

YAMIT FILTRATION

SA500C – Compact Semi-Automatic Screen Filter

SERVICE & MAINTENANCE MANUAL



V# 02.2020
9006105001

Table of Contents

<u>Subject</u>	<u>Page No.</u>
1. Introduction	3
2. Safety Instructions.....	3
3. Description & Operation.....	4
4. General Description Filter Operation.....	5
5. Technical Data	6
6. Initial Installation & Operation	8
7. Maintenance & Periodic Checks	9
7.1 Fine Screen replacement	9
7.2 Handle Assembly Removal & Installation.....	10
7.3 Dirt Collector Replacement.....	11
7.4 Periodic Checks	12
8. IPB	13
9. International Warrantee	15

1. Introduction

General

YAMIT Filtration Ltd congratulates you on purchasing the **SA500C SERIES** semi automatic screen filter. This filter is part of the wide family of filters produced and supplied by **YAMIT** for agriculture, municipal water and sewage systems, and all types of industrial applications. All products manufactured by **YAMIT** are easy to install, use and service and don't require special skills to operate them.

For operation and maintenance of the filter please follow the instructions in this manual.

2. Safety Instructions

1. Prior to installation or handling of the filter, read carefully the installation and operation instructions carefully.
2. Confirm filter draining prior to service.
3. Take precautions while lifting, transporting or installing the filter.
4. Installation of the filter should be performed so as to avoid direct water splashing on any of the filter parts.
5. Confirm that filter weight, when full, meets the support construction requirements.
6. Prior to installation confirm that line pressure matches filter's operational pressure.
7. During installation, use standard flanges and connections only.
8. Check that all filter flange bolts are properly secured.
9. Use original parts only when servicing the filter.
10. Any changes or modifications to the equipment will render the warranty null and void.
11. Do not perform any maintenance activities other than those described in this manual.

3. Description & Operation

Filter Assembly General Description

The **SA-500** semi automatic self-cleaning filter enables high quality filtering at a filtration grade of 80-3000 microns. Filtration can be from different types of fluid sources such as sewage, reservoirs, rivers, lakes, and wells.

The **SA-500** filter contains the following parts:

- | | |
|-------------------|-----------------------|
| 1. Inlet | 6. Flushing Chamber |
| 2. Screen | 7. Nozzle |
| 3. Dirt collector | 8. Outlet |
| 4. Handle | 9. Pressure indicator |
| 5. Flushing valve | |

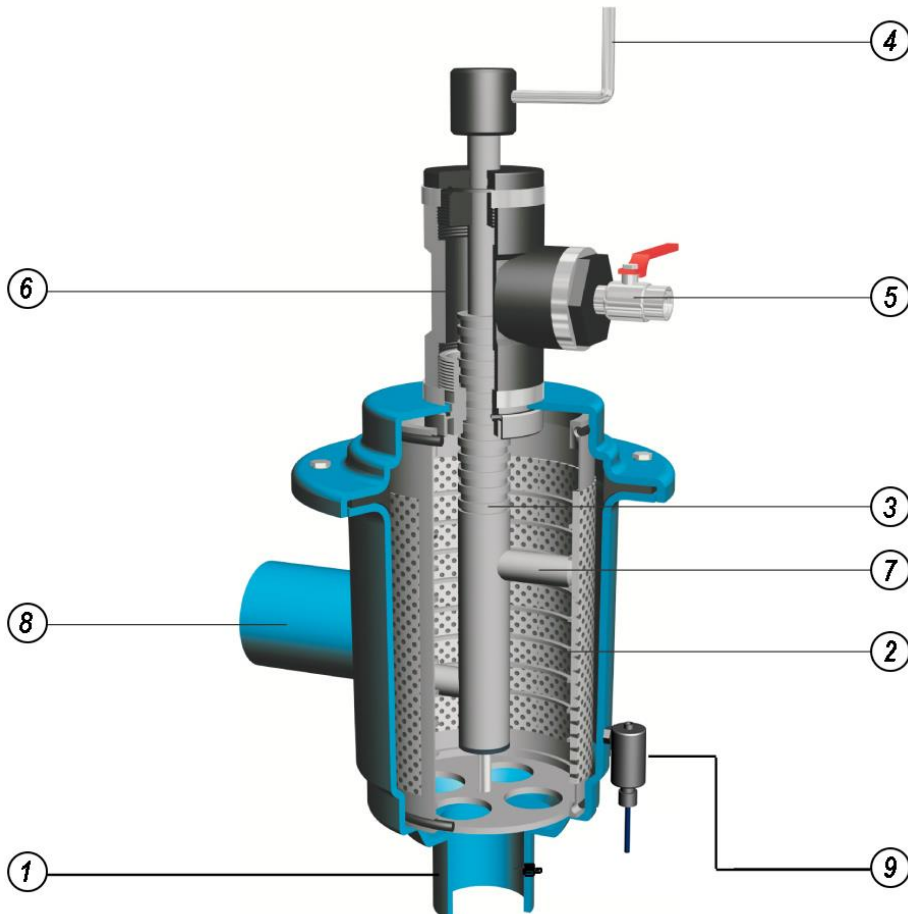


Figure 1: Filter Assembly

4. Filter Operation General Description (Figure 1)

Filtration

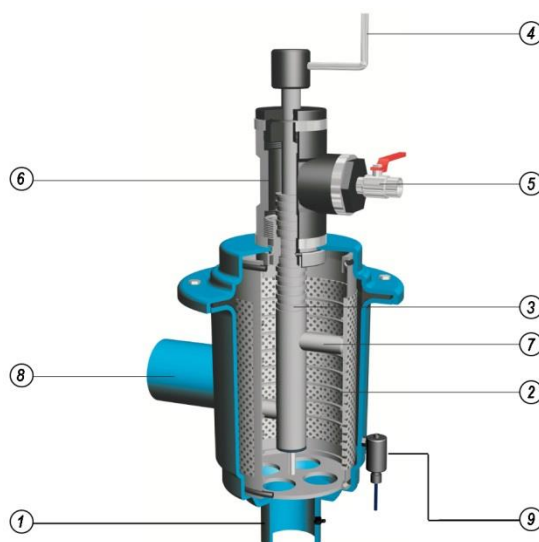
Water enters the filter through the “Inlet” (1). Water then reaches the screen (2), which purifies the flow by separating smaller particles from the water. As more water flows through, impurities build up on the screen. As impurities on the screen accumulate, a pressure imbalance is built up between the internal section of the screen (2) and its external section.

Cleaning process in suction type Filter

When the difference in pressure (ΔP) reaches the either the value that determined by the operator (can be shown on the pressure indicator that based on 0.5 bar pressure difference (9) installed on the filter), or according to the timetable determined by the operator, a series of actions must be taken while the water continues to flow to the systems' units:

1. Confirm that the dirt collector (3) is fully in lower position (by spinning the handle (4) clockwise until it stops).
2. Open the flushing valve (5) and spin the handle (4) until the dirt collector comes to a stop.
3. Close the flushing valve (5).

When the flushing valve (5) opens, water flows outside. The pressure in both the flushing chamber (6) and the dirt collector (3) is significantly lowered, and the dirt collector nozzles (7) begin a suction process. The spinning of the dirt collector (3) and the spiral axis filter, cause a full scanning of the screen (2) by the dirt collector. The combination of the linear movement and rotation cleans the entire internal screen (2) surface. The flushing cycle takes a few seconds. While clean and filtered water flows through the “Outlet” (8).



5. Technical Data

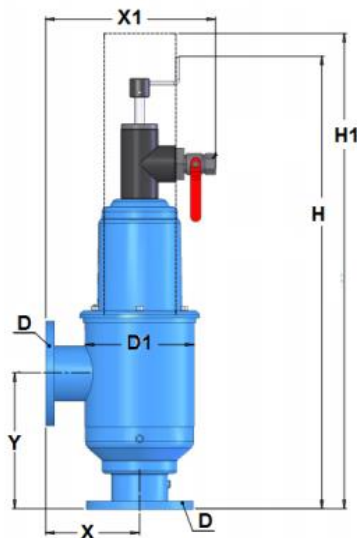
Standard Features

- Minimum operating pressure: 1 bar (14.1 psi)
- Maximum operating pressure: 10 bar (141 psi)
- Clean filter pressure loss: 0.1 (1.41 psi)
- Maximum water temperature: 65°C (149°F)
- Filtration range: 80-3000 micron
- Control voltage: 6V DC, 24V AC
- Flush water consumption
- (at minimum working pressure): 10 liters (2.64 gallons)
- Filter housing materials: carbon steel coated with baked on epoxy

Measurements & Weight

Model	In/Out ∅D (mm) (in)		∅D1 (in)	X (mm) (in)		X1 (mm) (in)		Y (mm) (in)		H (mm) (in)		H1 (mm) (in)	
	SA502C	50		2	6	123	4.83	270	10.62	174	6.9	590	23.2
SA503C	75	3	6	164	6.46	307	12.07	197	7.7	790	31.1	849	33.4
SA504C	100	4	8	190	7.46	343	13.90	280	11.0	933	36.7	980	38.6

Model	In/Out ∅D (mm) (in)		∅D1 (in)	Shipping Weight (kg) (lb)		Packaging Size (LxWxH) (m) (ft)	
	SA502C	50		2	6	12	26
SA503C	75	3	6	24	53	0.3x0.3x0.8	0.98x0.98x2.62
SA504C	100	4	8	30	66	0.35x0.35x0.97	1.14x1.14x3.18



Flow Rate

Model	In/Out ØD (mm) (in)		Maximum Flow Rate (m ³ /h) (GPM)		Flushing Flow rate (m ³ /h) (GPM)		Screen area (cm ²) (in ²)	
SA502C	50	2	25	110	6	26	1134	176
SA503C	75	3	45	200	8	35	1895	294
SA504C	100	4	80	350	10	44	2360	366

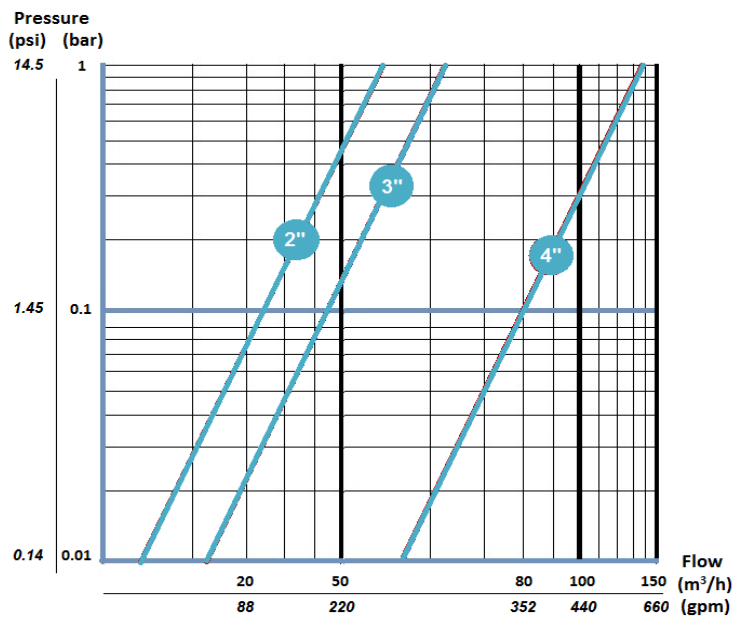
* Flow rate data is for high quality water at a filtration grade of 120 microns.

** Flushing flow rate data is for minimal working pressure operation of 1 bar (14.5psi).

Filtration Grade Conversion Table

Micron	80	100	120	150	200	300	400	500	800	1000
Mesh	200	150	120	100	80	55	40	30	20	15

Pressure Loss at 120 micron



6. Initial Installation & Operation

General

The filter assembly is shipped fully assembled along with the flushing valves.

Installation

1. Take the filter assembly out of the box.
2. Connect the filter assembly to the inlet line and outlet line.
3. Connect a drain pipe to the flushing valve outlet opening (at least 40 mm or 1.5" diameter and no more than 5m long – if longer distance required, use 3" or more pipe diameter). Confirm that water runs freely out of the drainpipe.
4. Check that all connections are properly secured.
5. Check that all bolts and nuts on filter periphery are properly tightened and secured.

Initial Operation

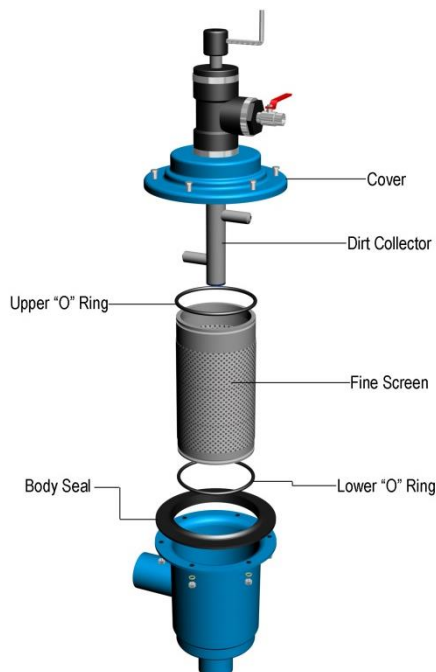
1. Gradually open the inlet valve (make sure that the outlet valve is open).
2. Check the filter assembly and its connections for leaks.
3. Spin the handle first counter-clockwise until it stops and then clockwise.
4. Perform a flushing cycle by opening the flushing valve and spinning the handle until the dirt collector come to a stop (do not exert pressure on the dirt collector when it stops). When the dirt collector stops, close the flushing valve.

Confirm that the differential pressure indicator is not showing pressure difference (when the filter is clean, the pressure difference between the inlet and outlet will not exceed 0.1 bar).

7. Maintenance & Periodical Checks

7.1 - Fine Screen Assembly Removal & Installation

1. Close the inlet and outlet valves.
2. Confirm that the filter has been drained prior to initiating service – use the flushing valve to release the pressure from the filter.
3. Remove the nuts and washers connecting the upper part of the filter housing.
4. Remove the upper part with the handle and the dirt collector from the filter housing.
5. Remove the body seal from the filter housing groove.
6. Remove the screen from the filter housing by pulling.
please note: the lower screen plate and the central dirt collector axis are permanently connected and will be pull out as one unit.
7. Remove both the upper and lower seals from the current fine screen assembly.
8. Position both the upper and lower seals in the new fine screen assembly.
9. Lubricate the upper and lower seals with **silicon grease**.
10. Slide the new fine screen assembly into the filter housing assembly
11. Position the body seal in the groove located on the filter housing.
12. Return the cover of the filter housing into place (make sure that the axis is securely in position in the dirt collector) tighten the nuts and washers connecting the cover to the filter housing.
13. Gradually open the inlet valve (be sure that the outlet valve is open).
14. Check the filter assembly and its connections for leaks.
15. Spin the handle first counter-clockwise until it stops, and then clockwise.
16. Perform a flushing cycle by opening the flushing valve and spinning the handle until the dirt collector come to a stop (do not exert pressure on the dirt collector when it stops). When the dirt collector stops, close the flushing valve.
17. Confirm that the differential pressure indicator is not showing pressure difference (when the filter is clean, the pressure difference between the inlet and outlet will not exceed 0.1 bar).



7.2 – Handle Assembly Removal & Replacement

1. Close the inlet and the outlet line valves.
2. Confirm that the filter has been drained prior to servicing.
3. Release the screw connecting the handle plug to the dirt collector and pull the handle out.
4. Position the new handle on the top of the dirt collector and connect it with the screw.
5. Gradually open the inlet valve (make sure that the outlet valve, is open).
6. Check the filter assembly and its connections for leaks.
7. Spin the handle first counter-clockwise until it stops, and then clockwise.
8. Perform a flushing cycle by opening the flushing valve and spinning the handle until the dirt collector come to a stop (do not exert pressure on the dirt collector when it stops). When dirt collector stops, close the flushing valve.

Confirm that the differential pressure indicator is not showing pressure difference (when the filter is clean, the pressure difference between the inlet and outlet will not exceed 0.1 bar).

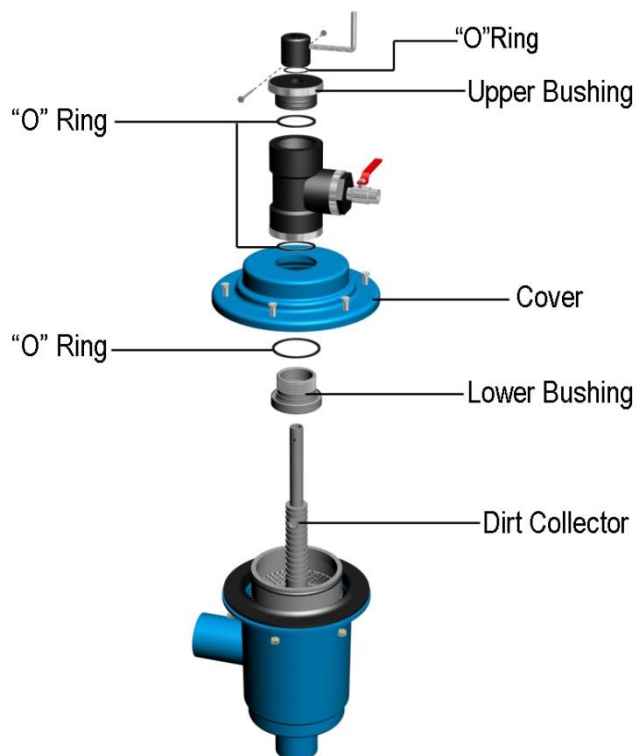


Figure 4: Handle Assembly

7.3 – Dirt Collector Removal & Replacement

1. Close the inlet and the outlet valves.
2. Confirm that the filter has been drained prior to servicing.
3. Release the screw connecting the handle plug to the dirt collector and pull the handle out.
4. Remove the nuts and washers connecting the cover to the filter housing.
5. Remove the upper part with the handle and the dirt collector out of the filter's housing
6. Remove the body seal from the filters housing groove.
7. Unscrew the current dirt collector from the flushing chamber and pull it out.
8. Insert the new dirt collector into the flushing chamber and spin it into the spiral bolt located on the lower part of the flushing chamber.
9. Position the body seal in the groove located on the filter housing.
10. Return the cover of the filter housing into place (be sure that the axis is securely in position in the dirt collector) tighten the nuts and washers connecting the cover to the filter housing.
11. Connect the handle on top of the dirt collector with its screw
12. Gradually open the inlet valve (be sure that the outlet valve is open).
13. Check the filter assembly and its connections for leaks.
14. Spin the handle first counter-clockwise until it stops and then clockwise.
15. Perform a flushing cycle by opening the flushing valve and spinning the handle until the dirt collector come to a stop (do not exert pressure on the dirt collector when it stops). When the dirt collector stops, close the flushing valve.

Confirm that the differential pressure indicator is not showing pressure difference (when the filter is clean, the pressure difference between the inlet and outlet will not exceed 0.1 bar).

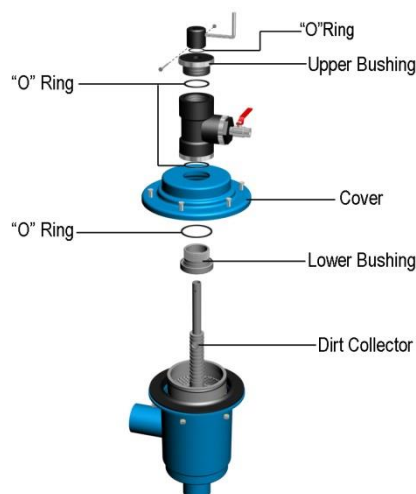


Figure 5: Dirt Collector

7.4 – Periodic Checks (Figure 6)

We strongly recommend that annual Periodic Checks be performed at the same time every year, as follows:

1. Check for leaks.
2. Check the filter housing for paint damage and corrosion. If required, clean the area with sandpaper and apply a thin layer of basic paint + epoxy paint.
3. Check the condition of all seals. Replace any damaged or deteriorating seals.
4. Check the condition of the fine screen assembly. If necessary, replace according to "**Fine Screen Assembly Removal & Installation**".
5. Check the dirt collector suction nozzles height (see table). If necessary, replace according to "**Dirt Collector Removal & Installation**".

Dirt Collector Suction Nozzles Height

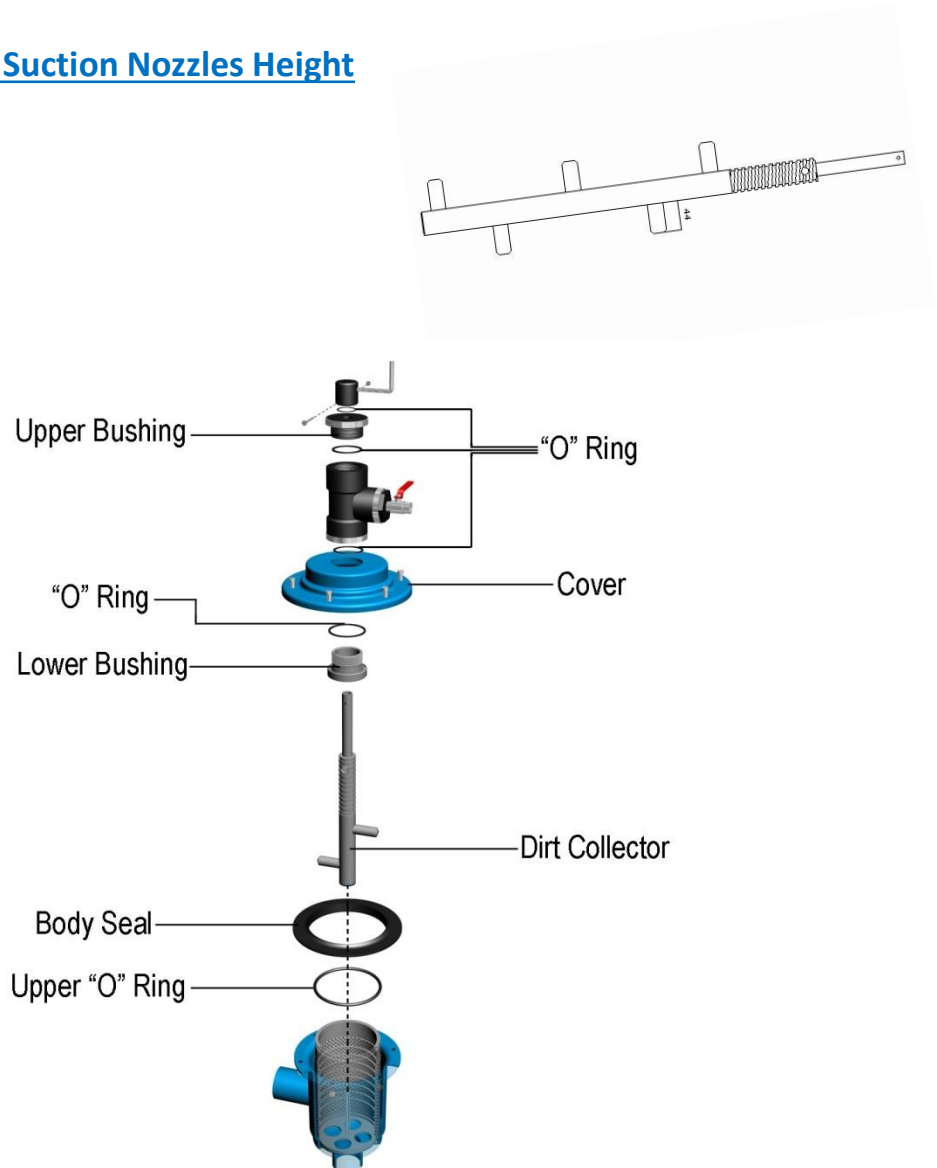
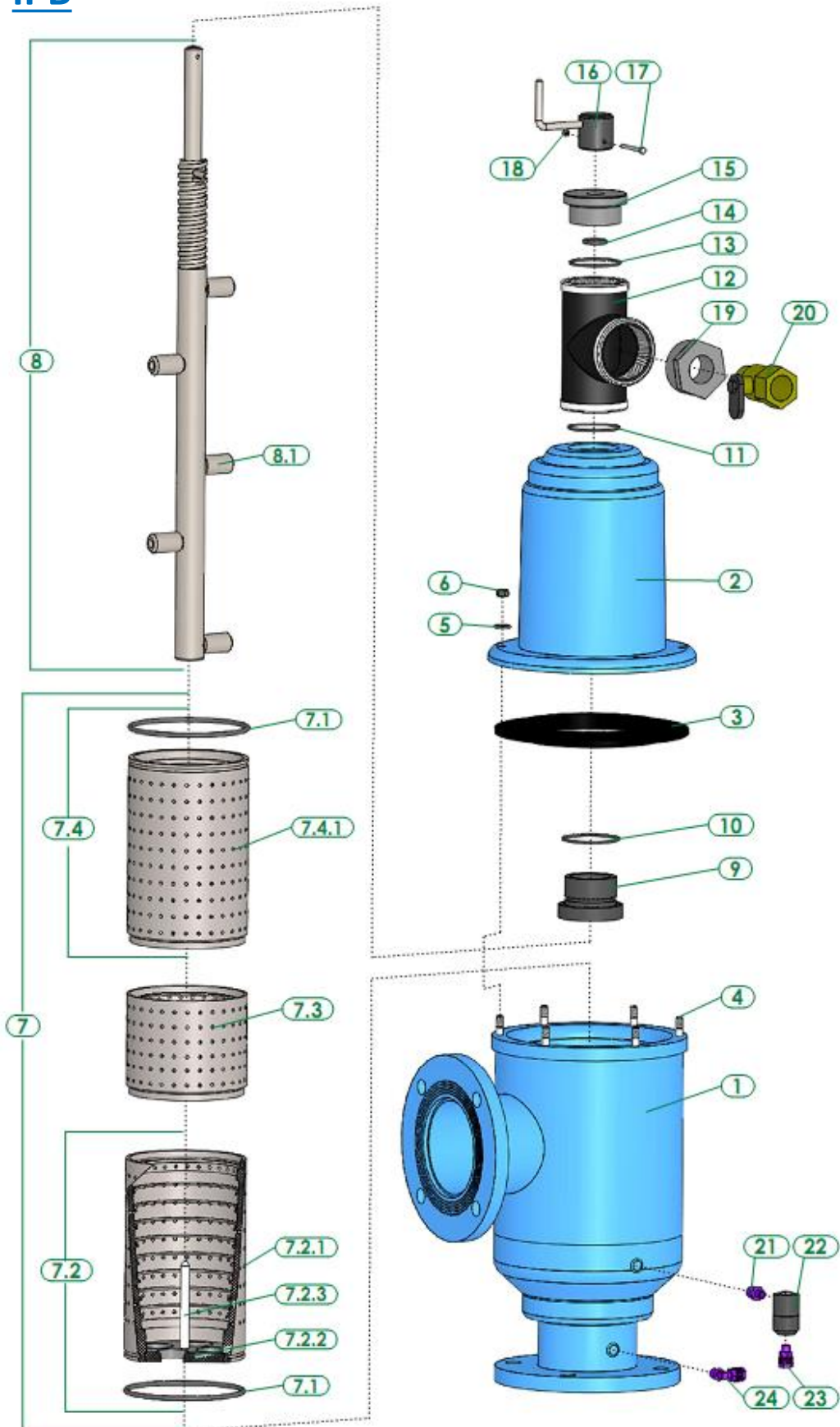


Figure 6: Periodic Checks

8. IPB

IPB No	Filters	Catalog No	Description
1	SA500C	N/A	FILTER BODY
2	SA500C	N/A	FILTER COVER
3	SA500C	5311150100	GASKET FOR BODY 6" SA500C
4	SA502C	4102113001-030	BOLT HEX HEAD 5/16"NC*1.1/4" SS304
	SA503C		
	SA504C		
5	SA500C	5292113001-029	STUD 5/16"NC*29 SS304
6	SA500C	4121083001	WASHER M8 SS304
7	SA500C	4112110401	NUT 5/16"NC HOT GALVANIZED
7	SA502C	E7003601003-01##	COMP FINE SCREEN PVC140 SA502C
	SA503C	E7003602004-01##	COMP FINE SCREEN PVC140 SA503C
	SA504C	E7003603000-01##	COMP FINE SCREEN PVC140 SA504C
7.1	SA500C	4081126100-250	O-RING 250
7.2	SA502C	As IPB NO. 7	
	SA503C	E5003600101-01##-01	FINE SCREEN UPPER SECTION PVC140 ASSM SA503/4C
	SA504C		
SA502C	W5003600406-01##		
7.2.1	SA503C	W5003600101-01##	FINE SCREEN UPPER SECTION PVC140 SA503/4C
	SA504C		
	SA500C		
7.2.2	SA500C	5131301002	CENTRALIZE SHAFT F/D/COLLECTOR SS304 10mm SA500C
7.3	SA504C	W5003600301-01##	FINE SCREEN MIDDLE SECTION PVC140 SA504C
7.4	SA503C	E5003600201-01##-01	FINE SCREEN LOWER SECTION PVC140 ASSM SA503/4C
	SA504C		
7.4.1	SA503C	W5003600201-01##	FINE SCREEN LOWER SECTION PVC140 SA503/4C
	SA504C		
	SA502C		
8	SA503C	E7101610401-01	COMP DIRT COLLECTOR PVC 1" PVC 4 NOZZLE 503C
	SA504C	E7101610501-01	COMP DIRT COLLECTOR PVC 1" PVC 5 NOZZLE 504C
	SA500C	5121610102	SUCTION NOZZLE SA500C
8.1	SA500C	6156102000	SPIRAL DRIVE NUT PVC SA500C
9	SA500C	4081063100-230	O-RING 230
10	SA500C	4081050100-226	O-RING 226
11	SA500C	4190206500	TEE PP 2"BSP + RINGS
12	SA500C	4081053100-138	O-RING 138
13	SA500C	4081020100-211	O-RING 211
14	SA500C	6076102000	UPPER PLUG PVC SA500C
15	SA500C	E6043000001	DRIVING HANDLE SA500C
16	SA500C	4101043001-045	BOLT HEX HEAD M4*45 SS304
17	SA500C	4111043002	NYLOCK NUT M4 SS304
19	SA502C	4230206501	BUSHING 2"*1/2"BSP PLASTIC
	SA503C	4230206502	BUSHING 2"*3/4"BSP PLASTIC
	SA504C	4230206503	BUSHING 2"*1"BSP PLASTIC
20	SA502C	4504005102-01	BALL VALVE SAGIV 1/2"BSP FM
	SA503C	4504007102-01	BALL VALVE SAGIV 3/4"BSP FM
	SA504C	4504010102-01	BALL BALVE SAGIV 1"BSP FM
21	SA500C	4640514182	NIPPLE 1/4"*1/8" PLASTIC
22	SA500C	E5412056300	PRESSURE INDICATOR SA500C
23	SA500C	4640714085	MALE CONNECTOR 1/8"*8 PLASTIC
24	SA500C	4640614082	MALE ELBOW 1/4"*8 PLASTIC

9. STANDARD INTERNATIONAL WARRANTY

YAMIT Filtration Ltd. (hereinafter - " **YAMIT** ") guarantees to the customers who purchased **YAMIT**'s products directly from **YAMIT** or through its authorized distributors, that such products will be free from defect in material and/or workmanship for the term set forth below, when such products are properly installed, used and maintained in accordance with **YAMIT**'s instructions, written or verbal.

Should such products prove defective within one year as of the day it left **YAMIT**'s premises, and subject to receipt by **YAMIT** or its authorized representative, of written notice thereof from the purchaser within 30 days of discovery of such defect or failure - **YAMIT** will repair or replace or refund the purchase price, at its sole option, any item proven defective in workmanship or material.

YAMIT will not be responsible, nor does this warranty extend to any consequential or incidental damages or expenses of any kind or nature, regardless of the nature thereof, including without limitation, injury to persons or property, loss of use of the products, loss of goodwill, loss of profits or any other contingent liabilities of any kind or character alleged to be the cause of loss or damage to the purchaser.

This warranty does not cover damage or failure caused by misuse, abuse or negligence, nor shall it apply to such products upon which repairs or alterations have been made by other than an authorized **YAMIT** representative.

This warranty does not extend to components, parts or raw materials used by **YAMIT** but manufactured by others, which shall be only to the extent warranted by the manufacturer's warranty.

No agents or representatives shall have the authority to alter the terms of this warranty nor to add any provisions to it not contained herein or to extend this warranty to anyone other than **YAMIT**'s customers.

THERE ARE NO WARRANTIES, EXPRESS OR IMPLIED, EXCEPT THIS WARRANTY WHICH IS GIVEN IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

