

# Air Operated Grease Ratio Pumps 50:1 BGRP

## Congratulations on purchase of this World Class Air Operated Grease Ratio Pump!

- World-class Industrial High Pressure Grease pump with guaranteed performance & hassle free operation
- Pump dispenses Grease at pressures upto 50 times the Air inlet pressure.
- Designed to work in tough conditions- Ideal for use in Industry, workshop, farm, construction or as part of the Mobile Grease system
- All metal construction, fully CNC machined with hardened wear resistant moving parts
- Reciprocating piston operated 2.5" (63 mm) dia. Air Motor
- Fitted with strainer at suction tube inlet for clean grease to the bearing
- Supplied complete with built-in Steel Drum, wheels & pull handle, Drum Cover, rubber lined Follower Plate, 7' (84") of high pressure Grease Hose, Z swivel & professional Grease Control Valve



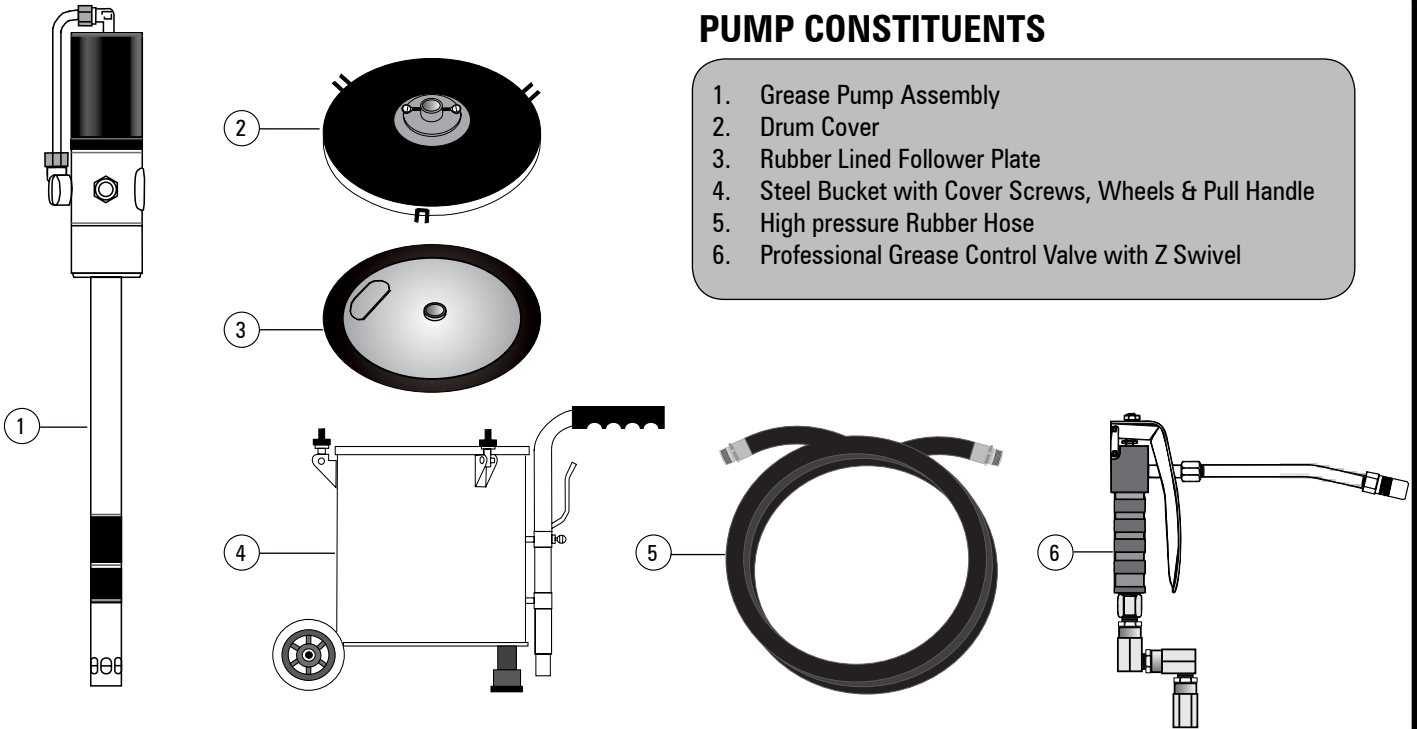
**Drum Capacity - 30 Kg**



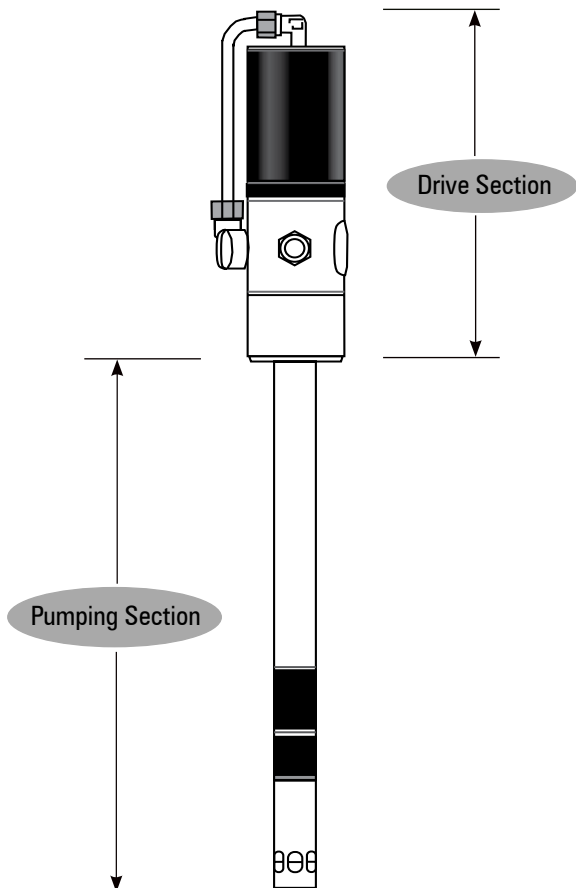
**Drum Capacity - 50 Kg**

## PUMP CONSTITUENTS

1. Grease Pump Assembly
2. Drum Cover
3. Rubber Lined Follower Plate
4. Steel Bucket with Cover Screws, Wheels & Pull Handle
5. High pressure Rubber Hose
6. Professional Grease Control Valve with Z Swivel



## PUMP CONSTRUCTION



The pump is made up of two sections as given below :-

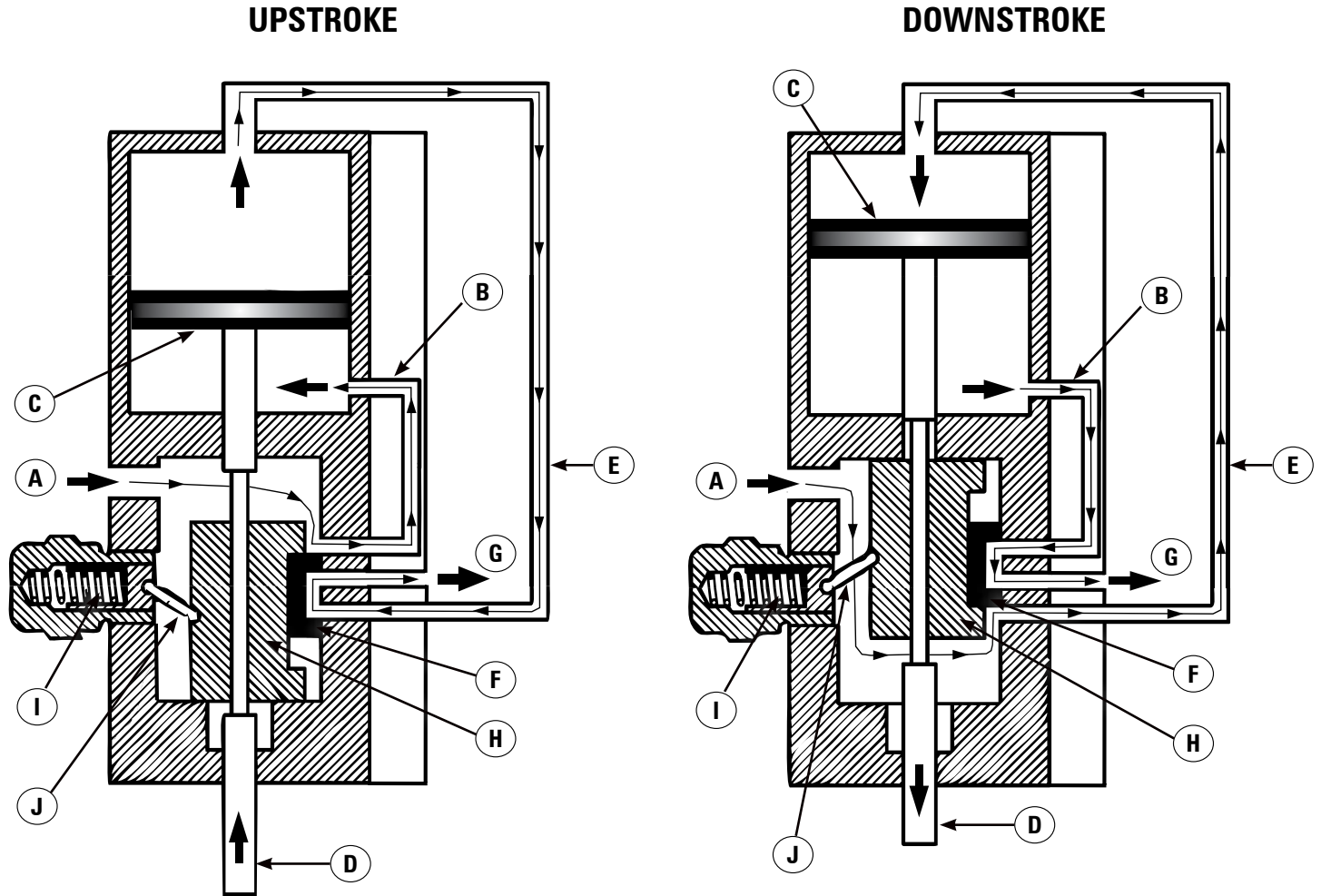
- **Drive section** :- It consists of an Air Motor Assembly driven by compressed air. The piston diameter of the air motor is 2.5" / 63 mm. The motor consists of an air cylinder with piston and one reciprocal valve with a nylon slider. The valve directs the compressed air alternately to the top or bottom of the piston, thus producing a reciprocating motion of the piston rod.
- **Pumping Section** :- It consists of a pump in which a piston lifts the grease through Non Return Valves by reciprocating inside the pump cylinder. The grease is discharged with pressure (from the outlet located at bottom of Air Motor) into the delivery hose.

### NOTE

**AIR MOTOR** of these pumps starts automatically when the Grease Control Valve is opened. When the valve is closed, Air Motor builds up a back-pressure and stops operating the pumping section.

**PRESSURE RATIO** of the pump states the ratio of the output grease pressure to the incoming air pressure. When the pressure ratio is 50:1, we achieve an output grease pressure up to 7500 PSI (500 BAR) when the incoming air pressure is 150 PSI (10 BAR ).

# WORKING OF PUMP



## UPSTROKE -

When Grease Control Valve is opened, compressed air enters at arrow A and passes through passage B to the underside of the Piston C, driving the Piston C and Piston Rod D upwards. The air above the Piston is evacuated through passage E, past the Slider Valve F and out at arrow G.

The Piston approaches top dead centre and Piston Rod D makes contact with the Slider Rod H. Now the Slider Rod H starts moving up with the Piston Rod D.

## DOWNSTROKE -

The incoming air is now led via passage E to the upper side of the Piston C, driving it and the Piston Rod D downwards. The air under the Piston C is evacuated through passage B, past the Slider Valve F and out at arrow G.

The Piston approaches bottom dead centre and Piston rod D makes contact with the Slider Rod H. When Slider Rod H passes its centre position, the Pusher Spring I and Pusher Button J snap it over to its lower position.

The air motor repeats Upstroke & Downstroke in continuous cycle to produce a reciprocating motion, driven by compressed air. This motion is transferred via a connecting rod to the piston in the Pumping Section. During every upstroke, non return valves (with spring & ball check) get opened & the piston lifts the grease. During every downstroke, non return valves get closed & the piston discharges grease from the outlet valve.

Closing the Grease Control Valve shuts off the air motor & pump stops dispensing grease.

# INSTALLATION

## NOTE

An FRL (Filter-Regulator-Lubricator) unit must be used in the Air supply, before it is connected to the pump. Set the regulator to 6 BAR (90 PSI) or any required inlet pressure, but never more than 150 PSI (10 BAR) or less than 30 PSI (2 BAR).

1. Fill the drum with Grease leaving empty space of about 2" from the top rim. Shake the drum after it is filled to remove air pockets. Place the follower plate in the grease drum with the lift handle facing upwards. Push the follower plate down, until some grease is forced through the centre hole on the plate.



Lift Handle

2. Place the drum cover on the drum. Lift the pump assembly & slide the suction tube through the drum cover & centre hole in the follower plate.



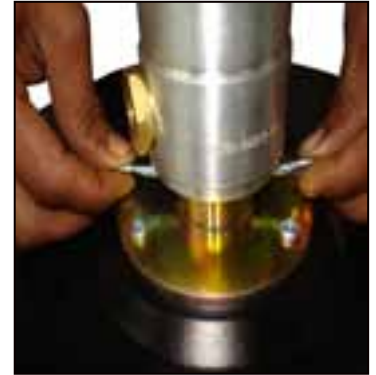
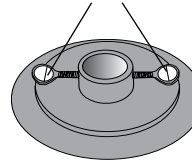
3. Push the pump assembly down till the bottom of the pump touches the base of the drum. Adjust the drum cover and tighten it with the thumb screws provided along with the drum cover.



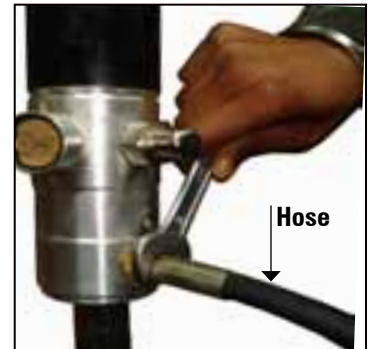
Thumb Screw

4. Tighten the drum cover with the pump suction tube with the help of thumb screws.

Thumb Screws

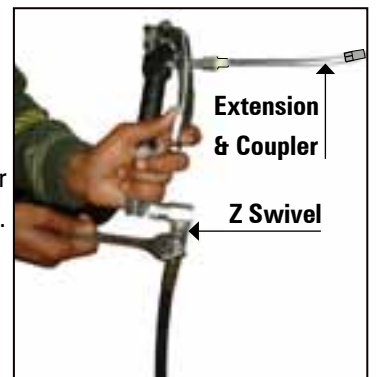


5. Use a wrench to tighten high pressure hose to the pump outlet.



Hose

6. Use a wrench to tighten the other end of the hose to Z Swivel of grease control valve. Tighten the outlet extension & coupler to the control valve outlet. Use thread sealant on all connections to ensure leak-proof working.



Extension & Coupler

Z Swivel

7. With the air supply turned off, connect the Air line into the air inlet on the pump.



Air Line

## PUMP OPERATION

1. Partially open the on/off air valve ( It helps in creating initial vacuum when filling a totally dry pump ). Pump will start operating automatically until it gets primed. Pump is said to be **Primed** when grease is available at the pump outlet, making the pump ready to use. Once primed, the air motor will stop. Open the on/off air valve fully.
2. Hold the grease control valve near a container & press the trigger. Pump will start operating with continuous grease discharge as long as the trigger is pressed. Release the trigger & this will stop the pump. Check for any leaks from any of the connections & Tighten again if required.
3. Connect coupler fitted onto the control valve extension with the grease nipple & press trigger. Be careful not to over-lubricate as the pump will keep dispensing grease as long as the trigger is pressed. Once the trigger is released, pump will stop dispensing grease & the air motor will stop.
4. When not in use & at the end of each day, air supply to the pump must be switched off.



## MAINTENANCE & REPAIR (Refer to Parts Drawing)

### Service Precautions

- Before performing any service operation, always shut off the air supply and release the pressure of the medium, i.e. let the grease out so that the pressure decreases. When storing the pump assembly without the bucket, cover the Filter Tube (57) with Filter Cap (62).
- Be careful not to damage any parts when dismantling. While removing shafts which do not have key flats, wrap a thick piece of cloth around the shaft before removing it with a Pipe wrench, Polygrip wrench or the like. The easiest way to remove such a shaft is to grip it in a vice with aluminium or copper jaws, clamp the shaft in a hand-drill chuck and then turn the chuck by hand.
- Be careful when fitting O-rings and seals. Always lubricate them with oil or grease before fitting. They must never be threaded over sharp edges when being fitted. Lubricate all moving parts with oil or grease.
- When troubleshooting, be on a lookout for dirt in valves / ball seats, scratches in sealing surfaces & damaged O-rings / seals / gaskets.

### Pumping Section Disassembly & Reassembly

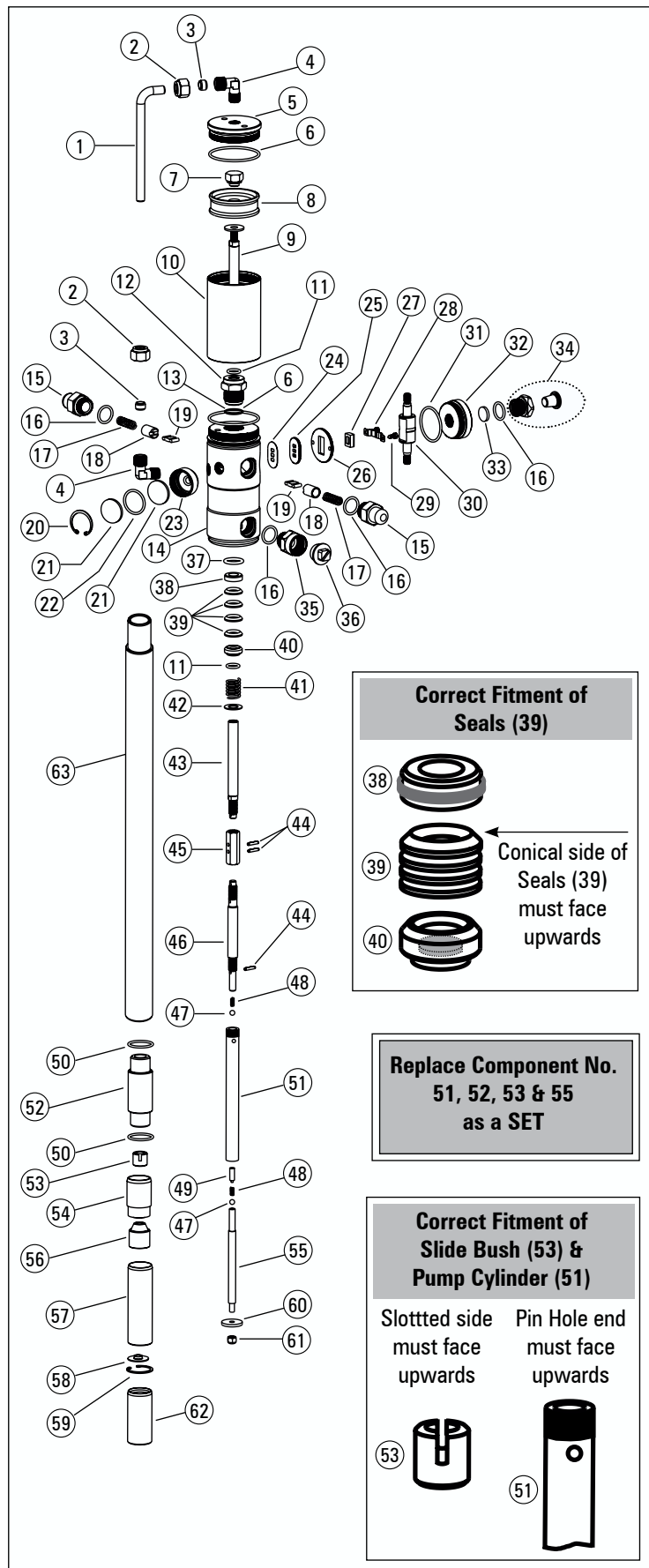
1. Hold the complete pump assembly in a vice & unscrew the Filter Tube (57). Prevent the Piston Rod (55) from rotating by inserting a rod through the side hole in Piston Rod. Remove the Nyloc Nut (61) & Piston Washer (60).
2. Unscrew the Bottom Coupler (54) & remove Slide Bush (53). Unscrew the Top Coupler (52) & remove lower Steel Ball (47), Non Return Spring (48), Valve (49) & both O Rings (50).
3. Unscrew the Barrel (63). Drive out the lower Slotted Spring Pin (44) taking care not to bend the Extension Rod (46).
4. Unscrew the Pump Cylinder (51) from Extension Rod (46). Remove upper Steel Ball (47) & Non Return Spring (48).
5. Drive out the upper two Slotted Spring Pins (44), unscrew the Extension Rod (46) and then Connector (45).
6. Assemble by following the steps 1-5 in reverse order taking care of the points below:
  - **Pump Cylinder (51) has a pin-hole end that must face upwards; towards Extension Rod (46).**
  - **Slide Bush (53) has a slotted end that must always face upwards; towards Top Coupler (52).**
  - **When fitting Plunger Rod (9), Connecting Rod (43) & Plunger Nut (7), apply locking fluid on the threads.**
  - **Replace Component No. 51, 52, 53 & 55 as a SET.**

### Drive Section Disassembly & Reassembly

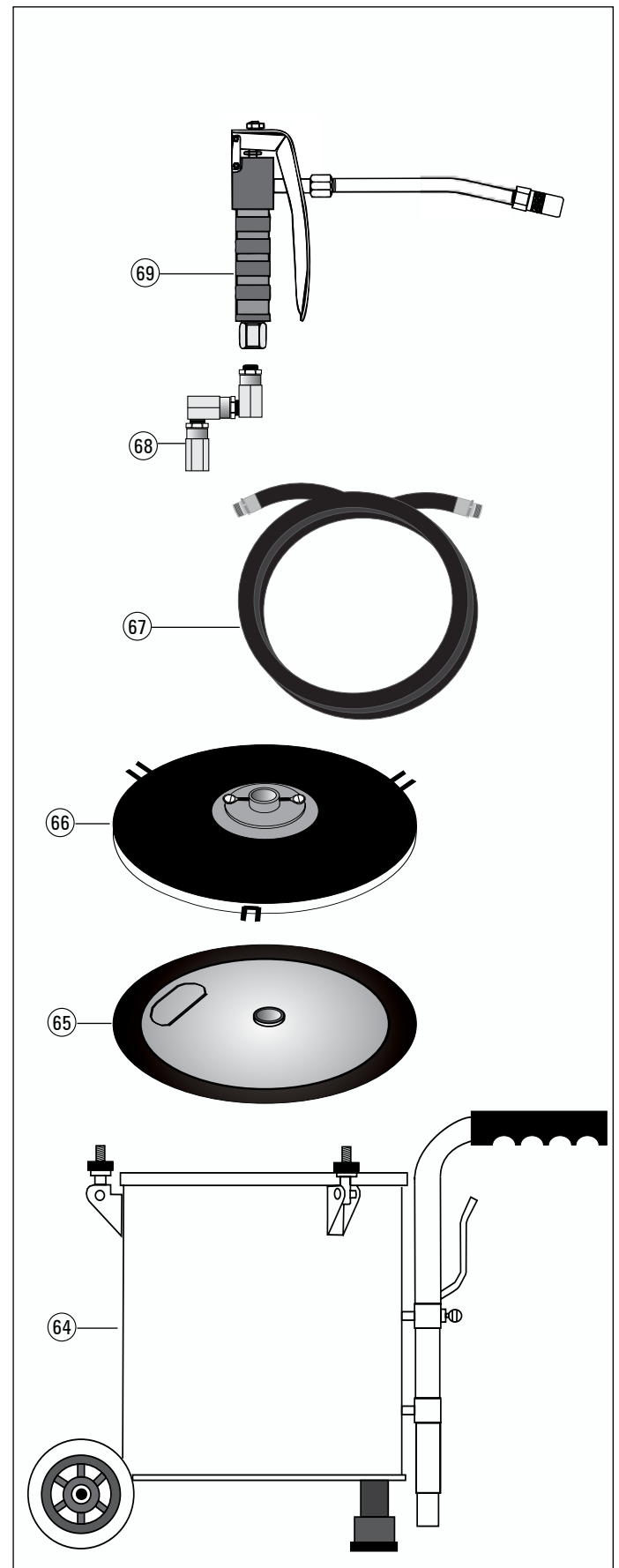
1. Remove Bend Pipe (1) by opening both the Coupling Nuts (2). Remove both Sealing Rings (3) & unscrew both Bends (4). Unscrew the Cylinder Cover (5) and Cylinder (10).
2. Unscrew Inlet Cover (32) & dismantle the two Pushers (15) with their Pusher Springs (17), Pusher Nuts (18) & Pusher Buttons (19).
3. Remove Circlip (20), both Filters (21), O Ring (22) & Exhaust Valve (23).
4. Unscrew the Plunger Nut (7) and remove Rubber Plunger (8).
5. Unscrew Plunger Rod (9) from Connecting Rod (43) and remove Slider (30). Remove Slider Guide (38), its outer O Ring (37), Seals (39), Seal Support (40) & its inside O Ring (11).
6. Open the two Screws (29) & remove Clip (28), Nylon Slider (27), Slider Guide (26), Seat (25) & Paper Seal (24).
7. For reassembly of Air Motor, follow the above-mentioned steps 1-6 in reverse order taking care of the points below:
  - **When fitting Pushers (15), open Inlet Cover (32) & ensure correct installation of Pusher Buttons (19).**
  - **Conical side of Seals (39) must face upwards. Assemble Slider guide (38), its outer O Ring (37), Seals (39), Seal Support (40) & its inside O Ring (11). Hold them as a set & mount on Connecting Rod (43).**

# PARTS DRAWING FOR BGRP

## PUMP ASSEMBLY



## GREASE BUCKET, DRUM COVER, FOLLOWER PLATE, HOSE, Z SWIVEL & GREASE CONTROL VALVE



## PARTS LIST FOR PUMP ASSEMBLY

| REFERENCE NO. | DESCRIPTION        | QUANTITY |
|---------------|--------------------|----------|
| 1             | Bend Pipe          | 1        |
| 2             | Coupling Nut       | 1        |
| 3             | Sealing Ring       | 2        |
| 4             | Bend               | 2        |
| 5             | Cylinder Cover     | 1        |
| 6             | O Ring BS141       | 2        |
| 7             | Plunger Nut        | 1        |
| 8             | Rubber Plunger     | 1        |
| 9             | Plunger Rod        | 1        |
| 10            | Cylinder           | 1        |
| 11            | O Ring BS614       | 2        |
| 12            | Rod Guide          | 1        |
| 13            | O Ring             | 1        |
| 14            | Housing            | 1        |
| 15            | Pusher             | 1        |
| 16            | O Ring BS617       | 4        |
| 17            | Pusher Spring      | 2        |
| 18            | Pusher Nut         | 2        |
| 19            | Pusher Button      | 2        |
| 20            | Circlip            | 1        |
| 21            | Filter (B)         | 2        |
| 22            | O Ring BS121       | 1        |
| 23            | Exhaust Valve      | 1        |
| 24            | Paper Seal         | 1        |
| 25            | Seat               | 1        |
| 26            | Slider Guide       | 1        |
| 27            | Nylon slider       | 1        |
| 28            | Clip               | 1        |
| 29            | Self Tapping Screw | 2        |
| 30            | Slider             | 1        |
| 31            | O Ring BS129       | 1        |
| 32            | Inlet Cover        | 1        |
| 33            | Filter (B)         | 1        |
| 34            | Air Inlet Adapter  | 1        |
| 35            | Outlet Adapter     | 1        |
| 36            | Adapter Cap        | 1        |
| 37            | O Ring             | 1        |
| 38            | Slider Guide       | 1        |
| 39            | Seal               | 4        |
| 40            | Seal Support       | 1        |
| 41            | Spring             | 1        |
| 42            | Washer             | 1        |
| 43            | Connecting Rod     | 1        |
| 44            | Slotted Spring Pin | 3        |

| REFERENCE NO. | DESCRIPTION        | QUANTITY |
|---------------|--------------------|----------|
| 45            | Connector          | 1        |
| 46            | Extension Rod      | 1        |
| 47            | Steel Ball (7/32") | 2        |
| 48            | Non Return Spring  | 2        |
| 49            | Valve              | 1        |
| 50            | O ring (BS812)     | 2        |
| 51            | Pump Cylinder      | 1        |
| 52            | Top Coupler        | 1        |
| 53            | Slide Bush         | 1        |
| 54            | Bottom Coupler     | 1        |
| 55            | Piston Rod         | 1        |
| 56            | Guide Bush         | 1        |
| 57            | Filter Tube        | 1        |
| 58            | Filter Washer      | 1        |
| 59            | Filter Circlip     | 1        |
| 60            | Piston Washer      | 1        |
| 61            | Nyloc Nut          | 1        |
| 62            | Filter Cap         | 1        |
| 63            | Barrel             | 1        |

**PARTS LIST FOR GREASE BUCKET, DRUM COVER, FOLLOWER PLATE,  
HOSE, Z SWIVEL & GREASE CONTROL VALVE**

| REFERENCE NO. | DESCRIPTION          | QUANTITY |
|---------------|----------------------|----------|
| 64            | Grease Bucket 30 kg  | 1        |
|               | Grease Bucket 50 kg  | 1        |
| 65            | Follower Plate       | 1        |
| 66            | Drum Cover           | 1        |
| 67            | Hose                 | 1        |
| 68            | Z Swivel             | 1        |
| 69            | Grease Control Valve | 1        |



## TROUBLESHOOTING

(Refer to Parts Drawing)

| PROBLEM   | POSSIBLE CAUSE  | SOLUTION   |
|---|---|--|
| Pump operates, but does not dispense any grease   | Grease is too thick / too cold  | Store grease in a warm place   |
|   | Air pockets in grease   | Shake the Grease Bucket (64) & manually force down the Follower Plate (65) to remove air pockets   |
|   | Dent in the Grease Bucket (64) restricting movement of Follower Plate (65) leading to formation of air pockets in the bucket and inefficient working  | Get the dent removed to ensure proper movement of Follower Plate (65)  |
| Pump not working / less discharge   | Inlet pressure is too less  | Increase inlet pressure. It must be at least 30 PSI (2 BAR)  |
|   | Nylon Slider (27) is jammed / overtight   | <ol style="list-style-type: none"> <li>Loosen both Screws (29) &amp; remove Clip (28) . Check for any build-up edge on Clip (28) &amp; tighten it again. Make sure the movement of Nylon Slider (27) is neither very loose nor very tight</li> <li>If needed, replace Nylon Slider (27). Also replace the Paper Seal (24), Seat (25), Slider Guide (26) &amp; Clip (28) to ensure the best fitting</li> </ol>  |
|   | Piston / Piston Rod / Plunger jammed.<br><br><b>NOTE</b><br>Especially check Extension Rod (46), Cylinder (51), Top Coupler (52), Slide Bush (53) & Piston Rod (55) as shown in PARTS DRAWING | <ol style="list-style-type: none"> <li>Remove suction tube. Disconnect Air Motor Assembly from Pumping Section by removing the upper two Slotted Spring Pins (44) from Connector (45)</li> <li>Supply input air to Air Motor. If it works properly without the barrel assembly, then the problem lies with the pumping section. Otherwise check the Air Motor for smooth movement</li> <li>After locating the faulty section, check the respective Piston / Plunger &amp; the associated washers &amp; seals for any overlap or wear &amp; tear. Replace the defective parts from Repair Kit</li> <li>Ensure to replace the moving parts having close tolerances (such as Piston &amp; Cylinder alongwith Non Return Springs &amp; balls) as a SET to ensure the best fitting</li> </ol> |
| Pump continues to operate even after the trigger of Grease Control Valve (69) has been released | Leakage in the assembly   | Check all the connections to ensure they are air tight. Use thread sealant<br>Check O rings & seals for damage. Replace the defective parts from Repair Kit  |
| Grease comes through the air Exhaust Valve (23)   | Grease leaks into the Air Motor   | Check Slider Guide (38), O Ring (37), lower O Ring (11), Seals (39) & Seal Support (40) for wear & tear. Replace the damaged parts from Repair Kit   |
| Air passes directly from inlet to the outlet & pump does not work                               | Nylon Slider (27) is jammed / overtight   | <ol style="list-style-type: none"> <li>Loosen both Screws (29) &amp; remove Clip (28) . Check for any build-up edge on Clip (28) &amp; tighten it again. Make sure the movement of Nylon Slider (27) is neither very loose nor very tight</li> <li>If needed, replace Nylon Slider (27). Also replace the Paper Seal (24), Seat (25), Slider Guide (26) &amp; Clip (28) to ensure the best fitting</li> </ol>  |
| Discharge <b>suddenly</b> stopped while the pump was running                                    | Seals / O Rings Damage  | Check all seals / O Rings & replace the damaged parts from Repair Kit  |
|   | Chip / Other foreign particles get clogged at discharge coupler   | Open the coupler, remove all foreign particles / chips & reassemble properly   |
|   | Clogging of Filter Tube (57)  | Open Filter Tube (57), clean it & reassemble it properly   |

## REPLACEMENT & SERVICE PARTS PROGRAM FOR BUCKET GREASE RATIO PUMP

### REPLACEMENT PARTS PROGRAM

| REFERENCE NO. | PART NO.                           | DESCRIPTION   |
|---------------|------------------------------------|---|
| 64            | FLP/241-288/6<br>FLP/322-380/6     | Follower Plate, BGRP30<br>Follower Plate, BGRP50                        |
| 65            | DC/GP1/BL<br>DC/GP2/BL             | Drum Cover, BGRP30<br>Drum Cover, BGRP50                                |
| 66            | HOSE/GRP/84/B<br>HOSE/GRP/84/N     | Hose, BSP Threads<br>Hose, NPT Threads                                  |
| 67            | HFC/1-4F/1-4M/B<br>HFC/1-4F/1-4M/N | Z Swivel, BSPT Threads<br>Z Swivel, NPT Threads                         |
| 68            | APG/04/1-4F/B<br>APG/04/1-4F/N     | Grease Control Valve, BSPT Threads<br>Grease Control Valve, NPT Threads |

**SERVICE PARTS PROGRAM**

| KIT PART NO. | KIT DESCRIPTION     | CONSTITUENT PART NO. | PART DESCRIPTION   | REFERENCE NO. FROM PARTS DRAWING | QTY. PER KIT |
|--------------|---------------------|----------------------|--------------------|----------------------------------|--------------|
| KIT/TP/RP-G  | DRIVE SECTION KIT   | SR/B/RP              | Sealing Ring       | 3                                | 2            |
|              |                     | BEND/90/RP           | Bend               | 4                                | 2            |
|              |                     | ORG/BS141            | O Ring             | 6                                | 2            |
|              |                     | ORG/BS614            | O Ring             | 11                               | 2            |
|              |                     | ORG/BS617            | O Ring             | 16                               | 4            |
|              |                     | ORG/BS121            | O Ring             | 22                               | 1            |
|              |                     | SEL/P/RP             | Paper Seal         | 24                               | 1            |
|              |                     | SET/RP               | Seat               | 25                               | 1            |
|              |                     | SLD/NY/RP            | Nylon Slider       | 27                               | 1            |
|              |                     | CLP/RP               | Clip               | 28                               | 1            |
|              |                     | SCR/M4/RP            | Self Tapping Screw | 29                               | 2            |
|              |                     | ORG/BS129            | O Ring             | 31                               | 1            |
|              |                     | ORG/BS614            | O Ring             | 37                               | 1            |
|              |                     | GUD/SEL/RP           | Slider Guide       | 38                               | 1            |
|              |                     | SEAL/RP              | Seal               | 39                               | 4            |
|              |                     | SU/SEL/RP            | Seal Support       | 40                               | 1            |
|              |                     | ROD/CNR/S/RP         | Connecting Rod     | 43                               | 1            |
|              |                     | SSP/3/0.6/15.3       | Slotted Spring Pin | 44                               | 3            |
| KIT/BTM/RP-G | PUMPING SECTION KIT | SB/7-32              | Steel Ball (7/32") | 47                               | 2            |
|              |                     | SPR/NR/RP-G          | Non Return Spring  | 48                               | 2            |
|              |                     | VLV/RP-G             | Valve              | 49                               | 1            |
|              |                     | ORG/BS812            | O Ring             | 50                               | 2            |
|              |                     | CYL/RP-G             | Pump Cylinder      | 51                               | 1            |
|              |                     | CPL/TOP/RP-G         | Top Coupler        | 52                               | 1            |
|              |                     | BSH/SLD/RP-G         | Slide Bush         | 53                               | 1            |
|              |                     | ROD/PST/RP-G         | Piston Rod         | 55                               | 1            |
|              |                     | BSH/RP-G             | Guide Bush         | 56                               | 1            |
|              |                     | WSR/PST/RP-G         | Piston Washer      | 60                               | 1            |
|              |                     | NN/M6/RP-G           | Nyloc Nut          | 61                               | 1            |
|              |                     | IC/FLT/RP-G          | Filter Cap         | 62                               | 1            |

## SPECIFICATIONS

| MODEL                   | BGRP/30                         | BGRP/50                  |
|-------------------------|---------------------------------|--------------------------|
| Bucket Capacity         | 30 Kg / 3.5 Gal / 60 lbs.       | 50 Kg / 6 Gal / 110 lbs. |
| Suction Tube Length     | 17.32" (440 mm)                 | 28.74" (730 mm)          |
| Suction Tube Dia.       | 1.18" (30 mm)                   |                          |
| Flow Rate               | 1.10 Kg / min. (2.42 lbs / min) |                          |
| Working Pressure        | 10 BAR (150 PSI)                |                          |
| Maximum Outlet Pressure | 500 BAR (7500 PSI)              |                          |
| Air Inlet Connection    | 1/4" (F)                        |                          |
| Pump Outlet Connection  | 1/4" (F)                        |                          |
| Air Consumption         | 230 LPM (61 GPM)                |                          |
| Hose Length*            | 7' (84")                        |                          |
| Noise Level             | 81 db                           |                          |

\* IT MAY VARY FROM ONE MODEL TO ANOTHER



- Always wear protection gear like safety goggles, gloves, apron, and ear plugs while operating the pump
- Never let any body part come in front of, or in contact with the control outlet
- Always cut off air supply after use, so that media cannot leak incase any of the pump component fails
- Before switching the air supply on, check hoses for sign of wear, leak or loose fittings. Replace as necessary
- Do not smoke near the pump. Do not use the pump near a source of spark / open flames
- When changing the working fluid, at least 1 litre of new fluid should be discarded to avoid mixing of fluids
- Pump should NOT be operated for more than 4 hrs continuously
- Pump must be supplied with CLEAN & DRY compressed air via an FRL unit
- Before attempting any maintenance or repair of this product, disconnect air supply and then squeeze control valve trigger to release fluid pressure
- Use only genuine factory parts for repair
- In case of accident, immediately seek medical attention. Do not try to treat the injury yourself

### WETTED COMPONENTS

Steel, Brass, Aluminium, & Polyurethane

### RECOMMENDED USE


With light and self collapsing grease up to NLGI No. 2



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