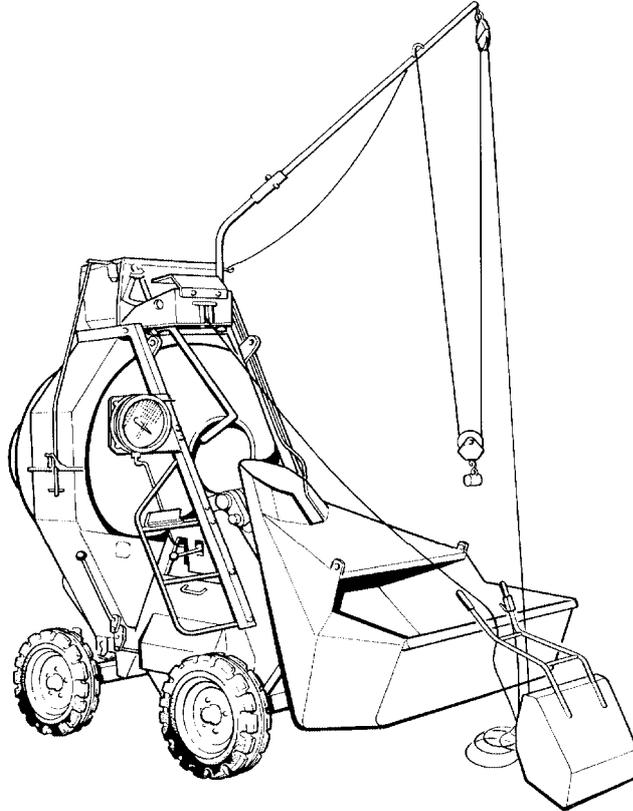


# WINGET

## 500R MIXER



# SYPHON TYPE WATER TANK WORKSHOP MANUAL

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# **INTRODUCTION**

This manual deals with the early 2 Compartment Syphon Type Water Tank fitted to 500R Reversing Drum Mixers.

The following pages should enable a competent fitter/mechanic to fault find, repair or overhaul Syphon Type Water Tanks.

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# Section A

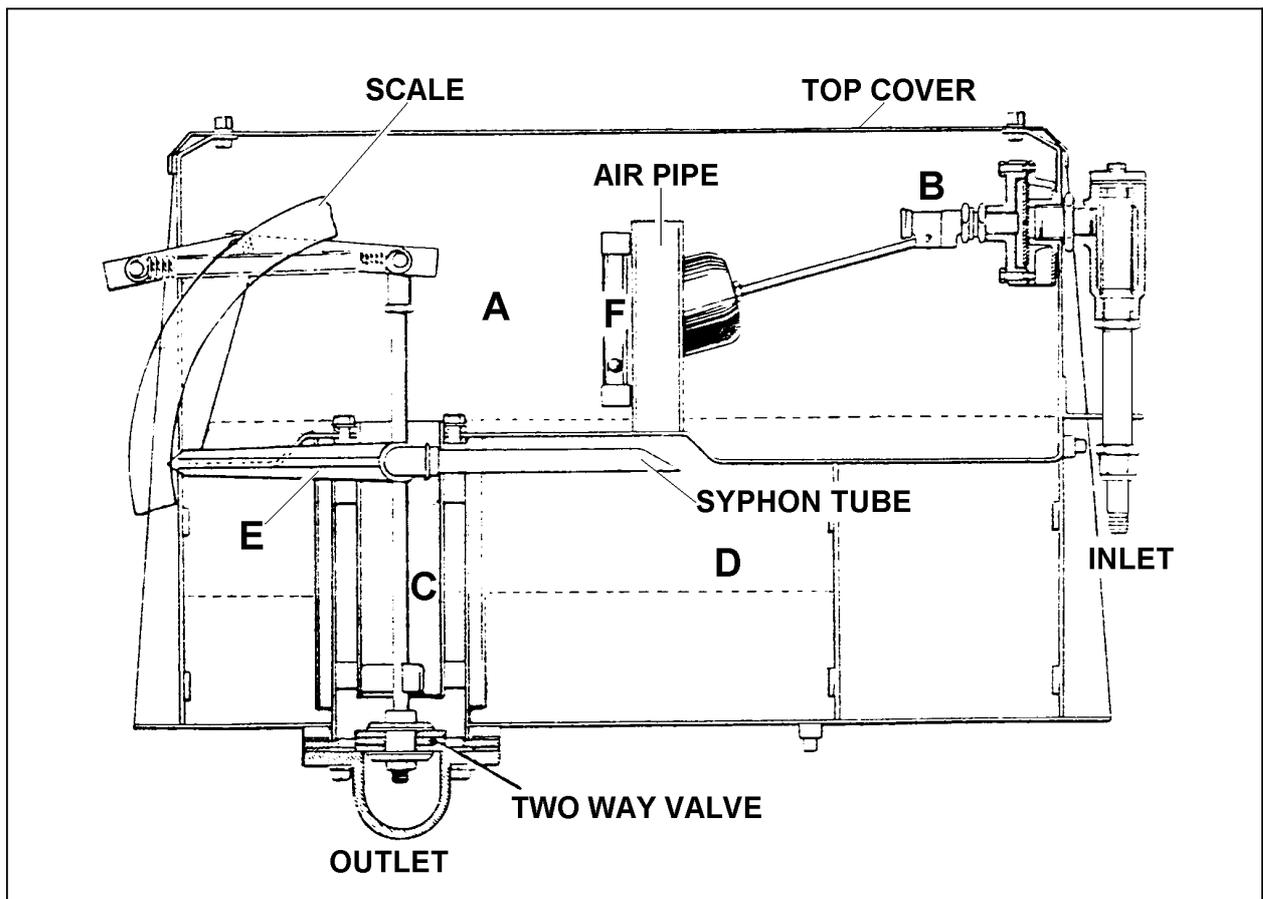
## **WATER TANK DESCRIPTION**

# WATER TANK DESCRIPTION

## 500R

### (2 Compartment Syphon Type)

The water tank is of the syphon type designed to automatically measure the required quantity of water from 10-110 litres (2-25 gallons) set by an adjustable indicator against a graduated scale. The indicator is locked in the desired position by means of a cast clamp nut.



Remember to release the clamp nut and re-tighten each time the indicator is moved.

#### **Filling**

The operation of the tank is simple. With the mechanism in the up position, the two way valve closes the tank outlet and the tank automatically fills.

Water enters the upper compartment "A" through the strainer and water inlet valve "B", runs down the syphon cylinder "C" flooding the lower compartment "D" backfilling into the upper compartment "A" until the float lifts cutting off the incoming water.

As soon as the float in the sight tube "F" begins to rise, sufficient water is available for a measured amount to be discharged.

To prevent problems with airlocks during filling and discharging the lower compartment is open to the atmosphere via the air pipe.

### **Two Way Valve**

The two way valve is located below the syphon cylinder and is connected to the operating mechanism via a control rod which passes up the centre of the syphon cylinder.

The valve consists of two rubber seats on a corrosion resistant steel body.

Lifting the mechanism lowers the two way valve closing the tank outlet, opening the syphon cylinder allowing the lower compartment to fill.

Lowering the mechanism raises the two way valve closing off the syphon cylinder and opening the tank outlet allowing the tank to discharge.

### **Water Inlet Valve**

The water inlet valve consists of the strainer to filter large particles out of the incoming water, two piece body sandwiching the brass and rubber diaphragm, and the brass float valve.

Water enters the valve body through the strainer filling the chamber acting on the rear rubber face of the diaphragm, causing the diaphragm to stretch and lift off the seat allowing the water to enter the tank.

There is a "pin hole" orifice in the centre of the diaphragm allowing water to pass through into a second chamber in the valve cover, whilst the float valve is open this water bleeds into the tank through the float valve.

As the water level in the tank rises the float lifts until the valve closes. This prevents the water passing through the orifice in the diaphragm into the second chamber from bleeding away.

Water pressure in the second chamber increases, equaling the pressure in the first chamber, allowing the stretched diaphragm to return to its original position, closing off the incoming water.

A seal is maintained by the diaphragm against the first chamber due to the differential areas in the two chambers, i.e. the second chamber now has a greater effective surface area than the first chamber.

### **Syphon Tube and Indicator**

The syphon tube connects the lower compartment with the syphon cylinder and the position of the syphon tube within the compartment is governed by the indicator and graduated scale.

The lower the indicator is set on the graduated scale (e.g. 10 litres) the higher the position of the syphon tube within the lower compartment.

The higher the indicator is set on the graduated scale (e.g. 110 litres) the lower the position of the syphon tube within the lower compartment.

Consequently, if the indicator is set to a low figure and the two way valve operated to open the outlet, less water will syphon out of the tank via the syphon tube before the end of the tube is uncovered and the water stops flowing.

If the indicator is set to a higher figure more water will syphon out of the tank via the syphon tube before the end of the tube is uncovered and the water stops flowing.

# Section B

## **WATER TANK ASSEMBLY PROCEDURE**

# **ASSEMBLY PROCEDURE**

## **500R WATER TANK**

### **(2 Compartment Syphon Type)**

It will be helpful to refer to the illustrations and photographs contained later in this manual in conjunction with the following procedures.

Lay the tank body on its back (plain side) on a suitable surface.

Insert the brass bush into the boss welded through the central tube in the tank.

Slip the "O" ring over the syphon tube and smearing the bush with copperslip locate the tube into the bush. Ensure the tube is free to move following insertion.

Using a soft faced hammer knock the pivot shaft into the lever pivot and secure with the roll pin. Coat the shaft with copperslip and insert the assembly through the cover plate as illustrated.

Lay the rubber gasket in place on the front of the tank, offer the lever pivot shaft and cover assembly to the tank locating the lever pivot over the syphon tube. Secure the cover plate with six setscrews, nylon sealing washers and flat washers.

Slip the second "O" ring over the pivot shaft and down into the recess in the cover plate, coat the threads with copperslip and screw on the cast handle/clamp nut but do not fully tighten.

Locate and secure the graduated scale to the face of the tank centering the scale within the slots.

Fit the indicator onto the pivot shaft. Turn the pivot shaft anti-clockwise until the syphon tube within the tank makes contact with the underside of the upper tank floor and hold in this position.

Turn the indicator to align with the 10 Litre mark on the graduated scale and lock the indicator to the pivot shaft using the small setscrew.

Ensure the indicator and tube assembly move freely with the clamp nut slackened off.

Fit the level indicator tube not forgetting the small plastic ball, onto the bosses welded to the face of the tank and secure with the pipe clips provided.

Coat the threads on the drain tap with pipe sealer or P.T.F.E. tape and screw the tap into the tank base. Turn the tap to the closed position.

Place a rubber gasket over the syphon cylinder and enter the cylinder into the tank through the base. (Note the top of the cylinder is cut away at a slight angle, when entering the cylinder into the tank ensure the angled face is towards the cover plate/lever pivot. Incorrectly fitting the cylinder could block the syphon tube).

Following the illustrations assemble the valve control rod, fitting the two way valve, lock nuts and boss. The two way valve is secured to the rod via a roll pin and the valve should not be a tight fit on the rod following assembly.

Enter the valve control rod through the syphon cylinder from the tank base, fit the outlet pipe to the syphon cylinder fitting the second rubber gasket and securing the assembly to the base of the tank using four setscrews, nylon sealing washers and flat washers.

Fit the "O" ring over the syphon cylinder where it protrudes through into the upper tank compartment, locate the centering ring over the cylinder and secure using four setscrews and copper sealing washers.

Following the illustrations assemble the link and spindle to the boss on the valve control rod, secure using split pins and flat washers. Locate the open end of the link over the support/pivot welded to the inner face of the tank.

Locate the open end of the second shorter link over the open end of the first and secure both to the support/pivot using the short pivot pin, split pins and flat washers.

Using the second spindle secure the threaded connector into the closed end of the shorter link and locate the flat washers and split pins.

Stretch and hook the tension springs between the two spindles and operate the mechanism ensuring it moves freely opening and closing the two way valve correctly.

### **Water Inlet Valve**

Make sure the orifice in the centre of the diaphragm is clear and locate the diaphragm on the face of the inlet valve body (Note the brass face on the diaphragm should be towards you). Fit the front cover securing with eight setscrews, fibre sealing washers and flat washers.

Do not overtighten the setscrews. Overtightening will split the sealing washers and stretch the diaphragm preventing correct operation.

Locate the inlet valve inside the tank securing with two setscrews and spring washers.

Coat the threads on the black iron fitting with pipe sealer or P.T.F.E. tape and screw home into the rear of the inlet valve. Insert the water strainer into the cast body fitting the cover and gasket. Screw the strainer body onto the water valve aligning the open end of the strainer with the support bracket on the side of the tank.

Assemble the water inlet tube and coating the threads with either pipe sealer or P.T.F.E. Tape screw the assembled tube home into the strainer assembly and tighten the locknut.

The water inlet tube should be inside the fork formed by the support bracket when correctly assembled.

Assemble the float valve into the water inlet valve tightening the locknuts against the inlet valve body, screw on the plastic float.

## **Testing and Calibration**

A large set of platform scales with a minimum reading of around 400lbs and a water collection tank with a capacity of around 35 gallons will be required to calibrate the Tank.

Support the tank on a suitable surface or framework. Connect a suitable water supply to the tank inlet, it will be more convenient for the purposes of the test if a shut off tap is located adjacent to the tank.

Ensure the two way valve is correctly set to close the discharge pipe. Turn on the water supply and allow the tank to fill until the float valve shuts off the incoming water supply. If the water level is too high or too low adjust the position of the float valve arm by bending slightly.

Place the collection tank on the scales below the tank outlet pipe and zero the scales.

Set the indicator to align with the 5 gallon mark on the graduated scale and tighten the clamp nut, operate the mechanism and discharge water into the collection tank. Once the water stops running from the outlet pipe reset the mechanism to close the two way valve and begin refitting the tank.

Check the weight of the water discharged into the collection tank (1 gallon = 10lbs) Slacken the small setscrew retaining the indicator to the pivot shaft (but not the clamp nut) and without moving the pivot shaft, align the indicator with the mark on the graduated scale which corresponds with the weight of water discharged e.g. 55lbs = 5 1/2 gallon. Re-tighten the small setscrew to lock the indicator back onto the pivot shaft.

Release the clamp nut and set the indicator to the 25 gallon mark on the graduated scale, retighten the clamp nut, zero the platform scales and operate the mechanism to discharge water into the collection tank.

Once the water stops running from the outlet pipe reset the mechanism to close the two way valve.

Check the weight of the water discharged it should be 250lbs (10lbs x 25 gallon).

Turn off the water supply. Drain the water from both tanks. Place the water tank on a suitable surface and drill and pin the indicator/pivot shaft using the roll pin provided.

Fit the tank cover support brackets and secure the tank cover in place.

# Section C

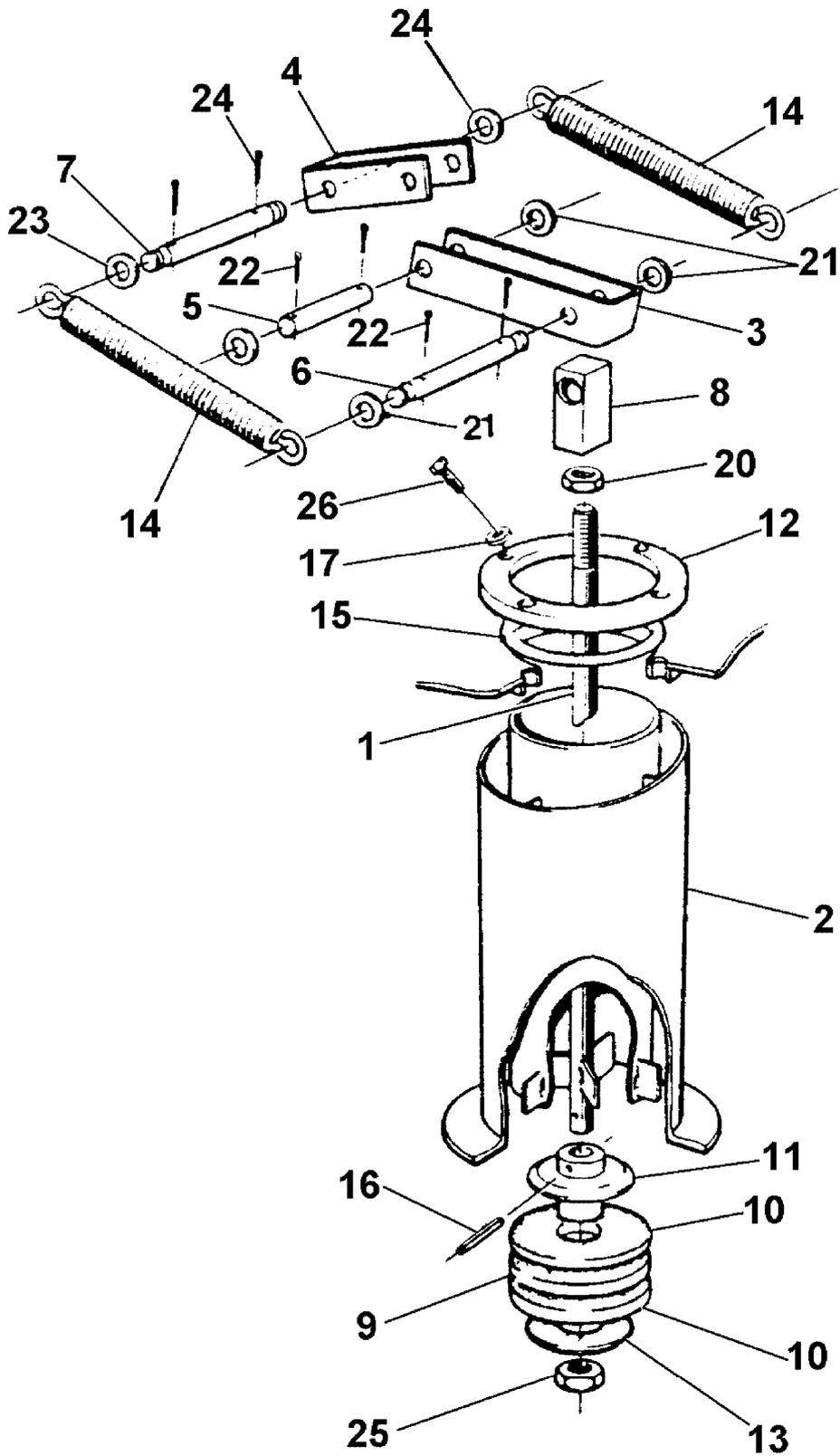
## **COMPONENT LISTING**



## WATER TANK SYPHON TYPE, 500R REVERSING DRUM MIXER

Item No	Description	Qty
<b>SYPHON TYPE WATER TANK, UPTO S/NO 0265</b>		
1	Body, water tank	1
2	Outlet, water tank	1
3	Lid, water tank	1
4	Housing, pivot	1
5	Handle	1
6	Shaft, pivot	1
7	Bush, brass	1
8	Clamp, hose	2
9	Tube, syphon break	1
10	Scale, tank	1
11	Lever, pivot	1
12	Point	1
13	Joint, rubber	1
14	Gasket, tank	1
15	Strainer, body	1
16	Body, inlet valve	1
17	Diaphragm	1
18	Cover, float valve	1
19	Pipe, water supply inlet	1
20	Element, strainer	1
21	Cap, strainer body	1
22	Gasket, strainer cap	1
23	Valve, ball float	1
24	Float, polythene	1
25	Tube, clear	1
26	Ball, level indicator	1
27	Connector, hose	1
28	Seal 'O' ring	1
29	Seal 'O' ring	1
30	Pin, split	1
30	Screw set	1
31	Nipple reducing	1
32	Nut back	2
33	Washer	4
34	Bracket, water tank lid	2
35	Cock, drain	1
36	Pipe, water discharge	1
37	Gasket	1
38	Washer	8
39	Washer	6
41	Bolt	10
42	Nut	10
43	Washer, spring	10
44	Bolt	2
45	Screw set	4
46	Washer, flat	14
47	Bolt	6
48	Screw set	2
49	Washer, flat	2
50	Screw set	2
51	Screw set	2
52	Bolt	6
53	Nut	6
54	Bolt	8
55	Screw set	4

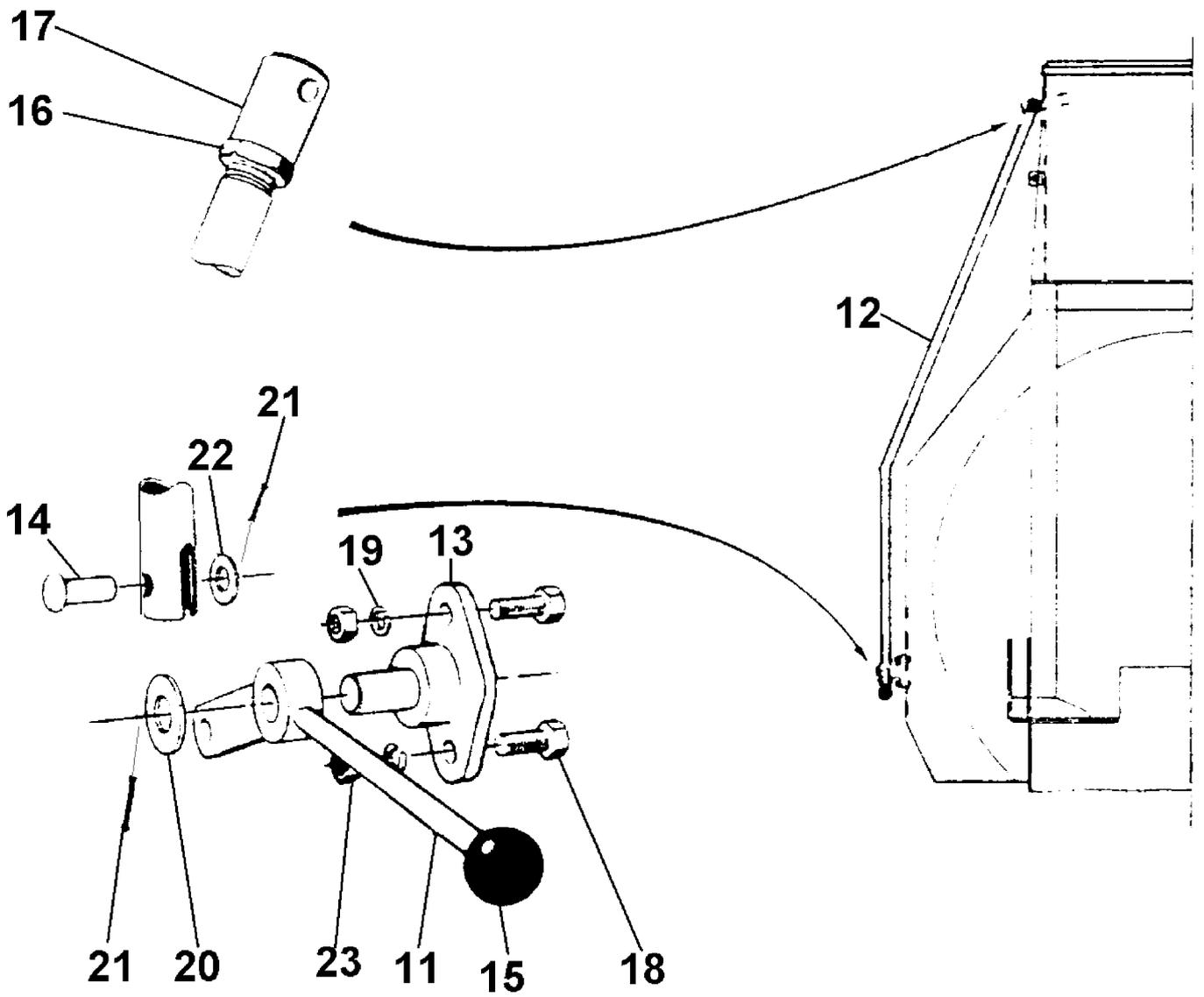
# SYPHON TUBE



## WATER TANK SYPHON TYPE, 500R REVERSING DRUM MIXER

Item No	Description	Qty
<b>SYPHON TUBE, UPTO S/NO 0265</b>		
1	Rod, valve control	1
2	Cylinder, syphon	1
3	Link, valve	1
4	Link, ram	1
5	Pin connecting	1
6	Pivot, valve	1
7	Pivot, ram	1
8	Boss, valve rod	1
9	Plate, centre	1
10	Seal, valve	2
11	Plate, centre	1
12	Flange, 'O' ring	1
13	Washer, valve	1
14	Spring, tension	2
15	Seal	1
16	Pin, spirol	1
17	Washer, selon	4
20	Nut, locking	1
21	Washer, flat	4
22	Pin, split	4
23	Washer, flat	2
24	Pin, split	2
25	Nut, self locking	1
26	Setscrew	4

# DISCHARGE MECHANISM



# WATER TANK SYPHON TYPE, 500R REVERSING DRUM MIXER

Item No	Description	Qty
<b>DISCHARGE MECHANISM, UPTO S/NO 0265</b>		
11	Lever, operating	1
12	Rod, tank operating	1
13	Pivot, operating lever	1
14	Pin, lever rod connecting	1
15	Knob, lever	1
16	Nut	1
17	End Piece, operating rod	1
18	Bolt	2
19	Washer spring	2
20	Washer flat	1
21	Pin split	2
22	Washer Flat	1

# Section D

## **ASSEMBLY PHOTOGRAPHS**

# ASSEMBLY PHOTOGRAPHS SYPHON TYPE WATER TANK







