

# Operating & Maintenance Manual



Filters are utilised to remove contaminant from hydraulic systems.

Long working life of the hydraulic components and correct use of the hydraulic systems can be assured only when maintenance is performed correctly and at regular intervals.

It is essential to use indicators that serve to inform the user of the need to change the cartridge.

Effective contamination control can be assured only by the correct use of clogging indicator.

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## INSTALLATION

### A

Check that the pressure value of the selected filter is higher than the system's maximum operating pressure (the maximum pressure value is shown on the dataplate).

### B

Check that the filter body contains the filter cartridge.

### C

Check that the operating fluid is compatible with the material of the body, cartridge, and seals.

### D

Install the filter in an accessible position for correct and trouble-free maintenance and visibility.

### E

Start the machine and check for the absence of oil leaks from the filter and relative fittings.

### F

Repeat the visual inspection when the system arrives at the operating temperature of the oil.

## MAINTENANCE

### A

All maintenance operations must be performed only by suitably trained personnel.

### B

The hydraulic system must be depressurised before performing maintenance operations.

### C

Maintenance must be carried out using suitable tools and containers to collect the fluid contained in the filter body. Spent fluids must be disposed of in compliance with statutory legislation.

### D

Do not use naked flames during maintenance operations.

### E

Use the utmost caution in relation to the temperature of the fluid. High temperatures can lead to residual pressure with resulting undesirable movements of mechanical parts.

## CHANGING THE FILTER ELEMENT

### A

The date on which the filter elements are changed must be entered in the machine datasheet.

### B

Spare parts installed must be in compliance with the specifications given in the machine operating and maintenance manual.

### C


Filter bodies and tools must be thoroughly cleaned prior to each maintenance operation.


### D



After having opened the filter to change the filter element, check the condition of the seals and renew them if necessary.




Clean thoroughly before reassembling.


## MAINTENANCE TOOLS



Type	Indicators Series	Body	
		Type	A/F
Clogging	VR		11
	VP		27
	FE		
Differential	V		32
	E		
	J		
	NR	30	
	KR		
	U		


Series	Filter	Cover screw	
		Type	A/F
MPF	MPF 020		10
	MPF 030		
	MPF 100		
	MPF 104		
	MPF 110		
	MPF 120		
	MPF 181		15
	MPF 182		
	MPF 184		13
	MPF 450		
	MPF 451		
	MPF 750		

Series	Filter	Air Breather screw	
		Type	A/F
MPT	MPT 025		3
	MPT 027		
	MPT 101	-	-
	MPT 104		3
	MPT 110		
	MPT 114		
	MPT 120		

Series	Filter	Cover screw		Air Breather screw		Spring retainer nut		
		Type	A/F	Type	A/F	Type	A/F	
MPH	MPH 104		-		3		13	
	MPH 110							
	MPH 114							
	MPH 120							
	MPH 250							13
	MPH 630							15
	MPH 660							17
	MPH 850							18

Series	Filter	Spring retainer nut	
		Type	A/F
MPI	MPI 100		13
	MPI 250		17
	MPI 630		
	MPI 850		22

Series	Filter	Cover screw	
		Type	A/F
FRI	FRI 025		3
	FRI 040		5
	FRI 100		6
	FRI 250	8	
	FRI 255	-	-
	FRI 630		8
	FRI 850		

Series	Filter	Knob nut	
		Type	A/F
RF2	RF2 250		10
	RF2 350		

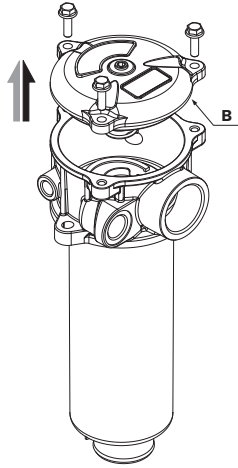
## CHANGING THE FILTER ELEMENT IN MPF FILTERS

**1**

Depressurise the system and clean the filter.

**2**

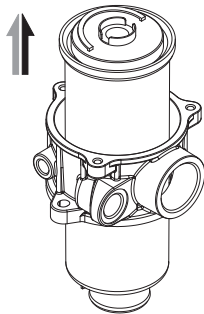
Unscrew the screws remove out the cover.



**Fig. 1**

**3**

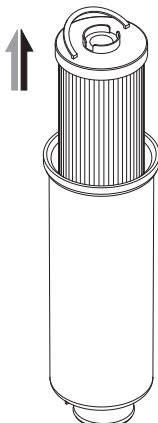
Take out the filter element and bowl using the handle on the filter element.



**Fig. 2**

**4**

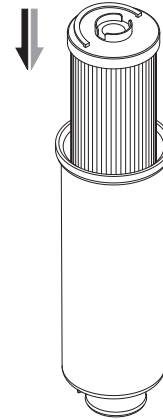
Remove the filter element from the bowl. Collect the spent oil and cartridge in a suitable container and dispose of them in compliance with statutory legislation.



**Fig. 3**

**5**

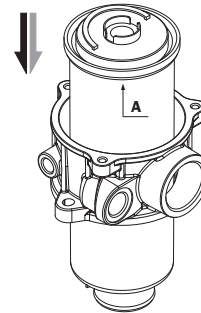
Using the new filter element, lubricate seal with the operating fluid. Put the filter element into the bowl.



**Fig. 4**

**6**

Check the condition of the bowl seal "A" (see Fig. 5): if renewing, lubricate the new seal with the operating fluid before installing.

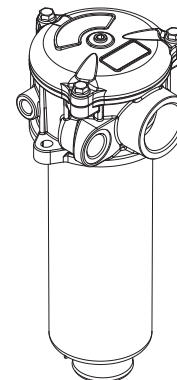


**Fig. 5**

**7**

Check the condition of the cover seal "B" (see Fig. 1): if renewing, lubricate the new seal with the operating fluid before installing.

Screw the crews of the cover.



**Fig. 6**

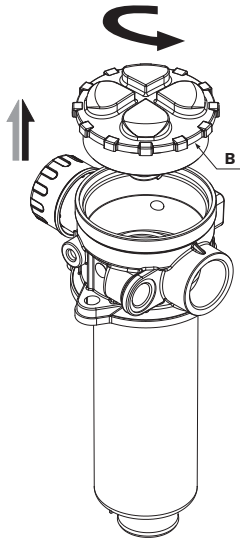
**8**

Start the machine and check for the absence of leaks. Repeat the check when the machine has reached its operating temperature.

## CHANGING THE FILTER ELEMENT IN MPT FILTERS

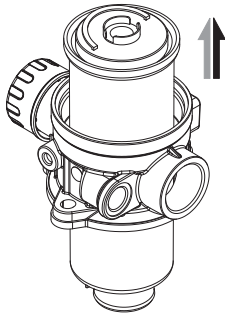
**1**  
Depressurise the system and clean the filter.

**2**  
Unscrew the cover.



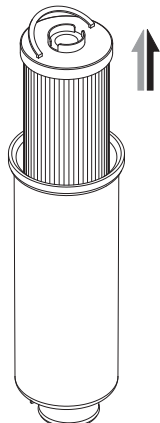
**Fig. 1**

**3**  
Take out the filter element and bowl using the handle on the filter element.



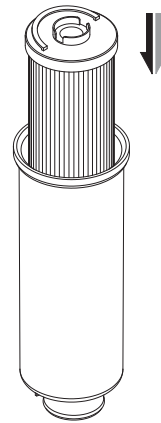
**Fig. 2**

**4**  
Remove the filter element from the bowl.  
Collect the spent oil and cartridge in a suitable container and dispose of them in compliance with statutory legislation.



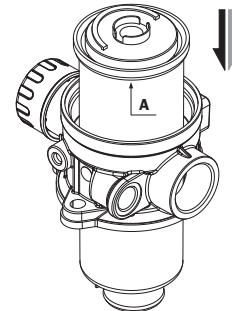
**Fig. 3**

**5**  
Using the new filter element, lubricate seal with the operating fluid.  
Put the filter element into the bowl.



**Fig. 4**

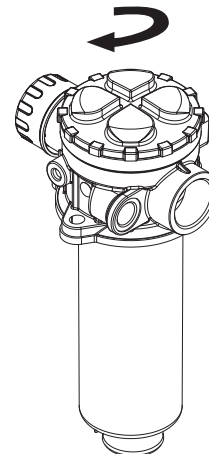
**6**  
Check the condition of the bowl seal  
"A" (see Fig. 5):  
if renewing, lubricate the new seal with the operating fluid before installing.



**Fig. 5**

**7**  
Check the condition of the cover seal  
"B" (see Fig. 1):  
if renewing, lubricate the new seal with the operating fluid before installing.

Screw the cover.



**Fig. 6**

**8**  
Start the machine and check for the absence of leaks. Repeat the check when the machine has reached its operating temperature.

## CHANGING THE FILTER ELEMENT IN MPH - MPI FILTERS

**1**

Depressurise the system and clean the filter.

**Fig. 1** MPH 104 - 110  
MPH 114 - 120

**2**

Unscrew the cover.

**Fig. 2** MPH 250 - 630

**2**

Unscrew the nuts "A" from the pin "A1" but do not remove.  
Push the cover "1" ==> turn on the right "2" ==> take out the cover "3"

**Fig. 3** MPH 660

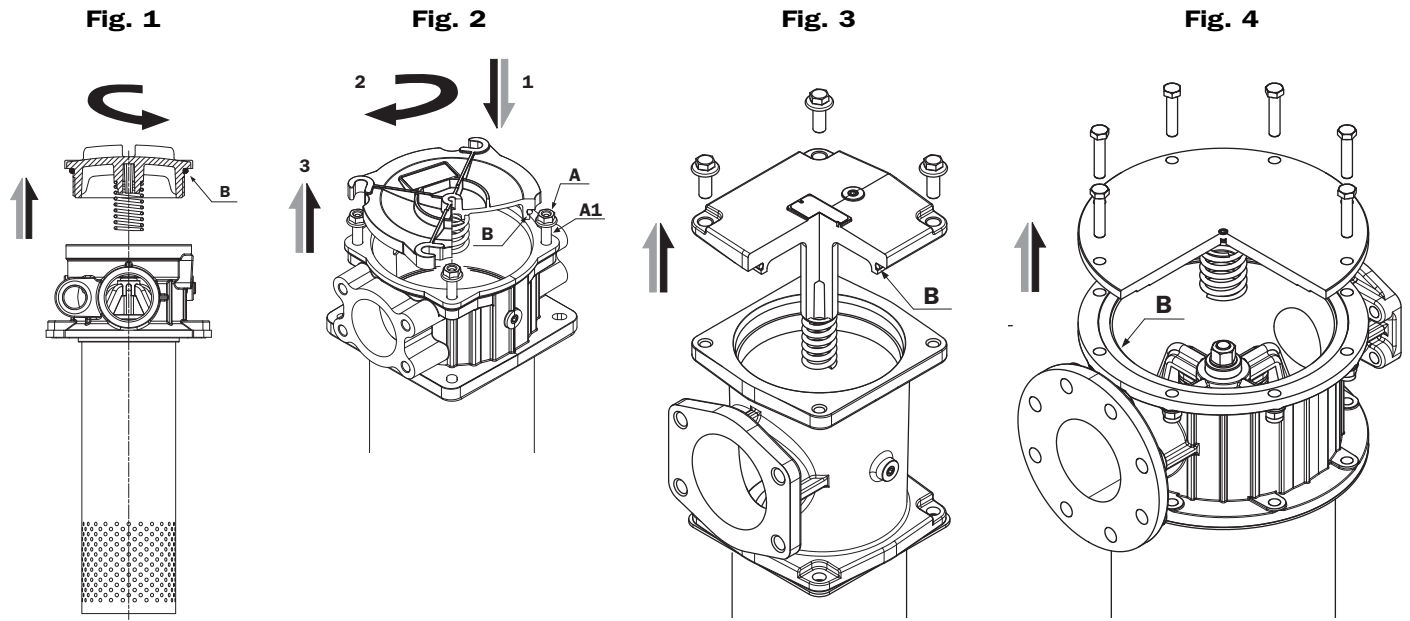
**2**

Unscrew the screws and remove the cover.

**Fig. 4** MPH 850

**2**

Unscrew the screws and remove the cover.



**3**

Take out insert assembly +  
filter element.

**4**

Unscrew and remove  
nuts + spring "E" from  
the threaded pin "G".

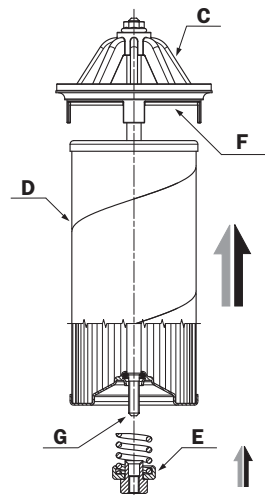
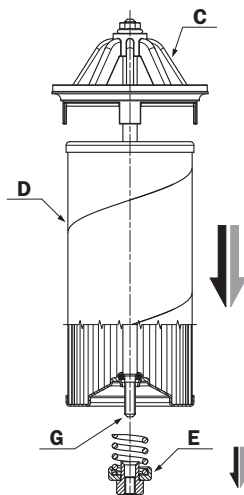
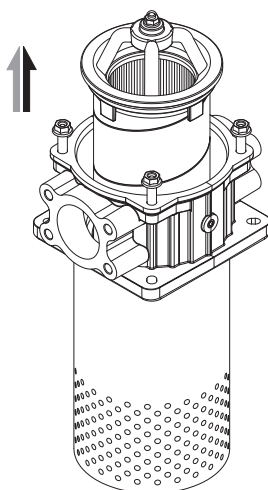
-  
Remove the filter element "D" from  
the insert assembly "C".

-  
Collect the spent oil and cartridge  
in a suitable container and  
dispose of them in compliance  
with statutory legislation.

**5**

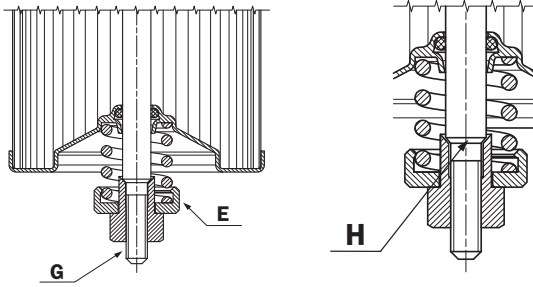
Connect the filter element "D"  
to the insert assembly "C".

-  
Screw the nuts + spring "E"  
from the threaded pin "G".



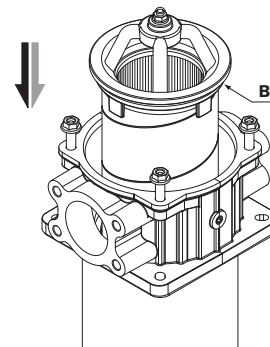
**5a**

Screw the nuts + spring "E" up to the contact with the chamfer on the threaded pin "G".  
Chamfer "H" of the threaded pin.



**6**

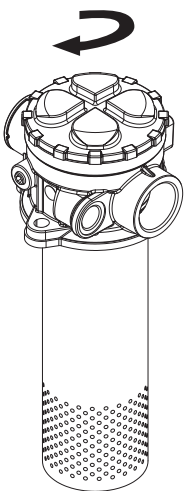
Check the condition of the stand seal "B":  
if renewing, lubricate the new seal with the operating fluid before installing.  
Put in insert assembly and filter element.



**7**

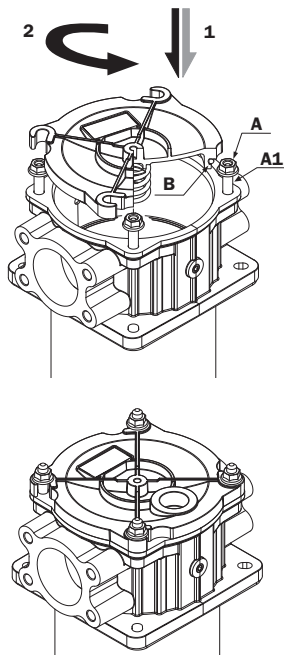
Check the condition of the cover seal "B":  
if renewing, lubricate the new seal with the operating fluid before installing.

**Fig. 1**



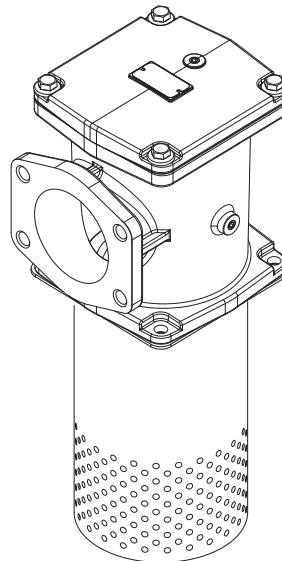
**Fig. 1** MPH 104 - 110  
MPH 114 - 120

**Fig. 2**



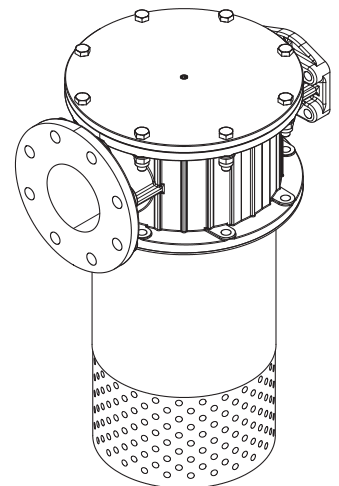
**Fig. 2** MPH 250 - 630

**Fig. 3**



**Fig. 3** MPH 660

**Fig. 4**



**Fig. 4** MPH 850

**8**

Screw the cover.

**8**

Push the cover "1" ==> turn to the left "2" ==> Screw the nuts "A" to the pin "A1".

**8**

Screw the screws of the cover.

**8**

Screw the screws of the cover.

**9**

Start the machine and check for the absence of leaks.  
Repeat the check when the machine has reached its operating temperature.

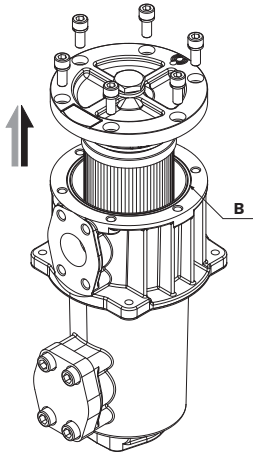
## CHANGING THE FILTER ELEMENT IN FRI FILTERS

**1**

Depressurise the system and clean the filter.

**2**

Unscrew the screws take out the cover.

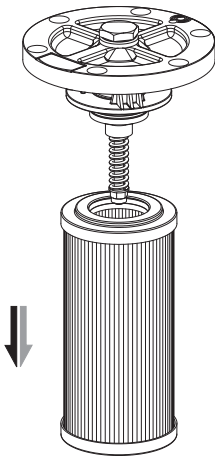


**Fig. 1**

**3**

Remove the filter element and cover from the body of the filter. Remove the filter element from the cover/by-pass valve.

Collect the spent oil and cartridge in a suitable container and dispose of them in compliance with statutory legislation.

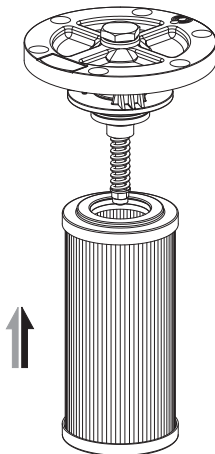


**Fig. 2**

**4**

Lubricate the filter element seal with the operating fluid.

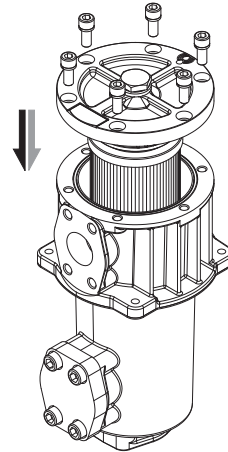
Place the filter element on the cover/by-pass valve.



**Fig. 3**

**5**

Lubrificate la guarnizione inferiore dell'elemento filtrante con il fluido di lavoro prima dell'installazione.

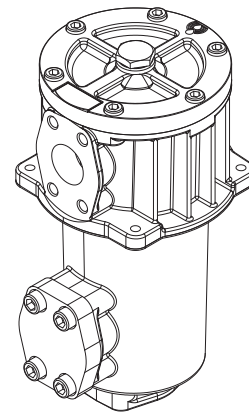


**Fig. 4**

**6**

Check the condition of the cover seal "B" (see Fig. 1):  
if renewing, lubricate the new seal with the operating fluid before installing.

Screw the screws of the cover.



**Fig. 5**

**7**

Start the machine and check for the absence of leaks.  
Repeat the check when the machine has reached its operating temperature.

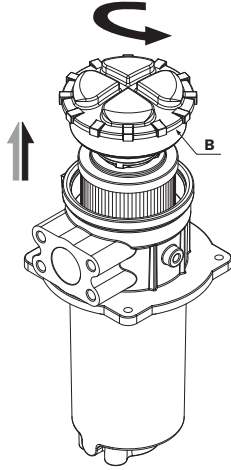
## CHANGING THE FILTER ELEMENT IN FRI 255 FILTERS

**1**

Depressurise the system and clean the filter.

**2**

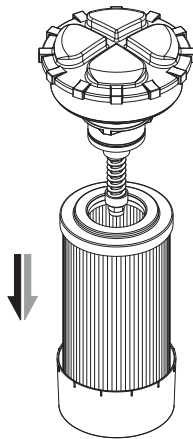
Unscrew the cover.  
Remove the cover and the filter element from the body of the filter.



**Fig. 1**

**3**

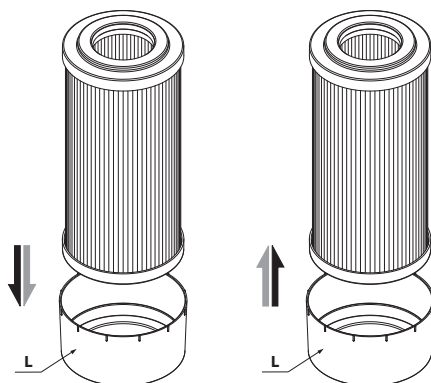
Remove the filter element from the cover/by-pass valve.  
Collect the spent oil and cartridge in a suitable container and dispose of them in compliance with statutory legislation.



**Fig. 2**

**4**

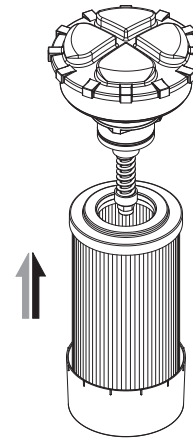
Remove the contamination retainer binder from the filter element and clean.  
Place the the retainer binder on the new filter element.



**Fig. 3**

**5**

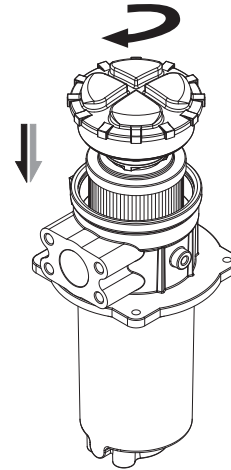
Lubricate the filter element seal with the operating fluid.  
Place the filter element on the cover/by-pass valve.



**Fig. 4**

**6**

Lubricate bottom seal of filter element with the operating fluid before installing.

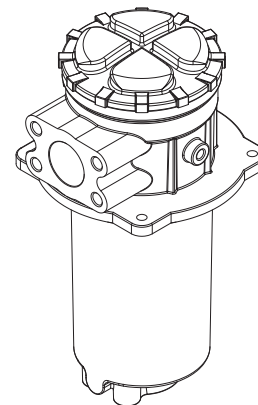


**Fig. 5**

**7**

Check the condition of the cover seal "B" (see Fig. 1):  
if renewing, lubricate the new seal with the operating fluid before installing.

Screw the cover.



**Fig. 6**

**8**

Start the machine and check for the absence of leaks. Repeat the check when the machine has reached its operating temperature.



## CHANGING THE FILTER ELEMENT IN RF2 250 - 350 FILTERS

**1**

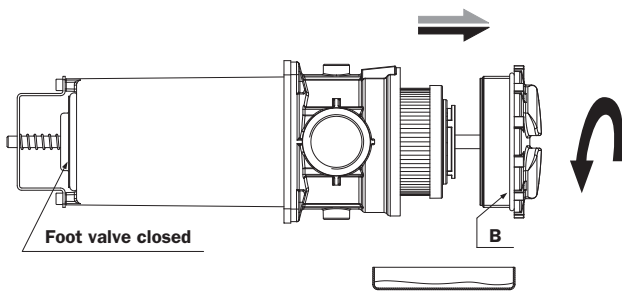
Depressurise the system and clean the filter.

**2**

Unscrew the cover.

Collect the spent oil in a suitable container and dispose in compliance with statutory legislation.

Remove the cover and the filter element from the body of the filter.



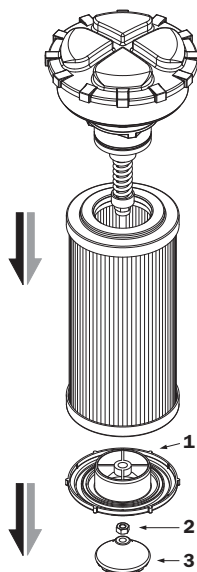
**Fig. 1**

**3**

Unscrew thread spigot "3" nut "2", remove spigot, nut and support filter element "1".

Remove the filter element from the cover/by-pass valve.

Collect the spent filter element in a suitable container and dispose of them in compliance with statutory legislation.



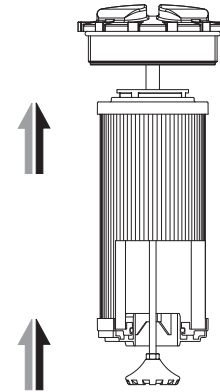
**Fig. 2**

**4**

Lubricate the filter element seals with the operating fluid.

Place the filter element on the cover/by-pass valve.

Fixed support element "1" and screw nut "2" and thread spigot "3": hand tightening.



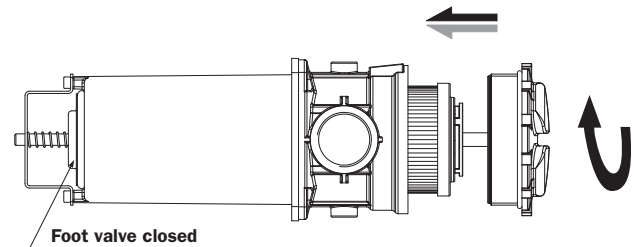
**Fig. 3**

**5**

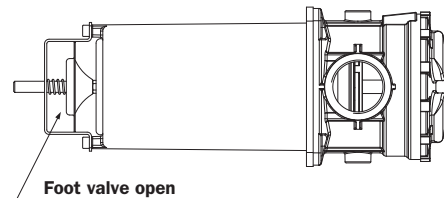
Check the condition of the cover seal "B" (see Fig. 1):

if renewing, lubricate the new seal with the operating fluid before installing.

Screw the cover.



**Fig. 4**



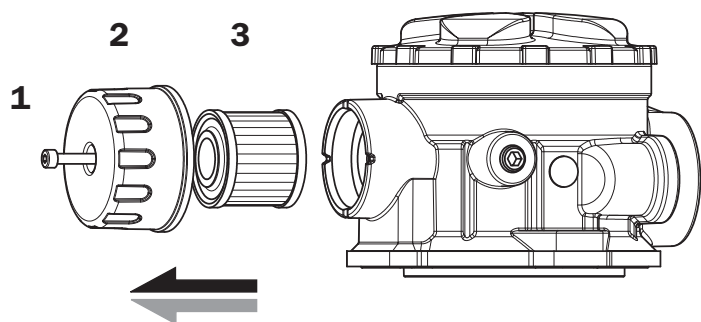
**Fig. 5**

**6**

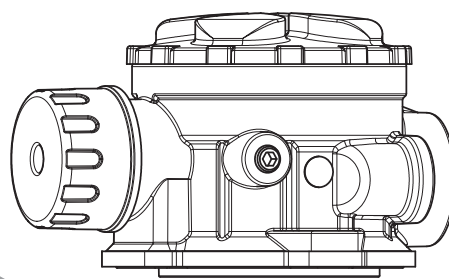
Start the machine and check for the absence of leaks.

Repeat the check when the machine has reached its operating temperature.

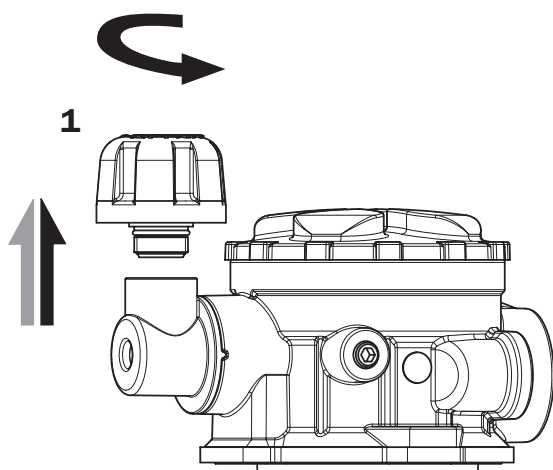
**MAINTENANCE AIR BREATHER  
MPT 025 - 027 - 110 - 114  
MPH 110 - 114**



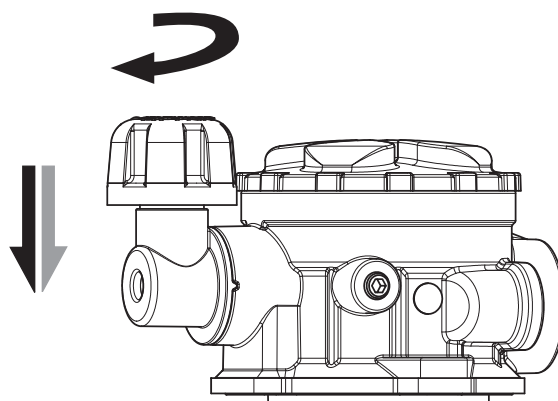
**1**  
Unscrew the screw "1" remove the cover "2" and filter element "3".



**2**  
Assembling item "1" - "2" - "3".



**1**  
Unscrew air breather "1".



**2**  
Screw new air breather "1".