|  |
| --- |
| **Information for replacing the functional units** |
| **KDI 2504 TM Workshop manual (Rev. 07.6)** |



Sommario

[1. TITOLO 1 2](#_Toc495648770)

[1.1. Asdfsdfsdf 2](#_Toc495648771)

[1.2. Asdfsdfsdfggg 2](#_Toc495648772)

# Information for replacing the functional units

## Injectors and injection pump replacement

|  |  |
| --- | --- |
| Z_importante.jpg **Important**       * Before proceeding with operation, read  [**Par. 3.3.2**](https://iservice.lombardini.it/jsp/Template2/manuale.jsp?id=437&parent=1527) . * Replace the high pressure pipes after two disassemblies. * Always replace the gaskets after each disassembly. * Handle the components as described in [**Par. 2.17**](https://iservice.lombardini.it/jsp/Template2/manuale.jsp?id=739&parent=1527) . * Please referring to [**Par. 2.9.7**](https://iservice.lombardini.it/jsp/Template2/manuale.jsp?id=269&parent=1527) in order to see the operating references during disassemble and assemble procedures. * When repaired, **RSN-A** injectors must be certified by a Stanadyne centre to check their correct operation - check the type of engine mounted injectors on the spare parts list ( **RSN-A** is specified in the description). | Fig._6.1.jpg **Fig 6.1** |
| **6.1.1 Injection fuel pump disassembly (injection pump/injectors)**   1. Undo the screws **A** and remove plate **B** . 2. Remove the retainers **C** for the hoses **D** . | 6.2.jpg **Fig 6.2** |
| 1. Undo the nuts **F** . 2. Undo the nuts **E.** 3. Remove the tube **D** . | 6.3.jpg **Fig 6.3** |
| **6.1.2 Rocker arms cover disassembly**   1. Undo the screws **AR** . 2. Loosen clamp **G** and disconnect hose **H** 3. Undo the screws **L** and remove the rocker arm cap **C** . | 6.4.jpg **Fig 6.4** |
| **6.1.3 Fuel return pipes disassembly**   1. Undo the screws **M** and remove hose **N** . | 6.5.jpg **Fig 6.5** |
| **6.1.4 Injectors disassembly**     1. Undo the screw **P** and remove washer **Q** and bracket **R** . 2. Remove the injector **Z** .   **NOTE** : Should you be unable to remove the injector (acting only on point **BC** ), use an open-ended spanner (11 mm), by applying small rotations to unblock the component.   1. Seal all injection component unions as illustrated in [**Par. 2.9.7**](https://iservice.lombardini.it/jsp/Template2/manuale.jsp?id=269&parent=1527) . 2. Ensure that gasket **S** has remained in the correct position ( **Fig. 6.7** ). Otherwise, recover the gasket from inside the electronic injector **V** manifold.   **NOTE** : If the washer **S** is not found on the injector **Z** , recover it from inside the sleeve **V** . | 6.6.jpg  **Fig 6.6**  Fig._6.7.jpg **Fig 6.7** |
| **6.1.5 Injection pump disassembly**    Z_importante.jpg **Important**       * Before proceeding with the disassembly, identify the pump code from its identifying name plate (Pos. 12 - [**Tab. 2.12**](https://iservice.lombardini.it/jsp/Template2/manuale.jsp?id=269&parent=1527) ). * Alternatively, you can identify the pump from the online spare parts catalogue ( [**https://partners.lombardini.it/App/SparepartCatalogue/Default/Catalogue.aspx**](https://partners.lombardini.it/App/SparepartCatalogue/Default/Catalogue.aspx) ).  1. Insert the tool [**ST\_30**](https://iservice.lombardini.it/jsp/Template2/manuale.jsp?id=339&parent=1527) into the injector N°1 and fix it with the fixing brace **R** of the injector, capscrew **P** and washer **Q** .   **NOTE** : Do not tighten the capscrew **P.**   1. Disassemble the starter motor. 2. Mount the tool [**ST\_34**](https://iservice.lombardini.it/jsp/Template2/manuale.jsp?id=339&parent=1527) in the seat of the starter motor **Y** and fit it with the two starter motor fixing screws. 3. Rotate the crankshaft clockwise [**ST\_34**](https://iservice.lombardini.it/jsp/Template2/manuale.jsp?id=339&parent=1527) tool bringing reference **X** upwards. **NOTE:** During the positioning phase of reference **X** , check that cylinder N° 1 is in compression phase (intake and exhaust valves of cylinder N° 1 must be in closing position).   6.10.jpg  **Fig 6.10**  **Tab. 6.1**   |  |  |  | | --- | --- | --- | | **PUMPCODE** | **PISTON LOWERING (mm)** | **ADVANCE**  **α** | | ED0065900040-S | 1,695 | 13° | | ED0065905050-S | 1,695 | 13° | | ED0065905110-S | 1,963 | 14° | | ED0065905350-S | 1,963 | 14° | | ED0065905470-S | 1,695 | 13° | | ED0065905480-S | 1,963 | 14° | | ED0065905490-S | 0,363 | 6° | | ED0065905540-S | 1,006 | 10° | | ED0065905550-S | 1,695 | 13° | | ED0065905950-S | 0,815 | 9° | | 6.8.jpg  **Fig 6.8**  6.1TM.jpg  **Fig 6.9** |
| 5.  With reference **X** pointed upwards, find the TDC through tool  [**ST\_30**](https://iservice.lombardini.it/jsp/Template2/manuale.jsp?id=339&parent=1527) **,** then bring the dial gauge indicator to 0 **.**  6.  Having identified the value to lower the piston, rotate the crankshaft anti-clockwise by going beyond the value described in **Tab. 6.1** , once again, rotate the crankshaft clockwise, stopping at the correct advance value by using tool [**ST\_30**](https://iservice.lombardini.it/jsp/Template2/manuale.jsp?id=339&parent=1527)  7.  Lock the [**ST\_34**](https://iservice.lombardini.it/jsp/Template2/manuale.jsp?id=339&parent=1527) tool through **J** screws and ensure that the crankshaft does not rotate, which would alter the correct advance value. If this happens, repeat the instructions described in points **4, 5, 6, 7 and 8.**  **NOTE:** The value indicated in **Tab. 6.1** must be reached by rotating the shaft with the piston in compression phase. Use the  [**ST\_34**](https://iservice.lombardini.it/jsp/Template2/manuale.jsp?id=339&parent=1527) tool to totate the crankshaft. | 6.11.jpg  **Fig 6.11**  6.12.jpg  **Fig 6.12** |
| 8.  Lock the [**ST\_34**](https://iservice.lombardini.it/jsp/Template2/manuale.jsp?id=339&parent=1527) tool through **J** screws and ensure that the crankshaft does not rotate, which would alter the correct advance value. If this happens, repeat the instructions described in points **4, 5, 6, 7 and 8** .  9.  Undo the screws **AC** and remove the oil filling flange **AD** .  10.  Undo and remove the nut **AN** fixing the injection pump control gear **AE** .   11.  Undo the capscrew **K** and shift the slotted plate **AB** in the direction of arrow **AA** .   12.  Tighten screw **K** to block the pump (tightening torque to **12** **Nm** ).    Z_importante.jpg **Important**       * After removing the nut **AN** , ensure that the correct advance value has remained unchanged on [**ST\_30**](https://iservice.lombardini.it/jsp/Template2/manuale.jsp?id=339&parent=1527) . * Be careful that the nut **AN** does not fall into the timing cover.     13. Screw the tool [**ST\_04**](https://iservice.lombardini.it/jsp/Template2/manuale.jsp?id=339&parent=1527) on the gear **AE** .    14. Loosen the screws **AF** . | 6.13.jpg  **Fig 6.13**  6.14.jpg  **Fig 6.14** |
| 15.  Tighten the screw of tool [**ST\_04**](https://iservice.lombardini.it/jsp/Template2/manuale.jsp?id=339&parent=1527) to disconnect the injection pump **AG** from the high pressure pump control gear **AE** .   16.  Undo the screws **AF** and extract the injection pump **AG** .   17.  Undo and remove the tool [**ST\_04**](https://iservice.lombardini.it/jsp/Template2/manuale.jsp?id=339&parent=1527) . | 6.15.jpg  **Fig 6.15** |
| **NOTE** : Click on the right to play the procedure. | <https://www.youtube.com/embed/NaOHNXyU03c?rel=0> |
| **6.1.6 Injection pump assembly**  image52016352aa0b5c9e4 **Warning**   * Before assembling the new pump **AG** , make sure that plate **AB** can move freely and that fastening capscrews **K** are not loose (the pump sold as a spare part is supplied with the cylinder injection timing blocked  **N°** **1** ). * Ensure that the coupling surfaces on shaft  **AP** and gear  **AE** are free from impurities and lubrication residues. * Remove the guard cap only when the pipes are reconnected. * Do not remove the tool [**ST\_30**](https://iservice.lombardini.it/jsp/Template2/manuale.jsp?id=339&parent=1136) .    1.  Mount the injection pump **AG** , inserting the shaft **AP** in the gear **AE** .    Z_importante.jpg **Important**       * Always change screws **AF** with new ones or apply **Loctite** **270** to the threads.    2.  Clamp the screws **AF** on the crankcase **AH** (tightening torque at **25 Nm** ).   3.  Ensure that the correct advance value has remained unchanged, tighten nut **AN** on shaft **AP** (as shown in **Fig.** **6.17,** is allowed the aid of a screwdriver to guide the nut **AN** on the shaft **AP** in order to avoid the fall of it into the timing cover **AQ** - tightening torque at **70 Nm** ). | 6.16.jpg  **Fig 6.16**  6.17.png  **Fig. 6.17** |
| 4.  Undo the capscrew **K** and shift the slotted plate **AB** in the direction of arrow **AA** .  5.  Tighten screw **K** (tightening torque to **5.5 Nm** ). The injection pump is unlocked.  6.  Remove the tool [**ST\_30**](https://iservice.lombardini.it/jsp/Template2/manuale.jsp?id=339&parent=1527) and [**ST\_34**](https://iservice.lombardini.it/jsp/Template2/manuale.jsp?id=339&parent=1527) . | Fig._6.18.jpg  **Fig 6.18** |
| **NOTE** : Always replace the gasket **AJ** after each assembly.   7.  Position the gasket **AJ** in the set on the flange **AD** .  8.  Fix the flange **AD** on the crankcase **AQ** with the screws **AC** (tightening torque at **10** **Nm** ). | Fig._6.19.jpg  **Fig 6.19** |
| **NOTE** : Click on the right to play the procedure. | <https://www.youtube.com/embed/XsOMihldXno?rel=0> |
| **6.1.7 Injector assembly**    Z_importante.jpg **Important**     * To prevent damaging the injection system, the protection caps ( [**Par. 2.9.7**](https://iservice.lombardini.it/jsp/Template2/manuale.jsp?id=269&parent=1527) ) must be removed during assembly.  1. Lubricate the gaskets **U, T, S** and fit them on the injector **Z.** | Fig._6.20.jpg  **Fig 6.20** |
| 2. Fit the injector **Z** in the sleeve **V** . | 6.21.jpg  **Fig 6.21** |
| 3.  Assemble the parts **P, Q, R** and fit the parts so assembled on the injector **Z** . | 6.22.jpg  **Fig 6.22** |
| 4. Insert tool [**ST\_51**](https://iservice.lombardini.it/jsp/Template2/manuale.jsp?id=339&parent=1527) on the injectors junctions **Z** (detail **X1** ).  5. Tighten the screw **P** (tightening torque to **20 Nm** ) | INIETTORI.jpg  **Fig 6.23** |
| **6.1.8 Assembly of the injector return pipes**   1. Position the tube **N** on the injectors **Z** , and tighten screws **M** (tightening torque to **14 Nm** ). | 6.24.jpg  **Fig 6.24** |
| **6.1.9 Assembly Rocker arm cover**    Z_importante.jpg **Important**       * The gasket **AM** between the rocker arm cover and the cylinder head must always be replaced every time it is disassembled.  1. Position the two guide pins [**ST\_17**](https://iservice.lombardini.it/jsp/Template2/manuale.jsp?id=339&parent=1527) before mounting the rocker arm cover. 2. Position the gasket **AM** on the head **AL** respecting the fastening screw holes **L** . 3. Attach the rocker arm cover **C** on the head **AL** with the screw L adhering to the tightening sequence shown in **Fig. 6.26.** 4. Connect pipe **H** and tighten the clamp **G** . 5. Connect tube **H** to turbine **AS** and tighten clamp **G** . 6. Fasten flange **AT** by means of capscrews **AR** to manifold **AU** , inserting gasket **AV** .     Z_importante.jpg **Important**       * Always replace the gaskets **AK** ( [**ST\_36**](https://iservice.lombardini.it/jsp/Template2/manuale.jsp?id=339&parent=1527) ) - **AV** after each disassembly . | 6.25.jpg  **Fig 6.25**  6.26.jpg  **Fig 6.26**  6.27.jpg  **Fig 6.28** |
| **6.1.10 Installation of the fuel injector pipes (pump injector/injectors)**   1. Position pipes **D** on the injectors and on the injector pump.     Z_importante.jpg **Important**       * Tighten the nuts **E and F** manually, without clamping them.    2.  Tighten the nuts **E** ed **F** (tightening torque at **25 Nm** ).  3.  Reinstall the retainers **C** of the hoses **D** .  4.  Fix the plate **B** by using screws **A** (tightening torque to **10 Nm** ). | 6.29.jpg  **Fig 6.29**  6.30.jpg  **Fig 6.30** |

## Coolant pump replacement

|  |  |
| --- | --- |
| **6.2.1 Disassembly**   1. Perform the operations described in [**Par. 5.1**](https://iservice.lombardini.it/jsp/Template2/manuale.jsp?id=656&parent=1527) .     Z_importante.jpg **Important**         * Before proceeding with operation, read  [**Par. 3.3.2**](https://iservice.lombardini.it/jsp/Template2/manuale.jsp?id=437&parent=1527) . * The pump **G** isn't repairable. * If the engine is fitted with the Poly-V belt, perform the operations described in [**Par. 11.9**](https://iservice.lombardini.it/jsp/Template2/manuale.jsp?id=720&parent=1527) .    2.  Loosen the screws **A and B.**  3.  Push the alternator **C** in the direction of the arrow **D** and remove the belt **E** .   4.  Remove the clamp **M** and disconnect the pipe **N** from the pump **G** .  5.  Loosen the screws **F** and remove the pump **G** and relative gasket **H** .    **NOTE** : If union **R** , is disassembled, replace it or alternatively apply **Loctite 2701** on the thread when assembling on pump **G** (tightening torque of **20 Nm** ). | Fig._6.31.jpg **Fig 6.31**6.31.jpg **Fig 6.32** |
| **6.2.2 Assembly**    Z_importante.jpg **Important**         * Always replace the gaskets **H** , after each disassembly. * Always replace the belt **E** after each assembly.  1. Fit the coolant pump **G** with the screws **F**  interposing the new gasket **H** (tightening torque at **25 Nm** ). | 6.33.jpg **Fig 6.33** |
| 1. Insert the belt **E** on the pulleys **L** . 2. Push the alternator **C** in the direction of the arrow **D** . 3. While tensioning the alternator **C** , first clamp screw **A** (tightening torque at **25 Nm** ) and then screw **B** (tightening torque at **69 Nm [thread M10] - 40 Nm** **[thread M8]** ). 4. Check the tension of the belt **E** with the instrument ( **DENSO BTG-2** ), positioning it in point **p** (the tension must be between **200 and 230 N** ) 5. If the tension values do not correspond, tighten screws **A** **and B** , then repeat operations **3, 4 and 5** . | 6.34.jpg  **Fig 6.34** |

## Replace the crankshaft pulley

|  |  |
| --- | --- |
| **6.3.1 Disassembly**    Z_importante.jpg  **Important**       * Before proceeding with operation, read  [**Par. 3.3.2**](https://iservice.lombardini.it/jsp/Template2/manuale.jsp?id=437&parent=1527) .   **NOTE:** Perform the operations described in [**Par. 6.1.5 steps 2 and 3**](https://iservice.lombardini.it/jsp/Template2/manuale.jsp?id=659&parent=1527) .   1. Position the crankshaft with the 1st cylinder in TDC, reference **A** . 2. Remove the alternator belt following steps **2 and 3 (** [**Par. 6.2.1**](https://iservice.lombardini.it/jsp/Template2/manuale.jsp?id=662&parent=1527) **)** . | 6.35.jpg **Fig 6.35** |
| 1. Undo the screw **P** (clockwise) and remove the pulley **Q** . | 6.36.jpg **Fig 6.36** |
| **6.3.2 Assembly**   1. Check that the pin **U** is mounted properly on the camshaft **V** . 2. Insert the pulley **Q** on camshaft **V** respecting the reference of the pin **U** . 3. Apply **Molyslip** grease on the screw thread **P** . 4. Fit the pulley **Q** with the screw **P** (tightening torque **360 Nm** ) and remove the tool [**ST\_34**](https://iservice.lombardini.it/jsp/Template2/manuale.jsp?id=339&parent=1527) . | 6.37.jpg **Fig 6.37** |

## Oil pump replacement

|  |  |
| --- | --- |
| Z_importante.jpg  **Important**       * Before proceeding with operations, read  [**Par. 3.3.2**](https://iservice.lombardini.it/jsp/Template2/manuale.jsp?id=437&parent=1527) . * The oil pump is not repairable. |  |
| **6.4.1 Coolant pump disassembly**   1. Perform the operations described in [**Par 6.2.1**](https://iservice.lombardini.it/jsp/Template2/manuale.jsp?id=662&parent=1527) . |  |
| **6.4.2 Engine pulley disassembly**   1. Perform the operations described in [**Par 6.3.1**](https://iservice.lombardini.it/jsp/Template2/manuale.jsp?id=663&parent=1527) . |  |
| **6.4.3 Timing system crankcase disassembly**    Z_importante.jpg **Important**       * Perform the operations described in [**Par. 5.2**](https://iservice.lombardini.it/jsp/Template2/manuale.jsp?id=657&parent=1527) **.**  1. Make sure that the reference pin **A** is facing upwards. 2. Undo the screws **B** and remove the timing system crankcase **C** . | 6.38.jpg **Fig 6.38** |
| **6.4.4 Oil pump disassembly**   1. Undo the screws **D** and remove the group pump **E** from the timing system crankcase **C** . 2. Remove the rotors **F and G** from the oil pump crankcase **E** . | 6.39.jpg **Fig 6.39**  6.40.jpg  **Fig 6.40** |
| **6.4.5 Oil pump assembly**    Z_importante.jpg **Important**       * Carry out the checks described in [**Par. 8.7**](https://iservice.lombardini.it/jsp/Template2/manuale.jsp?id=685&parent=1527) prior to assembly.  1. Check that all surfaces in contact between **F, G, H, E and C** are free from impurities - scratches - dents. 2. When assembling, do not use any type of gasket between **E and C.** 3. Thoroughly lubricate the seat of the rotors **H** on the oil pump crankcase E and the two rotors **F and G.** 4. Within housing **H** insert the 2 rotors (in sequence) **G and F** , observing the references **BP** as described in figure (or refer to [**Par. 2.10.2**](https://iservice.lombardini.it/jsp/Template2/manuale.jsp?id=719&parent=1527) ). 5. Check that the 2 pins **L** are inserted properly in the timing system crankcase **C** . 6. Position the oil pump carter **E** using the reference pins **L.** 7. Clamp the oil pump carter **E** with the screws **D** (tightening torque **10 Nm** - [**ST\_06**](https://iservice.lombardini.it/jsp/Template2/manuale.jsp?id=339&parent=1527) ). | 6.41.jpg **Fig 6.41**6.42.jpg **Fig 6.42** |
| **6.4.6 Timing system crankcase assembly**    Z_importante.jpg **Important**       * Always replace the oil seal **J** after each assembly. * Always replace the gasket **P** after each assembly.      1. Lubricate the lip of the oil seal **J** . 2. Distribute a bead of **Loctite 5188** , about 1mm thick, on the surfaces **K** of the crankcase **C** . 3. Make sure that the key **M (Fig. 6.44)** is inserted properly on the crankshaft and that it is facing upwards. 4. Check that the 2 pins **N** are inserted properly in the timing system crankcase **C** . | 6.43.jpg **Fig 6.43** |
| 1. Lubricate and insert the gasket **P** in the seat of the oil pump **Q** . 2. Tighten the tool [**ST\_10**](https://iservice.lombardini.it/jsp/Template2/manuale.jsp?id=339&parent=1527) on the crankshaft. 3. Position the crankcase **C** on the base, using the reference pins **M** , inserting the oil pump **Q** on the crankshaft. | 6.44.jpg **Fig 6.44** |
| 1. Fit the timing system crankcase **C** with the screws **R** observing the indicated clamping sequence (tightening torque at **25 Nm** ). | 6.45.jpg **Fig 6.45** |
| **6.4.7** **Crankshaft pulley assembly**   1. Perform the operations described in [**Par 6.3.2**](https://iservice.lombardini.it/jsp/Template2/manuale.jsp?id=663&parent=1527) . |  |
| **6.4.8 Coolant pump assembly**   1. Perform the operations described in [**Par 6.2.2**](https://iservice.lombardini.it/jsp/Template2/manuale.jsp?id=662&parent=1527) . |  |

## Oil pressure valve replacement

|  |  |
| --- | --- |
| **6.5.1 Disassembly**    Z_importante.jpg  **Important**       * Before proceeding with operation, read  [**Par. 3.3.2**](https://iservice.lombardini.it/jsp/Template2/manuale.jsp?id=437&parent=1527) .  1. Undo the cap **A** . 2. From the crankcase **D** , remove the spring **B.** 3. Remove the valve piston **C** using a magnet. | 6.46.jpg **Fig 6.46** |
| **6.5.2 Assembly**    Z_importante.jpg  **Important**       * Carry out the checks described in [**Par. 8.7.3**](https://iservice.lombardini.it/jsp/Template2/manuale.jsp?id=685&parent=1527) prior to assembly. * Always replace the gasket **F** after each assembly.  1. Lubricate the piston **C** and fully insert it in the seat **E** . 2. Insert the spring **B** in the piston. 3. Mount the gasket **F** on cap **A.** 4. Clamp the cap **A** on the crankcase **D** (tightening torque at **50 Nm** ). | 6.47.jpg **Fig 6.47** |

## Oil cooler unit and oil filter replacement

|  |  |
| --- | --- |
| **6.6.1 Oil Cooler unit disassembly**    Z_importante.jpg **Important**       * Before proceeding with operation, read  [**Par. 3.3.2**](https://iservice.lombardini.it/jsp/Template2/manuale.jsp?id=437&parent=1527) . * Perform the operations described in [**Par 5.1**](https://iservice.lombardini.it/jsp/Template2/manuale.jsp?id=656&parent=1527) **and** [**Par 5.2**](https://iservice.lombardini.it/jsp/Template2/manuale.jsp?id=657&parent=1527) **.** * Oil Cooler unit **E** is not repairable.  1. Release the clamps **A** . 2. Remove the pipes **B** out of the Oil Cooler unit **E** . | imm6_67.jpg **Fig 6.67** |
| Z_Avvertenza.jpg **Warning**       * Electric/pneumatic screwdrivers are forbidden. * Use a suitable container to recover any residue oil.  1. Unscrew cartridge holder cover **H** by performing three complete turns and wait 1 minute.   **NOTE** : this operation allows to oil contained in the support **E** to flow into the oil sump in the correct way.   1. Unscrew cartridge holder cover **H** and check that the oil in the lub. oil filter support **E** has flowed towards the oil sump. 2. Undo the screws **C and D** and remove the Oil Cooler unit **E** . | imm6_68.jpg **Fig 6.68** |
| 1. Remove the gaskets **F and G** from the Oil Cooler unit **E** . | imm6_69.jpg **Fig 6.69** |
| **6.6.2** **Oil filter cartridge replacement**   1. Remove gaskets **L, M and N** from element holder cover **H** . 2. Remove cartridge **P** from element holder cover **H** . | 6.70.jpg **Fig 6.70** |
| 1. Lubricate and insert gaskets **L, M and N** in the **L1, M1 and N1** seats of element holder cover **H** . 2. Insert element **P** into element holder cover  **H** . | 6.71.jpg **Fig 6.71** |
| **6.6.3 Oil Cooler unit assembly**    Z_importante.jpg **Important**       * In the event of assembly of union **U** on crankcase **S** , manual tightening torque with **Loctite 2701** on the thread).   6.72.jpg  **Fig 6.72**   1. Check that the surface **Q** on the support **E** and on the crankcase **S** are free from impurities. 2. Lubricate and insert the gasket **T** on the fitting **U** . 3. Lubricate and insert the gaskets on the support **E** : **F** in seat **F1** ; **G** in seat **G1** . 4. Fit the support **R** with the screws **C and D** (tightening torque at **10** **Nm** ). 5. Insert and tighten the cartridge support **H** on the filter support **E** (tightening torque at **25** **Nm** ). 6. Fit the pipes **B** on the support **E** and secure the pipes **B** with the clamps **A** . | 6.73.jpg **Fig 6.73** |

## Fuel filter replacement

|  |  |
| --- | --- |
| Z_importante.jpg **Important**       * Before proceeding with operation, read [**Par. 3.3.2.**](https://iservice.lombardini.it/jsp/Template2/manuale.jsp?id=437&parent=1527)     Z_Avvertenza.jpg    **Warning**       * In case of low use replace il 12 months.  1. Procure a suitable container to collect the fuel. 2. Rotate the filter **A** to take it to the unlocked position and remove it. 3. Lubricate the gasket **C** . Assemble the filter **A** on the support **B** and rotate it until reaches the lock position.     Z_importante.jpg **Important**     * Do not fill the new cartridge **A** with fuel.  1. Turn the key on the control panel to the **ON** position. The electric pump **D** sends fuel to the filter and then the injection pump **E** . 2. Loosen the air bleeding screw **F** on fuel filter bracket **B** . The air inside the circuit and the filter will begin to escape from the screw **G** . 3. Tighten the bleeding screw **F** (tightening torque of **1.5 Nm** ) when the fuel begins to flow. | 6.8.jpg **Fig 6.74**6.9.jpg **Fig 6.75** |
| Z_Avvertenza.jpg **Warning**       * Check that the fuel supply pump filter is present, and replace if necessary.  1. Release the clamp **D** . 2. Demount the hose **E** . 3. Unscrew the filter **G** from the pump **Q** . | CAP_6_Prefiltro_FACET_01.png |
| 1. Screw the new filter **G** onto the pump **Q** (tightening torque **20 Nm** ). 2. Connect the hose **E** to the filter **G** and fasten with the clamp **D** . | CAP_6_Prefiltro_FACET_02.png |

## Oil vapour separator replacement

|  |  |
| --- | --- |
| **6.8.1 Disassembly**    Z_importante.jpg  **Important**       * Before proceeding with operation, read  [**Par. 3.3.2**](https://iservice.lombardini.it/jsp/Template2/manuale.jsp?id=437&parent=1527) .  1. Release the clamp **AA** and remove the pipe **D** . 2. Release the clamps **F** . 3. Remove the clamp **P** cutting it in the point indicated and remove the separator body **C** removing it from the hose **AG** and **G** . | 6.57.jpg **Fig 6.63** |
| 1. Release the clamp **F** . 2. Remove the pipes **G and AG** . 3. Undo the screws **B** . 4. Release the clamp **S** from the sleeve **K** . 5. Pull the flange **H** out of the manifold **K** and remove the relevant gasket, being careful not to bend the pipe **E** . | 6.58.jpg **Fig 6.64** |
| **6.8.2 Assembly**    Z_Avvertenza.jpg **Warning**       * Always carefully inspect the condition of the tubes, and replace them if there is any doubt regarding their integrity. * Always replace the gasket **M** after each assembly.      1. Check that the contact surface **L** is free from impurities. 2. Position flange **H** inserting hose **K** onto the flange union **H** , being careful not to bend tube **E** . 3. Insert the gasket **M** between the flange **H** and the crankcase **N** . 4. Secure the flange **H** using the screws **B** on the crankcase **N** (tightening torque at **10 Nm** ). 5. Secure the clamp **S** on the manifold **K** . 6. Fit the pipes **G** and **AG** on the flange **H** . 7. Fit breather body **C** onto tubes **G, AG** and **D** and fasten tube **G - AG - D** with their relative clamps. 8. Fit the breather body **C** on the support flange **H** with the new clamp **P** . | 6.59.jpg **Fig 6.65**6.60.jpg **Fig 6.66** |

