



## MAINTENANCE TOOLS

### Differential indicators

Wrenches Ch. 27/30/32

### Bypass valves

Allen key Ch. 17

### Oil drain plugs

Allen keys Ch. 8/10  
Rapid oil drain plug Allen key Ch. 14

### Air breather plugs

Allen keys Ch. 8/10

### Indicator plug T2

Wrench Ch. 30

### Manifolds Flanges

Wrench Ch. 24

### Accessories

CFS - CFL Wrenches Ch. 19/24

CFS - CFL Wrenches Ch. 19

## 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 data-plate).
- 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** Secure the filter using the relevant threaded holes, to rigid brackets. Rigid installation makes it possible to unscrew the housing without introducing flexing of the hydraulic fittings, limiting any points of stress transfer.
- E** Install the filter in an accessible position for correct and trouble-free maintenance and visibility.
- F** Start the machine and check for the absence of oil leaks from the filter and relative fittings.
- G** 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 (except in the case of LMD duplex filters)
- 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.

## CHANGING THE FILTER ELEMENT IN LMP 400/401 FILTERS Length 2-3-4

- 1 Depressurise the system and clean the filter.
- 2 Unscrew the oil drain plug (pos. A) collecting the fluid in a suitable container.  
When the operation is terminated screw the plug (pos. A) tightening it fully down and check check the condition of the seal.  
Unscrew housing using the appropriate tools and extract the filter element.

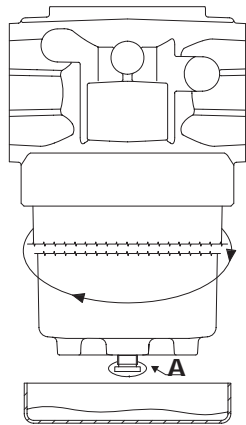


Fig. 1

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

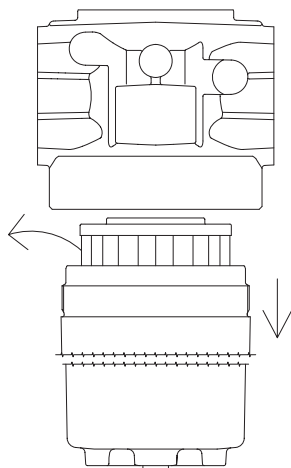


Fig. 2

### !!! WARNING !!!

- 4 To avoid damaging the components clean seals (B), surfaces (A) and threads (C) of the housing and the head.
- 5 Check the condition of seals (B) -if renewing, lubricate the new seals with the operating fluid before installing.

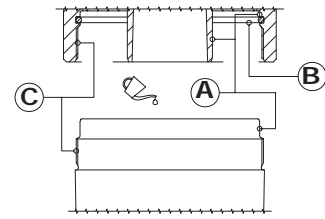


Fig. 3

- 6 Lubricate the filter element seal with the operating fluid.  
Insert the filter element in the filter housing.  
Insert the cartridge in the head spigot.

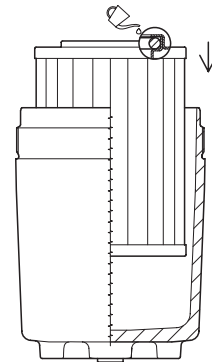


Fig. 4

- 7 Screw the housing onto the head using the correct tool.  
**WARNING:** Screw the housing fully home into the head  
**"DO NOT APPLY EXCESSIVE TIGHTENING TORQUE".**

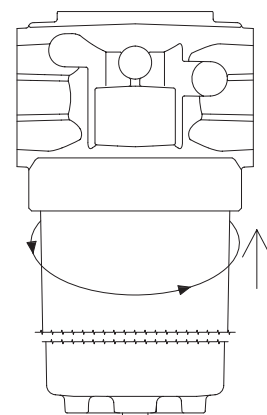


Fig. 5

- 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 ON LMP 400/401 FILTERS Length 5-6

- 1 Depressurise the system and clean the filter.
- 2 Unscrew the oil drain plug (pos. A) collecting the fluid in a suitable container.  
When the operation is terminated screw down the plug (pos. A) tightening it fully down after having checked the condition of its seal. Unscrew the housing/cover using the appropriate tools and extract the filter element.

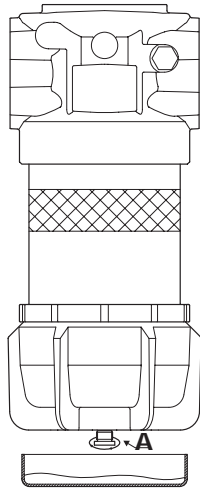


Fig. 1

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

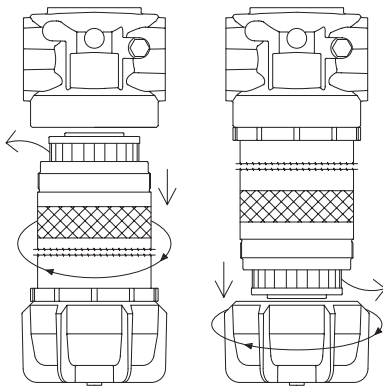


Fig. 2

### !!! WARNING !!!

- 4 To avoid damaging the components clean the seals (B), the surfaces (A) and the threads (C) of the housing and the head or cover in version P01 and P02.
- 5 Check the condition of seals (B) - if renewing, lubricate the new seals with the operating fluid before installing.

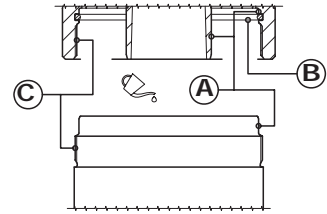


Fig. 3

- 6 Lubricate the filter element seal with the operating fluid.  
Fit the lower spigot in the filter element, and insert the element - spigot assembly as shown in fig. 4 respectively for versions P01 and P02.

Version P01

Version P02

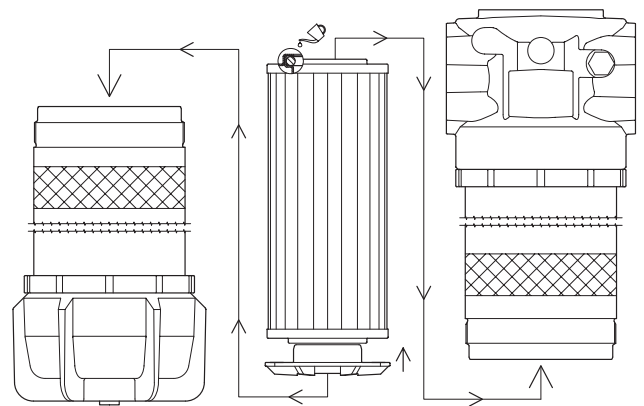


Fig. 4

- 7 Screw the cover onto the housing using the correct tool.

**WARNING:** Screw fully home on the housing "DO NOT APPLY EXCESSIVE TIGHTENING TORQUE".

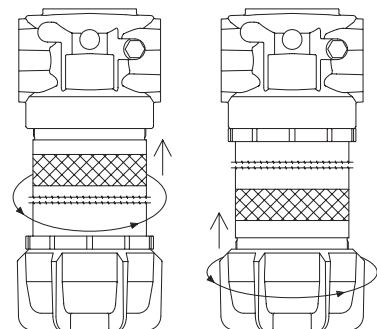


Fig. 5

- 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 ON LMP 430/431 FILTERS

- 1 Depressurise the system and clean the filter.
- 2 Unscrew the air breather plug (pos. A) and open the oil drain connection (pos. B) collecting the fluid in a suitable container.  
When the operation is terminated screw the plug (pos. A) tightening it fully down after having checked the condition of its seal.  
Close the oil drain connection (B).

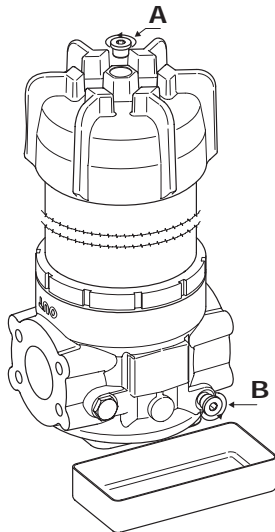


Fig. 1

- 3 Unscrew and remove the cover using the specific tools, extract the upper spigot, and extract the filter element.
- 4 Collect the spent oil and cartridge in a suitable container and dispose of them in compliance with statutory legislation.

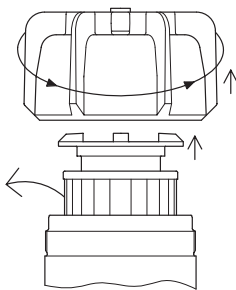


Fig. 2

### !!! WARNING !!!

- 5 To avoid damaging the components clean the seal (B), surfaces (A) and threads (C) of the cover and the housing.
- 6 Check the condition of seals (B) if renewing, lubricate the new seals with the operating fluid before installing.

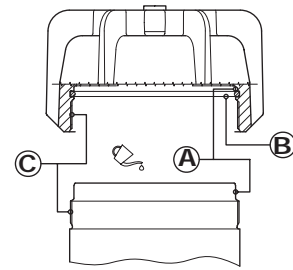


Fig. 3

- 7 Lubricate the filter element seal with the operating fluid.  
Insert the filter element in the filter body, fit the spigot at the top of the filter element as shown in fig.4.

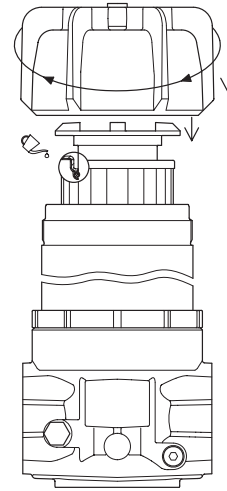


Fig. 4

- 8 Screw the cover onto the housing using the correct tool.  
**WARNING:** Screw fully home on the housing "DO NOT APPLY EXCESSIVE TIGHTENING TORQUE".

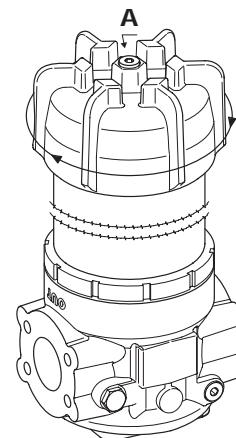


Fig. 5

- 9 Start the machine and bleed the air by unscrewing (max. one turn) the plug(pos.A).  
When the operation is terminated tighten the plug fully.
- 10 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 ON LMP 900/901 FILTERS Length 1

- 1 Depressurise the system and clean the filter.
- 2 Unscrew the oil drain plug (pos. A) collecting the fluid in a suitable container.  
When the operation is terminated screw down the plug (pos. A) tightening it fully down after having checked the condition of its seal.  
Unscrew the housing using the appropriate tools and extract the filter element.

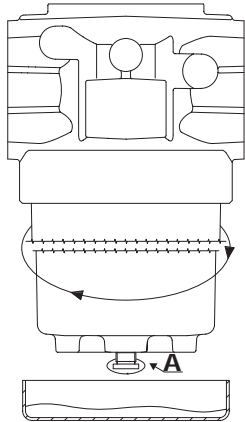


Fig. 1

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

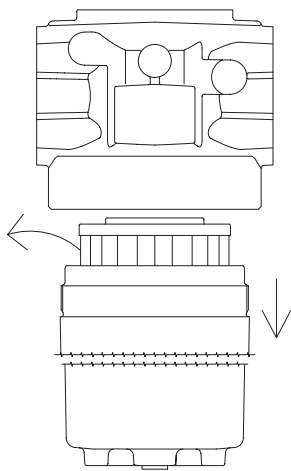


Fig. 2

**!!! WARNING !!!**

- 4 To avoid damaging the components clean seals (B), surfaces (A) and threads (C) of the housing and the head.
- 5 Check the condition of seals (B) -if renewing, lubricate the new seals with the operating fluid before installing.

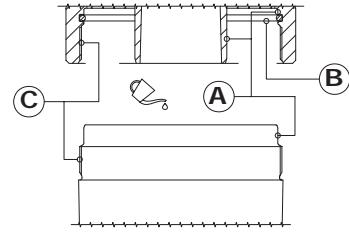


Fig. 3

- 6 Lubricate the filter element seals with the operating fluid.  
Fit the lower spigot in the filter element, and insert the element - spigot assembly + as shown in fig. 4 into the housing.

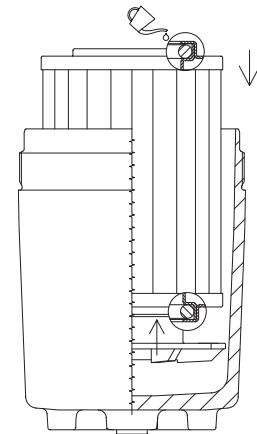


Fig. 4

- 7 Screw the housing onto the head using the correct tool.  
**WARNING:** Screw the housing fully home into the head  
**"DO NOT APPLY EXCESSIVE TIGHTENING TORQUE".**

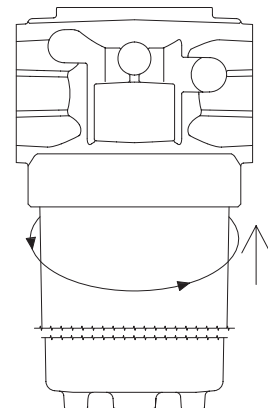


Fig. 5

- 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 ON LMP 900/901 FILTERS Length 2

- 1 Depressurise the system and clean the filter.
- 2 Unscrew the air breather plug (pos. A) and open the oil drain connection (pos. B) collecting the fluid in a suitable container.  
When the operation is terminated screw the plug (pos. A) tightening it fully down after having checked the condition of its seal.  
Close the oil drain connection (B).

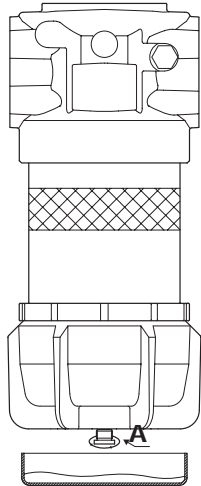


Fig. 1

- 3 Unscrew and remove the cover using the specific tools, extract the upper spigot, and extract the filter element.

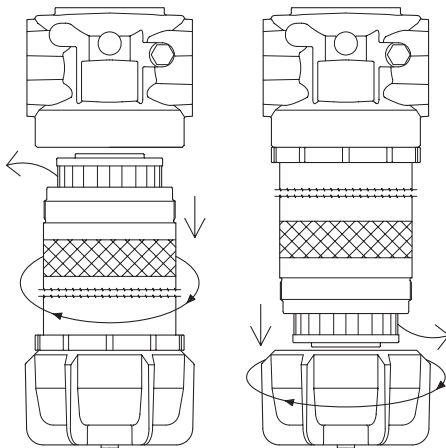


Fig. 2

### !!! WARNING !!!

- 4 To avoid damaging the components clean the seal (B), surfaces (A) and threads (C) of the cover and the housing.
- 5 Check the condition of seals (B) if renewing, lubricate the new seals with the operating fluid before installing.

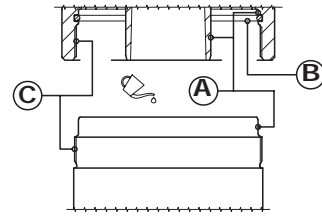


Fig. 3

- 6 Lubricate the filter element seal with the operating fluid.  
Insert the filter element in the filter body, fit the spigot at the top of the filter element as shown in fig.4.

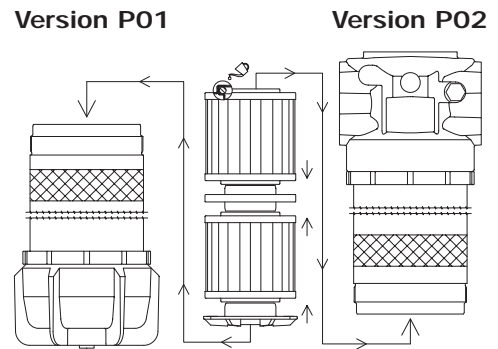


Fig. 4

- 7 Screw the cover onto the housing using the correct tool.

**WARNING:** Screw fully home on the housing "DO NOT APPLY EXCESSIVE TIGHTENING TORQUE".

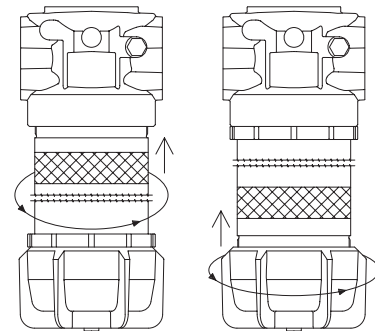


Fig. 5

- 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 ON LMP 902/903 FILTERS Length 1

- 1 Depressurise the system and clean the filter.
- 2 Unscrew the oil drain plug (pos. A) collecting the fluid in a suitable container.  
When the operation is terminated screw down the plug (pos. A) tightening it fully down after having checked the condition of its seal.  
Unscrew the housing using the appropriate tools and extract the filter element.

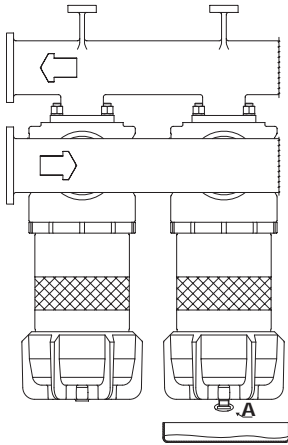


Fig. 1

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

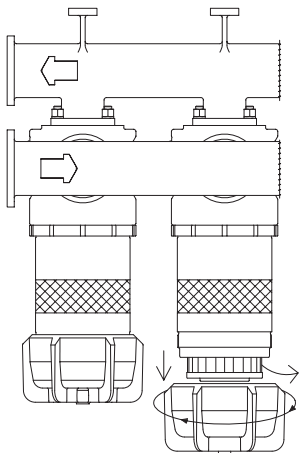


Fig. 2

### !!! WARNING !!!

- 4 To avoid damaging the components clean seals (B), surfaces (A) and threads (C) of the housing and the head.
- 5 Check the condition of seals (B) -if renewing, lubricate the new seals with the operating fluid before installing.

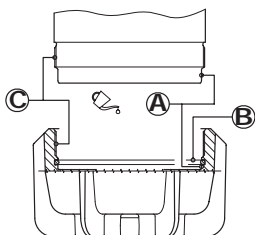


Fig. 3

- 6 Lubricate the filter element seals with the operating fluid.  
Fit the lower spigot in the filter element, and insert the element - spigot assembly + as shown in fig. 4 into the housing.

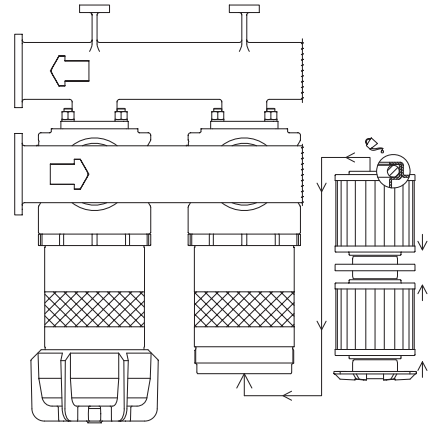


Fig. 4

- 7 Screw the housing onto the head using the correct tool.

**WARNING:** Screw the housing fully home into the head  
**“DO NOT APPLY EXCESSIVE TIGHTENING TORQUE”.**

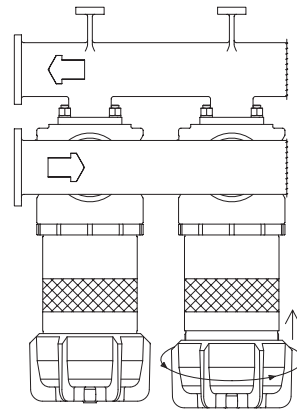


Fig. 5

- 8 Start the machine and check for the absence of leaks.  
Repeat the check when the machine has reached its operating temperature.
- 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 ON LMP 950/951 FILTERS

- 1 Depressurise the system and clean the filter.
- 2 Unscrew the air breather plug (pos. A) and open the oil drain connection (pos. B) collecting the fluid in a suitable container.

When the operation is terminated screw down the plug (pos. A) tightening it fully down after having checked the condition of its seal. Close the oil drain connection (B).

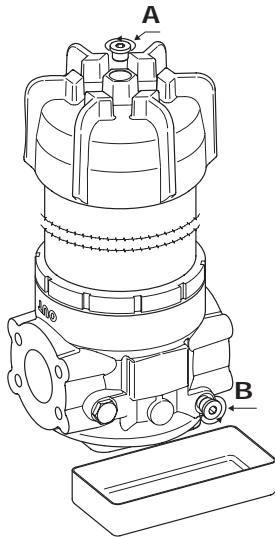


Fig. 1

- 3 Unscrew and remove the cover using the specific tools, extract the upper spigot, and extract the filter element.
- 4 Collect the spent oil and cartridge in a suitable container and dispose of them in compliance with statutory legislation.

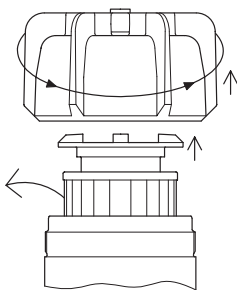


Fig. 2

### !!! WARNING !!!

- 5 To avoid damaging the components clean the seal (B), surfaces (A) and threads (C) of the cover and the housing.
- 6 Check the condition of seals (B) if renewing, lubricate the new seals with the operating fluid before installing.

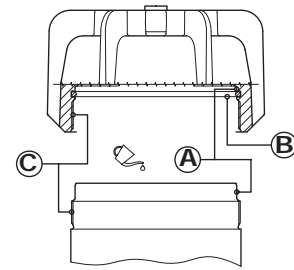


Fig. 3

- 7 Lubricate the filter element seal with the operating fluid.

Insert the filter element in the filter body, fit the spigot at the top of the filter element as shown in fig.4.

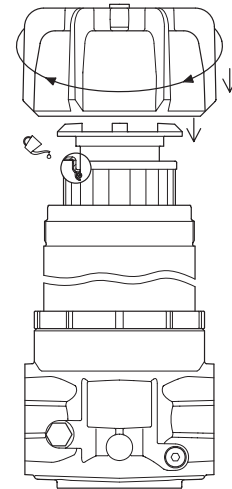


Fig. 4

- 8 Screw the cover onto the housing using the correct tool.

**WARNING:** Screw fully home on the housing "DO NOT APPLY EXCESSIVE TIGHTENING TORQUE".

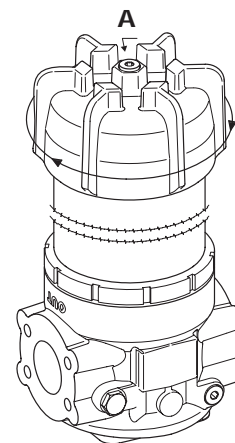


Fig. 5

- 9 Start the machine and bleed the air by unscrewing (max. one turn) the plug (pos.A). When the operation is terminated tighten the plug fully.
- 10 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 ON LMP 952/953/954/955/956 FILTERS

- 1 Depressurise the system and clean the filter.
- 2 Unscrew the air breather plug (pos. A) and open the oil drain connection (pos. B, pos. B1 when the rapid oil drain flange is present) collecting the fluid in a suitable container.  
When the operation is terminated screw down the plug (pos. A) tightening it fully down after having checked the condition of its seal.  
Close the oil drain connection (B).

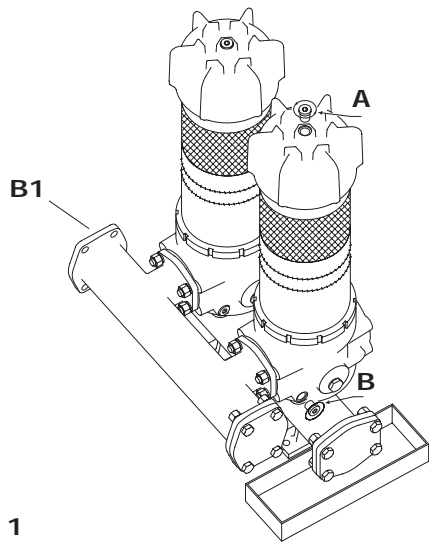


Fig. 1

- 3 Unscrew the cover using the specific tools and tools, extract the upper spigot, and extract the filter element.
- 4 Collect the spent oil and cartridge in a suitable container and dispose of them in compliance with statutory legislation.

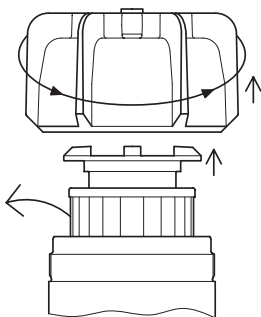


Fig. 2

**!!! WARNING !!!**

- 5 To avoid damaging the components clean seal (B), surfaces (A) and threads (C) of the cover and the housing.
- 6 Check the condition of seals (B) - if renewing, lubricate the new seals with the operating fluid before installing.

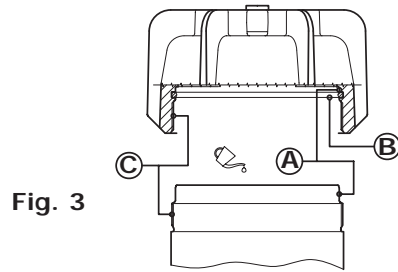


Fig. 3

- 7 Lubricate the filter element seal with the operating fluid.  
Insert the cartridge in the head spigot or insert the upper spigot into the element.

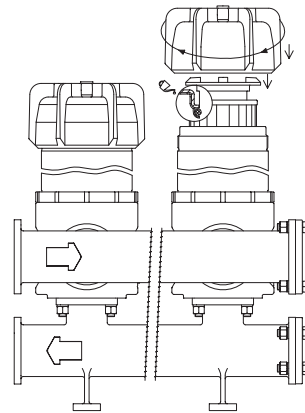


Fig. 4

- 8 Screw the cover onto the housing using the correct tool.  
**WARNING:** Screw fully home on the housing "DO NOT APPLY EXCESSIVE TIGHTENING TORQUE".

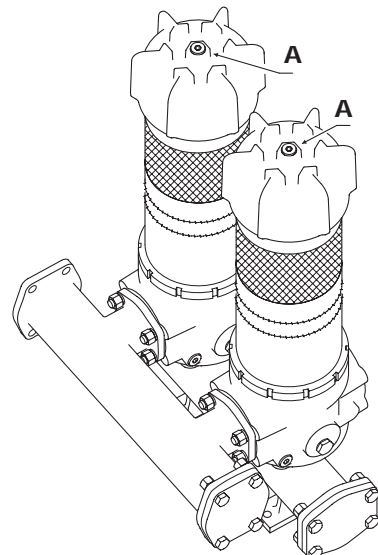


Fig. 5

- 9 Repeat the steps from point "2" on the other filters. Now start the machine and bleed the air by unscrewing (max. one turn) the plugs (pos. A). When the operation is terminated tighten the plugs fully.
- 10 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 ON LMD 951 FILTERS

**Indication of the lever position referred to the flow.** As shown on the filter handle.

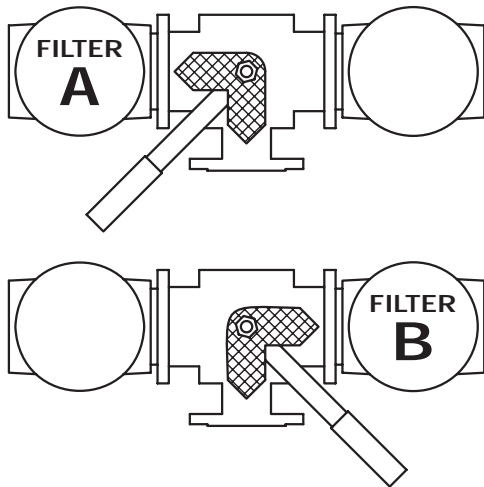


Fig. 1

**1** Before rotating the lever from the filter B position to filter A, open the balancing valve (pos. C) by turning it counterclockwise. Bleed the air by means of the plug (pos. D), which must be turned through a **maximum of one revolution**.

After bleeding the air tighten the breather plug and close the balancing valve (pos. C) by turning it clockwise.

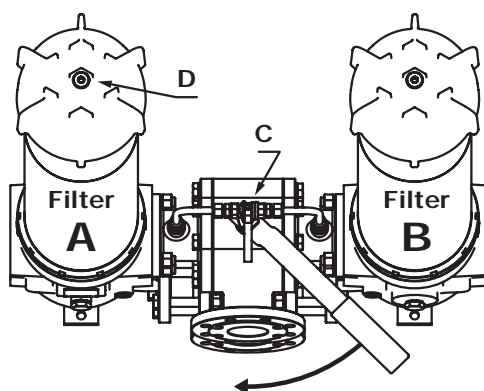


Fig. 2

**2** Turn the lever to divert the oil flow from filter B to filter A. Loosen the oil drain plug (pos. B) to depressurise the filter, unscrew the air breather plug (pos. A) and open the oil drain connection (pos. B) or from the opposite part of the head - collecting the fluid in a suitable container.

When the operation is terminated screw down the plug (pos. A) tightening it fully down after having checked the condition of its seal. Close the oil drain connection (B).

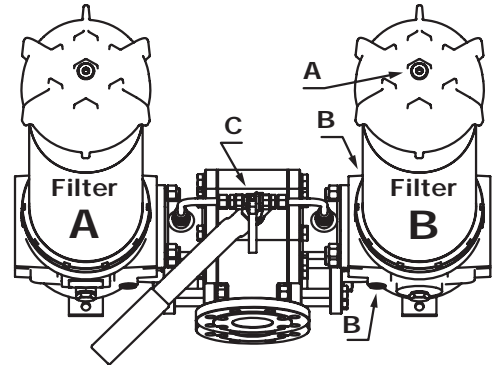


Fig. 3

**4** Open the balancing valve (pos. C) by turning it counterclockwise.

Bleed the air through the plug (pos. A) which must be turned through a **maximum of one revolution**. After bleeding the air refit the breather plug and close the balancing valve (pos. C) by turning it clockwise.

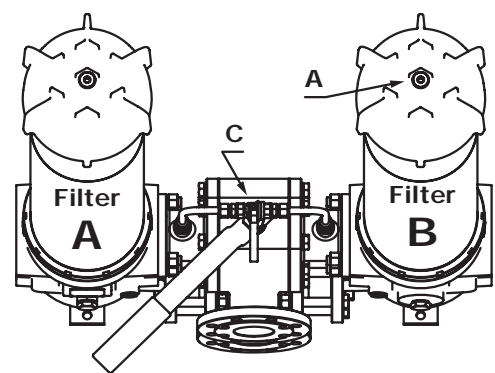


Fig. 4

**5** Check for the absence of leaks. Filter "B" is set up for use.

## CHANGING THE FILTER ELEMENT ON LMD 952 - 953 FILTERS

Indication of the lever position referred to the flow. As shown on the filter lever.

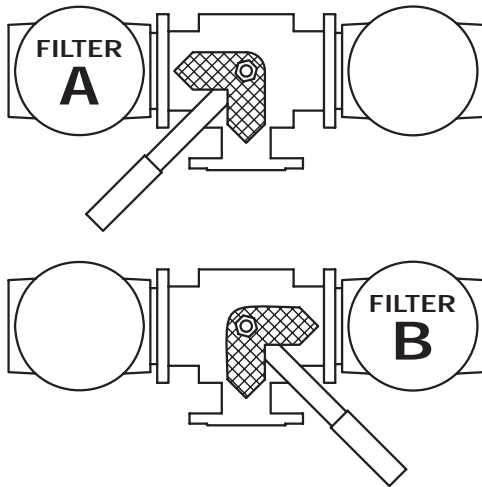


Fig. 1

1 Before rotating the lever from the filter B position to filter A, open the balancing valve (pos. C) by turning it counterclockwise. Bleed the air through the plugs (pos. D), which must be turned through a **maximum of one revolution**. After bleeding the air tighten the breather plugs and close the balancing valve (pos. C) by turning it clockwise.

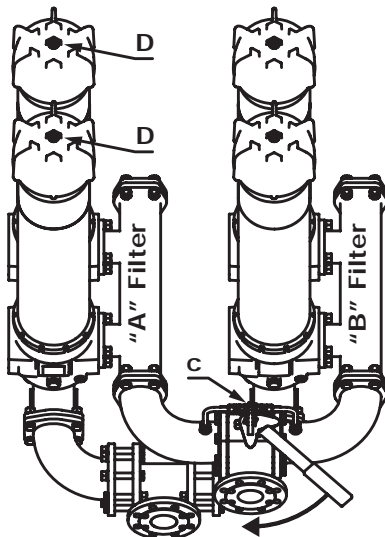


Fig. 2

2 Turn the lever to divert the oil flow from filter B to filter A. Loosen the oil drain plugs (pos. B) side "A", (present on all heads also from the part opposite to pos. B indicated), to depressurise the part of the filter in question. Unscrew the air breather plugs (pos. A) and open the oil drain connections (pos B) collecting the fluid in a suitable container.

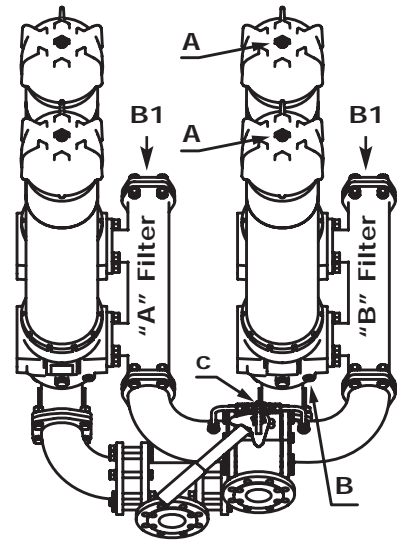


Fig. 3

4 Open the balancing valve (pos. C) by turning it counterclockwise to supply fluid to filters "A". Bleed the air through the plugs (pos. A) which must be turned through a **maximum of one revolution**. After bleeding the air tighten the breather plugs and close the balancing valve (pos. C) by turning it clockwise.

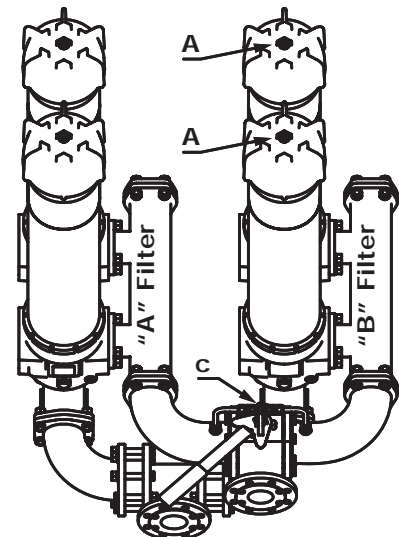


Fig. 4

5 Check for the absence of leaks. Filter "B" is set up for use.