



# AIR COMPRESSOR OWNERS MANUAL

## IMPORTANT INFORMATION

MODEL NUMBER

BRA618V

SERIAL NUMBER

6E37890

DATE PURCHASED \_\_\_\_\_

CALL TOLL FREE 1-800-231-5203



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## **FREIGHT INSPECTION UPON DELIVERY**

### **INSERTS:**

ASSEMBLY INSTRUCTIONS (detachable models only)  
EXPLODED VIEW OF PUMP  
PUMP PARTS LISTING  
ELECTRICAL SCHEMATIC



## SAFETY GUIDELINES

Throughout this manual we have identified key safety hazards. The following symbols identify the level of hazard seriousness.



Immediate hazard which will result in severe personal injury or death.



Hazards or unsafe practices that could result in severe personal injury or death.



Hazards or unsafe practices that could result in minor personal injury or product or property damage.

# **SAFETY PRECAUTIONS AND WARNINGS**

Air compressors are precision high-speed mechanical equipment requiring caution in operation to minimize hazard to property and personnel. There are many obvious safety rules that must be observed in the operation of this type of equipment. Listed are some, but not all safety precautions that must be observed with compressors and compressed air systems. Failure to follow any of these warnings may result in severe personal injury, death, property damage and/or compressor damage.

- Air from this compressor will cause severe injury or death if used for breathing or food processing. Air used for these processes must meet O.S.H.A. 29 C.F.R. 1910.134 or F.D.A. 178.3570 regulations.
- This compressor is designed for use in the compression of normal atmospheric air only. No other gases, vapors or fumes should be exposed to the compressor intake, nor processed through the compressor.
- Turn off and lockout/tagout (per O.S.H.A. regulation 1910.147) the main power disconnect switch before attempting to service or perform maintenance procedures.
- Relieve all pressure internal to the compressor prior to servicing per O.S.H.A. regulation 1910.147. Do not depend on check valves to hold system pressure.
- A properly sized safety relief valve must be installed in the discharge piping ahead (upstream) of any shut-off valve, heat exchanger, orifice or any potential blockage point. Failure to install a safety relief valve could result in rupturing or explosion of some compressor or safety component.
- Do not operate the compressor in excess of the A.S.M.E. pressure vessel rating for the receiver or the service rating of the compressor, whichever is lower.
- Do not change the pressure setting of the safety relief valve, restrict the function of the safety relief valve, or replace the safety relief valve with a plug. Over pressurization of some system or compressor component can occur, resulting in severe personal injury, death and property damage.
- Do not operate the unit with any of its safety guards, shields, or screens removed.
- Do not attempt to service any part of the unit while the compressor is operating.



- Never use plastic pipe or rubber hose not specifically rated for the necessary pressure and temperature, or lead-tin soldered joints in any part of the compressed air system.
- Provisions should be made to have the owners manual readily available to the operator and maintenance personnel. If for any reason any part of the manual becomes illegible or the manual is lost, have it replaced immediately. The owners manual should be read periodically to refresh one's memory. It may prevent a serious or fatal accident.
- Do not remove or paint over any DANGER!, WARNING!, CAUTION!. or instructional materials attached to the compressor. Lack of information regarding hazardous conditions can cause property damage or personal injury, or death.
- Never use a flammable or toxic solvent for cleaning the air filter or any parts.
- Make a general overall inspection of the unit daily and correct any unsafe conditions.
- Never play with compressed air. Reckless behavior of any kind involving compressed air can cause serious personal injury.
- Periodically check all pressure relief valves for proper operation.
- Any alterations to the compressor must have prior factory approval.

*This manual should be carefully read and understood prior to starting the compressor. If there are any questions regarding any part of the instructions, procedures, or diagrams, please call the 800 number listed on the front cover. A simple phone call could save life, limb, or equipment.*

*The owner, lessor or operator of this compressor is hereby warned that failure to observe the above safety precautions and warnings may result in serious injury to personnel and/or damage to property. Brama neither states as fact, or in any way implies that the above list of safety precautions and warnings is an all inclusive list, the observance of which will prevent all damage to property or injury to personnel.*

*Every effort has been taken to ensure that complete and correct instructions have been included with this owners manual. However, possible product updates and changes may have occurred since this printing. Brama reserves the right to change specifications without incurring any obligation for equipment previously or subsequently sold.*



# DESCRIPTION OF OPERATION

## PRINCIPLES OF COMPRESSION CYCLES

A reciprocating compressor is a piston type pump that develops pressure from the action of a piston moving through a cylinder. The cylinder, or cylinders, may be vertical, horizontal, or angular.

SINGLE STAGE When air is drawn in from the atmosphere and compressed to its final pressure in a single stroke, the compressor is referred to as a **"single stage"** pump. During the downstroke of a single stage compressor, air is drawn through an intake valve in the head of the compressor and into the cylinder. At the bottom of the stroke, the intake valve closes and air is trapped in the cylinder. The air is then compressed in the cylinder during the upstroke of the piston.

TWO STAGE Compressing air to higher pressure it is accomplished by using multiple stages. During the downstroke of the piston of a **"two stage"** pump, air is drawn through an intake valve in the head of the compressor, into the low-pressure cylinder and compressed during the upstroke of the piston. The compressed air is then released through a discharge valve in the head of the compressor to an intercooler where the heat resulting from compression is allowed to dissipate. The cooler compressed air is then drawn into a second compression cylinder, the high pressure cylinder, for compression to final pressure. From there the compressed air is released through a discharge valve to an air receiver tank. In one revolution of the crankshaft a compression cycle is completed.

## APPLICATIONS

Single stage compressors normally run in the 95 to 125 PSI range. These pressure settings are designed to provide working air in the 90 to 100 PSI range that most air tools operate. These compressors are generally used in lighter duty applications such as in your garage at home.

A two-stage compressor normally runs in the 145 to 175 PSI range. The higher-pressure settings of the two-stage unit are required in commercial and industrial applications that have tools and equipment such as in-ground lifts and tire changers that need air at higher pressure than a single stage compressor can provide. Two stage compressors are generally better suited for commercial use for several other important reasons. First, this high-pressure air is stored in the tank as "available energy" so the compressor runs less. Secondly, two stage compressors run at much lower discharge temperatures so that you have cooler, dryer air in the shop air system. The two-stage compressor is more versatile because it gives the shop owner the ability to use the higher pressures when necessary but also use air regulated down to the 90 to 100 PSI range for normal air tools.