



**PARTS LIST  
OPERATING AND  
SERVICE MANUAL**



**4500 SERIES  
BLOWERS**

**“A” AND “C” SERIES  
6” - 7” - 8” GEAR  
DIAMETER**

**Models**

GDF\_\_A\_ - 6”

GDG\_\_A\_ - 7”

GDH\_\_C\_ - 8”

**SB-7-626  
Version 05  
February, 2006**

## MAINTAIN BLOWER RELIABILITY AND PERFORMANCE WITH GENUINE GARDNER DENVER PARTS AND SUPPORT SERVICES

Factory genuine parts, manufactured to design tolerances, are developed for optimum dependability --- specifically for your blower. Design and material innovations are born from years of experience with hundreds of different blower applications. When you specify factory genuine parts you are assured of receiving parts that incorporate the most current design advancements . . . manufactured in our state-of-the-art blower factory under exacting quality standards.

Your **AUTHORIZED DISTRIBUTOR** offers all the backup you require. A worldwide network of authorized distributors provides the finest product support in the blower industry.

Your **AUTHORIZED DISTRIBUTOR** can support your

blower investment with these services:

1. Trained parts technical representatives to assist you in selecting the correct replacement parts.
2. Complete inventory of new machines and new, genuine factory parts.
3. A full line of factory tested AEON™ PD blower lubricants specifically formulated for optimum performance in all blowers.
4. Authorized Distributor service technicians are factory-trained and skilled in blower maintenance and repair. They are ready to respond and assist you by providing fast, expert maintenance and repair services.

### INSTRUCTIONS FOR DETERMINING BLOWER CONFIGURATION

1. Face the blower drive shaft.
2. In a **VERTICAL** configuration, air flow is horizontal.
3. In a **HORIZONTAL** configuration, air flow is vertical.
4. In a vertical configuration, a **BOTTOM HAND** exists when the drive shaft is below the horizontal center line of the blower. A **TOP HAND** exists when the drive shaft is above the horizontal center line of the blower.
5. In a horizontal configuration, a **RIGHT HAND** exists when the drive shaft is to the right of the vertical center line of the blower. A **LEFT HAND** exists when the drive shaft is to the left of the vertical center line of the blower.

### INSTRUCTIONS FOR ORDERING REPAIR PARTS

For pricing and ordering information, contact your nearest **AUTHORIZED FACTORY DISTRIBUTOR**.

When ordering parts, specify Blower **MODEL** and **SERIAL NUMBER** (see nameplate on unit).

Rely upon the knowledge and experience of your **AUTHORIZED DISTRIBUTOR** and let them assist you in making the proper parts selection for your blower.

**For the location of your local authorized Gardner Denver blower distributor refer to the yellow pages of your phone directory, check the Web site at [www.gardnerdenver.com](http://www.gardnerdenver.com) or contact:**

**Gardner Denver Compressor Division  
1800 Gardner Expressway  
Quincy, IL 62305  
Phone: (217) 222-5400  
Fax: (217) 221-8780**

## **GARDNER DENVER LUBRICANT ORDER INFORMATION**

Re-order Part Numbers for Factory-Recommended Lubricants.

AEON PD Synthetic Lubricant or AEON PD-Food Grade Synthetic Lubricant

### **AEON PD Synthetic Lubricant**

| <u>Description</u> | <u>Part Number</u> |
|--------------------|--------------------|
| 1 Quart            | 28G23              |
| Case/12 Quarts     | 28G24              |
| 5 Gallon Pail      | 28G25              |
| 55 Gallon Drum     | 28G28              |

### **AEON PD-Food Grade Synthetic Lubricant**

| <u>Description</u> | <u>Part Number</u> |
|--------------------|--------------------|
| 1 Quart            | 28H97              |
| Case/12 Quarts     | 28H98              |
| 5 Gallon Pail      | 28H99              |
| 55 Gallon Drum     | 28H100             |

**Call your local Sutorbilt Distributor to place your order for Gardner Denver lubricants. Your Authorized Gardner Denver Distributor is:**

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## FOREWORD

Sutorbilt® blowers 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.



### **DANGER**

**Danger is used to indicate the presence of a hazard which will cause severe personal injury, death, or substantial property damage if the warning is ignored.**



### **WARNING**

**Warning is used to indicate the presence of a hazard which can cause severe personal injury, death, or substantial property damage if the warning is ignored.**



### **CAUTION**

**Caution is used to indicate the presence of a hazard which will or can cause minor personal injury or property damage if the warning is ignored.**

### **NOTICE**

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

## SAFETY PRECAUTIONS

Safety is everybody's business and is based on your use of good common sense. All situations or circumstances cannot always be predicted and covered by established rules. Therefore, use your past experience, watch out for safety hazards and be cautious. Some general safety precautions are given below:

### **DANGER**

Failure to observe these notices could result in injury to or death of personnel.

- **Keep fingers and clothing away** from blower inlet and discharge ports, revolving belts, sheaves, drive coupling, etc.
- **Do not use the air discharge** from this unit for breathing - not suitable for human consumption.
- **Do not loosen or remove** the oil filler plug, drain plugs, covers, or break any connections, etc., in the blower air or oil system until the unit is shut down and the air pressure has been relieved.
- **Electrical shock** can and may be fatal.
- **Blower unit must be grounded** in accordance with the National Electrical Code.
- **Open main disconnect switch**, tag and lockout before working on the control.
- **Disconnect the blower** unit from its power source, tag and lockout before working on the unit - the machine may be automatically controlled and may start at any time.

### **WARNING**

Failure to observe these notices could result in damage to equipment.

- **Stop the unit** if any repairs or adjustments on or around the blower are required.
- **Disconnect the blower** unit from its power source, tag and lockout before working on the unit - the machine may be automatically controlled and may start at any time.
- **Do not exceed** the rated maximum speed shown on the nameplate.
- **Do not operate unit** if safety devices are not operating properly. Check periodically. Never bypass safety devices.

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# MATRIX/MENU 4500 SUTORBILT BLOWERS

NOTICE TO CUSTOMER - To find the construction options for your blower unit, FILL IN THE BALANCE OF LETTERS OR NUMBERS FROM YOUR UNIT NAMEPLATE

G D

COLUMN NUMBER:

1 2 3 4 5 6 7 8 9 10 11

FOLLOW THE LINE DOWN AND OVER FROM EACH SPACE THUS FILLED IN TO FIND THE APPROPRIATE CONSTRUCTION OPTION WITH WHICH YOUR MACHINE IS EQUIPPED.

COLUMN 1 - BASIC DESIGNATOR

COLUMN 2 - PRODUCT FAMILY

COLUMN 3 - GEAR DIAMETER

|    |    |    |    |    |    |
|----|----|----|----|----|----|
| F. | 6" | G. | 7" | H. | 8" |
|----|----|----|----|----|----|

COLUMN 4 - CASE LENGTH

|    |     |     |     |
|----|-----|-----|-----|
| A. | 8"  | 11" | 12" |
| B. | 12" | 13" | 16" |
| C. | 15" | 16" | 20" |
| D. | 18" | 21" | 24" |

COLUMN 5 - CONFIGURATION

- E. Vertical-Bottom Hand-Right Discharged Timed, CCW
- F. Vertical-Bottom Hand-Left Discharged Timed, CW
- G. Vertical-Top Hand-Right Discharged Timed, CW
- H. Vertical-Top Hand-Left Discharged Timed, CCW
- J. Horizontal-Right Hand-Bottom Discharged Timed, CW
- K. Horizontal-Right Hand-Top Discharged Timed, CCW
- L. Horizontal-Left Hand-Top Discharged Timed, CW
- M. Horizontal-Left Hand-Bottom Discharged Timed, CCW

COLUMN 6 - DESIGN VERSION

- A. 6" & 7" Only
- C. 8" Only

COLUMN 7 - ADDITIONAL DESCRIPTION

- A. Lip Seal-Standard Clearances-Splash Lube
- B. Mechanical Seal-Standard Clearances-Splash Lube

COLUMNS 8 THRU 11 - MODIFICATION NUMBER \*

\* NOT INCLUDED IN THIS PUBLICATION, CONSULT FACTORY.

## INTRODUCTION

### YOUR KEY TO TROUBLE FREE SERVICE

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Thank you for investing in Sutorbilt quality. The Sutorbilt reputation for rugged dependability has been earned by over 50 years of service in demanding, industrial operations where downtime cannot be tolerated and efficient blower performance is expected.

Your Sutorbilt blower is a precision engineered blower that has been carefully manufactured and thoroughly tested at the state-of-the-art Gardner Denver Blower Factory in Sedalia, Missouri.

As with other precision machinery, there are several relatively simple installation, operation and maintenance procedures that you must observe to assure optimum blower performance. There is no guesswork in the manufacture of your highly advanced Sutorbilt blower and there must be none in preparing the blower to get the job done in the field.

The purpose of this manual is to help you properly install, operate and maintain your Sutorbilt blower. It is essential that you review all sections of this manual in preparation for installing your blower. Follow the instructions carefully and you will be rewarded with trouble-free Sutorbilt service . . . year in and year out.

**OPERATING PRINCIPLES** – The 4500 Series rotary blowers are the positive displacement type with two figure-eight shaped impellers rotating in opposite directions inside the casing. As each lobe of an impeller passes the blower inlet, it traps a quantity of air equal to exactly one-fourth the displacement of the blower. This trapped air is forced around the case to the blower outlet. Timing gears accurately position the impellers in relation to each other to maintain the minute clearances so vital to the high volumetric efficiency of the rotary positive displacement blower. See FIGURE 1.

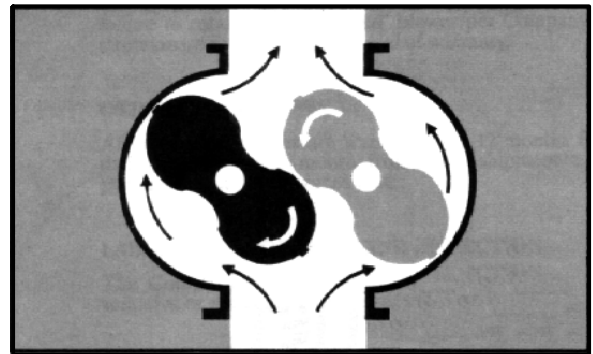


FIGURE 1 - OPERATING PRINCIPLES

## SECTION 1 EQUIPMENT CHECK

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Before uncrating, check the packing slip carefully to be sure all the parts have been received. All accessories are listed as separate items on the packing slip, and small important accessories such as relief valves can be overlooked or lost. After every item on the packing slip has been checked off, uncrate carefully. Register a claim with the carrier for lost or damaged equipment.

### **WARNING**

**Customers are cautioned to provide adequate protection, warning and safety equipment necessary to protect personnel against hazards involved in installation and operation of this equipment in the system or facility.**

### STORAGE

Your Sutorbilt Blower was packaged at the factory with adequate protection to permit normal storage for up to six (6) months.

If the unit is to be stored under adverse conditions or for extended periods of time, the following additional measures should be taken to prevent damage.

1. Store the blower in a clean, dry, heated area.
2. Make certain inlet and discharge air ports are tightly covered to prevent foreign material from entering the air box.
3. All exposed, non-painted surfaces should be protected against rust and corrosion.
4. Provide adequate protection to avoid accidental mechanical damage.
5. In high humidity or corrosive environments, additional measures may be required to prevent rusting of the blower internal surfaces.

6. To prevent rusting of gears, bearings, etc., the oil reservoirs may be filled with normal operating oil.



### **CAUTION**

**Before running the blower, drain the oil and replace to the proper operating level with clean, fresh lubricant.**

7. Rotate the blower shaft (10 to 25 turns) weekly during storage. Inspect the blower shaft (near the shaft seal area) monthly and spray with rust inhibitor if needed.
8. For long term storage (over six (6) months), contact Sutorbilt Customer Service for recommendations.

### REMOVING PROTECTIVE MATERIALS

Blower inlet and outlet are temporarily capped to keep out dirt and other contaminants during shipment. These covers must be removed before start-up.

### RUST INHIBITIVE COATING

The internal surface of all Sutorbilt units are mist sprayed with a rust inhibitive to protect the machine during shipment.



### **WARNING**

**Rotating components will cause severe injury in case of personal contact. Keep hands away from blower inlet and discharge ports.**

## SECTION 2 INSTALLATION

### LOCATION

Install the blower in a well lit, clean, dry place with plenty of room for inspection and maintenance.

### FOUNDATIONS

For permanent installations we recommend concrete foundations be provided, and the equipment should be grouted to the concrete. It is necessary that a suitable base be used, such as a steel combination base under blower and motor, or a separate sole plate under each. Before grouting, equipment must be leveled, free of all strains, and anchored so no movement will occur during setting of grout. After grout has completely hardened, a recheck is necessary to compensate for shrinkage, etc. If required, add shims under blower feet after final tightening of foundation anchor bolts to remove strain from the blower housing.

Where jack screws or wedges are used during grouting, they must be backed off and wedges removed before final tightening of anchor bolts.

Where a concrete foundation is not feasible, care must be taken to insure that equipment is firmly anchored to adequate structural members.

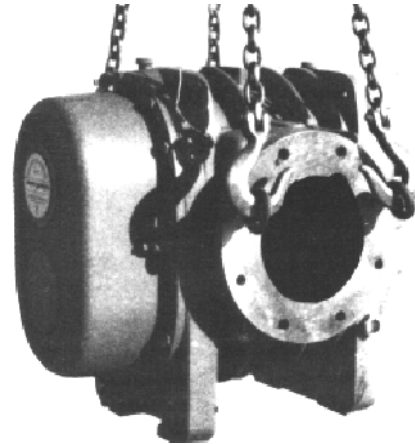


FIGURE 2 - LIFTING THE BLOWER

Refer to grouting instructions.

### LIFTING AND HANDLING

Reasonable care should be taken during unloading and moving to insure against undue strain on the blower.

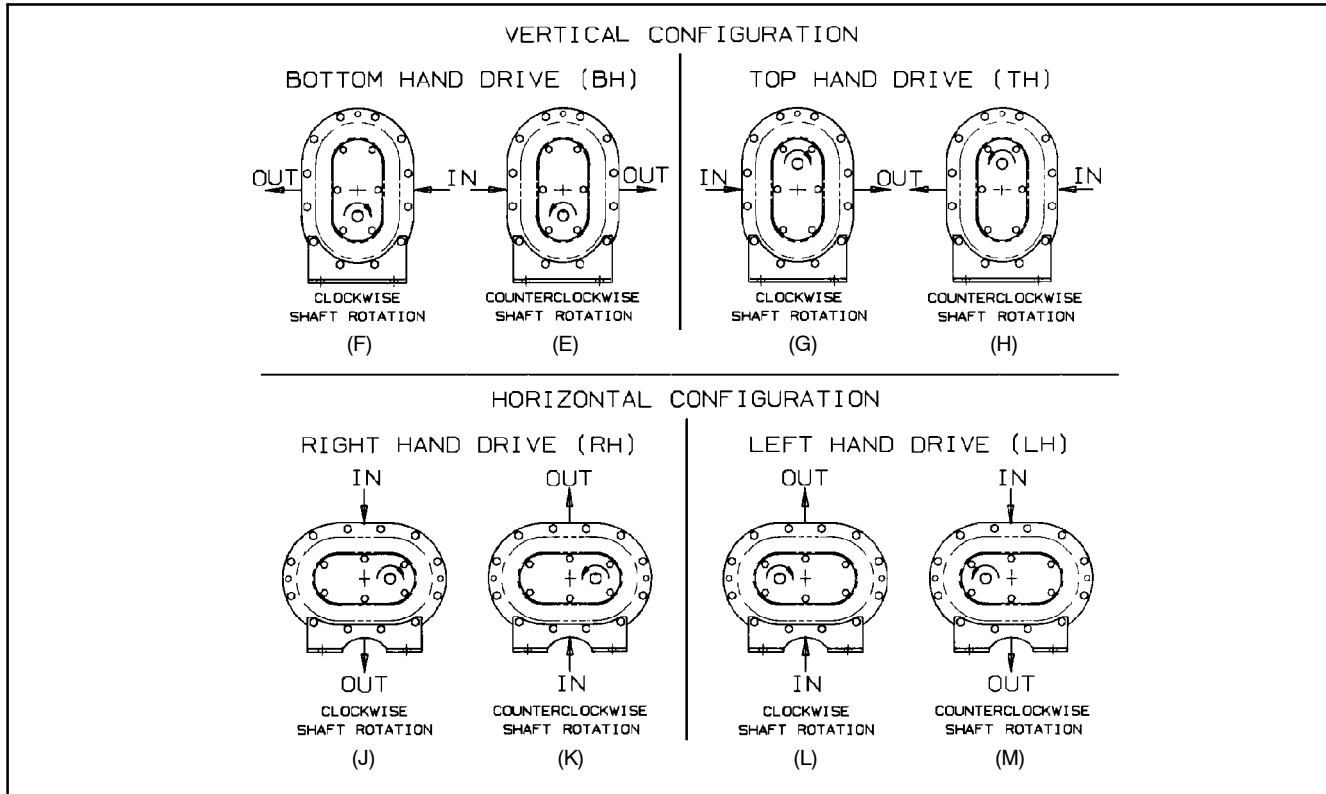


FIGURE 3 - BLOWER MOUNTING CONFIGURATIONS

Eye bolts and lifting lugs are designed to support the weight of the blower only. They are not intended to be used to lift packages or components. See FIGURE 2, page 3.

Protective covers should be left in place until just prior to installation.

## DRIVE INSTALLATION

Large blowers are generally driven by a coupling. On the direct connected units, adjustments and lubrication of couplings to the specifications of the coupling manufacturer are very important. When mounted drives are supplied from the factory, proper alignment has been established before shipment. However, during shipping, handling and installation, it is likely that the alignment has been disturbed and final adjustment must be made before startup. To reduce vibration, the coupling must be aligned to 0.003"/0.005" for both parallel and angular alignment.

### **WARNING**

**Overtightening belts leads to heavy bearing loads and premature failure.**

### Drive design is critical.

When selecting a V-belt drive, check to be sure the shaft overhung load limitation is not exceeded. Refer to FIGURE 4, page 5, for overhung load calculations and limitations.

Belt drives must be carefully aligned. Motor and blower pulleys must be parallel to each other and in the same plane within 1/32 inch. Belt tension should be carefully adjusted to the belt manufacturer's recommendation using a belt tension gauge. Check tension frequently during the first day of operation.

### **WARNING**

**Exceeding overhung load limitations leads to unwarrantable premature bearing failure and shaft breakage.**

The location of the sheave on the blower shaft greatly affects the stress in the shaft. The optimum blower sheave positioning is as close as possible to the blower drive cover, not to exceed dimension "C" in Drive Shaft Illustration, FIGURE 4, page 5.

The calculated shaft moment must not exceed the maximum allowable moment listed in Maximum Allowable Moment Chart, FIGURE 4, page 5. If the calculated shaft moment exceeds the maximum allowable moment:

- Increase Sheave Diameters to Reduce Belt Pull
- Use Jackshaft Drive
- Use Direct Coupled or Gearbox Drive

To calculate shaft moment for a given V-Belt Drive Arrangement:

1. Use the formula for Calculation of Belt Pull, FIGURE 4, page 5, to calculate belt pull. Refer to Arc of Contact Factor Chart, FIGURE 4, page 5.
2. Insert the calculated belt pull into the formula for Calculation of Shaft Moment, FIGURE 4, page 5, to arrive at the calculated shaft moment.

## PIPING

Inlet and discharge connections on all blowers are large enough to handle maximum volume with minimum friction loss. Reducing the pipe diameter on either inlet or discharge will only create additional line loss and increase the overall pressure differential, causing increased power and temperature rise.

Excessive weight of piping and fittings will cause internal misalignment and premature wear. Never allow the blower to carry the weight of the pipe. If possible, a spool or sleeve-type expansion joint should be installed between the unit and the piping. Where a flexible connection is not practical, the weight of the rigid connection must be separately supported, and provisions must be made for thermal growth.

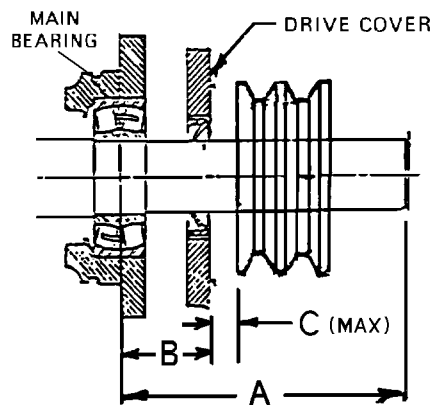
All system piping must be cleaned internally before connecting to the blower.

### **WARNING**

**Sutorbilt blowers are shipped dry from the factory. Do not attempt to operate the blower before following proper lubrication instructions. Permanent damage to the gears, bearings and seals will occur.**

| Gear Diameter (Inches) | Dimensions (Inches) |      |         | Maximum Allowable Moment (LB-IN) |
|------------------------|---------------------|------|---------|----------------------------------|
|                        | A                   | B    | C (Max) |                                  |
| 6                      | 6.60                | 2.10 | .25     | 4123                             |
| 7                      | 7.88                | 3.00 | .25     | 4758                             |
| 8                      | 9.50                | 2.70 | .25     | 7488                             |

**MAXIMUM ALLOWABLE MOMENT**



**DRIVE SHAFT ILLUSTRATION**

| Z     | Ac    | Z     | Ac    | Z     | Ac    | Z     | Ac    | Z     | Ac    | Z     | Ac    |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0.000 | 1.000 | 0.250 | 0.966 | 0.500 | 0.926 | 0.750 | 0.879 | 1.000 | 0.823 | 1.250 | 0.751 |
| 0.025 | 0.997 | 0.275 | 0.962 | 0.525 | 0.922 | 0.775 | 0.874 | 1.025 | 0.816 | 1.275 | 0.742 |
| 0.050 | 0.994 | 0.300 | 0.958 | 0.550 | 0.917 | 0.800 | 0.869 | 1.050 | 0.810 | 1.300 | 0.734 |
| 0.075 | 0.990 | 0.325 | 0.954 | 0.575 | 0.913 | 0.825 | 0.864 | 1.075 | 0.803 | 1.325 | 0.725 |
| 0.100 | 0.987 | 0.350 | 0.951 | 0.600 | 0.908 | 0.850 | 0.858 | 1.100 | 0.796 | 1.350 | 0.716 |
| 0.125 | 0.983 | 0.375 | 0.947 | 0.625 | 0.904 | 0.875 | 0.852 | 1.125 | 0.789 | 1.375 | 0.706 |
| 0.150 | 0.980 | 0.400 | 0.943 | 0.650 | 0.899 | 0.900 | 0.847 | 1.150 | 0.782 | 1.400 | 0.697 |
| 0.175 | 0.977 | 0.425 | 0.939 | 0.675 | 0.894 | 0.925 | 0.841 | 1.175 | 0.774 | 1.425 | 0.687 |
| 0.200 | 0.973 | 0.450 | 0.935 | 0.700 | 0.889 | 0.950 | 0.835 | 1.200 | 0.767 |       |       |
| 0.225 | 0.969 | 0.475 | 0.930 | 0.725 | 0.884 | 0.975 | 0.829 | 1.225 | 0.759 |       |       |

**ARC OF CONTACT FACTORS**

$$\text{Belt Pull} = \left[ \frac{2.5 - A_c}{A_c} \right] \left[ \frac{125954 \times H_p \times S.F.}{D \times \text{RPM}} \right]$$

Key:  $A_c$  = Arc of Contact Factor (Refer to Arc of Contact Factors Chart above)  
 $H_p$  = Blower Horsepower for Operating Conditions  
 $S.F.$  = Actual Drive Service Factor  
 $D$  = Blower Sheave Pitch Diameter in Inches  
 $\text{RPM}$  = Blower Sheave Speed  
 $Z$  =  $\frac{\text{Large Sheave Pitch Diameter (in)} - \text{Small Sheave Pitch Diameter (in)}}{\text{Sheave Center Distance (in)}}$

**CALCULATION OF BELT PULL**

$$\text{Shaft Moment (LB-IN)} = \text{Belt Pull} \times \left[ B + C + \left( \frac{\text{Sheave Width}}{2} \right) \right]$$

**CALCULATION OF SHAFT MOMENT**

**FIGURE 4 - BELT DRIVE OVERHUNG LOAD CALCULATIONS**

## SECTION 3 PRE-START

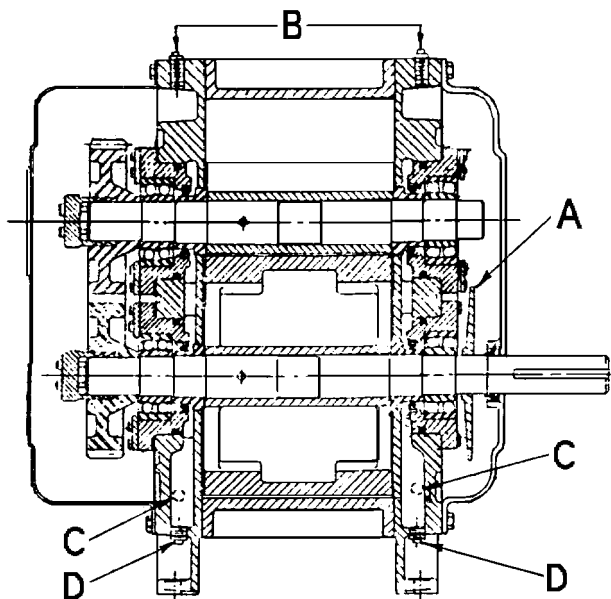


FIGURE 5 - LUBRICATION LOCATION

### LUBRICATION

Timing gears and bearings are kept constantly lubricated by a simple but highly effective splash system. At the drive end, oil is distributed by a heavy-duty oil slinger on the shaft (A in FIGURE 5). At the gear end, gear teeth are lubricated by being partially submerged. The gear teeth serve as oil slingers for the gear-end bearings.

### RECOMMENDED LUBRICANT

The factory recommended lubricant is **AEON PD Synthetic Lubricant**. AEON PD is formulated especially for positive displacement blowers to provide maximum protection at any temperature. One filling of AEON PD will last a minimum of 4 times longer than a premium mineral oil, depending on actual operating conditions. AEON PD contains a special additive package designed for greater rust and corrosion protection.

#### AEON PD Lubricant

| Description    | Part Number |
|----------------|-------------|
| 1 Quart        | 28G23       |
| Case/12Quarts  | 28G24       |
| 5 Gallon Pail  | 28G25       |
| 55 Gallon Drum | 28G28       |

#### AEON PD Food Grade Lubricant

| Description    | Part Number |
|----------------|-------------|
| 1 Quart        | 28H97       |
| Case/12Quarts  | 28H98       |
| 5 Gallon Pail  | 28H99       |
| 55 Gallon Drum | 28H100      |

FIGURE 6 - AEON PD SYNTHETIC LUBRICANT

### NOTICE

**Machines are shipped without oil in the sump. Do not operate before adding lubricant.**

### LUBRICATION INSTRUCTIONS

Remove vented breathers (B in FIGURE 5) from the top of the headplates. **DO NOT REMOVE ANY OTHER PLUGS FROM THE HEADPLATES.** Fill each end until oil reaches the centerline of the sight glasses with unit not running (C in FIGURE 5). Replace the fill plugs.

Check the oil level after the initial operation. **Maintain oil level at the midpoint of the sight glass when the blower is not operating.** Add fresh oil as required to maintain the proper level.

### **WARNING**

**Do not overfill as this will tend to cause excessive heating of the gears and may damage the unit.**

To drain, remove drain plugs (D in FIGURE 5, page 6) at the bottom. AEON PD Synthetic Lubricant should be drained after 6000 hours of operation. Re-fill with fresh AEON PD oil. If mineral oil is used, perform the above oil-change maintenance every 1500 hours. Recommended service intervals are for normal blower operating conditions. Severe operating conditions may warrant more frequent oil changes. Laboratory analysis of lubricant should be used to help determine the optimum oil change interval.

For best performance and equipment protection, use AEON PD Synthetic Lubricant, which has been specifically formulated for positive displacement blowers.

If you choose not to use AEON PD Synthetic Blower Lubricant, select an oil with rust and oxidation inhibitors, anti-foam additives, and the viscosities

listed in FIGURE 7. Do not use an oil that contains EP additives.

## NOTICE

**Flush the oil whenever a change is made from one type of oil to another.**

You will need to flush the oil whenever a change is made from one type of oil to another. Drain the current lubricant as thoroughly as possible. Refill with the new lubricant. Fill to the normal level of the blower, which is at the middle of the sight glass when the machine is not operating. Run the blower for one hour. Shut off the blower and drain the lubricant completely. Refill the blower again with the new lubricant.

| Blower Discharge Temperature        | Ambient Temperature |                   |                |                    |
|-------------------------------------|---------------------|-------------------|----------------|--------------------|
|                                     | Less than 10° F *   | 10° F to 32° F ** | 32° F to 90° F | Greater than 90° F |
| Less than 32° F (0° C)              | ISO 100 ‡           | ISO 100 ‡         |                |                    |
| 32° F to 100° F (0° C to 38° C)     | ISO 100 ‡           | ISO 100 ‡         | ISO 150 ‡      |                    |
| 100° F to 225° F (38° C to 105° C)  | ISO 100 ‡           | ISO 100 ‡         | ISO 150 ‡      | ISO 220 ‡          |
| 225° F to 300° F (105° C to 149° C) | ISO 150 ‡           | ISO 150 ‡         | ISO 220 ‡      | ISO 220 ‡          |
| Greater than 300° F (149° C)        |                     |                   | *** ‡          | *** ‡              |

\* For ambient temperatures less than 10° F, but not less than -20° F, the use of oil sump heaters, heated enclosures or synthetic lubricant is required.

\*\* For ambient temperatures 10° F to 32° F, the use of oil sump heaters, heated enclosures or synthetic lubricant is recommended.

\*\*\* The lubricant viscosity must be 70 SUS minimum at the lubricant operating temperature.

The pour point of the lubricant should be at least 5° to 10° F below the minimum expected ambient temperature.

For continuous operation, where the lubricant temperature exceeds 200° F, synthetic lubricant is recommended.

‡ The recommended operating range for AEON PD Synthetic Lubricant.

FIGURE 7 - LUBRICATION RECOMMENDATION



| Gear Diameter (in) | Vertical Configuration |          |          | Horizontal Configuration |          |          |
|--------------------|------------------------|----------|----------|--------------------------|----------|----------|
|                    | Splash Lubrication     |          |          | Splash Lubrication       |          |          |
|                    | Drive End              | Gear End | Total    | Drive End                | Gear End | Total    |
| 6                  | 1.5 pt.                | 1 qt.    | 1.75 qt. | 2.5 pt.                  | 5 pt.    | 3.75 pt. |
| 7                  | 1 qt.                  | 5 pt.    | 3.5 qt.  | 5 pt.                    | 7 pt.    | 6 qt.    |
| 8                  | 3 pt.                  | 3 qt.    | 4.5 qt.  | 3 qt.                    | 7 qt.    | 10 qt.   |

Notes: Oil Capacities shown are in U.S. pints and quarts.  
Remove the oil vented plugs on top of the blower and add oil at each plug location.  
Blowers have separate oil sumps and oil must be added at each end of the blower.

**FIGURE 8 - 4500 BLOWER OIL CAPACITIES**

If not using AEON PD synthetic blower lubricant, use oils with rust and oxidation inhibitors, anti-foam additives and the viscosities listed in FIGURE 8.

the filter element has been used. It will also eliminate both premature filter servicing and premature blower failure due to a plugged filter when the filter pressure drop is used to establish maintenance points.

#### **AIR FILTERS AND FILTER SILENCERS**

In all cases refer to the filter manufacturer's service instructions. Due to the many types of filters, it is not practical to give specific instructions covering all models.

### **WARNING**

**Servicing the air filters is one of the most important maintenance operations to be performed to insure long blower life.**

Servicing frequency of filter elements is not time predictable. A differential pressure indicator, with a continuous gauge reading, should be installed across the inlet filter. It will tell how much of the service life of

### **NOTICE**

**No matter what type of filter is used, always make sure all seats, gaskets, clamps and hose connections on the filter and inlet line are absolutely air tight. Each time the filter is serviced, inspect interior of the blower for dirt.**

## SECTION 4 OPERATION

---

Future operating problems can be avoided if proper precautions are observed when the equipment is first put into service.

Before starting under power, the blower should be turned over by hand to make certain there is no binding, or internal contact.

Each size blower has limits on pressure differential, running speed, and discharge temperature which must not be exceeded. These limits are shown in "Maximum Operating Limitations", FIGURE 9, page 10.

### **WARNING**

**Operating beyond the specified operating limitations will result in damage to the unit.**

It is important that the pressures and temperatures are measured directly at the ports of the blower to avoid error that may be caused by intervening pipe runs, fittings, etc.

Relief valves must be used to protect against excessive pressure or vacuum conditions. These valves should be tested at initial startup to be sure they are adjusted to relieve at or below the maximum pressure differential rating of the blower.

### **NOTICE**

**Relief valves should be placed as close as possible to the blower inlet or discharge.**

In some instances, pressure may be relieved at a lower point than the blower maximum in order to protect the motor or the equipment served by the blower.

## LIMITATIONS

For information regarding limitations, refer to "Maximum Operating Limitations," FIGURE 9, page 10.

### **WARNING**

**Do not operate equipment without adequate silencing devices installed since high noise level may cause hearing damage. (Reference OSHA standards.)**

After the unit has been started, the load should be applied gradually. A blow-off valve for unloaded starting is recommended.

The first few minutes of operation are the most critical, in so far as potential problems are concerned, so all equipment should be observed closely for excessive heat, noise or vibration during this period. Speeds, pressures, temperatures, vacuums and other operating conditions should be checked to insure that specified limits are not exceeded. See FIGURE 9, page 10.

## ROUTINE OPERATION

Since the unit is a positive displacement type, the volume flow is fixed for constant speed so no regulation can be achieved by restricting the pipe or adjusting the valves. Excess air flow may be discharged through a relief valve or blow-off to atmosphere. Volume flow is essentially proportional to the speed and this offers a method of flow adjustment with V-belt driven machines.

Although these units are extremely rugged and are designed with adequate factors of safety, it is possible to cause serious damage by exceeding the manufacturer's limits.

Periodically the gauges, instruments, and safety devices used to monitor the blower should be checked for calibration and functioning.

## NOTICE

Full rated pressure is full pressure differential from the inlet flange to the discharge flange.



## CAUTION

Precaution should be taken to insure that the unit cannot be started accidentally and cause injury to personnel or damage to equipment.

### SHUT DOWN

The blower should be unloaded before shut down. Consideration should be given to possible backflow and reverse rotation of the equipment as a result of pressure on the discharge side of the unit. A check valve is recommended.

If the unit is to be shut down for extended periods of time, it may be desirable to take some steps to prevent rust forming inside the casing. Condensation, gas vapors, or seal water can close up internal clearances and cause the unit to bind. Injection of oil or other rust retardant will help to prevent this problem.

### MAXIMUM OPERATING LIMITATIONS

| SIZE | RPM<br>MAX. | RPM<br>MIN. | PRESSURE<br>PSI | VAC<br>IN HG | SIZE                                             | RPM<br>MAX. | RPM<br>MIN. | PRESSURE<br>PSI | VAC<br>IN HG |
|------|-------------|-------------|-----------------|--------------|--------------------------------------------------|-------------|-------------|-----------------|--------------|
| 608  | 2880        | 954         | 15              | 16 *         | 812                                              | 2100        | 716         | 15              | 16 *         |
| 612  | 2880        | 954         | 10              | 16           | 816                                              | 2100        | 716         | 10              | 16           |
| 615  | 2880        | 954         | 8               | 16           | 820                                              | 2100        | 716         | 8               | 16           |
| 618  | 2880        | 954         | 6               | 12           | 824                                              | 2100        | 716         | 6               | 12           |
| 711  | 2440        | 818         | 15              | 16 *         | Maximum Discharge Temperature<br>325° F (162° C) |             |             |                 |              |
| 713  | 2440        | 818         | 10              | 16           |                                                  |             |             |                 |              |
| 716  | 2440        | 818         | 8               | 16           |                                                  |             |             |                 |              |
| 721  | 2440        | 818         | 6               | 12           |                                                  |             |             |                 |              |

\* Maximum Discharge Temperature for 608, 711 & 812 - 360° F. (182° C)

### DO NOT EXCEED THESE LIMITS

## NOTICE

Blower speed, line losses, elevation, and increased inlet temperatures will affect the maximum operating limitations.

FIGURE 9 - MAXIMUM OPERATING LIMITATIONS

## BLOWER STARTUP CHECKLIST

This startup procedure should be followed during the initial installation and after any shutdown periods or after the blower has been worked on or moved to a new location. It is suggested that the steps be followed in sequence and checked off ( ✓ ) in the boxes provided.

- ☐ 1. Check the unit and all piping for foreign material and clean if required.
- ☐ 2. Check the flatness of the feet and the alignment of the drive. Feet that are bolted down in a bind can cause case distortion and internal rubbing. Misaligned V-drives can cause the impellers to rub against the headplates and cause a reduction in the volumetric efficiency of the unit. Misaligned couplings can ruin bearings.
- ☐ 3. If blower is V-belt driven, check the belt tension and alignment. Over-tensioned belts create heavy bearing loads which leads to premature failure.
- ☐ 4. Be sure adequate drive guards are in place to protect the operator from severe personal injury from incidental contact.
- ☐ 5. Check the unit for proper lubrication. Proper oil level cannot be overemphasized. Too little oil will ruin bearings and gears. Too much oil will cause overheating and can ruin gears and cause other damage.
- ☐ 6. With motor electrical power locked out and disconnected, turn the drive shaft by hand to be certain the impellers do not bind.
- ☐ 7. "Jog" the unit with the motor a few times to check rotation and to be certain it turns freely and smoothly.
- ☐ 8. The internal surfaces of all Sutorbilt units are mist sprayed with a rust preventive to protect the machine during the shipping and installation period. This film should be removed upon initial start-up.
- ☐ 9. Start the unit and operate 15 minutes at no load. During this time, check for hot spots and other indications of interference.
- ☐ 10. Apply the load and observe the operation of the unit for one hour. Check frequently during the first day of operation.
- ☐ 11. If malfunctions occur, do not continue to operate. Problems such as knocking impellers can cause serious damage if the unit is operated without correction.

## SAFETY PRECAUTIONS

1. Do not operate blower with open inlet or outlet port.
2. Do not exceed specified vacuum or pressure limitations.
3. Do not operate above or below recommended blower speed range. See FIGURE 9, page 10.
4. Blower is not to be used where non-sparking equipment is specified.
5. Do not operate without belt guard or coupling shield.



## WARNING

**Do not exceed sheave or coupling manufacturers' rim speed limit.**

6. The blower and blower discharge piping may be extremely hot and can cause skin burns on contact.

## TROUBLE SHOOTING

No matter how well the equipment is designed and manufactured, there may be times when servicing will be required due to normal wear, the need for adjustment, or various external causes. Whenever

equipment needs attention, the operator or repairman should be able to locate the cause and correct the trouble quickly. The Trouble Shooting Chart below is provided to assist the mechanic in those respects.

| PROBLEM                       | POSSIBLE CAUSES                                                                                                                                                                                                                                                              | SOLUTION                                                                                                                                                                                                                                                                                                                                     |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Knocking                      | <ol style="list-style-type: none"> <li>1. Unit out of time.</li> <li>2. Distortion due to improper mounting or pipe strains.</li> <li>3. Excessive pressure differential.</li> <li>4. Worn gears.</li> <li>5. Worn bearings.</li> <li>6. Worn bearing cartridges.</li> </ol> | <ol style="list-style-type: none"> <li>1. Re-time impellers.</li> <li>2. Check mounting alignment and relieve pipe strains.</li> <li>3. Reduce to manufacturer's recommended pressure. Examine relief valve, re-set if necessary.</li> <li>4. Replace timing gears.</li> <li>5. Replace bearings.</li> <li>6. Replace cartridges.</li> </ol> |
| Excessive blower temperature. | <ol style="list-style-type: none"> <li>1. Too much oil in gear case.</li> <li>2. Too low operating speed.</li> <li>3. Clogged filter or muffler.</li> <li>4. Excessive pressure differential.</li> <li>5. Worn impeller clearances.</li> <li>6. Internal contact.</li> </ol> | <ol style="list-style-type: none"> <li>1. Reduce oil level.</li> <li>2. Increase blower speed.</li> <li>3. Remove cause of obstruction.</li> <li>4. Reduce pressure differential across the blower.</li> <li>5. Replace impeller.</li> <li>6. Correct clearances.</li> </ol>                                                                 |
| Impeller end or tip drag.     | <ol style="list-style-type: none"> <li>1. Insufficient assembled clearances.</li> <li>2. Case or frame distortion.</li> <li>3. Excessive operating pressure.</li> <li>4. Excessive operating temperature.</li> </ol>                                                         | <ol style="list-style-type: none"> <li>1. Correct clearances.</li> <li>2. Check mounting and pipe strain.</li> <li>3. Remove cause.</li> <li>4. Remove cause.</li> </ol>                                                                                                                                                                     |

**TROUBLE SHOOTING (Continued)**

| <b>PROBLEM</b>                  | <b>POSSIBLE CAUSES</b>                                                                        | <b>SOLUTION</b>                                                                               |
|---------------------------------|-----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| Lack of volume.                 | 1. Slipping belts.<br>2. Worn clearances.                                                     | 1. Tighten belts.<br>2. Re-establish proper clearances.                                       |
| Excessive bearing or gear wear. | 1. Improper lubrication.                                                                      | 1. Correct lubrication level. Replace dirty and/or improper oil.                              |
| Loss of oil.                    | 1. Headplate, gear case or drive cover vents plugged.<br>2. Worn seal.                        | 1. Clean vents.<br>2. Replace seals.                                                          |
| Lack of oil pressure.           | 1. Dirty suction screen.<br>2. Leak in suction line.<br>3. Lubrication pump losing its prime. | 1. Clean suction screen.<br>2. Repair leak.<br>3. Reprime, by removing pipe plug and priming. |

# SECTION 5

## MAINTENANCE

### GEAR INSPECTION

Inspection of the timing gears may be accomplished simply by removing the gear case. Refer to FIGURE 10. Remove the bolts from the gear case and detach it from the head plate. Timing gears and gear end bearings are now exposed. On completion of maintenance work, be certain that the gear case is restored to its original position. Use a paste-type gasket compound on the mating surfaces. Always relubricate before starting.

### IMPELLER INSPECTION

Series 4500 impellers can be inspected through the inlet or outlet ports. This will reveal such conditions as out of time, excessive or insufficient clearances, abrasion of parts from passing foreign material, etc.

### REPAIR

#### Assembly



**WARNING**

When rotation of the impellers is required in the assembly process, insure that all personnel are clear of lobes and gears to guard against serious injury.

#### Timing

The impellers of the unit are separated by pre-determined exact clearances built into the machine. The timing of a unit is the setting of one impeller with respect to the other so they do not touch or knock during normal operation. The impellers are held 'in time' by timing gears which are secured to the shaft by grip rings inside the gear hubs. See FIGURE 10. Retiming is necessary to restore proper impeller lobe to lobe clearances after a unit has been jammed and the removal of the strain or foreign material does not stop the knocking or pounding during operation.

**Determining Proper Impeller Clearances** - Refer to FIGURE 12, page 15. Impellers are shown viewed

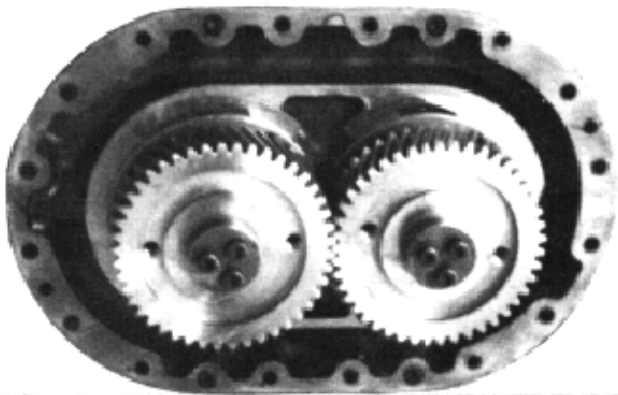


FIGURE 10 - LOCATION OF TIMING GEAR BOLTS

| Impeller Clearances |                      |                                         |                                               |
|---------------------|----------------------|-----------------------------------------|-----------------------------------------------|
| Blower Size         | Gear End<br>Min.-Max | Imp. Tip Each<br>Minimum<br>Inlet/Disch | Discharge<br>Timing<br>Minimum<br>Open/Closed |
|                     | Inches               | Inches                                  | Inches                                        |
| 6                   | .006-.008            | .008/.006                               | .011/.005                                     |
| 7                   | .007-.008            | .010/.006                               | .013/.006                                     |
| 8                   | .007-.008            | .011/.006                               | .014/.006                                     |

FIGURE 11 - GEAR END CLEARANCE

from the drive end of the blower. Always face the drive shaft end when determining clearances.

Clearances between impellers are measured at points o-o and c-c when the impellers are positioned at 45° angles as shown. This is done by measuring with a feeler gauge between o-o, then rotating the impellers a quarter turn and gauging between c-c. Adding the measurements obtained will give the total clearance.

Units are timed for rotation in one direction only, and are marked with a rotational arrow above the drive shaft. In these units, o-o should have 2/3rds of the total

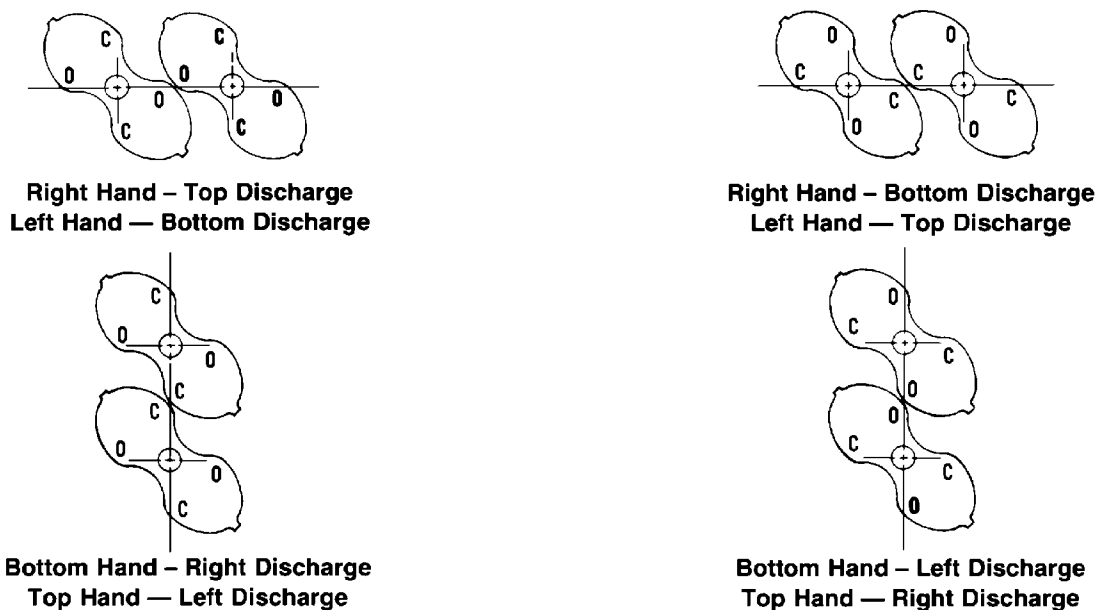


FIGURE 12 - IMPELLER LOBE CLEARANCES

clearance and c-c should have 1/3, maintaining minimum open and closed per FIGURE 11, page 14.

### RESETTING IMPELLER CLEARANCE

Impellers are held in time by timing gears, which are secured in position on the impeller shafts by grip rings inside the gear hubs. To reset impeller clearances (timing) it is necessary to release the grip rings in one of the gears. See FIGURE 13.

Grip rings are paired telescoping rings with conical mating surfaces. These rings are telescoped under clamping pressure so that the outer ring expands against the bore of the gear while the inner ring contracts on the shaft, locking them together.

To release the grip rings in one of the gears, first remove the gear locking clamp which is held to the end of the impeller shaft by one of the following:

6", 7" and 8" Series "A" - 3 Socket Head Cap Screws

8" Series "B" and "C" - 5 Socket Head Cap Screws

Use a gear puller to withdraw the gear about 1/8 inch (3 mm.) , then lightly tap the side of the gear with a

mallet. This will release the grip rings inside the gear hub so that the impeller will be free to adjust. Do not remove the gear.

Wedge the two impellers together against the exact amount of shims required to establish proper clearance as determined previously. Push the gear firmly against the bearing race on the shaft. Replace the gear locking clamp and cap screws. Partially tighten the cap screws with the shim stock still wedged between the impellers. Proceed to tighten the cap screws progressively, finishing with a torque wrench to obtain a torque of 45 ft. lb. (6.22 Kg-m). Shock-load the gear locking clamp and then retorqued to 45 ft. lb. (6.22 Kg-m). Remove shim stock and turn the impeller a couple of turns, then re-check the clearances.

**End Clearance** - It is always good policy to check end clearances between the impeller and gear-end head-plate BEFORE AND AFTER DISTURBING TIMING GEARS OR GEAR-END BEARINGS. If end clearance is not within tolerance, see "Bearing and Seal Replacement," page 17, for instructions for making correction by re-shimming the bearing cartridge. After completion of the work, replace gear case and relubricate.



## SECTION 6

### REPAIR & REPLACEMENT

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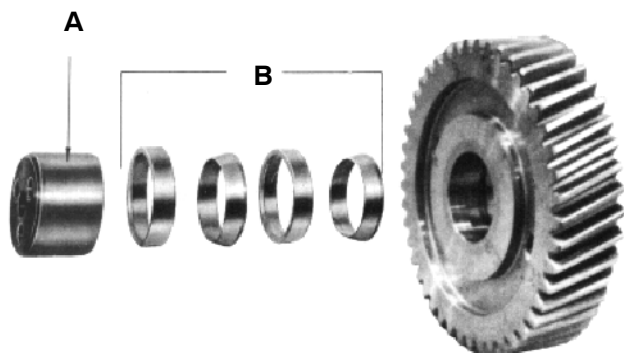


FIGURE 13 - TIMING GEAR ASSEMBLY

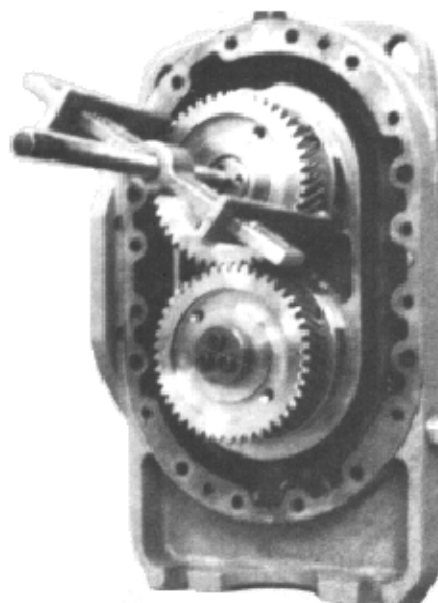


FIGURE 14 - TIMING GEAR REMOVAL

With proper maintenance and lubrication, normal life of bearings, gears and seals can be expected. To maintain the efficiency of your unit, however, these parts must be repaired or replaced when required.

#### TIMING GEAR REMOVAL

Remove the gear case (see "Gear Inspection," page 14). Match mark the shafts and gears to assure proper repositioning on completion of work.

Refer to FIGURE 13 and FIGURE 14. Remove the cap screws and gear locking clamps (A) from both shafts. Inside the hub of each gear are two pairs of telescoping grip rings (B) which secure the gear to the shaft. These grip rings must be released to remove the gear.

This is done by withdrawing the gear (FIGURE 14) about 1/8 inch (3 mm) with a gear puller, then lightly tapping the side of the gear. This releases the rings and allows the gear to be removed by hand.

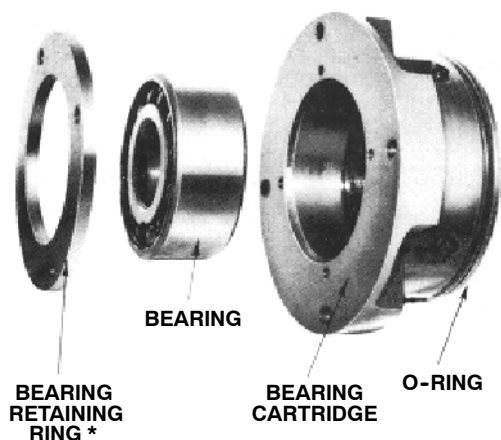
Note carefully the placement of the grip rings before removal, so that you can replace them properly paired and faced in the correct direction.

#### Reassembly

To reassemble, locate each gear firmly against the bearing race on its shaft. Thoroughly clean and dry all components – the grip rings, shafts and gear bores; coat the grip rings with a light oil, then slide the grip rings all the way onto the bores. Be sure the rings are paired and faced identically as originally installed, as shown in FIGURE 13. (Note: do not reuse grip rings which have been disassembled, since they lose concentricity and locking characteristics.)

Replace the gear locking clamps and cap screws. Establish a position for one gear, and progressively tighten the cap screws on that gear only. Using a torque wrench, finish at 45 ft. lb. (6.22 Kg-m). Shock-load the gear locking clamp and then retorque to 45 ft. lb. (6.22 Kg-m). Then follow "Resetting Impeller Clearance," page 15, before tightening the second gear in the same manner.

Note the end clearance between the impeller and gear headplate and correct, if necessary, according to instructions in "End Clearance," page 15. Replace the gear case gasket and lubricate.



\* Later models use (4) clips instead of solid ring.

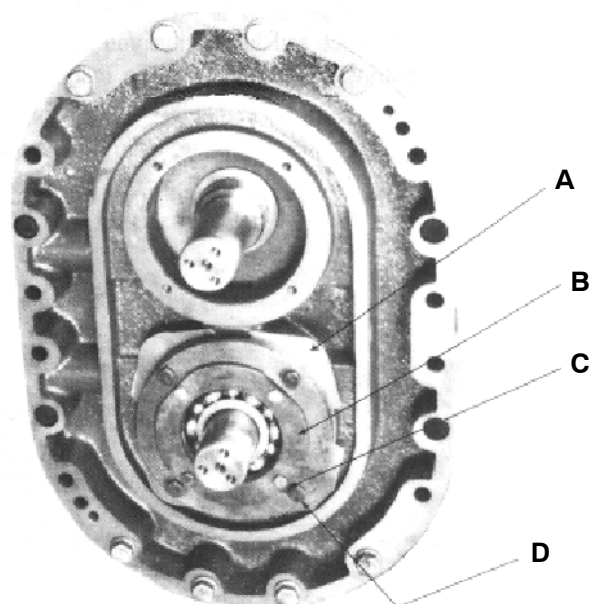


FIGURE 15 - BEARING CARTRIDGE REMOVAL

## BEARING AND SEAL REPLACEMENT

### Gear End

Remove the gear case (see "Gear Inspection," page 14). Note the end clearance between the impeller and gear headplate. Remove the timing gears as instructed previously.

Refer to FIGURE 15. Shims (A) installed during manufacture will now be exposed behind the bearing cartridge (B). These shims set the end clearance between the impeller and headplate; therefore, it is important that they be returned to their exact positions on reassembly. (NOTE: The number of shims fastened behind each bearing cartridge bolt may vary; be sure each set of shims is identified by position during withdrawal). To remove the shims, remove the bearing cartridge bolts (C). Insert jack screws in tapped holes (D) provided in the cartridge and back out the cartridge until the shims are loose. Remove one attachment bolt at a time, taking out the shims and marking them for accurate repositioning. On removal of all bolts, continue using the jackscrews to complete the cartridge removal. Remove the bearing retainer ring (or clips), from the face of the cartridge.

Blowers have a lip type oil seal behind each bearing. Gas pumps have a mechanical seal.

### Lip Type Oil Seal

Whenever a cartridge is removed for repair purposes, always install a new seal and O-ring before

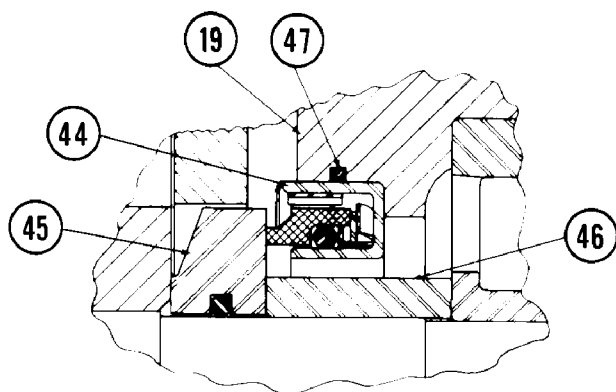


FIGURE 16 - MECHANICAL SEAL

reassembly. Install the seal with the lip facing the bearing, using a driving instrument having approximately the same outside diameter as the seal. Use caution not to damage the sealing elements, particularly when they are moved over the shaft.

### Mechanical Seal

Refer to FIGURE 16. When replacing, remove the oil seal components. Clean the shaft carefully, especially under the O-ring inserted in the groove of the mating ring, item 45. Before sliding item 45 into position, be sure to break the sharp edges at the shaft diameter

changes, and lubricate the shaft surface. Item 45 must fit tight against the impeller end. Sleeve 46 is now installed on the shaft against item 45.

The mechanical seal should be assembled into the bearing cartridge item 19 on the bench. First insert O-ring 47 into the groove. With light oil, lubricate the recess and press in assembly 44. Then carefully install the bearing cartridge with seal, into the headplate.

### End Clearance

To check or establish the gear-end clearance, use a sleeve made to substitute for the gear and grip ring assembly (items 5 and 6 on the parts cross section, FIGURE 17, page 31). With the gear locking clamp in place over the shaft end, and against the spacer sleeve, tighten the cap screws to 40 ft. lbs/5.4 kg-m torque. Check the clearance between the impeller ends and gear headplate. Add or remove shims behind the cartridge flange to establish the clearance given in FIGURE 11, page 14. Then remove the spacer sleeve and install gears, grip rings and locking clamps as outlined in "Setting Impeller Clearances," page 15. Note finished torque value.

### Drive End

Refer to FIGURE 17. Remove the drive cover. Unbolt and remove the oil slinger from the shaft, noting its relative position for later replacement; spread slightly to avoid scratching the shaft. The bearing cartridges can now be removed following the procedure described

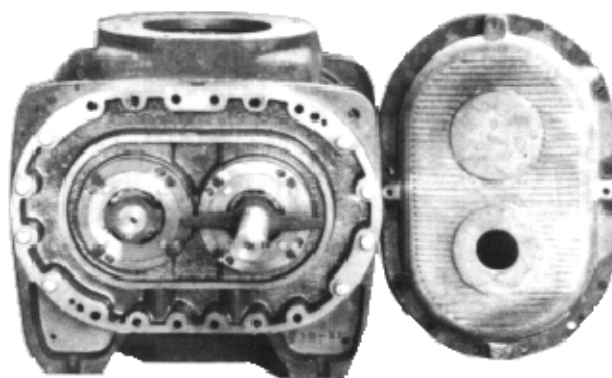


FIGURE 17 - DRIVE END

for the gear end, with the exception that no shims will be found.

Re-install bearing cartridges with new seals and O-rings.

Replace the bearings and slinger. Rotate shafts a couple of turns to be sure there will be no interference of the oil slinger. Remove the old drive seal and install the gasket and drive cover. Use a paste-type gasket compound between cleaned mating surfaces. Replace the drive seal. Take extreme care to avoid damaging the seal when moving it over the shaft keyway. When reassembly is completed, lubricate.

# SECTION 7 PARTS LIST VERTICAL CONSTRUCTION

Order by Part Number and Description. Reference Numbers for your convenience only.

## 6" VERTICAL Reference Figure 17, Page 31, for Exploded View

| Ref.<br>No. | DESCRIPTION                 | No.<br>Req'd | Size<br>608<br>GDFA_A | Size<br>612<br>GDFB_A | Size<br>615<br>GDFC_A | Size<br>618<br>GDGD_A |
|-------------|-----------------------------|--------------|-----------------------|-----------------------|-----------------------|-----------------------|
| * 1         | BEARING (DRIVE END) .....   | 2            | 201GDF174             | 201GDF174             | 201GDF174             | 201GDF174             |
| * 2         | BEARING (GEAR END) .....    | 2            | 200GDF174             | 200GDF174             | 200GDF174             | 200GDF174             |
| * 3         | SEAL-MAIN (VITON) .....     | 4            | 910751061901          | 910751061901          | 910751061901          | 910751061901          |
| **          | SEAL-MECHANICAL .....       | 4            | 910711601401          | 910711601401          | 910711601401          | 910711601401          |
| * 4         | SEAL-DRIVE (VITON) .....    | 1            | 60DD678               | 60DD678               | 60DD678               | 60DD678               |
| * 5         | ELEMENT-LOCKING .....       | 4            | 22G31                 | 22G31                 | 22G31                 | 22G31                 |
| 6           | GEAR SET-TIMING .....       | 1            | 910714063200          | 910714063200          | 910714063200          | 910714063200          |
| 7           | GROUP-ROTOR .....           | 1            | GDF82002              | GDF82004              | GDF82006              | GDF82008              |
| **          | GROUP-ROTOR .....           | 1            | GDF82001              | GDF82003              | GDF82005              | GDF82007              |
| ** 8        | SLEEVE .....                | 4            | 910712065901          | 910712065901          | 910712065901          | 910712065901          |
| ++ 9        | HEADPLATE-VERT .....        | 2            | 910774060801          | 910774060801          | 910774060801          | 910774060801          |
| **          | HEADPLATE-VERT .....        | 2            | 910774060802          | 910774060802          | 910774060802          | 910774060802          |
| 10          | CASE-IMPELLER .....         | 1            | 910714064701          | 910714064702          | 910714064703          | 910714064704          |
| 11          | CASE-GEAR .....             | 1            | 910733062601          | 910733062601          | 910733062601          | 910733062601          |
| 12          | COVER-DRIVE .....           | 1            | 910733062701          | 910733062701          | 910733062701          | 910733062701          |
| 13          | CARTRIDGE-BEARING .....     | 4            | 910713065201          | 910713065201          | 910713065201          | 910713065201          |
| **          | CARTRIDGE-BEARING .....     | 4            | 910713063101          | 910713063101          | 910713063101          | 910713063101          |
| 14          | RETAINER-BEARING .....      | 10           | 910741060101          | 910741060101          | 910741060101          | 910741060101          |
| * 15        | SHIM SET .....              | 1            | 910712068700          | 910712068700          | 910712068700          | 910712068700          |
| 16          | CLAMP-GEAR LOCKING .....    | 2            | 910712063501          | 910712063501          | 910712063501          | 910712063501          |
| 17          | SLINGER-OIL .....           | 1            | 910723070602          | 910723070602          | 910723070602          | 910723070602          |
| * 19        | O-RING .....                | 4            | 25BC419               | 25BC419               | 25BC419               | 25BC419               |
|             | (BEARING CARTRIDGE)         |              |                       |                       |                       |                       |
| ** 20       | O-RING .....                | 4            | 8501623               | 8501623               | 8501623               | 8501623               |
| * 21        | O-RING (OIL SLINGER) .....  | 1            | 25BC418               | 25BC418               | 25BC418               | 25BC418               |
| 22          | NIPPLE-PIPE .....           | 2            | 63C1                  | 63C1                  | 63C1                  | 63C1                  |
|             | (FOR MTG SIGHT GAUGE)       |              |                       |                       |                       |                       |
| 23          | KEY-DRIVE .....             | 1            | 35L63                 | 35L63                 | 35L63                 | 35L63                 |
| ** 24       | PIN-DOWEL .....             | 4            | 62V50                 | 62V50                 | 62V50                 | 62V50                 |
| 25          | BREATHER .....              | 2            | 5L223                 | 5L223                 | 5L223                 | 5L223                 |
| ++ 26       | GLASS-SIGHT .....           | 2            | 40P47                 | 40P47                 | 40P47                 | 40P47                 |
|             | (OIL LEVEL)                 |              |                       |                       |                       |                       |
| * 29        | GASKET .....                | 2            | 910743060001          | 910743060001          | 910743060001          | 910743060001          |
| 30          | PLUG-SQ HD (PRESS TAP ..... | 2            | 64AA6                 | 64AA6                 | 64AA6                 | 64AA6                 |
|             | CONN. IMPELLER CASE)        |              |                       |                       |                       |                       |
| 31          | PLUG-SQ HD .....            | 2            | 64AA5                 | 64AA5                 | 64AA5                 | 64AA5                 |
|             | (HEADPLATE DRAIN)           |              |                       |                       |                       |                       |
| 32          | PIN-GROOVED (DRIVE .....    | 2            | 62V48                 | 62V48                 | 62V48                 | 62V48                 |
|             | COVER TO HEADPLATE)         |              |                       |                       |                       |                       |

## 6" VERTICAL (Continued)

| Ref.<br>No. | DESCRIPTION                                                                       | No.<br>Req'd | Size<br>608<br>GDFA_A | Size<br>612<br>GDFA_A | Size<br>615<br>GDFA_A | Size<br>618<br>GDFA_A |
|-------------|-----------------------------------------------------------------------------------|--------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 33          | PIN-DOWEL (HEADPLATE .....<br>TO IMPELLER CASE)                                   | 4            | 62M50                 | 62M50                 | 62M50                 | 62M50                 |
| 34          | WASHER-PLAIN (BEARING .....<br>CARTRIDGE TO HEADPLATE)                            | 2            | 95U3                  | 95U3                  | 95U3                  | 95U3                  |
| 35          | WASHER-PLAIN (GEAR CASE AND ...<br>DRIVE COVER TO HEADPLATE)                      | 40           | 95F3                  | 95F3                  | 95F3                  | 95F3                  |
| 36          | SCREW-SOC HD CAP (HEAD- .....<br>PLATE TO IMPELLER CASE)                          | 8            | 75P56                 | 75P56                 | 75P56                 | 75P56                 |
| *           | 37 LOCKWASHER (BEARING .....<br>CARTRIDGE TO HEADPLATE)                           | 16           | 95B3                  | 95B3                  | 95B3                  | 95B3                  |
| *           | 38 SCREW-HX HD CAP/NYLOK .....<br>(BEARING RETAINER TO<br>BEARING CARTRIDGE)      | 8            | 75A33N                | 75A33N                | 75A33N                | 75A33N                |
| *           | 39 SCREW-SOC HD CAP/NYLOK .....<br>(OIL SLINGER)                                  | 1            | 75P9N                 | 75P9N                 | 75P9N                 | 75P9N                 |
| 40          | SCREW-HX HD CAP (GEAR .....<br>CASE TO HEADPLATE)                                 | 4            | 655ED030              | 655ED030              | 655ED030              | 655ED030              |
| 41          | SCREW-HX HD CAP (DRIVE .....<br>COVER TO HEADPLATE)                               | 4            | 655ED030              | 655ED030              | 655ED030              | 655ED030              |
| 42          | SCREW-HX HD CAP (BEARING .....<br>CARTRIDGE TO HEADPLATE)                         | 16           | 655ED050              | 655ED050              | 655ED050              | 655ED050              |
| 43          | SCREW-SOC HD CAP (GEAR .....<br>LOCKING CLAMP TO SHAFT)                           | 6            | 75P57                 | 75P57                 | 75P57                 | 75P57                 |
| 44          | SCREW-HX HD CAP (GEAR .....<br>CASE, DRIVE COVER &<br>HEADPLATE TO IMPELLER CASE) | 32           | 655ED120              | 655ED120              | 655ED120              | 655ED120              |
| **          | 45 PLUG-SQ HD .....<br>(HEADPLATE AIR VENT)                                       | 4            | 64AA7                 | 64AA7                 | 64AA7                 | 64AA7                 |
| 50          | WASHER-PLAIN (BEARING .....<br>CARTRIDGE TO HEADPLATE)                            | 6            | 95U3                  | 95U3                  | 95U3                  | 95U3                  |
| *           | KIT-OVERHAUL .....                                                                | 0            | GDF82010              | GDF82010              | GDF82010              | GDF82010              |
|             | KIT-OVERHAUL (GAS PUMP) .....                                                     | 0            | GDF82009              | GDF82009              | GDF82009              | GDF82009              |
|             | SHIM-IMPELLER CASE                                                                |              |                       |                       |                       |                       |
|             | ALUMINUM .010 THICK .....                                                         | ‡            | 910743060003          | 910743060003          | 910743060003          | 910743060003          |
|             | ALUMINUM .005 THICK .....                                                         | ‡            | 910743060005          | 910743060005          | 910743060005          | 910743060005          |
|             | ALUMINUM .002 THICK .....                                                         | ‡            | 300GDF732             | 300GDF732             | 300GDF732             | 300GDF732             |
|             | ALUMINUM .003 THICK .....                                                         | ‡            | 301GDF732             | 301GDF732             | 301GDF732             | 301GDF732             |
|             | ALUMINUM .004 THICK .....                                                         | ‡            | 200GDF732             | 200GDF732             | 200GDF732             | 200GDF732             |

\* Included in Overhaul Kit.

\*\* Gas Pump units only.

+ Not Shown.

++ Units built prior to 1983 utilized a 3/4" NPT Bull's Eye type gauge - part number 8501275. If replacing a headplate, one each of Ref. Nos. 22 & 26 must also be included.

‡ As required.

Order by Part Number and Description. Reference Numbers for your convenience only.

**7" VERTICAL**  
**Reference Figure 17, Page 31, for Exploded View**

| Ref.<br>No. | DESCRIPTION                                                  | No.<br>Req'd | Size<br>711<br>GDGA_A | Size<br>713<br>GDGB_A | Size<br>716<br>GDGC_A | Size<br>721<br>GDGD_A |
|-------------|--------------------------------------------------------------|--------------|-----------------------|-----------------------|-----------------------|-----------------------|
| * 1         | BEARING (DRIVE END) .....                                    | 2            | 910721070501          | 910721070501          | 910721070501          | 910721070501          |
| * 2         | BEARING (GEAR END) .....                                     | 2            | 900639080808          | 900639080808          | 900639080808          | 900639080808          |
| * 3         | SEAL-MAIN (VITON) .....                                      | 4            | 910751061902          | 910751061902          | 910751061902          | 910751061902          |
| **          | SEAL-MECHANICAL .....                                        | 4            | 910701071501          | 910701071501          | 910701071501          | 910701071501          |
| * 4         | SEAL-DRIVE (VITON) .....                                     | 1            | 60DD676               | 60DD676               | 60DD676               | 60DD676               |
| * 5         | ELEMENT-LOCKING .....                                        | 4            | 22G32                 | 22G32                 | 22G32                 | 22G32                 |
| 6           | GEAR SET-TIMING .....                                        | 1            | 910714073800          | 910714073800          | 910714073800          | 910714073800          |
| 7           | GROUP-ROTOR .....                                            | 1            | GDG82012              | GDG82014              | GDG82016              | GDG82018              |
| **          | GROUP-ROTOR .....                                            | 1            | GDG82011              | GDG82013              | GDG82015              | GDG82017              |
| ** 8        | SLEEVE .....                                                 | 4            | 910692073401          | 910692073401          | 910692073401          | 910692073401          |
| ++ 9        | HEADPLATE-VERT .....                                         | 2            | 910774070501          | 910774070501          | 910774070501          | 910774070501          |
| **          | HEADPLATE-VERT .....                                         | 2            | 910774070502          | 910774070502          | 910774070502          | 910774070502          |
| 10          | CASE-IMPELLER .....                                          | 1            | 910704076201          | 910704075801          | 910704076001          | 910704076002          |
| 11          | CASE-GEAR .....                                              | 1            | 910733070901          | 910733070901          | 910733070901          | 910733070901          |
| 12          | COVER-DRIVE .....                                            | 1            | 910733071001          | 910733071001          | 910733071001          | 910733071001          |
| 13          | CARTRIDGE-BEARING .....                                      | 4            | 910693072801          | 910693072801          | 910693072801          | 910693072801          |
| **          | CARTRIDGE-BEARING .....                                      | 4            | 910703073501          | 910703073501          | 910703073501          | 910703073501          |
| 14          | RETAINER-BEARING .....                                       | 10           | 910741060101          | 910741060101          | 910741060101          | 910741060101          |
| * 15        | SHIM SET .....                                               | 1            | 910639630008          | 910639630008          | 910639630008          | 910639630008          |
| 16          | CLAMP-GEAR LOCKING .....                                     | 2            | 910692073001          | 910692073001          | 910692073001          | 910692073001          |
| 17          | SLINGER-OIL .....                                            | 1            | 910723070601          | 910723070601          | 910723070601          | 910723070601          |
| * 19        | O-RING (BEARING<br>CARTRIDGE) .....                          | 4            | 8502140               | 8502140               | 8502140               | 8502140               |
| ** 20       | O-RING .....                                                 | 4            | 25BC417               | 25BC417               | 25BC417               | 25BC417               |
| * 21        | O-RING (OIL SLINGER) .....                                   | 1            | 25BC389               | 25BC389               | 25BC389               | 25BC389               |
| 22          | NIPPLE-PIPE .....                                            | 2            | 63C1                  | 63C1                  | 63C1                  | 63C1                  |
| 23          | KEY-DRIVE .....                                              | 1            | 35L64                 | 35L64                 | 35L64                 | 35L64                 |
| ** 24       | PIN-DOWEL .....                                              | 4            | 62M13                 | 62M13                 | 62M13                 | 62M13                 |
| 25          | BREATHER .....                                               | 2            | 5L223                 | 5L223                 | 5L223                 | 5L223                 |
| ++ 26       | GLASS-SIGHT (OIL LEVEL) .....                                | 2            | 40P47                 | 40P47                 | 40P47                 | 40P47                 |
| * 29        | GASKET .....                                                 | 2            | 910743060002          | 910743060002          | 910743060002          | 910743060002          |
| 30          | PLUG-SQ HD (PRESS TAP<br>CONN. IMPELLER CASE) .....          | 2            | 64AA6                 | 64AA6                 | 64AA6                 | 64AA6                 |
| 31          | PLUG-SQ HD .....                                             | 2            | 64AA5                 | 64AA5                 | 64AA5                 | 64AA5                 |
|             | (HEADPLATE DRAIN)                                            |              |                       |                       |                       |                       |
| 32          | PIN-GROOVED (DRIVE<br>COVER TO HEADPLATE) .....              | 2            | 62V48                 | 62V48                 | 62V48                 | 62V48                 |
| 33          | PIN-DOWEL (HEADPLATE<br>TO IMPELLER CASE) .....              | 4            | 62M50                 | 62M50                 | 62M50                 | 62M50                 |
| 34          | WASHER-PLAIN (BEARING<br>CARTRIDGE TO HEADPLATE) .....       | 2            | 95U3                  | 95U3                  | 95U3                  | 95U3                  |
| 35          | WASHER-PLAIN (GEAR CASE AND<br>DRIVE COVER TO HEADPLATE) ... | 40           | 95F5                  | 95F5                  | 95F5                  | 95F5                  |
| 36          | SCREW-SOC HD CAP (HEAD-<br>PLATE TO IMPELLER CASE) .....     | 8            | 75P2                  | 75P2                  | 75P2                  | 75P2                  |

## 7" VERTICAL (Continued)

| Ref.<br>No. | DESCRIPTION                                                           | No.<br>Req'd | Size<br>711<br>GDGA_A | Size<br>713<br>GDGB_A | Size<br>716<br>GDGC_A | Size<br>721<br>GDGD_A |
|-------------|-----------------------------------------------------------------------|--------------|-----------------------|-----------------------|-----------------------|-----------------------|
| * 37        | LOCKWASHER (BEARING CARTRIDGE TO HEADPLATE)                           | 16           | 95B3                  | 95B3                  | 95B3                  | 95B3                  |
| * 38        | SCREW-HX HD CAP/NYLOK (BEARING RETAINER TO BEARING CARTRIDGE)         | 8            | 655EC03N              | 655EC03N              | 655EC03N              | 655EC03N              |
| * 39        | SCREW-SOC HD CAP/NYLOK (OIL SLINGER)                                  | 1            | 75P9N                 | 75P9N                 | 75P9N                 | 75P9N                 |
| 40          | SCREW-HX HD CAP (GEAR CASE TO HEADPLATE)                              | 4            | 655EE040              | 655EE040              | 655EE040              | 655EE040              |
| 41          | SCREW-HX HD CAP (DRIVE COVER TO HEADPLATE)                            | 4            | 655EE040              | 655EE040              | 655EE040              | 655EE040              |
| 42          | SCREW-HX HD CAP (BEARING CARTRIDGE TO HEADPLATE)                      | 16           | 655ED060              | 655ED060              | 655ED060              | 655ED060              |
| 43          | SCREW-SOC HD CAP (GEAR LOCKING CLAMP TO SHAFT)                        | 6            | 75P58                 | 75P58                 | 75P58                 | 75P58                 |
| 44          | SCREW-HX HD CAP (GEAR CASE, DRIVE COVER & HEADPLATE TO IMPELLER CASE) | 32           | 655EE130              | 655EE130              | 655EE130              | 655EE130              |
| ** 45       | PLUG-SQ HD (HEADPLATE AIR VENT)                                       | 4            | 64AA7                 | 64AA7                 | 64AA7                 | 64AA7                 |
| 50          | WASHER-PLAIN (BEARING CARTRIDGE TO HEADPLATE)                         | 6            | 95U3                  | 95U3                  | 95U3                  | 95U3                  |
| *           | KIT-OVERHAUL                                                          | 0            | GDG82019              | GDG82019              | GDG82019              | GDG82019              |
|             | KIT-OVERHAUL (GAS PUMP)                                               | 0            | GDG82020              | GDG82020              | GDG82020              | GDG82020              |
|             | SHIM-IMPELLER CASE                                                    |              |                       |                       |                       |                       |
|             | ALUMINUM .010 THICK                                                   | ‡            | 910743060004          | 910743060004          | 910743060004          | 910743060004          |
|             | ALUMINUM .005 THICK                                                   | ‡            | 910743060006          | 910743060006          | 910743060006          | 910743060006          |
|             | ALUMINUM .002 THICK                                                   | ‡            | 300GDG732             | 300GDG732             | 300GDG732             | 300GDG732             |
|             | ALUMINUM .003 THICK                                                   | ‡            | 301GDG732             | 301GDG732             | 301GDG732             | 301GDG732             |
|             | ALUMINUM .004 THICK                                                   | ‡            | 200GDG732             | 200GDG732             | 200GDG732             | 200GDG732             |

\* Included in Overhaul Kit.

\*\* Gas Pump units only.

+ Not Shown.

++ Units built prior to 1983 utilized a 3/4" NPT Bull's Eye type gauge - part number 8501275. If replacing a headplate, one each of Ref. Nos. 22 & 26 must also be included.

‡ As required.

Order by Part Number and Description. Reference Numbers for your convenience only.

**8" VERTICAL**  
**Reference Figure 17, Page 31, for Exploded View**

| Ref.<br>No. | DESCRIPTION                                                  | No.<br>Req'd | Size<br>812<br>GDHA_C | Size<br>816<br>GDHB_C | Size<br>820<br>GDHC_C | Size<br>824<br>GDHD_C |
|-------------|--------------------------------------------------------------|--------------|-----------------------|-----------------------|-----------------------|-----------------------|
| * 1         | BEARING (DRIVE END) .....                                    | 2            | 903639090110          | 903639090110          | 903639090110          | 903639090110          |
| * 2         | BEARING (GEAR END) .....                                     | 2            | 200GDH174             | 200GDH174             | 200GDH174             | 200GDH174             |
| * 3         | SEAL-MAIN (VITON) .....                                      | 4            | 918761104902          | 918761104902          | 918761104902          | 918761104902          |
| **          | SEAL-MECHANICAL .....                                        | 4            | 910711087201          | 910711087201          | 910711087201          | 910711087201          |
| * 4         | SEAL-DRIVE (VITON) .....                                     | 1            | 60DD657               | 60DD657               | 60DD657               | 60DD657               |
| * 5         | ELEMENT-LOCKING .....                                        | 6            | 22G30                 | 22G30                 | 22G30                 | 22G30                 |
| Ø 6         | KIT-GEAR .....                                               | 1            | 200GDH6008            | 200GDH6008            | 200GDH6008            | 200GDH6008            |
| Ø 7         | GROUP-ROTOR .....                                            | 1            | 201GDH4028            | 202GDH4028            | 203GDH4028            | 204GDH4028            |
| **          | GROUP-ROTOR .....                                            | 1            | 205GDH4028            | 206GDH4028            | 207GDH4028            | 208GDH4028            |
| ** 8        | SLEEVE .....                                                 | 4            | 910711084501          | 910711084501          | 910711084501          | 910711084501          |
| ++ 9        | HEADPLATE-VERT .....                                         | 2            | 910774081501          | 910774081501          | 910774081501          | 910774081501          |
| **          | HEADPLATE-VERT .....                                         | 2            | 910774081502          | 910774081502          | 910774081502          | 910774081502          |
| 10          | CASE-IMPELLER .....                                          | 1            | 910704085801          | 910704085802          | 910704085803          | 910704085804          |
| 11          | CASE-GEAR .....                                              | 1            | 910743080301          | 910743080301          | 910743080301          | 910743080301          |
| 12          | COVER-DRIVE .....                                            | 1            | 910743080401          | 910743080401          | 910743080401          | 910743080401          |
| 13          | CARTRIDGE-BEARING .....                                      | 4            | 910703086101          | 910703086101          | 910703086101          | 910703086101          |
| **          | CARTRIDGE-BEARING .....                                      | 4            | 910703086601          | 910703086601          | 910703086601          | 910703086601          |
| 14          | RETAINER-BEARING .....                                       | 10           | 910741081201          | 910741081201          | 910741081201          | 910741081201          |
| * 15        | SHIM SET .....                                               | 1            | 910639630008          | 910639630008          | 910639630008          | 910639630008          |
| 16          | CLAMP .....                                                  | 2            | 200GDH654             | 200GDH654             | 200GDH654             | 200GDH654             |
| 17          | SLINGER-OIL .....                                            | 1            | 910723070603          | 910723070603          | 910723070603          | 910723070603          |
| * 19        | O-RING .....                                                 | 4            | 25BC398               | 25BC398               | 25BC398               | 25BC398               |
|             | (BEARING CARTRIDGE)                                          |              |                       |                       |                       |                       |
| ** 20       | O-RING .....                                                 | 4            | 8500957               | 8500957               | 8500957               | 8500957               |
| * 21        | O-RING (OIL SLINGER) .....                                   | 1            | 25BC420               | 25BC420               | 25BC420               | 25BC420               |
| 22          | NIPPLE-PIPE .....                                            | 2            | 63C1                  | 63C1                  | 63C1                  | 63C1                  |
|             | (FOR MTG SIGHT GAUGE)                                        |              |                       |                       |                       |                       |
| 23          | KEY-DRIVE .....                                              | 1            | 35L65                 | 35L65                 | 35L65                 | 35L65                 |
| ** 24       | PIN-DOWEL .....                                              | 4            | 62V50                 | 62V50                 | 62V50                 | 62V50                 |
| 25          | BREATHER .....                                               | 2            | 5L223                 | 5L223                 | 5L223                 | 5L223                 |
| ++ 26       | GLASS-SIGHT (OIL LEVEL) .....                                | 2            | 40P47                 | 40P47                 | 40P47                 | 40P47                 |
| * 29        | GASKET .....                                                 | 2            | 910743080001          | 910743080001          | 910743080001          | 910743080001          |
| 30          | PLUG-SQ HD (PRESS TAP<br>CONN. IMPELLER CASE) .....          | 2            | 64AA6                 | 64AA6                 | 64AA6                 | 64AA6                 |
| 31          | PLUG-SQ HD .....                                             | 2            | 64AA3                 | 64AA3                 | 64AA3                 | 64AA3                 |
|             | (HEADPLATE DRAIN)                                            |              |                       |                       |                       |                       |
| 32          | PIN-GROOVED .....                                            | 2            | 62V48                 | 62V48                 | 62V48                 | 62V48                 |
|             | (DRIVE COVER TO HEADPLATE)                                   |              |                       |                       |                       |                       |
| 33          | PIN-DOWEL (HEADPLATE<br>TO IMPELLER CASE) .....              | 4            | 62M50                 | 62M50                 | 62M50                 | 62M50                 |
| 34          | WASHER-PLAIN (BEARING<br>CARTRIDGE TO HEADPLATE) .....       | 2            | 95U3                  | 95U3                  | 95U3                  | 95U3                  |
| 35          | WASHER-PLAIN (GEAR CASE AND ...<br>DRIVE COVER TO HEADPLATE) | 44           | 95F5                  | 95F5                  | 95F5                  | 95F5                  |
| 36          | SCREW-HEX HD CAP (HEAD-<br>PLATE TO IMPELLER CASE) .....     | 8            | 655EE070              | 655EE070              | 655EE070              | 655EE070              |



## 8" VERTICAL (Continued)

| Ref.<br>No. | DESCRIPTION                                                           | No.<br>Req'd | Size<br>812<br>GDHA_C | Size<br>816<br>GDHB_C | Size<br>820<br>GDHC_C | Size<br>824<br>GDHD_C |
|-------------|-----------------------------------------------------------------------|--------------|-----------------------|-----------------------|-----------------------|-----------------------|
| * 37        | LOCKWASHER (BEARING CARTRIDGE TO HEADPLATE)                           | 16           | 95B3                  | 95B3                  | 95B3                  | 95B3                  |
| * 38        | SCREW-HX HD CAP/NYLOK (BEARING RETAINER TO BEARING CARTRIDGE)         | 8            | 75A33N                | 75A33N                | 75A33N                | 75A33N                |
| * 39        | SCREW-SOC HD CAP/NYLOK (OIL SLINGER)                                  | 1            | 75P9N                 | 75P9N                 | 75P9N                 | 75P9N                 |
| 40          | SCREW-HX HD CAP (GEAR CASE TO HEADPLATE)                              | 4            | 655EE040              | 655EE040              | 655EE040              | 655EE040              |
| 41          | SCREW-HX HD CAP (DRIVE COVER TO HEADPLATE)                            | 4            | 655EE040              | 655EE040              | 655EE040              | 655EE040              |
| 42          | SCREW-HX HD CAP (BEARING CARTRIDGE TO HEADPLATE)                      | 16           | 655ED070              | 655ED070              | 655ED070              | 655ED070              |
| 43          | SCREW-SOC HD CAP (GEAR LOCKING CLAMP TO SHAFT)                        | 10           | 75P58                 | 75P58                 | 75P58                 | 75P58                 |
| 44          | SCREW-HX HD CAP (GEAR CASE, DRIVE COVER & HEADPLATE TO IMPELLER CASE) | 36           | 655EE180              | 655EE180              | 655EE180              | 655EE180              |
| ** 45       | PLUG-SQ HD (HEADPLATE AIR VENT)                                       | 4            | 64AA7                 | 64AA7                 | 64AA7                 | 64AA7+                |
| 46          | SPACER-GEAR                                                           | 2            | 910612728908          | 910612728908          | 910612728908          | 910612728908          |
| 50          | WASHER-PLAIN (BEARING CARTRIDGE TO HEADPLATE)                         | 6            | 95U3                  | 95U3                  | 95U3                  | 95U3                  |
| *           | KIT-OVERHAUL                                                          | 0            | 200GDH6010            | 200GDH6010            | 200GDH6010            | 200GDH6010            |
|             | KIT-OVERHAUL (GAS PUMP)                                               | 0            | 201GDH6010            | 201GDH6010            | 201GDH6010            | 201GDH6010            |
|             | SHIM-IMPELLER CASE                                                    |              |                       |                       |                       |                       |
|             | ALUMINUM .010 THICK                                                   | ‡            | 910743080002          | 910743080002          | 910743080002          | 910743080002          |
|             | ALUMINUM .005 THICK                                                   | ‡            | 910743080003          | 910743080003          | 910743080003          | 910743080003          |
|             | ALUMINUM .002 THICK                                                   | ‡            | 300GDH732             | 300GDH732             | 300GDH732             | 300GDH732             |
|             | ALUMINUM .003 THICK                                                   | ‡            | 301GDH732             | 301GDH732             | 301GDH732             | 301GDH732             |
|             | ALUMINUM .004 THICK                                                   | ‡            | 200GDH732             | 200GDH732             | 200GDH732             | 200GDH732             |

\* Included in Overhaul Kit.

\*\* Gas Pump units only.

+ Not Shown.

++ Units built prior to 1983 utilized a 1" NPT Bull's Eye type gauge - part number 40L15. If replacing a headplate, one each of Ref. Nos. 22 & 26 must also be included.

Ø Refer to Section D when replacing gears or rotors in an "A" or "B" version unit.

‡ As required.

# SECTION 8

## PARTS LIST

### HORIZONTAL CONSTRUCTION

Order by Part Number and Description. Reference Numbers for your convenience only.

#### 6" HORIZONTAL

#### Reference Figure 18, Page 32, for Exploded View

| Ref.<br>No. | DESCRIPTION                       | No.<br>Req'd | Size<br>608<br>GDFA_A | Size<br>612<br>GDFB_A | Size<br>615<br>GDFC_A | Size<br>618<br>GDFF_A |
|-------------|-----------------------------------|--------------|-----------------------|-----------------------|-----------------------|-----------------------|
| * 1         | BEARING (DRIVE END) .....         | 2            | 201GDF174             | 201GDF174             | 201GDF174             | 201GDF174             |
| * 2         | BEARING (GEAR END) .....          | 2            | 200GDF174             | 200GDF174             | 200GDF174             | 200GDF174             |
| * 3         | SEAL-MAIN (VITON) .....           | 4            | 910751061901          | 910751061901          | 910751061901          | 910751061901          |
| **          | SEAL-MECHANICAL .....             | 4            | 910711601401          | 910711601401          | 910711601401          | 910711601401          |
| * 4         | SEAL-DRIVE (VITON) .....          | 1            | 60DD678               | 60DD678               | 60DD678               | 60DD678               |
| * 5         | ELEMENT-LOCKING .....             | 4            | 22G31                 | 22G31                 | 22G31                 | 22G31                 |
| 6           | GEAR SET-TIMING .....             | 1            | 910714063200          | 910714063200          | 910714063200          | 910714063200          |
| 7           | GROUP-ROTOR .....                 | 1            | GDF82002              | GDF82004              | GDF82006              | GDF82008              |
| **          | GROUP-ROTOR .....                 | 1            | GDF82001              | GDF82003              | GDF82005              | GDF82007              |
| ** 8        | SLEEVE .....                      | 4            | 910712065901          | 910712065901          | 910712065901          | 910712065901          |
| ++ 9        | HEADPLATE-HORIZONTAL .....        | 2            | 910774060901          | 910774060901          | 910774060901          | 910774060901          |
| **          | HEADPLATE-HORIZONTAL .....        | 2            | 910774060902          | 910774060902          | 910774060902          | 910774060902          |
| 10          | CASE-IMPELLER .....               | 1            | 910714064701          | 910714064702          | 910714064703          | 910714064704          |
| 11          | CASE-GEAR .....                   | 1            | 910733062601          | 910733062601          | 910733062601          | 910733062601          |
| 12          | COVER-DRIVE .....                 | 1            | 910733062701          | 910733062701          | 910733062701          | 910733062701          |
| 13          | CARTRIDGE-BEARING .....           | 4            | 910713065201          | 910713065201          | 910713065201          | 910713065201          |
| **          | CARTRIDGE-BEARING .....           | 4            | 910713063101          | 910713063101          | 910713063101          | 910713063101          |
| 14          | RETAINER-BEARING .....            | 10           | 910741060101          | 910741060101          | 910741060101          | 910741060101          |
| * 15        | SHIM SET .....                    | 1            | 910712068700          | 910712068700          | 910712068700          | 910712068700          |
| 16          | CLAMP-GEAR LOCKING .....          | 2            | 910712063501          | 910712063501          | 910712063501          | 910712063501          |
| 17          | SLINGER-OIL .....                 | 1            | 910723070602          | 910723070602          | 910723070602          | 910723070602          |
| * 19        | O-RING .....                      | 4            | 25BC419               | 25BC419               | 25BC419               | 25BC419               |
|             | (BEARING CARTRIDGE)               |              |                       |                       |                       |                       |
| ** 20       | O-RING .....                      | 4            | 8501623               | 8501623               | 8501623               | 8501623               |
| * 21        | O-RING (OIL SLINGER) .....        | 1            | 25BC418               | 25BC418               | 25BC418               | 25BC418               |
| 22          | NIPPLE-PIPE .....                 | 2            | 63C1                  | 63C1                  | 63C1                  | 63C1                  |
|             | (FOR MTG SIGHT GAUGE)             |              |                       |                       |                       |                       |
| 23          | KEY-DRIVE .....                   | 1            | 65L63                 | 65L63                 | 65L63                 | 65L63                 |
| ** 24       | PIN-DOWEL .....                   | 4            | 62V50                 | 62V50                 | 62V50                 | 62V50                 |
| 25          | BREATHER .....                    | 2            | 5L223                 | 5L223                 | 5L223                 | 5L223                 |
| ++ 26       | GLASS-SIGHT (OIL LEVEL) .....     | 2            | 40P47                 | 40P47                 | 40P47                 | 40P47                 |
| 27          | OIL BAFFLE(HEADPLATE) .....       | 2            | 63AJ8X07              | 63AJ8X07              | 63AJ8X07              | 63AJ8X07              |
| 28          | BUSHING-PIPE (FOR SIGHT GLASS) .. | 2            | 64E23                 | 64E23                 | 64E23                 | 64E23                 |
| * 29        | GASKET .....                      | 2            | 910743060001          | 910743060001          | 910743060001          | 910743060001          |
| 30          | PLUG-SQ HD (PRESS TAP .....       | 2            | 64AA6                 | 64AA6                 | 64AA6                 | 64AA6                 |
|             | CONN. IMPELLER CASE)              |              |                       |                       |                       |                       |
| 31          | PLUG-SQ HD .....                  | 2            | 64AA5                 | 64AA5                 | 64AA5                 | 64AA5                 |
|             | (HEADPLATE DRAIN)                 |              |                       |                       |                       |                       |
| 32          | PIN-GROOVED (DRIVE .....          | 2            | 62V48                 | 62V48                 | 62V48                 | 62V48                 |
|             | COVER TO HEADPLATE)               |              |                       |                       |                       |                       |

## 6" HORIZONTAL (Continued)

| Ref.<br>No. | DESCRIPTION                                                                       | No.<br>Req'd | Size<br>608<br>GDFA_A | Size<br>612<br>GDFB_A | Size<br>615<br>GDFA_A | Size<br>618<br>GDFD_A |
|-------------|-----------------------------------------------------------------------------------|--------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 33          | PIN-DOWEL (HEADPLATE .....<br>TO IMPELLER CASE)                                   | 4            | 62M50                 | 62M50                 | 62M50                 | 62M50                 |
| 34          | WASHER-PLAIN (BEARING .....<br>CARTRIDGE TO HEADPLATE)                            | 2            | 95U3                  | 95U3                  | 95U3                  | 95U3                  |
| 35          | WASHER-PLAIN (GEAR CASE AND ...<br>DRIVE COVER TO HEADPLATE)                      | 40           | 95F3                  | 95F3                  | 95F3                  | 95F3                  |
| 36          | SCREW-SOC HD CAP (HEAD- .....<br>PLATE TO IMPELLER CASE)                          | 8            | 75P56                 | 75P56                 | 75P56                 | 75P56                 |
| *           | 37 LOCKWASHER (BEARING .....<br>CARTRIDGE TO HEADPLATE)                           | 16           | 95B3                  | 95B3                  | 95B3                  | 95B3                  |
| *           | 38 SCREW-HX HD CAP/NYLOK .....<br>(BEARING RETAINER TO<br>BEARING CARTRIDGE)      | 8            | 75A33N                | 75A33N                | 75A33N                | 75A33N                |
| *           | 39 SCREW-SOC HD CAP/NYLOK .....<br>(OIL SLINGER                                   | 1            | 75P9N                 | 75P9N                 | 75P9N                 | 75P9N                 |
| 40          | SCREW-HX HD CAP (GEAR .....<br>CASE TO HEADPLATE)                                 | 4            | 655ED030              | 655ED030              | 655ED030              | 655ED030              |
| 41          | SCREW-HX HD CAP (DRIVE .....<br>COVER TO HEADPLATE)                               | 4            | 655ED030              | 655ED030              | 655ED030              | 655ED030              |
| 42          | SCREW-HX HD CAP (BEARING .....<br>CARTRIDGE TO HEADPLATE)                         | 16           | 655ED050              | 655ED050              | 655ED050              | 655ED050              |
| 43          | SCREW-SOC HD CAP (GEAR .....<br>LOCKING CLAMP TO SHAFT)                           | 6            | 75P57                 | 75P57                 | 75P57                 | 75P57                 |
| 44          | SCREW-HX HD CAP (GEAR .....<br>CASE, DRIVE COVER &<br>HEADPLATE TO IMPELLER CASE) | 32           | 655ED120              | 655ED120              | 655ED120              | 655ED120              |
| **          | 45 PLUG-SQ HD .....<br>(HEADPLATE AIR VENT)                                       | 4            | 64AA7                 | 64AA7                 | 64AA7                 | 64AA7+                |
| 50          | WASHER-PLAIN (BEARING .....<br>CARTRIDGE TO HEADPLATE)                            | 6            | 95U3                  | 95U3                  | 95U3                  | 95U3                  |
| *           | KIT-OVERHAUL .....                                                                | 0            | GDF82010              | GDF82010              | GDF82010              | GDF82010              |
|             | KIT-OVERHAUL (GAS PUMP) .....                                                     | 0            | GDF82009              | GDF82009              | GDF82009              | GDF82009              |
|             | SHIM-IMPELLER CASE                                                                |              |                       |                       |                       |                       |
|             | ALUMINUM .010 THICK .....                                                         | ‡            | 910743060003          | 910743060003          | 910743060003          | 910743060003          |
|             | ALUMINUM .005 THICK .....                                                         | ‡            | 910743060005          | 910743060005          | 910743060005          | 910743060005          |
|             | ALUMINUM .002 THICK .....                                                         | ‡            | 300GDF732             | 300GDF732             | 300GDF732             | 300GDF732             |
|             | ALUMINUM .003 THICK .....                                                         | ‡            | 301GDF732             | 301GDF732             | 301GDF732             | 301GDF732             |
|             | ALUMINUM .004 THICK .....                                                         | ‡            | 200GDF732             | 200GDF732             | 200GDF732             | 200GDF732             |

\* Included in Overhaul Kit.

\*\* Gas Pump units only.

+ Not Shown.

++ Refer to Section D.

‡ As required.

Order by Part Number and Description. Reference Numbers for your convenience only.

**7" HORIZONTAL**  
**Reference Figure 18, Page 32, for Exploded View**

| Ref.<br>No. | DESCRIPTION                                                    | No.<br>Req'd | Size<br>711<br>GDGA_A | Size<br>713<br>GDGB_A | Size<br>716<br>GDGC_A | Size<br>721<br>GDGD_A |
|-------------|----------------------------------------------------------------|--------------|-----------------------|-----------------------|-----------------------|-----------------------|
| * 1         | BEARING (DRIVE END) .....                                      | 2            | 910721070501          | 910721070501          | 910721070501          | 910721070501          |
| * 2         | BEARING (GEAR END) .....                                       | 2            | 900639080808          | 900639080808          | 900639080808          | 900639080808          |
| * 3         | SEAL-MAIN (VITON) .....                                        | 4            | 910751061902          | 910751061902          | 910751061902          | 910751061902          |
| **          | SEAL-MECHANICAL .....                                          | 4            | 910701071501          | 910701071501          | 910701071501          | 910701071501          |
| * 4         | SEAL-DRIVE (VITON) .....                                       | 1            | 60DD676               | 60DD676               | 60DD676               | 60DD676               |
| * 5         | ELEMENT-LOCKING .....                                          | 4            | 22G32                 | 22G32                 | 22G32                 | 22G32                 |
| 6           | GEAR SET-TIMING .....                                          | 1            | 910714073800          | 910714073800          | 910714073800          | 910714073800          |
| 7           | GROUP-ROTOR .....                                              | 1            | GDG82012              | GDG82014              | GDG82016              | GDG82018              |
| **          | GROUP-ROTOR .....                                              | 1            | GDG82011              | GDG82013              | GDG82015              | GDG82017              |
| ** 8        | SLEEVE .....                                                   | 4            | 910692073401          | 910692073401          | 910692073401          | 910692073401          |
| ++ 9        | HEADPLATE-HORIZONTAL .....                                     | 2            | 910774070401          | 910774070401          | 910774070401          | 910774070401          |
| **          | HEADPLATE-HORIZONTAL .....                                     | 2            | 910774070402          | 910774070402          | 910774070402          | 910774070402          |
| 10          | CASE-IMPELLER .....                                            | 1            | 910704076201          | 910704075801          | 910704076001          | 910704076002          |
| 11          | CASE-GEAR .....                                                | 1            | 910733070901          | 910733070901          | 910733070901          | 910733070901          |
| 12          | COVER-DRIVE .....                                              | 1            | 910733071001          | 910733071001          | 910733071001          | 910733071001          |
| 13          | CARTRIDGE-BEARING .....                                        | 4            | 910693072801          | 910693072801          | 910693072801          | 910693072801          |
| **          | CARTRIDGE-BEARING .....                                        | 4            | 910703073501          | 910703073501          | 910703073501          | 910703073501          |
| 14          | RETAINER-BEARING .....                                         | 10           | 910741060101          | 910741060101          | 910741060101          | 910741060101          |
| * 15        | SHIM SET .....                                                 | 1            | 910639630008          | 910639630008          | 910639630008          | 910639630008          |
| 16          | CLAMP-GEAR LOCKING .....                                       | 2            | 910692073001          | 910692073001          | 910692073001          | 910692073001          |
| 17          | SLINGER-OIL .....                                              | 1            | 910723070601          | 910723070601          | 910723070601          | 910723070601          |
| * 19        | O-RING (BEARING<br>CARTRIDGE) .....                            | 4            | 8502140               | 8502140               | 8502140               | 8502140               |
| ** 20       | O-RING .....                                                   | 4            | 25BC417               | 25BC417               | 25BC417               | 25BC417               |
| * 21        | O-RING (OIL SLINGER) .....                                     | 1            | 25BC389               | 25BC389               | 25BC389               | 25BC389               |
| 22          | NIPPLE-PIPE .....                                              | 2            | 63C1                  | 63C1                  | 63C1                  | 63C1                  |
|             | (FOR MTG SIGHT GAUGE)                                          |              |                       |                       |                       |                       |
| 23          | KEY-DRIVE .....                                                | 1            | 35L64                 | 35L64                 | 35L64                 | 35L64                 |
| ** 24       | PIN-DOWEL .....                                                | 4            | 62M13                 | 62M13                 | 62M13                 | 62M13                 |
| 25          | BREATHER .....                                                 | 2            | 5L223                 | 5L223                 | 5L223                 | 5L223                 |
| ++ 26       | GLASS-SIGHT (OIL LEVEL) .....                                  | 2            | 40P47                 | 40P47                 | 40P47                 | 40P47                 |
| 27          | OIL BAFFLE (HEADPLATE) .....                                   | 2            | 63F21                 | 63F21                 | 63F21                 | 63F21                 |
| * 29        | GASKET .....                                                   | 2            | 910743060002          | 910743060002          | 910743060002          | 910743060002          |
| 30          | PLUG-SQ HD (PRESS TAP<br>CONN. IMPELLER CASE) .....            | 2            | 64AA6                 | 64AA6                 | 64AA6                 | 64AA6                 |
| 31          | PLUG-SQ HD .....                                               | 2            | 64AA5                 | 64AA5                 | 64AA5                 | 64AA5                 |
|             | (HEADPLATE DRAIN)                                              |              |                       |                       |                       |                       |
| 32          | PIN-GROOVED (DRIVE<br>COVER TO HEADPLATE) .....                | 2            | 62V48                 | 62V48                 | 62V48                 | 62V48                 |
| 33          | PIN-DOWEL (HEADPLATE<br>TO IMPELLER CASE) .....                | 4            | 62M50                 | 62M50                 | 62M50                 | 62M50                 |
| 34          | WASHER-PLAIN (BEARING<br>CARTRIDGE TO HEADPLATE) .....         | 2            | 95U3                  | 95U3                  | 95U3                  | 95U3                  |
| 35          | WASHER-PLAIN (GEAR CASE AND<br>DRIVE COVER TO HEADPLATE) ..... | 40           | 95F5                  | 95F5                  | 95F5                  | 95F5                  |

## 7" HORIZONTAL (Continued)

| Ref.<br>No. | DESCRIPTION                                                                    | No.<br>Req'd | Size<br>711<br>GDGA_A | Size<br>713<br>GDGB_A | Size<br>716<br>GDGC_A | Size<br>721<br>GDGD_A |
|-------------|--------------------------------------------------------------------------------|--------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 36          | SCREW-SOC HD CAP (HEAD-<br>PLATE TO IMPELLER CASE)                             | 8            | 75P2                  | 75P2                  | 75P2                  | 75P2                  |
| *           | 37 LOCKWASHER (BEARING<br>CARTRIDGE TO HEADPLATE)                              | 16           | 95B3                  | 95B3                  | 95B3                  | 95B3                  |
| *           | 38 SCREW-HX HD CAP/NYLOK<br>(BEARING RETAINER TO<br>BEARING CARTRIDGE)         | 8            | 655EC03N              | 655EC03N              | 655EC03N              | 655EC03N              |
| *           | 39 SCREW-SOC HD CAP/NYLOK<br>(OIL SLINGER)                                     | 1            | 75P9N                 | 75P9N                 | 75P9N                 | 75P9N                 |
|             | 40 SCREW-HX HD CAP<br>(GEAR CASE TO HEADPLATE)                                 | 4            | 655EE040              | 655EE040              | 655EE040              | 655EE040              |
|             | 41 SCREW-HX HD CAP<br>(DRIVE COVER TO HEADPLATE)                               | 4            | 655EE040              | 655EE040              | 655EE040              | 655EE040              |
|             | 42 SCREW-HX HD CAP (BEARING<br>CARTRIDGE TO HEADPLATE)                         | 16           | 655ED060              | 655ED060              | 655ED060              | 655ED060              |
|             | 43 SCREW-SOC HD CAP (GEAR<br>LOCKING CLAMP TO SHAFT)                           | 6            | 75P58                 | 75P58                 | 75P58                 | 75P58                 |
|             | 44 SCREW-HX HD CAP<br>(GEAR CASE, DRIVE COVER &<br>HEADPLATE TO IMPELLER CASE) | 32           | 655EE130              | 655EE130              | 655EE130              | 655EE130              |
| **          | 45 PLUG-SQ HD<br>(HEADPLATE AIR VENT)                                          | 4            | 64AA7                 | 64AA7                 | 64AA7                 | 64AA7+                |
| *           | KIT-OVERHAUL                                                                   | 0            | GDG82019              | GDG82019              | GDG82019              | GDG82019              |
|             | KIT-OVERHAUL (GAS PUMP)                                                        | 0            | GDG82020              | GDG82020              | GDG82020              | GDG82020              |
| 50          | WASHER-PLAIN (BEARING<br>CARTRIDGE TO HEADPLATE)                               | 6            | 95U3                  | 95U3                  | 95U3                  | 95U3                  |
|             | SHIM-IMPELLER CASE                                                             |              |                       |                       |                       |                       |
|             | ALUMINUM .010 THICK                                                            | ‡            | 910743060004          | 910743060004          | 910743060004          | 910743060004          |
|             | ALUMINUM .005 THICK                                                            | ‡            | 910743060006          | 910743060006          | 910743060006          | 910743060006          |
|             | ALUMINUM .002 THICK                                                            | ‡            | 300GDG732             | 300GDG732             | 300GDG732             | 300GDG732             |
|             | ALUMINUM .003 THICK                                                            | ‡            | 301GDG732             | 301GDG732             | 301GDG732             | 301GDG732             |
|             | ALUMINUM .004 THICK                                                            | ‡            | 200GDG732             | 200GDG732             | 200GDG732             | 200GDG732             |

\* Included in Overhaul Kit.

\*\* Gas Pump units only.

+ Not Shown.

++ Refer to Section D.

‡ As required.

Order by Part Number and Description. Reference Numbers for your convenience only.

**8" HORIZONTAL**  
**Reference Figure 18, Page 32, for Exploded View**

| Ref.<br>No. | DESCRIPTION                                                    | No.<br>Req'd | Size<br>812<br>GDHA_C | Size<br>816<br>GDHB_C | Size<br>820<br>GDHC_C | Size<br>824<br>GDHD_C |
|-------------|----------------------------------------------------------------|--------------|-----------------------|-----------------------|-----------------------|-----------------------|
| * 1         | BEARING (DRIVE END) .....                                      | 2            | 903639090110          | 903639090110          | 903639090110          | 903639090110          |
| * 2         | BEARING (GEAR END) .....                                       | 2            | 200GDH174             | 200GDH174             | 200GDH174             | 200GDH174             |
| * 3         | SEAL-MAIN (VITON) .....                                        | 4            | 918761104902          | 918761104902          | 918761104902          | 918761104902          |
| **          | SEAL-MECHANICAL .....                                          | 4            | 910711087201          | 910711087201          | 910711087201          | 910711087201          |
| * 4         | SEAL-DRIVE (VITON) .....                                       | 1            | 60DD657               | 60DD657               | 60DD657               | 60DD657               |
| * 5         | ELEMENT-LOCKING .....                                          | 6            | 22G30                 | 22G30                 | 22G30                 | 22G30                 |
| Ø 6         | KIT-GEAR .....                                                 | 1            | 200GDH6008            | 200GDH6008            | 200GDH6008            | 200GDH6008            |
| Ø 7         | GROUP-ROTOR .....                                              | 1            | 201GDH4028            | 202GDH4028            | 203GDH4028            | 204GDH4028            |
| **          | GROUP-ROTOR .....                                              | 1            | 205GDH4028            | 206GDH4028            | 207GDH4028            | 208GDH4028            |
| ** 8        | SLEEVE .....                                                   | 4            | 910711084501          | 910711084501          | 910711084501          | 910711084501          |
| ++ 9        | HEADPLATE-HORIZONTAL .....                                     | 2            | 910774081601          | 910774081601          | 910774081601          | 910774081601          |
| **          | HEADPLATE-HORIZONTAL .....                                     | 2            | 910774081602          | 910774081602          | 910774081602          | 910774081602          |
| 10          | CASE-IMPELLER .....                                            | 1            | 910704085801          | 910704085802          | 910704085803          | 910704085804          |
| 11          | CASE-GEAR .....                                                | 1            | 910743080301          | 910743080301          | 910743080301          | 910743080301          |
| 12          | COVER-DRIVE .....                                              | 1            | 910743080401          | 910743080401          | 910743080401          | 910743080401          |
| 13          | CARTRIDGE-BEARING .....                                        | 4            | 910703086101          | 910703086101          | 910703086101          | 910703086101          |
| **          | CARTRIDGE-BEARING .....                                        | 4            | 910703086601          | 910703086601          | 910703086601          | 910703086601          |
| 14          | RETAINER-BEARING .....                                         | 10           | 910741081201          | 910741081201          | 910741081201          | 910741081201          |
| * 15        | SHIM SET .....                                                 | 1            | 910639630008          | 910639630008          | 910639630008          | 910639630008          |
| 16          | CLAMP .....                                                    | 2            | 200GDH654             | 200GDH654             | 200GDH654             | 200GDH654             |
| 17          | SLINGER-OIL .....                                              | 1            | 910723070603          | 910723070603          | 910723070603          | 910723070603          |
| * 19        | O-RING .....                                                   | 4            | 25BC398               | 25BC398               | 25BC398               | 25BC398               |
|             | (BEARING CARTRIDGE)                                            |              |                       |                       |                       |                       |
| ** 20       | O-RING .....                                                   | 4            | 8500957               | 8500957               | 8500957               | 8500957               |
| * 21        | O-RING (OIL SLINGER) .....                                     | 1            | 25BC420               | 25BC420               | 25BC420               | 25BC420               |
| 22          | NIPPLE-PIPE .....                                              | 2            | 63C1                  | 63C1                  | 63C1                  | 63C1                  |
|             | (FOR MTG SIGHT GAUGE)                                          |              |                       |                       |                       |                       |
| 23          | KEY-DRIVE .....                                                | 1            | 35L65                 | 35L65                 | 35L65                 | 35L65                 |
| ** 24       | PIN-DOWEL .....                                                | 4            | 62V50                 | 62V50                 | 62V50                 | 62V50                 |
| 25          | BREATHER .....                                                 | 2            | 5L223                 | 5L223                 | 5L223                 | 5L223                 |
| ++ 26       | GLASS-SIGHT (OIL LEVEL) .....                                  | 2            | 40P47                 | 40P47                 | 40P47                 | 40P47                 |
| 27          | OIL BAFFLE (HEADPLATE) .....                                   | 2            | 63F4                  | 63F4                  | 63F4                  | 63F4                  |
| * 29        | GASKET .....                                                   | 2            | 910743080001          | 910743080001          | 910743080001          | 910743080001          |
| 30          | PLUG-SQ HD (PRESS TAP<br>CONN. IMPELLER CASE) .....            | 2            | 64AA6                 | 64AA6                 | 64AA6                 | 64AA6                 |
| 31          | PLUG-SQ HD .....                                               | 2            | 64AA3                 | 64AA3                 | 64AA3                 | 64AA3                 |
|             | (HEADPLATE DRAIN)                                              |              |                       |                       |                       |                       |
| 32          | PIN-GROOVED .....                                              | 2            | 62V48                 | 62V48                 | 62V48                 | 62V48                 |
|             | (DRIVE COVER TO HEADPLATE)                                     |              |                       |                       |                       |                       |
| 33          | PIN-DOWEL (HEADPLATE<br>TO IMPELLER CASE) .....                | 4            | 62M50                 | 62M50                 | 62M50                 | 62M50                 |
| 34          | WASHER-PLAIN (BEARING<br>CARTRIDGE TO HEADPLATE) .....         | 2            | 95U3                  | 95U3                  | 95U3                  | 95U3                  |
| 35          | WASHER-PLAIN (GEAR CASE AND<br>DRIVE COVER TO HEADPLATE) ..... | 44           | 95F5                  | 95F5                  | 95F5                  | 95F5                  |
| 36          | SCREW-HEX HD CAP (HEAD-<br>PLATE TO IMPELLER CASE) .....       | 8            | 655EE070              | 655EE070              | 655EE070              | 655EE070              |

## 8" HORIZONTAL (Continued)

| Ref.<br>No. | DESCRIPTION                                                           | No.<br>Req'd | Size<br>812<br>GDHA_C | Size<br>816<br>GDHB_C | Size<br>820<br>GDHC_C | Size<br>824<br>GDHD_C |
|-------------|-----------------------------------------------------------------------|--------------|-----------------------|-----------------------|-----------------------|-----------------------|
| * 37        | LOCKWASHER (BEARING CARTRIDGE TO HEADPLATE)                           | 16           | 95B3                  | 95B3                  | 95B3                  | 95B3                  |
| * 38        | SCREW-HX HD CAP/NYLOK (BEARING RETAINER TO BEARING CARTRIDGE)         | 8            | 75A33N                | 75A33N                | 75A33N                | 75A33N                |
| * 39        | SCREW-SOC HD CAP/NYLOK (OIL SLINGER)                                  | 1            | 75P9N                 | 75P9N                 | 75P9N                 | 75P9N                 |
| 40          | SCREW-HX HD CAP (GEAR CASE TO HEADPLATE)                              | 4            | 655EE040              | 655EE040              | 655EE040              | 655EE040              |
| 41          | SCREW-HX HD CAP (DRIVE COVER TO HEADPLATE)                            | 4            | 655EE040              | 655EE040              | 655EE040              | 655EE040              |
| 42          | SCREW-HX HD CAP (BEARING CARTRIDGE TO HEADPLATE)                      | 16           | 655ED070              | 655ED070              | 655ED070              | 655ED070              |
| 43          | SCREW-SOC HD CAP (GEAR LOCKING CLAMP TO SHAFT)                        | 10           | 75P58                 | 75P58                 | 75P58                 | 75P58                 |
| 44          | SCREW-HX HD CAP (GEAR CASE, DRIVE COVER & HEADPLATE TO IMPELLER CASE) | 36           | 655EE180              | 655EE180              | 655EE180              | 655EE180              |
| ** 45       | PLUG-SQ HD (HEADPLATE AIR VENT)                                       | 4            | 64AA7                 | 64AA7                 | 64AA7                 | 64AA7+                |
| 46          | SPACER-GEAR                                                           | 2            | 910612728908          | 910612728908          | 910612728908          | 910612728908          |
| * 47        | KIT-OVERHAUL                                                          | 0            | 200GDH6010            | 200GDH6010            | 200GDH6010            | 200GDH6010            |
|             | KIT-OVERHAUL (GAS PUMP)                                               | 0            | 201GDH6010            | 201GDH6010            | 201GDH6010            | 201GDH6010            |
| 50          | WASHER-PLAIN (BEARING CARTRIDGE TO HEADPLATE)                         | 6            | 95U3                  | 95U3                  | 95U3                  | 95U3                  |
|             | SHIM-IMPELLER CASE                                                    |              |                       |                       |                       |                       |
|             | ALUMINUM .010 THICK                                                   | ‡            | 910743080002          | 910743080002          | 910743080002          | 910743080002          |
|             | ALUMINUM .005 THICK                                                   | ‡            | 910743080003          | 910743080003          | 910743080003          | 910743080003          |
|             | ALUMINUM .002 THICK                                                   | ‡            | 300GDH732             | 300GDH732             | 300GDH732             | 300GDH732             |
|             | ALUMINUM .003 THICK                                                   | ‡            | 301GDH732             | 301GDH732             | 301GDH732             | 301GDH732             |
|             | ALUMINUM .004 THICK                                                   | ‡            | 200GDH732             | 200GDH732             | 200GDH732             | 200GDH732             |

\* Included in Overhaul Kit.

\*\* Gas Pump units only.

+ Not Shown.

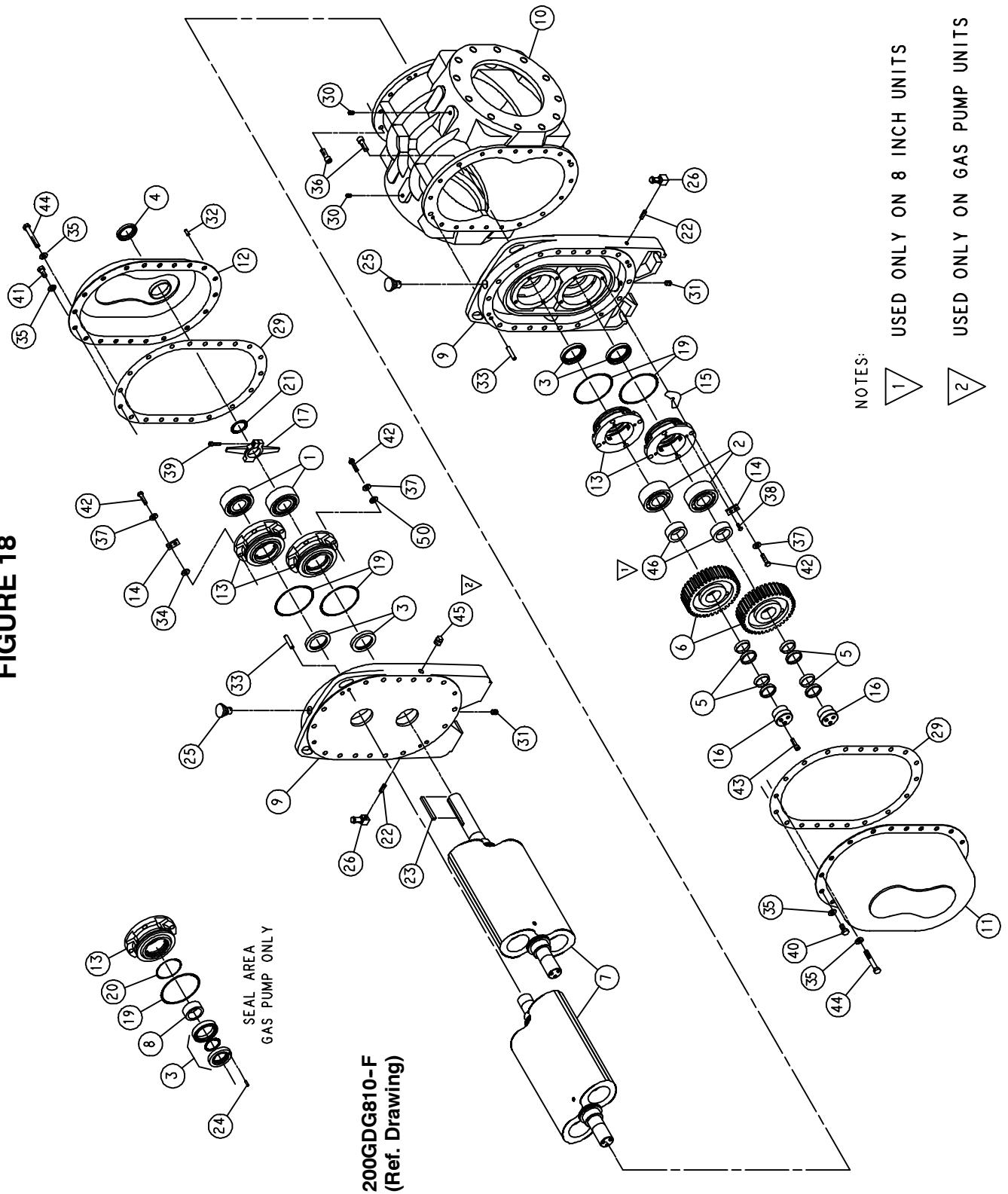
++ Units built prior to 1983 utilized a 1" NPT Bull's Eye type gauge - part number 40L15. If replacing a headplate, one each of Ref. Nos. 22 & 26 must also be included.

Ø Refer to Section D when replacing gears or rotors in an "A" or "B" version unit.

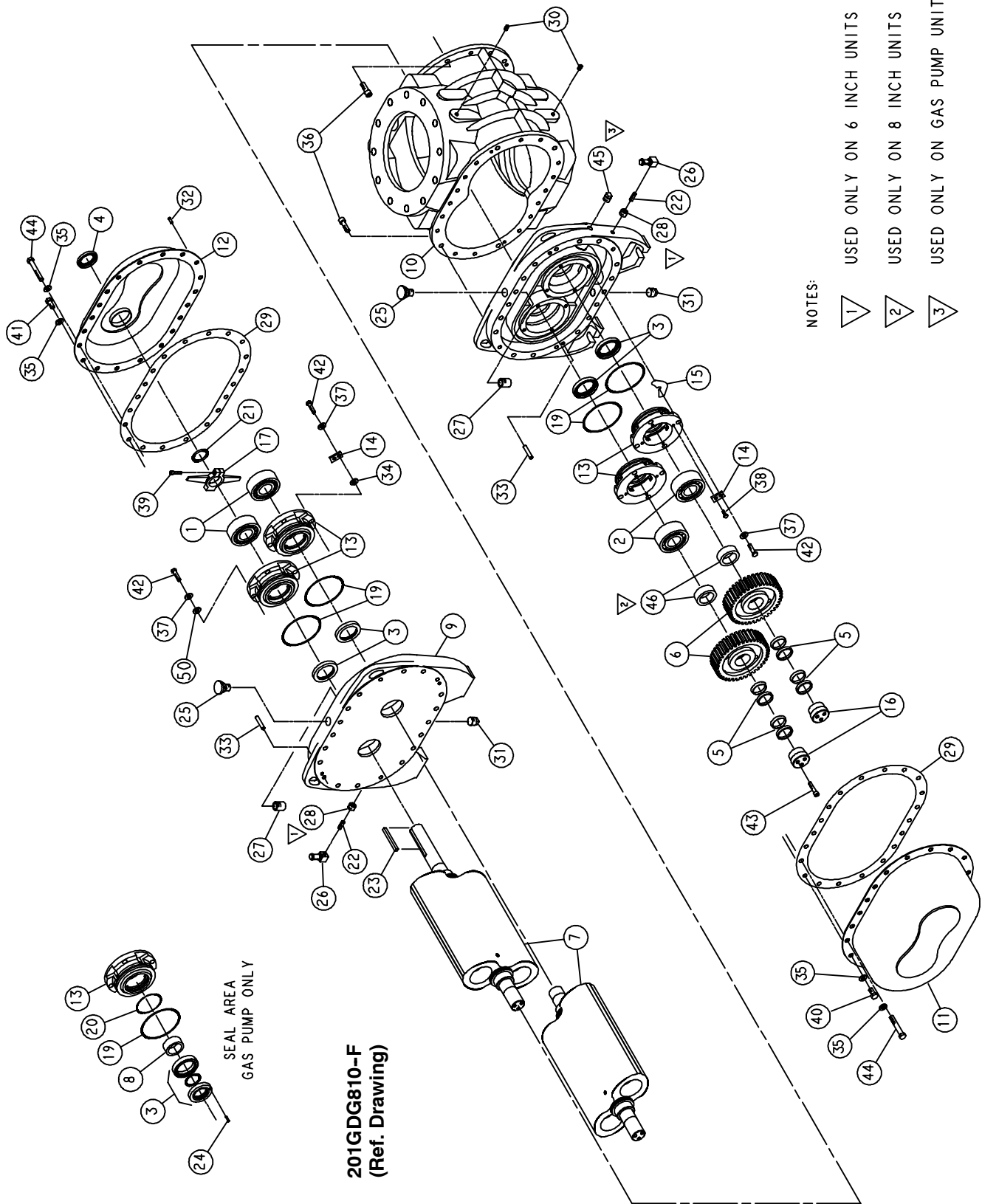
‡ As required.

# SECTION 9 EXPLODED VIEW

FIGURE 18





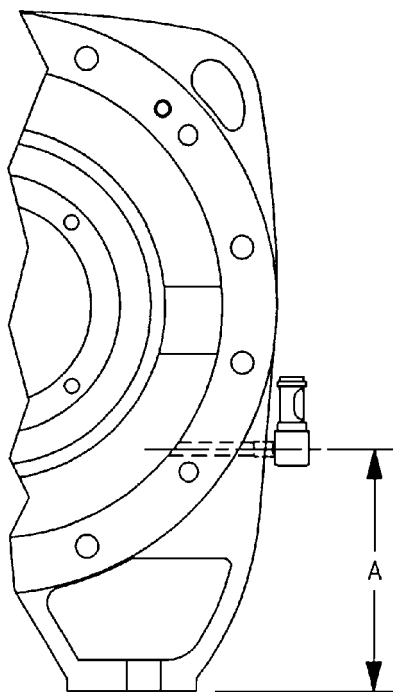


**FIGURE 19**

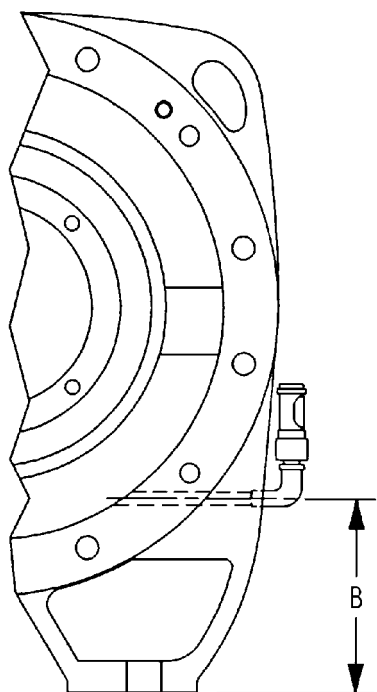
**SECTION 10**  
**SERVICE REPLACEMENT**

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**6" & 7" HORIZONTAL UNITS**  
**OIL LEVEL GAUGE REPLACEMENT**



**1986 TO PRESENT**



**1983 THRU 1985**

|     | 6" UNIT | 7" UNIT | ADAPTOR<br>PART NO. | GAUGE<br>PART NO. |
|-----|---------|---------|---------------------|-------------------|
| "A" | 5.50    | 6.25    | 63C1                | 40P47             |
| "B" | 4.69    | 5.00    | 64D1                | 40P48             |

NOTE: Units built prior to 1983 utilized a 3/4" NPT Bull's Eye type gauge - part number 8501275.  
If replacing a headplate, #63C1 & 40P47 must also be included.

## 8" UNIT GEAR AND/OR ROTOR REPLACEMENT

| Design<br>Version                 | Description                                             | No.<br>Req. | Size<br>812<br>GDHA                    | Size<br>816<br>GDHB                    | Size<br>820<br>GDHC                    | Size<br>824<br>GDHD                    |
|-----------------------------------|---------------------------------------------------------|-------------|----------------------------------------|----------------------------------------|----------------------------------------|----------------------------------------|
| <b>GEAR REPLACEMENT</b>           |                                                         |             |                                        |                                        |                                        |                                        |
| A                                 | KIT-CONVERSION                                          | 1           | 209GDH6005                             | 209GDH6005                             | 209GDH6005                             | 209GDH6005                             |
| B                                 | KIT-CONVERSION                                          | 1           | 210GDH6005                             | 210GDH6005                             | 210GDH6005                             | 210GDH6005                             |
| <b>ROTOR REPLACEMENT</b>          |                                                         |             |                                        |                                        |                                        |                                        |
| A                                 | KIT-CONVERSION<br>KIT-CONVERSION (Gas Pump)             | 1           | 200GDH6005<br>204GDH6005               | 201GDH6005<br>205GDH6005               | 202GDH6005<br>206GDH6005               | 203GDH6005<br>207GDH6005               |
| B                                 | GROUP-ROTOR<br>GROUP-ROTOR (Gas Pump)                   | 1           | 201GDH4028<br>205GDH4028               | 202GDH4028<br>206GDH4028               | 203GDH4028<br>207GDH4028               | 204GDH4028<br>208GDH4028               |
| <b>GEAR AND ROTOR REPLACEMENT</b> |                                                         |             |                                        |                                        |                                        |                                        |
| A                                 | GROUP-ROTOR<br>GROUP-ROTOR (Gas Pump)<br>KIT-CONVERSION | 1<br><br>1  | 201GDH4028<br>205GDH4028<br>210GDH6005 | 202GDH4028<br>206GDH4028<br>210GDH6005 | 203GDH4028<br>207GDH4028<br>210GDH6005 | 204GDH4028<br>208GDH4028<br>210GDH6005 |
| B                                 | GROUP-ROTOR<br>GROUP-ROTOR (Gas Pump)<br>KIT-CONVERSION | 1<br><br>1  | 201GDH4028<br>205GDH4028<br>210GDH6005 | 202GDH4028<br>206GDH4028<br>210GDH6005 | 203GDH4028<br>207GDH4028<br>210GDH6005 | 204GDH4028<br>208GDH4028<br>210GDH6005 |

### GEAR REPLACEMENT

Replacing the Gears in an "A" Version unit requires a Conversion Kit (209GDH6005) which includes the new Gear Kit (200GDH6008) plus (2) Clamps (201GDH654), (2) Locking Elements (22G30) and (6) screws (75P58).

Replacing the Gears in a "B" Version unit requires a Conversion Kit (210GDH6005) which includes the new Gear Kit (200GDH6008) plus (2) Clamps (200GDH654), (2) Locking Elements (22G30) and (10) screws (75P58).

Current "C" version units have (3) Locking Elements per shaft. "A" & "B" version units only used a quantity of (2) Locking Elements per shaft. After conversion order the "C" version Gear Kit (200GDH6008).

### ROTOR REPLACEMENT

Replacing the Rotors in an "A" Version unit requires a Conversion Kit which includes a new Rotor Group plus (2) Clamps (202GDH654) and (10) screws (75P58). Current "C" version units have (5) holes tapped in the gear end of the rotor shaft. "A" version units only had a quantity of (3) holes.

After conversion order the appropriate "C" version Rotor Group.

NOTE: "B" Version units use the same rotor groups as "C" Version units.

### GEAR AND ROTOR REPLACEMENT

Replacing the Gears and Rotor Group in an "A or B" Version unit requires ordering the appropriate new "C" version Rotor Group and Conversion Kit (210GDH6005) which includes the new Gear Kit (200GDH6008), (2) Clamps (200GDH654), (2) Locking Elements (22G30) and (10) screws (75P58). Current "C" version units have (3) Locking Elements per shaft and (5) holes tapped in the gear end of the rotor shaft. "

"A & B" version units only used a quantity of (2) Locking Elements per shaft and "A" version units only had a quantity of (3) holes tapped in the gear end of the rotor shaft.

After conversion order the appropriate "C" version Rotor Group and Gear Kit (200GDH6008).

**SUTORBILT BLOWERS  
4500 SERIES  
8000 SERIES****GENERAL PROVISIONS AND LIMITATIONS**

Gardner Denver (the "Company") warrants to each original retail purchaser ("Purchaser") of its products from the Company or its authorized distributor that such products are, at the time of delivery to the Purchaser, made with good material and workmanship. No warranty is made with respect to:

1. Any product which has been repaired or altered in such a way, in the Company's judgment, as to affect the product adversely.
2. Any product which has, in the Company's judgment, been subject to negligence, accident, improper storage, or improper installation or application.
3. Any product which has not been operated or maintained in accordance with the recommendations of the Company.
4. Components or accessories manufactured, warranted and serviced by others.

Claims for items described in (4) above should be submitted directly to the manufacturer.

**WARRANTY PERIOD**

The Company's obligation under this warranty is limited to repairing or, at its option, replacing, during normal business hours at an authorized service facility of the Company, any part which in its judgment proved not to be as warranted within the applicable Warranty Period as follows.

**BARE BLOWERS**

Basic bare blowers, consisting of all parts within, are warranted for 12 months from date of initial use or 18 months from date of shipment to the first purchaser, whichever occurs first.

Any disassembly or partial disassembly of the blower, or failure to return the "unopened" blower per Company instructions, will be cause for denial of warranty.

**OTHER COMPONENTS**

All other components are warranted for 12 months from date of initial use or 18 months from date of shipment to first purchaser, whichever comes first.

The Company reserves the right to withdraw the Warranty where evidence indicates application outside the stated performance area, or where there is evidence of abuse

**LABOR TRANSPORTATION AND INSPECTION**

The Company will provide labor, by Company representative or authorized service personnel, for repair or re-

placement of any product or part thereof which in the Company's judgment is proved not to be as warranted. Labor shall be limited to the amount specified in the Company's labor rate schedule.

Labor costs in excess of the Company rate schedules caused by, but not limited to, location or inaccessibility of equipment, or labor provided by unauthorized service personnel is not provided by this warranty.

All costs of transportation of product, labor or parts claimed not to be as warranted and, of repaired or replacement parts to or from such service facilities shall be borne by the Purchaser. The Company may require the return of any part claimed not to be as warranted to one of its facilities as designated by the Company, transportation prepaid by Purchaser, to establish a claim under this warranty.

Replacement parts provided under the terms of the warranty are warranted for the remainder of the Warranty Period of the product upon which installed to the same extent as if such parts were original components.

**DISCLAIMER**

THE FOREGOING WARRANTY IS EXCLUSIVE AND IT IS EXPRESSLY AGREED THAT, EXCEPT AS TO TITLE, THE COMPANY MAKES NO OTHER WARRANTIES, EXPRESSED, IMPLIED OR STATUTORY, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY.

THE REMEDY PROVIDED UNDER THIS WARRANTY SHALL BE THE SOLE, EXCLUSIVE AND ONLY REMEDY AVAILABLE TO THE PURCHASER AND IN NO CASE SHALL THE COMPANY BE SUBJECT TO ANY OTHER OBLIGATIONS OR LIABILITIES. UNDER NO CIRCUMSTANCES SHALL THE COMPANY BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES, EXPENSES, LOSSES OR DELAYS HOWSOEVER CAUSED.

No statement, representation, agreement, or understanding, oral or written, made by any agent, distributor, representative, or employee of the Company which is not contained in this Warranty will be binding upon the Company unless made in writing and executed by an officer of the Company.

This warranty shall not be effective as to any claim which is not presented within 30 days after the date upon which the product is claimed not to have been as warranted. Any action for breach of this warranty must be commenced within one year after the date upon which the cause of action occurred.

Any adjustment made pursuant to this warranty shall not be construed as an admission by the Company that any product was not as warranted.



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