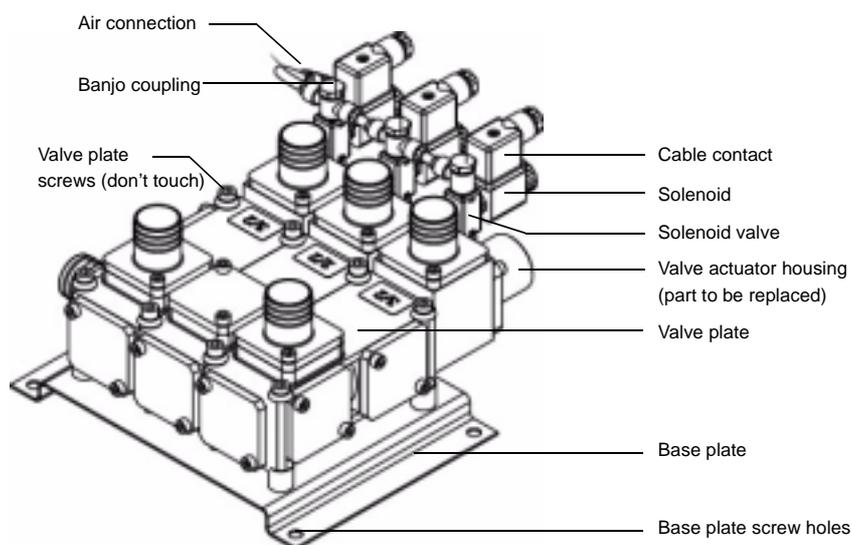


Introduction

The instructions below describe how to replace the valve actuator housing and Banjo bolt insert of the Viking X3M valve plate, as used on Van Hool coaches distributed in the USA. It is extremely important that the instructions are followed carefully to avoid damage and faulty assembly, which can cause leakage and faults during operation.

Definitions

The following designations are used in this document:

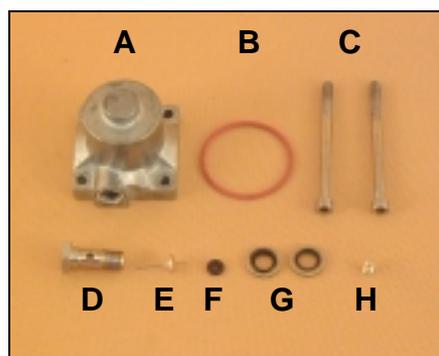


Before you start

To replace the valve actuator housing, before starting you need not only the replacement kit supplied by UWE but also certain tools, etc:

Rebuilding kit (Part no. 15609) contains:

- 1 x valve actuator housing (A)
- 1 x O-ring (B)
- 2 x Allen screws (C)
- 1 x Banjo bolt (D)
- 1 x Throttle (E)
- 1 x O-ring (F)
- 2 x Bonded seals (G)
- 1x Restriction nipple (H)



Other equipment required:

- Marking tape
- Loctite or equivalent brand (detachable)
- Silicone grease
- Phillips screwdriver
- Torque wrench
- 4-mm Allen wrench
- 12-mm open end wrench
- 14 and 15 mm box wrench
- Torque wrench
- Hose pinching pliers
- Sliding caliper

Replacement instructions



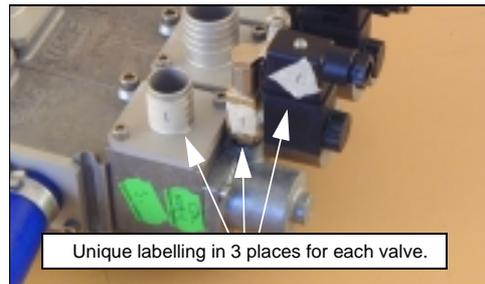
Caution: Do not start working on the valve plate before the water temperature has decreased below 38°C.

To replace the valve actuator housing, follow the instructions below:

1. Turn off the water supply to the Viking X3M by closing manual valves and using hose pinching pliers (see illustration).



2. Clean the Viking X3m valve plate
3. Label the cable contacts, solenoid valves and valve plate so that there is no confusion during assembly.

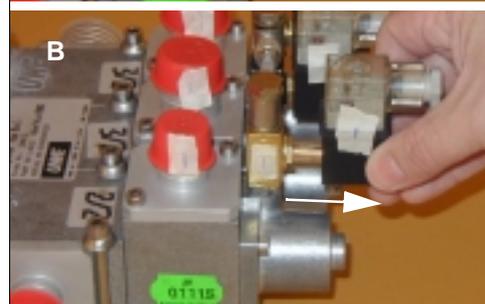


If these parts are switched during assembly the valves will not work properly!

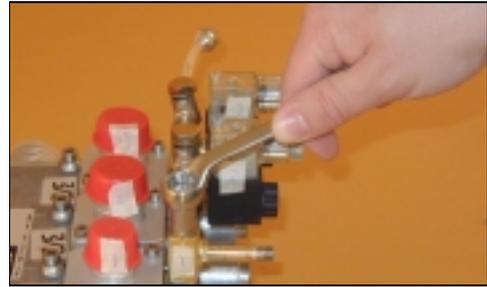
4. Remove the solenoids from the solenoid valves by unscrewing the plastic screw by hand (A) and releasing the solenoid (B).



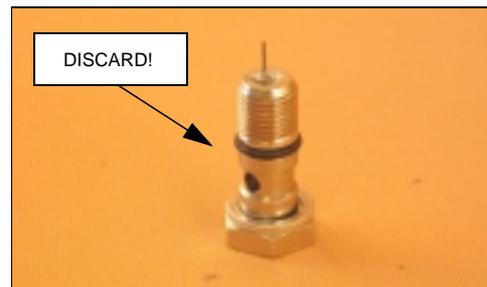
When the solenoid coil is removed from the solenoid valve there is a higher risk that the solenoid valve will be damaged. Therefore never use more force than necessary on the solenoid valve when coil is removed.



5. Undo and remove the air supply banjo bolts using a 14mm or 15mm box wrench.



6. Discard the removed Banjo bolt



7. Undo and remove the two 4 mm Allen bolts securing the valve actuator housing. Recover the Allen bolts.



8. Lift off the valve actuator housing.



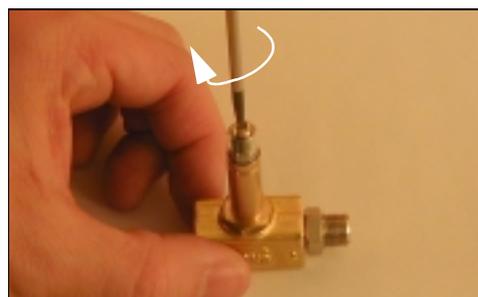
9. Do not touch the rod piston and spring holder – otherwise there is a risk that the valve plate will fall apart



- 10.** Unscrew the solenoid valve and the threaded double nipple from the valve actuator housing using the 12-mm open end wrench. Discard the old valve actuator housing.



- 11.** Screw the restrictor nipple on the solenoid valve as shown in figure.



- 12.** The following steps describe the installation of the new actuator housing with the O-ring and the four Allen bolts.



- 13.** Run-up the solenoid valve (port #1) a few turns and place a few drops of Loctite # 542 or equivalent on the double nipple's thread.



There is a risk of some air leakage if Loctite is not used!

- 14.** Attach the double nipple and solenoid valve to the new valve actuator housing using the 12-mm open end wrench.



15. Turn the solenoid valve housing until the distance between the solenoid valve and the valve actuator housing is approximately 13/64 inch (5 mm) and the spool points directly upwards in relation to the valve actuator housing.



**Take care not to damage the solenoid valve/coil!
Make sure that the solenoid valve is being reinstalled exactly in its former position. Failure to do so will make it impossible to fit the air supply banjo couplings.**



16. Place the O-ring in the track of the new valve actuator housing.



The O-ring should not be lubricated.



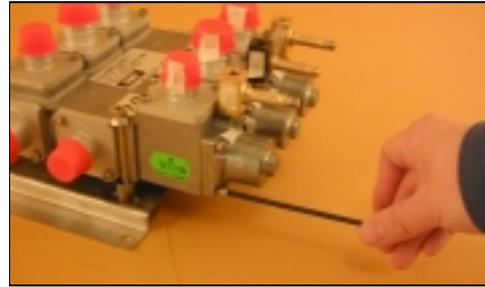
17. The new valve actuator housing is now ready to be attached to the valve plate, but first of all place a little Loctite # 243 on the four screws.



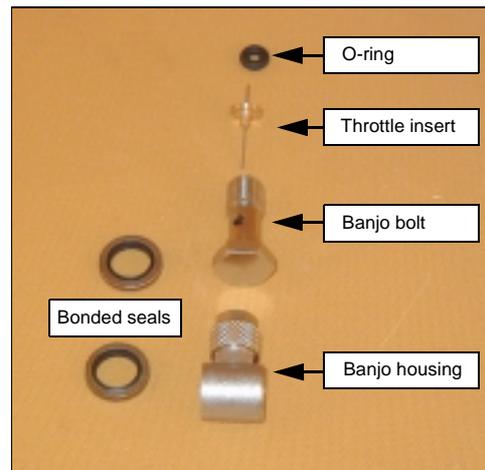
18. Place the valve actuator housing with the new O-ring on the valve plate, using your hand to guide it into the correct position.



19. Screw the Allen screws loosely to make it easier to fit the Banjo couplings. These screws must be torqued in step 25.



20. The following steps describe the installation of the new banjo bolt, throttle insert, O-ring and bonded seals. Now find the new Banjo bolt with bonded seals.



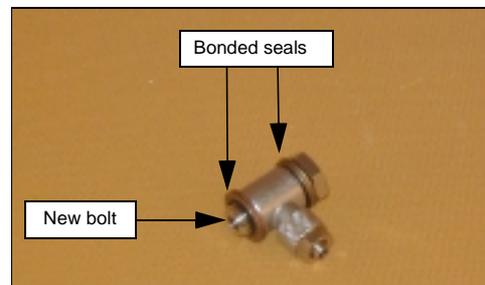
21. Insert the O-ring into the solenoid valve bore. Put the throttle insert into the bore with the shorter pin in the solenoid valve.



Make sure that the short tube end is mounted into the solenoid valve with the O-ring as shown in figure.



22. Place the Banjo bolt in the Banjo housing with the two bonded seals as shown in figure right.



- 23.** Place and screw the Banjo bolt with housing and bonded seals in the solenoid valve.



- 24.** Using a torque wrench and a 4 mm hex driver, tighten the Allen bolts crosswise to a torque of 3 ft.lbf (4Nm).



- 25.** Tighten the Banjo screws to a torque of 5 ft.lbf (7Nm), using a torque wrench with a 14-mm socket.

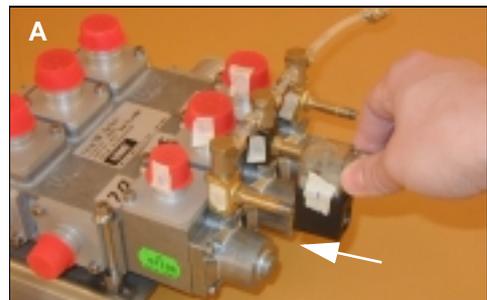


- 26.** Reinstall the solenoids by screwing the plastic nuts hand tight.



Make sure that you attach the correct coil to the solenoid valves, according to the labelling in point 3.

Use no tools to tighten the plastic nut.



- 27.** Remove the labels and check that there is no air or water leakage.

Air leakage can be checked using soapy water.



- 28.** Remove the hose pinching pliers and open manual valves.

- 29.** Check for proper operation. Bleed the system if necessary.