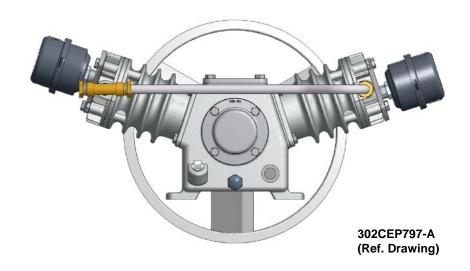


SINGLE STAGE, AIR COMPRESSORS & UNITS FEATURING BVA & BVAS PUMPS

MWARNING

THIS MANUAL CONTAINS IMPORTANT SAFETY INFORMATION AND SHOULD ALWAYS BE AVAILABLE TO THOSE PERSONNEL OPERATING THIS UNIT.

READ, UNDERSTAND AND RETAIN ALL INSTRUCTIONS BEFORE OPERATING THIS EQUIPMENT TO PREVENT INJURY OR EQUIPMENT DAMAGE.



MODEL NUMBERS

BVA BVAS

MAINTAIN COMPRESSOR RELIABILITY AND PERFORMANCE WITH GENUINE CHAMPION COMPRESSOR PARTS AND SUPPORT SERVICES

Champion Compressor genuine parts, manufactured to design tolerances, are developed for optimum dependability – specifically for Champion compressor systems. Design and material innovations are the result of years of experience with hundreds of different compressor applications. Reliability in materials and quality assurance are incorporated in our genuine replacement parts.

Your authorized Champion Compressor distributor offers all the backup you'll need. A worldwide network of authorized distributors provides the finest product support in the air compressor industry. Your authorized distributor can support your Champion air compressor with these services:

- 1. Trained parts specialists to assist you in selecting the correct replacement parts.
- 2. A full line of factory tested CHAMPLUB™ compressor lubricants specifically formulated for use in Champion compressors.
- Repair and maintenance kits designed with the necessary parts to simplify servicing your compressor.

Authorized distributor service technicians are factory trained and skilled in compressor maintenance and repair. They are ready to respond and assist you by providing fast, expert maintenance and repair services.

To Contact Champion or locate your local distributor:

Visit: www.championpneumatic.com/contactus.aspx

Or

Call: (217)222-5400

INSTRUCTIONS FOR ORDERING REPAIR PARTS

When ordering parts, specify Compressor MODEL, HORSEPOWER and SERIAL NUMBER (see nameplate on unit). All orders for Parts should be placed with the nearest authorized distributor.

Order by part number and description. Reference numbers are for your convenience only.

TABLE OF CONTENTS

Subject	Page
Maintain Compressor Reliability And Performance	2
Safety And Operation Precautions	4
Explanation Of Safety Instructions Symbols And Decals	5
Introduction	6
Dimensions And Specifications	7 & 8
Installation	
Operation	12
Maintenance	13 thru 16
Compressor Oil Specifications	17
Lubricant	17
Trouble Shooting	18 & 19
Parts List	20 thru 31
Unit Hazard Decal Listing	32 & 33
Pump Hazard Decals	34
Record Of Maintenance Service	35

SAFETY AND OPERATION PRECAUTIONS

Because an air compressor is a piece of machinery with moving and rotating parts, the same precautions should be observed as with any piece of machinery of this type where carelessness in operation or maintenance is hazardous to personnel. In addition to the many obvious safety rules that should be followed with this type of machinery, the additional safety precautions as listed below must be observed:

- 1. Read all instructions completely before operating air compressor or unit.
- 2. For installation, follow all local electrical and safety codes, as well as the National Electrical Code (NEC) and the Occupational Safety and Health Act (OSHA).
- 3. Electric motors must be securely and adequately grounded. This can be accomplished by wiring with a grounded, metal-clad raceway system to the starter; by using a separate ground wire connected to the bare metal of the motor frame; or other suitable means.
- 4. Protect the power cable from coming in contact with sharp objects. Do not kink power cable and never allow the cable to come in contact with oil, grease, hot surfaces, or chemicals.
- 5. Make certain that the power source conforms to the requirements of your equipment.
- 6. Pull main electrical disconnect switch and disconnect any separate control lines, if used, before attempting to work or perform maintenance on the air compressor or unit. "Lock out" or "Tag out" all power sources.
- 7. Do not attempt to remove any compressor parts without first relieving the entire system of pressure.
- 8. Do not attempt to service any part while machine is in an operational mode.
- 9. Do not operate the compressor at pressures in excess of its rating.
- 10. Do not operate compressor at speeds in excess of its rating.
- 11. Periodically check all safety devices for proper operation. Do not change pressure setting or restrict operation in any way.
- 12. Be sure no tools, or rags or loose parts are left on the compressor or drive parts.
- 13. Do not use flammable solvents for cleaning the air inlet filter or element and other parts.
- 14. Exercise cleanliness during maintenance and when making repairs. Keep dirt away from parts by covering parts and exposed openings with clean cloth or Kraft paper.
- 15. Do not operate the compressor without guards, shields and screens in place.
- 16. Do not install a shut-off valve in the discharge line, unless a pressure relief valve, of proper design and size, is installed in the line between the compressor unit and shut-off valve.
- 17. Do not operate compressor in areas where there is a possibility of ingesting flammable or toxic fumes.
- 18. Be careful when touching the exterior of a recently run motor it may be hot enough to be painful or cause injury. With modern motors this condition is normal if operated at rated load modern motors are built to operate at higher temperatures.
- 19. Inspect unit daily to observe and correct any unsafe operating conditions found.
- 20. Do not "play around" with compressed air, nor direct air stream at body, because this can cause injuries.
- 21. Compressed air from this machine absolutely must not be used for food processing or breathing air without adequate downstream filters, purifiers and controls.
- 22. Always use an air pressure regulating device at the point of use, and do not use air pressure greater than marked maximum pressure of attachment.
- 23. Check hoses for weak or worn condition before each use and make certain that all connections are secure.
- 24. Always wear safety glasses when using compressed air gun.

The user of any air compressor package manufactured by **Champion** – A Gardner Denver Co., is hereby warned that failure to follow the preceding Safety and Operation Precautions can result in injuries or equipment damage. However, **Champion** – A Gardner Denver Co., does not state as fact or does not mean to imply that the preceding list of Safety and Operating Precautions is all inclusive, and further that the observance of this list will prevent all injuries or equipment damage.

EXPLANATION OF SAFETY INSTRUCTIONS SYMBOLS AND DECALS

A DANGER

Indicates immediate hazards which will result in severe injury or death.

MARNING

Indicates hazards or unsafe practice which could result in severe injury or death.

⚠ CAUTION

Indicates hazards or unsafe practice which could result in damage to the Champion compressor or minor injury.

NOTICE

Notice is used to notify people of installation, operation or maintenance information which is important but not hazard-related.

SAFETY AND OPERATION PRECAUTIONS

OBSERVE, UNDERSTAND AND RETAIN THE INFORMATION GIVEN IN THE SAFETY PRECAUTION DECALS AS SHOWN IN THE PARTS LIST SECTION

A DANGER

This reciprocating compressor must not be used for breathing air. To do so will cause serious injury whether air is supplied direct from the compressor source or to breathing tanks for later use. Any and all liabilities for damage or loss due to injury, death and/or property damage including consequential damages stemming from the use of this compressor to supply breathing air, will be disclaimed by the manufacturer.

MARNING

The use of this compressor as a booster pump and/or to compress a medium other than atmospheric air is strictly non-approved and can result in equipment damage and/or injury. Non-approved uses will also void the warranty.

A CAUTION

This unit may be equipped with special options which may not be included in this manual. User must read, understand and retain all information sent with special options.

INTRODUCTION

Champion Commandair Series compressors are the result of advanced engineering and skilled manufacturing. To be assured of receiving maximum service from this machine the owner must exercise care in its operation and maintenance. This book is written to give the operator and maintenance department essential information for day-to-day operation, maintenance and adjustment. Careful adherence to these instructions will result in economical operation and minimum downtime.

Express Limited Warranty

CHAMPION warrants each new piece of equipment manufactured by **CHAMPION** to be free from defects in material and workmanship under normal use and service for a period of twelve (12) months from date of installation or eighteen (18) months from date of shipment by **CHAMPION** or **CHAMPION** distributor, whichever may occur first.

CHAMPION makes no warranty in respect to components and accessories furnished to **CHAMPION** by third parties, such as ELECTRIC MOTORS, GASOLINE ENGINES and CONTROLS, which are warranted only to the extent of the original manufacturer's warranty to **CHAMPION**. To have warranty consideration, electric motors must be equipped with thermal overload protection.

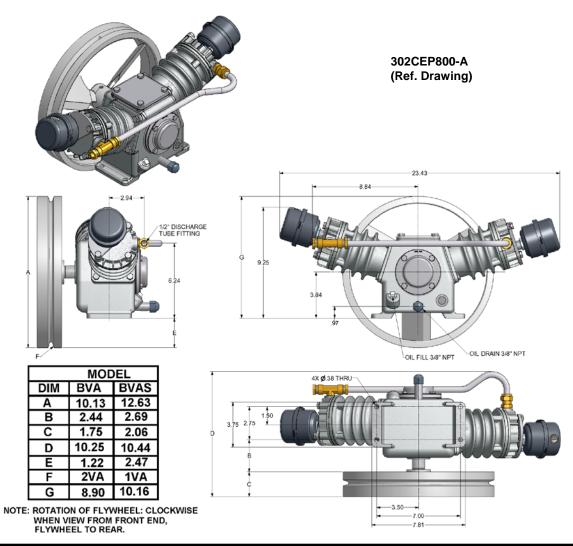
When a compressor pump, or component is changed or replaced during the warranty period, the newly replaced item is warranted for only the remainder of the original warranty period.

Repair, replacement or refund in the manner and within the time provided shall constitute **CHAMPION'S** sole liability and your exclusive remedy resulting from any nonconformity or defect. **CHAMPION** SHALL NOT IN ANY EVENT BE LIABLE FOR ANY DAMAGES, WHETHER BASED ON CONTRACT, WARRANTY, NEGLIGENCE, STRICT LIABILITY OR OTHERWISE, INCLUDING WITHOUT LIMITATION ANY CONSEQUENTIAL, INCIDENTAL OR SPECIAL DAMAGES, ARISING WITH RESPECT TO THE EQUIPMENT OR ITS FAILURE TO OPERATE EVEN IF **CHAMPION** HAS BEEN ADVISED OF THE POSSIBILITY THEREOF.

CHAMPION MAKES NO OTHER WARRANTY OR REPRESENTATION OF ANY KIND, EXCEPT THAT OF TITLE, AND ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE HEREBY EXPRESSLY DISCLAIMED. NO SALESMAN OR OTHER REPRESENTATIVE OF CHAMPION HAS AUTHORITY TO MAKE ANY WARRANTIES.

SINGLE STAGE AIR COMPRESSORS - MODELS BVA & BVAS

DIMENSIONS



SPECIFICATIONS

MODELS	BORE & STROKE (INCHES)	NUMBER CYLINDERS	OIL CAPACITY (OZ.)	WEIGHT (LBS.)	MAXIMUM INTERMITTENT PRESSURE (PSIG)	MIN./MAX. RPM
BVA	2-3/8 x 2	2	16	45	125	500/1000
BVAS	2-3/8 x 2	2	16	48	125	500/1000

PERFORMANCE DATA

НР	PUMP	PUMP SPEED RPM	DISPLACEMENT CFM	MOTOR PULLEY OD (INCHES)
1	BVAS	510	5.23	2 *
1-1/2	BVA	728	7.46	2.25 *
2	BVA	924	9.47	2.75 *

Pulley Dia. (approx.) =

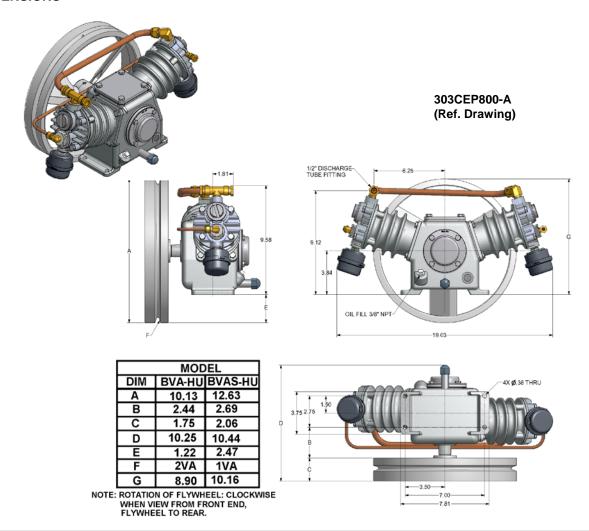
Compressor RPM x Flywheel Dia.

Motor of Engine RPM

^{*} Based on 3600 RPM Electric Motor.

SINGLE STAGE AIR COMPRESSORS - MODELS BVA-HU & BVAS-HU

DIMENSIONS



SPECIFICATIONS

MODELS	BORE & STROKE (INCHES)	NUMBER CYLINDERS	OIL CAPACITY (OZ.)	WEIGHT (LBS.)	MAXIMUM INTERMITTENT PRESSURE (PSIG)	MIN./MAX. RPM
BVA-HU	2-3/8 x 2	2	16	45	125	500/1000
BVAS-HU	2-3/8 x 2	2	16	48	125	500/1000

PERFORMANCE DATA

НР	PUMP	PUMP SPEED RPM	DISPLACEMENT CFM	MOTOR PULLEY OD (INCHES)
1	BVAS-HU	510	5.23	2 *
1-1/2	BVA-HU	728	7.46	3.25 *
2	BVA-HU	924	9.47	2.75 *

Pulley Dia. (approx.) =

Compressor RPM x Flywheel Dia. Motor of Engine RPM

^{*} Based on 3600 RPM Electric Motor.

INSTALLATION

MARNING

Do not operate unit if damaged during shipping, handling or use. Operating unit if damaged may result in injury.

- Permanently installed compressors must be located in a clean, well ventilated dry room so compressor receives adequate supply of fresh, clean, cool and dry air. It is recommended that a compressor, used for painting, be located in a separate room from that area wherein body sanding and painting is done. Abrasive particles or paint, found to have clogged the air intake filters and intake valves, shall automatically void warranty.
- 2. Compressors should never be located so close to a wall or other obstruction that flow of air through the fan bladed flywheel, which cools the compressor, is impeded. Permanently mounted units should have flywheel at least 12" from wall.
- 3. Place stationary compressors on firm level ground or flooring. Permanent installations require bolting to floor. Bolt holes in tank or base feet are provided. Before bolting or lagging down, shim compressor level. Avoid putting a stress on a tank foot by pulling it down to floor. This will only result in abnormal vibration, and possible cracking of Air Receiver. It is recommended that optional vibro-isolator pads be installed on unit. Tanks bolted directly to a concrete floor without padding will not be warranted against cracking. Champion vibro-isolators must be used for extended warranty to apply to ASME air receivers.
- 4. If installing a bare pump or a base mounted unit, make certain the system has adequate pressure limiting controls. Controls could be a pressure switch with unloader for start/stop operation or a pilot valve for continuous operation. If a pilot valve is used, the compressor must be equipped with head unloaders. Control air must be piped from the air receiver to the pilot valve.
- 5. A properly sized air check valve must be installed in the discharge piping, between the compressor outlet and the inlet of any receiver tank(s) in the system.

A DANGER

Do not install isolating valves between compressor outlet and air receiver. This will cause excessive pressure if valve is closed, and cause injury and equipment damage.

MARNING

Always use an air pressure regulating device at the point of use. Failure to do so can result in injury or equipment damage.

⚠ CAUTION

- Do not install in an area where ambient temperature is below 32 degrees F or above 100 degrees F.
- Do not install unit in an area where air is dirty and/or chemical laden.
- Unit is not to be installed outdoors.

INSTALLATION (CONT'D)

ELECTRICAL POWER SUPPLY

It is essential that the power supply and the supply wiring are adequately sized and that the voltage correspond to the unit specifications. Branch circuit protection must be provided at installation a specified in the National Electrical Code.

All wiring should be preformed by a licensed electrian or electrical contractor. Wiring must meet applicable codes for area of installation. The table gives recommended wire sizes based on the 2008 NEC.

WIRE SIZE (AWG)	- 75°C COPPER	- 30°C AMBIENT
-----------------	---------------	----------------

MOTOR		3 PH	ASE	1 PHASE			
HP	200/208V	230V	460V	575V	115V	208V	230V
1-1/2	14	14	14	14	10	14	14
2	14	14	14	14	8	12	12
3	14	14	14	14	8	10	10

All models, except as noted below, require a properly sized magnetic starter as specified in the National Electric Code (NEC). See Figure 1-1 for simplex wiring diagram.

Units furnished with thermal overload protected (TOLP) motors do not require a manual or magnetic starter. See Figure 1-2.

If ordered with a factory mounted magnetic starter, compressor is wired at factory. It is necessary only to bring lines from a properly sized disconnect switch to the magnetic starter mounted on the unit.

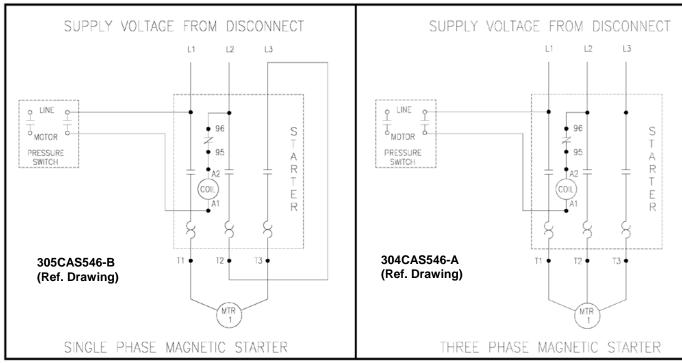


Figure 1 – 1 Simplex Wiring Diagram

INSTALLATION (CONT'D)

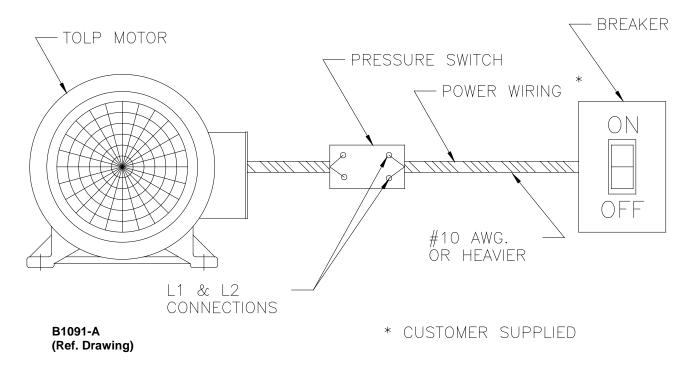


Figure1 - 2 Wiring Diagram

⚠ CAUTION

Wiring must be such that when viewing compressor from opposite shaft end, rotation of shaft is clockwise as shown by arrow on guard. Wrong direction rotation for any length of time will result in damage to compressor.

GROUNDING INSTRUCTIONS

This product should be connected to a grounded, metallic, permanent wiring system, or an equipment-grounding terminal or lead on the product.

AIR LINE PIPING

Connection to air system should be of the same size, or larger, than discharge pipe out of unit. A union connection to the unit and water drop leg is recommended. Install a flexible connector between the discharge of the unit and the plant air piping. Plant air piping should be periodically inspected for leaks using a soap and water solution for detection on all pipe joints. Air leaks waste energy and are expensive.

MWARNING

Never use plastic pipe or improperly rated metal pipe. Improper piping material can burst and cause injury or property damage.

OPERATION

This compressor has been inspected, thoroughly tested and approved at the factory. For this unit to give long satisfactory service it must be installed and operated properly. This compressor has been designed for a 80%/ON – 20%/OFF duty cycle.

Simplex units have a pressure switch that senses changes in receiver pressure and automatically starts and stops the compressor at preset pressure limits. If the receiver pressure falls below the cut-in pressure setting of the pressure switch the compressor will run until the cut-out pressure setting of the pressure switch has been reached.

Units furnished with head unloaders are equipped with a needle valve, pilot valve and head unloaders to provide continuous run capabilities. The pilot valve acts as an automatic air switch allowing air to flow from the receiver to the head unloader mechanism, thus actuating it. To operate unit in continuous run, open needle valve located next to pilot valve. The pilot valve is now able to sense receiver pressure. When the receiver pressure reaches the cut-out pressure setting of the pilot valve, the pilot valve opens and air is released to the unloader mechanism. The compressor stops compressing air and runs unloaded until the cut-in pressure setting of the pilot valve has been reached. At this time air released from the unloader mechanism and the compressor starts compressing again. Continuous run is recommended if motor starts exceed 8 starts/hour.

Initial Start Up

- 1. Inspect unit for any visible signs of damage that would have occurred in shipment or during installation.
- 2. Pull main disconnect switch to unit to assure that no power is coming into the unit. "Lock Out" or "Tag Out" switch. Connect power leads to start.



Do not attempt to operate compressor on voltage other than that specified on order or on compressor motor.

- 3. Check compressor oil level. Add oil as required. See "Compressor Oil Specifications," page 17. **NOTE**: Do not mix oil type, weights or brands.
- 4. Activate main disconnect switch.
- 5. "Jog" motor and check for proper rotation by direction arrow. If rotation is wrong, reverse input connections on the magnetic starter.
- 6. Close receiver outlet hand valve and start.
- 7. With receiver hand valve closed, let machine pump up to operating pressure. At this stage the automatic controls will take over. Check for proper cycling operation.
- 8. Check for proper operation of any options. Refer to individual option instruction sheet.
- 9. When the initial run period has shown no operating problems, shut unit down and recheck oil level.
- 10. Open receiver hand valve. The air compressor unit is now ready for use.



This unit can start automatically without warning.

GUIDE TO MAINTENANCE

To obtain reliable and satisfactory service, this unit requires a consistent preventive maintenance schedule. Maintenance schedule pages are included in the back of this manual to aid in keeping the proper records.



Before performing any maintenance function, switch main disconnect switch to "off" position to assure no power is entering unit. "Lock Out" or "Tag Out" all sources of power. Be sure all air pressure in unit is relieved. Failure to do this may result in injury or equipment damage.

DAILY MAINTENANCE

- 1. Check oil level of compressor. Add quality lubricating oil as required. See Section on "Oil Specifications," page 17.
- 2. Drain moisture from tank by opening tank drain valve located in bottom of tank. Do not open drain valve if tank pressure exceeds 25 PSIG.
- 3. Turn off compressor at the end of each day's operation. Turn off power supply at wall switch.

WEEKLY MAINTENANCE

- 1. Clean dust and foreign matter from cylinder head, motor, fan blade, air lines, and tank.
- 2. Remove and clean intake air filters.



Do not exceed 15 PSIG nozzle pressure when cleaning element parts with compressed air. Do not direct compressed air against human skin. Serious injury could result. Never wash elements in fuel oil, gasoline or flammable solvent.

- 3. Check V-belts for tightness. The V-belts must be tight enough to transmit the necessary power to the compressor. Adjust the V-belts as follows:
 - a. Remove bolts and guard to access compressor drive.
 - b. Loosen mounting hardware which secures motor to base. Slide motor within slots of baseplate to desired position.
 - c. Apply pressure with finger to one belt at midpoint span. Tension is correct if top of belt aligns with bottom of adjacent belt. Make further adjustments if necessary.
 - d. Check the alignment of pulleys. Adjust if necessary.
 - e. Tighten mounting hardware to secure motor on base.
 - f. Re-install guard and secure with bolts.



Never operate unit without belt guard in place. Removal will expose rotating parts which can cause injury or equipment damage.

EVERY 90 DAYS OR 500 HOURS MAINTENANCE

- Change crankcase oil. Use type and grade oil as specified in the section on "Compressor Oil Specifications," page 17.
- 2. Check entire system for air leakage around fittings, connections, and gaskets, using soap solution and brush.
- 3. Tighten nuts and capscrews as required.
- 4. Check and clean compressor valves, as required. Replace parts when worn or damaged.



Valves must be reinstalled in original position. Valve gaskets should be replaced each time valves are serviced.

5. Pull ring on all pressure relief valves to assure proper operation.

GENERAL MAINTENANCE NOTES

- **PRESSURE RELIEF VALVE:** The pressure relief valve is an automatic pop valve. Each valve is properly adjusted for the maximum pressure permitted by tank specifications and working pressure of the unit on which it is installed. If it should pop, it will be necessary to drain all the air out of the tank in order to reseat properly. Do not readjust.
- **TANK DRAIN VALVE:** Drain valve is located at bottom of tank. Open drain valve daily to drain condensation. Do not open drain valve if tank pressure exceeds 25 PSIG. The automatic tank drain equipped compressor requires draining manually once a week.
- **PRESSURE SWITCH:** The pressure switch is automatic and will start compressor at low pressure and stop when the maximum pressure is reached. It is adjusted to start and stop compressor at the proper pressure for the unit on which it is installed. Do not readjust.
- **BELTS:** Drive belts must be kept tight enough to prevent slipping. If belts slip or squeak, see V-belt maintenance in preceding section.



If belts are too tight, overload will be put on motor and motor bearings.

COMPRESSOR VALVES: If compressor fails to pump air or seems slow in filling up tank, disconnect unit from power source and remove valves and clean thoroughly, using compressed air and a soft wire brush. After cleaning exceptional care must be taken that all parts are replaced in exactly the same position and all joints must be tight or the compressor will not function properly. When all valves are replaced and connections tight, close hand valve at tank outlet for final test. Valve gaskets should be replaced each time valves are removed from pump.

GENERAL MAINTENANCE (Cont'd.)

CHECK VALVE: The check valve closes when the compressor stops operating, preventing air from flowing out of the tank through the pressure release valve on the pressure switch. After the compressor stops operating, if air continues to escape through the release valve, it is an indication that the check valve is leaking. This can be corrected by removing check valve and cleaning disc and seat. If check valve is worn badly, replace same.

⚠WARNING

Before removing check valve be sure all air is drained out of tank and power is disconnected. Failure to do so may result in injury or equipment damage.

- **COMPRESSOR LUBRICATION:** Fill crankcase to proper level as indicated by oil sight gauge. Keep crankcase filled as required by usage. It is recommended that only Champlub recip lubricant be used. This is a 30-weight, non-detergent industrial oil with rust and oxidation inhibitors specially formulated for reciprocating compressors. Do not mix oil types, weights or brands.
- **MOTOR LUBRICATION:** Long time satisfactory operation of an electric motor depends in large measure proper lubrication of the bearings. Bearing grease will lose its lubricating ability overtime, not suddenly. Refer to the motor manufacturer's instructions for the type of grease and lubrication intervals.
- **PILOT VALVE:** The pilot valve actuates the head unloader mechanism to provide a means of stopping or starting the compression of air by the compressor without stopping or starting the electric motor.

GENERAL MAINTENANCE (Cont'd.)

COMPRESSOR PILOT VALVE PRESSURE ADJUSTMENT

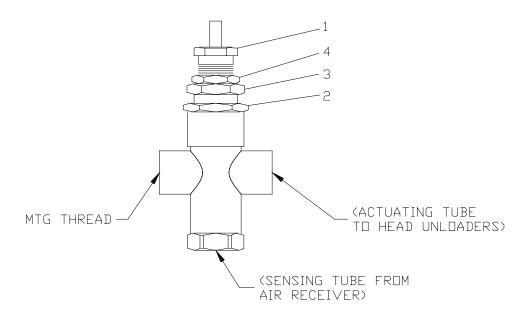
Proceed with the following instructions while compressor is running:

- 1. Loosen locknut (4) and back off several turns. Do not turn differential pressure adjustment nut (3).
- 2. Check reading on the tank pressure gauge. Set the compressor maximum pressure by turning threaded cap (1) clockwise to increase pressure or counter clockwise to decrease pressure. Pressure setting must be 5 psig less than setting of pressure switch.
- 3. After pressure is set, tighten locknut (4). Be careful not to move threaded cap (1).

COMPRESSOR PILOT VALVE DIFFERENTIAL PRESSURE ADJUSTMENT

Proceed with the following instructions while compressor is running:

- 1. Loosen locknut (2) and back off several turns.
- 2. Check reading on the tank pressure gauge. Set the pressure to 30 psig differential (unload at 95 psig, reload at 125 psig). Turn nut (3) clockwise to increase differential pressure or counterclockwise to decrease differential pressure.
- 3. After pressure is set, tighten locknut (2). Be careful not to move nut (3).



B890-B (Ref. Drawing)

COMPRESSOR OIL SPECIFICATIONS

Compressors shipped on units are factory filled with Champlub hydrocarbon based recip lubricants. Compressors shipped as pump only, do not have any oil in the crankcase. Be sure to add oil prior to start-up. Champlub is an ISO 100 non-detergent industrial lubricant with rust and oxidation inhibitors specially formulated for reciprocating compressors. It is recommended this compressor be maintained using this oil for ambient temperatures above 32°F.

⚠ CAUTION

Do not mix oil types, weights or brands.



"Emulsification of oil (white milky substance) indicates unsafe accumulation of moisture and may be evidence compressor is oversized for application. Failure to promptly consult your local distributor, or Champion Customer Service, can be grounds to deny warranty."

NOTES:

- 1. Normal break-in period of Champion air compressors is 25 hours.
- 2. For the first 100 hours of compressor operation, a careful and regular check of the oil level should be made. Maintain oil level at the full line.

LUBRICANT

CHAMPLUB

0 202	
DESCRIPTION	PART NUMBER
1 – Quart Case (12/case)	P09479A
1 – Gallon Case (4/case)	P08909A
5 – Gallon Pail	P08908A
55 – Gallon Drum	P08907A

TROUBLE SHOOTING CHART



Always disconnect unit from power supply and relieve all pressure from air tank before performing any maintenance. Failure to do so may result in equipment damage or injury. A Lock Out" or "Tag Out" all power sources.

Never operate unit without belt guard in place.

Never use gasoline or flammable solvent on or around compressor unit. Explosion may result.

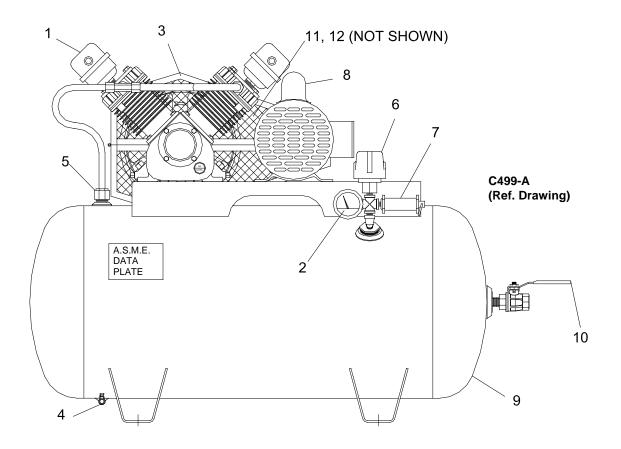
Troubleshooting Chart

Symptom		Possible Cause(s)		Corrective Action
Motor will not start.	1.	Main switch and fuses open.	1.	Check all fuses and switches. Check for loose or faulty wires.
	2.	Starter heater coils open.	2.	Check overload relay in starter. Reset starter.
	3.	Starter tripped	3.	Reset starter. If starter trips repeatedly, have electrical system
	4.	Defective pressure switch- contacts will not close	4.	inspected by an electrician. Repair or replace pressure switch. Warning – Relieve tank pressure
	5.	Low voltage.	5.	before servicing. Check with voltmeter. Be sure voltage corresponds to unit specifications.
Starter trips repeatedly.	1.	Improperly adjusted pressure switch.	1.	Adjust or replace.
	2.	Faulty check valve.	2.	before servicing. Clean or replace
	3.	Incorrect fuse size or magnetic starter heaters. Low voltage.	3. 4.	before servicing. Be sure that fuses and heaters are properly rated. Check with voltmeter. Be sure voltage corresponds to unit specifications.
	5.	Defective motor.	5.	Replace motor.
Tank pressure builds up slowly.	1. 2. 3.	Air leaks. Dirty air filter. Defective compressor valves	1. 2. 3.	Tighten fittings. Clean or replace. Install new valve plate assembly.
Tank pressure builds up quickly.	1.	Excessive water in tank.	1.	Drain tank.
Discharge pressure relief valve pops off while compressor is running.	1. 2.	Wrong pressure switch setting. Defective ASME relief valve.	1. 2.	Adjust to correct setting. Replace valve.
			<u>\(\int \) \(\int \)</u>	■ Warning – Relieve tank pressure before servicing.
Compressor will not unload (Units with head unloaders)	1. 2.	Wrong pilot valve setting. Defective pilot valve.	1. 2.	Adjust to correct setting Replace pilot valve.
(Offits with flead diffoaders)	3.	Lack of air to pilot valve	3.	Open needle valve to pilot valve.
Excessive belt wear.	1.	Pulley out of alignment. Belts too tight or too loose.	1.	Realign motor pulley. Adjust belt tension.
Compressor runs hot.	1.	Improper flywheel rotation	1.	Check for correct rotation. (Counter clockwise when viewed from drive side.
	2. 3. 4.	Defective compressor valves. Dirty air filter. Dirty cylinder.	2. 3. 4.	Install new valve plate assembly. Clean or replace. Clean cylinder fins.
Excessive oil consumption.	1. 2. 3.	Dirty air filter. Wrong oil viscosity. Oil leaks.	1. 2. 3.	Clean or replace. Refill with proper viscosity oil. Tighten bolts. Replace gaskets.
	4. 5.	Worn piston rings. Scored cylinder	4. 5.	Replace rings. Replace cylinder.

Troubleshooting Chart (Cont'd)

Symptom		Possible Cause(s)		Corrective Action
Air escapes from unloader on pressure switch when unit is running.	1.	Defective pressure switch		Replace pressure switch.
			\triangle	Warning – Relieve tank pressure before servicing
Air continues to escape from unloader on pressure switch when unit is stopped.	1.	Check valve stuck in open position.	1.	Replace check valve.
			\triangle	Warning – Relieve tank pressure before servicing.

MODELS: 30BVAS10H, 30BVA15H, 30BVA20H & 60BVA15H

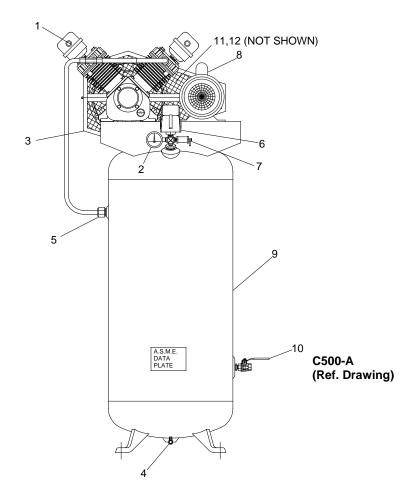


REPAIR PARTS LIST

MODELS

		30BVAS10H	30BVA15H	30BVA20H	60BVA15H
1.	Pump	BVAS	BVA	BVA	BVA
2.	Pressure Gauge	M1249	M1249	M1249	M1249
3.	Belt Guard	Z1374	Z712	Z712	Z712
4.	Drain Valve	VP1022988	VP1022988	VP1022988	VP1022988
5.	Check Valve	P05654A	P05654A	P05654A	P05654A
6.	Pressure Switch	P14208A	P14208A	P14208A	P14208A
7.	Pressure Relief Valve	M2839	M2839	M2839	M2839
8.	Motor	1 HP	1.5 HP	2 HP	1.5 HP
9.	Tank	P02236D	P02236D	P02236D	P01136D
10.	Isolation Valve	VP1022988	VP1022988	VP1022988	M3590
11.	Pulley	M2005A	P11993A	P13258A	P11993A
12.	Belts	4L560 (1)	4L510 (2)	4L510 (2)	4L510 (2)

MODELS: 30BVAS10V, 30BVA15V & 30BVA20V

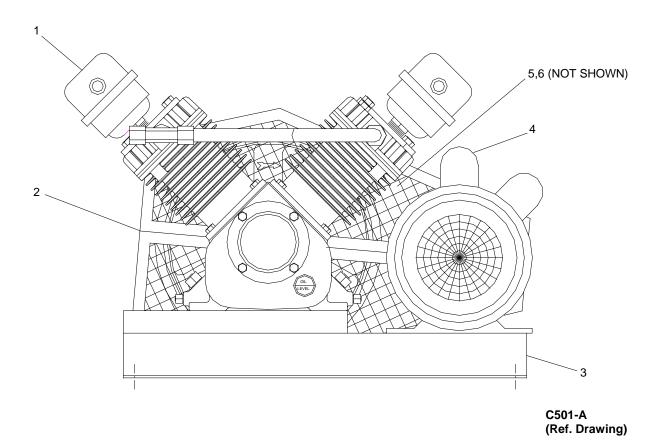


REPAIR PARTS LIST

MODELS

			MODELO	
		30BVAS10V	30BVA15V	30BVA20V
1.	Pump	BVAS	BVA	BVA
2.	Pressure Gauge	M1249	M1249	M1249
3.	Belt Guard	Z1374	CC1068703	CC1068703
4.	Drain Valve	VP1022988	VP1022988	VP1022988
5.	Check Valve	P05654A	P05654A	P05654A
6.	Pressure Switch	P14208A	P14208A	P14208A
7.	Pressure Relief Valve	M2839	M2839	M2839
8.	Motor	1 HP	1.5 HP	2 HP
9.	Tank	CC1055283	CC1055283	CC1055283
10.	Isolation Valve	VP1022988	VP1022988	VP1022988
11.		M2005A	P11993A	P13258A
12.		4L560 (1)	4L510 (2)	4L510 (2)

MODELS: BMBVAS10, BMBVA15, BMBVA20, BMBVA-15SS & BMBVA-20SS



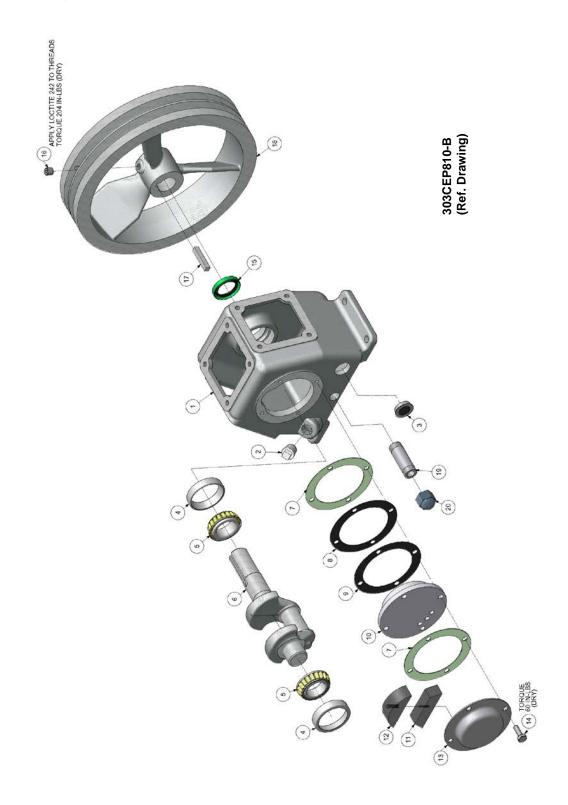
MODELS: BMBVAS10, BMBVA15, BMBVA20, BMBVA-15SS & BMBVA-20SS

REPAIR PARTS LIST

MODELS

			BMBVAS10	BMBVA15	BMBVA20	BMBVA-15SS	BMBVA-20SS
1.	Pump		BVAS	BVA	BVA	BVA	BVA
2.	Belt Guard	l	Z1374	Z712	Z712	Z712	Z712
3.	Base Plate)	P09195C	P09195C	P09195C	P09195C	P09195C
4.	Motor		1HP	1.5 HP	2 HP	1.5 HP	2 HP
5.	Dullov	1 PHASE	M2005A	P11993A	P13258A	P11993A	P13258A
5.	Pulley	3 PHASE	M2005A	P11993A	P13258A	VP1054464	VP1054465
6	Belts	1 PHASE	4L560 (1)	4L510 (2)	4L510 (2)	4L510 (2)	4L510 (2)
6.	Dello	3 PHASE	4L560 (1)	4L510 (2)	4L510 (2)	4L540 (2)	4L560 (2)

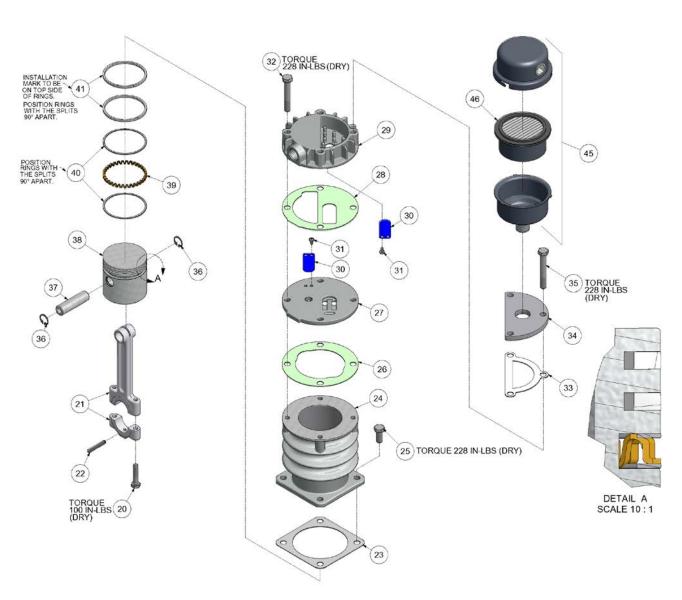
MODELS: BVAS & BVA CRANKCASE, CRANKSHAFT AND FLYWHEEL



MODELS: BVAS & BVA CRANKCASE, CRANKSHAFT AND FLYWHEEL

REF.		MODEL BVAS	MODEL BVA	
NO.	DESCRIPTION	PART NO.	PART NO.	QTY
		-		
1	CRANKCASE	B9	B9	1
2	PLUG	64AA4	64AA4	2
3	OIL LEVEL GAUGE	B14	B14	1
	BEARING KIT (Includes items 4 & 5)	ZC16	ZC16	2
4	MAIN BEARING CUP			
5	MAIN BEARING CONE			
6	CRANKSHAFT	CQC5	CQC5	1
	GASKET SET (Includes items 7, 8 & 9) (1 Each)	Z132	Z132	1
7	GASKET	C30	C30	1
8	GASKET			
9	GASKET			
10	CRANCASE COVER	C14C	C14C	1
11	BREATHER ELEMENT	P04581A	P04581A	1
12	BREATHER SEPARATOR	P04582A	P04582A	1
13	BREATHER CHAMBER (Includes items 11 & 12)	Z1652	Z1652	1
14	BOLT	M2340	M2340	4
15	OIL SEAL	OSA5A	OSA5A	1
16	SET-SCREW	M568	M568	1
17	KEY	U8	U8	1
18	FLYWHEEL	P09950C	M2195	1
19	NIPPLE	M1022B	M1022B	1
20	CAP	M461	M461	1

MODELS: BVAS & BVA CYLINDER, PISTON, AND HEAD



305CEP810-A (Ref. Drawing)

MODELS: BVAS & BVA

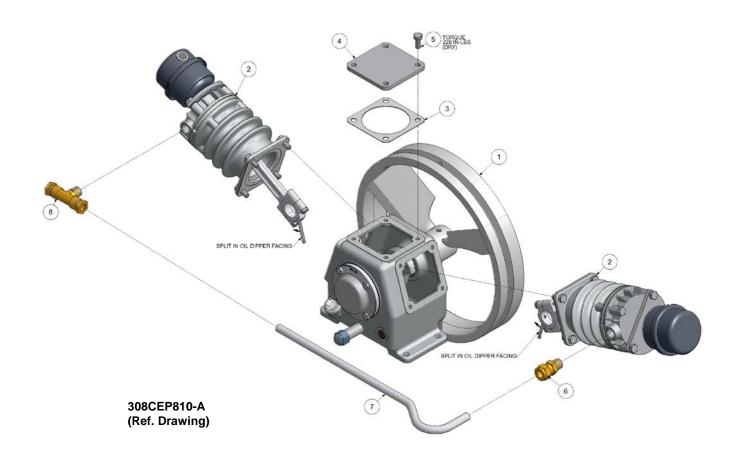
CYLINDER, PISTON, AND HEAD

REF.		MODEL BVA/BVAS	
NO.	DESCRIPTION	PART NO.	QTY
		-	
20	SCREW	M780	2
21	CONNECTING ROD ASSEMBLY (Includes Items 20 & 22)	CC1066814	1
22	OIL DIPPER	P09120A	1
23	CYLINDER FLANGE GASKET	A29	1
24	CYLINDER	CC1045672	1
25	SCREW	M2339	4
26	CYLINDER HEAD GASKET	B31	1
27	VALVE PLATE	M1562	1
28	VALVE PLATE GASKET	M1564	1
29	HEAD	M1561	1
30	REED VALVE	P07497A	2
31	SCREW	M1565	4
32	SCREW	M3127	1
33	FILTER PLATE GASKET	P09924A	1
34	INLET FILTER PLATE	P09922A	1
35	SCREW	M3507	3
36	RETAINER RING	A102	2
37	PISTON PIN	B21	1
38	PISTON	B4A	1
39	RING,EXPANDER	B10D1	1
40	RING,RAIL	B10D2	2
41	PISTON RING	P03016A	2
45	INTAKE FILTER	P09892A	1
46	FILTER ELEMENT	P09974A	1
	PISTON WITH PIN (Includes Items 36, 37 & 38)	ZB4A	1
	PISTON RING SET (Includes Items 39, 40 & 41)	ZB10	1
	HEAD ASSEMBLY (Includes Items 27, 28, 29, 30 & 31)	Z653	1
	HEAD VALVE ASSEMBLY (Includes Items 29, 30 & 31)	Z6320	1
	VALVE PLATE ASSEMBLY (Includes Items 27, 30 & 31)	Z6321	1

Note: Quantities Shown Are For One (1) Cylinder.

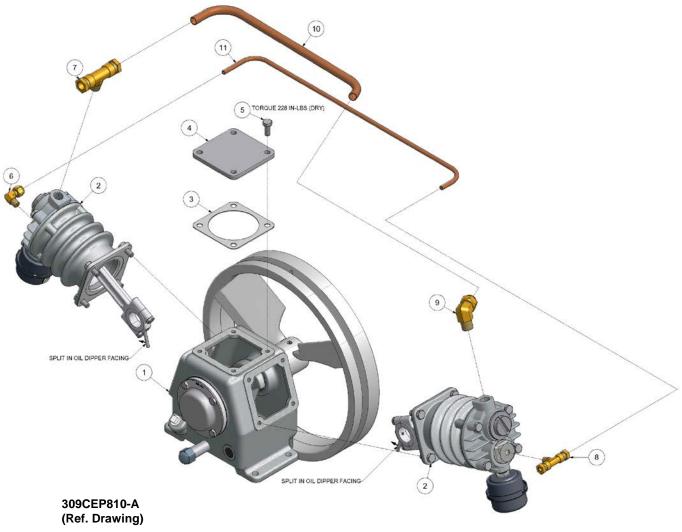
MODELS: BVAS & BVA

CYLINDER HEAD BVA AND BVAS



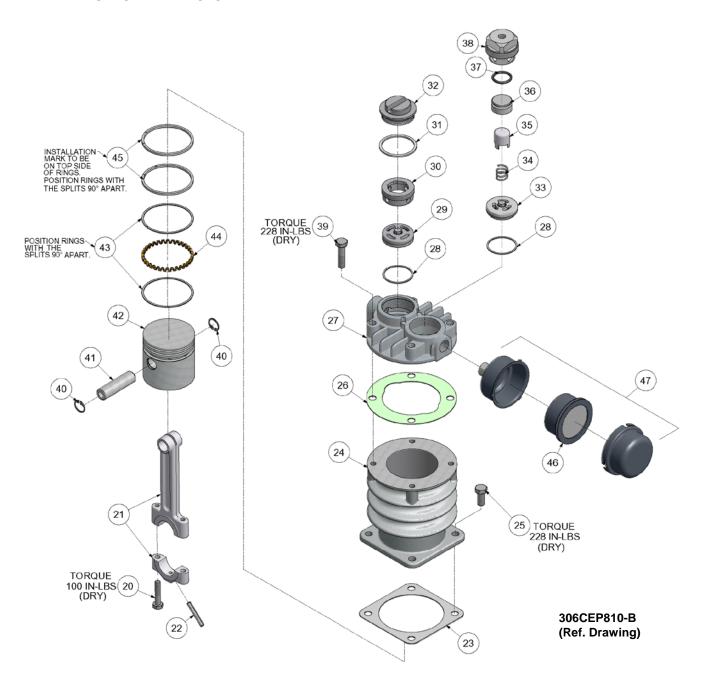
REF.		MODEL BVAS	MODEL BVA	
NO.	DESCRIPTION	PART NO.	PART NO.	QTY
1	CRANKCASE/CRANKSHAFT GROUP (See Page 24 & 25)	CC1053126	CC1052849	1
2	CYLINDER GROUP (See Page 26 & 27)	CC1052848	CC1052848	2
3	CYLINDER FLANGE GASKET	A29	A29	1
4	COVER PLATE	P04486A	P04486A	1
5	SCREW	M2339	M2339	4
6	TUBE FITTING	M2865	M2865	1
7	DISCHARGE TUBE	P05082B	P05082B	1
8	TUBE FITTING	M2875	M2875	1
	GASKET KIT (Includes Item 3 on Page 28 & Items 23, 26, 28,			
	33 on Pages 26 & 27 and Items 7, 8, 9 on Pages 24 & 25)	Z5955	Z5955	1

MODELS: BVAS & BVA CYLINDER HEAD BVA-HU AND BVAS-HU



REF.		MODEL BVAS-HU	MODEL BVA-HU	
NO.	DESCRIPTION	PART NO.	PART NO.	QTY
1	CRANKCASE/CRANKSHAFT GROUP (See Page 24 & 25)	CC1052849	CC1053126	1
2	CYLINDER GROUP (See Page 30 & 31)	CC1052850	CC1052850	2
3	CYLINDER FLANGE GASKET	A29	A29	1
4	COVER PLATE	P04486A	P04486A	1
5	SCREW	M2339	M2339	4
6	TUBE FITTING	M2868	M2868	1
7	TUBE FITTING	M2875	M2875	1
8	TUBE FITTING	M2879	M2879	1
9	TUBE FITTING	M2870	M2870	1
10	DISCHARGE TUBE	CC1053178	CC1053178	1
11	ACTUATING TUBE	CC1053173	CC1053173	1
	GASKET KIT (Includes Item 3 on Page 29 & Items 23, 26			
	on Pages 30 & 31and Items 7, 8, 9 on Pages 24 & 25)	CC1055675	CC1055675	1

MODELS: BVAS-HU & BVA-HU HEAD UNLOADER – PISTON AND HEAD



MODELS: BVAS-HU & BVA-HU HEAD UNLOADER – PISTON AND HEAD

REF. NO.	DESCRIPTION	MODEL BVAS-HU/BVA-HU PART NO.	QTY
20	SCREW	M780	1
21	CONNECTING ROD ASSEMBLY (Includes Items 20 & 22)	CC1066814	2
22	OIL DIPPER	P09120A	1
23	CYLINDER HEAD GASKET	A29	1
24	CYLINDER	CC1045672	1
25	SCREW	M2339	4
26	CYLINDER HEAD GASKET	B31	1
27	CYLINDER HEAD	B1A	1
28	VALVE GASKET	U48	2
29	EXHAUST VALVE	Z122SA	1
30	RETAINER EXHAUST VALVE	B26A	1
31	GASKET	B75	1
32	VALVE CHAMBER,CAP	B28B	1
33	INTAKE VALVE SUB-ASSY.	Z121SA	1
34	SPRING	P09041A	4
35	ACTUATING FORK	P09045A	2
36	PISTON	P09044B	1
37	O-RING	OR116	1
38	HEAD UNLOADER CYLINDER	P09043B	1
39	SCREW	M2338	4
40	PISTON RETAINER RING	A102	2
41	PISTON PIN	B21	1
42	PISTON	B4A	1
43	RING,RAIL	B10D2	2
44	EXPANDER RING	B10D1	1
45	PISTON RING	P03016A	2
46	FILTER ELEMENT	P13705A	1
47	SILENCER FILTER	P13704A	1
	OVENDED HEAD ACCEMBLY (L. L. L. L. CO.)	70000	4
	CYLINDER HEAD ASSEMBLY (Includes Items 27 thru 38)	Z6323	1
	PISTON WITH PIN (Includes Items 40, 41 & 42)	ZB4A	1
	PISTON RING SET (Includes items 43, 44 & 45)	ZB10	1

Note: Quantities Shown Are For One (1) Cylinder.

UNIT HAZARD DECAL LISTING

PAGE	DESCRIPTION	PART NO.
33	PRODUCT LIABILITY DECAL SHEET - MASTER	P10157A
	Unit Pressure Setting	1
	NOT USED	2
	DANGER – Breathing Air	3
	DANGER – Drain Tank Daily	4
	WARNING – Pressure/Safety Valve	5
	NOT USED	6
	DANGER – Valve Maintenance	7
	DANGER – High Voltage	8
	WARNING – Hot Surfaces	9
	WARNING – Do Not Remove Fan Guard	10
	NOTICE - Lubricant	11a
	NOT USED	11b
	DECAL – Synthetic or Food Grade Inserts	12
	NOT USED	13
	DECAL – Pressure Setting: 70 -100 PSIG	14
	NOTICE – Read and Retain Manuals	15
	NOT USED	16
	DECAL – Rotation Direction	17
	NOT USED	18
	DECAL – Pressure Switch	P14677A

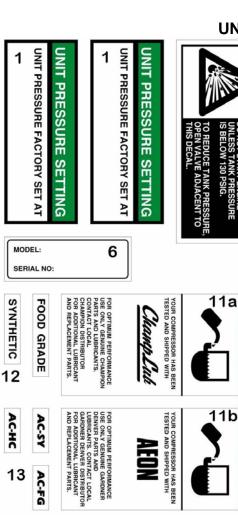
PUMP HAZARD DECAL LISTING

<u>PAGE</u> DESCRIPTION	<u>PART NO.</u>
34 PUMP DECAL SHEET – MASTER	P13805A
NOT USED	A1
NOTICE - Lubricants	A2
DECAL – Rotation Direction	В
NOTICE – Read and Retain Manuals	С
DANGER – Breathing Air	D
DECAL – Made in the United States of America	E
IMPORTANT NOTICE – Motor Burn-Outs	F

DO NOT CONNECT INCOMING POWER SUPPLY TO PRESSURE SWITCH.

P14677A

UNIT HAZARD DECALS





▲NOTICE





















14

215-250 PSIG

140-175 PSIG 140-170 PSIG 130-165 PSIG

95-125 PSIG 85-115 PSIG

Read, understand and retain all labels and Owners Manuals before using this

IMPORTANT: Please keep the operating Instructions with this compressor unit.

Master Decal Set P/N P10157A

80-100 PSIG

RESET

RESET

18

70-100 PSIG

70-90 PSIG

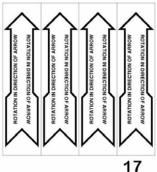
60-90 PSIG 60-80 PSIG 20-40 PSIG

15

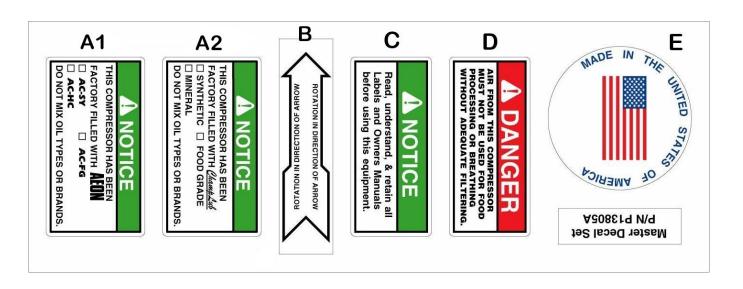
INSTRUCTIONS **DUAL CONTROL**

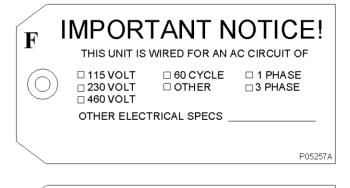
This unit is equipped with a dual control valve. Open valve completely for continuous run operation. Close valve completely for start-stop operation.

16



PUMP HAZARD DECALS





MOTOR BURN-OUTS ARE NOT COVERED BY WARRANTY - Unless Motor is Equipped with Factory Installed thermal overload protection (in either motor or starting device)

P05257A

RECORD OF MAINTENANCE SERVICE

Deily							
Daily • DRAIN MOISTURE FROM TANK							
WEEKLY • CLEAN FILTER • CLEAN COMPRESSOR • CHECK V-BELTS						EVERY 3 MONTHS • INSPECT VALVE ASSEMBLIES •TIGHTEN ALL FASTENERS •TEST PRESSURE RELIEF VALVE	



CQF3311VER04



For additional information, contact your local representative or visit: www.championpneumatic.com/contactus.aspx

©2012 Gardner Denver, Inc. Printed in U.S.A.









