OPERATING AND PARTS MANUAL

FOR

INDUSTRIAL ELECTRIC AIR COMPRESSOR
5, 7.5, 10, AND 15 HP

(BP "TYKE" MODEL)

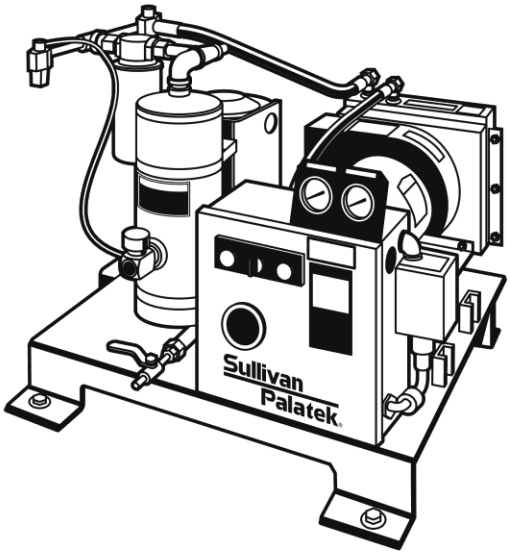
02/06

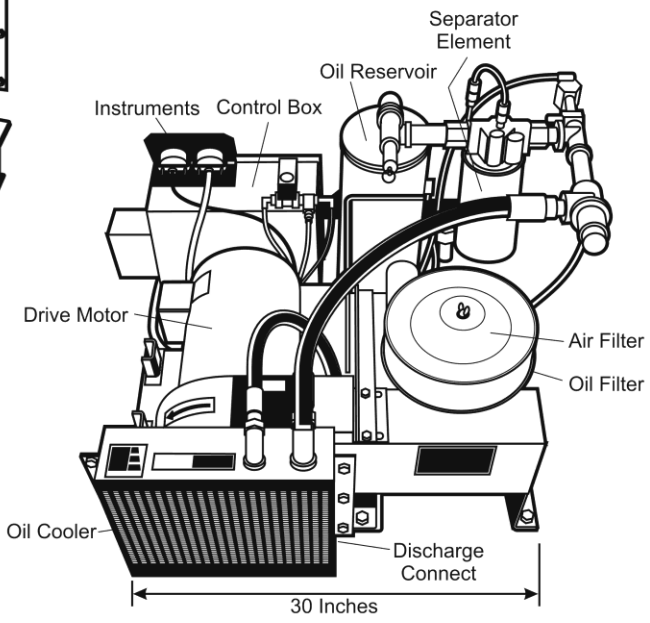
Part Number: OPM510-005

TABLE OF CONTENTS

GENERAL SPECIFICATIONS

OIL RESERVOIR CAPACITY	1 GALLON
LENGTH	30”
HEIGHT	26”
WIDTH	26 1/4”
WEIGHT 5HP	210
WEIGHT 7.5HP	280
WEIGHT 10HP	300
WEIGHT 15HP	310
DISCHARGE CONN.	3/4” FPT





APPLICATION DATA

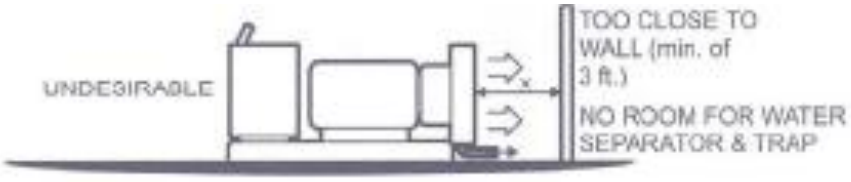
MODEL	5BP	H5BP	HH5BP	7.5BP	H7.5BP	HH7.5BP	10BP	H10BP	HH10BP
60 Hz									
COMPRESSOR DATA									
Capacity, ACFM	20	17.5	14	28	24	18.5	40	33	28
Maximum F.L., psig	125	150	175	125	150	175	125	150	175
Minimum F.L., psig	60	60	60	60	60	60	60	60	60
Motor horsepower	5	5	5	7.5	7.5	7.5	10	10	10
Motor speed	1,725	1,725	1,745	1,750	1,750	1,750	3,450	3,450	3,450
Driven pulley	4.06"	4.06"	4.06”	4.06"	4.06"	4.06”	4.06"	4.06"	4.06"
Drive ratio	1.46	1.21	1.03	1.97	1.97	1.97	1.46	1.21	1.03
Rotor diameter, MM	74/61.6	74/61.6	74/61.6	74/61.6	74/61.6	74/61.6	74/61.6	74/61.6	74/61.6
SOUND DATA (dba @ 1m)									
Air Cooled open	81	81	81	83	83	83	85	85	85
Air Cooled enclosed	75	75	75	77	77	77	79	79	79
COOLING DATA, AIR COOLED									
Fan Air Flow, CFM	350	350	350	350	350	350	700	700	700
After Cooler Approach, degree F	20	20	20	18	18	18	22	22	22
Oil Sump, fluid capacity	1 gal.	1 gal.	1gal.	1 gal.	1 gal.	1 gal.	1 gal.	1 gal.	1 gal.
ELECTRICAL DATA (3 PHASE)									
Motor, FLA @ 575V (1)	5.4	5.4	5.4	7	7	7	9.3	9.3	9.3
Motor, FLA @ 460V	6.6	6.6	6.6	8.5	8.5	8.5	11.6	11.6	11.6
Motor, FLA @ 230V	13.2	13.2	13.2	17	17	17	23.2	23.2	23.2
Motor, FLA @ 208V	14.5	14.5	14.5	19	19	19	25.6	25.6	25.6
Motor, FLA @ 200V (1)	15.5	15.5	15.5	22	22	22	27	27	27
Motor Insulation Class	F	F	F	F	F	F	F	F	F
Motor Service Factor	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
Max. Motor Starts/Hr.	15	15	15	15	15	15	15	15	15
Amperage For Fuse Sizing									
575 Volt, Amps	7	7	7	11	11	11	12	12	12
460 Volt, Amps	9	9	8	14	14	14	15	15	15
230 Volt, Amps	18	18	18	25	25	25	30	30	30
208/200 Volt, Amps	20	20	20	25	25	25	35	35	35
Control Voltage	120	120	120	120	120	120	120	120	120
Fuse 1 ea	1 Amp	1 Amp	1 Amp	1 Amp	1 Amp	1 Amp	1 Amp	1 Amp	1 Amp
Fuse 2 ea	.5 Amp	.5 Amp	.5 Amp	.5 Amp	.5 Amp	.5 Amp	.5 Amp	.5 Amp	.5 Amp
(1) SPECIAL MOTOR REQUIRED									
Updated 1-2-00									

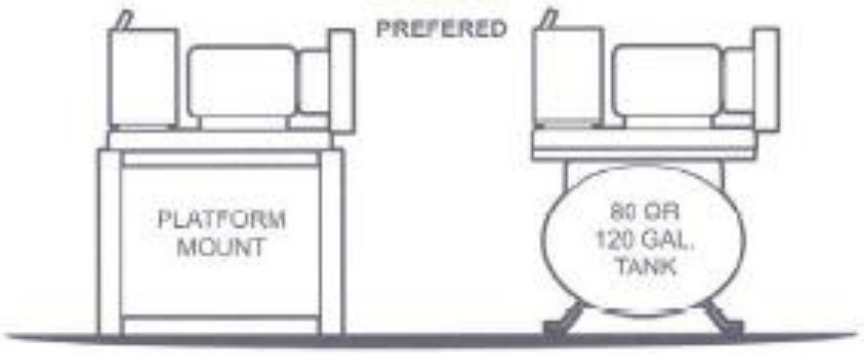
APPLICATION DATA

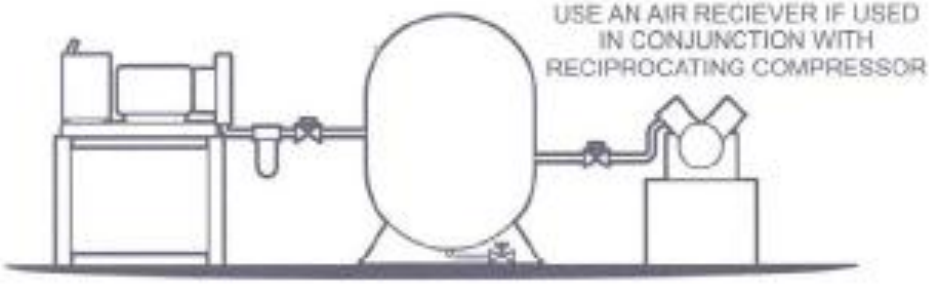
MODEL	15BP	H15BP	HH15BP
60 Hz			
COMPRESSOR DATA			
Capacity, ACFM	52	52	44
Maximum F.L., psig	160	160	190
Minimum F.L., psig	60	60	60
Motor horsepower	15	15	15
Motor speed	3,450	3,450	3,450
Driven pulley	108mm	108mm	108mm
Drive ratio	1.88	1.88	1.62
Rotor diameter, MM	74/61.6	74/61.6	74/61.6
SOUND DATA (dba @ 1m)			
Air Cooled open	88.5	88.5	87.5
Air Cooled enclosed	82.5	82.5	81.5
COOLING DATA, AIR COOLED			
Fan Air Flow, CFM	850	850	850
After Cooler Approach, degree F	12	15	12
Oil Sump, fluid capacity	1 Gallon	1 Gallon	1 Gallon
ELECTRICAL DATA (3 PHASE)			
Motor, FLA @ 575V (1)	14.0	14.0	14.0
Motor, FLA @ 460V	17.5	17.5	17.5
Motor, FLA @ 230V	35.0	35.0	35.0
Motor, FLA @ 208V	39.0	39.0	39.0
Motor, FLA @ 200V (1)	40.0	40.0	40.0
Motor Insulation Class	F	F	F
Motor Service Factor	1.15	1.15	1.15
Max. Motor Starts/Hr.	10.0	10.0	10.0
Amperage For Fuse Sizing			
575 Volt, Amps	20	20	20
460 Volt, Amps	30	30	30
230 Volt, Amps	50	50	50
208/200 Volt, Amps	60	60	60
Control Voltage	120	120	120
Fuse 1 ea	.75	.75	.75
Fuse 2 ea	.50	.50	.50
Updated 09-15-03			

INSTALLATION AND START UP

A.) Insure that there is adequate ventilation in the room! Do not mount compressor any closer than 3 feet from the cooler to a wall.
B.) Install a shut-off valve between the compressor and the air distribution.
C.) On an aftercooled compressor provide a water separator and trap. Provide a suitable drain for the condensate water.
D.) Check compressor for proper oil level.
E.) At first start-up and after any power reconnection check for proper rotation!
F.) If installing on a system with other compressors, provide isolation by means of an air receiver or adequate piping length.
G.) Before any maintenance work is performed, shut off the electrical power supply.
H.) Do not weld on compressor package.







COMPRESSOR FLOW DESCRIPTIONS

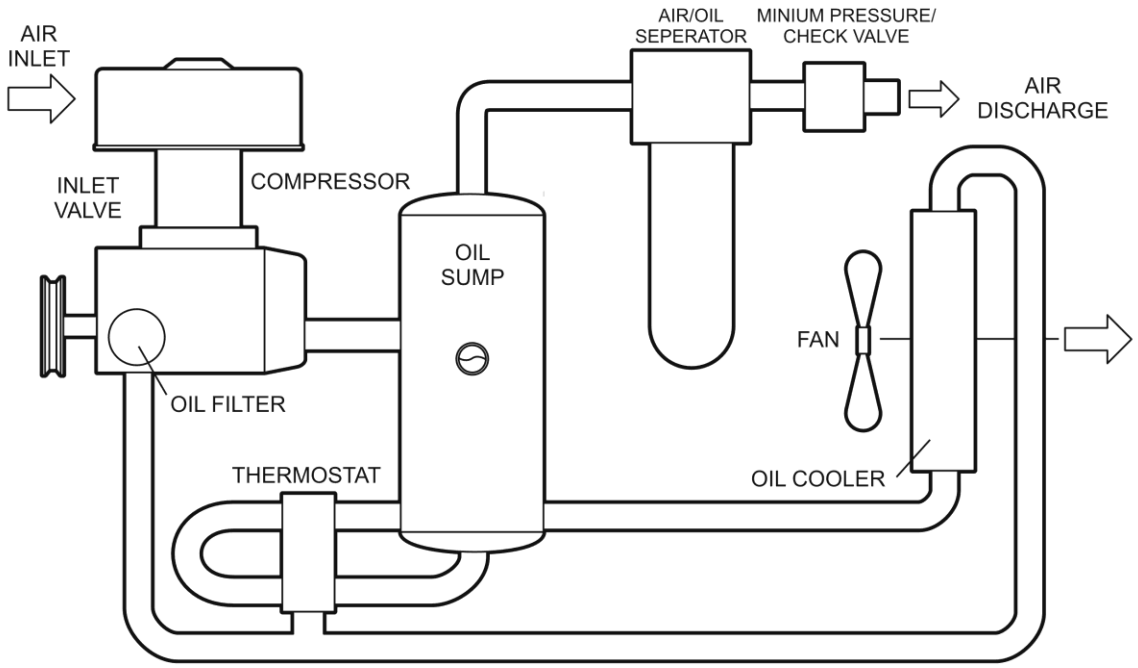
Air Flow

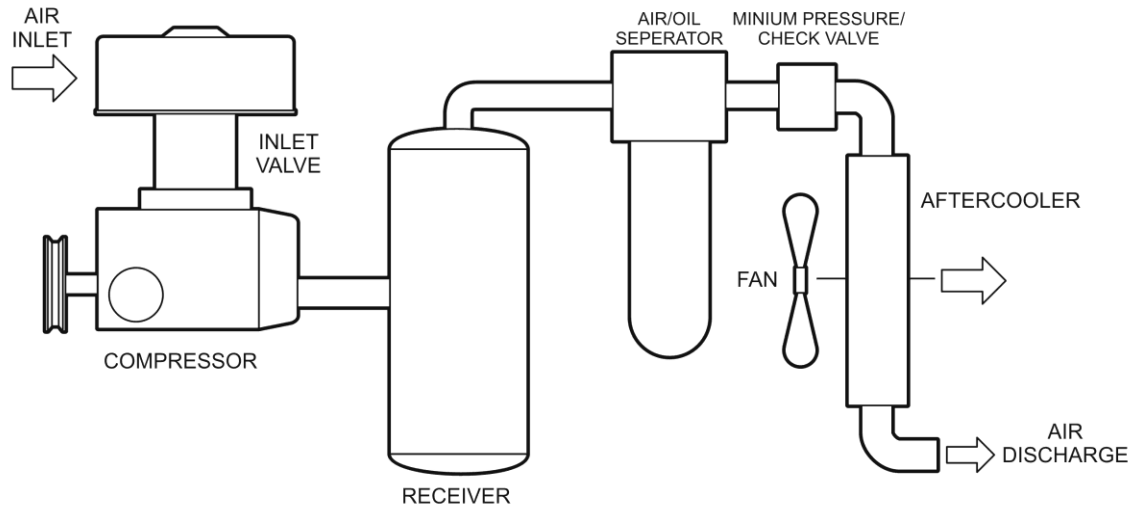
Proper cooling air flow is a must!
Air is drawn into the compressor through the inlet valve which controls loaded and unloaded operation. The compressed air and oil mixture travels through the oil sump where the bulk of the oil is dropped out. The remainder is taken out of the compressed air stream by the separator, which returns the oil via the oil return orifice which serves to prevent excessive air re-circulation. The compressed air flows through a minimum pressure valve (in order that a differential pressure exists to provide oil flow) prior to discharge into the air system. Often an aftercooler and water separator are also introduced into the airflow to allow moisture removal for the compressed air.

Oil Flow

The Tyke compressor is oil cooled; therefore, proper oil circulation is crucial. Oil is circulated to the compressor by maintaining a higher pressure in the oil sump than at the compressor injection point. Oil is taken from the bottom of the oil sump to a thermal valve, which maintains proper operating temperatures. From the thermal valve the oil flows through the oil cooler and then back to the compressor. Prior to injection into the unit, the oil flows through the spin-on oil filter.

COMPRESSOR FLOW OUTLINES





COMPRESSOR OPERATING FUNDAMENTALS

When initially started, the inlet valve will open due to the suction developed by the rotating screws. This will allow the compressor to build up pressure in the sump. Once the minimum operating pressure (about 40 PSIG) is reached, the minimum pressure device will allow air to be fed into the system.

Once the system set pressure is reached (as set by the Control Pressure Switch), the unloader valve is de-energized causing system pressure to be fed to the inlet valve thus closing the valve and unloading the compressor. Also, sump pressure is reduced by the bleed-off orifice at the inlet valve of the compressor. The compressor will continue to run unloaded until the solenoid valve is re-energized by the control pressure switch.

Two different methods of operation are possible. With the selector switch in the 'Run' position, the compressor runs continually. If the automatic control option has been added, the compressor will shut off after the timer has timed out with the selector switch in the "Auto" position.

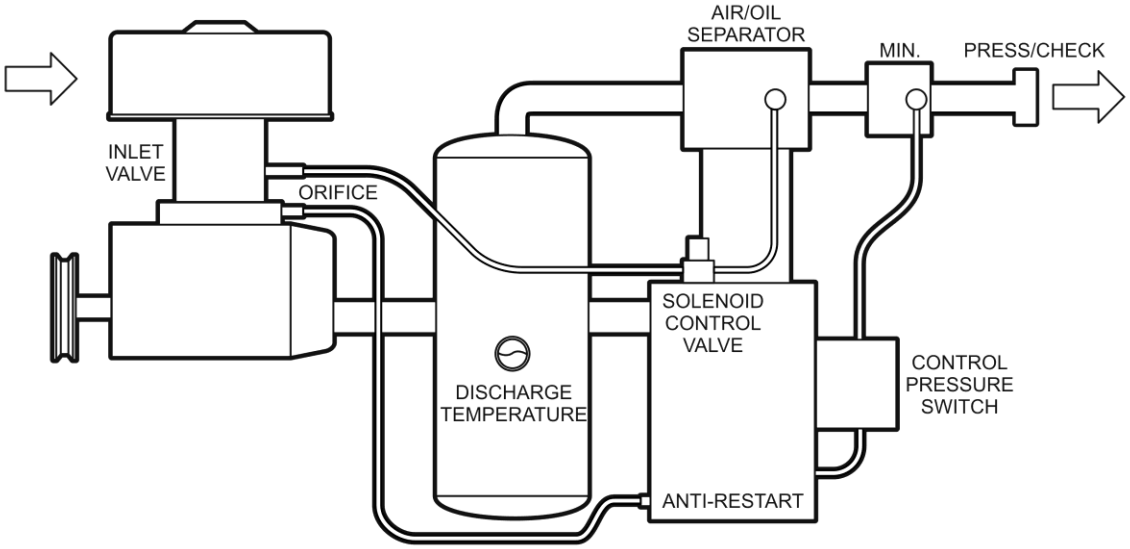
CONTROL OPERATION

A.) Normal capacity control is achieved by utilizing a pressure switch (CPS) which will unload the compressor when the pressure set point is reached. At this set point, this switch removes power from the normally open solenoid valve, which then allows air pressure to close the inlet valve while also lowering the sump pressure. With the control switch in the "Run" position, the compressor continues to run unloaded until the line pressure falls below the set point (this is determined by the dead band setting - turn the lower adjusting screw to change the differential (**Note: The upper screw may then have to be re-set to keep the desired cut-off; clockwise raises the pressure**).

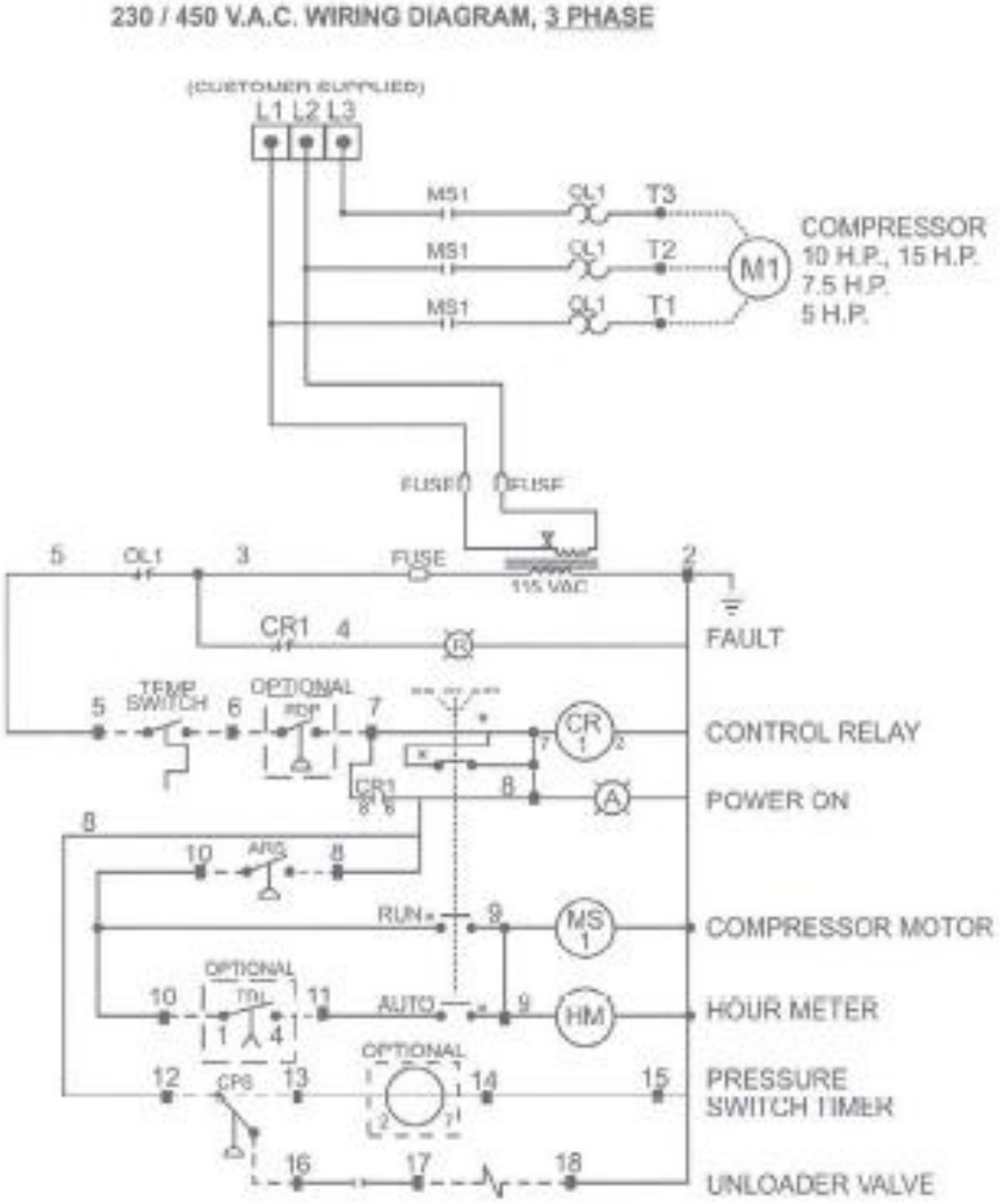
B.) If the compressor is equipped with dual control, the compressor (after unloading) will run for a set time interval (typically 2 to 5 min.) and then shut off. Once line pressure falls below the set point plus the dead-band, the compressor will re-start to maintain pressure.

C.) If the compressor is equipped with modulating control, the compressor inlet valve will receive an air pressure signal from the regulating valve causing it to start pinching shut, thus varying the compressor capacity. Once the line pressure setting is reached, the control functions as described in (A) above.

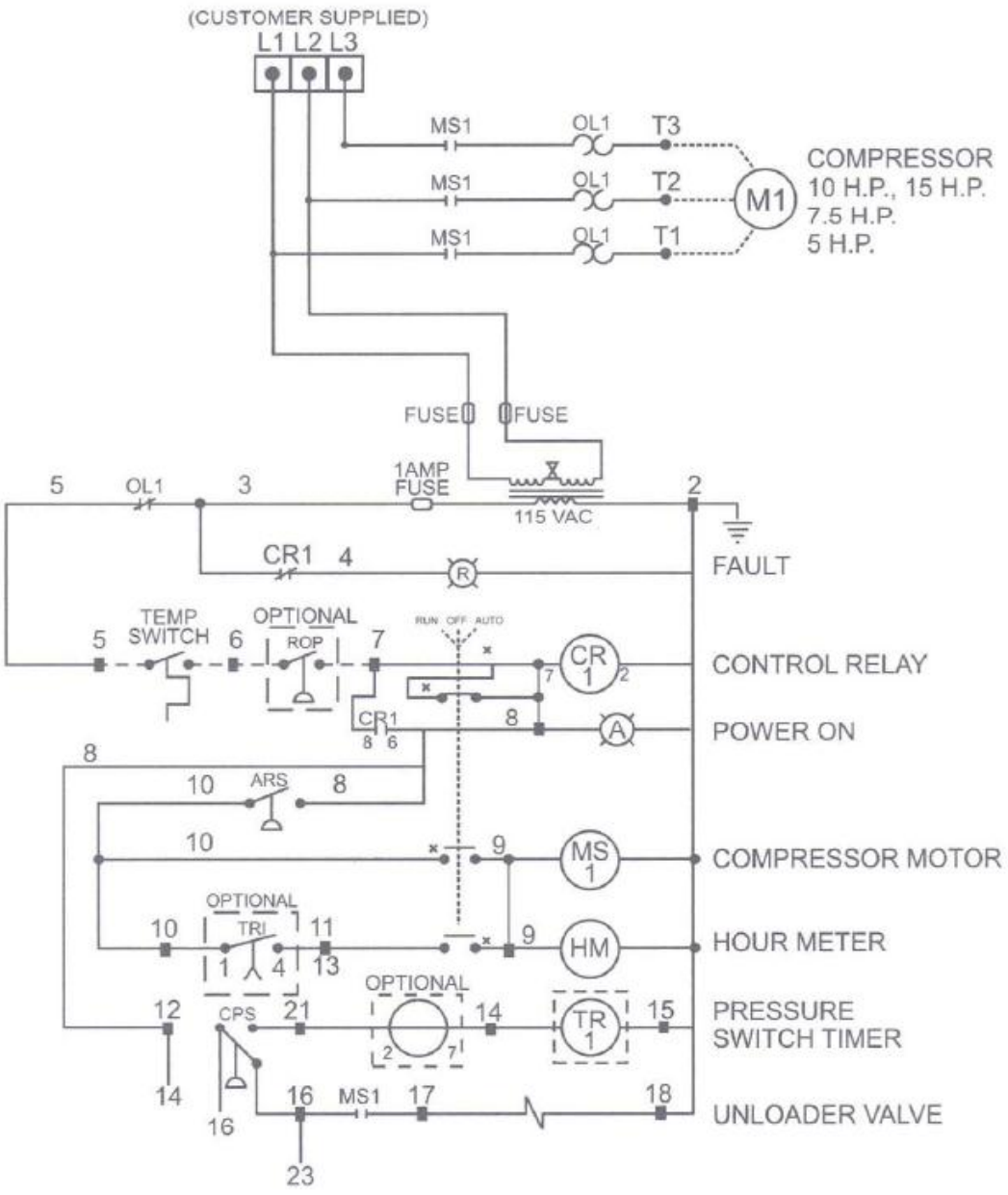
CONTROL SCHEMATIC



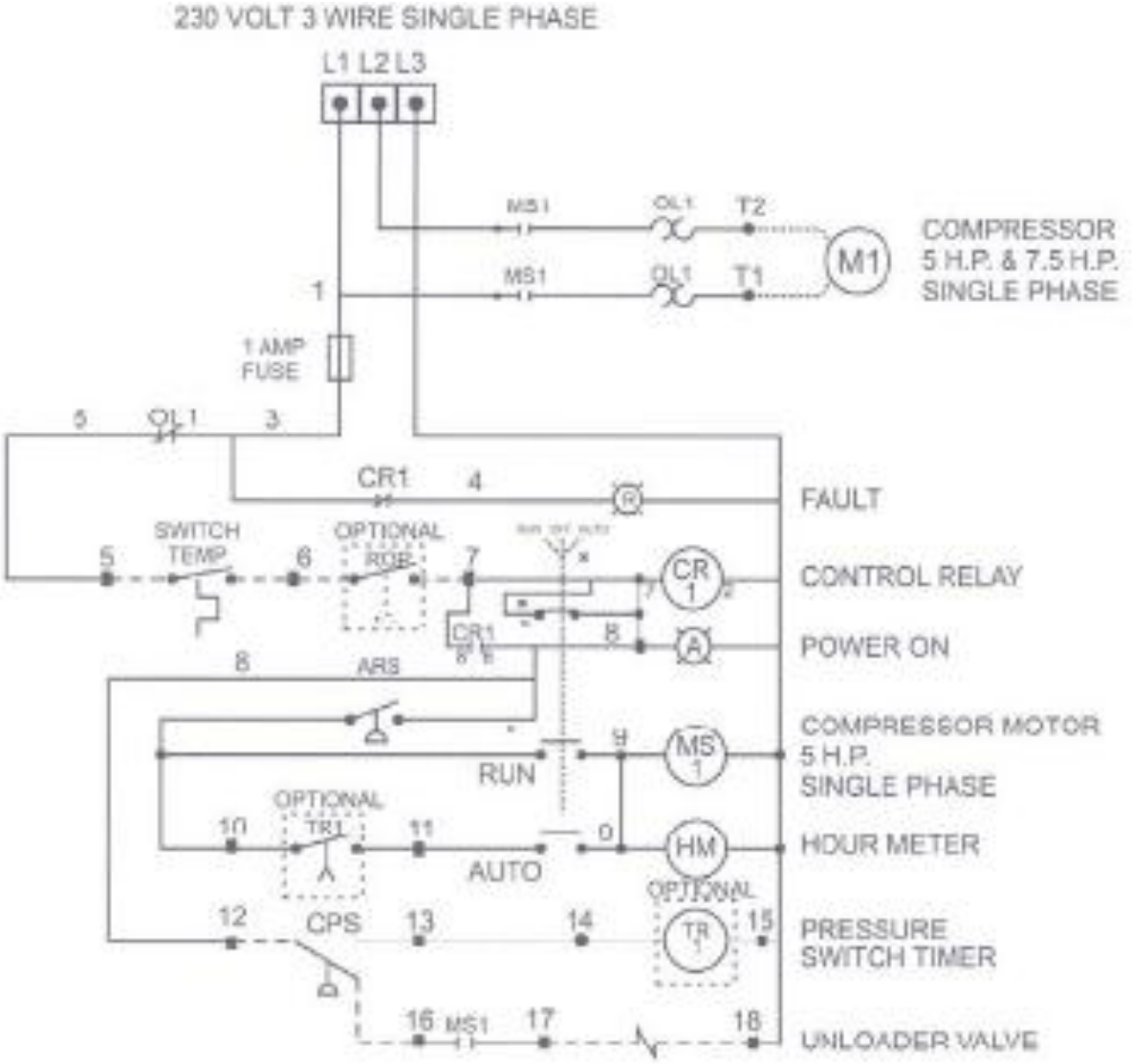
WIRING DIAGRAM 3 PHASE - 5 HP, 7.5 HP, 10 HP, 15 HP



230 / 450 V.A.C. WIRING DIAGRAM, 3 PHASE - SHOWING BLT CONNECTIONS



WIRING DIAGRAM SINGLE PHASE - 5 HP, 7.5 HP



MAINTENANCE RECOMMENDATIONS

PROCEDURE	DAILY	WEEKLY	50 HRS	1000 HRS	4000 HRS	WHEN NEEDED
1. CHECK WATER TRAP	X					
2. CHECK OIL LEVEL		X				
3. CHECK BELT TIGHTNESS			X	X		
4. CHANGE OIL					X	
5. CHANGE OIL FILTER #34-30050-305			X	X		
6. CHANGE OIL SEPARATOR #34-40050-419					X	
7. CHANGE AIR INLET FILTER #31-85644-309				X		X
8. CHANGE BELTS						X
9. CLEAN COOLER SURFACES				X		X
10. CLEAN RESTRICTOR HOLE IN OIL RETURN ORIFICE						X

MAINTENANCE PROCEDURES**

Air Filter Servicing: (31-85644-309)

1. Remove wing nut from top of air filter cover.
2. Lift off air filter cover.
3. Replace air filter element.
4. Replace filter cover & tighten wing nut.

Oil Filter Change: (34-30050-305)

1. Check to make sure no pressure exists in sump (pull line off at separator inlet).
2. Place a small pan (cake pan will do) under oil filter.
3. Spin off oil filter (strap wrench may be required).
4. Oil gasket on new filter and tighten by hand as much as possible.
5. Check for leakage @ oil filter after starting compressor.

Separator Change: (34-40050-419) (Prior to 8/98 install kit K34-40050-449)

1. Pull pressure line off one of the separator taps.
2. Spin off separator (strap wrench required).
3. Oil new gasket and spin on new separator by hand as much as possible.
4. Re-tighten separator once compressor has warmed up.
5. Check separator for leakage after several hours of operation.

Belt Tension Adjustment:

1. Remove oil cooler assembly from support, (6, 5/16 bolts)
2. Remove compressor belt guards, (6, 1/4 bolts)
3. Loosen bolts on motor base.
4. Tighten belts to 100lb tension (approx. 1/4” deflection).
5. Check pulley alignment. If off, tighten left rear motor bolt and adjust tension screw to give proper pulley alignment.
6. Recheck belt tension.
7. Replace belt-guard and cooler assembly.

As Required:

1. Clean exterior surface of oil cooler / aftercooler.
2. Lubricate motor (refer to motor manufacturer’s recommendations.)
3. Clean & grease MPV with Lithium Grease ex: Lubriplate 630-2 or Mobil SHCPM.

**Before starting any maintenance, be sure power is off.

MAINTENANCE PROCEDURES CONT'D.

Shaft Seal Replacement (31-89542-409)

1. Switch off electrical power to compressor.

2. Remove belt guards.

3. Remove belt tension & remove belts.

4. Using an 8mm Allen Wrench, tap loose the Compressor Pulley Bolt. This bolt has left hand threads!

5. Loosen bolt part way and tap pulley lightly to move out.

6. Once pulley is off, inspect Shaft Seal Sleeve for marks or grooves. If any are found, replace sleeve.

7. Extract Shaft Seal from compressor. Lightly tap Shaft Seal in place after coating O.D. with silicone sealant.

8. Re-Assemble pulley to compressor by lightly tapping on the face.

9. Tighten compressor bolt (Note: Left hand thread). Rotate pulley to be sure it is running true. Tighten bolt by tapping.

TROUBLESHOOTING

SYMPTOM	REMEDY
MACHINE DOES NOT START	1. IS POWER ON?
	2. IS MOTOR O.L. TRIPPED? -RESET AND CHECK SETTING -CHECK CURRENT DRAW -CHECK WORKING PRESSURE
	3. IS A FUSE BLOWN? -REPLACE AND CHECK AMP. RATING
	4. IS DISCHARGE TEMPERATURE CUTTING OFF COMPRESSOR? -CHECK OPERATING TEMP. -CHECK FOR PROPER OIL LEVEL -CHECK OILCOOLER CLEANLINESS -CHECK THERMAL VALVE OPERATION -CHECK FOR HIGH AMBIENT TEMP. AND AIR RECIRCULATION
	5. ON DUAL CONTROL -IS LINE PRESSURE UP?
HIGH OIL CONSUMPTION	1. IS OIL RETURN ORIFICE CLOGGED? -REMOVE, CLEAN, AND REPLACE
	2. IS OIL SEPARATOR BAD? -REPLACE
	3. IS COMPRESSOR OIL CORRECT? -REPLACE WITH APPROVED OIL
INSUFFICIENT AIR DELIVERY	1. IS INLET FILTER CLOGGED? -REMOVE AND REPLACE
	2. IS SEPARATOR CLOGGED? -REMOVE AND REPLACE
	3. ARE BELTS SLIPPING? -INCREASE BELT TENSION

SPARE PARTS RECOMMENDATIONS

For normal usage, the following spare parts are recommended:

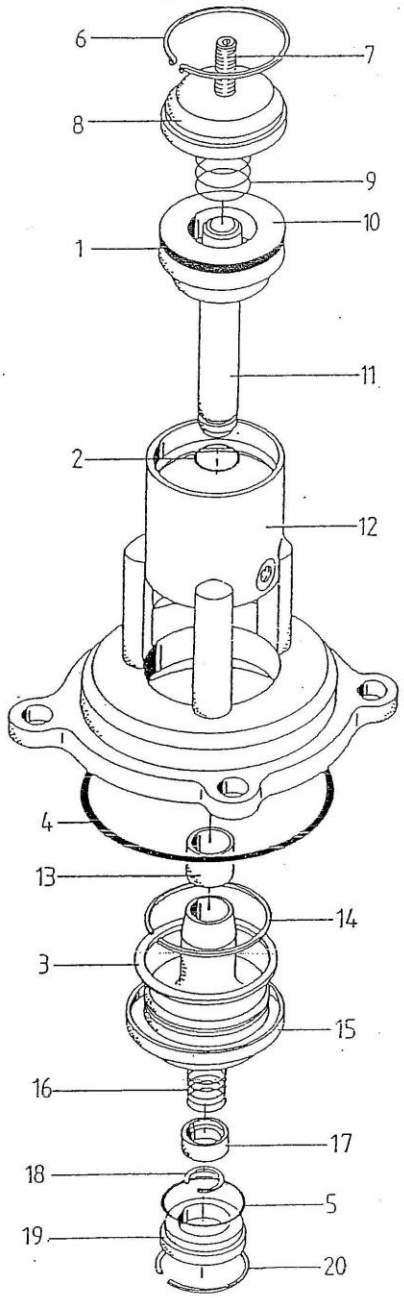
3	34-30050-305	OIL FILTER
1	31-85644-309	AIR FILTER
*1	34-40050-419	SEPARATOR (5HP - 7 1/2HP & 10HP & 15)
2 GAL	00061-005A (5 gal.)	LUBRICANT
		DRIVE BELTS
2	34-20100-203	FOR 10 HP
2	34-20050-400	FOR 7.5 HP
2	34-20100-203	FOR 5 HP
2	34-20153-450	FOR 15 HP

ADDITIONAL SPARE PARTS LISTING:

1	08312-001	TEMPERATURE GAUGE
1	09174-020	PRESSURE GAUGE
1	09345-015**	CONTROL PRESSURE SWITCH
1	09344-001	ANTI-RESTART SWITCH
1	40529-010	SOLENOID VALVE
1	34-30100-302	COOLING FAN
1	08080-015	COOLING FAN, 15 HP
2	34-30100-319	HOSE ASSEMBLY, OIL COOLER
1	34-30100-320	HOSE ASSEMBLY, AFTER COOLER
1	34-60103-607	DISCHARGE TEMP. SWITCH
1	31-03389-010	INTAKE VALVE REPAIR KIT
1	31-89542-409	SHAFT SEAL KIT
1	91553-042S	ORIFICE FITTING, OIL RETURN
1	34-30100-311	COOLER, 5-10 HP
1	07711-006	COOLER, 15 HP

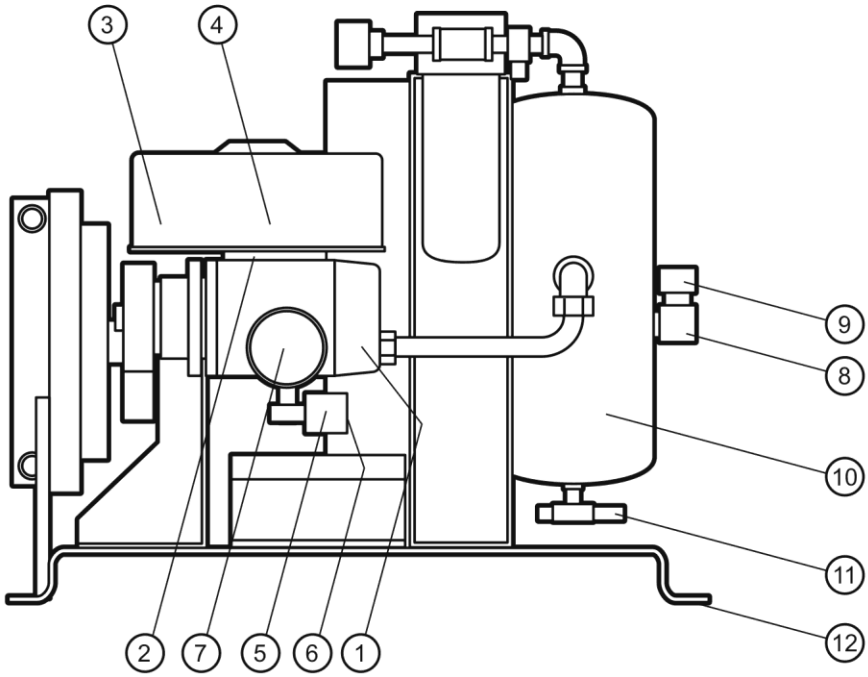
- *Machines built prior to September, 1997 may require a separator and head assembly due to a design change. Please consult factory with machine serial number.
- **Machines built prior to April 1, 2002 use Pressure Control Switch, Number 09344-002. Machines built between April 2002 and June 2005 use pressure switch 09345-006.

INTAKE VALVE COMPONENTS

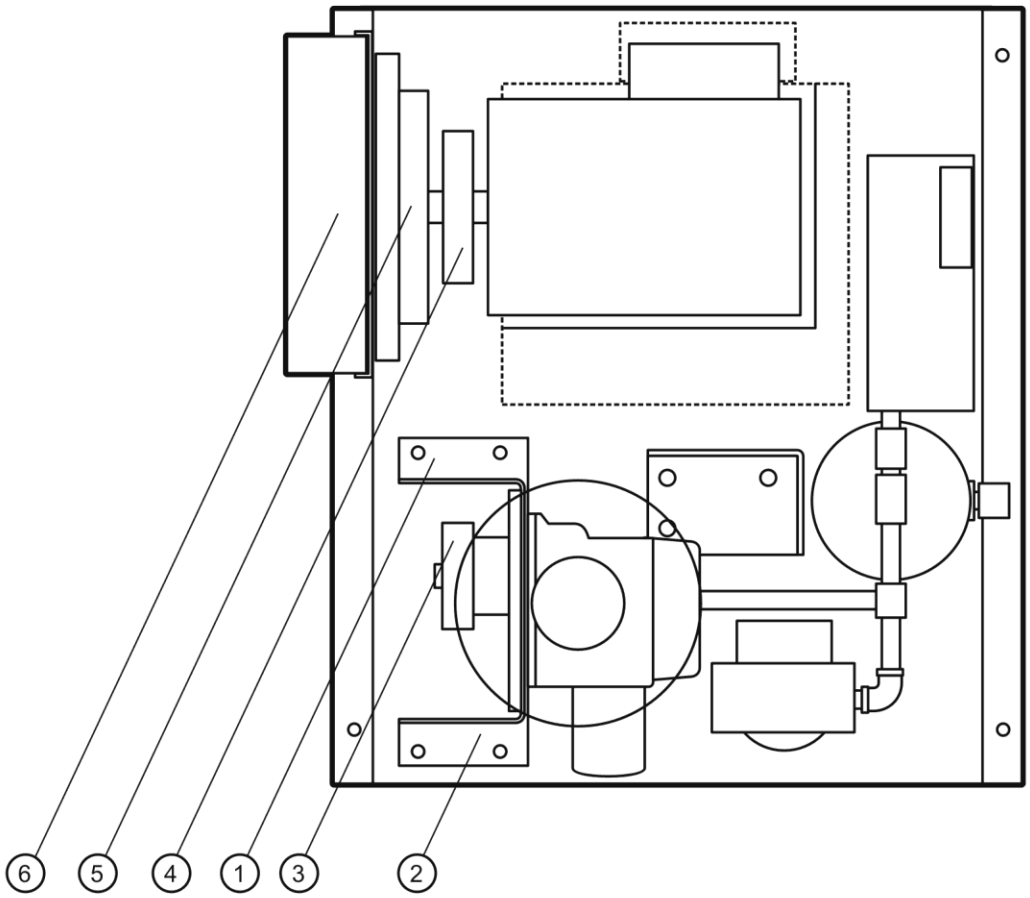


REF. NO	PART NUMBER	QTY	DESCRIPTION
			INTAKE VALVE
	31-03388-708		INTAKE VALVE
	31-03389-010		SEAL KIT ASSY (PARTS-1-5)
1		1	GASKET
2		1	O-RING
3		1	GASKET
4		1	O-RING
5		1	O-RING
6		1	LOCK RING
7		1	SCREW
8		1	COVER
9	31-03397-308	1	SPRING
10		1	PISTON
11		1	PISTON SHAFT
12		1	FRAME
13		1	BEARING
14		1	RETAINING RING
15		1	PLATE
16		1	SPRING
17		1	BEARING BUSHING
18		1	LOCK RING
19		1	PLUG
20		1	LOCK RING

COMPONENTS LOCATIONS

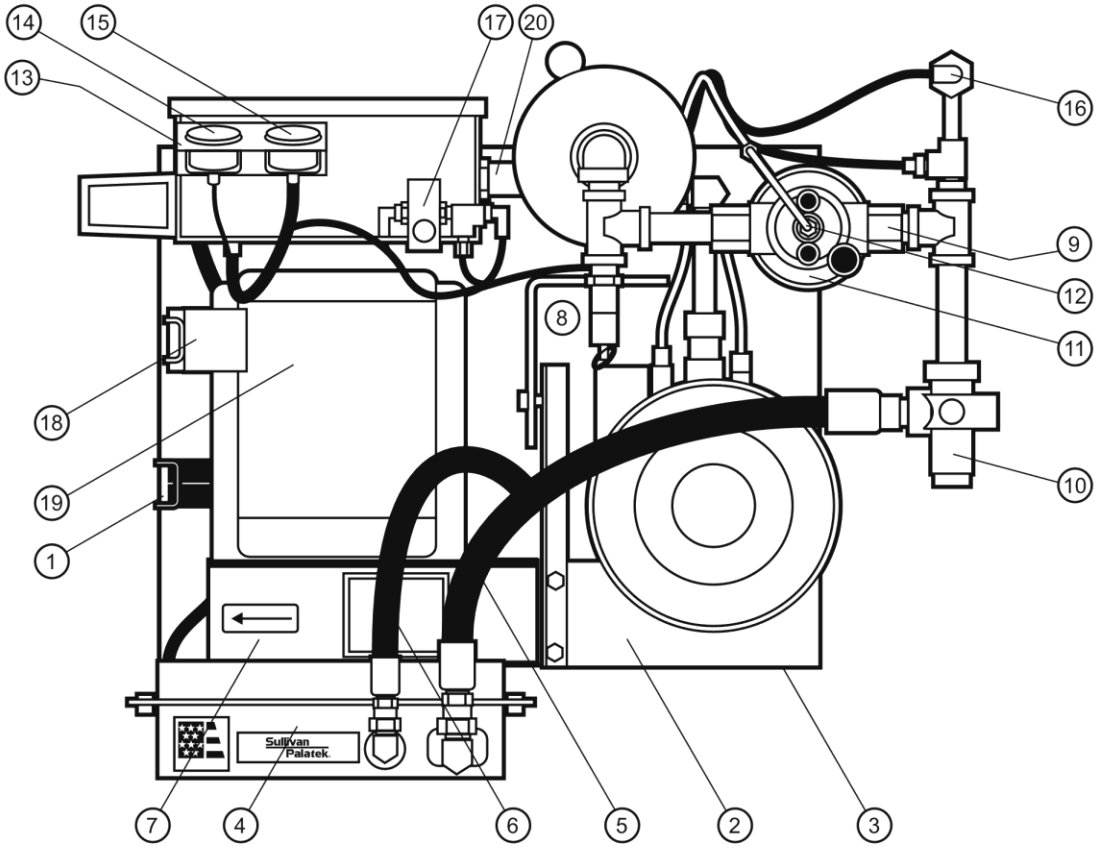


ITEM #	DESCRIPTION	PART #
1.	AIR END E-3	31-03965-362
2.	VALVE, INLET	31-03388-708
3.	COVER, INLET FILTER	31-03748-298
4.	ELEMENT, INLET FILTER	31-85644-309
5.	HOUSING, THERMOSTAT	08207-007
6.	VALVE, THERMOSTAT	34-30050-303
7.	ELEMENT, OIL FILTER	34-30050-305
8.	ELBOW, OIL FILLER / SIGHT	17254-016
9.	CAP, OIL FILL	97255-016
10.	RECEIVER / SUMP	34-40050-401
11.	VALVE, DRAIN	95784-004
12.	BASE, TYKE 5-15 HP	10144-002



ITEM#	DESCRIPTION	PART#
1.	SUPPORT, COMPRESSOR - L	34-70100-703
2.	SUPPORT, COMPRESSOR - R	34-70100-704
3.	SHEAVE, COMP. E-3	31-03383-888
4.	SHEAVE, 6"	34-20100-606
5.	FAN, COOLING	34-30100-302
6.	OIL / AFTERCOOLER	34-30100-311

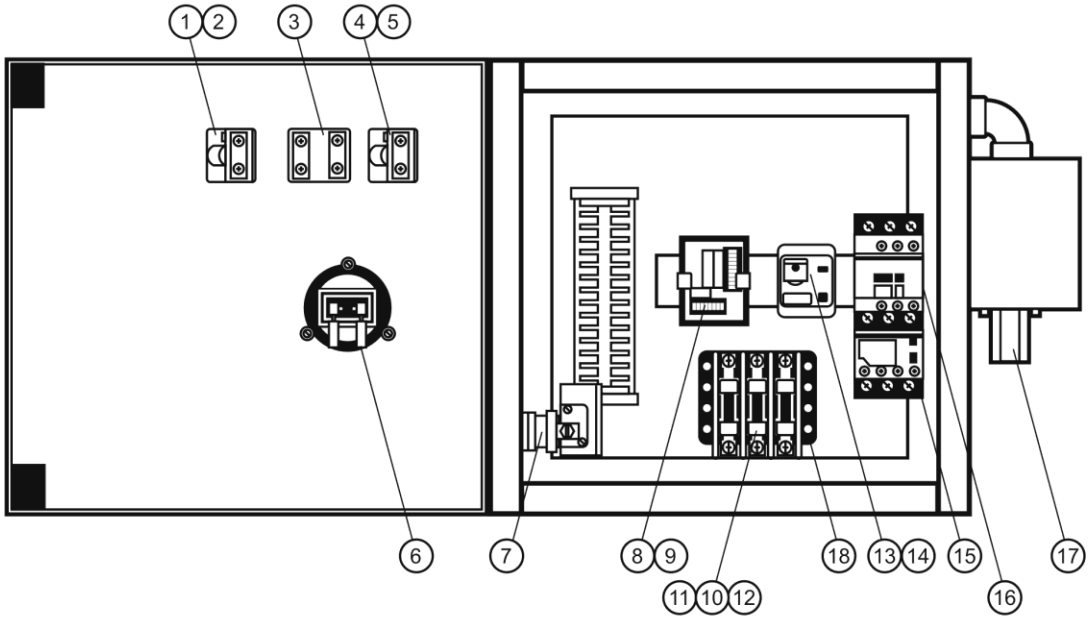
DISCHARGE COMPONENTS LOCATIONS



1.	BRACKET, BELT TENSIONER	00216-065
2.	BELTS, 5 HP	34-20100-203
	7.5 HP	34-20050-400
	10 HP	34-20100-203
3.	GUARD, BELT	34-20100-204
4.	COOLER	34-30100-311
5.	HOSE, ASSY AFT. CLR	34-30100-320
6.	HOSE, ASSY OIL CLR	34-30100-319
7.	SHROUD FAN	34-30100-324
8.	VALVE, RELIEF ½”	03100-001
9.	FITTINGS, SIPHON	03286-003
10.	VALVE, MPV 3/4”	09610-002
11.	ELEMENT, OIL SEPARATOR	34-40050-419
12.	HEAD, OIL SEPARATOR	34-40050-440
13.	PANEL GUAGE 2-HOLE	34-50050-507
14.	GUAGE, PRESSURE	09174-020
15.	GUAGE, TEMPERATURE	08312-001
16.	VALVE, REGULATOR (OPTIONAL)	09661-002
17.	VALVE, SOLENOID	40529-010
18.	TENSIONER, BELT	34-70100-706
19.	MOTOR, 5 HP 230/460	08740-005
	7.5 HP 230/460	08740-007
	10 HP 230/460	08740-010
20.	SWITCH, DISC. TEMP.	34-60103-607

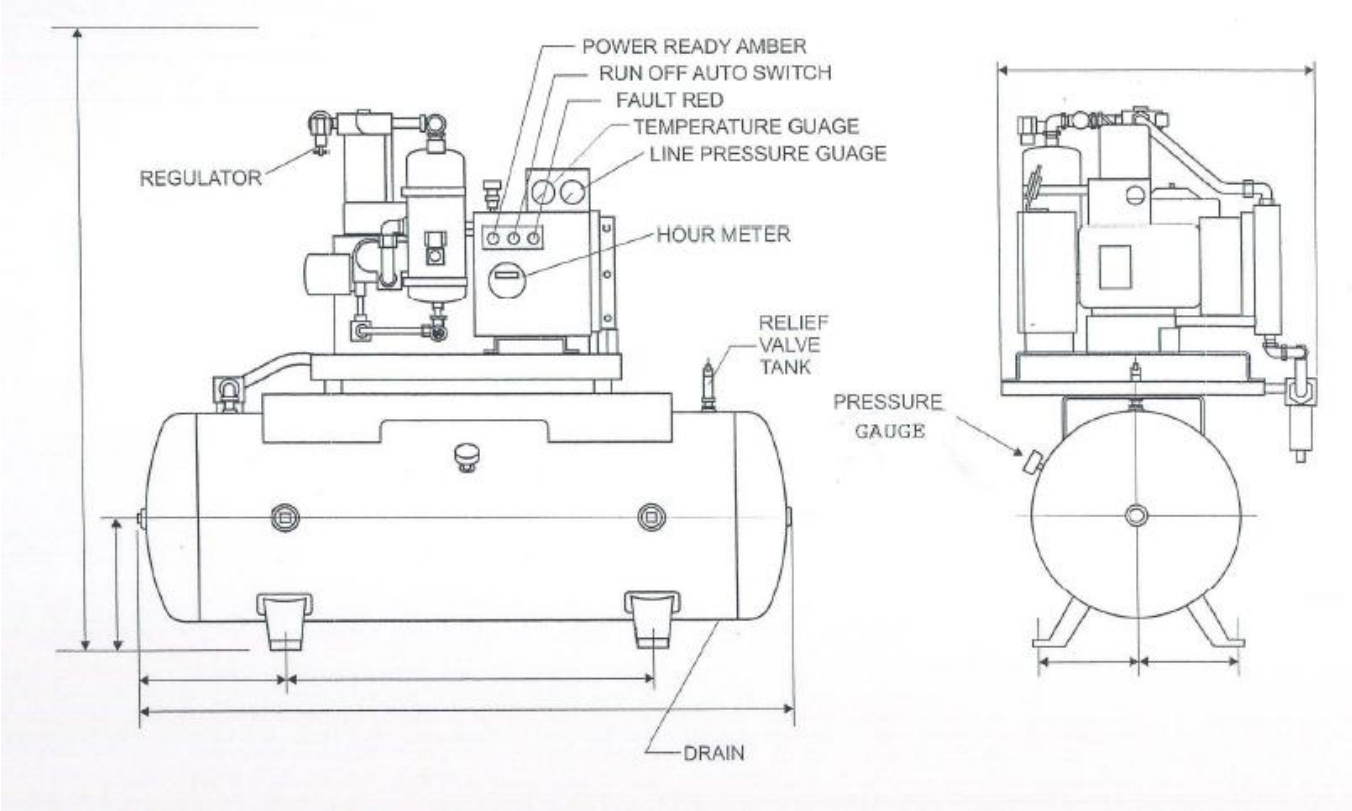
CONTROL COMPONENTS LOCATIONS

CONTROL COMPONENTS LOCATIONS:

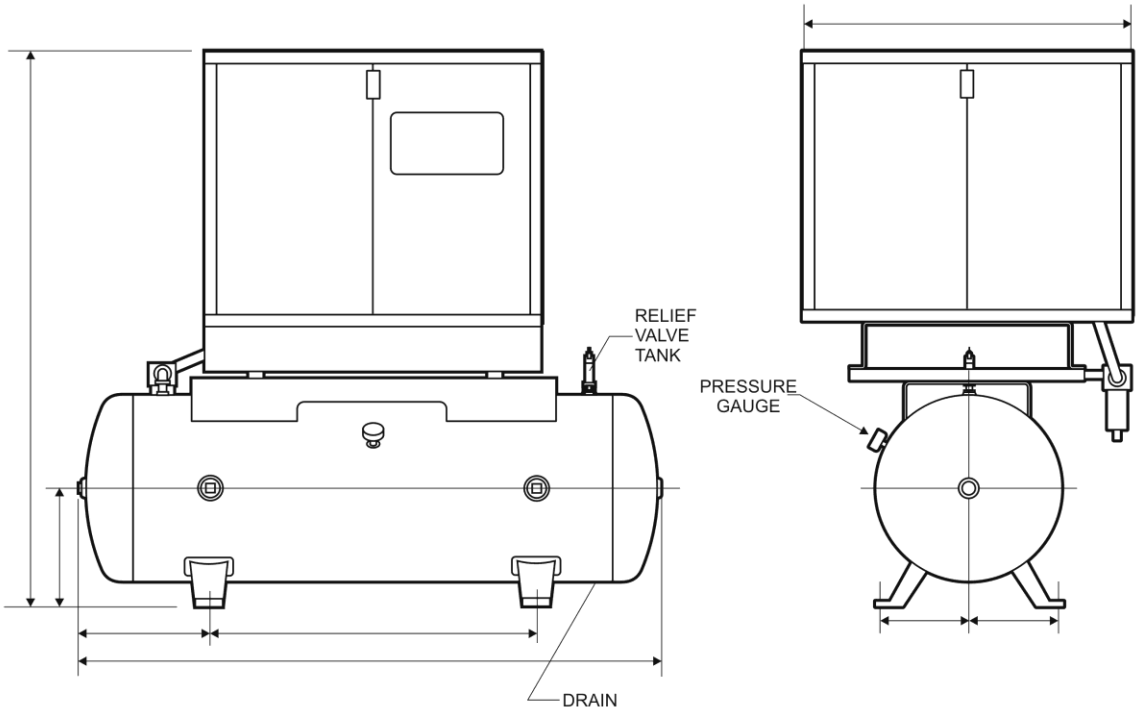


1.	LAMP, BODY LIGHT	34-60103-756
2.	LENS, RED, FAULT	34-60103-752
3.	SWITCH, 3-POSITION	00701-895
4.	LAMP, BODY LIGHT	34-60103-756
5.	LENS, YELLOW POWER	34060103-751
6.	HOURMETER, 120V	34-60103-661G
7	SWITCH, ANTI-STAR	09344-001
8.	TIMER	69500
9.	SOCKET	61401-002
10.	FUSE, (1) 1.0 AMP	34-60103-671
11.	FUSE, (1) .5 AMP	34-60103-675
12.	FUSE, (1) .756 AMP	34-60103-677
13.	RELAY, 115 V	34-60103-644
14.	SOCKET	34-60103-645
15.	O/L RELAY, 23-32 A	69084-416
16.	CONTACTOR, 32 AMP	06398-415
17.	SWITCH, PRESS CONT.	09345-006
18.	TRANSFORMER, 50 VA	34-60103-642F

OPEN TYKE TANK MOUNTED OUTLINE



ENCLOSED TANK MOUNTED OUTLINE



SECTION 8 – WARRANTY

Sullivan-Palatek
Warranty

New Industrial Compressors- 5, 7 ½, 10, and 15 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:** 24 months (2 years) from the date of start-up by authorized distributor or 30 months from date of shipment by Sullivan-Palatek, whichever occurs first.

- **Compressor Shaft Seal:** Is 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 5, 7 ½, 10 horsepower 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	*MAINTENANCE*