

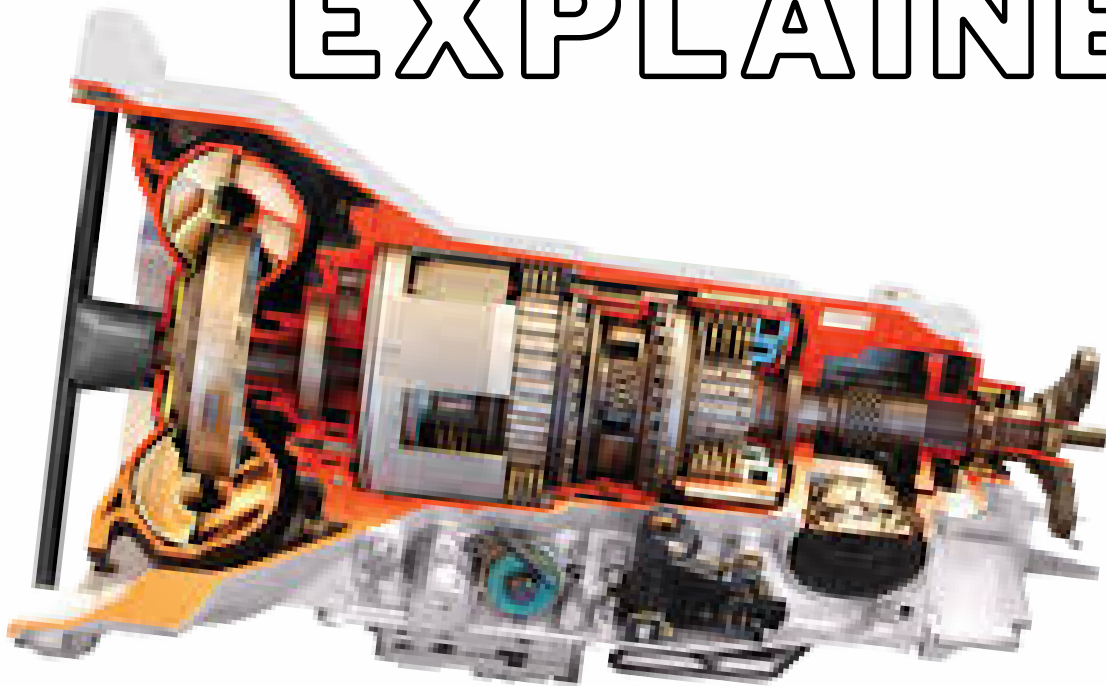


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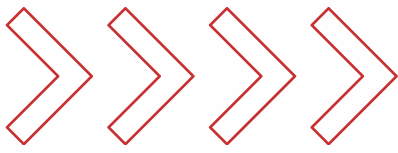
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TRANSMISSION USER MANUAL

AUTOMATIC & MANUAL SYSTEMS EXPLAINED



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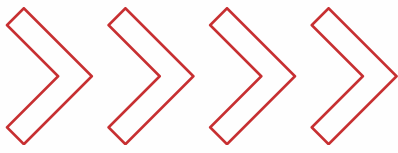


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1. Introduction

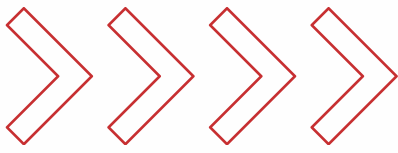
This manual will be useful to owners of the vehicles, mechanics or anyone looking after the transmission system. It deals with both standard and automatic vehicles. Each section contains simple, workable advice that is tried and tested.



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2. UNDERSTANDING TRANSMISSION SYSTEMS

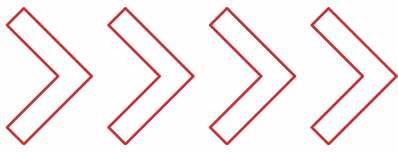
The mechanism that sends power to the wheels via the engine is called the transmissions of your car. It determines the ratio between the number of times that the engine turns and the number of times that the wheels turn. Automatic transmissions do not require any shifting mechanism. Manual transmission applies to cars where one has to shift gears with the use of a gear stick and clutch.



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3. AUTOMATIC TRANSMISSIONS - BASIC OPERATION

In automatic transmission, a torque converter is used in place of a clutch. The gears change by force of hydraulic pressure controlled by a valve body and that body is electronically controlled in the majority of more modern versions. The modern automatics also possess 6 to 10 forward gears.



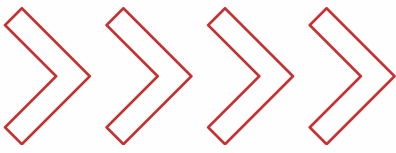
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Key components

- Torque converter
- Planetary gear sets
- Valve body
- Transmission control module (TCM)

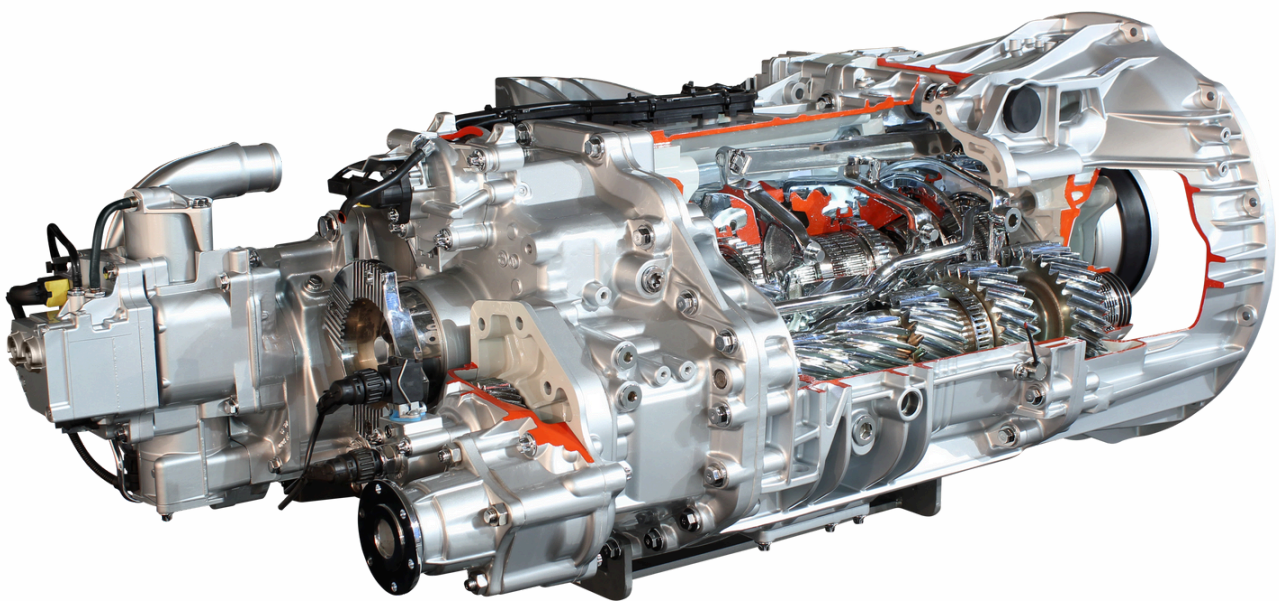
The fluid level and condition must be checked regularly. Overheating is the most common reason for failure. Always use the factory-recommended fluid type.

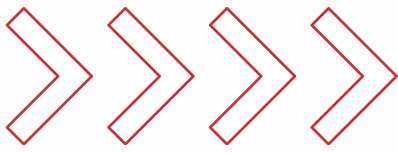


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4. MANUAL TRANSMISSIONS - BASIC OPERATION

Manual systems are mechanically simple but require more driver input. The disengagement of the engine from wheels is completed by clutch. When the clutch is pushed, then you select the right gear and release the clutch.





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Key components

- Clutch disc
- Pressure plate
- Flywheel
- Gear synchronizers
- Gear selector assembly

Manual gear systems are far more rugged, i.e. last longer. They only fail when the clutch is worn too much and do not work efficiently. Bad synchronizers are also responsible for their failure. Replace transmission oil in accordance with mileage.



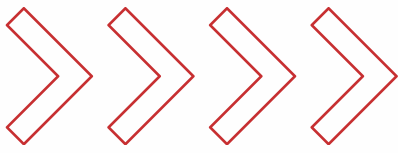
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5. SHIFTING BEHAVIOR AND DIAGNOSIS

Automatic shifting issues

- **Hard shifts:** May be low fluid, dirty filter, or internal wear
- **Delayed shifts:** Often caused by low pressure or a faulty solenoid
- **Slipping:** Usually points to worn clutches or low fluid

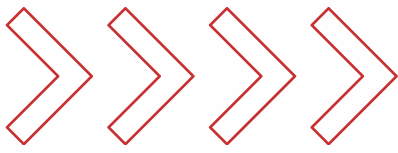


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Manual shifting issues

- **Grinding noise:** Bad synchronizers or low gear oil
- **Slipping clutch:** Worn clutch disc or pressure plate
- **Hard to engage gear:** Could be a worn shifter linkage or damaged fork

You should never continue driving if the transmission begins slipping or hesitating under load. That causes further internal damage.



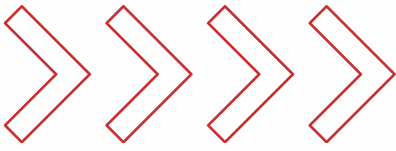
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6. FLUID AND LUBRICATION GUIDELINES

Do not use just any fluid or gear oil, only go for OEM-specified oils. This tiny step can increase the life of your vehicles transmission. Check the oil on regular basis. For manuals, most models require fluid level checked through a fill plug.

Change intervals:

- Automatics:** Every 30,000 to 60,000 miles unless factory states otherwise
- Manuals:** Every 40,000 to 80,000 miles

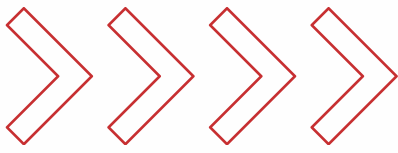


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Signs of bad fluid:

- Burnt smell
- Brown or black color
- Foaming or bubbles
- Metal shavings on magnetic drain plug





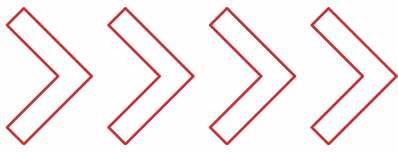
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7. TRANSMISSION COOLING

Automatic systems need to have transmission cooler. Radiator coolers are usually built in, however, vehicles of heavy duty capacity will require external coolers. When you tow, or drive in traffic every day, monitor the temperature of the transmission using a scan tool or integrated gauge (if one is available).

Do not obstruct the airflow to transmission coolers by use of aftermarket accessories. Here heating, fast kills transmission life



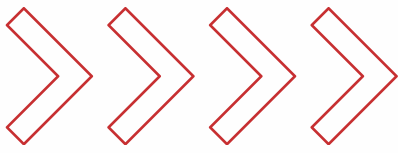
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8. CLUTCH SYSTEM MAINTENANCE (MANUAL ONLY)

The clutch must have smooth operation and under load it must not show slippage. Wear symptoms of the pedal include high pedal engagement point, chatter or inability to change to a gear.

Hydraulic clutching systems require regular flushing of the liquid Cable operated clutches must be tensioned. Clutch pedal should always be checked on free play and adjusted when necessary.



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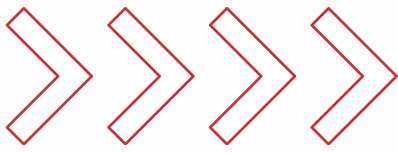
9. TRANSMISSION MOUNTS AND SUPPORT BRACKETS

Both automatic and manual transmissions are placed on vibration-neutralizing and alignment maintainers. A clunk on shifting or too much noise in the drivetrain can be caused by cracks or a drooping rubber in these mounts.

Replacement is straightforward:

- Support transmission with a jack
- Remove worn mount
- Install new mount using torque

specifications from service manual
Failing to replace bad mounts on time may stress other drivetrain components.



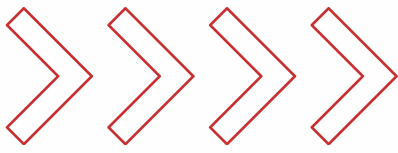
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10. REBUILDING VS. REPLACING A TRANSMISSION

Rebuilds tend to be much more affordable because they rely on local labor and parts supply. It makes more sense for older cars to replace with a remanufactured transmission or a used one.

Make sure to buy used transmissions only through reputable suppliers and they allow you to check the histories as well as warranty and mileage



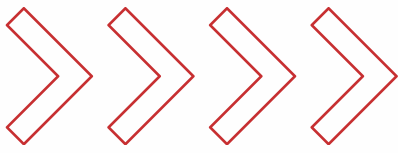
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Search words including:

- The used transmissions are tested
- Low-mileage units
- Warranted parts

Do not purchase transmissions that are not covered by a return policy and support of the installation.



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11. WARRANTY AND SERVICE RECORDS

Warranty, adhere to all the necessary service plan and use approved fluids.

-Transmission that is covered by warranty must have:

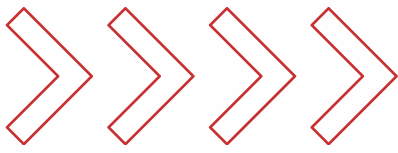
-Coverage period (normally 6-12 months)

-Mileage restriction

-List of approved installer

-Explanation in written form of the replacement/repair process

Warranties can be nullified without taking installation and break-in practices



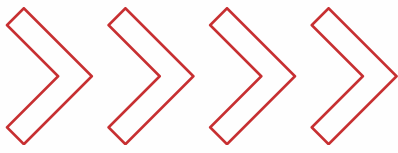
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12. COMMON TOOLS AND SCAN EQUIPMENT

Tools needed for regular inspection and service:

- Torque wrench
- Transmission jack
- OBD-II scan tool
- Line pressure gauge
- Dial indicator (for end play measurement)

Do not attempt transmission repairs without proper tools. Diagnostic tools help read temperature, gear ratio, and solenoid behavior in automatics. Manuals mostly require mechanical measurements and visual inspection.



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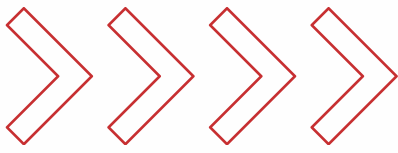
13. FINAL INSPECTION AND TEST DRIVE

Always test after fluid change or part replacement.

Check for:

- Smooth shifting
- No slipping
- No harsh engagement
- Correct fluid level and color after test drive
- Absence of leaks around pan, cooler lines, and seals

If you detect noise, shuddering, or inconsistent shifting during test drive, stop and recheck installation or fluid.

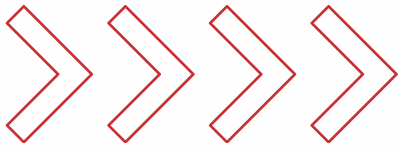


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14. CONCLUSION

This manual gives practical instructions for managing automatic and manual transmissions. Stick to the factory schedule, use proper fluids, and monitor changes in shifting behavior. If unsure, use a professional technician with transmission experience. Ignoring early signs of failure will always lead to higher repair costs.



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