

# Talbo

Submersible sump pump IOM

Model GSP20 GSP25



## **Models covered**

Model Number	Description	IMPA Number
GSP20	Pneumatic Submersible Pump 2"	59.16.35
GSP25	Pneumatic Submersible Pump 21/2"	59.16.36

Read this manual carefully before installing, operating or servicing this Deck Scaler. It's the responsibility of the employer to ensure this manual is read by the operator. Please preserve this manual.

## **Technical data**

	GSP10	GSP25
Output (L/min)	500	800
Total head (m)	15	20
Air inlet	<sup>3</sup> ⁄4" NPT	3⁄4" NPT
Air exhaust	1" NPT	11/4" BSPP
Fluid outlet	2" hose	21⁄2" hose
Air consumption (m <sup>3</sup> /min)	2.7	3.8
Min. opening pump will enter (mm)	204 x 230	210 x 305
Height (mm)	340	392
Weight (kg)	21.5	35

## Fluid connection detail

Model	Thread 'A'	Hose connection 'B'
GSP20	2" BSPP	2"
GSP25	21/2" BSPT	21/2"



### **Operating and safety precautions**

Following symbols are used throughout this manual.



**Warning** If not followed could cause personal injuries



**Caution** If not followed could result in damage to equipment



#### Warning

This manual must be read and the operating instructions carefully followed.



#### Warning

Operators under eighteen years of age are not allowed to operate this pump. Operators must be made familiar with the instructions in this manual before attempting to operate the pump.



#### Caution

Use only genuine Talbo or Talbo approved accessories.



#### Caution

Completely turn off the pump and disconnect air supply line before attempting any service. Read Assembly and Disassembly instructions.



#### Caution

A regular maintenance after every 500 hours of operation will greatly add to the durability of the pump.



#### Warning

Take care not to exceed the maximum 7 bar (100 psi) supply air pressure. Use a filter and regulator and lubricator as close to the pump inlet as operation will allow ensuring a clean and regulated and lubricated air flow.



#### Caution

Keep hoses in good condition. Check hoses for signs of wear, cracks & bulges and ensure that they are secure. Accidental disconnection while hose is pressurized makes the hose whip and can be a safety hazard.



#### Caution

Please check the hose connection prior to starting pump.

Store these pump in secure & dry environment.

Do not allow the pump to run unattended.

Do not modify this pump in any way as this will invalidate the warranty and could lead to serious injury.

#### Intended use

Talbo Pneumatic Submersible pumps are intended for de-watering, transfer of fluids such as clear and sea water, marine emptying of ballast tanks, damming cargo holds and pumping of sea water from bilges and holds.

It is a single stage centrifugal unit driven by powerful vane motor. Double seals protect bearing and motor from water and mud, an integral oiler provides continuous lubrication. Follow the instructions mentioned here to enhance the life and performance of the pump.

# Talbo

### **Operating instructions**

Talbo sump pumps are rugged, dependable equipment designed to give you years of satisfactory service. Follow the instructions mentioned here to enhance life and performance of your pump.

#### DAILY BEFORE OPERATING

Disconnect and pour in 1 to 2 ounces of recommended oil into the pump and reconnect hose after blowing out any accumulated dirt in the hose line before connection

#### LUBRICATION REQUIREMENTS

Always install a line lubricator on the air line as close to the pump as possible. A Filter Regulator Lubricator (FRL) unit is strongly recommended. Keep the lubricator bowl topped up with recommended grade of oil and check that the oil is reaching the pump.

Running the pump without lubrication is likely to cause damage to the components causing premature replacement.

#### **AIR SUPPLY**

The pump work best at 6.2 bar (90 psi) air pressure. The air should be clean, dry and lubricated. Install a FRL unit as close as operation will permit.

#### HOSES

Daily before operation check the hoses, especially the high pressure hoses for damage or leaks.

Use genuine Talbo spares and if possible mention the serial number of the pump when ordering spares.

## **Recommended lubricants**

	Above 27°C	5°C to 27°C	Below 5°C
SHELL	Toona R.72	Toona R.41	Toona R.27
MOBIL	Almo 529	Almo 527	Almo 525
ESSO		Arox EP 65	Arox EP 45
CALTEX	Rando Oil 100	Rando Oil 100	Rando Oil 46
СР			Airolene Tool Oil
TEXACO	Regal Oil F (R&O)	Regal Oil PE (P&E)	Regal Oil PE (R&O)
DALTRON	Silkolene 881	Silkolene 548/T	Silkolene 733
BURMAH CASTROL	Castrol RD Oil 3	Castrol RD Oil Light	Megna SPX
DUCKHAM	Garnet 7	Garnet 6	Zero Fio 5
STERNOL	Merlin 87	Merlin 71	Merlin 54
PETROFINA	Purifoc 53	Purifoc 46	Purifoc 32
CHEVRON	Vistac Oil 18X	Vistac Oil 19X	Vistac Oil 9X
INDOIL	Servo Spyn-22		

#### 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; reconnect 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.

# Troubleshooting

Description	Causes (remedial action)
Pump stopped and will not start	Insufficient air pressure
	Check air pressure is as recommended at the pump air inlet
	Air filter blocked
	Check if debris has clogged the inlet filter on the FRL unit/pump inlet air valve (some models have air filter on the air inlet valve ) and ensure clear passage of air
	Internal damage or excessive wear on components
	Proceed to dismantle the pump, examine component for wear, replace any worn components, re assemble carefully as instructed in this manual and re start the pump
Pump runs slowly, poor delivery	Insufficient or wrong lubricant in the air supply
	Ensure that the lubricant is as per the recommended chart, a thicker lubricant often makes the air valve work sluggishly
	Internal damage or excessive wear on components
	Proceed to dismantle the pump, examine component for wear, replace any worn components, reassemble carefully as instructed in this manual and re start the pump
Motor is jammed	Worn or damaged rotor blades
	Disassemble governor housing (7) and motor housing (35), clean all parts in a light solvent, replace worn or damaged parts and reassemble

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# Exploded view GSP20



# Bill of material of GSP20

No	Part no	Description	Qty
1	1999750	Gate valve assembly	1
2	5009043	Internal	1
3	1993828	Air strainer	1
4	1992114	Air inlet bushing	1
5	1994056	O-ring	1
6	1994034	O-ring	1
7	1990565	Governor housing	1
8	1999048	Socket head	4
9	5009048	Spring	4
10	1994033	Gasket	1
11	2004012	Internal circlip	1
12	1995041	Spring retainer	1
13	1995040	Spring	1
14	1992121	Governor valve	1
15	1992120	Pin for governor valve	1
16	1994031	O-ring for valve cage	1
17	1992527	Governor for valve cage	1
18	1992119	Bushing	1
19	1992125	Push pin	1
20	1992122	Governor weight	2
21	1992166	Pin for governor weight	2
22	1992124	Governor body	1
23	1995038	Ball bearing (upper)	1
24	1990564	Upper end plate	1
25	1991207	Cylinder	1
26	1995036	Roll pin (lower/upper)	2
27	1992115	Spacer (upper bearing)	1
28	1992113	Rotor	1
29	1993929	Rotor blade	4
30	1992117	Spacer for lower bearing	1

No	Part no	Description	Qty
31	1990563	Lower end plate	1
32	1995035	Ball bearing (lower)	1
33	1999046	Socket head screw	4
34	1999047	Spring washer (M8) 12.2 x 8.5 thk	4
35	1990506	Motor housing	1
36	1994030	O-ring for motor housing	2
37	1994060	Oil seal for spindle	2
38	1992112	Wear plate upper	1
39	1999043	C.S.K. screw	4
40	1992111	Impeller sleeve	1
41	1995039	Rotor key	1
42	1990562	Impeller	1
43	1992110	Spacer impeller retainer	1
44	1999042	Hex bolt for impeller retainer	1
45	1990561	Lower wear plate	1
46	1890508	Impeller housing	1
47	1892114	Sump screen	1
48	1992109	Discharge nipple	1
49	1999045	Exhaust pipe	1
50	1904051	O-ring for impeller	1
	1993067	Shim (0.1 thk)	
51	1993068	Shim (0.2 thk)	As rea
	1993069	Shim (0.5 thk)	ieq.
52	1999052	Pipe plug	1
53	1909030	Lock nut for handle	1
54	1902125	Handle	1
55	1899001	Philips C.S.K. cap screw	1

#### DISASSEMBLY AND REASSEMBLY GSP10

Disconnect the air supply to the pump.

- To disassemble pump, first unscrew and remove gate valve, exhaust pipe (49) discharge nipple (48), separate impeller housing (46) from motor housing (35) by removing screw (33) and lock washer (34) and separate the motor housing (35) from governor housing (7) by removing screws (8) and spring washer (9).
- To remove impeller (42) first remove impeller retaining bolt (44) and impeller retaining spacer (43). The motor assembly can now be removed from motor housing (35).
- 3. Remove the governor body (22) by rotating in clockwise direction left hand threads from the rotor body (28), remove upper end plate (24) and rotate rotor body (28) with hand to inspect rotor for dirt and for easy rotation.
- 4. Inspect end play for evidence of scoring and inspect rotor blades (29) for excessive wear and for proper fitting in rotor slots. Inspect lower end plate (31) for scoring and inspect ball bearing (32) for free rotation if replacement of lower end plate bearing (32) is necessary, remove cylinder (25) press rotor body (28) and lower end plate bearing (32) press bearing (32) to rotor body (28) and replace. Remove the impeller sleeve (40) and inspect seals (37) for wear. To remove these seals (37), first remove upper wear plate screws (39) and upper wear plate (38), press seals from motor housing (35) when replacing new seals the inner seals(37), must seat against shoulder of motor housing (35).
- The outer seal must press flush with motor housing. If removal of lower wear plate (45) is necessary, insert a 6 mm diameter rod (1/4") in to the holes in the underside of impeller housing (46) and evenly tap the plate out of the housing.
- 6. When reassembling the pump, there should be a clearance of 0.15 mm (0.007") to 0.3 mm (0.012") add the appropriate thickness of shims under the lower wear plate (45). Insure that the shims slots are aligned with the three knockout holes in the impeller housing (46). When assembling motor housing (35) the upper end plate (24) must protrude above the motor housing (35), between 0.035 mm (0.001") and 0.075 mm (0.003"). If not add shims similar to wave washers.

#### REASSEMBLY

1. During assembly first clean all parts and cover with light grease. Please pay attention to the assembly of certain components.

Such as upper plate (11) and lower plate (15) must be assembled in the correct direction.

 Seal (14) and seal (29) must be assembled in correct direction. Check that the Y portion in seal (14) is facing downwards i.e. towards the top of the pump and the Y portion of seal (29) is facing upwards i.e. towards the top of the pump.

Carefully reassemble the pump in the pump in the reverse sequence of disassembly and install again as mentioned above.

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# Exploded view GSP25



## **Bill of material of GSP25**

No	Part no	Description	Qty
1	1999750	Gate valve assembly	1
2	5009043	Ext circlip light A-20	1
3	1993828	Air strainer	1
4	1992114	Air inlet bushing	1
5	1994034	O-ring Id 29 x 3.5 mm Buna-N	3
6	1900503	Governor housing	1
7	1909066	S.H.C.S. 3/8"-18BS W x 25 L	4
8	2109035	Lock washer	8
9	1909098	Int circlip light B-28	1
10	1905068	Spring retainer	1
11	1905154	Spring for govenor valve	1
12	1902115	Govenor valve	1
13	1902116	Spring for govenor valve	1
14	1902569	Governor valve cage	1
15	2004007	Int circlip light B-38	1
16	1902118	Spring for govenor body	1
17	1902119	Governor weight	2
18	1902117	Governor body	1
19	1992166	Pin for governor weight	2
20	1905052	Ball bearing-upper	1
21	1904023	O-ring for upper end plate	1
22	1900508	Upper end plate	1
23	1902120	Spacer rotor bearing (upper)	1
24	1903938	Rotor blade	4
25	1902121	Rotor body	1

No	Part no	Description	Qty
26	1904051	O-ring Id 14.2 x 2.7 mm Buna-N	1
27	1902122	Spacer rotor bearing (lower)	1
28	3200135	Roll pin for cylinder	2
29	1900505	Cylinder	1
30	1900507	Lower end plate	1
31	1904022	O-ring Id 80 x 3.5 mm Buna-N	1
32	1905053	Ball bearing-lower	1
33	1904048	Gasket for seal plate	1
34	1909063	Oil seal	2
35	1900506	Seal plate	1
36	1909065	Exhaust pipe	1
37	1900502	Motor housing	1
38	1909027	S.H.C.S. 3/8"-18BS W x 32 L	4
39	1994030	O-ring id82x3.5Mm buna-n	1
40	1900509	Upper wear plate	1
41	1902123	Impeller sleeve	1
42	1504052	O-ring Id 22 x 3.5 mm Buna-N	1
43	1900504	Impeller	1
44	1900510	Lower wear plate	1
45	1902125	Dead handle	1
46	1909030	Lock nut for dead handle	1
47	1902128	Discharge nipple	1
48	1900501	Impeller housing	1
49	1903102	Sump screen	1

#### **DISASSEMBLY AND REASSEMBLY GSP25**

Disconnect the air supply to the pump.

 Unscrew exhaust pipe (36) from motor housing (37). Remove four nos. socket head cap screws (38) and lock washer (8) from impeller housing (46) and lift up complete pump unit out of impeller housing (46).

To replace lower wear plate (42): Drive out lower wear plate (42) through holes at bottom of impeller housing (46) and remove it. To assemble it again, use arbor press new and fit lower wear plate (42) into impeller housing (46).

- 2. To disassemble governor housing (6): Unscrew and remove four nos. socket head screws (7) and lock washer (8) from motor housing (37). Lift governor housing (6)off motor housing (37) with help of circlip pliers, take out internal circlip (15). Pull out valve cage (14). At other end of valve cage (14) there is an internal circlip (9).
- Remove it with help of circlip pliers. Pull out spring retainer (10) along with spring (11). Pull out governor valve (12) and pin for governor valve (13). Take out both O-rings (5). Also unscrew gate vale (1) along with both male adaptor, again with help of circlip pliers, remove internal circlip (2) and then remove air strainer (3). With help of spanner, unscrew and remove air inlet bushing (4). Remove O-ring (5) from air inlet bushing (4).
- 4. To dismantle motor housing (37): Wedge impeller (41) to prevent turning and with a heavy screw driver, turn the rotor (25) in clockwise direction to remove impeller (41). Remove impeller sleeve (40) and O-ring (26) from rotor shaft (25).
- Tap with little force rotor end, so that complete pump unit will come out from motor housing (37). Remove seal plate (35) and gasket for seal plate (33). Note proper positions of oil seals (34) and remove them. Unscrew governor body complete (18) by rotating it in clockwise direction (left hand threads).

 Remove pin for governor weight (19) from governor body (18). Take out governor weights (17) and pin for governor body (16) from governor body (18), remove upper end plate (22) and spacer (23) from rotor (25). Remove cylinder (29) and four no rotor blades (24) from rotor (25). Then, tap out lower end plate (30) spacer (27) and O-ring (26) from lower end plate (30). Also remove ball bearing (32) from lower end plate (30) and ball bearing (20) from upper end plate (22).

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 reassemble in reverse sequence.

Note: While assembling complete pump unit on impeller housing (46), see that the vent hole is left open.

# Notes





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