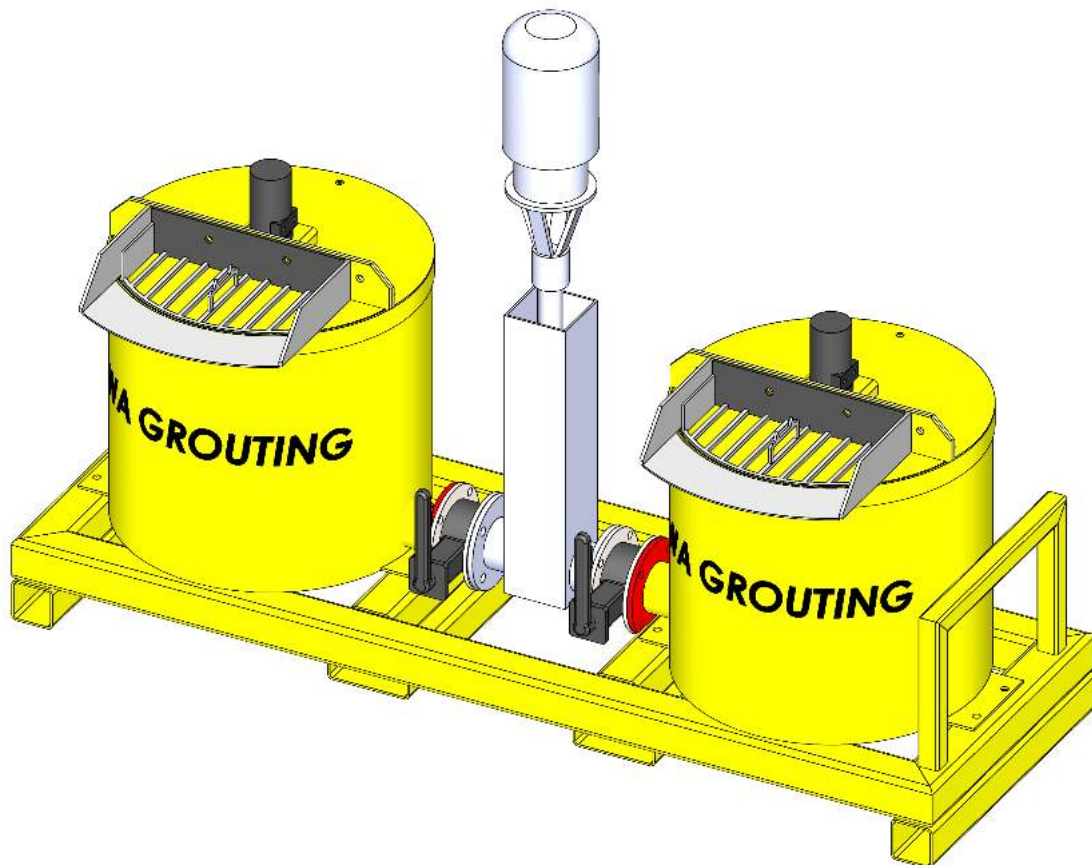


# WAGS GEO-GROUTER SERIES

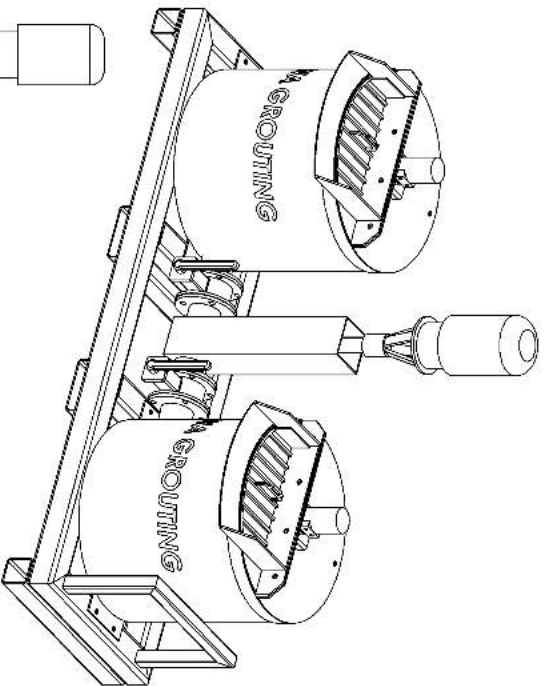
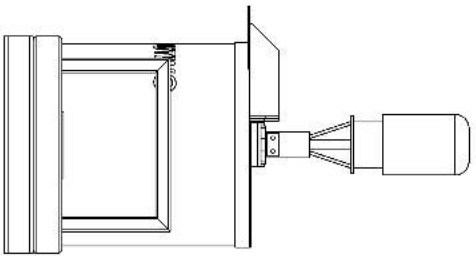
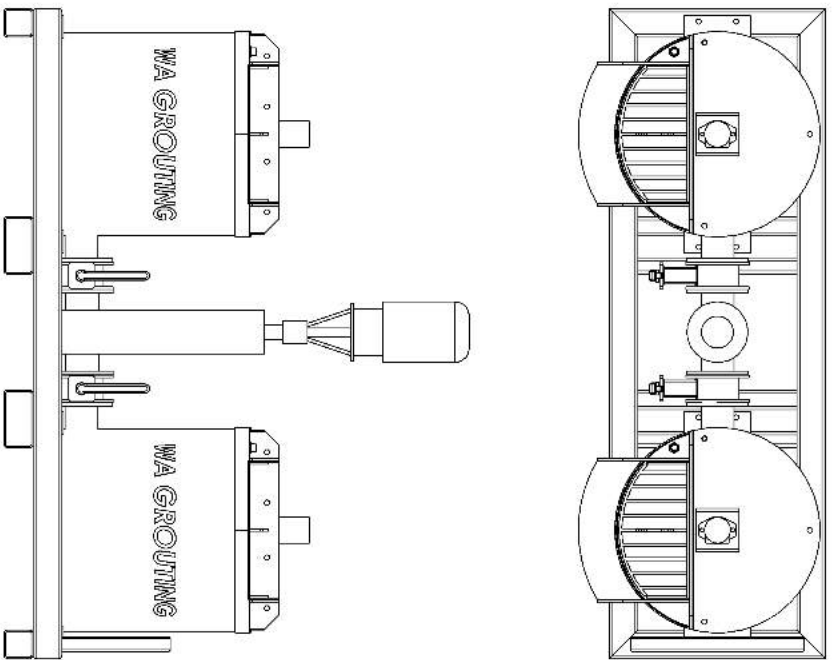


 **WAGS**  
WA Grouting Systems  
PTY LTD

*Pneumatic & Hydraulic Grout Pumps & Mixing  
Systems Sales-Service-Hire*

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DIREKTORAT KHAYATAN KEMENTERIAN PERUMAHAN DAN KAWASAN PERUMAHAN KEMENTERIAN PERUMAHAN DAN KAWASAN PERUMAHAN JALAN KHAYATAN NO. 100, JAKARTA 10110		REV - B WA A GROUTING SYSTEM Sistem Perumahan Perumahan No. 1 di Blok 100/100
NO. SKED NO. DESAIN NO. KONSTRUKSI NO. PERMITS	NO. 100/100 NO. 100/100 NO. 100/100 NO. 100/100	TITLE: CEO-CROUFR DISCIPLINE: GENERAL ARKANSALMUNI
FILE NO: GAMBAR: NO. 100/100	WAAGS Dwg No A7 30060 SCALE: 1:100 SHEET 2 OF 7	A2

The Wags Geogrouter series are heavy duty, high pressure grouting units for applications such as dams, tunnels, post-tensioning, underground mining and many heavy construction jobs. The Wags Geogrouter series easily mixes and pumps slurries of neat cement, fly ash, bentonite, microfine cements and post tensioning grouts.

#### Features

- Produces 0-35 LPM at forceful pressures up to 1200 PSI
- Massive TWIN 250 LTR high speed vortex paddle mixers
- Twin bowl continuous mixing ( no stopping or waiting )
- Dependable 5 inch stroke piston pump
- Internal mixer baffles for a superior mix
- Variable speed mixers
- Pneumatic oiler and pressure regulator
- Water meter for exact dosing and mix ratio



#### UNIT SPECIFICATIONS:

MIXER CAPACITY	TWIN 250 LTR
MIXER DELIVERY	35 LPM / 1200PSI MAX
COMPRESSED AIR CFM REQ	180CFM



# SAFETY

## Introduction

### Prepare the Operator

All persons who operate the equipment must be trained in the safe, efficient operation of all system components as well as the proper handling of all fluids. All operators must thoroughly read all instruction manuals, tags, and labels before operating the equipment.

### Safety precautions when working with Cement Based Materials.

- ◆ Skin protection, cover all exposed skin and use suitable barrier creams, furthermore wear suitable gloves and a face shield.
- ◆ Eye protection, wear safety glasses or goggles.
- ◆ Ear protection when operating in a noisy environment., or as per specific company policy.
- ◆ Adhere to COMPANY SPECIFIC P.P.E

### Safety Devices

- ◆ Alterations to the equipment or removing safety devices are strictly forbidden!

## General Safety Regulations

### Replacement Parts

- ◆ Only genuine wags parts shall be installed.

### Repair and Maintenance

- ◆ Trained and qualified maintenance personnel shall conduct service repairs.

## Operator Obligations

- ◆ The operator shall read and understand these instructions, however failing to abide by these instructions places all responsibility on the operator.
- ◆ The operator is responsible for his actions, furthermore he is responsible for his fellow work colleges and the work place environment.
- ◆ The owner or operator must ensure that only authorised personnel operate this equipment.
- ◆ Occasional users or temporary employees must receive thorough initial instruction, based on this operating manual .

## Caution !

- ◆ The owner or operator must ensure all personnel adhere to the operating instructions.
- ◆ All relevant safety aids must be readily available, and the owner or operator is responsible for all the warning signs and symbols, which must stay readable at all times.

## Authority

- ◆ The responsibility for all operational work sequences, especially the commissioning, cleaning and overhauling operation, must be clearly defined and adhered to, so that safety responsibility aspects are clearly regulated

## Maintenance Obligations and Care

- ◆ The machine must be operated and maintained in a safe and responsible manner.
- ◆ Maintenance intervals shall be adhered to.

## Obligations to Observe and Report

- ◆ If, while operating this equipment dangers and risks arise which are not covered in these operating instructions, the operator shall immediately inform the manufacturer .

## Operating Instructions Availability

- ◆ These operating instructions shall be readily available to anyone requiring them in the work place

## Description of the design

The WAGS GEO-GROUTER SERIES is capable of pumping a variety of products. Continuous grouting is possible through the twin vertical shaft paddle mixers with engineered baffles that discharge via gravity through butterfly valves into the centrally located hopper slot. From this point the mixed material is discharged through a high-pressure piston pump. This arrangement not only allows for free uninterrupted continuous grouting but also enables a high degree of quality control.



# Operation

## Positioning the Unit

- ◆ The machine should be placed on firm level ground, and must be stable before operating begins. In general, the most important factors in setting up are proximity to the work and access to materials and water supply; consideration should be given to the disposal of waste materials and wash-out residue.
- ◆ Keep clear of heavy traffic areas, To eliminate pumping problems place the machine as close as possible to the work area. It is always best to keep grout lines as short as possible to reduce pumping distances. This is particularly important when pumping hard-to-pump materials, such as sanded grouts and pre-blended materials.
- ◆ The work area must be suitably guarded if the above is not possible.

NEVER PUT HANDS OR TOOLS IN MIXERS OR PUMP UNLESS PRIMARY POWER SOURCE IS SHUT OFF AND DISCONNECTED. FAILURE TO OBSERVE THIS WARNING COULD RESULT IN SERIOUS PERSONAL INJURY AND/OR DAMAGE TO THE MACHINE.

## Start up

1. Connect all necessary hoses and secure with safety clips this includes all the grout hoses. Close all component ball valves . Check that the main lubricator is full of oil. With the main ball valve open ensure that the pressure on the regulator gauge reads 7 bar max and check for leaks. On the hydraulic version the pump and return connectors are located on the rear of the control box. Ensure these are connected correctly. On the hydraulic version a filter and pressure regulator should be installed between the unit and the power source to avoid damage.



Oiler lubricator

Pressure regulator

Guage

Ball Valve

# Caution

Check the dripping amount on the lubricator once a day. Drip failure can cause damage to the components that need lubrication. Use Class 1 turbine oil ( ISO VG32)

2. Check mixer, pump hopper and hoses for foreign objects. **Do not operate the mixers without the grilles fitted.**
3. Run clean water through mixer, pump and hoses. Check that all lines and hoses are clear and unobstructed. It also possible to check the pump performance by testing the discharge pressure. Completely drain before grouting begins. Do not run the pump unit dry. ENSURE THAT 40 BAR HOSES ARE USED AND THAT THE OUTPUT PRESSURE OF THE PUMP IS MONITORED WITH A GROUT PRESSURE GAUGE WHERE POSSIBLE.



Some on-site mixes of sand and cement can segregate and clog the hoses upon contact with residual water in the hose. To prevent this, a good procedure is to mix and pump out a cement/water slurry prior to mixing and pumping the production material, to lubricate the pump and hoses.

4. Add most of the required water ( 70%) to the mixer using the water flow meters whilst the mixers are running slowly.
5. SLOWLY adding the cement material. ( WATER / CEMENT RATIOS ARE LABELLED ON THE MACHINE ) Allow sufficient time for the slurry to mix to a creamy consistency, before pumping or adding filler material or admixtures.
6. Allow thorough mixing before opening the corresponding butterfly valve. The product will flow into the central chamber. Once the central chamber is full, open the ball valve slowly on the high-pressure grout pump. Avoid over speeding the grout pump.



Grouting should be continuous as to not allow any of the grout on the lines, pump, hopper or mixer to start to set. 10 minutes is the max time allowed for static product in the machine.

## Cleaning Operation

1 Never remove equipment guards while machine is switched on or operating.

2 NEVER PUT HANDS OR TOOLS IN MIXERS OR PUMP UNLESS PRIMARY POWER SOURCE IS SHUT OFF AND DISCONNECTED. USE PROPER LOCK OUT/TAG OUT PROCEDURES. FAILURE TO OBSERVE THIS WARNING COULD RESULT IN SERIOUS PERSONAL INJURY AND/OR DAMAGE TO THE MACHINE.

3 **\*\*\* WARNING \*\*\***

NEVER ATTEMPT TO DISCONNECT OR OPEN THE COUPLING ON ANY PART OF THE PUMP DISCHARGE SYSTEM WHILE PUMP IS IN OPERATION, OR IF THE DISCHARGE SYSTEM IS UNDER PRESSURE FOR ANY REASON.

4 Run fresh water through the mixing bowls/butterfly valves until thoroughly clean, then pump fresh water through the high-pressure pump and grout lines. Remove the grout hose on the pump outlet and insert a sponge-cleaning ball. Reconnect the grout hose and start the pump. The sponge ball will be pushed through the grout hose and will clean the internal diameter of the hose. Repeat this procedure twice. Remove the central drain cap and flush the mixing tanks.

# General Maintenance

After each shift the leg section ( part 38 ) of the high pressure pump should be removed and the inner leg seal needs to be removed cleaned and lubricated.

Note : The paddle mixer motor gearbox units come pre greased.

## Pump Speed

◆ When using long lines or pumping low w/c (water/cement) ratio grout (0.3-0.35) reduce the pump speed. The wags pump is capable of pumping high pressures and long distances however the length and size of the lines and the pumpability of the grout must be considered when selecting the pump speed. The optimum water cement ratio is 0.4-0.45

## Pumping Distances

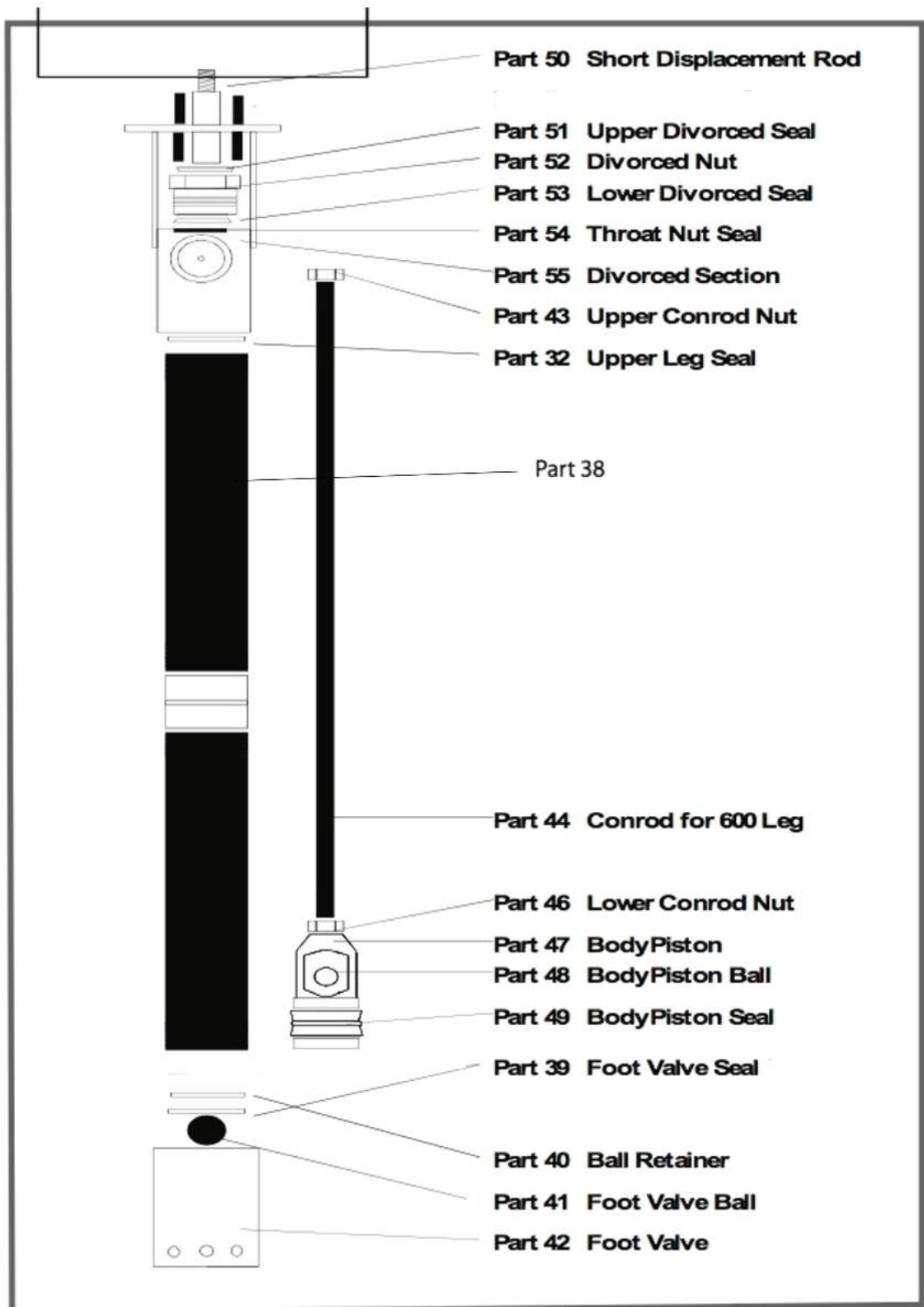
◆ The pumping performance will vary depending on the line size, distance and grout stiffness.

◆ Horizontal or vertical pumping performance may also vary

## **CAUTION**

Never allow the pump to run dry of the fluid being pumped. A dry pump will quickly accelerate to a high speed, possibly damaging itself. If your pump accelerates quickly, or is running too fast, stop it immediately and check the fluid supply. If the supply container is empty and air has been pumped into the lines, refill the container and prime the pump and the lines with fluid. Be sure to eliminate all air from the fluid system. For overnight shutdown, relieve the pressure, and always stop the pump at the bottom of the stroke to prevent the fluid from drying on the exposed displacement rod and damaging the throat packing's. Always flush the pump before the fluid dries on the displacement rod

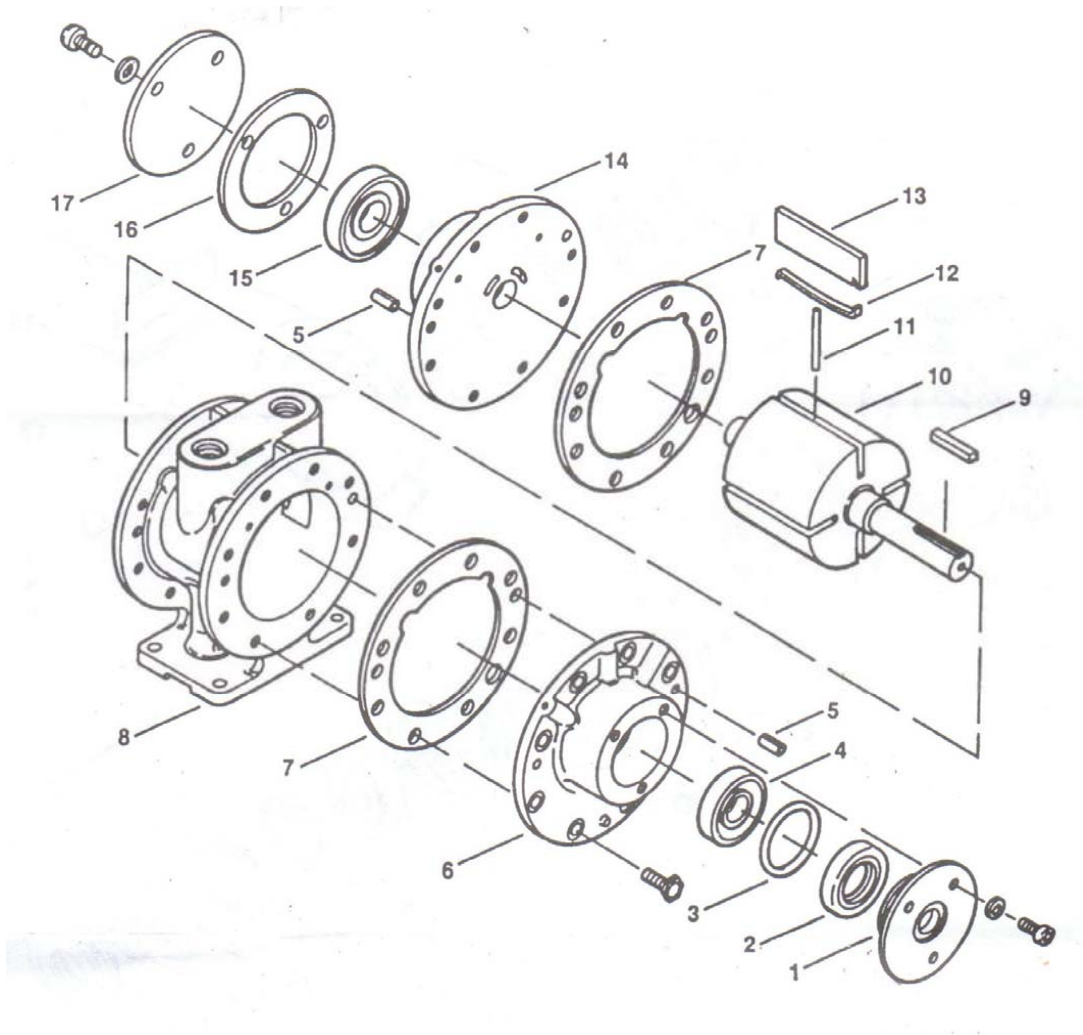
# Pump Wet Section



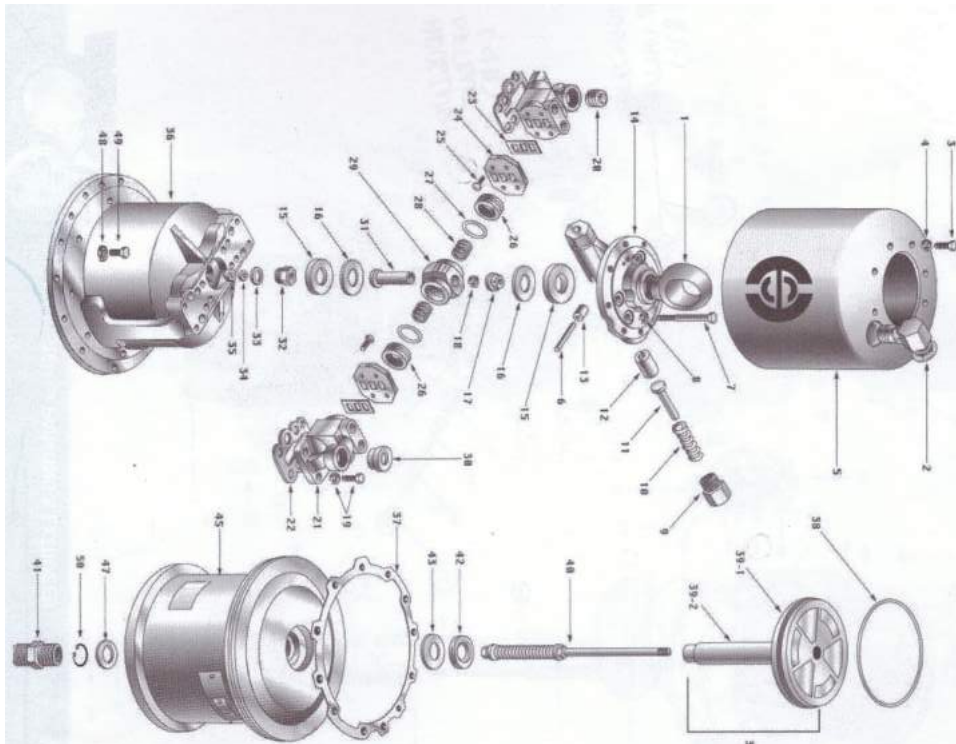
# Air Motor Breakdown

**WAGS** 8 Am Air Motor Parts Air Motor

Re- Build Kit is K282A and contains vanes, bearings, gaskets, pins and springs



# Pump Air Motor



No	Code	Description	Qty	No	Code	Description	Qty
0	17120	GROUND CLIP	1	24	45124	PLATE	2
0	17126	GROUND CLIP SCREW	1	25	G73001	SCREW	8
1	45101	RING	1	26	45126	VALVE AIR DIRECTOR	2
2	45102	UNION	1	27	45127	O-RING Nitrile Rubber	2
3	45103	SCREW(1/4-20X1/2")	8	28	45128	SPRING compression	2
4	45104	WASHER(SPRING:1/4")	8	29	45129	HOUSING AIR VALVE	1
5	55P105	SHIELD	1	30	45130	GROMMET Air Inlet Rubber	1
6	45106	AXLE	2	31	45131	HUB Valve Housing	1
7	45107	SCREW(7/16-14X3-1/2")	4	32	45132	BEARING Tip Rod	1
8	45108	LOCK WASHER	4	33	45133	GASKET FLAT COPPER	1
9	45109	RETAINER	2	34	45134	WASHER(LEATHER)	1
10	45110	SPRING	2	35	45135	PACKING V-Block:Polyurethane	1
11	45111	GUIDE SPRING DETENT	2	36	55P136	CYLINDER Air Motor	1
12	45112	PLUNGER	2	37	55P137	GASKET:Cylinder	1
13	45113	ROLLER	2	38	55P138	PISTON O-RING	1
14	45114	HOUSING DETENT	1	39	55P139	PISTON ASSEMBLY	1
15	45115	PAD DAMPENING:RUBBER	2	39	45139-2	PISTON ROD	1
16	45116	WASHER(FLAT:SPRING)	2	39	55P139-1	PISTON PAN	1
17	45117	NUT:SPRING DETENT	1	40	45140	TRIP ROD ASSEMBLY	1
18	45118	WASHER(SPRING:M10)	1	41	45141	STUD Piston Tube	1
19	45119	SCREW WASHER	4	42	45142	U-PACKING Nitrile Rubber	1
19	45119-1	SCREW	4	43	45143	WASHER Back-up	1
19	45803-2	WASHER	4	45	55P145	BASE Air Motor	1
20	45120	PLUG PIPE SOCKET 9/ANPT	1	47	45147	SEAL Plan Enclosed	1
21	45121	MANIFOLD	2	48	45148	WASHER	8
22	45122	GASKET MANIFOLDER	2	49	55P149	SCREW hex hd cap:1/2-18*1.25"	8
23	45123	SEAL VALVE PLATE	2	50	45150	SNAP RING	1