

Climate Control Duplex

Please read and save these instructions. Read carefully before attempting to assemble, install, operate or maintain the product described. Protect yourself and others by observing all safety information. Failure to comply with instructions could result in personal injury and/or property damage! Retain instructions for future reference.

Description

The AD-XXX Series Powerex Duplex Air Compressors have been designed, broken-in and tested to meet the most demanding specifications for low oil carryover and long life in the pneumatic climate control industry.

The units consist of two equally rated motor-compressor assemblies mounted on a single ASME tank. The compressor motors are NEMA Class B design. The AD-XXX Series Compressors are ideal for instrumentation systems requiring an alternate compressor for standby or overload capacity. See Table 1 for motor sizes and air delivery capacities available.

Compressor assemblies are available with or without a factory mounted basic or deluxe alternator/motor starter package. An unloading feature is included on all compressors to provide loadless starting. Models with an alternator are prewired and ready for operation. Internal wiring allows for shutdown of either compressor for repair while the other compressor is running.

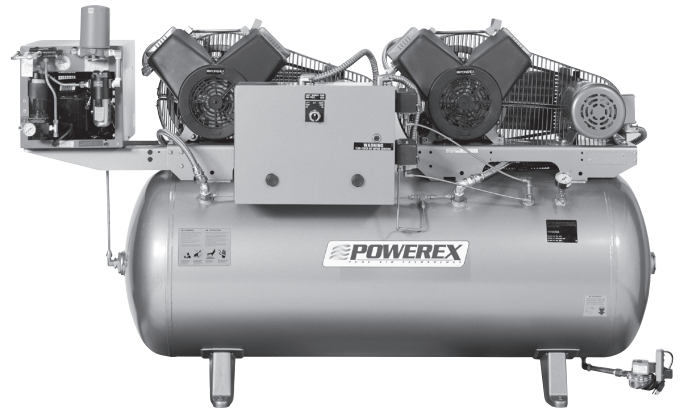


Figure 1 - AD-XXX Series 2 HP Duplex Air Compressor with Optional Deluxe Alternator Package

An alternating type operation is desirable for many reasons. When a duplex air compressor is alternated, the temperature of both units is kept above the ambient dew point to minimize moisture deterioration and corrosion. Also, the reduction in on-time provides a lower average head temperature with reduced oil entrainment potential and improves the motor life by holding down the average heat rise.

Specifications

Product	AD-XXX Series Powerex Duplex Air Compressors	
Performance Specifications	See Table 1	
Models & Options	See Table 2	
Lubrication	1/2 Through 10 HP Models	Splash Lubrication System
Operating Voltages	1ø	115/230 Volts, 60 Hz
	3ø	208-230/460 volts, 60 Hz
Compression Cycle	1/2 Through 10 HP Models	Single Stage
Motor Overload Protection	1ø and 3ø	Overloads (Supplied with all Factory Mounted Alternators; Otherwise Field Supplied)
	Lead	Cut-In: Factory Set at Approximately 70 psig (490 kPa) Cut-Out: Factory Set at Approximately 90 psig (630 kPa)
Pressure Switch Settings	Lag	Cut-In: Factory Set at Approximately 60 psig (420 kPa) Cut-Out: Factory Set at Approximately 80 psig (560 kPa)
	Overpressure Protection	ASME Safety Valve Factory Set and Sealed at Approximately 115 psig (805 kPa)
Outlet Air Connections	1/2" NPT on 30 and 80 Gallon Tanks; 1" NPT on 120, and 200 Gallon Tanks	
Tank Sizes	See Table 2	
California Ordinance 462 (L) (2)	Meets requirements of this Ordinance	
Isolation Mounts	Vibration pads are included with each unit	

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**TABLE 1: AD-XXX SERIES POWEREX DUPLEX AIR COMPRESSORS
PERFORMANCE SPECIFICATIONS**

Base Model	Actual HP		Motor Rating		Compressor RPM	Compressor Capacity SCFM		
	1ø	3ø	HP	RPM		100% Runtime	50% Runtime	33% Runtime
AD - 107	.73	—	—	1725	970	2.5	1.25	0.83
AD - 007	—	.73	.75	1725	970	2.5	1.25	0.83
AD - 110	1.07	—	—	1725	1120	4.2	2.1	1.4
AD - 010	—	1.07	1.0	1725	1120	4.2	2.1	1.4
AD - 015	—	1.54	1.5	1750	860	5.2	2.6	1.7
AD - 020	—	2.0	2.0	1750	1250	7.0	3.5	2.3
AD - 030	—	3.1	3.0	1745	1050	11.0	5.5	3.7
AD - 050	—	5.6	5.0	1745	1150	17.0	8.5	5.7
AD - 075	—	8.2	7.5	1745	950	31.0	15.5	10.3
AD - 100	—	10.3	10.0	1750	880	45.0	22.5	15.0

Description (continued)

All units are run through a factory break-in and are tested for air delivery, leakage and power consumption. Tank-mounted units are shipped with a proper fill of compressor oil in the crankcase and are furnished with an intake filter with a replaceable cartridge. This filter is designed to remove contaminants in the inlet air, as well as provide a quiet operation.

All models have conveniently located oil drain and filler ports to facilitate routine maintenance. Tanks have a condensate drain valve with an extension for easy access. Mounting bases are slotted to allow tension adjustments to aid in maintaining proper compressor and motor alignment while adjusting tension.

Safety Guidelines

**READ & FOLLOW ALL INSTRUCTIONS
SAVE THESE INSTRUCTIONS
DO NOT DISCARD**

This manual contains information that is very important to know and understand. This information is provided for SAFETY and to PREVENT EQUIPMENT PROBLEMS. To help recognize this information, observe the following symbols.

⚠ WARNING *Warning indicates a potentially hazardous situation which, if not avoided, COULD result in death or serious injury.*

NOTE: Information that requires special attention.

General Safety Information

CALIFORNIA PROPOSITION 65

⚠ WARNING *This product or its power cord may contain chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. Wash hands after handling.*

Mounted and Connected Options

Deluxe Alternator Package

All Powerex Duplex air compressors may be ordered with an optional deluxe alternator package consisting of two magnetic motor starts with thermal overloads, an alternating coil, a 120 VAC control transformer and a three-position selector switch. The three-position switch allows for automatic alternation or only running one unit at a time. This will allow for service on one unit while other unit is running. Refer to Table 2 for ordering details and figure 4 for wiring diagram.

Basic Alternator Package

All Powerex duplex air compressors may be ordered with a simplified line voltage basic alternator package. The basic alternator package consists of an alternating coil and two magnetic motor starters. Motor starters are selected and wired for intended input voltage and are furnished with properly sized overload heaters. Refer to Table 2 for ordering details and figure 5 for wiring diagram.

Mounted and Connected Options (continued)

Refrigerated Air Dryer

A factory mounted, Hankinson HPR 5-10 series refrigerated air dryer with automatic condensate drain trap assembly, bypass valve is on all 1/2 through 3 HP Powerex duplex air compressors. Piping for air dryer is done at the factory. Wiring to power source must be done in the field using integral cord and plug which fits into a standard 120 volt receptacle. Refer to Table 2 for ordering details.

Automatic Tank Drain

Powerex air compressors may be ordered with a manual or electric type automatic tank drain. A manual drain attachment is furnished with each unit. Refer to Table 2 for ordering details. (Order electric drains separately.)

Vibration Dampening Pads

Waffle type design vibration pads are provided as standard equipment.

Operation

Refer to Installation Data AS/AD-XXX for detailed installation instructions.

Factory calibrated DPST pressure switches provide lead and lag settings. When using an alternator-starter package, the lead switch energizes the alternator and the alternator activates the compressor that was on standby during the previous cycle. If the demand exceeds the capacity of one compressor, the lag switch will cause both compressors to run simultaneously. Upon failure of either compressor, the lag switch will continue to activate the workable compressor.

Single-phase motors (3/4 HP & 1 HP) have built-in overload protection with manual reset. Three-phase motors require a manual or magnetic starter and three overload heaters. Heaters are included with three-phase compressors that have a factory mounted alternator.

Lubrication (Figure 2)

Check lubricating oil level at gauge. Refill if necessary.

Change oil according to maintenance schedule. Before draining oil, remove oil supply cap and loosen oil drain cap to release trapped air. Use Mobil Rarus 427® or Mobil DTE heavy.

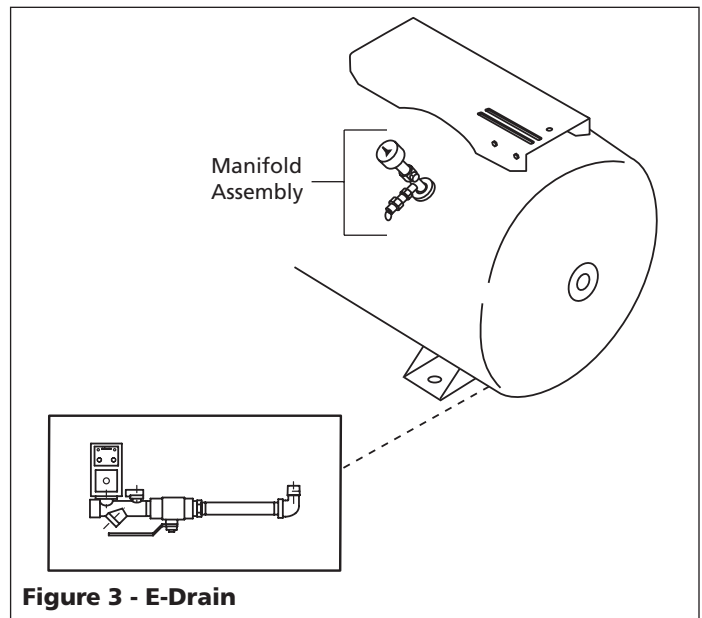
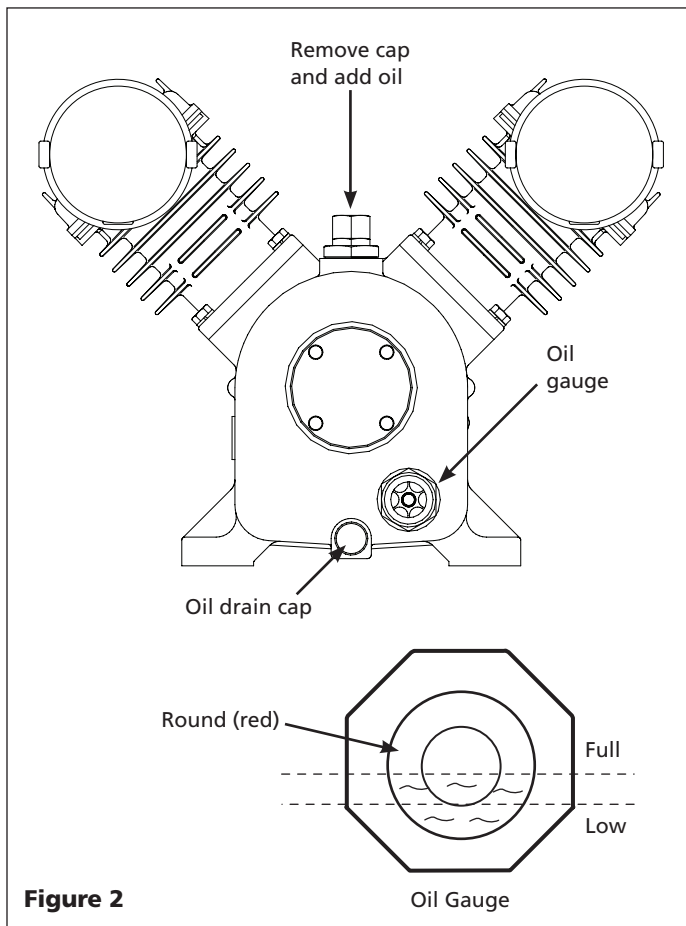
WARNING

Dispose of oil in accordance with state or local codes.

AUTO E-DRAIN ASSEMBLY (See Figure 3)

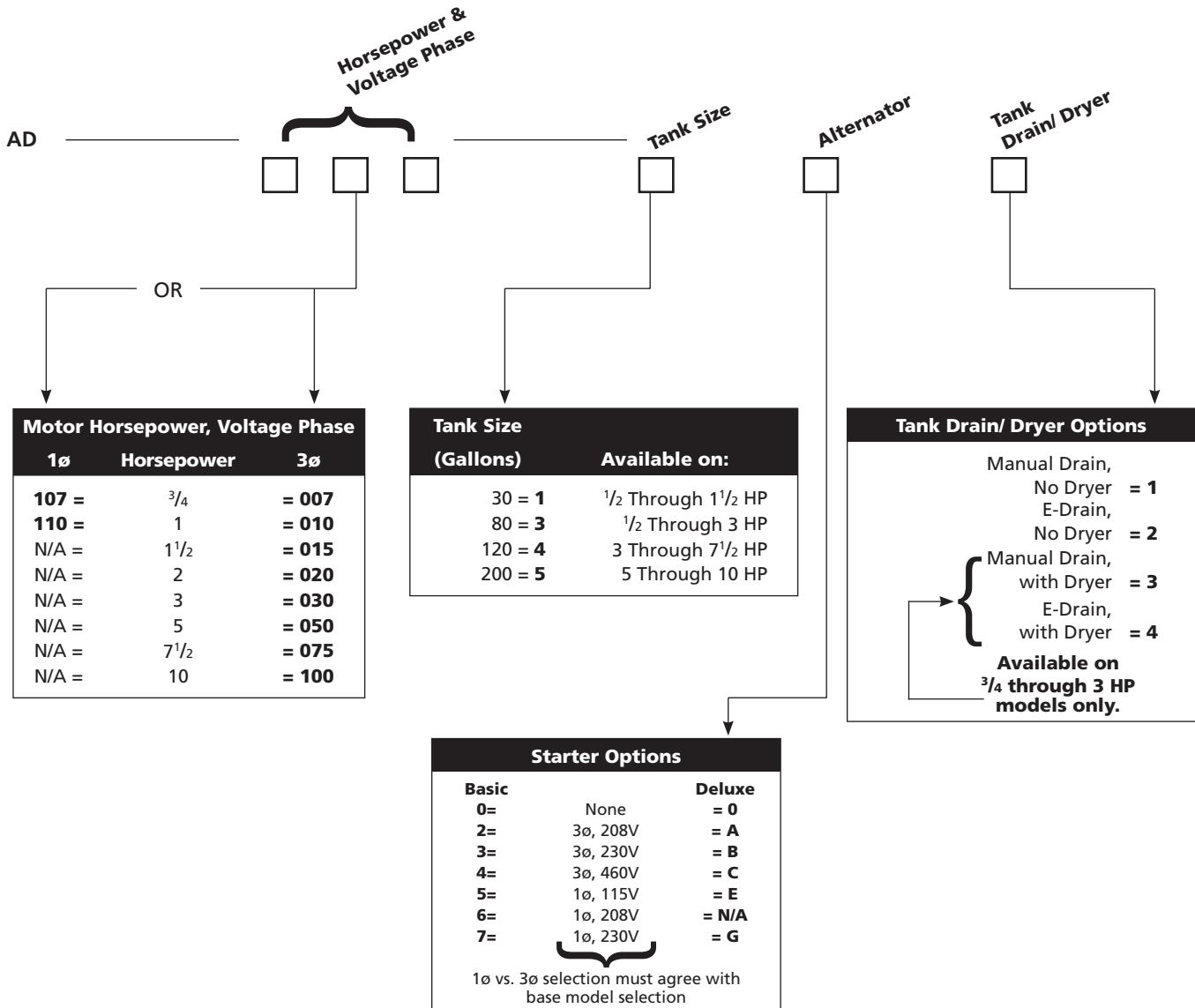
Note: The automatic E-drain is assembled to tank.

1. Plug E-drain into 115V power outlet supply.
2. Adjust timer accordingly.



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TABLE 2: MODEL NUMBER



Example 1: To order a Duplex air compressor with a 1/2 HP single-phase motor, 80 gallon tank, deluxe 230 volt alternator package, automatic tank drain and an air dryer, use product code AD-107-3G4.

Example 2: To order a Duplex air compressor with a 10 HP three-phase motor, 200 gallon tank and an auto drain, use product code AD-100-502.

Figure 4
Deluxe Alternator
Package Wiring
Diagram for
Three-Phase Units

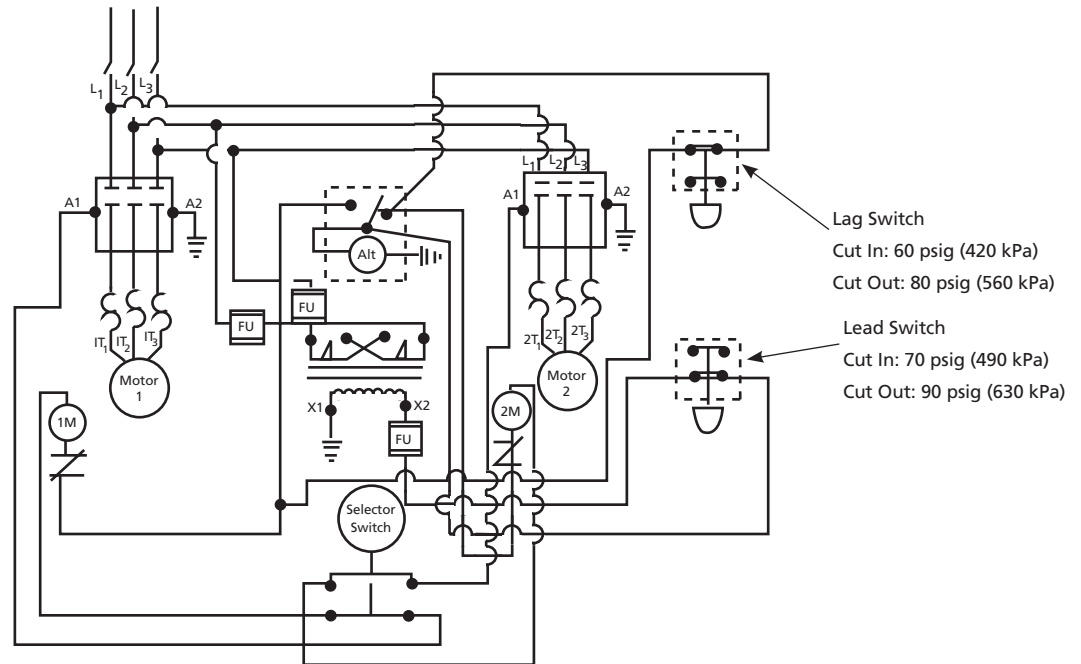
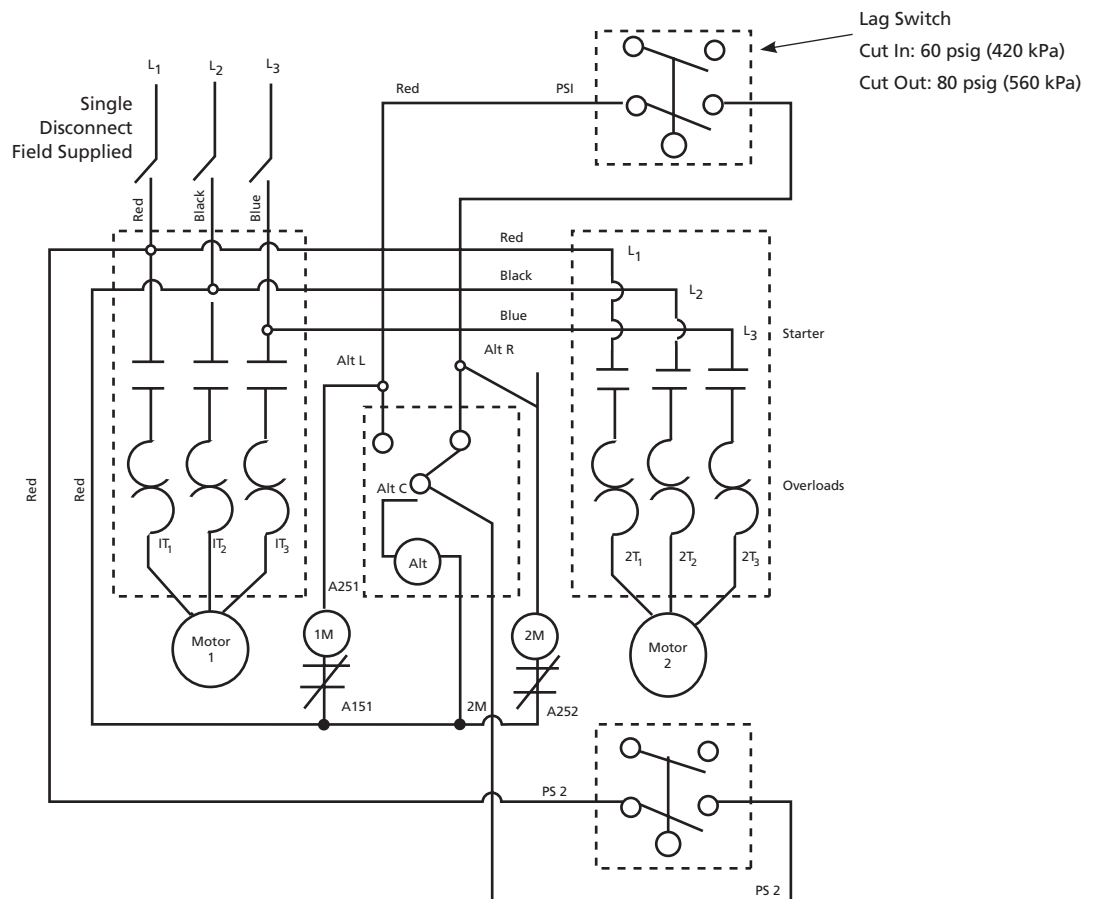


Figure 5
Basic Alternator
Package Wiring
Diagram for
Three-Phase Units



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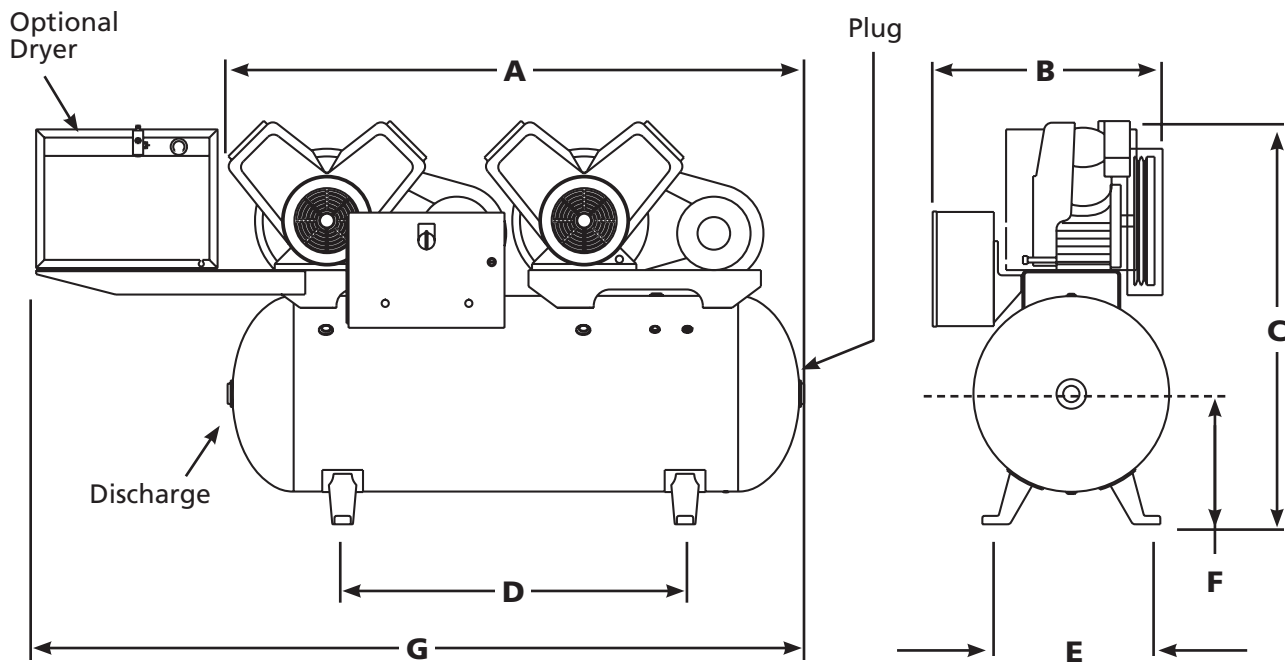


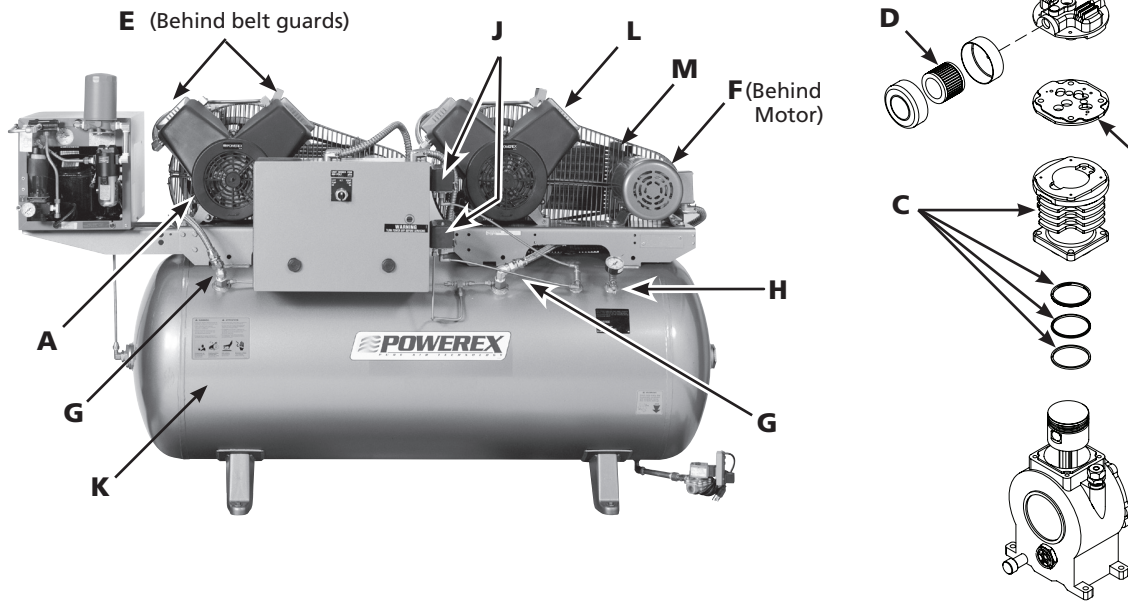
Figure 6 - Dimensions (in.) **3/4 Through 10 HP Models**

TABLE 3: DIMENSIONS (INCHES) AND SHIPPING WEIGHTS (POUNDS*)

Base Model	A	B with Alternator	B without Alternator	C	D	E	F	G	Shipping Weight**	
									With Alternator	Without Alternator
AD-107-1XX AD-007-1XX	41 ¹ / ₂	21 ¹ / ₄	17 ³ / ₄	38	18	15 ³ / ₄	12 ¹ / ₄	68 ¹ / ₂	298	278
AD-107-3XX AD-007-3XX	64 ¹ / ₄	22 ¹ / ₄	20	41	40	18 ¹ / ₂	13	77 ³ / ₄	463	443
AD-110-1XX AD-010-1XX	41 ¹ / ₂	21 ¹ / ₄	17 ³ / ₄	38	18	15 ³ / ₄	12 ¹ / ₄	68 ¹ / ₂	297	277
AD-110-3XX AD-010-3XX	64 ¹ / ₄	22 ¹ / ₄	20	41	40	18 ¹ / ₂	13	77 ³ / ₄	462	442
AD-015-1XX AD-015-3XX	41 ¹ / ₂ 64 ¹ / ₄	21 ¹ / ₄ 22 ¹ / ₄	17 ³ / ₄ 20	36 39	18 40	15 ³ / ₄ 18 ¹ / ₂	12 ¹ / ₄ 13	68 ¹ / ₂ 77 ³ / ₄	322 487	302 467
AD-020-3XX AD-030-3XX	65 ¹ / ₄ 65 ¹ / ₄	23 ¹ / ₄ 23 ¹ / ₄	20 20	39 34	40 40	18 ¹ / ₂ 18 ¹ / ₂	13 13	90 ³ / ₄ 90 ³ / ₄	512 715	492 695
AD-030-4XX AD-050-4XX	70 ³ / ₄ 71 ¹ / ₄	25 ³ / ₄ 26 ¹ / ₄	24 24	37 43 ¹ / ₄	42 42	22 22	15 ³ / ₄ 15 ³ / ₄	96 ¹ / ₄ —	845 988	825 968
AD-050-5XX AD-075-4XX	81 ¹ / ₂ 71 ¹ / ₄	30 26 ¹ / ₄	30 24	49 ¹ / ₂ 45 ¹ / ₄	42 42	22 22	18 ³ / ₄ 15 ³ / ₄	— —	1213 1113	1193 1088
AD-075-5XX AD-100-5XX	81 ¹ / ₂ 84	30 30	30 30	51 ¹ / ₂ 51	42 42	22 22	18 ³ / ₄ 18 ³ / ₄	— —	1338 1553	1313 1528

*Inches x 2.54 = Centimeters, Pounds x 0.454 = Kilograms

**Add 60.0 lbs. for units equipped with a factory mounted air dryer



REPLACEMENT PARTS LIST

Item	Description	Quantity Required	Shipping Weight (lbs. *)	Code Number	
A	PUMP AND FLYWHEEL:				
	Motor HP 3/4	2	38	A-007-6001AP	
	1	2	38	A-010-6001AP	
	1 1/2, 2	2	51	A-020-6001AP	
	3	2	93	A-030-6001AP	
	5	2	120	A-050-6001AP	
	7 1/2	2	175	A-075-6001AP	
B	VALVE PLATE:				
	Motor HP 3/4, 1	2	0.5	A-010-6002AP	
	1 1/2, 2	4	0.5	A-010-6002AP	
	3	4	0.7	A-030-6002AP	
	5	4	1.2	A-050-6002AP	
	7 1/2	4	1.2	A-075-6002AP	
	10	6	1.2	A-075-6002AP	
C	RING/CYLINDER KIT: Includes all compression rings, oil control rings, cylinder, and sealant				
	Motor HP 3/4, 1	2	4.8	A-010-6004AP	
	1 1/2, 2	4	4.8	A-010-6004AP	
	3	4	5.5	A-030-6004AP	
	5	4	10	A-050-6004AP	
	7 1/2	4	10	A-075-6004AP	
D	INTAKE FILTER ELEMENT:				
	Motor HP 3/4, 1 (Intake filter assembly)	2	0.2	A-010-6023AP	
	1 1/2, 2	4	0.2	A-010-6023NP	
	3	4	0.2	A-010-6023NP	
	5	4	0.2	A-010-6023NP	
	7 1/2	4	0.2	A-010-6023NP	
E	BELT:				
	Motor HP 3/4				
	1	Size A-43	2	0.3	A-007-6006AP
	1 1/2	A-43	2	0.3	A-010-6006AP
	2	AX-46	2	0.3	A-015-6006AP
	3	A-59	2	0.4	A-020-6006AP
	5	B-62	2	0.4	A-030-6006AP
	7 1/2	B-67	4	1.6	A-050-6006AP
	7 1/2	B-70	4	2.0	A-075-6046AP
	10	B-75	4	2.0	A-075-6056AP
	B-80	4	2.4	A-100-6006AP	

*lb. x 0.454 = kg

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REPLACEMENT PARTS LIST

Item	Description	Quantity Required	Shipping Weight (lbs. *)	Code Number		
F	MOTOR PULLEY:	Motor HP	Type			
		3/4	1A-4.8" P.D., 5/8" Bore	2	3.9	A-007-6037AP
		1 (1ø)	1A-5.7" P.D., 5/8" Bore	2	3.2	A-110-6007AP
		1 (3ø)	1A-5.7" P.D., 7/8" Bore	2	3.2	A-010-6007AP
		1 1/2	1A-5.5" P.D., 7/8" Bore	2	5.6	A-020-6007AP
		2	1A-8.0" P.D., 7/8" Bore	2	5.2	A-020-6007AP
		3	1A-8.0" P.D., 1 1/8" Bore	2	6.3	A-030-6007AP
		5	2A-9.4" P.D., 1 1/8" Bore	2	7.6	A-050-6007AP
		7 1/2	2A-8.6" P.D., 1 3/8" Bore	2	12.5	A-075-6007AP
		10	2A-8.6" P.D., 1 5/8" Bore	2	13.5	A-100-6007AP
G	IN-TANK CHECK VALVE:	Motor HP	Size			
		3/4 Through 3	1/2" MPT x 1/2" FPT	2	0.3	A-010-6008
		5 Through 10	3/4" MPT x 3/4" FPT	2	0.4	A-075-6008
H	SAFETY RELIEF VALVE: Set at approximately 115 psig (805 kPa)					
		3/4 Through 5 HP Models	1	0.1	A-050-6009	
		7 1/2 Through 10 HP Models	1	0.2	A-200-6009	
J	PRESSURE ELECTRIC SWITCHES: (For all models)					
	Lead Switch: Set at approximately 70 psig (490 kPa) cut-in and 90 psig (630 kPa) cut-out		1	0.9	A-100-6010	
	Lag Switch: Set at approximately 60 psig (420 kPa) cut-in and 80 psig (560 kPa) cut-out		1	0.9	A-100-6011	
K	TANK:	Motor HP	Tank Size			
		3/4 Through 1 1/2	30 gallon	1	134.0	A-010-6030NP
		3/4 Through 1 1/2	80 gallon	1	235.0	A-010-6060NP
		2 & 3	80 gallon	1	243.0	A-020-6060NP
		2 & 3	120 gallon	1	398.0	A-020-6080NP
		5 & 7 1/2	120 gallon	1	415.0	A-050-6120NP
		5 Through 10	200 gallon	1	677.0	A-100-6200NP
L	BELT GUARD:	Motor HP				
		3/4 Through 1 1/2	2	2.4	A-010-6012	
		2	2	12.5	A-020-6012AP	
		3	2	12.5	A-030-6012AP	
		5	2	12.5	A-050-6012AP	
		7 1/2 (120 Gal)	2	12.5	A-075-6012AP	
		(200 Gal)	2	12.5	A-075-6022AP	
	10	2	12.5	A-100-6012AP		
M	LIQUID GASKET:	1 through 10 HP	1	0.4	A-999-6000AP	

*lb. x 0.454 = kg

Maintenance Schedule

Item	Action needed	Operating Hours						Remarks
		500	2500	5000	10,000	15,000	20,000	
Tank	Drain moisture	Daily						
Inlet air filter	Replace	●	▲	(Every 2,500 hrs or less)				
Blower fan	Clean			●	●	●	●	
Compressor fins	Clean		●	(Every 2,500 hrs or less)				
Oil change	Replace	(Every 1,500 hrs)						
Compression rings	Inspect		●	(Every 2,500 hrs or less)				
Check oil level	Inspect	Daily						
V-belt	Inspect, replace	*Note 3	●	▲	▲	▲	▲	
Pressure switch	Confirm operation		●	(Every 2,500 hrs or less)				
Magnetic starter	Inspect				●		●	Replace if contact points deteriorated
Safety valve	Confirm operation		●	(Every 2,500 hrs or less)				
Pressure gauge	Inspect		●	(Every 2,500 hrs or less)				
●	Inspect							
▲	Replace							

NOTES:

1. Inspect and perform maintenance periodically according to maintenance schedule.
2. The maintenance schedule relates to the normal operating conditions. If the circumstances and load condition are adverse, shorten the cycle time and do maintenance accordingly.
3. *The tension of the V-belt should be adjusted during initial start up and inspected every 1,500 hours afterwards. Proper belt tension for $\frac{3}{4}$ to 3 HP units is 2-3 lbs./5" deflection; for 5 to 10 HP units, 4-6 lbs./5" deflection.

Powerex Limited Warranty

Powerex 3 Year / 10,000 Hour Extended Parts Limited Warranty - Powerex warrants each Compressor Pump against defects in material or workmanship from the date of purchase for a period of **Three years or 10,000 hours**, whichever may occur first. This warranty applies to the exchange of part(s) of the compressor pump or air-end found to be defective by an Authorized Powerex Service Center.

Powerex 1 Year / 5,000 Hour Inlet to Outlet Limited Warranty - Powerex warrants each Compressor Unit, System, Pump, or Air-End against defects in material or workmanship from the date of purchase for a period of **One Year or 5,000 Hours**, whichever may occur first. This warranty applies to the exchange of defective component part(s) and labor performed by an Authorized Powerex Service Center.

The above mentioned warranty applies to POWEREX manufactured units or systems only.

Items listed in the operator's manual under routine maintenance are not covered by this or any other warranty.

THERE IS NO OTHER EXPRESS WARRANTY. IMPLIED WARRANTIES, INCLUDING THOSE OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED TO ONE YEAR FROM THE DATE OF PURCHASE: AND TO THE EXTENT PERMITTED BY LAW, ANY AND ALL IMPLIED WARRANTIES ARE EXCLUDED. THIS IS THE EXCLUSIVE REMEDY AND LIABILITY FOR CONSEQUENTIAL DAMAGES UNDER ANY AND ALL WARRANTIES IS EXCLUDED TO THE EXTENT EXCLUSION IS PERMITTED BY LAW.

All claims pertaining to the merchandise in this schedule, with the exception of warranty claims, must be filed with Powerex within 6 months of the invoice date, or they will not be honored. Prices, discounts and terms are subject to change without notice or as stipulated in specific product quotations. All agreements are contingent upon strikes, accidents, or other causes beyond our control. All shipments are carefully inspected and counted before leaving the factory. Please inspect carefully any receipt of merchandise noting any discrepancy or damage on the carrier's freight bill at the time of delivery. Discrepancies or damage which obviously occurred in transit are the carrier's responsibility and related claims should be made promptly directly to the carrier. Returned merchandise will not be accepted without prior written authorization by Powerex and deductions from invoices for shortage or damage claims will not be allowed. **UNLESS OTHERWISE AGREED TO IN WRITING, THESE TERMS AND CONDITIONS WILL CONTROL IN ANY TRANSACTION WITH POWEREX** any different or conflicting terms as may appear on any order form now or later submitted by the buyer. All orders are subject to acceptance by Powerex.



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