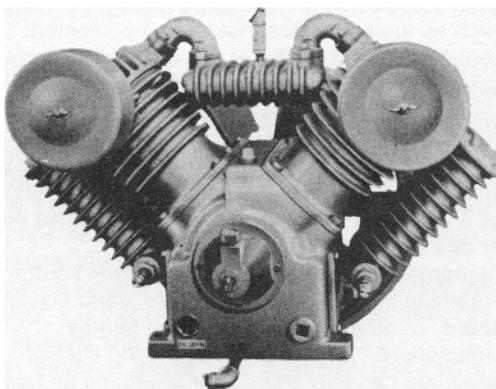
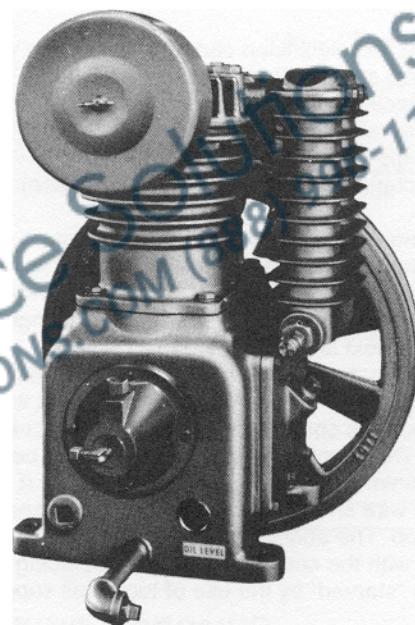


**MODEL 703      705      707 PUMPS**

**ASSEMBLY  
OPERATING  
INSTALLATION  
INSTRUCTIONS  
PARTS LIST**



**TYPE 707**



**TYPE 703 & 705**



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**TWO STAGE  
TWO CYLINDER — FOUR CYLINDER**

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# INSTALLATION AND OPERATING INSTRUCTIONS

*Read all instructions carefully before starting compressor*

## UNPACKING INSTRUCTIONS

The two-stage compressor was inspected at the factory and packaged to protect against shipping damage. When you unpack your unit, inspect for damage or missing parts. If there is any damage or missing parts, the transportation company's agent should make a notation to the effect on the Bill of Lading. Claims should be settled directly with the transportation company.

## PIPING

If a pipe line is necessary, use the same size as the tank valve since too small piping restricts the flow of air. If over 100 feet long, use the next larger size. Bury underground lines below the frost line and avoid pockets where condensation can gather and freeze. Make certain all pipe joints are free from leaks. Apply pressure before underground lines are covered.

## WIRING

Have a certified electrician connect the service wires to the magnetic starter. Check following:

1. The electric box is large enough. Service adequate ampere rating.
2. The supply line has the same electrical characteristics (voltage, cycles and phase) as the motor.
3. The line wire is the proper size and that no other equipment is operated from the same line. The following chart gives minimum recommended wire sizes for compressor installations. For longer lines use the next larger size wiring.

Various national and local codes and standards have been set up covering electrical apparatus and wiring. These should be consulted and local ordinances observed. Our recommended wire sizes may be larger than the minimum set up by local ordinances. If so, the larger size wire should be used to prevent excessive line voltage drop. The additional wire cost is very small compared with the cost of repairing or replacing a motor electrically "starved" by the use of too small supply wires.

## BELT GUARD

OSHA requires installation of a totally enclosed belt guard covering the flywheel, belts and motor pulley.

## WARNINGS

1. Compressed air systems are complex and can be dangerous. **Use an experienced compressed air systems person** when connecting this air compressor to any system.
2. Electric motor driven compressors use electricity. **Use only a certified electrician to connect to the power source.** To avoid risk of electrocution, do not touch or come in contact with any part of the compressor or power lines while it is connected to a power source. Prior to performance of any service or maintenance, disconnect and lock out any source of electricity.

## (WARNINGS CONTINUED)

3. **Electricity can cause a fire or explosion when directly exposed to flammable chemicals, liquids or gases.** Do not locate the compressor near any dangerous material.
4. **Air pressure can cause an explosion.** Do not fill compressed air into any container beyond its rated air capacity. Do not exceed the pressure rating of any container. Containers may include cylinders, tires, air tools, air tanks, piping and other items that use compressed air in their normal operation. These items may have a pressure capacity that is lower than the pressure output of this air compressor. Check the manufacturer of any container for its pressure rating prior to inflation.
5. **Compressed air can cause injury to the eyes, ears or body parts.** Compressed air is a powerful source of energy that escapes rapidly from devices such as tools, nozzles, hoses and equipment that are connected to the compressed air. Do not allow any part of your body to come in contact directly near compressed air or where compressed air is escaping the system, tools or equipment.
6. **Compressed air may contain carbon monoxide and other impurities.** Do not use compressed air as a source of breathing air, or it may cause illness or death.
7. Compressed air can disturb the normal source of breathing air by mixing dust, paint, sand blasting debris, or other impurities into the nearby atmosphere. Always use a breathing filter of adequate capacity when your breathing air has been altered.
8. The **air compressor has moving parts** that are protected by an enclosed belt guard at the time of manufacture. Do not remove the belt guard, except when performing maintenance. Electric power should be disconnected and locked out as noted in item 2 prior to removal of the guard. To avoid injury, do not touch or come in contact with the air compressor while the power is connected. Keep all loose clothing and other articles away from the compressor while power is connected. The **unit may start unexpectedly** at any time power is connected.
9. Compressed air, the air compressor, and the compressed air system will be hot while operating. Do not touch any component while in operation to **avoid risk of burns.**
10. **Do not modify or repair an air tank.** Welding, drilling or other modifications may weaken the tank resulting in risk of an explosion. Always replace cracked or leaking air tanks.
11. **Never install a shutoff valve between the compressor pump and air tank.** This is extremely important for base mounted configurations, but also may apply if a tank-mounted configuration is modified. Personal injury or equipment damage may occur.
12. This air compressor is designed to compress air only. **Do not compress any gas** other than air, as an unknown result could occur, included but not limited to damage to the equipment or explosion.

# MODEL 703-705-707 PUMPS

## TWO STAGE

### INSTALLATION AND STARTING

**INSPECTION:** Check for possible damage in transit. All basic pumps are shipped with flywheel unmounted! Do not force flywheel on crankshaft. Use wedge in "slot" provided for easy assembly. Belt alignment and tensions must be checked carefully!

**MOUNTING:** Install in a clean, dry, well ventilated location away from any source of heat such as a boiler or radiator. If a unit is to be fastened to a foundation, all four feet must be firmly supported and shimmed to remove all stress from unit. Pump flywheel should be mounted towards wall with minimum clearance of 18" to allow for circulation of air and additional clearance if required for servicing.

**LUBRICATION:** Fill crankcase to level mark on oil gauge with an industrial compressor oil grade ISO 150 or ASTM 700.

**CAUTION:** Turn power off before servicing.

### MAINTENANCE, OPERATION AND CARE

**PRESSURE AND SPEED:** Never operate pump at pressures or speeds in excess of those recommended by factory. Every compressor assembly must have a safety valve installed and should be set at either the maximum tank working pressure or 25 P.S.I. over the actual pressure of the pump whichever is less.

**OPERATING GUIDELINES:** Maximum Operating Speed, 703 @ 2 HP, 510 RPM; 705 @ 5 HP, 845 RPM; 707 @ 10 HP, 845 RPM. Minimum operating speed, all pumps, 400 RPM. Intermittent Operation, maximum 70%. Consult dealer for applications outside these guidelines.

\***DAILY:** Check for unusual noise, failure to compress, overheating, oil leaks, and vibration. Correct before serious damage develops. Drain all condensate from receiver and traps.

\***WEEKLY:** Examine Intake Filter elements and if dirty, remove and clean or replace. Check oil level and add if necessary. Do not fill over level mark on sight glass! Keep compressor clean for efficient operation and appearance.

\***MONTHLY:** Check and tighten all bolts and nuts as required (refer to torque chart). Check air connections for air leaks – tighten as required. Check belt tension. NOTE: This is a standard maintenance procedure which "warranty" does not cover.

\***QUARTERLY:** Inspect valves, clean if necessary. NOTE: This is a standard maintenance procedure which "warranty" does not cover.

### MAINTENANCE – TROUBLE SHOOTING – REPAIRS

#### SLOW PUMPING OR INSUFFICIENT PRESSURE

1. Clogged filter element – clean or replace.
2. Leaks in air lines – retighten or replace.
3. Insufficient air capacity – add compressor capacity – consult dealer.
4. Head valves – clean or replace (see figure 5).
5. Slipping belts – adjust or replace.

#### EXCESSIVE OIL CONSUMPTION

1. Too much oil – drain out excess to level mark on sight glass.
2. Worn rings – replace rings
3. Clogged air intake filters – clean or replace.
4. Improper oil – consult oil chart.
5. Oil leaks – check and tighten all bolts and nuts. Replace gaskets if necessary. See "monthly" under "operation and care."
6. Duty cycle over 70%.

#### OVERHEATING

1. Pump running backwards – reverse rotation, must be CCW facing flywheel.
2. Inadequate ventilation – pipe intakes to outside and install filters to protect against weather and foreign objects.
3. High ambient – same as #2.
4. Restricted air intakes – clean or replace.
5. Loose or restricted valves – retighten, clean or replace.
6. Incorrect installation – allow 18" minimum between wall and flywheel.
7. Insufficient air capacity or excessive duty cycle.

| Ambient Temp. | Viscosity at 100° SSU | ISO Viscosity CS+ | SAE No. |
|---------------|-----------------------|-------------------|---------|
| 0° - 40°      | 250-350               | 46-68             | 20      |
| 40° - 80°     | 450-550               | 100               | 30      |
| 80° - 120°    | 650-750               | 150               | 40      |
| Under 0°      | Consult Factory       |                   |         |
| Over 120°     |                       |                   |         |

#### CHANGE OIL REGULARLY

Minimum – once every three months.

703 = 4 Pints

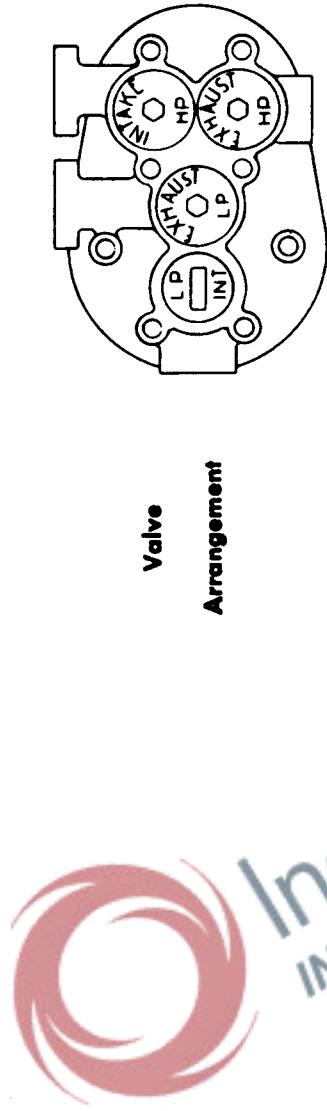
705 = 4 Pints

707 = 4 Pints

#### RECOMMENDED TORQUE READINGS

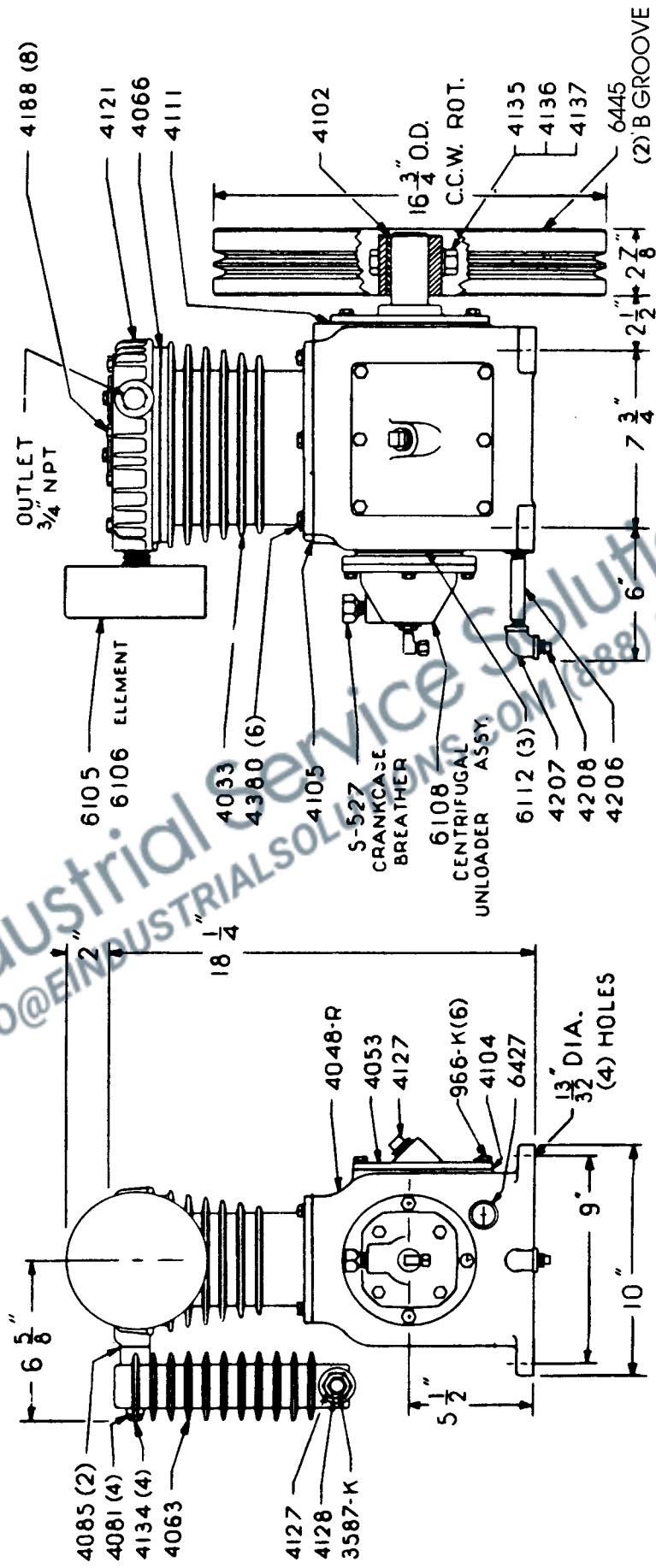
##### Foot-Pounds

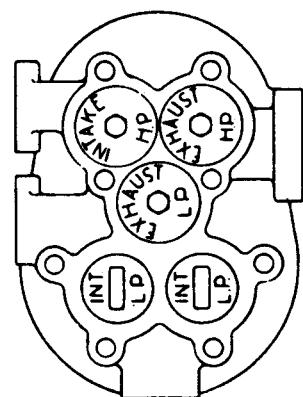
|                                       |       |
|---------------------------------------|-------|
| 7/16 Head bolts .....                 | 50-55 |
| Valve retainer .....                  | 80-90 |
| 5/16 Rod bolts .....                  | 30    |
| 3/8 Crankcase bolts .....             | 30-40 |
| 5/16 Side cover bolts .....           | 30-40 |
| 5/16 Front and rear cover bolts ..... | 30-40 |
| 5/16 Manifold bolts .....             | 30-40 |
| 5/8 Flywheel bolts .....              | 65-75 |
| 5/16 Intercooler bolts .....          | 30-40 |



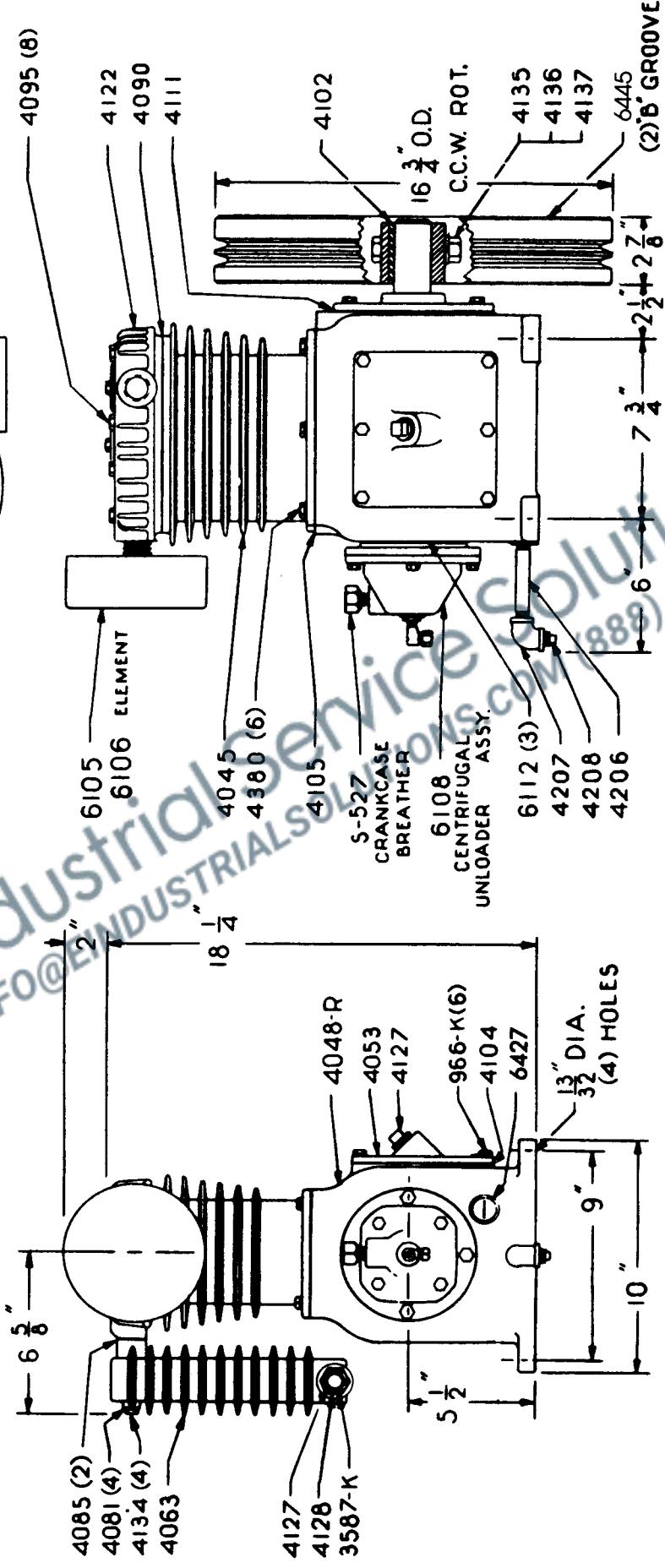
**Figure 1**

## MODEL 703 COMPRESSOR



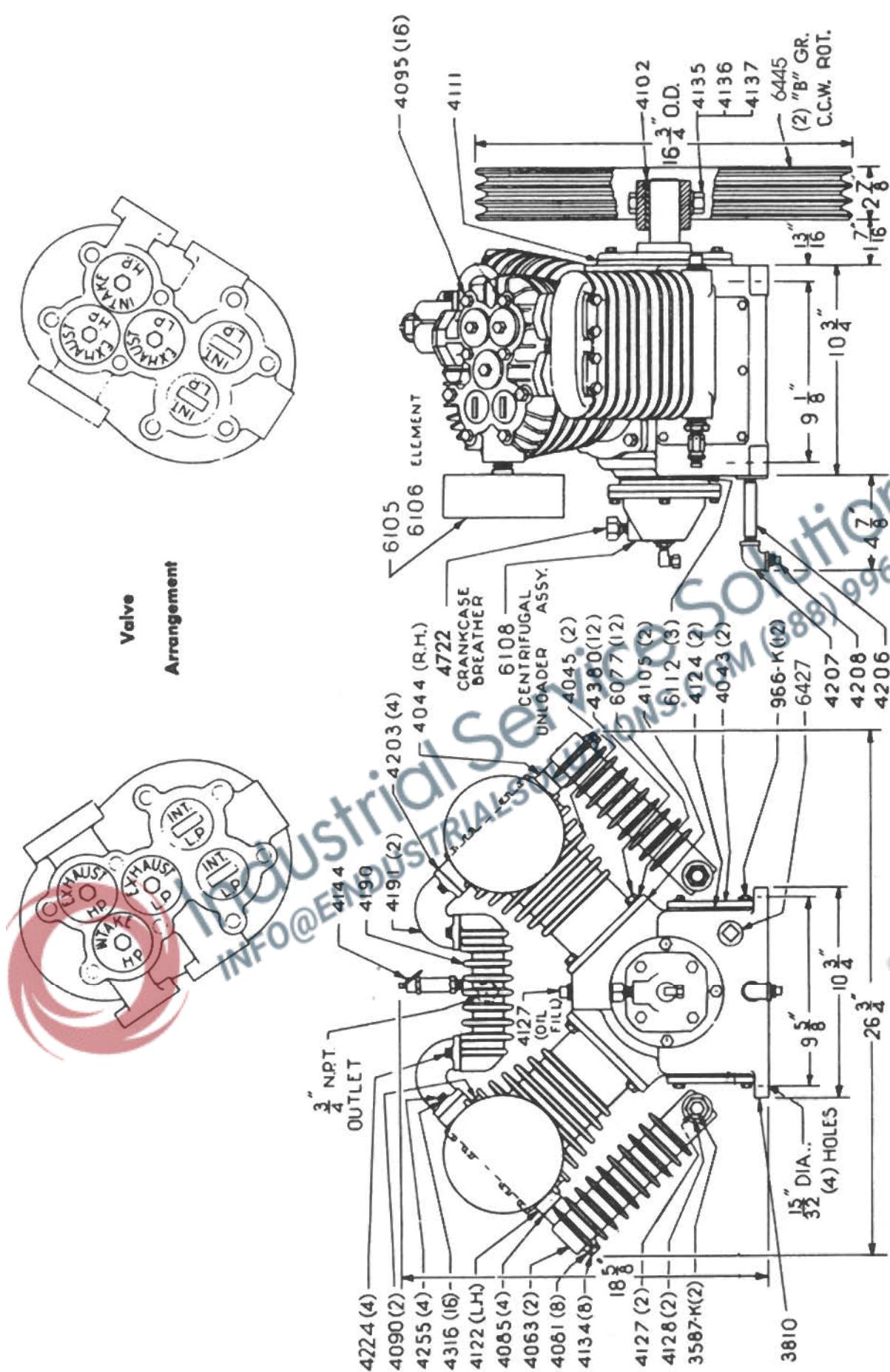


**Valve  
Arrangement**



**MODEL 705 COMPRESSOR**

**Figure 2**



## **MODEL 707 COMPRESSOR**

**Figure 3**

## MODEL 703

Figure 1

| Part Name                           | Part No. | No. Req. |
|-------------------------------------|----------|----------|
| Crankcase Assembly.....             | 4539     | 1        |
| Crankcase.....                      | 4048-R   | 1        |
| Oil Sight Glass.....                | 6427     | 1        |
| Cylinder .....                      | 4033     | 1        |
| Cylinder Head .....                 | 4121     | 1        |
| Intercooler Assembly .....          | 4536     | 1        |
| Intercooler .....                   | 4063     | 1        |
| Reducer Bushing .....               | 4128     | 1        |
| Pipe Plug .....                     | 4127     | 1        |
| Safety Valve .....                  | 3587-K   | 1        |
| Side Cover .....                    | 4053     | 1        |
| Flywheel Assembly .....             | 4537     | 1        |
| Flywheel .....                      | 6445     | 1        |
| Bolt .....                          | 4135     | 1        |
| Lockwasher .....                    | 4136     | 1        |
| Nut .....                           | 4137     | 1        |
| Gasket — Cylinder Head.....         | 4066     | 1        |
| Gasket — Cylinder to Crankcase..... | 4105     | 1        |
| Gasket — Front Cover.....           | 4111     | 1        |
| Gasket — Side Cover .....           | 4104     | 1        |
| Gasket — Intercooler .....          | 4085     | 2        |
| Shims — Brg. Adj. ....              | 6112     | 3        |
| Gasket Set .....                    | 4310     | 1        |

## MODEL 705

Figure 2

| Part Name                           | Part No. | No. Req. |
|-------------------------------------|----------|----------|
| Crankcase Assembly.....             | 4539     | 1        |
| Crankcase.....                      | 4048-R   | 1        |
| Oil Sight Glass.....                | 6427     | 1        |
| Cylinder .....                      | 4045     | 1        |
| Cylinder Head .....                 | 4122     | 1        |
| Intercooler Assembly .....          | 4536     | 1        |
| Intercooler .....                   | 4063     | 1        |
| Reducer Bushing .....               | 4128     | 1        |
| Pipe Plug .....                     | 4127     | 1        |
| Safety Valve .....                  | 3587-K   | 1        |
| Side Cover .....                    | 4053     | 1        |
| Flywheel Assembly .....             | 4546     | 1        |
| Flywheel .....                      | 6445     | 1        |
| Bolt .....                          | 4135     | 1        |
| Lockwasher .....                    | 4136     | 1        |
| Nut .....                           | 4137     | 1        |
| Gasket — Cylinder Head.....         | 4090     | 1        |
| Gasket — Cylinder to Crankcase..... | 4105     | 1        |
| Gasket — Front Cover.....           | 4111     | 1        |
| Gasket — Side Cover .....           | 4104     | 1        |
| Gasket — Intercooler .....          | 4085     | 2        |
| Shims — Brg. Adj. ....              | 6112     | 3        |
| Gasket Set .....                    | 4311     | 1        |

## MODEL 707

Figure 3

| Part Name                           | Part No. | No. Req. |
|-------------------------------------|----------|----------|
| Crankcase Assembly.....             | 4547     | 1        |
| Crankcase.....                      | 3810     | 1        |
| Oil Sight Glass.....                | 6427     | 1        |
| Cylinder .....                      | 4045     | 2        |
| Cylinder Head — R.H. ....           | 4044     | 1        |
| Cylinder Head — L.H. ....           | 4122     | 1        |
| Intercooler Assembly .....          | 4536     | 2        |
| Intercooler .....                   | 4063     | 2        |
| Reducer Bushing .....               | 4128     | 2        |
| Pipe Plug .....                     | 4127     | 2        |
| Safety Valve .....                  | 3587-K   | 2        |
| Side Cover .....                    | 4043     | 2        |
| Flywheel Assembly .....             | 4807     | 1        |
| Flywheel .....                      | 6445     | 1        |
| Bolt .....                          | 4135     | 1        |
| Lockwasher .....                    | 4136     | 1        |
| Nut .....                           | 4137     | 1        |
| Exhaust Manifold.....               | 4190     | 1        |
| Elbow — Exhaust Manifold .....      | 4191     | 2        |
| Gasket — Cylinder Head.....         | 4090     | 2        |
| Gasket — Cylinder to Crankcase..... | 4105     | 2        |
| Gasket — Front Cover.....           | 4111     | 1        |
| Gasket — Side Cover .....           | 4124     | 2        |
| Gasket — Intercooler .....          | 4085     | 4        |
| Shims — Brg. Adj. ....              | 6112     | 3        |
| Gasket — Exhaust Manifold.....      | 4203     | 4        |
| Gasket Set .....                    | 4312     | 1        |
| Flat Washer .....                   | 4316     | 8        |

## MODELS 703, 705, 707

Figures 1, 2 &amp; 3

| Part Name                        | Part No. | No. Req. | 703 | 705 | 707  |
|----------------------------------|----------|----------|-----|-----|------|
| Air Filter Silencer .....        | 6105     | 1        | 1   | 1   | 2    |
| Filter Elements (6105) .....     | 6106     | 1        | 1   | 1   | 2    |
| Oil Bath Intake Filter .....     | 4462     | 1        | 1   | 1   | 2    |
| Crankcase Breather .....         | S-527    | 1        | 1   | 1   | 1    |
| Centrifugal Unloader Ass'y. .... | 6108     | 1        | 1   | 1   | 1    |
| Safety Valve .....               | 4144     | —        | —   | —   | 1    |
| Pipe—Oil Drain .....             | 4206     | 1        | 1   | —   | —    |
| Elbow—Oil Drain .....            | 4207     | 1        | 1   | —   | —    |
| Plug—Oil Drain .....             | 4208     | 1        | 1   | —   | —    |
| Head Bolts .....                 | 4188     | 8        | —   | —   | 3/8  |
| Head Bolt .....                  | 4095     | —        | 8   | 16  | 7/16 |
| Cylinder Bolts .....             | 4380     | 8        | 6   | 12  | 3/8  |
| Side Cover Bolts .....           | 986-K    | 8        | 8   | 12  | 5/16 |
| Intercooler Bolts .....          | 4134     | 4        | 4   | 8   | 5/16 |
| Manifold Bolts .....             | 4224     | —        | —   | 4   | 5/16 |
| Manifold Bolts .....             | 4255     | —        | —   | 4   | 5/16 |
| Key—Flywheel .....               | 4102     | 1        | 1   | 1   | 1    |
| Washer—Cylinder .....            | 8077     | —        | —   | 12  | —    |
| Washer—Copper .....              | 4081     | 10       | 10  | 10  | 20   |
| Pipe Plug—Oil Fill .....         | 4127     | 1        | 1   | 1   | 1    |

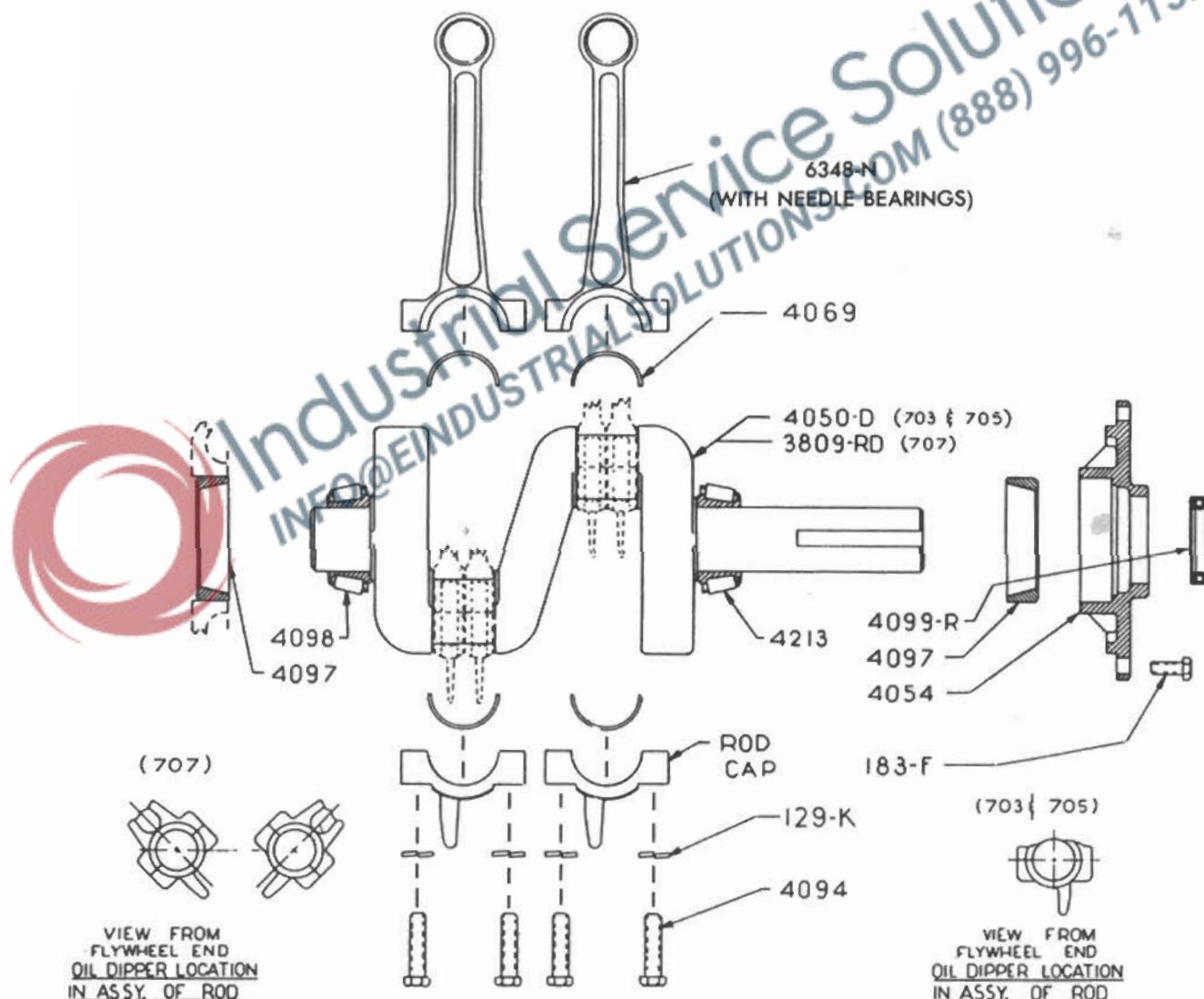
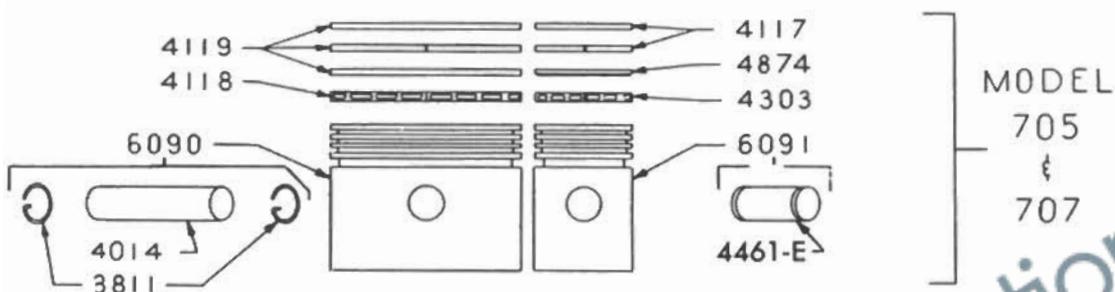
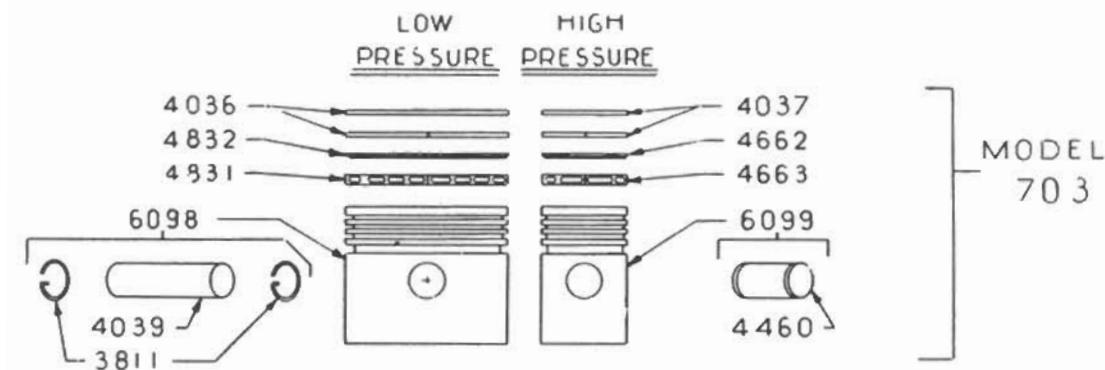


Figure 4

**MODEL 703****Figure 4**

| Part Name                                   | Part No. | No. Req. |
|---|----------|----------|
| Crankshaft Assembly                         |          |          |
| Crankshaft .....                            | 4050-D   | 1        |
| Bearing Cone – Front .....                  | 4213     | 1        |
| Bearing Cone – Rear .....                   | 4098     | 1        |
| Front Bearing Cover Ass'y. ....             | 4531     | 1        |
| Cover .....                                 | 4054     | 1        |
| Bearing Cup .....                           | 4097     | 1        |
| Shaft Seal .....                            | 4099-R   | 1        |
| Bolts .....                                 | 183-F    | 6        |
| Bearing Cup – Rear .....                    | 4097     | 1        |
| Connecting Rod Ass'y. (LP, HP) .....        | 6381-N   | 2        |
| Connecting Rod .....                        | 6348-N   | 2        |
| Needle Bearing (Wrist Pin) .....            | 4126     | 4        |
| ** Bearing Insert (halves) .....            | 4069     | 4        |
| Rod Bolts .....                             | 4094     | 4        |
| Lockwashers .....                           | 129-K    | 4        |
| ** Available in pairs only                  |          |          |
| Piston and Ring Ass'y. – L.P. (3-1/2) ..... | 6100     | 1        |
| Piston .....                                | 6098     | 1        |
| Wrist Pin .....                             | 4039     | 1        |
| Retaining Pin .....                         | 3811     | 2        |
| Compression Ring .....                      | 4036     | 2        |
| Compression Ring .....                      | 4832     | 1        |
| Oil Ring .....                              | 4831     | 1        |
| Piston Ring Ass'y. – H.P. (1 7/8) .....     | 6101     | 1        |
| Piston .....                                | 6099     | 1        |
| Wrist Pin .....                             | 4460     | 1        |
| Compression Ring .....                      | 4037     | 2        |
| Compression Ring .....                      | 4662     | 1        |
| Oil Ring .....                              | 4663     | 1        |
| Piston Ring Set .....                       | 6102     | 1        |

**MODEL 705****Figure 4**

|                                      |        |   |
|--------------------------------------|--------|---|
| Crankshaft Assembly                  |        |   |
| Crankshaft .....                     | 4050-D | 1 |
| Bearing Cone – Front .....           | 4213   | 1 |
| Bearing Cone – Rear .....            | 4098   | 1 |
| Front Bearing Cover Ass'y. ....      | 4531   | 1 |
| Cover .....                          | 4054   | 1 |
| Bearing Cup .....                    | 4097   | 1 |
| Shaft Seal .....                     | 4099-R | 1 |
| Bolts .....                          | 183-F  | 6 |
| Bearing Cup – Rear .....             | 4097   | 1 |
| Connecting Rod Ass'y. (LP, HP) ..... | 6381-N | 2 |
| Connecting Rod .....                 | 6348-N | 2 |
| ** Bearing Insert (halves) .....     | 4069   | 4 |
| Needle Bearing (Wrist Pin) .....     | 4126   | 2 |
| Rod Bolts .....                      | 4094   | 4 |
| Lockwashers .....                    | 129-K  | 4 |
| ** Available in pairs only           |        |   |

**MODEL 705****(Continued)**

| Part Name                                   | Part No. | No. Req. |
|---|----------|----------|
| Piston and Ring Ass'y. – L.P. (4-1/8) ..... | 6092     | 1        |
| Piston .....                                | 6090     | 1        |
| Wrist Pin .....                             | 4014     | 1        |
| Retaining Pin .....                         | 3811     | 2        |
| Compression Ring .....                      | 4119     | 3        |
| Oil Ring .....                              | 4118     | 1        |
| Piston Ring Ass'y. – H.P. (2 1/8) .....     | 6093     | 1        |
| Piston .....                                | 6091     | 1        |
| Wrist Pin .....                             | 4461     | 1        |
| Retaining Ring .....                        | 3811     | 2        |
| Compression Ring .....                      | 4117     | 2        |
| Compression Ring .....                      | 4874     | 1        |
| Oil Ring .....                              | 4303     | 1        |
| Piston Ring Set .....                       | 6094     | 1        |

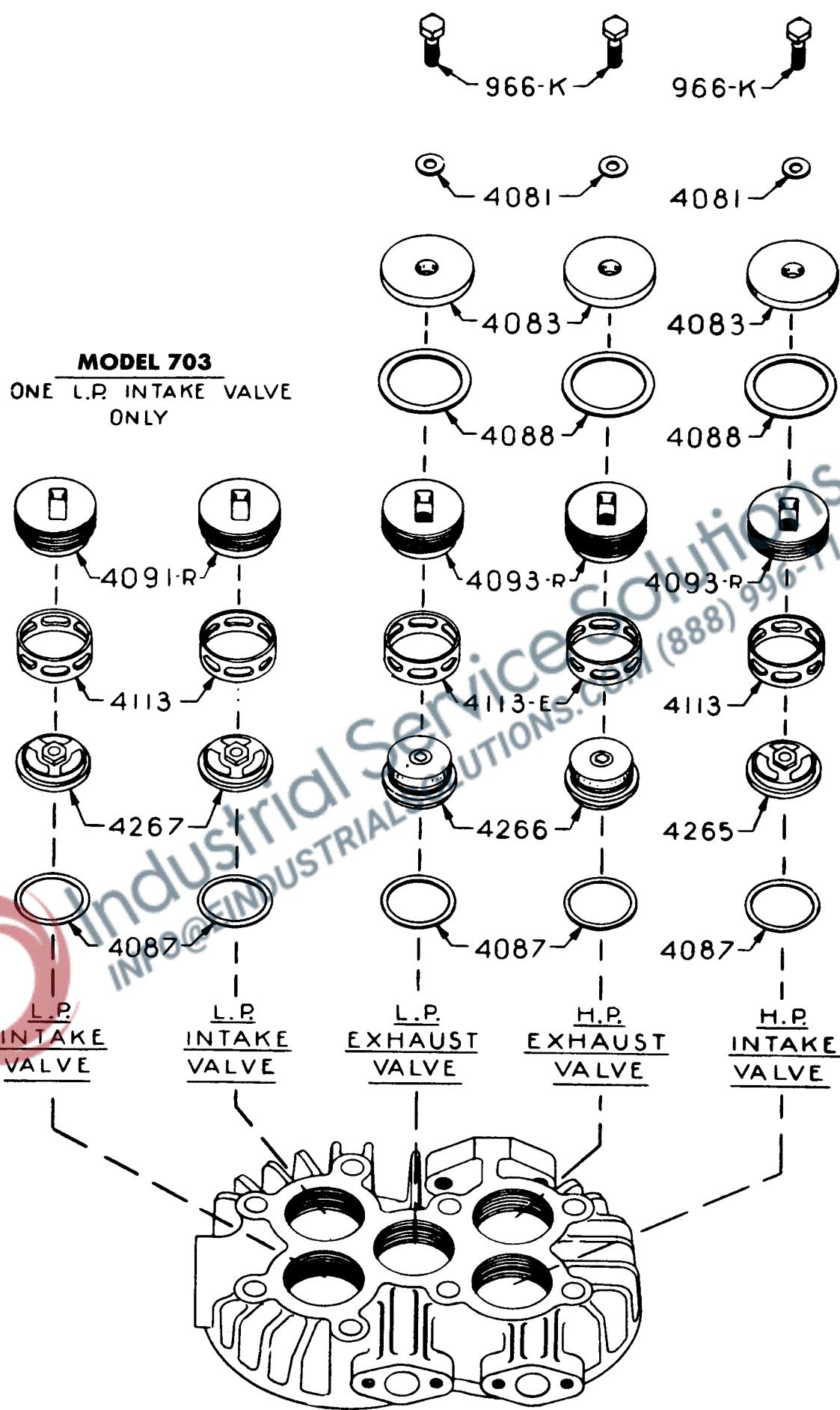
**MODEL 707****Figure 4**

|                                      |         |   |
|--------------------------------------|---------|---|
| Crankshaft Assembly                  |         |   |
| Crankshaft .....                     | 3809-RD | 1 |
| Bearing Cone – Front .....           | 4213    | 1 |
| Bearing Cone – Rear .....            | 4098    | 1 |
| Front Bearing Cover Ass'y. ....      | 4531    | 1 |
| Cover .....                          | 4054    | 1 |
| Bearing Cup .....                    | 4097    | 1 |
| Shaft Seal .....                     | 4099-R  | 1 |
| Bolts .....                          | 183-F   | 6 |
| Bearing Cup – Rear .....             | 4097    | 1 |
| Connecting Rod Ass'y. (LP, HP) ..... | 6381-N  | 4 |
| Connecting Rod .....                 | 6348-N  | 4 |
| Needle Bearing (Wrist Pin) .....     | 4126    | 2 |
| Bearing Insert (halves) .....        | 4069    | 8 |
| Rod Bolts .....                      | 4094    | 8 |
| Lockwashers .....                    | 129-K   | 8 |

|   |        |   |
|---|--------|---|
| Piston and Ring Ass'y. – L.P. (4-1/8) ..... | 6092   | 2 |
| Piston .....                                | 6090   | 2 |
| Wrist Pin .....                             | 4014   | 2 |
| Retaining Ring .....                        | 3811   | 4 |
| Compression Ring .....                      | 4119   | 6 |
| Oil Ring .....                              | 4118   | 2 |
| Piston and Ring Ass'y. – H.P. (2 1/8) ..... | 6093   | 2 |
| Piston .....                                | 6091   | 2 |
| Wrist Pin .....                             | 4461-E | 2 |
| Retaining Ring .....                        | 3811   | 4 |
| Compression Ring .....                      | 4117   | 2 |
| Compression Ring .....                      | 4874   | 2 |
| Oil Ring .....                              | 4303   | 2 |
| Piston Ring Set .....                       | 6095   | 1 |

NOTE: When ordering parts – specify Model No. & Serial No. of Pump.

\*\* Available in pairs only

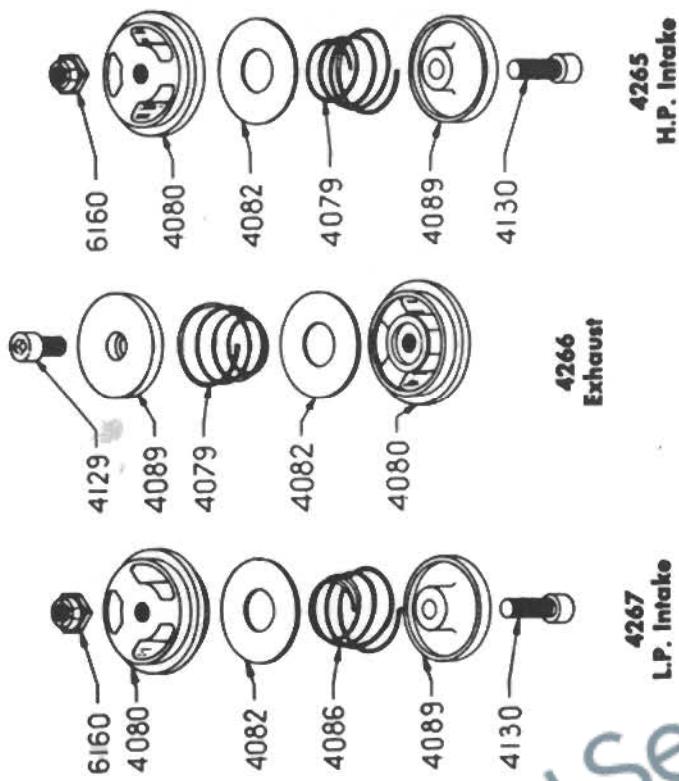


The diagram consists of three concentric circles. The innermost circle contains the text "Start - Stop". The middle circle contains the text "Part Name". The outermost circle contains the text "Part No." at the top and "No." at the bottom.

|   |        |
|---|--------|
| Cylinder Head and Valve Assembly .....        | 4471   |
| Cylinder Head and Valve Assembly .....        | 4473   |
| Cylinder Head and Valve Assembly .....        | 4472   |
| (2) Low Pressure Intake Valve Assembly .....  | 4267   |
| (2) High Pressure Intake Valve Assembly ..... | 4265   |
| (2) Exhaust Valve Assembly (HP & LP) .....    | 4266   |
| (1)(2) Gasket — All Valves .....              | 4087   |
| Spacer — Exh. Valves .....                    | 4113-E |
| Spacer — Int. Valves .....                    | 4113   |
| Retainer — L.P. Intake Valve .....            | 4091-R |
| Retainer — Exhaust Valve .....                | 4093-R |
| Retainer — H.P. Intake Valve .....            | 4093-R |
| (1)(2) Gasket — Valve Cover .....             | 4088   |
| Cover — Valve .....                           | 4083   |
| (1)(2) Copper Washer .....                    | 4081   |
| Bolt — Valve Cover .....                      | 966-K  |
| Valve Repair Kit (for 4 valves) .....         | 4805   |
| Valve Repair Kit (for 5 valves) .....         | 4806   |
| Valve Repair Kit (for 10 valves) .....        | 4807   |
| Valve Replacement Kit (4 valves) .....        | 4812   |
| Valve Replacement Kit (5 valves) .....        | 4813   |
| Valve Replacement Kit (10 Valves) .....       | 4814   |

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**Figure 6** Valve Components

|  |       |   |   |   |                   |
|--|-------|---|---|---|-------------------|
| Cover — Valve .....                    | 4083  | 3 | 3 | 6 |                   |
| (1) (2) Copper Washer .....            | 4081  | 3 | 3 | 6 |                   |
| Bolt — Valve Cover .....               | 966-K | 3 | 3 | 6 |                   |
| Valve Repair Kit (for 4 valves) .....  | 4805  | 1 | — | — |                   |
| Valve Repair Kit (for 5 valves) .....  | 4806  | — | 1 | — |                   |
| Valve Repair Kit (for 10 valves) ..... | 4807  | — | — | 1 |                   |
| Valve Replacement Kit (4 valves) ..... | 4812  | 1 | — | — |                   |
|  |       |   |   |   | Allen Screw ..... |
|  |       |   |   |   | Allen Screw ..... |

**(1) Included in Valve Repair Kits**

**(2) Included in Valve Replacement Kits**

## 6108 CENTRIFUGAL UNLOADER

Figure 7

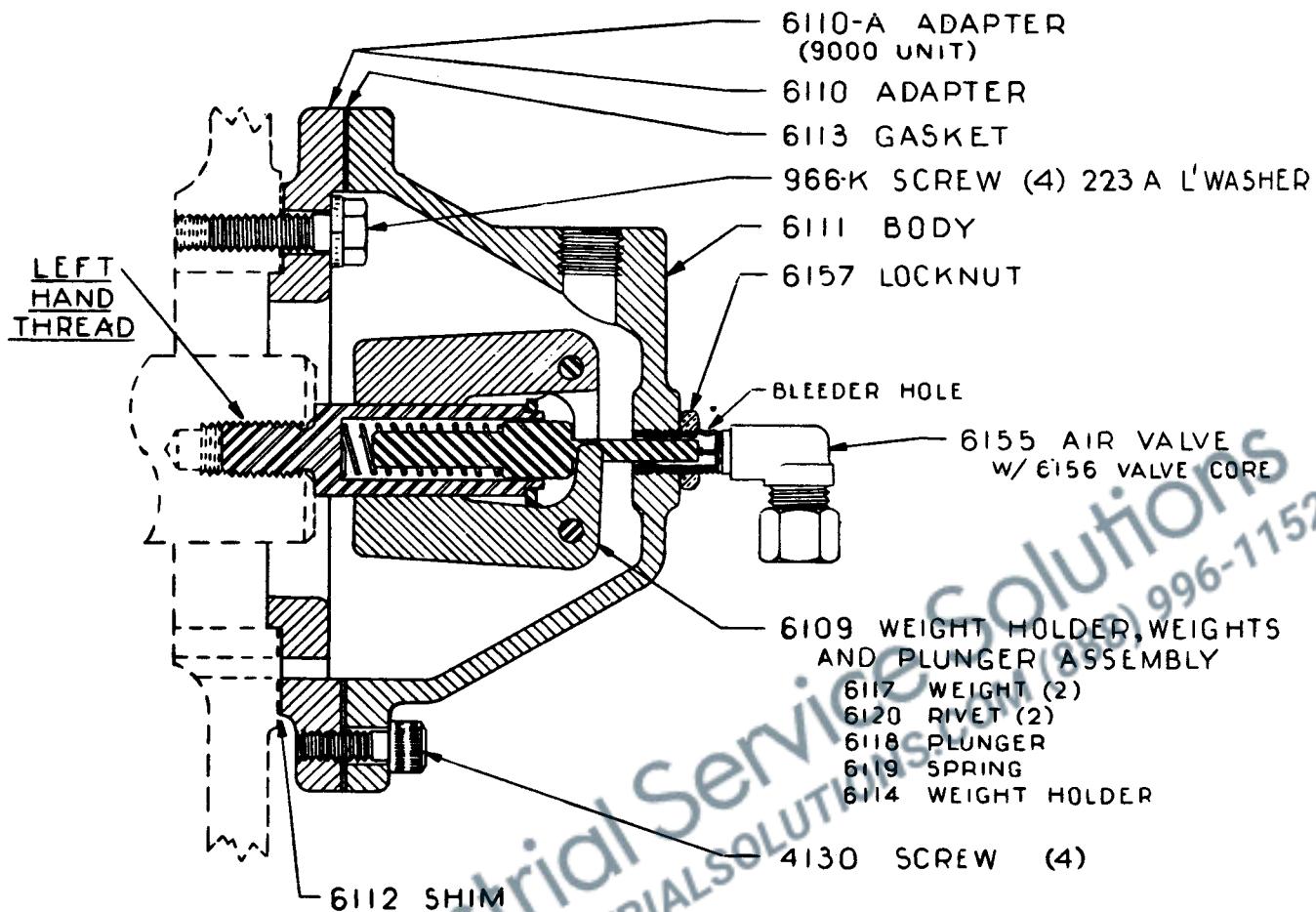


Figure 7

| Part Name                                   | Part No. | No. Req. |
|---|----------|----------|
| Adapter Plate                               | 6110     | 1        |
| Body  | 6111     | 1        |
| Weight Holder, Weights and Plunger Assembly | 6109     | 1        |
| Weights                                     | 6117     | 2        |
| Rivets                                      | 6120     | 2        |
| Plunger                                     | 6118     | 1        |
| Spring                                      | 6119     | 1        |
| Weight Holder                               | 6114     | 1        |
| Air Valve Assembly                          | 6155     | 1        |
| Valve Core                                  | 6156     | 1        |
| Lock Nut                                    | 6157     | 1        |
| Gasket                                      | 6113     | 1        |
| Shim  | 6112     | as req.  |
| Bolt  | 966-K    | 4        |
| Bolt  | 4130     | 4        |
| Lock Washer                                 | 223-A    | 4        |

Note: When ordering parts, give Model No. and Serial No. of Pump

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Figure 8

**CONSTANT SPEED  
DISCHARGE UNLOADER VALVE**

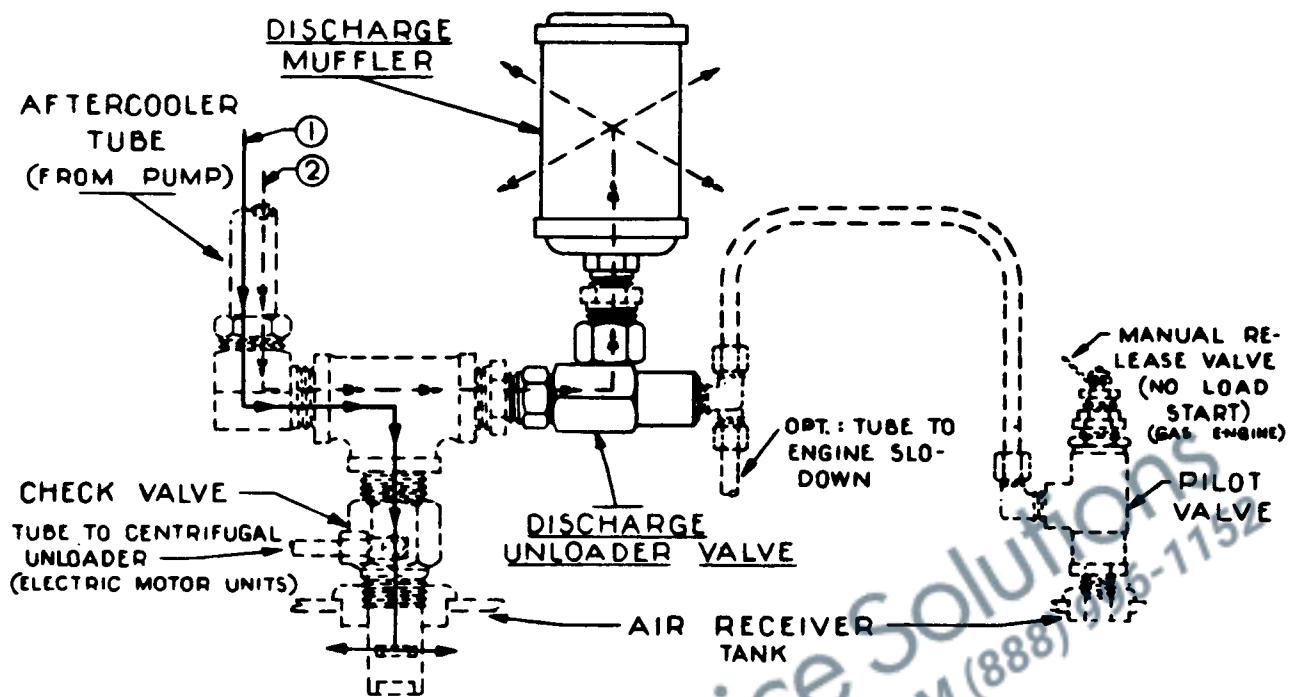


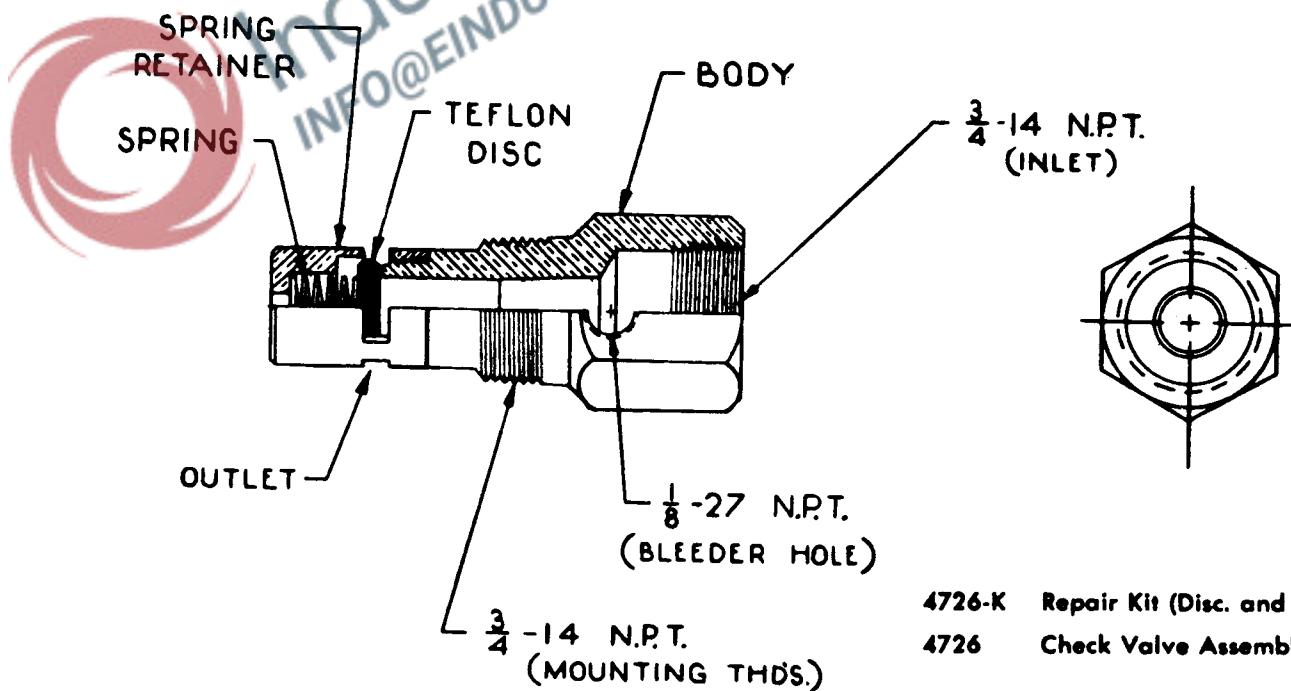
Figure 8

**Part Name****Part No.**

Discharge Unloader Valve (703 &amp; 705) ..... 6154

Discharge Unloader Valve (707) ..... 6184

Discharge Muffler (703, 705 &amp; 707) ..... 6158

**4726 CHECK VALVE**

Note: When ordering parts, give Model No. and Serial No. of Pump

**DISASSEMBLY**

1. Loosen motor – slide toward pump. Remove belts and flywheel. Use wedge in slot of flywheel after loosening bolt. Disconnect aftercooler tube and tube to centrifugal unloader. Remove 4 bolts, securing pump to base.
2. Remove exhaust manifold (707), cylinder heads and intercooler.
3. Mark top of pistons for reassembling in same position.
4. Remove side plates.
5. To remove connecting rod – remove rod bolts, noting position of the identification marks on one side of each so that connecting rods are re-installed in original position. **DO NOT INTERCHANGE ROD CAPS!**
6. Remove connecting rod and piston assembly thru bottom of cylinder. Cylinder must be removed from crankcase.
7. To remove pistons from connecting rod – remove two retaining rings, one on each end of wrist pin – L.P. piston only. "Tap" wrist pin out of piston.
8. To remove crankshaft – remove key from flywheel and burrs or foreign matter to prevent damage to shaft seal. Remove bolts from front cover and remove cover being careful not to let crankshaft drop. \*Remove centrifugal unloader, attached to rear end of crankshaft. Slide crankshaft out thru front cover.
9. To remove valves from cylinder head – remove (3) valve cover plates (H.P. intake and exhaust valves). Remove threaded plugs (slots provided for removal) and spacers atop each valve. Lift valves out thru openings. **DO NOT INTERCHANGE VALVES!**

\*Centrifugal unloader is assembled and disassembled by screwing the entire assembly into the end of the crankshaft. This assembly is provided with a **LEFT HAND THREAD** and must be firmly tightened. **CAUTION:** incorrect rotation of compressor unit will unscrew this assembly! Rotation must be CCW facing flywheel end.

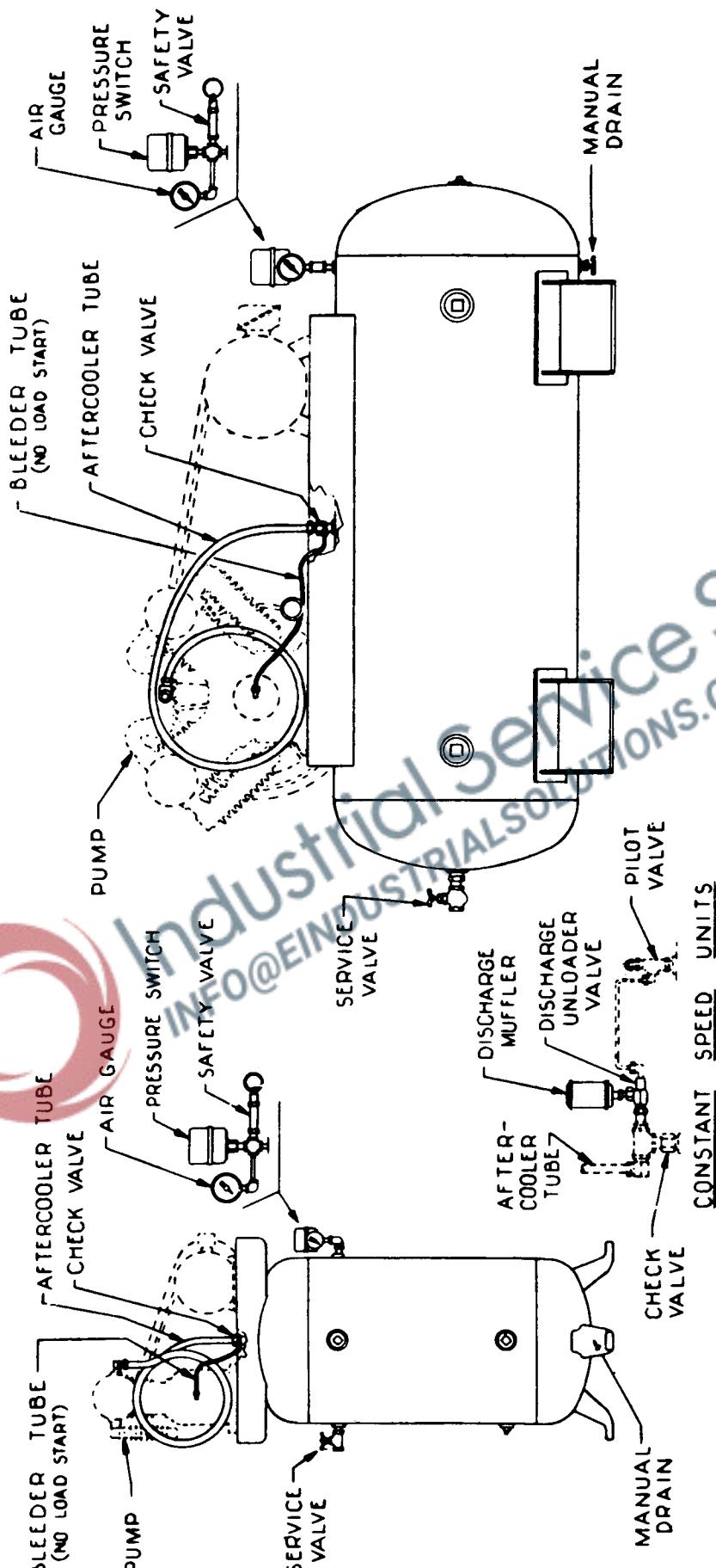
Crankshaft Rod Journal Diameter ..... 1.5630/1.5620  
Wrist Pin Diameter ..... .7501/.7497

**Caution:** Wrist pins are a "tap fit" into pistons! **DO NOT USE FORCE!** Forcing will remove "cam" from L.P. Pistons, resulting in "galling" of piston.

Oversize Bearing Inserts, Piston and Piston Rings NOT AVAILABLE.

**REASSEMBLY**

1. Crankshaft – install crankshaft into crankcase thru front cover hole. Install front cover over crankshaft being careful not to tear shaft seal. Install bolts and tighten. Crankshaft end play is determined by inserting or removing "shims" under rear adapter plate. Shims are provided in three thicknesses and the proper combinations must be selected so the crankshaft may be turned freely in bearings without end play!
  2. Cylinder – scored cylinders should be replaced. Break glaze in cylinders if used cylinders are reinstalled. Piston, rings and connecting rod assembly must be assembled in cylinder bores before assembling cylinders. Align rods with crankshaft throws, remove rod caps (DO NOT INTERCHANGE ROD CAPS!), set cylinder on crankcase and install bolts and copper washers – tighten per torque chart.
  3. Pistons – clean ring grooves and oil return holes. Assemble connecting rod in piston and push wrist pin thru – use "tap fit" on wrist pin – using "force" will remove "cam" from low pressure piston resulting in galling. If wrist pin is slightly tight – heat piston slightly before "tapping" wrist pin in. Install retaining rings on L.P. piston pins. Rings – install oil ring in bottom groove, followed by stepped scraper ring and then two compression rings. Stagger ring gaps a minimum of 90° from each other. See Figure #4.
  4. Connecting Rod – install the bearing inserts into the rod and cap, fitting the locating projections into grooves provided. Assemble rod cap (after oiling both halves of insert bearing) and tighten. Tap rod cap and rod to "seat" bearing inserts. Never file rod cap or use shims to adjust bearing clearance.
- Install connecting rod into piston per step 3 and piston and rod assembly into cylinder per step 2. When inserting piston and rod assembly into cylinder bore, compress rings to prevent breaking and scoring of cylinder wall.
5. Cylinder Head – install valves and components (as shown in Figure 5) being careful not to interchange valves – tighten per torque chart. Install cylinder head assembly on cylinder, install bolts and tighten.
  6. Turn pump over by "hand" before starting. It is recommended that the pump be "run in" a few hours.
- Install intercooler and exhaust manifold (707).

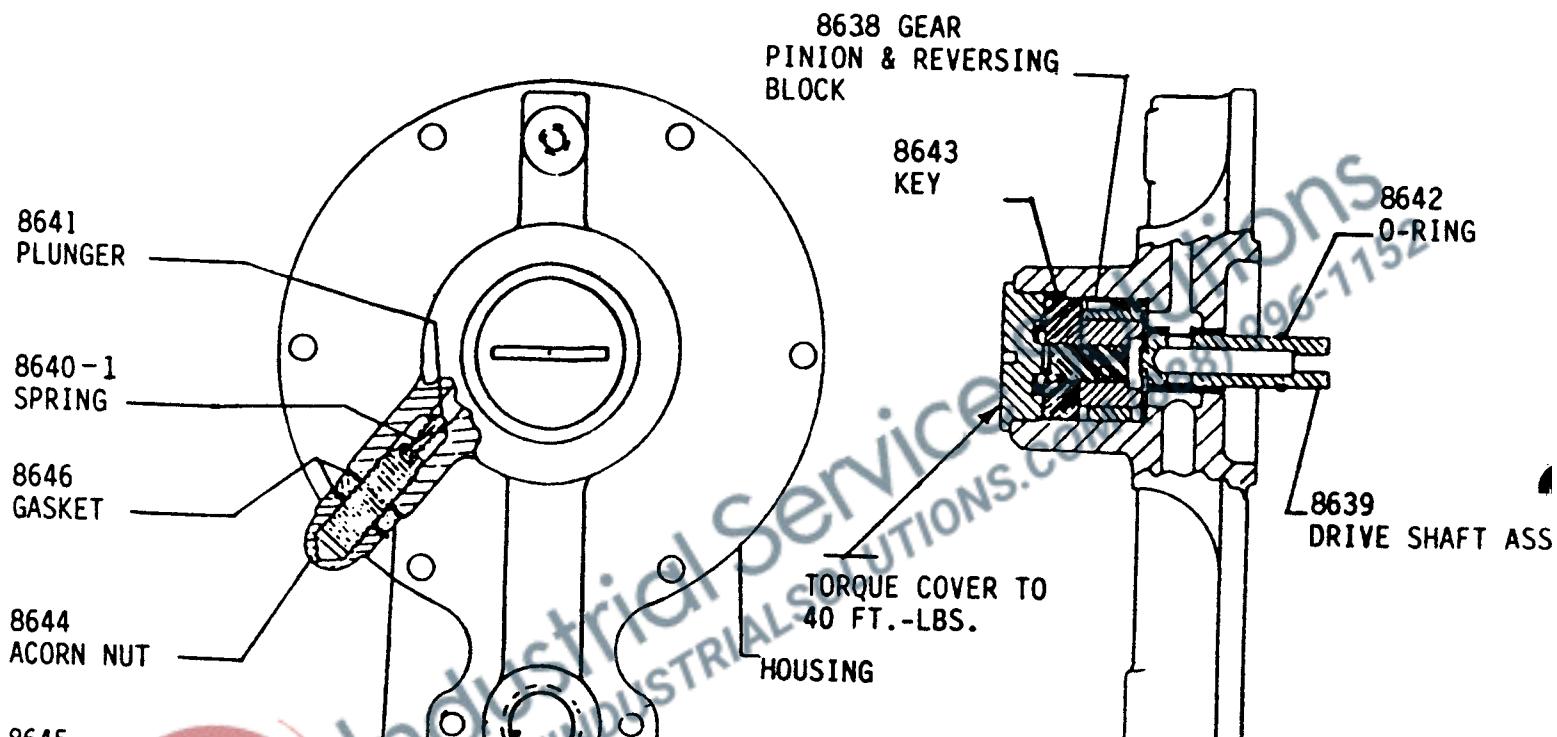


| MOTOR H.P.    | PRESSURE SWITCH | AIR GAUGE | SAFETY VALVE | CHECK VALVE | SERVICE VALVE | AFTERCoolER TUBE | MANUAL DRAIN | DISCHARGE UNL. VALVE | DISCHARGE MUFFLER | PILOT VALVE | PUMP REF. |
|---------------|-----------------|-----------|--------------|-------------|---------------|------------------|--------------|----------------------|-------------------|-------------|-----------|
| 1-1/2 & 2 HP  | 4876            | 4179      | 4144         | 4726        | 4167          | 4180-16          | 5-554        | 6154                 | 6158              | 4842        | 703       |
| 3 & 5 HP      | 4876            | 4179      | 4144         | 4726        | 4262          | 4180-16          | 5-554        | 6154                 | 6158              | 4842        | 705       |
| 7-1/2 & 10 HP | 4876            | 4179      | 4144         | 4726        | 4262          | 4180-6           | 5-554        | 6184                 | 6158              | 4842        | 707       |
| 8 HP GAS      | ...             | 4179      | 4144         | 4726        | 4167          | 4180-4           | 5-554        | 6154                 | 6158              | 6028        | 703       |
| 10 HP GAS     | ...             | 4179      | 4144         | 4726        | 4262          | 4180-4           | 5-554        | 6154                 | 6158              | 6028        | 705       |
| 18 HP GAS     | ...             | 4179      | 4144         | 4726        | 4262          | 4180-10          | 5-554        | 6184                 | 6158              | 6028        | 707       |

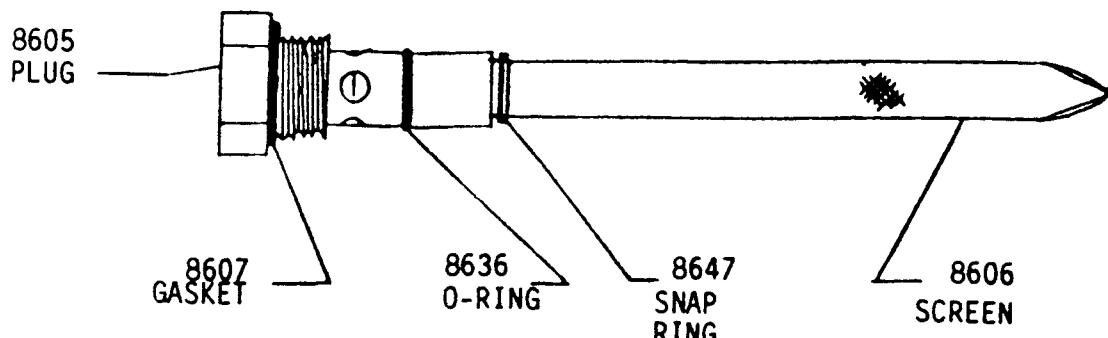
PL-703 PL-705 PL 707

PRESSURE LUBRICATED

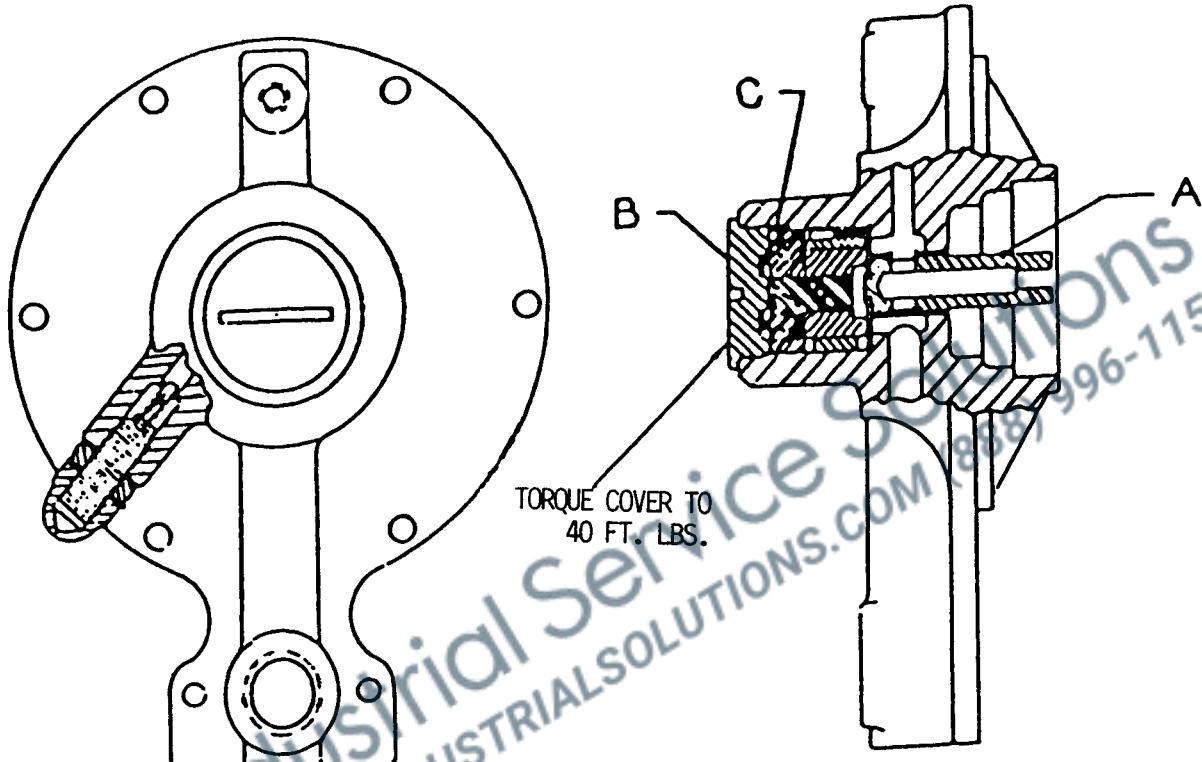
6407 OIL PUMP ASSY.



8604 OIL SUMP ASSY.



## PUMP DISASSEMBLY AND ASSEMBLY



### PUMP D ASSEMBLY

Remove O-Ring (A) from pump shaft

Remove pump cover (B) by turning counterclockwise.

Remove stop pin (C) with magnet.

By pushing on end of pump shaft the entire assembly can be removed.

### REASSEMBLY

Reverse the above procedure making sure the drive pins in the gear are properly aligned with the drive plate, and the stop pin is positioned in the short slot in the pump housing.

Turn pump shaft a few times to ensure proper assembly.

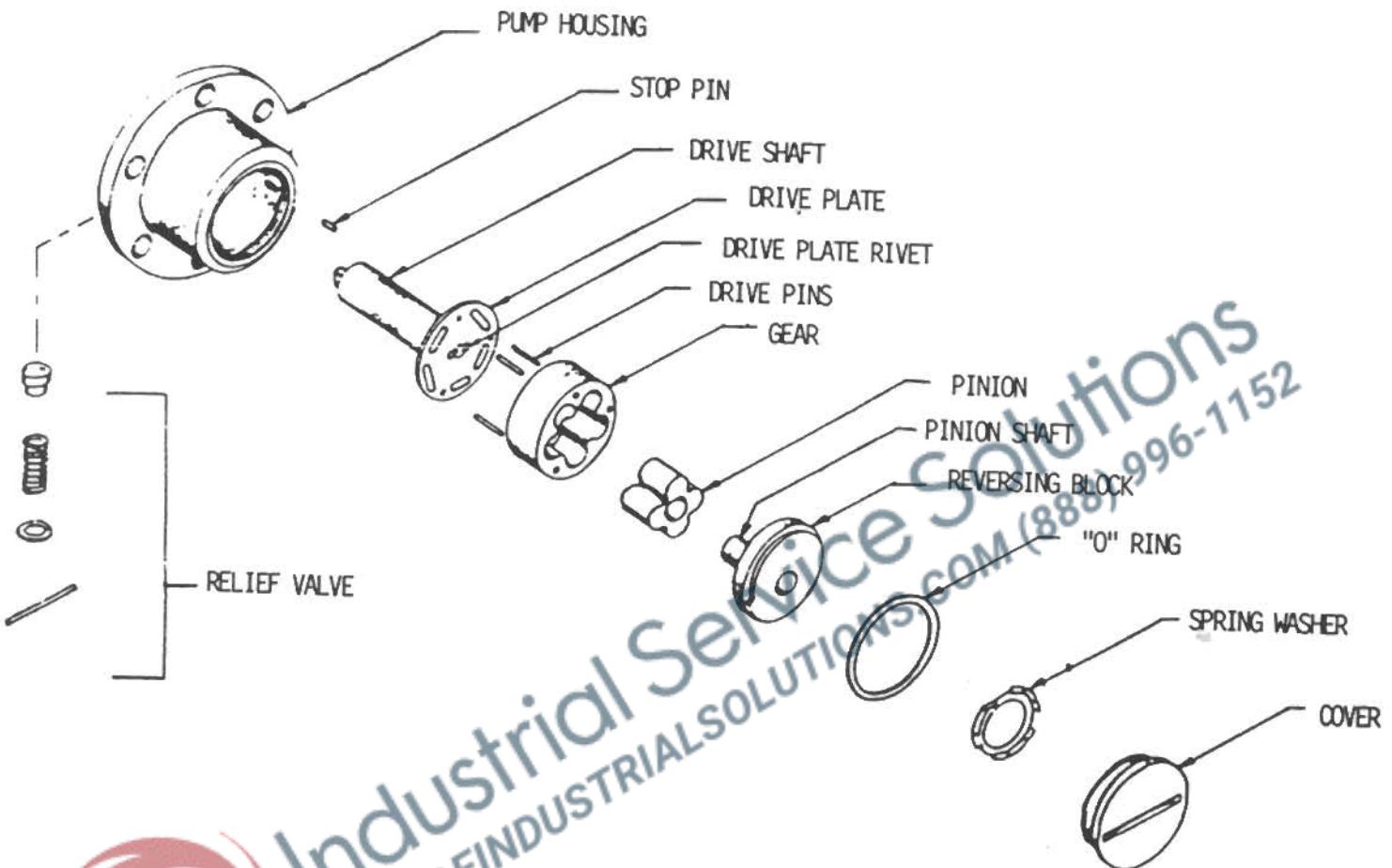
Prime the pump before initial start-up.

OIL PUMP OIL PRESSURE (OIL WARM) = 20 P.S.I.G.

**MODEL PL703, PL705, PL707**  
**PRESSURE LUBRICATED**  
**PARTS LIST**

**(OTHERWISE SAME AS SPLASH LUBRICATED)**

| <b>PART NAME</b>                            | <b>PART NO.</b> | <b>PL703</b> | <b>NO. REQUIRED<br/>PL705</b> | <b>PL707</b> |
|---|-----------------|--------------|-------------------------------|--------------|
| OIL PUMP ASSEMBLY                           | 6407            | 1            | 1                             | 1            |
| Housing                                     | 6402            | 1            | 1                             | 1            |
| Gear, Pinion & Reversing Block              | 8638            | 1            | 1                             | 1            |
| Drive Shaft Assembly                        | 8639            | 1            | 1                             | 1            |
| O-Ring - Drive Shaft                        | 8642            | 1            | 1                             | 1            |
| Key   | 8643            | 1            | 1                             | 1            |
| Spring - Relief Valve                       | 8640-1          | 1            | 1                             | 1            |
| Plunger - Relief Valve                      | 8641            | 1            | 1                             | 1            |
| Gasket - Relief Valve                       | 8646            | 2            | 2                             | 2            |
| Locknut - Relief Valve                      | 8645            | 1            | 1                             | 1            |
| Acorn Nut - Relief Valve                    | 8644            | 1            | 1                             | 1            |
| Bushing                                     | 8650            | 1            | 1                             | 1            |
| OIL SUMP ASSEMBLY                           | 8604            | 1            | 1                             | 1            |
| Plug  | 8605            | 1            | 1                             | 1            |
| Screen                                      | 8606            | 1            | 1                             | 1            |
| Snap Ring                                   | 8647            | 1            | 1                             | 1            |
| O-Ring                                      | 8636            | 1            | 1                             | 1            |
| Gasket                                      | 8607            | 1            | 1                             | 1            |
| GASKET - OIL PUMP TO CRANKCASE              | 6404            | 1            | 1                             | 1            |
| SHIM - FRONT COVER - END PLAY ADJ.          | 6403            | 3            | 3                             | 3            |
| CRANKSHAFT ASSEMBLY                         | 3809-P          | --           | --                            | 1            |
| Bearing Cone - Rear                         | 4098            | --           | --                            | 1            |
| Bearing Cone                                | 4213            | --           | --                            | 1            |
| Drive Pin                                   | 6120            | --           | --                            | 1            |
| Pipe Plug                                   | 6413            | --           | --                            | 2            |
| CRANKSHAFT ASSEMBLY                         | 4050-P          | 1            | 1                             | --           |
| Bearing Cone - Rear                         | 4098            | 1            | 1                             | --           |
| Bearing Cone - Front                        | 4213            | 1            | 1                             | --           |
| Drive Pin                                   | 6120            | 1            | 1                             | --           |
| Pipe Plug                                   | 6413            | 1            | 1                             | --           |
| CRANKCASE                                   | 3810-P          | --           | --                            | 1            |
| CRANKCASE                                   | 4048-P          | 1            | 1                             | --           |
| FRONT COVER                                 | 4054-P          | 1            | 1                             | 1            |
| Bearing Cup                                 | 4097            | 1            | 1                             | 1            |
| CONNECTING ROD                              | 6348-P          | 2            | 2                             | 4            |
| OIL PRESSURE GAUGE                          | 8614            | 1            | 1                             | 1            |
| BOLTS - BOTTOM PLUG HOUSING                 | 4130            | 2            | 2                             | 2            |
| ST. ELL - 1/2" BRASS - CRANKCASE BREATHER   | 3888-K          | 1            | 1                             | 1            |
| NIPPLE - 1/4" x 1-1/4" - CRANKCASE BREATHER | 692-K           | 1            | 1                             | 1            |
| COUPLING - 1/4" - CRANKCASE BREATHER        | 3998-K          | 1            | 1                             | 1            |
| BREATHER ASSEMBLY - CRANKCASE (Front Cover) | 4722            | 1            | 1                             | 1            |



# PLEASE NOTE

## **WARRANTY**

Saylor-Beall Manufacturing Co. warrants its compressors and parts when properly installed, lubricated and maintained as recommended and in accordance with good industry practice to be free from defects in material and workmanship under normal use and service. The responsibility of the Company under this warranty is limited to repair or replacement, at the Company's factory, any compressor or part thereof, which shall, within one year after date of shipment to the original purchaser, be returned to the company and which, upon examination, shall be found to be defective to the satisfaction of the Company.

This warranty shall not apply to compressors or parts which have been subjected to misapplication, misuse, negligence or accident, to compressors or parts which have been repaired or tampered with outside of the Company's factory when in the judgment of the Company, it appears that the reliability or stability of the compressor or part has been effected. Ordinary maintenance, such as adjustment and cleaning of equipment or components is the responsibility of the owner. All transportation and shipping charges shall be paid by purchaser.

This warranty does not apply to electric motors or gasoline engines. These are covered by the Original Manufacturer's Warranty and should be returned by the purchaser to their authorized station for service.

This warranty is expressly in lieu of all other warranties (except of title) expressed or implied and of any other obligations or liability on the part of the Company. There are not warranties of merchantability or of fitness for a particular purpose.

SAYLOR-BEALL MANUFACTURING COMPANY

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