

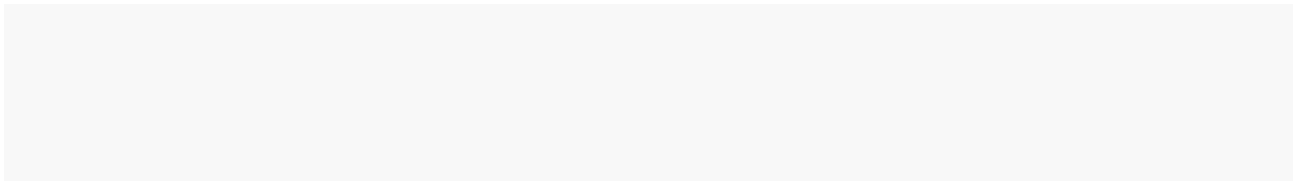


BW650Type Mud Pump

Instruction for use

(Please read the instructions before use)

Shandong Saigao Group Corporation



1. The purpose of the mud pump and instructions

BW - 650 mud pump is horizontal triplex reciprocating double-acting piston pump, its characteristic is large flow, light weight, easy to decompose, facilitate the mountain carrying, can arrange to send water or mud. Mainly used with water well of machine.

Whether to send with water or mud, all should not contain the pump plays a role of corrosion of metal and rubber parts of chemical impurities, mud is recommended when using the following values:

Viscosity of 18 to 24 seconds and sand content is not more than 4%, sand diameter less than 3 mm.

Has two block displacement pump for drill water demand in different rock drilling shift to use.

2. The mud pump technical specifications

Style: horizontal triplex reciprocating double-acting piston pump

Number of cylinders: 3

The cylinder diameter (100 mm)

Piston stroke (85 mm)

Pump speed: 223 times/min), 168, 112, 86

Traffic: (liters/min), 650, 560, 430, 320

Maximum working pressure (Mpa) 2, 3, 4, 5

Suction pipe diameter (89 mm) (inner diameter)

Drain pipe diameter (mm) (inner diameter) 51

Overall dimensions (mm) long and 2170 wide 900 900

Quality: (580 kg)

3. The use of mud pump operation

One, the mud pump on the construction site of the installation:

Mud pump on the construction site must be installed in a fixed, on the basis of land use foot screws. Have a vibration in the working process of the phenomenon, should be able to keep the mud pump work steady and durable.

Must use when installing line method to check the engine or intermediate shaft and the parallelism of the mud pump pulley and belt driving position, so that they are all in the same plane, and then to fix the anchor bolt tightening.

Second, the mud pump to start the preparation work before:

Pump was ready to take on the oil seal before they go out, must come first unsealed when using, cleaning the crankcase, filling lubricating oil (foot) according to the oil dipstick scribed line check and pack good rubber rings, make its elastic moderation, check the pump cylinder head top set into the cylinder head is installed correctly.

Such as stop using or reinstall after for a long time, before moving must be to preparation of the following:

- 1, check and clean the water hose on live valve type water filter, inlet opening shall not be blocked by dirt, should live valve open and close freely, water filter and hose connection, should guarantee the seal.

- 2, check the fastening of the components and parts.

- 3, check into the situation of the drain valve are in good condition.

- 4, check the connecting rod bearing shell, cross shaft sleeve and cross sliding sleeve fit clearance.

- 5, check whether there is oil inside the crankcase and foot.

- 6, check the bento institutions are in good condition.

- 7, to open any cylinder water pump head cover, remove valve, the valve holes reserved water suction tube perfusion, and to fill up.

- 8, screw the tee watergate to to return place.

4. mud pump maintenance

The normal work of complete drilling equipment production of mud pump efficiency plays a big role, so that the work during the pump maintenance should be given enough attention.

Pump head, tie rod, cylinder liner, such as the navarre premature failure, because with nothing more than a large amount of sand flushing fluid to work, so you must take all measures to ensure the send rinses does not contain too much sand, and control in the allowed range, the return of flushing fluid in high sand content should be grille or filtering. Crankcase movement parts, poor lubrication oil contains impurities, friction surface into dirt or mud, etc., also is often the cause of slurry pump failure. In order to guarantee the normal operation of pump, and must pay attention to the following items:

1. Pay attention to check all the moving parts of the lubrication condition, foot, crankcase oil level should keep oil change on time, to be pure no mechanical impurities of lubricating oil. (see the lubrication of the pump)

2. The mud pump working pressure shall not exceed the specified value, pay attention to check the reliability of the relief work.

3. The mud pump piston reciprocating frequency shall not exceed the specified value per minute, more not allowed in the case of no water.

4. The mud pump rubber piston in the cylinder liner inner hole should cooperate closely, elastic moderate, in case the two cavity flushing fluid leakage.

5. On the suction pipe of each joint should maintain its rigor, in order to prevent the formation of air sac and breathe in the air, affect the efficiency of the pump.

6. Water filter to immersed in a tank flushing fluid surface below 0.5 mm, is apart from the pool bottom and surrounded by more than 0.3 mm.

7. Often keep the mud pump clean to prevent mud drip into the crankcase and other moving parts.

8. Pay attention to the tension of the belt and adjust in time.

5. stop the pump

1, tee watergate spin to return position of unloading, then stop the pump.

2, a long time to stop the pump, to pump in the line of rinses out and rinse, especially in the cold winter is especially attention.

3, when the pump is stopped for a long time to pump the oil and water, cleaning the mud on the parts and the parts and the following parts are coated with butter, crank shaft diameter of axle, gear, crosshead, crosshead sliding sleeve, tie rod, cylinder liner, cylinder head cover, navarre gland, guide hood. The seat cone, three-way cock, etc.

6. the mud pump lubrication

Timely correct lubrication can guarantee the normal work of the slurry pump, the moving parts to minimize wear and tear, provisions should be adopted for this brand of lubricating oil, and to prevent mechanical impurities mixed with oil.

Crankcase summer (GB/T443-1989) L - AN46 total loss system (30 # machine oil), oil (GB/T443-1989) in winter L - AN32 total loss system oil (the original 20 # machine oil).

Drive shaft on both ends of the rolling bearing lubrication, use calcium base mid-december GB491-65-3 grease (not less than 85 °C drop point, penetration, 220-250).

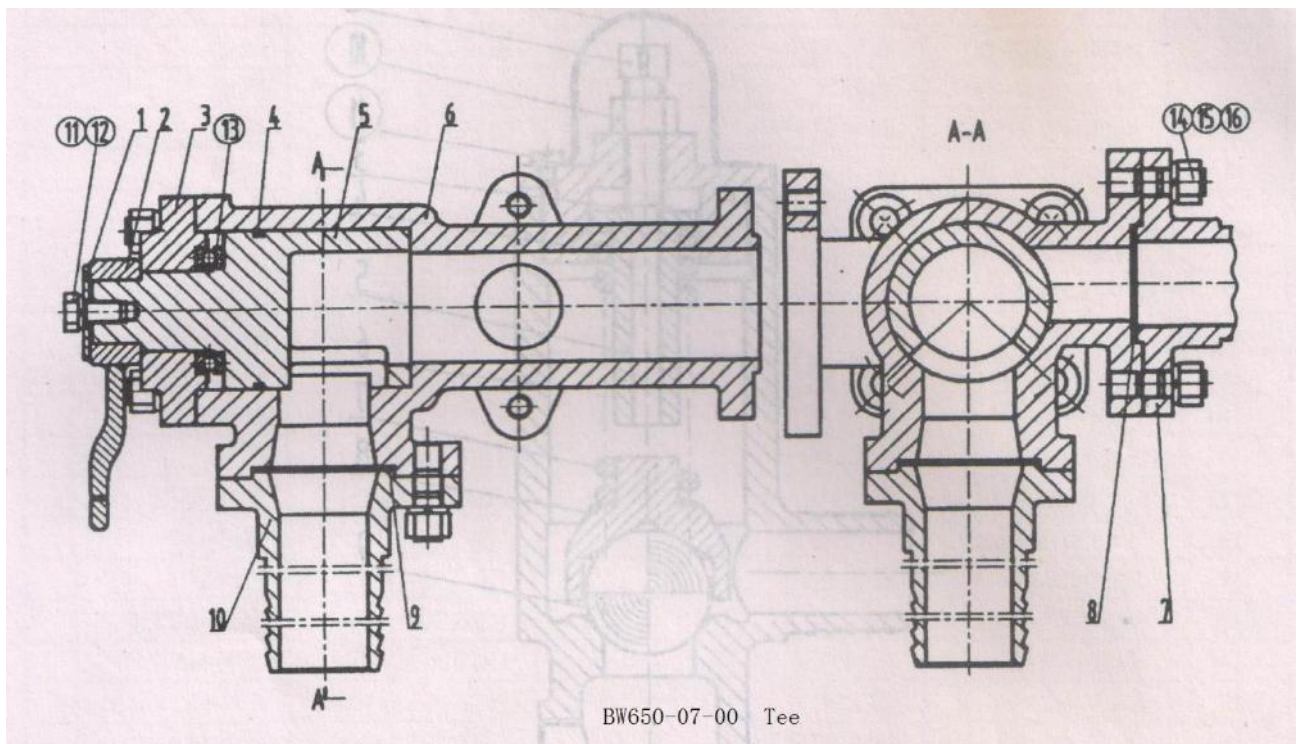
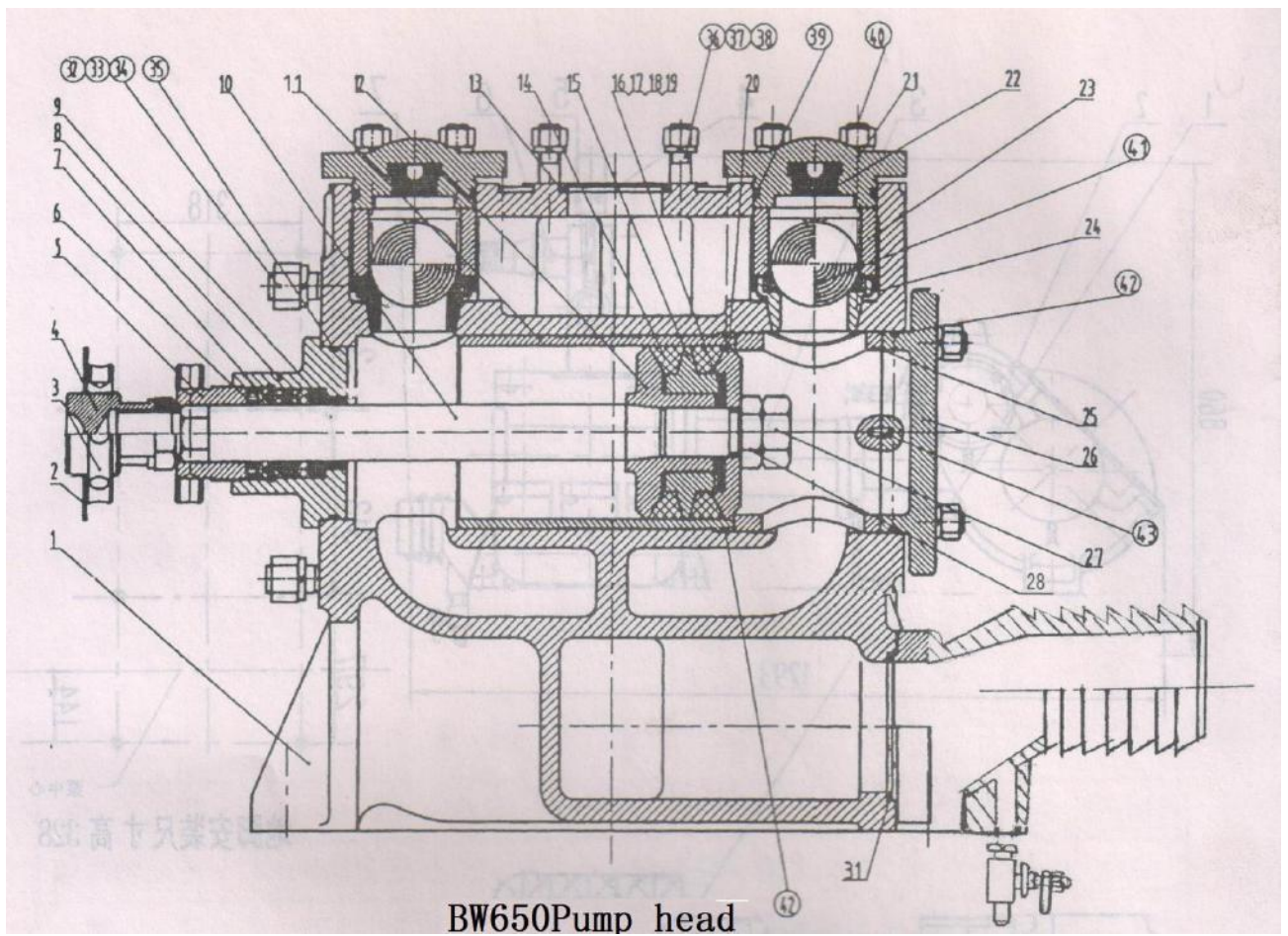
Breakdowns, Causes and Solution

breakdowns	causes	Solution
Discharge volume is not enough or the fail to discharge the flushing fluid	<ol style="list-style-type: none"> 1. Water filter is over the surface. 2. Filter is blocked. 3. The sucking pipe way is blocked. 4. Poor sealing of the sucking pipe way and air is in 5. The inlet and outlet valve is stuck. 6. Piston wearing 7. The sucking pipe is not filled up with air or the air is not formed 8. The sucking height is over the allowance. 9. The sucking pipe is too long or the diameter is small. 10. Belt sliding 11. Clutch sliding (1) Oil stain on the surface of the friction piece (2) The spring of the clutch is loose or broken (3) The extent of the wearing of the piece is over the allowance value 12 Close down of the outlet gate 	<ol style="list-style-type: none"> 1. Push the filter under the surface for 0.3 to 0.5 meters 2. Wash the filter 3. Wash the pipe way 4. Check the joints and the hose to clean.. 5. If it is caused by the wearing of the valve and valve seat then change the parts and if it is blocked by sand then wash clean 6. Tighten the nuts and change parts. 7. Fill it with water and discharge the air. 8. Lower the height to 2.5m. (The thick mud is 1m. 9. Reduce the length to 5m or less and enlarge the diameter(Φ76mm rubber pipe) 10. Tighten the belt 11. Find the cause and eliminate (1) Remove it and clean in diesel (2) Adjust or change the new springs (3) Change the new friction piece 12 Open the gate

<p>Pump running abnormally</p>	<ol style="list-style-type: none"> 1. The seal of the piston is too tight 2. The connecting rod shoe is engaged so fast 3. The pull rod, crosshead and connecting structure is not aligned 4. All off of connecting parts 	<ol style="list-style-type: none"> 1. Check the fitting clearance and eliminate 2. Check and eliminate 3. Check and fasten
<p>Abnormal sound in operation</p>	<ol style="list-style-type: none"> 1. The bearing bush of the connecting rod bearing bush is loose or the clearance is too big. 2. The joints of the pull rod and the crosshead is loose 3. Bearings, bears and other parts damage 4. The over flow of the inlet and outlet valve lift causes the air erosion. 	<ol style="list-style-type: none"> 1. Adjust the clearance between the bearing bushes 2. Check and tighten 3. Check and change parts. 4. Reduce the lift to 6 to 7 mm.
<p>Too strong pressure jumping</p>	<ol style="list-style-type: none"> 1. The worn piston of a certain cylinder does not work. 2. certain valve seat or valve is worn and it does not work 3. The fitting between the valve seat and the valve seat hole has clearance 4. The discharge medium has a lot of air. <p>(1) The wearing out of the piston is too big</p> <p>(2) The water filter is blocked or emerged out of the water</p> <p>(3) The sucking system has fault sealing</p>	<ol style="list-style-type: none"> 1. Check and change the parts. 2. Check and change new parts 3. Eliminate clearance 4. Check the cause and eliminate <p>(1) Change the piston</p> <p>(2) Take it out and wash clean and submerge it in the fluid</p> <p>(3) Check and eliminate</p>

Rolling bearing specification

model	code	designation	number	remarks
6209	GB/T276-94	Single row radial ball bearing	1	45x85x19
7304AC	GB/T292-94	single row angular contact ball bearing	1	20x52x15
7309AC	GB/T297-94	single row angular contact ball bearing	1	45x100x25
30309	GB/T297-94	Single row tapered bearing	2	45x100x27.5
32209	GB/T297-94	Single row tapered bearing	1	45x85x25
32211	GB/T297-94	Single row tapered bearing	1	55x100x27
3613	GB/T286-94	double-row self-aligning spherical roller bearing	2	65x140x48
1609	GB/T2841-94	double-row self-aligning spherical roller bearing	2	45x100x36



BW650 Pump Head

number	Code	Name	number	Code	Name
1	BW650-01-01	pump head	23	BW650-01-28	Guide cover
2	BW650-01-32	Mud check ring	24	BW650-01-1900	valve seat
3	BW650-01-31	Flat nut	25	BW650-01-17	Cylinder cap
4	BW650-01-02	Rod joint	26	BW650-01-18	cylinder head
5	BW650-01-03	Plug wire	27	BW650-01-24	Piston nut
6	BW650-01-06	Plug pad	28	BW650-01-26	Pull rod nut
7	BW650-0105-00	Seal ring	29	BW650-01-25	Hose clamps
8	BW650-01-04	Plugwire positioning plate	30	BW650-01-21	Inlet flange
9	BW650-01-07	Copper sleeve	31	BW650-01-22	Inlet flange gasket
10	BW650-01-09	Pull rod	32	GB/T898-1988	Double stud AM16x40
11	BW650-01-10	Cylinder liner	33	GB/T6170-2000	Nut M16
12	BW650-01-11	Piston seat	34	GB/T9387	Washer 16
13	BW650-01-34	Drain pad	35	GB/T 235-76	O type sealing ring 100x3.1
14	BW650-01-12	Piston ring	36	GB/T898-1988	Double stud AM12x32
15	BW650-01-13	Piston pad	37	GB/T6170-2000	Nut M12
16	BW650-01-15a	Washer	38	GB/T93-1987	Washer 12
17	BW650-01-15b	Washer	39	GB/T1235-1976	O type sealing ring 70x3.1
18	BW650-01-36a	Washer	40	GB/T898-1988	Double stud AM12x35
19	BW650-01-36b	Washer	41	GB/T308-1988	The ball is 41
20	BW650-01-14	Piston gland	42	GB/T1235-1976	O type sealing ring 115x3.1
21	BW650-01-20	Walla gland	43	GB/T119.1-2000	Cylindrical pin 5n6x10
22	BW650-01-23	Guevara cushion			

BW650-07-00 Tee

number	Code	Name	number	Code	Name
1	BW650-07-06	Ring	9	BW650-07-34	Drain pad
2	BW650-0705-00	Spanner	10	BW650-07-08	Drain connection
3	BW650-07-04	Three way upper cover	11	GB/T5782-2000	BoltM10x20
4	BW650-07-03	O type seal ring	12	GB/T93-1987	Washer M10
5	BW650-07-02	Three way cock	13	GB/T301-1985	thrust bearing 51108
6	BW650-07-01	Three species	14	GB/T898-1988	Stud AM12x30
7	BW650-07-11	Return pipe joint	15	GB/T170-2000	Nut M12
8	BW650-07-10	Return pipe gasket	16	GB/T93-1987	Washer 12

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(product design and specification change without notice)