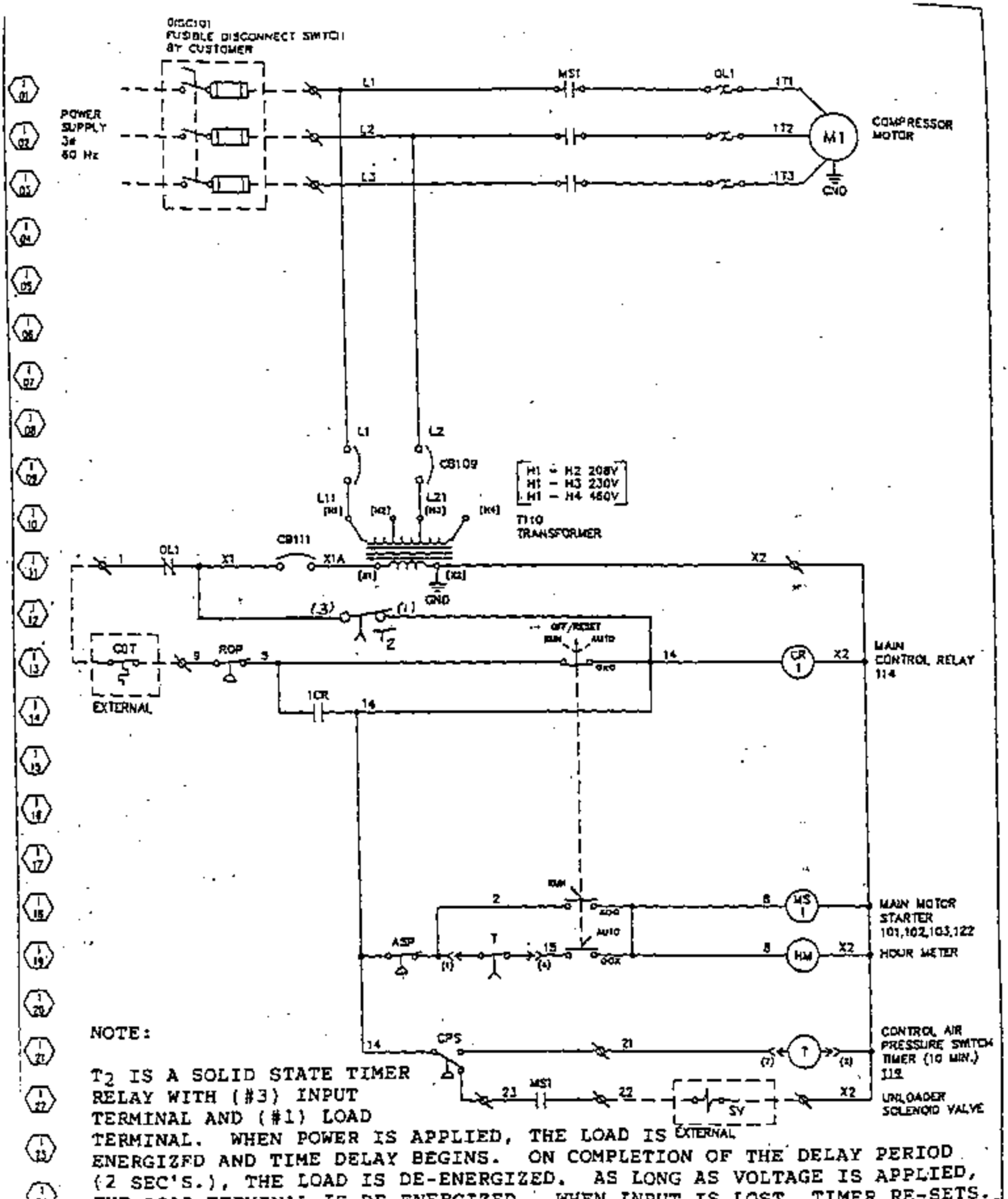
LIT. 4

7.8 DECAL & IDENTIFICATION

KEY	DESCRIPTION	QTY	MODELS 15D, 20D, 25D, 25D4, 30D7	MODEL 40D
1	PLATE, NAME S/N	1	03832-043	03832-043
2	DECAL, VOLTAGE 208	1	08377-033	08377-033
3	DECAL, VOLTAGE 230	1	08377-022	08377-022
4	DECAL, VOLTAGE 480	1	08377-001	08377-001
5	DECAL, WARNING	1	08377-043	08377-043
6	DECAL, WARNING	1	08377-045	08377-045
7	DECAL, WARNING	1	08377-046	08377-046
8	DECAL, 3 POSITION SWITCH	1	08378-048	08378-048
9	DECAL, INSTRUCTIONS	1	08379-002	08379-003
10	DIAGRAM, WIRING	1	12288-001	12288-001
11	DECAL, WARNING	1	08378-065	08378-065
12	DECAL, ROTATION ARROW	1	NPN	NPN
13	LOGO, PALATEK, INC. 3.5X7	1	00447-001	00447-001
14	LOGO, PALATEK, INC. 8.5X17.5	1	00447-002	00447-002
15	OPERATOR MANUAL AND PARTS LIST (SHIP LOOSE)	1	OMP235E108	OMP235E108



ELEC. SCHEMATIC, WITH WYE-DELTA MOTOR



NOTE:

T_2 IS A SOLID STATE TIMER RELAY WITH (#3) INPUT TERMINAL AND (#1) LOAD TERMINAL. WHEN POWER IS APPLIED, THE LOAD IS ENERGIZED AND TIME DELAY BEGINS. ON COMPLETION OF THE DELAY PERIOD (2 SEC'S.), THE LOAD IS DE-ENERGIZED. AS LONG AS VOLTAGE IS APPLIED, THE LOAD TERMINAL IS DE-ENERGIZED. WHEN INPUT IS LOST, TIMER RE-SETS.

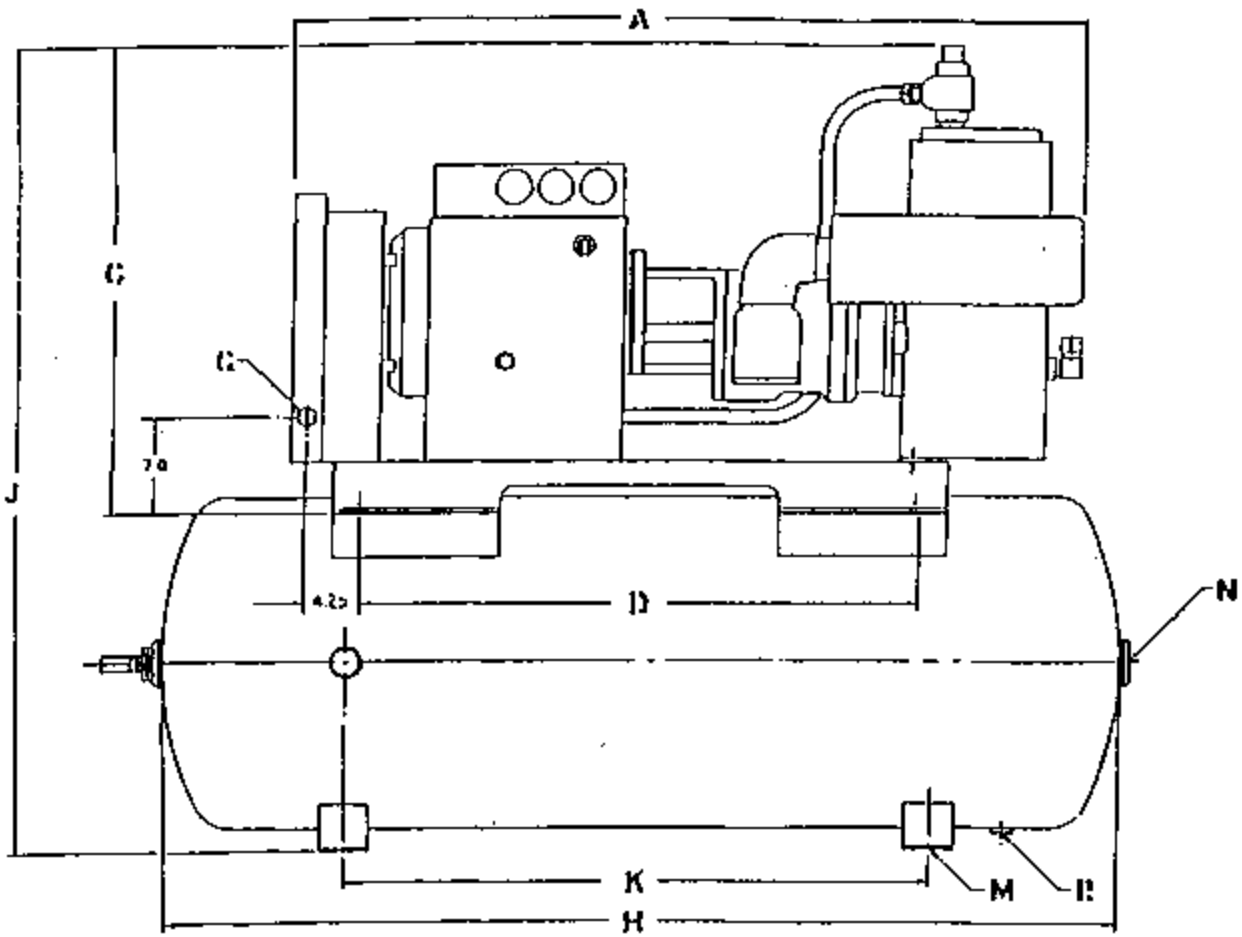
TITLE: ELECTRICAL SCHEMATIC AUTO RE-START			
XPS	4-8-1997	NONE	18404-204
		1 1	204-1

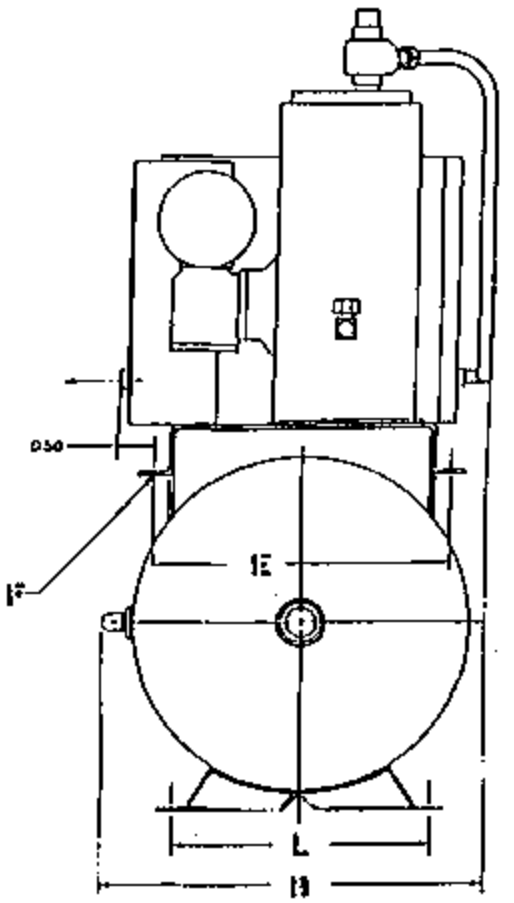
BASE MOUNTED

DIMENSION	MODEL					
	15D	20D	25D	25D4	30D7	40D
A (LENGTH)	56	56	59	59	58	60
B (WIDTH)	29	29	29	29	30	34
C (HEIGHT)	34	38	35	38	35	39
D (MTG.)	40	40	40	40	40	40
E (MTG.)	21.38	21.38	21.38	21.38	21.38	21.38

TANK MOUNTED

DIMENSION	MODEL					
	15D	20D	25D	25D4	30D7	40D
H (LENGTH)	69	69	69	69	72	72
B (WIDTH)	29	29	29	29	36	36
J (HEIGHT)	59	63	60	63	68	70
K (MTG.)	36	36	36	36	36	42
L (MTG.)	18.5	18.5	18.5	18.5	24	24





TANKDIM.DOC

SECTION 8 - WARRANTY

PALATEK, INC.

ROTARY SCREW AIR COMPRESSOR WARRANTY

PALATEK, INC., warrants that the rotary screw compressor, stator, rotor and bearing assembly will be free from defects in material and workmanship, and a loss of capacity for a period of five years (60 months) from the date of initial start-up or 66 months from the date of shipment, whichever period first expires, when continuously operated with a PALATEK, INC. approved lubricoolant. All other components of PALATEK, INC's design and manufacture will be free from defects in material or workmanship for a period of twelve months from the date of initial start-up or eighteen months from the date of shipment, whichever period first expires. In cases where a machine is in Distributor stock and start-up is beyond six months from shipment from the factory, it will be necessary for the Distributor to certify satisfactory condition to initiate warranty from the date of start-up. Any work or parts necessary to restore the unit to satisfactory condition prior to start-up will be at the Distributor's expense. If within such periods, PALATEK, INC. receives from the Buyer written notice of any alleged defect in or non-conformance of the compressor, and if in PALATEK, INC's judgment the compressor does not conform or is found to be defective in material or workmanship, PALATEK, INC. will at its option either: (a) furnish a Service Representative to correct defect, or (b) upon return of the component, FOB PALATEK, INC's designated location, repair, or replace the component or issue credit for the replacement part ordered by Buyer, or (C) refund the full purchase price for the compressor without interest. Deterioration or wear occasioned by chemical and/or abrasive action or excessive heat, or any other form of abuse, shall not constitute warrantable defects. Possible oil leaks will be covered under warranty for a period of 60 days from start up, but not longer than 90 days after shipment.

PALATEK, INC's sole responsibility and Buyer's exclusive remedy hereunder is limited to such repair, replacement, or repayment of the purchase price. Component parts or assemblies not of PALATEK, INC's manufacture are warranted only to the extent that they are warranted by the original manufacturer. PALATEK, INC. shall have no responsibility for any cost or expense incurred by Buyer from PALATEK, INC's inability to repair under said warranty when such inability is beyond the control of PALATEK, INC. or caused solely by Buyer or his agent or agents.

THERE ARE NO OTHER WARRANTIES, EXPRESS, STATUTORY OR IMPLIED, INCLUDING THOSE OF MERCHANTABILITY AND OF FITNESS FOR PURPOSE; NOR ANY AFFIRMATION OF FACT OR REPRESENTATION WHICH EXTENDS BEYOND THE DESCRIPTION ON THE FACE HEREOF.

This warranty shall be void and PALATEK, INC. 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 PALATEK, INC. manufacture or approved by PALATEK, INC. or from buyer's failure to store, install, maintain, and operate the compressor according to the recommendations contained in the Operator's Manual and in accordance with accepted industry practice.

*PALATEK*_____

MAINTENANCE LOG

DATE	MAINTENANCE