

AIR OPERATED INDUSTRIAL PUMPS
RHINO



SUMP PUMP **ASP-25**

**OPERATION &
MAINTENANCE
GUIDE**



SUMP PUMP ASP-25

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OPERATION: ASP-25 pneumatic pump is designed to remove water from trenches, ditches, manholes, industrial sumps and excavations. It is a single stage centrifugal unit driven by powerful vane motor. Also double seals protect bearings and motor from water & mud, and integral oiler provides continuous lubrication. Follow the instructions mentioned here to enhance the life and performance of the pump.

AIR SUPPLY: Use an air compressor with sufficient CFM (cubic feet per minute) delivery to operate the pump at a pressure of 7 bar. The pump should be clean, dry and lubricated. Install a FRLunit as close to the pump as operation will allow.

DAILY BEFORE OPERATION: Disconnect the air hose and blow out air line to clear it of all accumulated dirt or moisture. Pour in 1 to 2 ounces of recommended oil in to the air inlet and reconnect to air line . Make sure that the exhaust pipe or hose is long enough to remain above water level at all times. Do not allow dirt or moisture to enter exhaust while moving pump.As long as possible, keep pump levelled on a board or on flat stone muck or settings.

LUBRICATION REQUIREMENTS: Always install a line lubricator on the air line as close to the pump as possible. AFilter - Regulator - Lubricator unit (FRL) is strongly recommended. Keep the lubricator bowl topped up with recommended grade of oil and check that the oil is reaching the pump. Before using and after each eight hours of service, remove oil plug (6) and fill reservoir with recommended oil. Periodically remove seat-oiler valve(13), O'Rings(10,12), oiler-valve(11), felt(14) and spring(9) in governor housing (8) and fill cavity with mixture of automotive water pump grease and hot water. Do not use pressure fittings. If recommended grease or oil is not available, use a turbine or spindle grade oil having a viscosity of 100 - 150 SUS at 100% which contains a rust inhibitor.

RECOMMENDED LUBRICANTS AND GREASE:

MANUFACTURE	LUBRICANT EQUIVALENTS FOR AIR MOTORS	GREASE EQUIVALENTS FOR BEARING & GEARING
SHELL	TELLUS 23	ALVANIA EP 2
MOBIL OIL	VETOCITE 10	MOBILEX 47
ESSO	NUTO H 4D	BEACON 2
TEXACO - CALTEX	SPINDURA 22	MUTILAK EP 2
BP POWER PETROLIUM	ENERGOL CS 40	ENTER GREASE LS 3
BURMAH - CASTROL	HYSPIN AWS 22	SPHEEROF AP2

DISASSEMBLY /ASSEMBLY INSTRUCTIONS: To dis assemble sump pump 1) Unscrew exhaust pipe (47) from motor housing (35), Remove four nos. Socket head cap screw (36) and spring washer (37) from impeller housing (43) and lift up complete pump unit out of impeller housing (43). If necessary to replace lower plate (42), drive lower wear plate (42) out of imp(43) to assemble sump pump:- use arbour press to press new lower plate (42) into impeller housing (43). Fasten pump unit to impeller housing (43) with four socket head screw (36) and spring washer (37).see that the vent hole is left open.

MAINTENANCE: ASP-25 sump pumps are designed to meet conditions, which subject them to serve wear, and to the presence of corrosive liquids.A regular maintenance schedule will greatly add to the durability of the pump.We strongly recommend that the lubrication instructions be followed religiously. The housing bolts are to be tightened at regular intervals, especially the first one week of operation. After every 500 hours of use pump should be opened up and worn components replaced if any.

SAFETY INSTRUCTIONS: Never operate the pump over the rated 7 bar pressure. Keep hoses in good condition. Check hoses for wear and ensure that fittings are secure. Accidental disconnection while pump is in use can make the hose whip and can be safety hazard.

STORAGE: When storing sump pump for any length of time precautions should be taken to prevent corrosion and to maintain pump in a serviceable condition

- * Remove discharge and exhaust hose or pipe and run pump out of water to blow out all moisture.
- * Remove air line and pour a small amount of rust resistant oil in live air inlet. Re - connect hose and idle motor a few minutes to carry oil to all internal parts..
- * Remove air hose and plug live air inlet and air exhaust port with corks.
- * Wipe out side of pump with rust resisting oil.Wrap pump in oiled paper and pack in covered box.
- * Store pump in dry place.

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To dis assemble Governor housing (5):- Unscrew and remove four nos. Socket head screws (36) and spring washer (37) from motor housing (35), lift governor housing (5) off motor housing (35) unscrew and remove four round head screw (14) and spring washer (13) from disc cage tension (12). Remove disc - tension (12) and governor cage (11) along with "O" Ring (10), governor valve pin (9), Governor valve (8), governor valve spring (7), governor spring retainer (6) from governor housing (5), Remove gate valve (1) and then air inlet bushing (2), with help of circlip plier, remove internal circlip (3) and take out strainer (4). Depress retainer - governor spring (6) to dis engage arms from slout in cage (11). Remove governor valve spring (7), governor valve (8) and pin governor valve (9) from cage (11). Remove both "O" Ring (10) from governor valve cage (11).

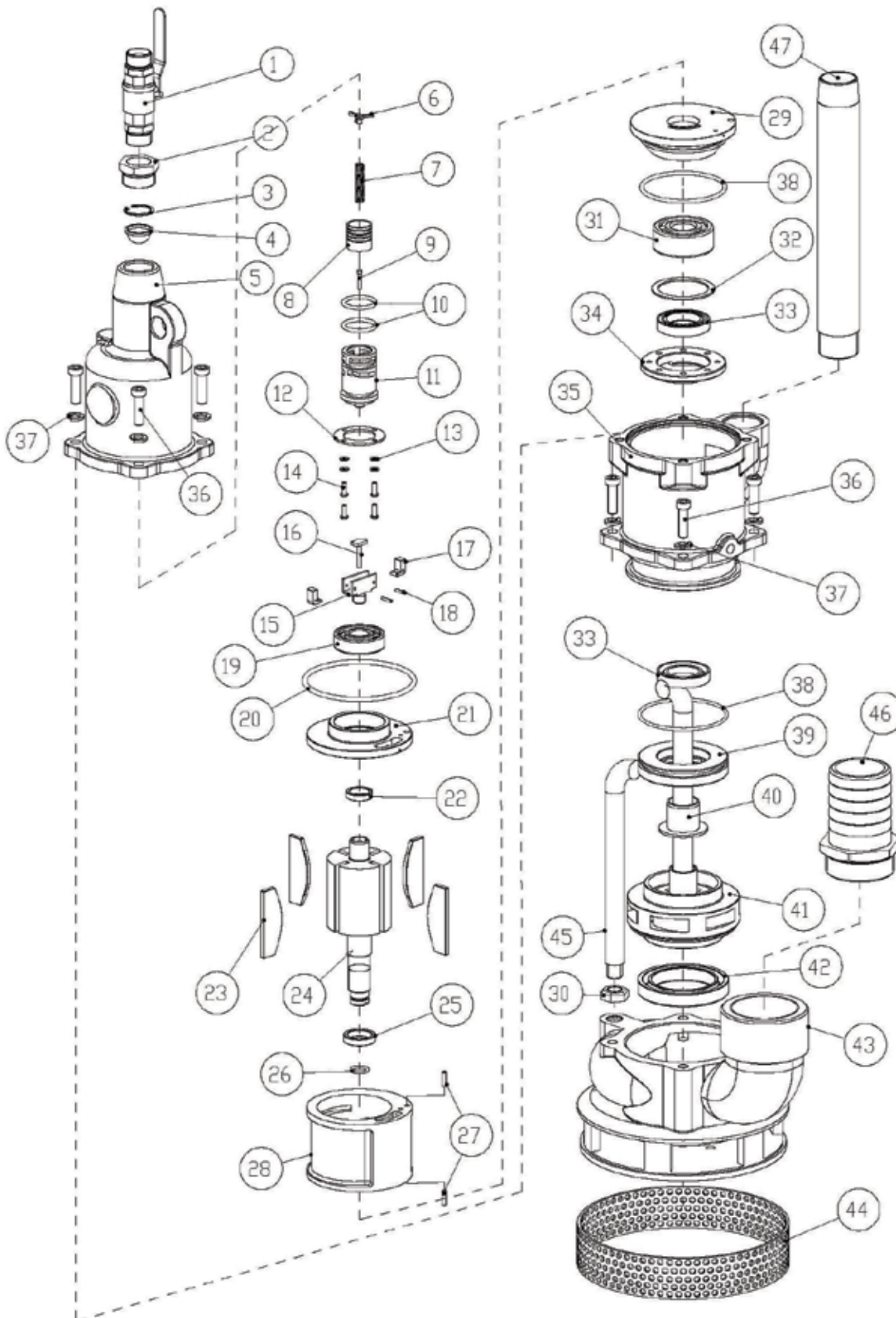
To dismantle motor housing (35):- wedge impeller (41) to prevent turning and with a heavy screw driver turn the rotor (24) in clockwise direction to remove impeller (41). Remove impeller sleeve (40) and "O" Ring (26) from rotor shaft (24). Push led motor out of motor housing (35), Remove seal plate (34) and seal plate gasket (32), Note proper position of oil seals (33) and remove them. Unscrew governor body complete (15) by rotating in clockwise direction (Left hand threads), Remove roll pin for governor weight (18) from governor body (15), remove governor weights (17) and governor pin (16) from governor body (15) Remove upper end plate (21) and upper rotor bearingspacer (22) from rotor (24), Remove liner (28) and four nos. Rotor blades (23) from rotor (24). Then remove lower end plate (29) lower rotor bearing spacer (25) and "O" Ring (38) from lower end. Also remove ball bearing (31) from lower end plate (29) and ball bearing (19) from upper end plate (21) clean all metal parts in a light solvent and inspect for signs of wear. Replace components that appear worn or damaged. Coat components with Recommended oil and re- assemble in reverse sequence.

TROUBLE SHOOTING

PROBLEM	PROBLEM CAUSE	SOLUTION
Loss of power/motor failure	Low air pressure at pump	A constant air pressure of 80-90 PSI is required at the pump.
	Lowered compressed output	
	Excessive drain on supply line	Eliminate leakages in air supply line.
	Use of hose or connections of insufficient size.	Eliminate leakages in air supply line.
	Clogged air strainer (5)	Remove air strainer (5), clean and replace.
Icing in the exhaust chamber/pipe	Moisture is entered in the motor parts or in exhaust chamber. Check air inlet and exhaust connections. The joints should be water tight.	Make air inlet and exhaust connections water tight. Check that the end of exhaust pipe or hose is well above water level. Also check seals and gasket for damages. If damaged replace them.
Motor is jammed.	Worn or damaged rotor blades (42)	Dis-assemble governor housing (8) and motor housing (58). Clean all parts in a light solvent. Replace worn or damaged parts and reassemble.
	Dirt in the motor parts such as bearings (38,53), governor housing (8) etc.	

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EXPLODED VIEW



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ASSEMBLY & PART LIST



ILLUS NO.	PART NO.	PART DESCRIPTION	QTY/ TOOL
1	199 90 50A	Gate valve 3/4" male adaptor	1
2	199 21 14	Air inlet bushing	1
3	500 90 43	Internal circlip B-22	1
4	199 38 28	Strainer-air	1
5	190 05 03	Housing governor	1
6	190 25 14	Retainer governor spring	1
7	190 51 54	Spring-governor valve	1
8	190 21 15	Valve-governor	1
9	190 21 16	Pin-governor valve	1
10	199 40 34	'O'Ring governor valve cage	2
11	190 25 29	Cage-governor	1
12	190 30 31	Disc-cage tension	1
13	298 00 04	Spring washer (M4)	4
14	298 00 03	Round head screw (M4 X 14.7)	4
15	190 21 17	Body-governor	1
16	190 21 18	Pin-governor	1
17	190 21 19	Wiegth-governor	2
18	199 50 55	Roll pin governor wieght	2
19	190 50 52	Ball bearing-upper SKF 6304	1
20	190 40 44	'O'Ring for motor housing	1
21	190 05 08	Plate-upper end	1
22	190 21 20	Spacer-rotor bearing upper	1
23	190 39 38	Blade-rotor	4
24	190 21 21	Rotor	1

ILLUS NO.	PART NO.	PART DESCRIPTION	QTY/ TOOL
25	190 21 22	Spacer-rotor bearing lower	1
26	190 40 51	'O'Ring-rotor	1
27	320 01 35	Roll Pin	2
28	190 05 05	Liner	1
29	190 05 07	Plate-lower end	1
30	190 90 30	Lock Nut	1
31	190 50 53	Ball bearing-lower SKF 4305	1
32	190 40 48	Gasket-seal plate	1
33	190 90 63	Oil seal	2
34	190 05 06	Plate-seal	1
35	190 05 02	Housing-motor	1
36	190 90 27	3/8" X 16 UNC Socket head cap screw	8
37	210 90 35	Spring Washer	8
38	199 40 30	O'Ring upper wear plate /Lower end plate	2
39	190 05 09	Wear plate-upper	1
40	190 21 23	Sleeve-impeller	1
41	190 05 04	Impeller	1
42	190 05 10	Wear plate-lower	1
43	190 05 01	Impeller housing	1
44	190 31 02	Screen	1
45	190 21 25	Dead handle	1
46	190 21 26	Nipple	1
47	190 90 65	Exhaust pipe (BSPP)	1

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INTENDED USE Pneumatic sump pumps are intended for used for de watering, transfer of fluids such as clear and sea water, marine emptying of ballast tanks, darning cargo holds and pumping of sea water from bilges and holds.

TECHNICAL DATA

MODEL NO.	ASP-25
Net Weight	35Kg
Height	430mm
Minimum opening pump will enter	210mm x 305mm
Air Inlet	¾" NPT
Air consumption	3.8 m ³ /min
Fluid out let	2 ½" NPT
Air outlet	1 ½" BSPP