



BMW 6 Speed Mechatronic Replacement

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1. Preliminary tasks

Important: Secure the vehicle against rolling, apply parking brake and secure wheels with wheel chocks. On some vehicles (E-shift) it is necessary to shift the vehicle out of Park to replace the mechatronic.

Some vehicles require the underbody panels, heat shields, exhaust cross-member and exhaust system to be removed to gain full access to the transmission. Remove as necessary.

2. Drain the transmission fluid and remove the transmission oil pan.

On applications with steel oil pan also remove the oil filter.

3. Unlock and disconnect the vehicle electrical connector from the transmission.

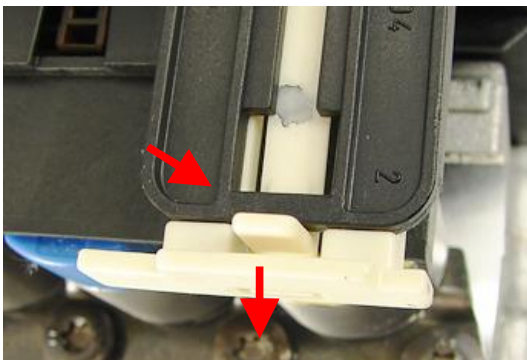


The Mechatronic (electronic valve body) located within the transmission is a electrostatic sensitive device, avoid touching any electrical pins to prevent ESD (electrostatic discharge) damage.



4. Pull the sealing sleeve locking mechanism to the unlocked position and remove the sealing sleeve.

The locking tab is located on the bottom of the mechatronic below the sealing sleeve.



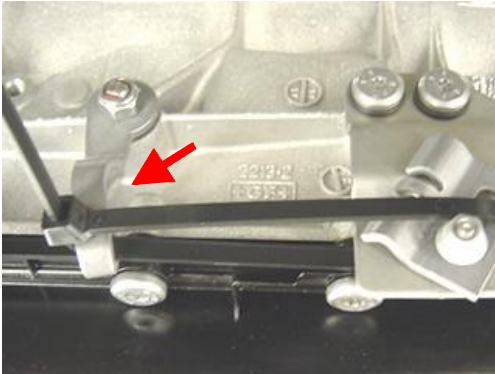


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5. E-shift applications only (vehicles with an Emergency Release Cable)

Important: By moving the emergency park release lever backward the transmission is no longer in the park position. Secure the vehicle against rolling, apply parking brake and secure wheels with chocks.



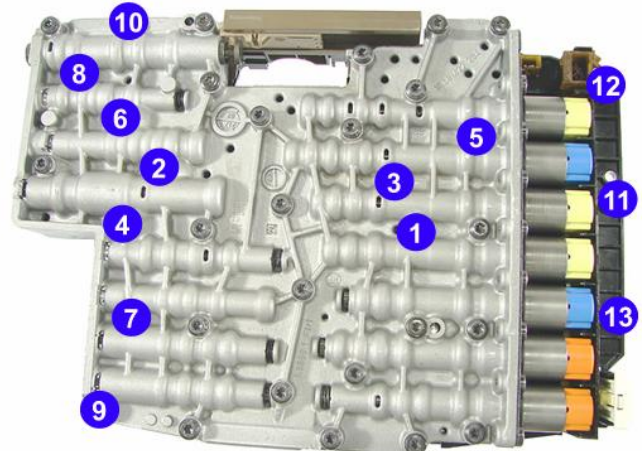
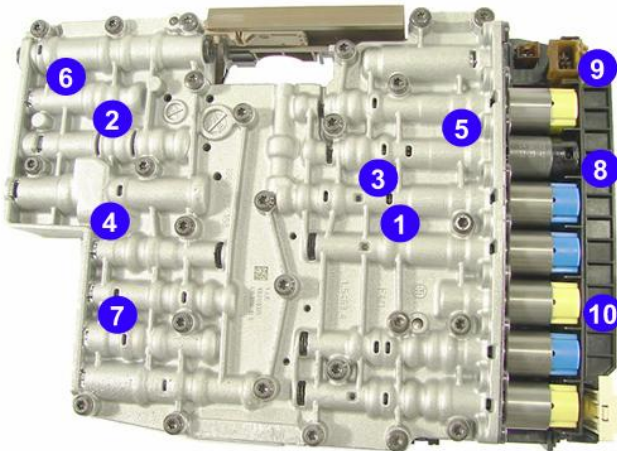
Use a wire tie or mechanics wire and secure the emergency release lever in a slight backwards position as shown.

6. Mechatronic removal

Release and remove the screws indicated in blue to remove the mechatronic.

Note: There are mechatronic versions with 10 or 13 mounting screws.

Be careful not to drop or rough handle the mechatronic to prevent external damage.



7. Mechatronic seal adapter

Remove the mechatronic adapter and replace the seals with the new ones provided, coat with transmission fluid. Reinstall the seal adapter in the transmission housing.





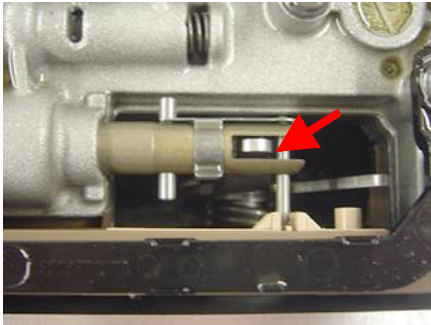
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8. Mechatronic installation

When installing the replacement mechatronic make sure the park cylinder rod on E-shift or the manual valve on M-shift is properly engaged before installing any of the mechatronic mounting bolts.

E-shift

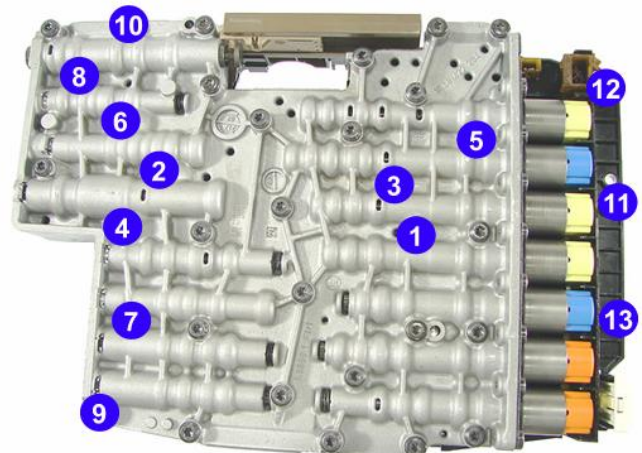
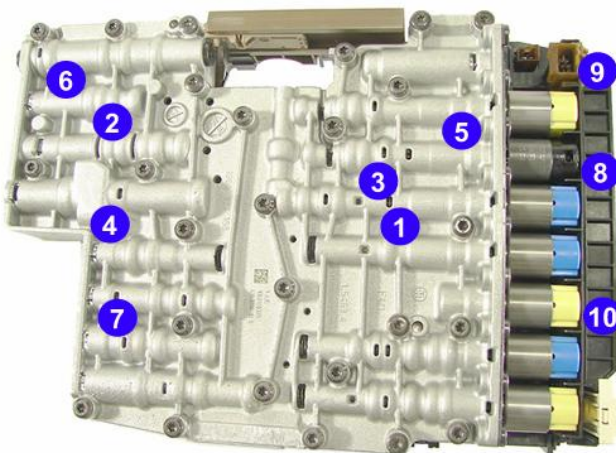


M-shift



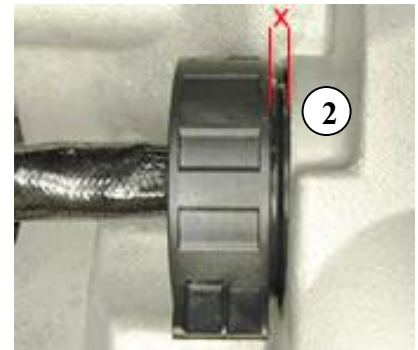
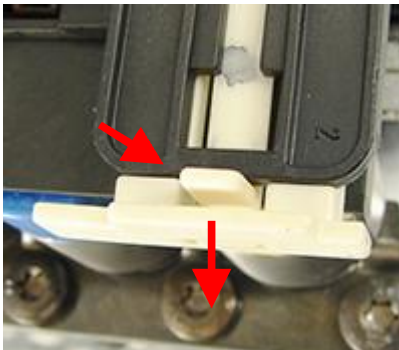
Use hand tools - Do not use power tools for screw installation.

First install and turn screw 1 and 4 alternately until seated then install all other screws until they make contact with the mechatronic. After all screws are installed, tighten screws in order 1 through 10 or 1 through 13 as shown in the schematics below. Torque for screws is **8 Nm $\pm$ 0.8 Nm**.



9. Mechatronic sleeve installation

Unlock the sealing sleeve locking mechanism of the new mechatronic. Install the sealing sleeve with the locating tab ① properly aligned with the mechatronic. After sleeve is properly seated push the locking mechanism to the locked position. Install the vehicle connector plug and check that the sleeve is properly seated ② gap x should be between 2.5 and 3.0 mm.





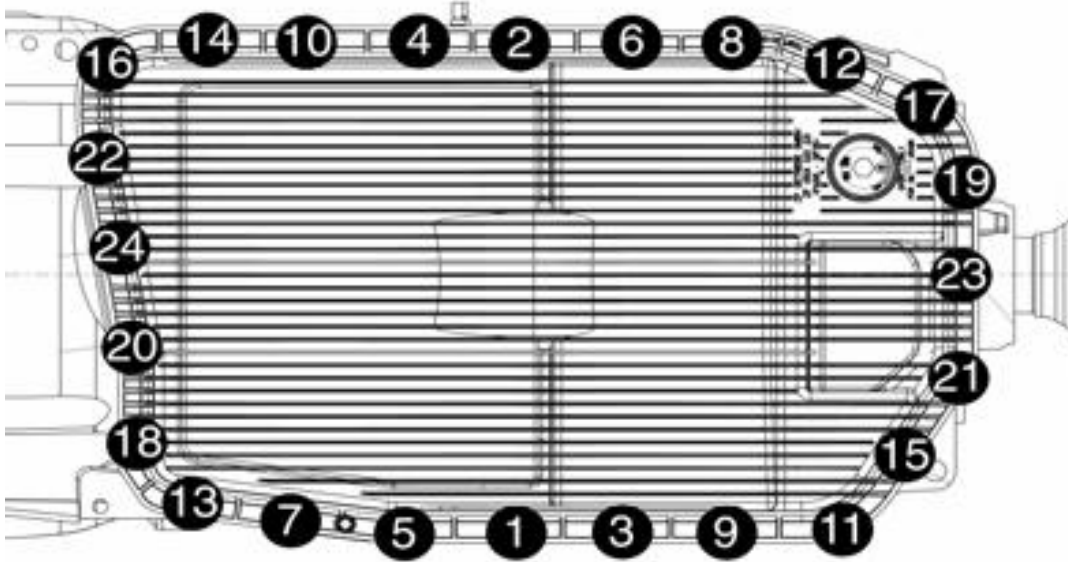
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10. Oil pan installation

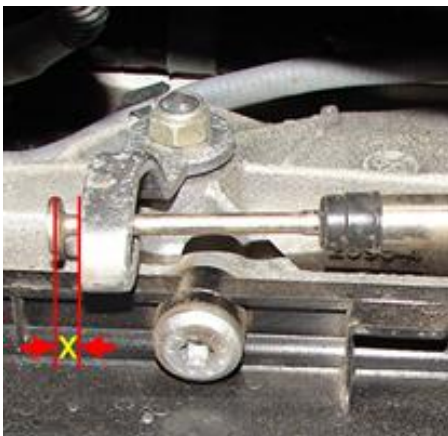
Install the oil pan and attach all screws until they just make contact with the oil pan. After all screws are installed, tighten screws in order **1** through **24** as shown in the schematic below.

- The tightening torque for screws on a plastic oil pan is **10 Nm $\pm$ 1.0 Nm**.
- The tightening torque for screws on a steel oil pan is **12 Nm $\pm$ 1.0 Nm**.

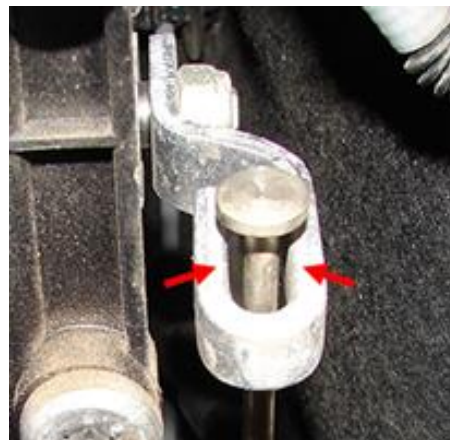


11. E-shift vehicles, remove the tie strap or wire that held the emergency park release lever in the backwards position.

Adjust the emergency cable as follows.



With the emergency cable released the clearance X indicated above must be adjusted to 1.0 to 2.0 mm.



The cable should not touch the lever at any time, even if the lever is moved back and forth. If the cable does come in contact then check for a bent lever or a bent cable bracket.



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12. Mechatronic programming

If the mechatronic was not previously programmed with vehicle specific software this must be performed at this time. Operating vehicle in failsafe mode may cause transmission damage. If on site programming tools are not available then the vehicle must be towed to your vehicle specific dealer for programming.

13. Transmission Fluid

After mechatronic installation the transmission must be refilled with transmission fluid. With vehicle on level ground, transmission in park and engine **not** running add transmission fluid through the filler plug until transmission fluid overflows. Install the filler plug and start the engine. With engine running remove the filler plug and add transmission fluid until it overflows through the filler hole. Install the filler plug. With foot firmly on the brake pedal shift P-N-R-D several times, pausing in each position for a few seconds. Place shifter back into the park position. Remove the filler plug and wait until the transmission has reached 40 ° C, a small stream of transmission fluid should overflow from the filler plug. If no fluid is visible then correct fluid level as needed, using ZF Lifeguardfluid6 or OEM approved fluid. Install filler plug and torque to 35NM.

14. Test drive

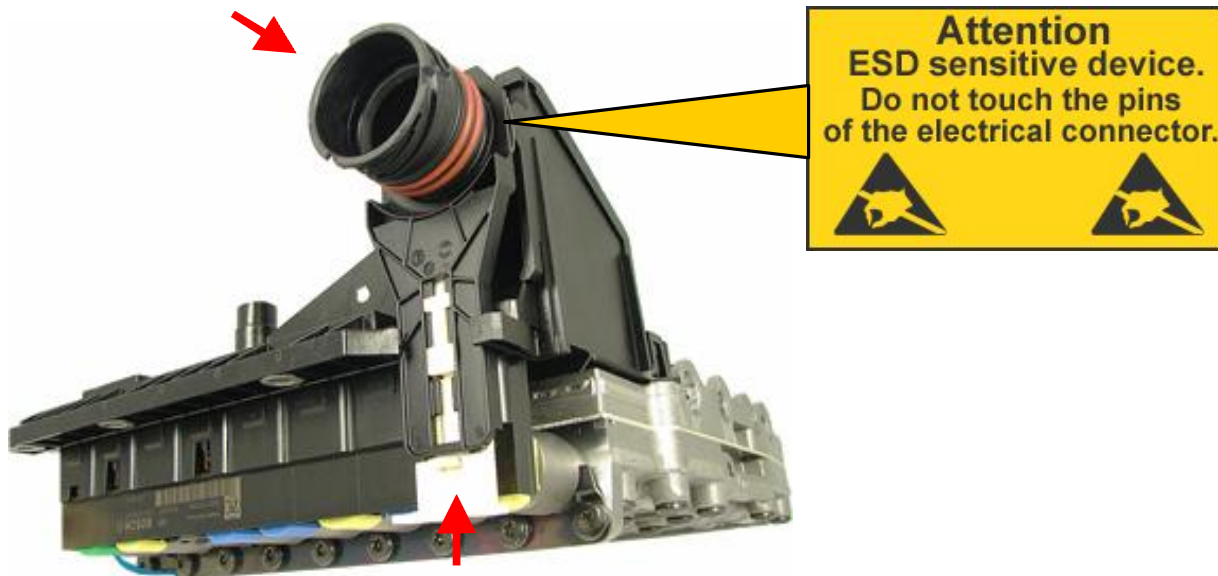
It is recommended to clear the fault memories before driving. Should a fail safe condition occur a clean record of events will be available for trouble shooting.

15. Final check

- After test drive allow the transmission fluid to cool to 40 ° C recheck transmission fluid with vehicle level, transmission in park and engine running at idle speed. Correct fluid level as needed, using ZF Lifeguardfluid6 or OEM approved fluid.
- Check for leaks in the mechatronic sleeve and oil pan area.

16. Mechatronic core return instructions

Insert the old sealing sleeve back into the mechatronic, push the locking tab into its locked position for core return shipping. Avoid touching any electrical pins to prevent ESD (electrostatic discharge) damage.





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To receive full credit core unit must be returned in the original box..
Packaging recommendation:



1. Use the original shipping box for the mechatronic return.
Place the cardboard insert upside down into the shipping box.



2. Add additional packaging material to the bottom of the box.



3. Place the mechatronic into a plastic bag to prevent oil leakage, then set into shipping box.
Note: Clean up charges due to leaking packages will be deducted from the core credit..

Do not return the oil pan or any of the sealing parts that came with the mechatronic.



4. Add additional packaging material on top of the mechatronic to provide a snug fit in the shipping box.
Package mechatronic as secure as possible, damage to the mechatronic will result in deduction or loss of your core credit.