OPERATING AND PARTS MANUAL

FOR

INDUSTRIAL ELECTRIC AIR COMPRESSORS
75UDS AND 100UDS HP MODELS

2/05

Part Number: OPM7510-006S

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SECTION 1 - SAFETY

1.1 GENERAL

SULLIVAN-PALATEK 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 or 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 or the air piping, filtering, regulating, preparation, conditioning, valving, hosing or air-using 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.

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

1.2 PRESSURE RELEASE

Operate manually the pressure relief valve(s) periodically to be sure there is no blockage, obstruction, or inability to operate.

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. Remove Oil Filler Cap, (Caution: Hot oil is present.) 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. **WARNING: compressors may re-start AUTOMATICALLY if not properly taken off the power line!**

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 manufacturers 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 (12.5 mm) inside diameter is used anywhere in the system. This will reduce pressure in case of hose or connection failure. Install additional velocity limiting valves, in series, whenever 75 feet (22.8m) of hose length is exceeded. These valves 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 required by OSHA.

Compressed air filters or lubricators with plastic bowls may be affected by lubricant and should not be used. Steel bowls are recommended.

Keep personnel out of line with, and away from, the discharge opening of airlines, 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 marking different from original equipment.

Do not over-tighten any bolt, nut, fitting, connection, or spin-off 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 particles.

Do not operate compressor with its Temperature Switch or any of its three Pressure Switches inoperative or incorrectly connected.

Keep conductive objects away from exposed live electrical parts, such as terminals, to avoid sparks that may 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

WARNING: 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.

1.6 TOXICITY

WARNING: Air from this compressor should not be used for breathing air, unless you adhere to the following:

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

Carefully analyze the compressor inlet conditions to be certain that the compressor is ingesting no dangerous levels of contaminants.

Monitor the point-of-use location for adequate ventilation. (Consult OSHA Manual for proper equipment.)

Do not permit air from this compressor to contact foodstuff except in compliance with FDA Standard 21 CFR 178.3570 and other applicable regulations. (Use food grade lubricant for such applications.)

1.7 ELECTRIC SHOCK

Remove watches & rings, and keep all parts of the body, tools, or other conductive objects away from exposed live parts of the electrical system. Maintain dry footing, stand on insulating surface and do not contact any other portion of the compressor when making adjustments.

Turn compressor off, open main disconnect and lock it out and tag it prior to opening the Starter Enclosure or when testing or replacing any electrical component such as: switches, wiring, terminals, transformer, starter, timer, coil, relay, contact, interlock, fuse, overload heater, etc.

Be certain that the equipment is properly grounded in accordance with NEC and all other applicable state & local codes.

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.

Should a breaker trip for any reason, be sure to check for the cause that produced the trip. Fix the root cause if possible prior to resetting and operating the compressor. When restarting, check for maximum current being drawn by the circuit.

1.8 LIFTING

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

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

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

Keep lifting operator in attendance whenever compressor is suspended.

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

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

1.9 AUTOMATIC START AND/OR RESTART

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! Also, compressor may be wired to BLT or sequencer which might call for a start.

Close discharge air valves and shut off machine. 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 of impending dangers.

WARNING: For prolonged exposure to machinery noise, hearing protection is recommended and may be required by OSHA.

1.11 HAZARD WARNING SIGNS

SULLIVAN-PALATEK 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.

WARNING: 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, lesser 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	
HIGH VOLTAGE/MOVING PARTS	*MOTOR/STARTER*
WARNING SIGN	
COMPRESSED AIR	*INSTRUMENT PANEL*
WARNING SIGN	
HOT OIL/PRESSURIZED AIR	*SEPARATOR TANK*

SECTION 2 - SPECIFICATIONS

MODEL	75GS	100GS	100D
MOTOR SIZE (HP)	75	100	100
AIR DELIVERY (CFM @ 125 PSIG)	344	440	420
MAX. FULL LOAD PRESSURE	125	125	125
MIN. FULL LOAD PRESSURE	70	70	40
LUBRICOOLANT CAP'Y GAL.	12	12	12

DIMENSIONS:		
OPEN	LENGTH	80
	WIDTH	45
	HEIGHT	57
ENCLOSED	LENGTH	80
	WIDTH	45
	HEIGHT	64

NOTE: SEE INSTALLATION DRAWINGS ON PAGES 49 - 52 OF THIS MANUAL

2.1 DATA AND DIMENSIONS

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

2.2 LUBRICATION GUIDE

SULLIVAN-PALATEK recommends using Palasyn 45 synthetic lubricoolant for normal plant-air service. For compressors running two or three shift operations, extended life lubricants such as Pallube 32p, or Pal-extra 44 are offered as factory fill.

For extreme environments (i.e. fine particulate, caustic, acidic, or oxidant atmospheres) contact the factory for lubricant recommendations. Also, for such conditions we would suggest oil analysis every 1000 hours.

Mixing of these or 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.

Whenever a SULLIVAN-PALATEK rotary screw compressor is installed in parallel with a reciprocating type of compressor, it is imperative that the SULLIVAN-PALATEK be the “lead” machine and the reciprocating the “lag” machine. That is, the SULLIVAN-PALATEK 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. It should require the least electrical power consumption for the combination. Maximum number of starts per hour:

Motor HP	75	100
Starts/Hr	4	4

SECTION 3 - DESCRIPTION

3.1 INTRODUCTION

SULLIVAN-PALATEK Plant Air Compressors are electric motor driven, single-stage rotary screw type, continuous-duty compressor. They are designed and constructed to 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, with or without enclosures. These machines are intended for indoor installation, or protected outdoor operation in moderate climates.

3.2 COMPRESSOR UNIT

All SULLIVAN-PALATEK compressors feature direct-connected, single-stage, positive displacement, flood-lubricated rotary screw compressor units with heavy-duty long-life rolling element bearings. The lubricoolant fluid is injected directly into the compressor unit and mixes with the air as the rotors compress it. 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 SULLIVAN-PALATEK UD Series 75/100 horsepower compressor is a NEMA 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. The main compressor motor is connectable for 230 or 460 volts. The 75/100 horsepower machines utilize a separate TEFC fan motor. Contact the factory for any other requirements.

3.4 INTAKE/CONTROL SYSTEM

The intake/control system consists of: an air filter, connecting rubber elbow, clamps, a combination compressor inlet valve/reverse-flow check valve, control signal regulator valve, blowdown valve, and control pressure switch. (See Intake Control Schematic.) The air filter is a multi-stage dry-type with a high efficiency cleanable/replaceable cellulose element. The element should be cleaned periodically, depending upon the amount of particles in the air, and replaced annually. If remote air intake is desired, consult the factory for a special intake option.

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 blowdown valve. This air signal simultaneously reduces the pressure in the oil separation tank, allowing the compressor to run unloaded with a minimum of power consumption. Upon shutdown the intake valve checks shut to eliminate blowback.

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 blowdown valve are both closed; therefore the compressor inlet valve is wide open and the compressor is drawing in its full rated capacity.

Normal Full Load Mode:

From 60 to 125 psi (415 to 863 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 thus reducing 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 in response to varying demands from the plant air service line. The control regulator has an orifice that 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 that sends a pressure signal directly to the inlet valve piston. The inlet valve is held shut, while air is vented through a reduced size tube that 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 in an unloaded condition. With the resumption of plant air usage, the line pressure reduces to the “cut-in” setting of the control pressure switch where it closes. The control air signal to the inlet valve will be dissipated allowing inlet valve to reopen 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 and the compressor runs in the “unloaded” mode for 10 minutes before shutting off. The compressor will restart whenever the line pressure drops to its “cut-in” pressure. The 10 min. timer is provided to limit the number of starts to no more than six per hour.

3.5 COMPRESSOR LUBRICATION/COOLING SYSTEM

The cooling system consists of a fan, fan motor, finned-tube radiator-type fluid cooler, thermovalve to accelerate warm-up, a full-flow filter, a drain valve and interconnecting tubing.

Pressure in the oil separation tank utilizes air over oil which 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 thermovalve is open allowing the fluid to by-pass the oil cooler and go directly to the filter. While warming up, a gradual change occurs where the fluid flow is split - partial flows being shared by both the oil cooler and thermovalve. When fully warmed up, the thermostat is closed and all 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.

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 allows 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-media 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, and a capped oil fill port is provided to keep the oil 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 the compressor off, open and lock out the electrical disconnect switch, and relieve all sump pressure before doing so.

The oil separation tank is ASME rated for 200 psig (1380 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. At the same time it prevents a reverse flow of compressed air from an auxiliary air receiver and/or the plant air-main 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 200 psig (1380 kPa). However, since the opening of this valve is noisy and results in hot oil being expelled, an over-pressure switch has been installed to shut the motor off at 10 PSI above operating pressure.

Panel-mounted pressure gauges show the pressure in the oil sump tank, and line pressure. Additionally, differential pressure gauges showing the pressure drop across the oil filter and the separator element are supplied as an assist to proper maintenance. Change oil filter at 15 psid and separator at 8 psid.

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 (38° C) above ambient.

A compressor discharge temperature switch is provided to shut the motor off if the CDT 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 event of a sudden or complete loss of lubricoolant.

3.7 STARTER AND ELECTRICAL PARTS

The three-phase electric motor starter supplied with the SULLIVAN-PALATEK Plant Air Compressor has a NEMA-1 rated enclosure. This is also the location of: the control power transformer, the Run-Off/Reset-Auto Start selector switch, a control relay, the control pressure switch, the over-pressure shutdown switch, the anti-restart pressure switch, time delay relay, fan motor disconnect fuses, (and fan overload relay where required).

The starter contactor is amp-rated to match the motor power at the customers voltage. An overload relay is selected and set to match the motor voltage/full load amp rating.

The selector switch allows the operator to select “Run” for continuous operation mode where the motor runs continuously while the compressor loads and unloads, as required, to match air demand. This mode should be used where inadvertent motor starts are to be avoided.

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, over-pressure condition, or motor overload.

The “Auto-Start” position allows the compressor to shut down after a specified time automatically whenever the plant air system pressure reaches the top (“Cut-Out”) setting of the control air pressure switch. The control pressure switch simultaneously unloads the compressor and initiates the shut-down timer. Once the set time (approx. 10 min.) has been reached the compressor motor will be shut off. 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 to limit the number of motor starts.)

The over-pressure shutdown switch acts to stop the compressor in the event of control malfunction or improper control adjustment to prevent the pressure relief valve on the oil separation tank from suddenly opening.

A control relay is used to prevent heavy surges of current from passing through the contacts of the temperature and pressure switches, thereby greatly improving their reliability.

The control power transformer converts power from one phase of the incoming line power to a 120v control 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 a live control voltage terminal. The primary (high voltage) incoming power and the secondary (control voltage) circuits are both provided with breakers to minimize the potential for damage due to overloading or short-circuit faults.

3.8 INSTRUMENTATION

Each SULLIVAN-PALATEK Plant Air Compressor is equipped with two pressure gauges, one to monitor the oil separation tank pressure and another to measure line pressure. There is a temperature gauge that senses compressor discharge temperature. In addition, there are two differential pressure gauges sensing the pressure drop across the oil filter and the separator element. It is recommended that the separator be changed when 8 psid is reached, and the oil filter is changed when 15psid is reached. The compressor hour meter is located in the electrical box door, or for NEMA4 rated boxes the hour meter is inside the box.

SECTION 4 - INSTALLATION

4.1 RECEIVING

Carefully inspect for any signs of possible shipping damage

4.1a WELDING

WARNING: Do not weld on compressor package.

4.2 LOCATION

The standard compressor is designed for indoor operation or protected outdoor site with an ambient temperature range of 35° to 104° F (2° to 40° C). It is important that there be sufficient unobstructed ventilating airflow to prevent re-circulation of hot air. The compressor should be in a clean, dry, 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.

Model	75G	100G	100D
AIRFLOW (CFM)	7,500	9,500	9,500
HEAT REJECTION (BTU/HR)	220,000	300,000	300,000

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. The compressor should be piped into a receiver tank prior to any filters or dryer. A moisture separator may be placed between compressor and receiver tank.

4.3 SUPPORT

The compressor may be mounted on any level surface capable of supporting its weight. It is recommended that the machine be mounted on isolation pads and secured to prevent movement.

4.4 ELECTRICAL

A trained qualified electrician must do electrical wiring to the motor starter. 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, and the starter is properly sized and the overload relay is properly adjusted to match the motor nameplate full load amps.

4.5 WIRING DIAGRAM, FULL VOLTAGE STARTER (STANDARD)

4.5a WIRING DIAGRAM Y-DELTA START (OPTIONAL)

4.6 DIRECTION OF ROTATION

Once the control circuit has been checked, all piping installed, and compressor is filled with lubricoolant, “jog” the motor by momentarily moving the selector switch to “Run”

then immediately back to “Off/Reset” to check for proper direction of rotation. Rotation should be as shown on the unit. In all cases, the fan air blows upwards.

4.7 COMPRESSED AIR PIPING

Connect the compressor to the plant air system with a flexible connector rated for at least 200 psi (1380 kPa) and 275° F (135° C). Support the piping to insure that no pipe stress is transmitted to any compressor component.

Compressor should be piped into a receiver tank prior to any filters or dryer. A moisture separator may be placed between the compressor and receiver tank.

Piping should be as large as possible to provide extra air storage capacity and minimize transmission losses. 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 making the cleanest, coolest air available to the compressor inlet, maintenance and power consumption will be minimized. On the 60hp, the standard air filter is locally mounted with remote inlets optional..

When connecting to a remote air inlet, use a flexible connector at the filter inlet. 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 creating no restrictions to air flow.

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 SULLIVAN-PALATEK Plant Air Compressor, giving special attention to the Section 1 - SAFETY.

5.2 INITIAL START

Open main disconnect to be sure there is no power to the compressor.

Review all the steps covered in Section 4 - INSTALLATION to be certain all instructions have been complied with.

Inspect for any visible signs of damage that could have occurred during installation.

Check lubricoolant level. Check that oil-fill cap is tight..

Close main disconnect.

Jog motor (move selector switch to the "Run" position momentarily, then immediately back to "Off-Reset") to check direction of rotation. If rotation is wrong, open main disconnect, lock it out, and exchange any two of the three incoming leads L1, L2, L3 on the contactor. (Be sure that fan air is blowing upward; if it is not, exchange any two of the three fan motor wires.)

WARNING: 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.

After closing and latching the starter cover door, close the main disconnect and start the compressor in either "Run" or "Auto Start/Stop" mode.

With the service air valve closed, allow machine to pump up to normal operating pressures and observe operation of automatic controls, and look for any possible leaks.

Open service air valve and check operation throughout the range of pressures, observing operating temperatures.

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 open main power disconnect, lock it out, and be sure to relieve all oil separation tank pressure prior to removing fill cap to top off tank.

If unloaded pressure is incorrect, readjust regulator and control 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. Re-close disconnect switch.
4. Start machine in either “Run” or “Auto Start/Stop” mode.
5. Fully open service air valve.
6. Observe pressure and temperature. If temperature is incorrect, refer to SECTION 6.6 - TROUBLE SHOOTING.

5.4 SHUTDOWN

To stop compressor, close service valve, allow sump pressure to fall to 40 PSI, and move selector switch to “Off-Reset” position.

5.5 RESTARTS

After a power failure, open and lock out the main disconnect, check all fuses and breakers, 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 (i.e. C.D.T. or R.O.P.), open and lock out the main disconnect switch, correct the cause of shutdown, reset electrical controls, then close the disconnect and follow Normal Operation start-up procedure.

1. If the overload relay has tripped the motor off, first open and lock out the main power disconnect, then push the starter overload reset button. Next, check overload relay to be sure that it is properly sized and correctly adjusted. Note: Never adjust overload relay higher than indicated by starter manufacturer to match motor nameplate amperage rating, as an unsafe operating condition will result!
2. Check lubricoolant level. Refill if necessary.
3. Re-close disconnect switch.
4. Start machine in either “Run” or “Auto Start/Stop” mode.
5. Fully open service air valve.
6. Observe pressure and temperature.

SECTION 6 - MAINTENANCE

6.1 MAINTENANCE SCHEDULE

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

First 50 hours - Change compressor lubricoolant filter element.

Every 1,000 hours -1. Change compressor lubricoolant filter element.
2. If operated in an extreme environment, take sample of lubricoolant and submit for analysis. (Ex: Chemical Fumes, Oxidizing elements, Fine Dust.)

PALASYN 45 LUBRICANT:
Every 4,000 hours or once a year, whichever occurs first -
Drain Palasyn 45 lubricoolant and replace with a fresh charge. Inspect interior of tank - clean if any build-up of deposits present. (This may have to be done sooner, depending upon results of lubricoolant analysis.)
Replace air and oil filter elements and air/oil separator element (sooner if excessive lubricoolant loss is experienced).

FOOD GRADE – LONG LIFE:
Every 4,000 hours – (If using Food Grade – Long Life)
Change Food Grade – Long Life lubricoolant and inspect tank interior. Replace lubricant filter and air/oil separator element.

PALLUBE 32p LUBRICANT:
Every 8,000 hours - (If using Pallube 32p)
Change Pallube 32p lubricoolant and inspect tank interior.
Replace lubricant filter and air/oil separator element.

PAL-EXTRA 44 LUBRICANT:
Every 10,000 hours - (If using Pal-Extra 44)
Change Pal-Extra 44 lubricoolant and inspect tank interior.
Replace lubricant filter and air/oil separator element.

NOTE: System capacity for 75/100 HP is 12 gal's.

As Required -
1. Clean or replace air filter element.
2. Clean exterior surfaces of oil cooler/aftercooler.
3. Lubricate motor (refer to motor manufacturer's instructions.)
4. Clean & grease MPV with Lithium Grease ex: Lubriplate 630-2 or Mobil SHCPM.
5. Rebuild inlet valve every two years.
6. Check electrical connections for tightness. Ensure disconnect switch is locked open.

6.2 OIL FILTER (Replace if differential pressure exceeds 15psid or every 1000 Hrs.)

1. Open and lock-out main disconnect.
2. Relieve all internal system pressure.
3. Using a strap wrench, remove spin-on oil filter elements.
4. Spread a thin film of grease on the gasket.
5. Install element by hand until gasket touches the filter head.
6. Tighten 2/3 to one more turn.
7. Replace element every 1000 hrs.

6.3 AIR FILTER (Inspect every 1000 hours or sooner in severe dust conditions)

1. Open and lock out main disconnect.
2. Remove rear cover from housing.
3. Remove air filter element, taking care to prevent dirt that has collected on the outer surface of element from falling into the air filter housing. **NOTE:** To minimize down time it is recommended that a spare element be kept on hand.
4. Replace element as needed. **NOTE:** An optional HD filter with safety element is available for severe dust conditions.
5. Snap the end cover back on once the filter element has been replaced.

6.4 AIR/OIL SEPARATOR (Replace annually or if differential pressure exceeds 8psid)

1. Open and lock out main disconnect.
2. Disconnect main air line to aftercooler.
3. Disconnect control air tubing.
4. Unbolt cover in a diagonal criss-cross pattern.
5. Remove oil pick-up tube from cover, then cover and separator element.
6. Drain lubricoolant and clean interior of oil separation tank if element appears dirty.
7. Clean flange and cover surfaces.
8. Coat surfaces of gaskets lightly with high-temperature or lithium grease.
9. Install new element. Check for proper grounding of separator element to the tank.
10. Replace cover and re-install oil pick-up tube.
11. Tighten all cover bolts progressively in a diagonal criss-cross pattern until all bolts are properly torqued to 120 ft. pounds. These separator cover bolts are a special high-strength alloy, designated “SAE GRADE 8”. No substitution is allowed.
12. Remove oil return sightglass assembly from scavenger line then remove filter and clean. Check and clean orifice.
13. Re-install oil return sightglass assembly.
14. Reconnect all tubing.

6.5 PRESSURE ADJUSTMENT

Two capacity control features are incorporated in the Sullivan-Palatek compressors. The control pressure switch (CPS) will cycle the compressor between loaded and unloaded operation. This switch should be set so that the compressor loads when the line pressure falls to the lowest pressure required to operate plant equipment, and unloads the compressor at some higher pressure (normally about 10 psi above load pressure.) The other means of controlling compressor out-put is by means of the modulating or regulating valve. The modulating valve will proportionally pinch shut the inlet valve depending upon the existing sump pressure.

To set the compressor controls, the following steps should be observed:

1. Loosen lock nut on modulating valve adjusting screw.
2. Turn in on modulating valve adjusting screw about one turn (this is to remove this control while setting the CPS).
3. Remove cover from CPS.
4. Adjust the cut-out pressure by turning the top adjusting screw (CW to raise the pressure, CCW to lower).
5. Adjust the cut-in pressure by turning the lower adjusting screw. CW to decrease the differential; CCW to increase the differential.
6. Once the CPS has been set to the desired pressure, the modulating valve must be reset. Loosen the adjusting screw until air is being vented from regulator at a pressure about 5 psi below the set cut-out pressure of the CPS. Lock adjusting screw in place.
7. Slowly turn adjusting screw in (CW) until pressure switch operates (sump slows down).
8. Tighten lock nut while holding adjusting screw.
9. Open service valve.
10. Replace cover on CPS.

Note that the selector switch on the electrical box has three settings; ‘Run’, “Off/Reset”, and ‘Auto’. In the ‘Auto’ position the compressor will shut off after running unloaded for 15 minutes. In the ‘Run’ mode the compressor motor is never shut off. For maximum efficiency of operation, if it is intended to operate the compressor in the ‘Auto’ mode, the pressure settings should have as large a differential as practical to allow the compressor to time out and shut off (consult factory for other optional energy saving options.)

6.6 TROUBLESHOOTING

SYMPTOM	PROBABLE CAUSES AND REMEDIES
A. MACHINE WILL NOT START	
	1. Main disconnect open. Close switch.
	2. Line fuse(s) blown. Replace Fuse(s).
	3. Control circuit breaker tripped. Reset circuit breaker.
	4. Motor starter overload tripped. Reset. Should trouble persist, check sizing and adjustment of overload. 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.
	7. Defective control relay. Replace.
	8. Faulty selector switch. Repair or replace.
	9. Power failure; see start-up.
	10. Unit locked up:
	a. Filled with oil - leaking inlet valve. Replace inlet valve. b. Unit failure – replace unit.

SYMPTOM	PROBABLE CAUSES AND REMEDIES
B. MACHINE SHUTS DOWN WITH AIR DEMAND PRESENT	
	1. Loss of control voltage. Reset. If trouble persists, check that line pressure does not exceed the operating pressure of your machine as specified on the nameplate.
	2. Low incoming voltage. Consult your power company.
	3. Excessive operating pressure. (O.L. Trips)
	a. Improperly adjusted or defective pressure switch. Readjust, repair or replace. Check pressure at which pressure switch opens. b. Separator requires maintenance. Check restriction under full load conditions. (i.e. Difference between line pressure and sump pressure should not exceed 15psi.) c. High pressure shutdown switch is set too low. Adjust or replace switch d. Defective blowdown valve. Blowdown valve should exhaust only when maximum operating pressure is reached.

6.6 TROUBLESHOOTING, CON'T.

SYMPTOM	PROBABLE CAUSES AND REMEDIES
B. MACHINE SHUTS DOWN WITH AIR DEMAND PRESENT	4. Discharge temperature switch open. Monitor temperature gauge readings: normal discharge temperature should be 100-110° F (37-43° C) above ambient; switch is set to trip at 235-245°F (112-118°C). a. Cooling air flow restricted. Clean cooler and check for proper ventilation. b. Ambient temperature is too high. Provide sufficient ventilation. c. Low lubricoolant level. Add lubricoolant. d. Clogged oil filter. Change the oil filter element. e. Thermostat not working properly. Replace. f. Defective discharge temperature switch. Replace. Also check for a short or open circuit and correct wiring.

SYMPTOM	PROBABLE CAUSES AND REMEDIES
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 element if required.
	3. Control pressure regulator out of adjustment. Adjust regulator.
	4. Control pressure switch setting too low. Readjust or replace.
	5. Defective control regulator. Check diaphragm and replace if necessary.
	6. Blowdown valve open. Repair or replace.
	7. Faulty over pressure switch. Replace

6.6 TROUBLESHOOTING, CON'T.

SYMPTOM	PROBABLE CAUSES AND REMEDIES
D. LINE PRESSURE RISES ABOVE CUT-OUT PRESSURE	
	1. Leak in control system causing loss of pressure signal. Replace tubing/repair leak.
	2. Defective pressure switch. Replace switch.
	3. Improperly adjusted or defective regulator. Readjust or replace if necessary.
	4. Defective blowdown valve. Check that sump pressure is exhausted to the atmosphere when pressure switch opens. Replace if necessary.
	5. Faulty inlet valve. Repair or replace.

SYMPTOM	PROBABLE CAUSES AND REMEDIES
E. EXCESSIVE LUBRICOOLANT CONSUMPTION	
	1. Clogged oil return line. Clean strainer and/or orifice.
	2. Separator element is damaged or not functioning properly. Change separator.
	3. Leak in lubrication system. Check all pipes, connections and components.
	4. Defective inlet valve. Repair inlet valve
	5. Operating pressure below 60 psig. Repair minimum pressure valve.

SYMPTOM	PROBABLE CAUSES AND REMEDIES
F. RELIEF VALVE OPENS REPEATEDLY	
	1. High pressure shutdown switch (ROP) is defective. Replace.
	2. Faulty Pressure Relief Valve. Replace.
	3. Incorrect control settings. Readjust/replace control regulator and/or control pressure switch.
G. LINE PRESSURE VENTING THROUGH BLOWDOWN	
	1. Defective Check Valve portion of Minimum Pressure/Check Valve. Repair or replace check valve

PARTS LISTING

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, seals and substandard parts have been replaced. All other parts are inspected to meet our quality standards. The air-end is then factory tested prior to shipment. A re-manufactured air-end has a warranty which is 12-months from start up date or in accordance with the terms set forth in the current air-end warranty.

SECTION 7 - PARTS LIST

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 directly.

SULLIVAN-PALATEK
3501 W. DUNES HWY.
MICHIGAN CITY, IN 46360
TELEPHONE: 219-874-2497 FAX: 219-872-5043
E-mail: jrissman@palatek.com

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

ITEM	DESCRIPTION	PART NO.	QTY.
1*	ELEMENT, AIR FILTER	28174-113	1
2	ELEMENT, OIL FILTER	00520-016	1
3	ELEMENT, OIL SEPARATOR	KB8000-025	1
4	VALVE, REGULATING	09661-002	1
4A	KIT, REGUL. VALVE REPAIR	K09661-002	1
5	VALVE, SOLENOID BLOWDOWN	40529-011	1
5A	KIT, SOLENOID VALVE DIAPHRAM	K40529-011A	1
6	VALVE, PRESSURE RELIEF	03100-006	1
7	SWITCH, CONTROL PRESSURE	09345-006	1
8	SWITCH, TEMPERATURE, 120 VOLT	00438-008	1
9	SWITCH, ANTI RE-START	09344-001	1
10	SWITCH, OVERPRESSURE	09344-003	1
11A*+	SEAL KIT, COMPRESSOR SHAFT	K09147-163V	1
12A	PALASYN 45 LUBRICOOLANT (5 GALLON)	00061-005A	2
12B	AFX IDEAL 32 LUBRICOOLANT (5 GALLON)	00051-005	2
	PALLUBE 32p LUBRICOOLANT (5 GALLON)	00064-005	2
13**	ELEMENT COUPLING (RED)	08516-055	1

* ELEMENT, AIR FILTER QTY = 1 #28174-110 - Used w/metal canister filter (opt.)
**ELEMENT, COUPLING (RED) QTY = 1 #08516-055
*+SHAFT SEAL KIT QTY = 1 #K09147-163V

7.3 LUBRICATION AND COOLING SYSTEM UDS

	75 hp	100 hp		
ITEM#	PART NUMBER	PART NUMBER	DESCRIPTION	QTY.
1	07711-012	07711-013	COOLER, OIL/A.C. 100hp	1
2	90659-121	90659-121	O-RING, VITON	2
3	08207-011	08207-011	HOUSING, BY-PASS 60-100	1
4	80120-016	80120-016	CONNECTOR,-CMS/ORB-1"	1
5	99600-016	99600-016	TUBE, STL-1" O.D. X .065 WALL	6
6	90115-113	90115-113	BOLT, HH-3/8" X 3 1/2"	2
7	80220-016	80220-016	ELBOW, CMS/ORB-1" X 1"	4
8	93115-012	93115-012	BOLT, WHIZ-5/16" X 1"	12
9	90165-004	90165-004	NUT, HEX-3/8"	2
10	08415-016	08415-016	HEAD, FILTER-OIL	1
* 11	----------	----------	GASKET, OIL FILTER	1
12	91553-042	91553-042	CONNECTOR, NT-1/4" X 1/8" MPT	2
13	00520-016	00520-016	ELEMENT, OIL FILTER	1
14	09616-051	09616-051	TUBE, FLEX-1" 'OIL LINE'	1
15	96363-161	96363-161	CONNECTOR,COM 1" X 1"	1
16	91023-016	91023-016	ELBOW, PIPE-BLK-1" X 90°	2
17	92466-312	92466-312	NIPPLE, PIPE-1" X 12"	1
18	91176-016	91176-016	NIPPLE, PIPE-1" X CLOSE BLK-80	1
19	93115-002	93115-002	BOLT, WHIZ- 5/16" X 3/4"	22
20	93165-003	93165-003	NUT, WHIZ-5/16"	32
21	90947-514	90947-001	KEY, FAN MOTOR-1/4" X 1 1/8"	1
22	08080-075	08080-100	FAN, COOLING	1
23	90502-032	90502-032	SCREW, SET-5/16" X 3/8"	2
24	03216-011	03216-015	GAURD, FAN	1
25	92906-008	92906-008	CLIP, FAN GUARD-3/16"	12
26	94302-032	94302-032	SCREW, SELF DRILL #8 X 3/4"	12
27	01528-064	01528-062	SUPPORT, FAN MOTOR	1
28	08747-002	08747-003	MOTOR, FAN 230/460V TEFC	1
29	01528-063	01528-063	SUPPORT, COOLER ASS'Y-SIDE	1
30	01528-066	01528-066	SUPPORT, COOLER ASS'Y-SIDE	2
31	01528-067	01528-066	SUPPORT, COOLER ASS'Y-SIDE	1
32	01680-008	01680-007	VENTURI, FAN	1
33	10992-005	10992-007	PLENUM, COOLER	1
34	09870-004	09870-004	WEATHERSTRIP, 1" X 1/8"	12
35	09505-006	09505-006	VALVE, THERMOSTAT 165/185	2

* GASKET SUPPLIED WITH OIL FILTER AND CAN'T BE ORDERED SEPERATELY.

Water Cooled Machines:

75 hp

Oil Cooler #00549-004

After Cooler #00549-005

Water Reg. Valve #18338-020

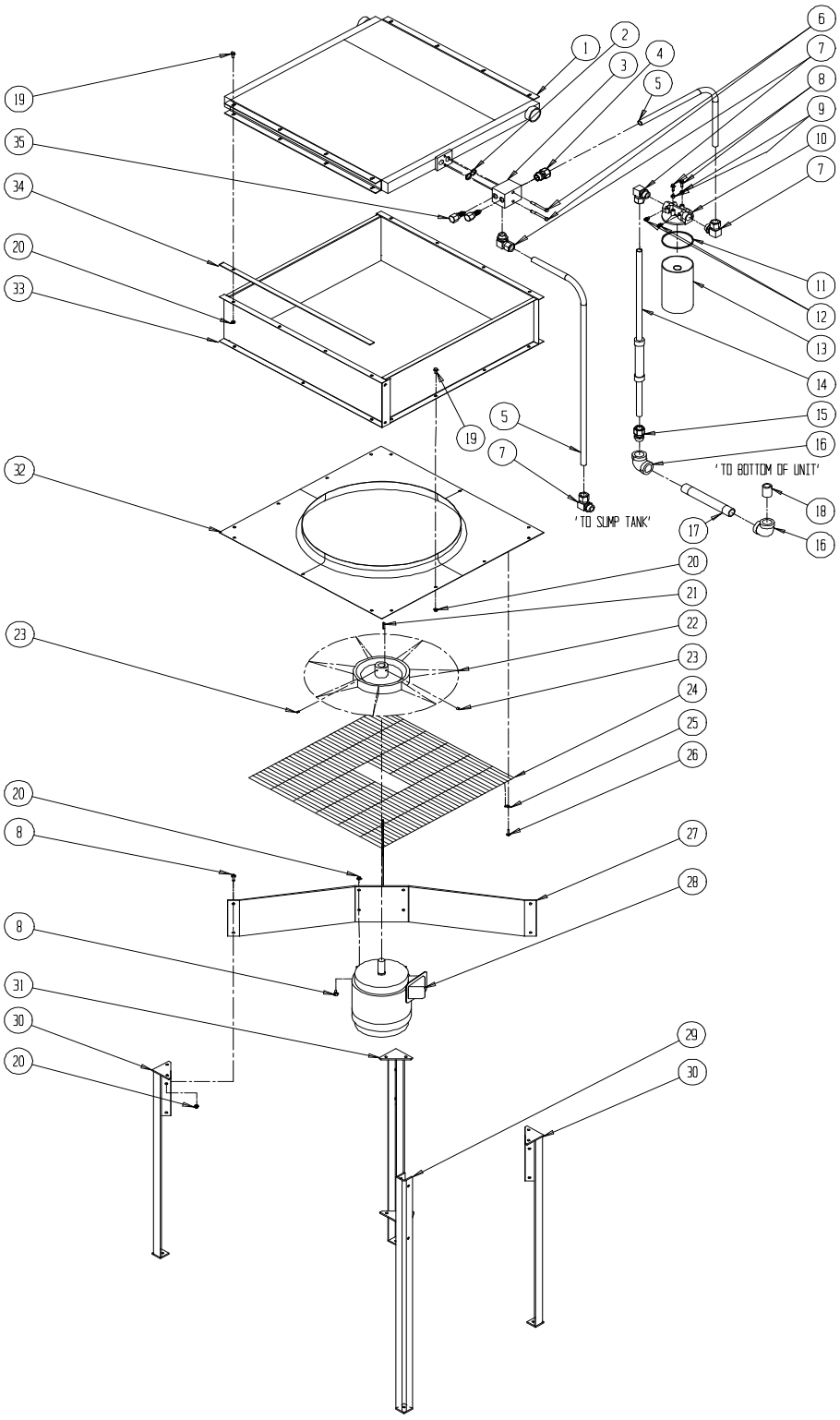
100 hp

Oil Cooler #00549-005

After Cooler #00549-008

Water Reg. Valve #18338-020

LUBRICATION AND COOLING SYSTEM UDS



7.4 MOTOR, COMPRESSOR & MOUNTING PARTS - BASE MOUNTED UDS

	75hp	100hp		
ITEM#	PART NUMBER	PART NUMBER	DESCRIPTION	QTY.
1	VARIOUS P/N	VARIOUS P/N	MOTOR, MAIN (SEE BOM)	1
** 2	90947-286	90947-286	KEY, MOTOR-1/2" X 1/2" X2.75"	2
* 3	90502-062	90502-062	SET SCREW-3/8" X1/2"	4
4	08516-072	08516-073	HUB, DRIVE	1
5	08516-055	08516-055	SPIDER, RED	1
6	08516-580	08516-580	HUB, DRIVEN-2.00"	1
7	93115-387	93115-387	BOLT, WHIZ-1/4" X 1/2"	4
8	00697-007	00697-007	GAURD, COUPLING	1
9	90305-064	90305-064	WASHER, LOCK-5/8"	7
10	90115-035	90115-035	BOLT, HH-5/8" X 1 1/2"	7
*** 11	80163-170	80163-222	AIR END	1
12	90115-065	90115-065	BOLT, HH-5/8" X 2 1/4"	2
13	90321-006	90321-006	WASHER, FLAT-5/8"	2
14	01419-002	01419-002	SPACER-1/8"	2
15	99988-010	99988-010	NUT, NYLOK-5/8"	2
16	10144-009	10144-009	BASE, FRAME 75/100hp	1
17	93165-003	93165-003	NUT, WHIZ-5/16"	8
18	99988-008	99988-008	NUT, NYLOK-1/2"	4
19	08182-009	08182-009	ISOLATOR, VIBRATION	4
20	93115-002	93115-002	BOLT, WHIZ-5/16" X 3/4"	8
21	28339-006	28339-006	SUPPORT, COMP/MTR-GSA	1
22	99988-010	99988-012	NUT, NYLOK	4
23	90321-005	90321-005	WASHER, FLAT-1/2"	4
24	90115-094	90115-094	BOLT, HH-1/2" X 3"	4
25	01419-001	01419-002	SPACER, MOTOR	4
26	96701-032	96701-032	CONDUIT, FLEX-2"	2
27	91432-032	91432-032	CONNECTOR, CONDUIT-2"	2
**28	90115-004	90115-004	BOLT, HH-1/2" X 3/4"	4
29	03000-113	03000-117	ADAPTER, CONDUIT-2"	1
30	90321-006	---------	WASHER, FLAT	4
31	90115-095	90115-056	BOLT, MOTOR MTG.	4

NOTE: SHIMS MAY BE REQUIRED BETWEEN MOTOR AND SPACER.

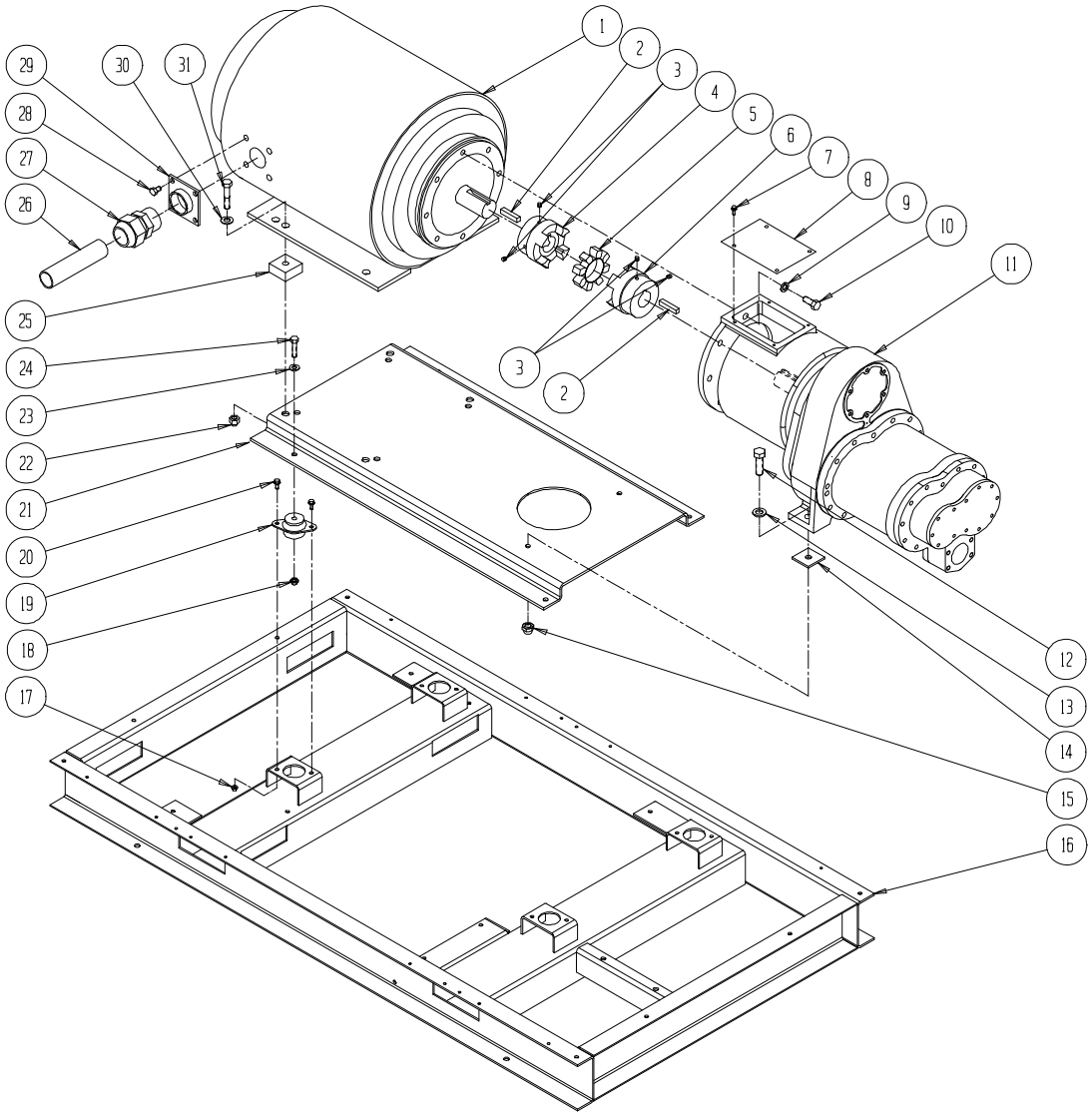
* SUPPLIED WITH COUPLING HUB

** SUPPLIED WITH MOTOR

*** SHAFT SEAL REPAIR KIT: K09147-163S

75HP MOTOR	100HP MOTOR
ODP #08741-075	ODP #08741-100
TEFC #08747-075	TEFC #08747-100

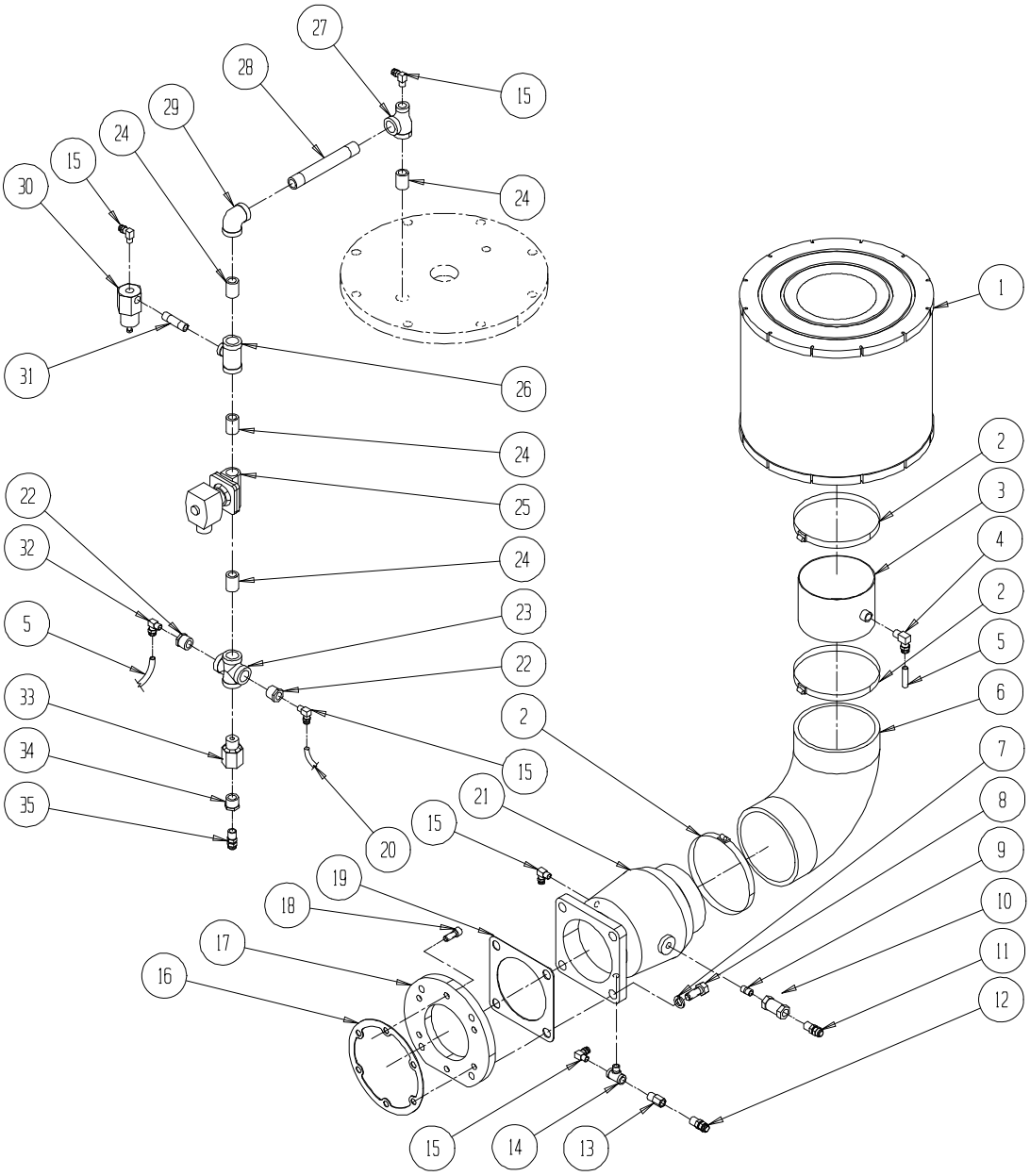
MOTOR, COMPRESSOR AND MOUNTING PARTS – BASE MOUNTED UDS



7.5 INTAKE AND CAPACITY CONTROL SYSTEM UDS

ITEM#	PART NUMBER	DESCRIPTION	QTY.
1	28174-113	FILTER, AIR INTAKE	1
2	92320-176	CLAMP, HOSE-5 1/2"	3
3	00496-013	DUCT, INLET/3/8" FPT TAP	1
4	91557-066	ELBOW, NT-3/8" X 3/8" MPT	1
5	90082-006	TUBE, NYLON-3/8"	5
6	91411-050	ELBOW, RUBBER-5" X 5"-90°	1
7	90305-004	WASHER, LOCK-1/2"	4
8	90115-024	BOLT, HH-1/2" X 1 1/4"	4
9	91182-000	NIPPLE, PIPE-1/4" X CLOSE	1
10	91299-044	VALVE, CHECK-1/4"	1
11	91553-064	CONN. NT-3/8" X 1/4"MPT	1
12	91553-044	CONN. NT-1/4" X 1/4"MPT	1
13	03001-063	ORIFICE, .063" X 1/4"	1
14	96425-004	TEE, PIPE MALE BRANCH-1/4"	1
15	91557-044	ELBOW, NT-1/4" X 1/4" MPT	5
16	00633-163	GASKET, INLET-163 SULL	1
17	03000-114	ADAPTER, INLET-SULL	1
18	92224-071	BOLT, SOC-3/8" X 1"	6
19	00633-021	GASKET, INLET VLV TO ADAPTER	1
20	90082-004	TUBING, NYLON-1/4"	55
21	09790-010	VALVE, INTAKE-4"	1
22	91167-005	BUSHING, RED-1/2" X 1/4"	2
23	92190-008	CROSS, PIPE-GALV-1/2"	1
24	91177-008	NIPPLE, PIPE-GALV-1/2" X CLOSE	4
25	40529-011	VALVE, SOLENOID-2W-1/2"	1
26	95330-078	TEE, GALV-1/2" X 1/2" X 1/4"	1
27	95330-008	TEE, GALV-1/2" X1/4" X 1/2"	1
28	91177-166	NIPPLE, PIPE-GAL-1/2" X 5"	1
29	91027-008	ELBOW, PIPE-90° GALV.-1/2"	1
30	09661-002	VALVE, REGULATOR-1/4"	1
31	92469-056	NIPPLE, BRASS-1/4" X 2"	1
32	91557-064	ELBOW, 90° NT-3/8" X 1/4"M	1
33	03001-250	ORIFICE, .250-1/2"	1
34	91163-006	BUSHING, RED-1/2" X 3/8"	1
35	91553-066	CONNECTOR, NT-3/8" X 3/8"MPT	1

INTAKE AND CAPACITY CONTROL SYSTEM UDS



7.6 DISCHARGE SYSTEM UDS

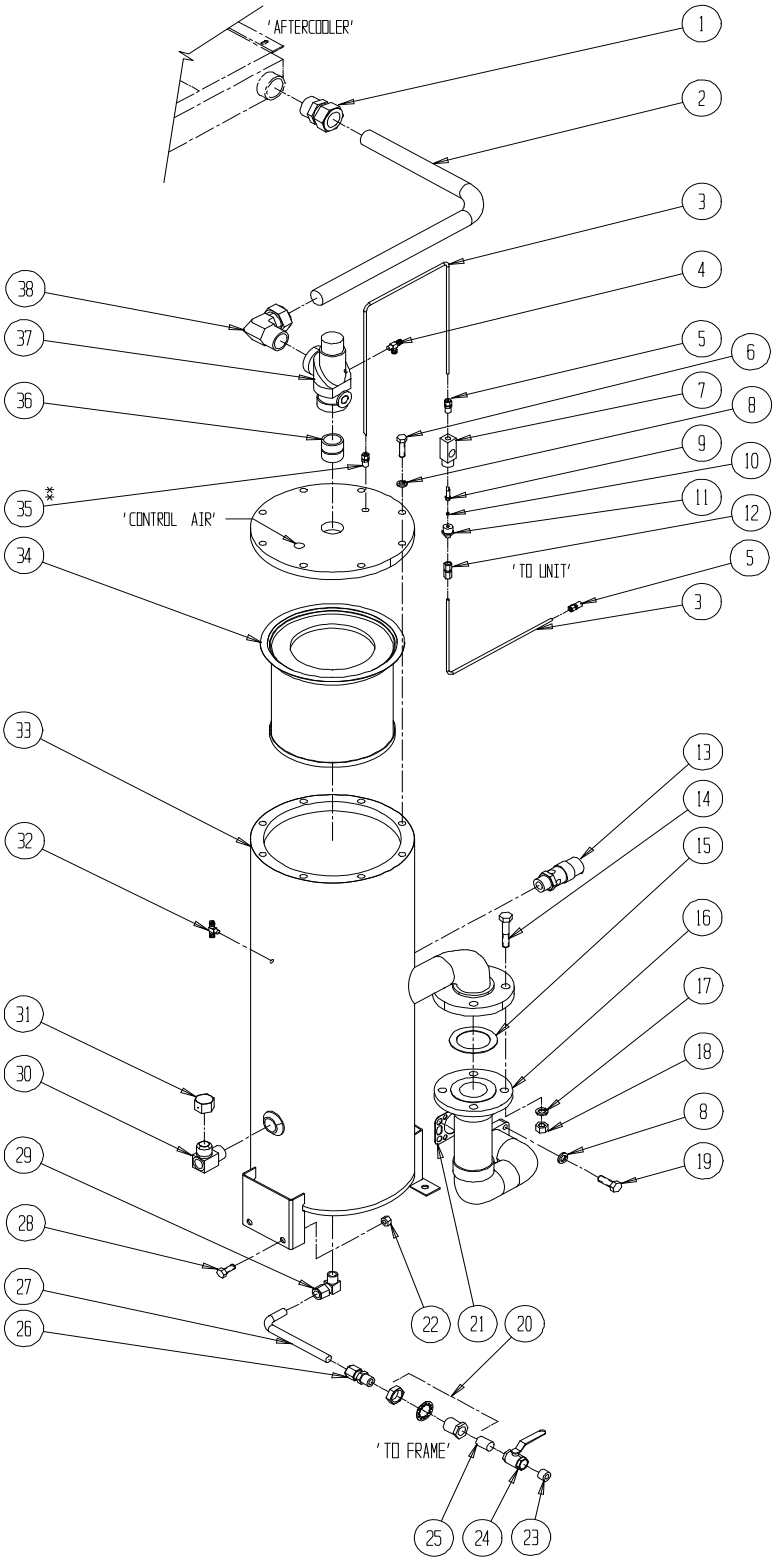
ITEM#	PART NUMBER	DESCRIPTION	QTY.
1	96363-242	CONNECTOR-TUBE-1 1/2X1 1/2	1
2	99600-024	TUBE, STEEL-1 1/2"	3
3	99600-004	TUBE, STEEL-1/4"	4
4	91564-042	TEE, MALE RUN- NT 1/4" X 1/8"MPT	1
* 5	96363-044	CONN. CFS 1/4" X 1/4"	2
6	90042-044	BOLT, 1/2" X 1 3/4" GR8	8
* 7	19349-001	SIGHT GLASS-OIL RTN	1
8	90305-004	WASHER, LOCK-1/2"	12
* 9	18577-001	INSERT, STRAINER	1
* 10	03001-064	ORIFICE, INSERT	1
* 11	00023-001	ADAPTER, SIGHT GLASS	1
* 12	95550-042	CONN. CFS-1/4" X 1/8"FPT	1
13	03100-066	VALVE, RELIEF-1"-200PSIG	1
14	90115-095	BOLT, HH-5/8"-11 X 3"	4
15	90708-007	GASKET, 150#RF-2 1/2" FLG.	1
16	19600-024	PIPE, DISCHARGE-75/100 GSA	1
17	90305-064	WASHER, LOCK-5/8"	4
18	90165-006	NUT, HEX-5/8"	4
19	90115-034	BOLT, HH-1/2" X 1 1/2"	4
20	92141-005	BULKHEAD, BRASS-1/2"	1
21	00633-017	GASKET, OUTLET-GSA UNIT	1
22	93165-006	NUT, WHIZ-1/2"	4
23	91928-008	PLUG, PIPE HEX SOCKET-1/2"	1
24	95785-008	VALVE, DRAIN-1/2"	1
25	91177-008	NIPPLE, PIPE-1/2" X CLOSE	1
26	96363-108	CONN. CMS-5/8" X 1/2"	1
27	99600-010	TUBING, STEEL-5/8"	1'
28	93115-034	BOLT, WHIZ-1/2" X 1 1/2"	4
29	96391-108	ELBOW, CMS-5/8" X 1/2"	1
30	17254-016	ELBOW, OIL-FILL/SIGHT	1
31	07255-016	CAP, VENTED (OIL FILL)	1
32	91584-042	TEE, MALE BRANCH-1/8" X 1/4"	1
33	03448-104	TANK, SUMP/SEPARATOR	1
34	08000-025	ELEMENT, SEPARATOR-75/100hp	1
35	03286-003	FITTING, SIPHON	1
36	91177-024	NIPPLE, PIPE-1 1/2" X CLOSE	1
**37	09610-004	VALVE, MPC-1 1/2"	1
38	96390-242	ELBOW, CMS-1 1/2" X 1 1/2"	1

* OIL RETURN SIGHT GLASS REPLACEMENT ASSEMBLY #29349-064
** REPLACEABLE RUBBER SEAL #00547-001

SULLIVAN

~ Use Lithium Grease to Service MPC.

DISCHARGE SYSTEM UDS



7.7 GAUGE PANEL AND ELECTRICAL PARTS UDS

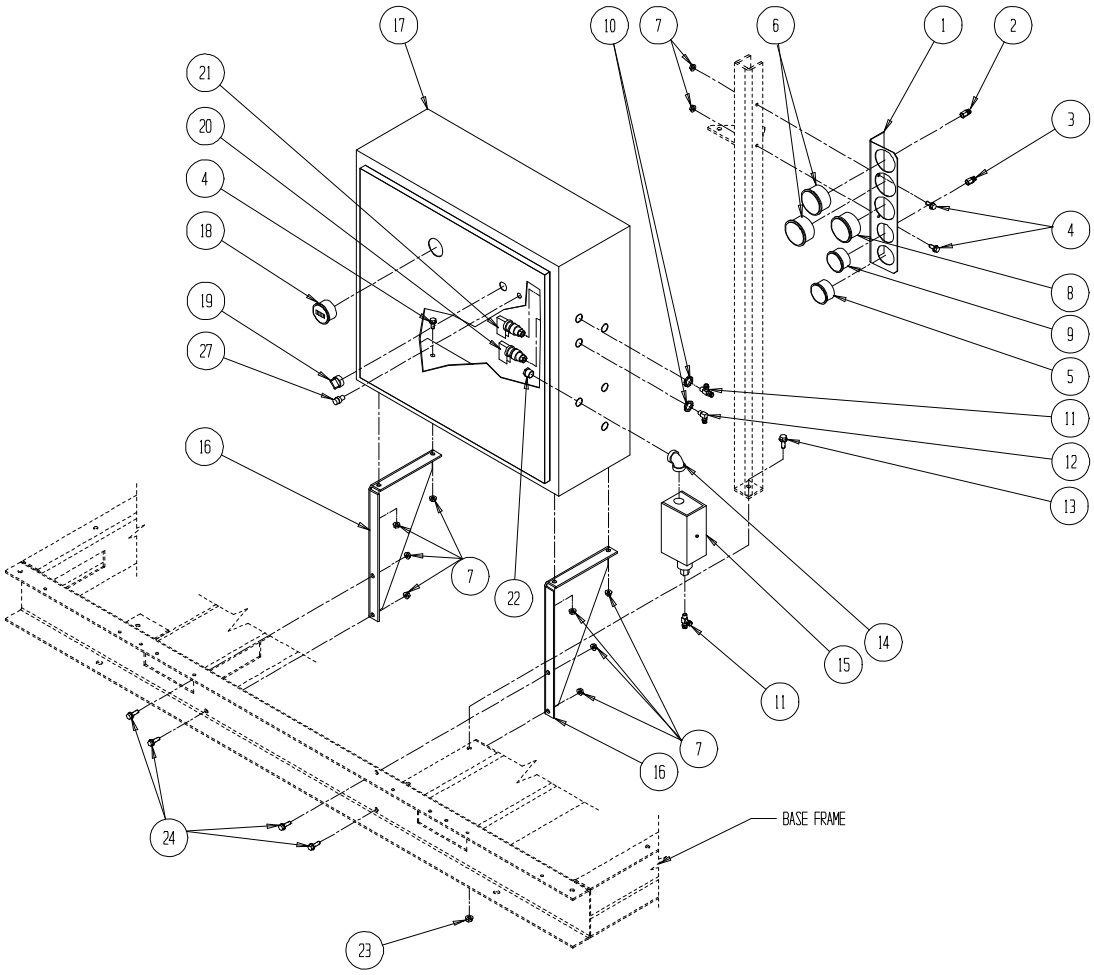
ITEM#	PART NUMBER	DESCRIPTION	QTY.
1	00944-010	PANEL, 5-GAUGE-DELUX	1
2	91550-042	FITTING, PTUBE-1/8X1/4	4
3	91550-044	FITTING, PTUBE-1/4X1/4	2
4	93115-002	BOLT, WHIZ 5/16 X 3/4	6
5	09175-030	GAUGE, DELTAP 0-30PSIG	1
6	09174-325	GAUGE, PRESSURE-2.5"	2
7	93165-003	NUT, WHIZ 5/16	10
8	08312-025G	GAUGE, TEMP-2.5"	1
9	09175-001	GAUGE, DELTAP 0-15PSIG	1
10	91401-001	NUT, CONDUIT-1/2"	2
11	91565-042	TEE, M-RUN 1/4 X 1/8	2
12	91557-042	ELBOW, NT 1/4 X 1/8	1
13	93115-013	BOLT, WHIZ-3/8 X 1	1
14	60650-009	ELBOW, RIGID COND-1/2	1
**15	09345-006	SWITCH, PRESSURE	1
16	09355-007	SUPPORT, STRT BOX	2
*17	16407-975NICSH	ENCLOSURE,STARTER ASSY	1
18	00735-120	GAUGE, HOURMETER	1
19	00701-795	SWITCH, SELECTOR	1
20	09344-001	SWITCH, ANTI-RESTART	1
21	09344-003	SWITCH, ROP	1
22	62469-008	NIPPLE, CHASE-1/2"	2
23	93165-004	NUT, WHIZ-3/8"	1
24	93115-012	BOLT, WHIZ-5/16 X 1"	4
25	00438-008	SWITCH, CDT (N.I.)	1
26	00438-009	SWITCH, HAT (N.I.)	1
27	00347-004	AMBER 'POWER ON' LIGHT	1

#25 MOUNTED IN COMPRESSOR DISCHARGE HOUSING OR DISCHARGE PIPE.
#26 MOUNTED IN THE DRY SIDE OF THE SEPARATOR TANK.
* SEE BILL OF MATERIAL FOR CORRECT P/N
** 09345-008 SWITCH, PRESSURE NEMA-4
(OPTIONAL) AIR FILTER INDICATOR #V66999-062

* FOR HIGH PRESSURE MACHINES (OVER 150 PSIG., USE 09345-012)

** FOR LOW PRESSURE MACHINES (I.E.<75PSIG) 09344-000

GAUGE PANEL AND ELECTRICAL PARTS UDS

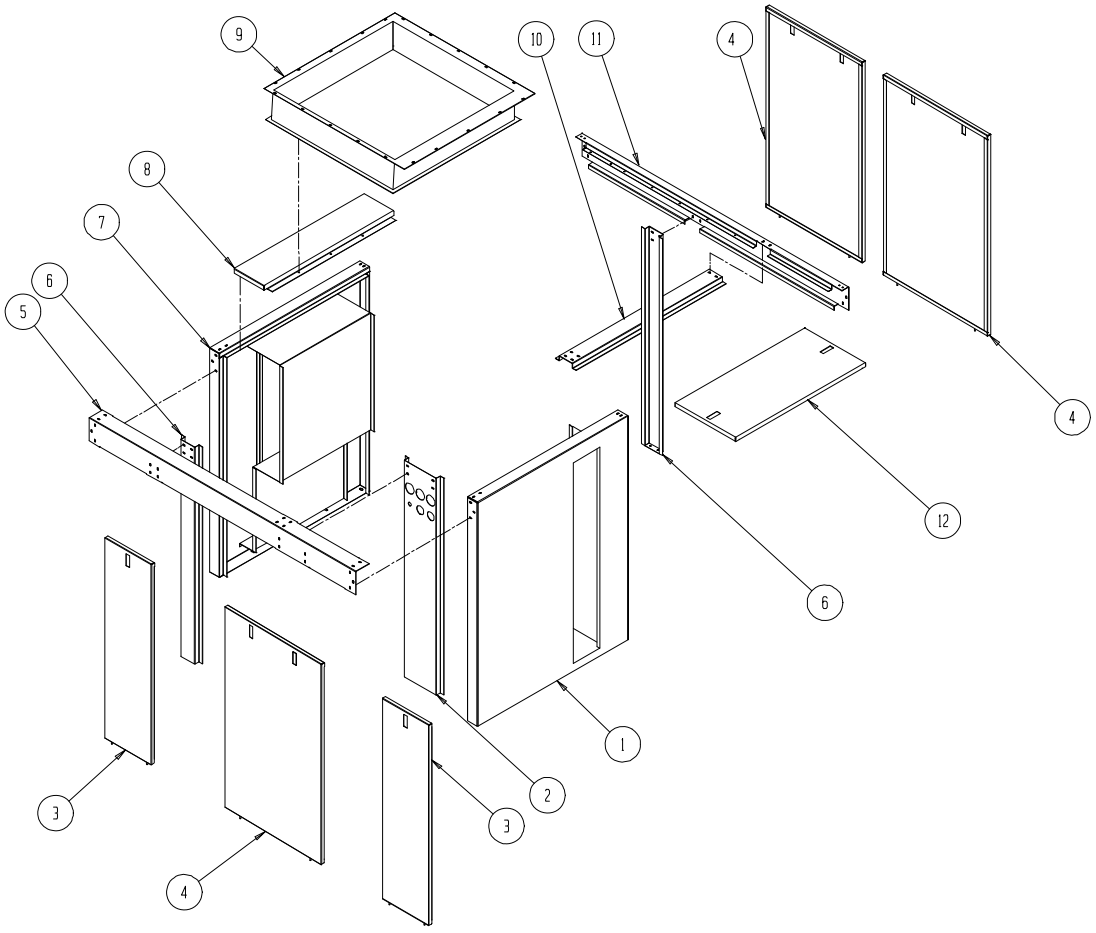


7.8 ENCLOSURE – AIR COOLED UDS

AIR COOLED ENCLOSURE ASSEMBLY PARTS LIST

	75hp	100hp		
ITEM#	PART NUMBER	PART NUMBER	DESCRIPTION	QTY
1	10947-031	10947-031	PANEL, TANK END BAFFLE	1
2	10947-036	10947-036	PANEL, SIDE SUPPORT-INST	1
3	00488-004	00488-004	DOOR, ACCESS SIDE-12"	2
4	00488-006	00488-006	DOOR, ACCESS SIDE-34"	3
5	00947-013	00947-013	PANEL, TOP-LH	1
6	10947-037	10947-037	PANEL, SIDE SUPPORT	2
7	10947-032	10947-032	PANEL, MOTOR END BAFFLE	1
8	00947-024	00947-024	PANEL, TOP-MOTOR END	1
9	10947-034	10947-033	PANEL, TOP AIR OUTLET	1
10	10947-015	10947-015	PANEL, SUPPORT TOP	1
11	00947-012	00947-012	PANEL, TOP-RH	1
12	00488-018	00488-018	DOOR, ACCESS-TOP-18.25"	1

ENCLOSURE – AIR COOLED UDS

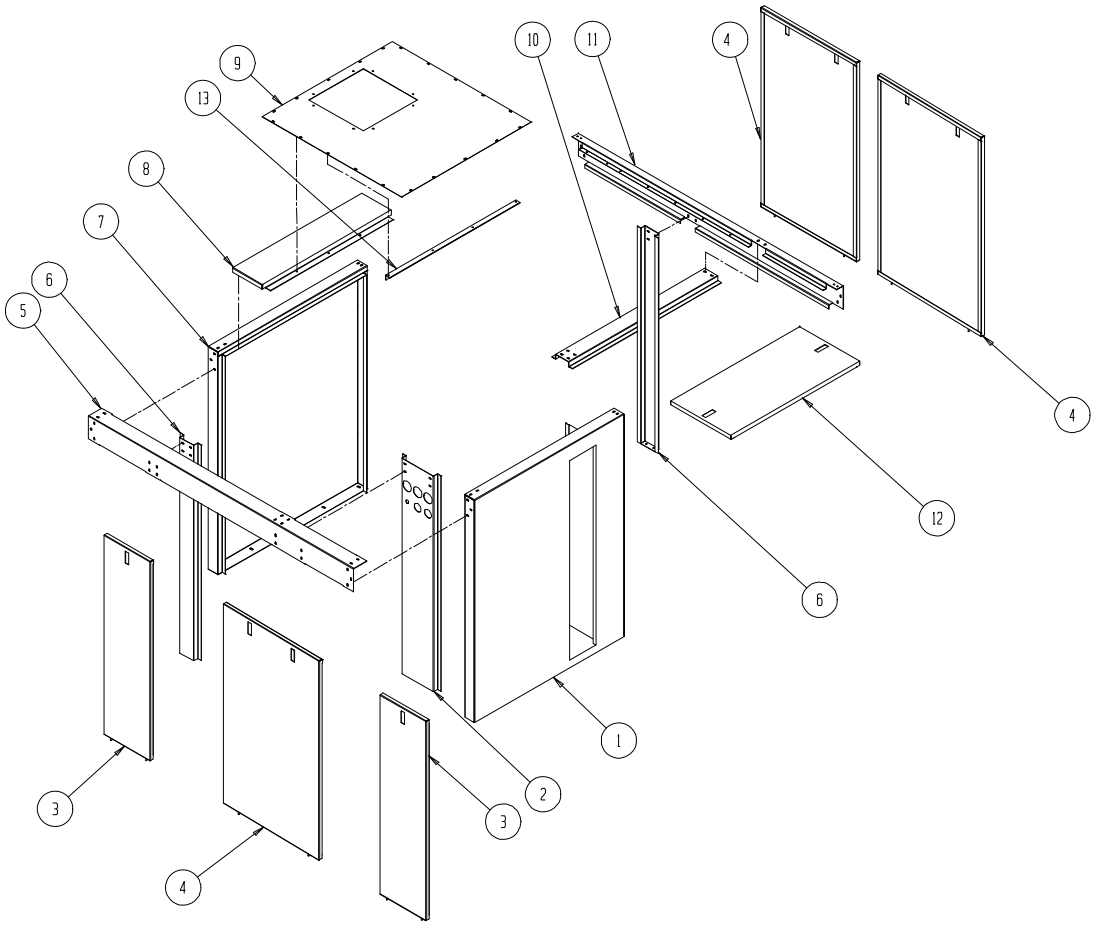


7.9 ENCLOSURE – WATER COOLED UDS

WATER COOLED ENCLOSURE PARTS LIST

ITEM#	PART NUMBER	DESCRIPTION	QTY
1	10947-031	PANEL, TANK END BAFFLE	1
2	10947-036	PANEL, SIDE SUPPORT-INST	1
3	00488-004	DOOR, ACCESS SIDE-12"	2
4	00488-006	DOOR, ACCESS SIDE-34"	3
5	00947-013	PANEL, TOP-LH	1
6	10947-037	PANEL, SIDE SUPPORT	2
7	10947-035	PANEL, MOTOR END-WC	1
8	00947-024	PANEL, TOP-MOTOR END	1
9	10947-021	PANEL, TOP FAN SUPPORT	1
10	10947-015	PANEL, SUPPORT TOP	1
11	00947-012	PANEL, TOP-RH	1
12	00488-018	DOOR, ACCESS-TOP-18.25"	1
13	00935-007	ANGLE, SUPPORT-FAN MTG.	1

*WATER COOLED VENT FAN P.N. 18080-016 1 QUANTITY NOT SHOWN ON DRAWING.



7.10 DECAL AND IDENTIFICATION

ITEM	DESCRIPTION	QTY	MODEL 75 UD	MODEL 100UD

1	PLATE, NAME/S.N.	1	03832-043	03832-043
2	DECAL, VOLTAGE 460	1	08377-001	08377-001
3	DECAL, WARNING	1	08377-043	08377-043
4	DECAL, WARNING	1	08377-045	08377-045
5	DECAL, WARNING	1	08377-046	08377-046
6	DECAL, 3-POSITION SWITCH	1	08378-048	08378-048
7	DECAL, INSTRUCTIONS	1	08379-011	08379-011
8	DIAGRAM, WIRING	1	12288-003	12288-005

SECTION 8 – WARRANTY

Sullivan-Palatek
New Industrial Compressors- 15 and greater Horsepower

Sullivan-Palatek warrants its new stationary industrial air compressor products to be free from defects in material and workmanship and against loss of capacity due to wear, subject to the following provisions:

Warranty Registration: The purchaser shall complete and return the warranty registration form within 10 days of start-up to validate the warranty. Failure to submit the warranty registration will cause the warranty effective date to be the Sullivan-Palatek ship date.

Warranty Period: The warranty period for applicable Sullivan-Palatek products is as follows (subject to the Exclusions and Limitations noted below):

- **Compressor unit and Coupling:** 60 months (5 years) from the date of start-up by authorized distributor or 66 months from date of shipment by Sullivan-Palatek, whichever occurs first.
- **Compressor Shaft Seal and Coupling Element:** Warranted for 12 months from date of start-up or 18 months from date of shipment by Sullivan-Palatek, whichever occurs first.
- **Components not manufactured by Sullivan-Palatek:** Sullivan-Palatek's warranty obligation with regard to equipment and components not of its own manufacture is limited to the warranty actually extended to the company by its supplier.
- **Oil Leaks:** Oil leaks will be covered under warranty for a period of 60 days from start up, but not longer than 90 days after shipment from Sullivan-Palatek.

Warranty replacement parts: Remainder of the original warranty period of the replaced part.

Sullivan-Palatek's Obligations: Sullivan-Palatek's exclusive obligations with respect to breach of warranty are (I) to repair or replace (at Sullivan-Palatek option and subject to return of defective parts) any defective part, (ii) to pay the reasonable cost of making the repair, or installing the replacement part (iii) to pay ground freight for the return of defective parts and shipment of replacement parts.

Customer Responsibility: As a condition to Sullivan-Palatek's obligations under this warranty, customer shall; (I) give Sullivan-Palatek written notice of warrantable failure of the Sullivan-Palatek product within the applicable warranty period, (ii) make the product available for repair; (iii) return defective parts to Sullivan-Palatek; (iv) pay reasonable travel expenses for field repairs performed at customer's request, (v) pay the costs of investigating performance complaints that are not covered by this warranty; and (vi) pay costs of air freight or other expedited delivery made at customer's request.

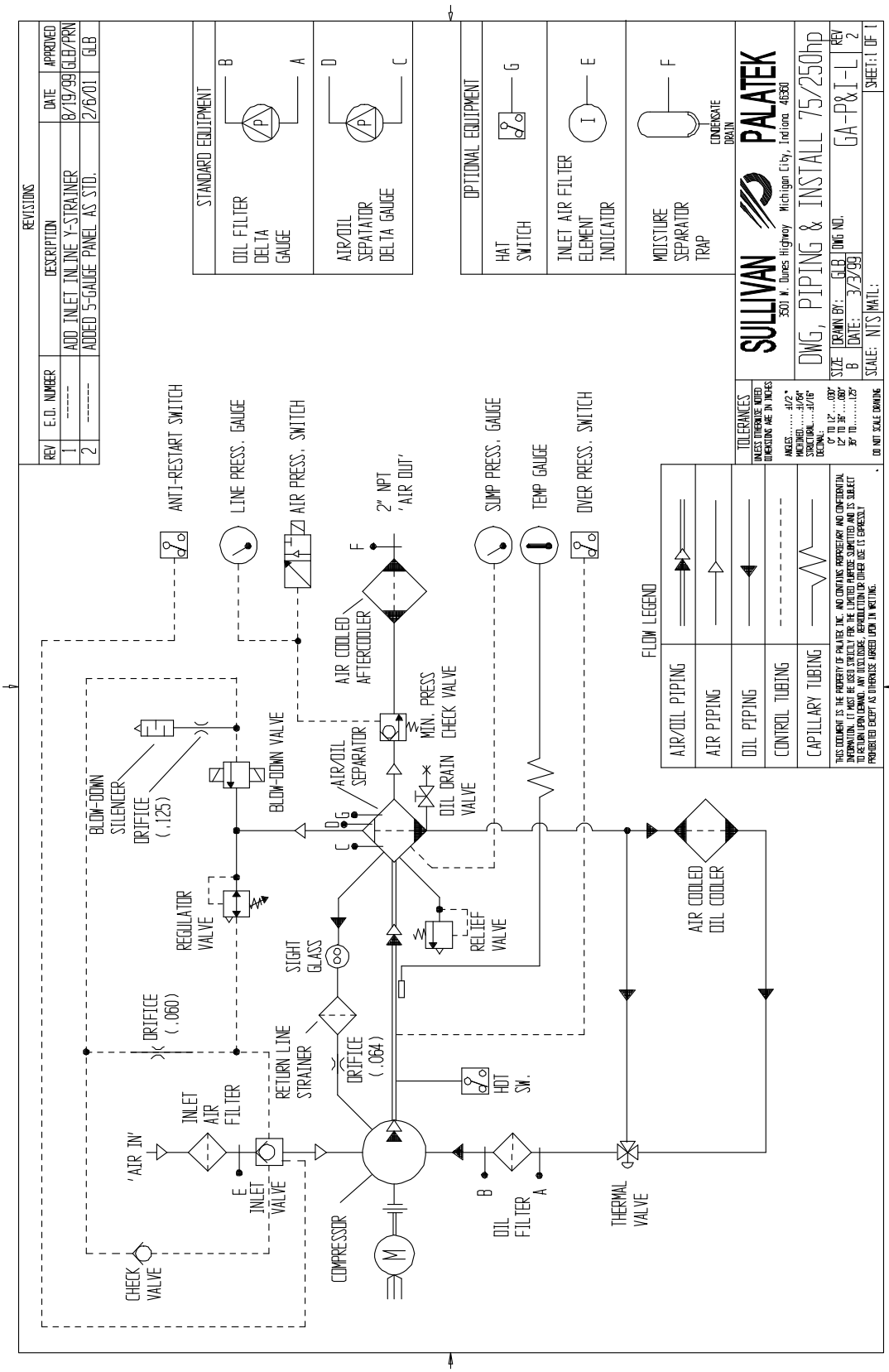
Exclusions and Limitations: Disassembly of the air compressor unit will void this warranty and the unit exchange policy. Sullivan-Palatek has no obligation for product failures or defects resulting from overload, misuse, neglect, accident, failure to comply with Sullivan-Palatek's product manual or failure to install product improvements provided by Sullivan-Palatek Attachment of accessories or service parts not supplied or recommended by Sullivan-Palatek may void the warranty of the product.

THIS WARRANTY IS SULLIVAN-PALATEK'S ONLY WARRANTY OF ITS STATIONARY INDUSTRIAL AIR COMRESSOR PRODUCTS AND IS IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED. ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE ARE EXCLUDED. SULLIVAN-PALATEK HAS NO OBLIGATION UNDER THIS WARRANTY OR OTHERWISE (REGARDLESS OF THE FORM OF ACTION) FOR SPECIAL, CONSEQUENTIAL OR INCIDENTAL DAMAGES, INCLUDING WITHOUT LIMITATION LOST PROFITS OR LOST INCOME.

This warranty applies to all Sullivan-Palatek stationary industrial air compressors of 15 horsepower or greater shipped after April 1, 2003 superseding previous warranty policies, except to the extent expressly superseded by a later warranty. In the event of any conflict between this warranty and earlier warranty statements, the terms of this warranty will control.

MAINTENANCE LOG

DATE	BY	HOURMETER READING	AIR-OIL TEMP.	LINE PRES.	SUMP PRES.	OIL RETURN CLEAR FULL	OIL LEVEL	OIL FILTER	AIR/OIL SEP.	AIR FILTER	SERVICED BY


REVISIONS
REV | E.O. NUMBER | DESCRIPTION | DATE | APPROVED
1 | ----- | ADD INLET INLINE Y-STRAINER | 8/19/99 | GLB/PRN
2 | ----- | ADDED 5-GAUGE PANEL AS STD. | 2/6/01 | GLB
STANDARD EQUIPMENT
OIL FILTER DELTA GAUGE
AIR/OIL SEPARATOR DELTA GAUGE
OPTIONAL EQUIPMENT
HAT SWITCH
INLET AIR FILTER ELEMENT INDICATOR
MOISTURE SEPARATOR TRAP
CONDENSATE DRAIN
ANTI-RESTART SWITCH
LINE PRESS. GAUGE
AIR PRESS. SWITCH
2" NPT 'AIR OUT'
SUMP PRESS. GAUGE
TEMP GAUGE
OVER PRESS. SWITCH
AIR COOLED AFTERCOOLER
MIN. PRESS CHECK VALVE
OIL DRAIN VALVE
AIR/OIL SEPARATOR
BLOW-DOWN VALVE
BLOW-DOWN SILENCER
ORIFICE (.125)
REGULATOR VALVE
SIGHT GLASS
RELIEF VALVE
AIR COOLED OIL COOLER
ORIFICE (.060)
INLET AIR FILTER
RETURN LINE STRAINER
ORIFICE (.064)
HOT SW.
'AIR IN'
INLET VALVE
COMPRESSOR
OIL FILTER
THERMAL VALVE
CHECK VALVE
FLOW LEGEND
AIR/OIL PIPING
AIR PIPING
OIL PIPING
CONTROL TUBING
CAPILLARY TUBING
TOLERANCES
UNLESS OTHERWISE NOTED DIMENSIONS ARE IN INCHES
ANGLES ±1/2°
MACHINED ±1/64"
STOCK DIAM. ±1/16"
DECIMAL
12" TO 12" ±.030"
12" TO 36" ±.060"
36" TO ±.125"
DO NOT SCALE DRAWING
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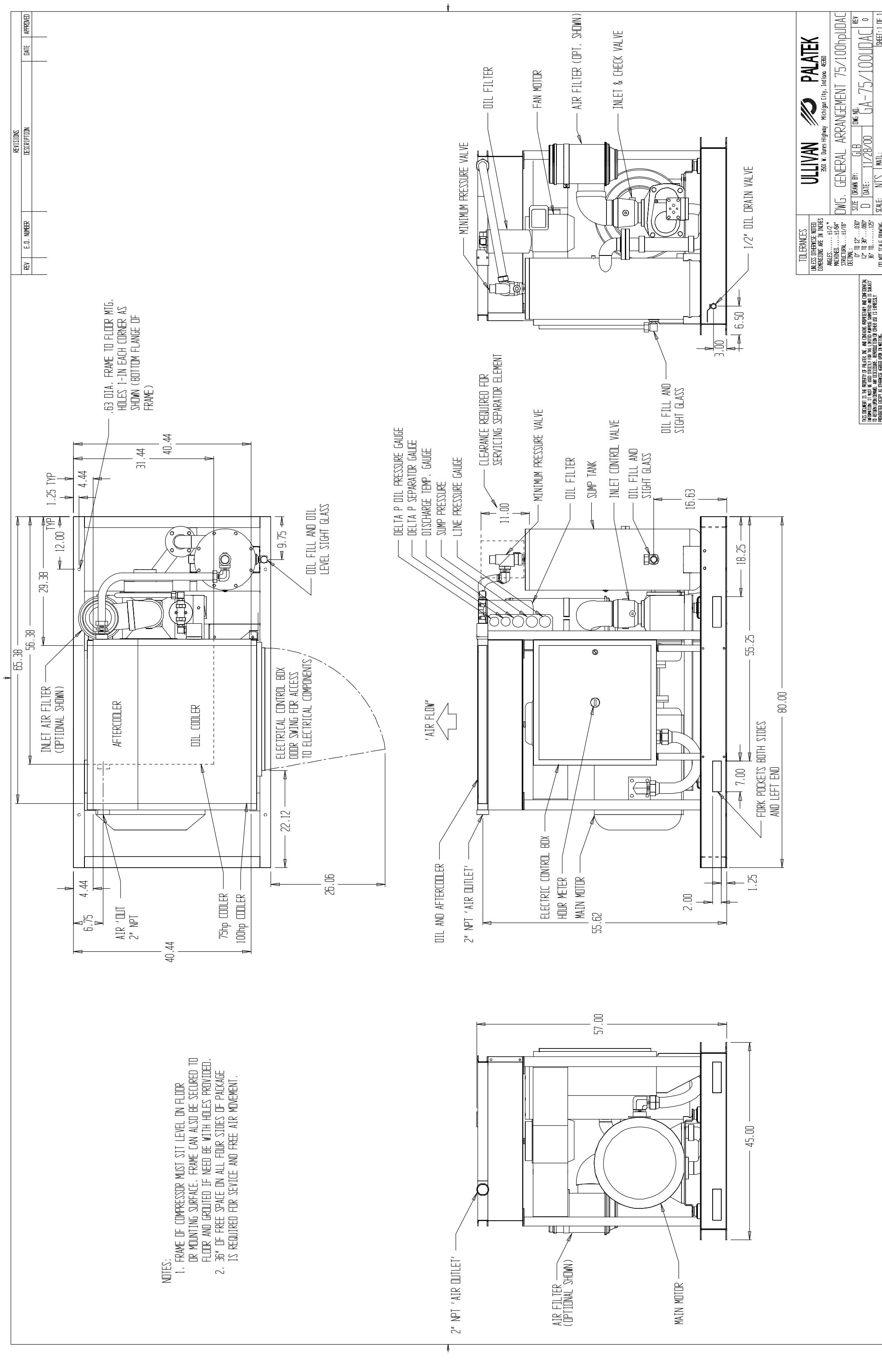
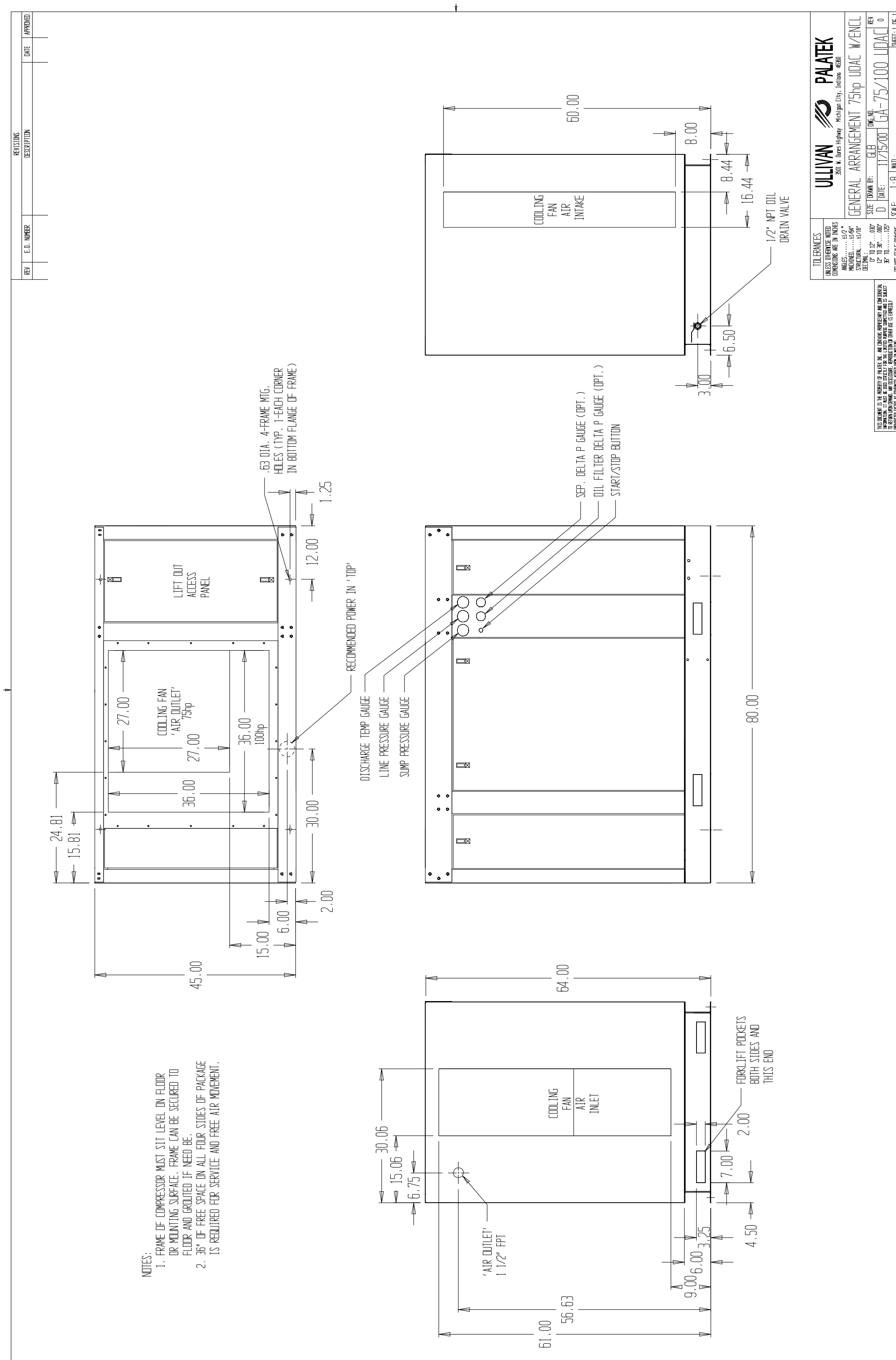
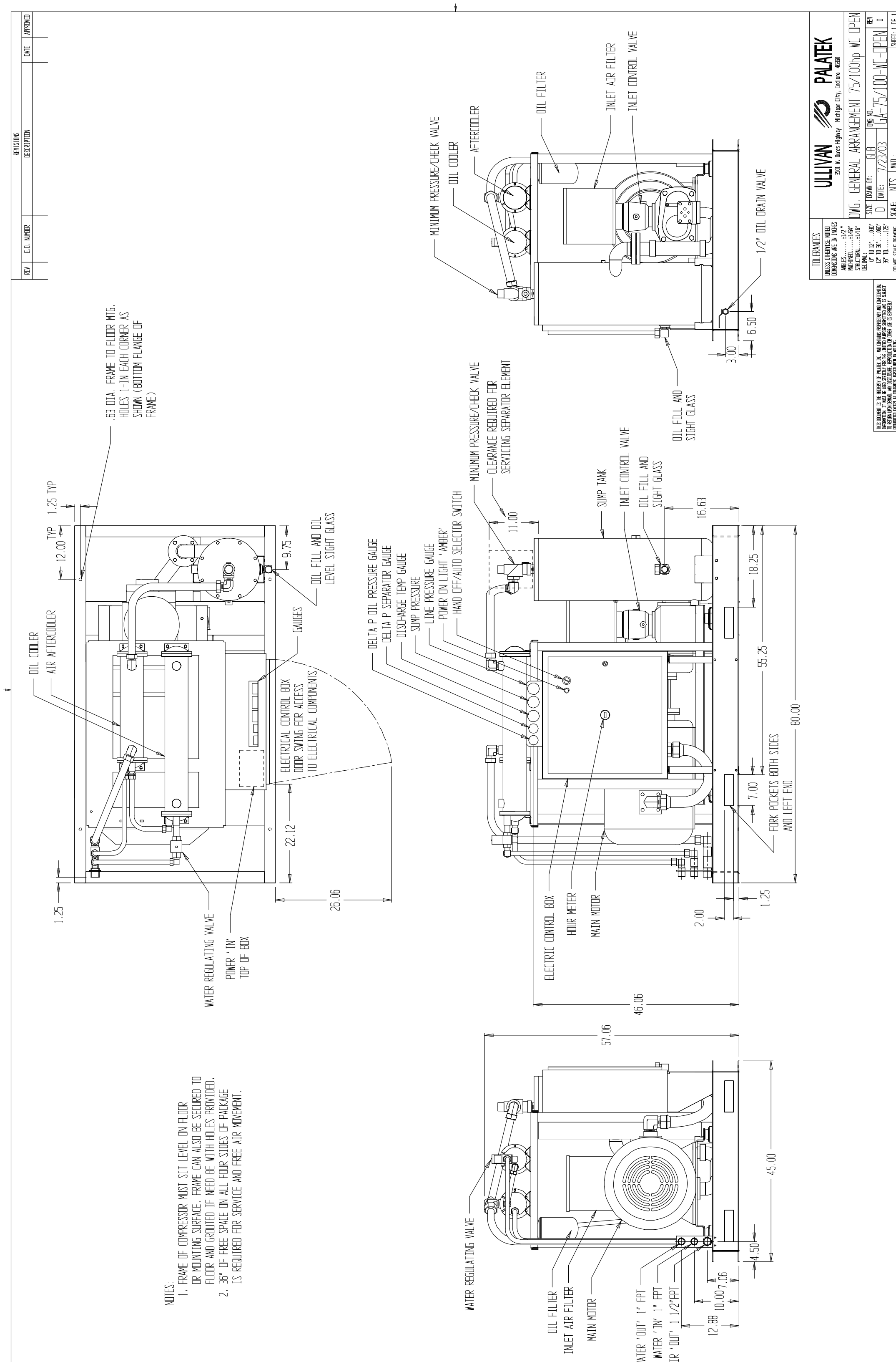
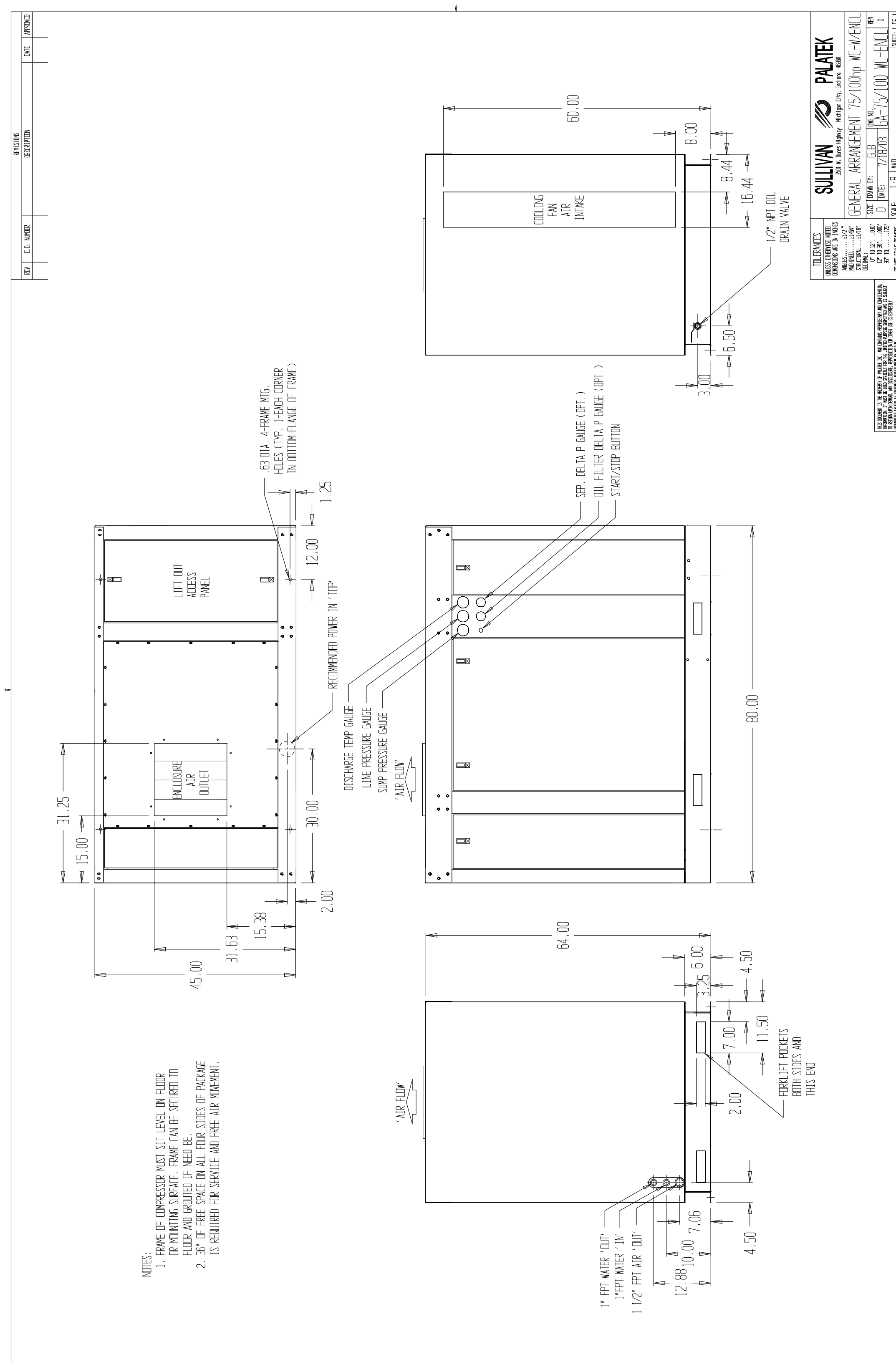
SULLIVAN PALATEK
3501 W. Dunes Highway Michigan City, Indiana 46360
DWG, PIPING & INSTALL 75/250hp
SIZE B
DRAWN BY: GLB
DATE: 3/3/99
DWG NO. GA-P&I-L
REV 2
SCALE: NTS
MATL:
SHEET: 1 OF 1


INLET AIR FILTER (OPTIONAL SHOWN)
AFTERCOOLER
OIL COOLER
ELECTRICAL CONTROL BOX DOOR SWING FOR ACCESS TO ELECTRICAL COMPONENTS
OIL FILL AND OIL LEVEL SIGHT GLASS
.63 DIA. FRAME TO FLOOR MTG. HOLES 1-IN EACH CORNER AS SHOWN (BOTTOM FLANGE OF FRAME)
AIR OUT 2" NPT
75hp COOLER
100hp COOLER
'AIR FLOW'
DELTA P OIL PRESSURE GAUGE
DELTA P SEPARATOR GAUGE
DISCHARGE TEMP. GAUGE
SUMP PRESSURE
LINE PRESSURE GAUGE
CLEARANCE REQUIRED FOR SERVICING SEPARATOR ELEMENT
MINIMUM PRESSURE VALVE
OIL FILTER
SUMP TANK
INLET CONTROL VALVE
OIL FILL AND SIGHT GLASS
OIL AND AFTERCOOLER
2" NPT 'AIR OUTLET'
ELECTRIC CONTROL BOX
HOUR METER
MAIN MOTOR
FORK POCKETS BOTH SIDES AND LEFT END
FAN MOTOR
AIR FILTER (OPT. SHOWN)
INLET & CHECK VALVE
1/2" OIL DRAIN VALVE
AIR FILTER (OPTIONAL SHOWN)
NOTES:
1. FRAME OF COMPRESSOR MUST SIT LEVEL ON FLOOR OR MOUNTING SURFACE. FRAME CAN ALSO BE SECURED TO FLOOR AND GROUTED IF NEED BE WITH HOLES PROVIDED.
2. 36" OF FREE SPACE ON ALL FOUR SIDES OF PACKAGE IS REQUIRED FOR SEVICE AND FREE AIR MOVEMENT.
SULLIVAN PALATEK
DWG. GENERAL ARRANGEMENT 75/100hpUDAC
GA-75/100UDAC
DATE: 11/28/00
SCALE: NTS
DO NOT SCALE DRAWING


NOTES:
1. FRAME OF COMPRESSOR MUST SIT LEVEL ON FLOOR OR MOUNTING SURFACE. FRAME CAN BE SECURED TO FLOOR AND GROUTED IF NEED BE.
2. 36" OF FREE SPACE ON ALL FOUR SIDES OF PACKAGE IS REQUIRED FOR SERVICE AND FREE AIR MOVEMENT.
LIFT OUT ACCESS PANEL
COOLING FAN "AIR OUTLET" 75hp
100hp
RECOMMENDED POWER IN "TOP"
.63 DIA. 4-FRAME MTG. HOLES (TYP. 1-EACH CORNER IN BOTTOM FLANGE OF FRAME)
DISCHARGE TEMP GAUGE
LINE PRESSURE GAUGE
SUMP PRESSURE GAUGE
SEP. DELTA P GAUGE (OPT.)
OIL FILTER DELTA P GAUGE (OPT.)
START/STOP BUTTON
COOLING FAN AIR INTAKE
1/2" NPT OIL DRAIN VALVE
COOLING FAN AIR INLET
"AIR OUTLET" 1 1/2" FPT
FORKLIFT POCKETS BOTH SIDES AND THIS END
SULLIVAN PALATEK
GENERAL ARRANGEMENT 75hp UDAC W/ENCL
GA-75/100 UDAC


NOTES:
1. FRAME OF COMPRESSOR MUST SIT LEVEL ON FLOOR OR MOUNTING SURFACE. FRAME CAN ALSO BE SECURED TO FLOOR AND GROUTED IF NEED BE WITH HOLES PROVIDED.
2. 36" OF FREE SPACE ON ALL FOUR SIDES OF PACKAGE IS REQUIRED FOR SERVICE AND FREE AIR MOVEMENT.
.63 DIA. FRAME TO FLOOR MTG. HOLES 1-IN EACH CORNER AS SHOWN (BOTTOM FLANGE OF FRAME)
OIL COOLER
AIR AFTERCOOLER
GAUGES
OIL FILL AND OIL LEVEL SIGHT GLASS
ELECTRICAL CONTROL BOX DOOR SWING FOR ACCESS TO ELECTRICAL COMPONENTS
WATER REGULATING VALVE
POWER 'IN' TOP OF BOX
DELTA P OIL PRESSURE GAUGE
DELTA P SEPARATOR GAUGE
DISCHARGE TEMP GAUGE
SUMP PRESSURE
LINE PRESSURE GAUGE
POWER ON LIGHT 'AMBER'
HAND OFF/AUTO SELECTOR SWITCH
MINIMUM PRESSURE/CHECK VALVE
CLEARANCE REQUIRED FOR SERVICING SEPARATOR ELEMENT
SUMP TANK
INLET CONTROL VALVE
OIL FILL AND SIGHT GLASS
ELECTRIC CONTROL BOX
HOUR METER
MAIN MOTOR
FORK POCKETS BOTH SIDES AND LEFT END
OIL FILTER
INLET AIR FILTER
WATER 'OUT' 1" FPT
WATER 'IN' 1" FPT
AIR 'OUT' 1 1/2"FPT
AFTERCOOLER
1/2" OIL DRAIN VALVE
1.25
12.00
TYP
1.25 TYP
9.75
22.12
26.06
11.00
16.63
18.25
55.25
80.00
7.00
2.00
46.06
57.06
45.00
4.50
7.06
10.00
12.88
3.00
6.50
REV
E.O. NUMBER
REVISIONS
DESCRIPTION
DATE
APPROVED
TOLERANCES
DO NOT SCALE DRAWING
ULLIVAN
PALATEK
DWG. GENERAL ARRANGEMENT 75/100hp WC OPEN
SIZE
D
DRAWN BY: GLB
DATE: 7/23/03
SCALE: NTS
MATL:
DWG NO. GA-75/100-WC-OPEN
REV 0
SHEET 1 OF 1


NOTES:
1. FRAME OF COMPRESSOR MUST SIT LEVEL ON FLOOR OR MOUNTING SURFACE. FRAME CAN BE SECURED TO FLOOR AND GROUTED IF NEED BE.
2. 36" OF FREE SPACE ON ALL FOUR SIDES OF PACKAGE IS REQUIRED FOR SERVICE AND FREE AIR MOVEMENT.
LIFT OUT ACCESS PANEL
ENCLOSURE AIR OUTLET
.63 DIA. 4-FRAME MTG. HOLES (TYP. 1-EACH CORNER IN BOTTOM FLANGE OF FRAME)
RECOMMENDED POWER IN 'TOP'
DISCHARGE TEMP GAUGE
LINE PRESSURE GAUGE
SUMP PRESSURE GAUGE
'AIR FLOW'
SEP. DELTA P GAUGE (OPT.)
OIL FILTER DELTA P GAUGE (OPT.)
START/STOP BUTTON
COOLING FAN AIR INTAKE
1/2" NPT OIL DRAIN VALVE
FORKLIFT POCKETS BOTH SIDES AND THIS END
1" FPT WATER 'OUT'
1"FPT WATER 'IN'
1 1/2" FPT AIR 'OUT'
31.25
15.00
45.00
31.63
15.38
2.00
30.00
12.00
1.25
64.00
80.00
60.00
8.00
8.44
16.44
6.50
3.00
6.00
3.25
4.50
11.50
7.00
2.00
7.06
10.00
12.88
4.50
REVISIONS
TOLERANCES
SULLIVAN PALATEK
GENERAL ARRANGEMENT 75/100hp WC-W/ENCL
GA-75/100 WC-ENCL