Automotive Transmission Valve Body

Product Manual

Table of Contents

1. Product Overview
2. Applicable Models & Technical Parameters
3. Product Structure
4. Installation & Replacement Preparation & Tools
5. Installation & Replacement Steps & Specifications
6. Usage Notes
7. Safety Warnings
8. Daily Maintenance & Inspection
9. Common Fault Diagnosis & Solutions

1. Product Overview

The **Automotive Transmission Valve Body** is the core control component of the vehicle's automatic transmission system, known as the "brain" and "heart" of the transmission. It is mainly installed inside the automatic transmission case, integrating various control valves, oil channels, sensors, and solenoid valves. It works with the transmission control unit (TCU), hydraulic pump, and clutch/brake components to realize the precise control of transmission oil pressure and oil flow direction.

By receiving electrical signals from the TCU (which collects data such as vehicle speed, engine speed, throttle position, and gear position), the transmission valve body adjusts the opening and closing of each solenoid valve and control valve, thereby controlling the on-off of oil channels and the change of oil pressure. This realizes smooth gear shifting, stable power transmission, and effective protection of the transmission. This product adopts automotive-grade high-precision materials, precision CNC machining, and strict hydraulic performance and fatigue resistance testing, featuring high control precision, stable operation, strong wear resistance, and full compatibility with the original vehicle's transmission system. It is a direct replacement for original parts, widely applicable to various passenger cars, commercial vehicles, and new energy vehicles, effectively solving problems such as difficult gear shifting, gear slipping, shifting shock, and transmission oil leakage caused by faulty valve bodies.

2. Applicable Models & Technical Parameters

2.1 Technical Parameters

- **Product Name**: Automotive Transmission Valve Body
- **Material**:
    - Valve Body Housing: High-strength aluminum alloy / Cast iron (lightweight, good heat dissipation, high pressure resistance, corrosion resistance; cast iron for heavy-duty models)
    - Valve Core: High-hardness stainless steel / Copper alloy (wear-resistant, smooth surface, good sealing performance, long service life)
    - Solenoid Valve: High-purity copper coil + engineering plastic shell (stable electromagnetic performance, high temperature resistance, waterproof and dustproof)
    - Sealing Element: Fluorine rubber (FKM) / Nitrile rubber (NBR) O-ring, sealing gasket (oil-resistant, high-temperature resistant, pressure-resistant, good sealing performance)
    - Sensors (Integrated): Pressure sensor, temperature sensor (high precision, fast response, stable signal transmission)
    - Wiring Terminal: Tinned copper (anti-oxidation, good electrical contact, low contact resistance, anti-corrosion)
- **Processing Technology**: Precision CNC machining, EDM (Electrical Discharge Machining) for oil channels, honing for valve holes, solenoid valve calibration, hydraulic pressure test, sealing test, aging test, high and low temperature resistance test, fatigue test, anti-vibration test.
- **Type**:
    - Transmission Type: Adapt to AT (Automatic Transmission), CVT (Continuously Variable Transmission), DCT (Dual Clutch Transmission) (according to original vehicle design)
    - Voltage: 12V DC (passenger cars, light commercial vehicles); 24V DC (heavy commercial vehicles, special vehicles)
    - Control Type: Electronic control (TCU-integrated, real-time response to TCU signals)
    - Installation Type: Bolt-fixed type (matches original vehicle installation holes and transmission case interface)
    - Interface Type: Standard hydraulic oil interface (matches original vehicle transmission oil pipeline); Standard wiring harness interface (plug-and-play with original vehicle TCU)

- **Core Parameters**:
  - Working Voltage: DC 12V±10% / 24V±10% (stable operation under vehicle power fluctuation)
  - Working Temperature: -40℃ ~ +150℃ (adapt to high-temperature environment inside the transmission case)
  - Storage Temperature: -50℃ ~ +180℃
  - Working Oil Pressure: 0.3 ~ 2.5MPa (matches vehicle transmission system oil pressure range)
  - Response Time: ≤0.03s (rapid adjustment of oil pressure and oil flow, ensuring smooth gear shifting)
  - Solenoid Coil Resistance: 10 ~ 30Ω (12V); 40 ~ 80Ω (24V) (allowable error ±5%)
  - Sealing Performance: No leakage under 3.0MPa static pressure; Waterproof grade: IP67 (dustproof and waterproof, adapting to harsh working conditions inside the transmission)
  - Service Life: ≥200,000km (under normal use and maintenance)
  - Protection Function: Overvoltage protection, overcurrent protection, anti-electromagnetic interference (EMI), short-circuit protection, low-voltage protection, high-temperature protection
  - Oil Compatibility: Compatible with ATF (Automatic Transmission Fluid) of various specifications (Dexron, Mercon, etc.), matching original vehicle requirements

Standard Accessories

1× Transmission Valve Body, 1× Sealing Gasket/O-Ring Set (for interface sealing), 1× Installation Bolt Set (matching original vehicle specifications), 1× Wiring Harness Connector (if applicable), 1× Installation & Maintenance Manual, 1× Transmission Fluid (small capacity, for pre-filling and testing), 1× Anti-seize Lubricant Packet (for bolt installation), 1× Cleaning Cloth, 1× Oil Filter (matching transmission specifications, optional).

2.2 Applicable Models

Suitable for most vehicles equipped with automatic transmissions (AT, CVT, DCT), including but not limited to:

- **Passenger Cars**: Compact cars, medium and high-end cars, SUVs, MPVs (12V DC, adapted to AT/CVT/DCT transmissions, bolt-fixed type, matching passenger car transmission specifications)
- **Commercial Vehicles**: Light trucks, heavy trucks, buses (24V DC, adapted to

heavy-duty AT transmissions, high-pressure resistant, bolt-fixed type, adapting to heavy-duty power transmission needs)

- **New Energy Vehicles**: Pure electric vehicles, hybrid vehicles (12V/24V DC, adapted to electric drive automatic transmissions, compatible with electric control system, low energy consumption)
- **Special Vehicles**: Emergency vehicles, engineering vehicles, agricultural vehicles (24V DC, high-pressure resistant, anti-vibration, adapting to complex working environments and frequent gear shifting needs)

Please Note: For specific applicable brands, model years, engine models, and transmission types (AT/CVT/DCT), refer to the product detail page for detailed compatibility information.

Before Purchase: Confirm the original vehicle's transmission type, valve body model, voltage, interface size, and wiring connector type; check the installation bracket size and transmission case interface to avoid mismatched installation and transmission system failure.

3. Product Structure

3.1 Overall Structure

1. **Valve Body Housing**: Integrally machined high-strength aluminum alloy or cast iron shell, with built-in precision oil channels, valve holes, and installation positions for solenoid valves and sensors. It is responsible for fixing internal components and guiding the flow of transmission oil, ensuring stable oil pressure and smooth oil flow. The housing is designed with heat dissipation structures to adapt to the high-temperature environment inside the transmission.
2. **Control Valve Group**: Composed of multiple precision control valves (shift valve, pressure regulating valve, throttle valve, etc.), each valve core is made of high-hardness material, with smooth surface and precise fit with the valve hole. It controls the on-off of oil channels and the adjustment of oil pressure under the drive of solenoid valves, realizing gear shifting and power transmission.
3. **Solenoid Valve Group**: Composed of multiple electromagnetic valves (shift solenoid valve, pressure solenoid valve, etc.), wound by high-purity copper wire, encapsulated by high-temperature resistant insulating material. It receives control signals from the TCU, controls the opening and closing of the valve core, and adjusts the oil pressure and oil flow direction in real time.
4. **Integrated Sensors**: Including pressure sensor and temperature sensor. The pressure sensor real-time detects the oil pressure of the transmission system, and the temperature sensor detects the temperature of the transmission oil; both convert physical signals into electrical signals and transmit them to the TCU, providing data support for precise control.
5. **Oil Filter**: Built-in or external oil filter (optional), used to filter impurities in the

transmission oil, avoid blocking oil channels and valve holes, protect internal components, and extend the service life of the valve body and transmission.

6. **Sealing Element**: FKM/NBR sealing gasket/O-ring, installed at the valve body and transmission case interface, oil channels, and wiring connector, with good oil resistance, high-temperature resistance, and pressure resistance, preventing transmission oil leakage.

7. **Wiring Terminal/Connector**: Tinned copper wiring terminal, connected to the vehicle's TCU and electrical system. The connector adopts a waterproof and anti-dust design, ensuring stable electrical connection and anti-oxidation performance, adapting to the harsh environment inside the transmission.

8. **Fixing Structure**: Bolt holes on the valve body housing, matching the original vehicle's transmission case installation holes, used to fix the valve body firmly, ensuring no shaking or displacement during vehicle operation and gear shifting.

3.2 Key Structural Features

1. **High Control Precision**: The solenoid valve group and control valve group adopt precision machining and calibration, with fast response speed, which can accurately adjust oil pressure and oil flow according to TCU signals, ensuring smooth gear shifting, no shock or slipping, and improving driving comfort.

2. **Strong Durability**: High-quality material selection and precision machining, the valve body housing, valve core, and solenoid valve have good wear resistance, corrosion resistance, high-temperature resistance, and anti-vibration performance, adapting to the harsh working environment inside the transmission and complex road conditions.

3. **Good Sealing Performance**: High-quality sealing elements and precision fit between components, effectively preventing transmission oil leakage, ensuring stable oil pressure of the transmission system, and avoiding valve body failure and transmission damage caused by oil leakage.

4. **High Compatibility**: The installation size, oil interface, wiring interface, voltage, and control mode are completely consistent with the original vehicle, plug-and-play, no need to modify the transmission system or electrical system, directly replacing the original parts.

5. **Easy Installation**: Compact structural design, reasonable layout, simple fixing method (bolt-fixed), and can be installed and replaced with professional tools, reducing installation time and labor costs.

6. **Strong Anti-interference**: The solenoid valve group and sensors are encapsulated with insulating and anti-interference materials, which can effectively resist electromagnetic interference from the engine, vehicle electrical equipment, and external environment, ensuring stable operation of the valve body and transmission system.

7. **Comprehensive Protection**: Equipped with multiple protection functions

(overvoltage, overcurrent, short-circuit, low-voltage, high-temperature), which can effectively protect the valve body, solenoid valve group, and sensors from damage, extending the service life of the product.

4. Installation & Replacement Preparation & Tools

4.1 Pre-installation & Pre-replacement Preparation

1. **Power Off & Oil Drainage**: Turn off the vehicle engine and ignition switch, disconnect the negative electrode of the vehicle battery (avoid short circuit of the electrical system and damage to the TCU and valve body during installation); wait for the engine and transmission to cool completely (at least 60 minutes) to avoid high-temperature scalding. Drain the transmission oil: locate the transmission oil drain plug, place a container under it, loosen the plug, and drain all the old transmission oil (collect the old oil for professional disposal, avoid environmental pollution).

2. **Vehicle Fixation**: Park the vehicle on a flat and stable ground, pull the handbrake, block the wheels with triangular wedges to ensure the vehicle does not move; raise the vehicle with a jack and fix it with a safety bracket (ensure operation safety, especially when disassembling the transmission case cover).

3. **Locate the Installation Position**: The transmission valve body is installed inside the automatic transmission case, usually under the transmission case cover or on the side of the transmission. Disassemble the transmission case cover (if necessary) according to the original vehicle maintenance manual to expose the valve body; it is usually fixed by 4-6 bolts.

4. **Disassemble the Old Valve Body**:

    - Disconnect the wiring harness connector of the old valve body (press the lock buckle and pull gently), and mark the wiring position (to avoid wrong connection during installation).
    - Use a socket wrench to remove the fixing bolts of the old valve body, and gently take out the old valve body (do not force it to avoid damaging the transmission case, oil channels, or internal components).
    - Take out the old sealing gasket/O-ring, and clean the residual transmission oil and debris on the installation seat, oil interface, and wiring connector.

5. **Clean the Installation Area**: Use a clean dry cloth or degreaser to wipe the installation seat, oil interface, transmission case inner wall, and surrounding area, remove dust, oil stains, and debris; check the installation seat for deformation, and check the oil channels for blockage, wear, or corrosion (use a soft brush to clean if necessary, repair or replace the transmission case if damaged).

6. **Check the New Valve Body**: Confirm the new transmission valve body's specifications (transmission type, voltage, interface size) match the original vehicle; check the valve body housing for cracks, deformation, or damage; check the solenoid

valve group, sensors, and sealing element for damage or aging; confirm the accessories are complete; pre-fill the valve body oil channels with the specified transmission fluid (according to the original vehicle manual).

7. **Prepare Auxiliary Materials**: Anti-seize lubricant (for fixing bolts), specified transmission fluid (for refilling), clean dry cloth, disposable gloves (avoid oil contamination), degreaser (for cleaning the installation area), transmission oil recovery container (for collecting waste transmission oil), gasket sealant (if required by the original vehicle).

4.2 Required Tools

- Phillips/flat screwdriver (for disassembling the wiring harness connector and transmission case cover)
- Socket wrench set (8mm–19mm, for removing the valve body fixing bolts and transmission case cover bolts)
- Torque wrench (for tightening the fixing bolts and transmission case cover bolts with standard torque)
- Plastic pry bar (non-metallic, for prying the valve body and transmission case cover, avoiding scratching components)
- Multimeter (for testing the solenoid coil resistance and sensor electrical connection)
- Hydraulic pressure gauge (optional, for testing the oil pressure of the valve body after installation)
- Jack and safety bracket (for raising the vehicle, ensuring operation safety)
- Auxiliary materials: Anti-seize lubricant, specified transmission fluid, clean dry cloth, disposable gloves, degreaser, transmission oil recovery container, gasket sealant

Note: The installation/replacement of the transmission valve body involves the vehicle's transmission system, which is related to driving safety and transmission service life. It is strongly recommended to be operated by professional automotive maintenance technicians. Handle the valve body with care, avoid collision, extrusion, or damage to the valve body housing, solenoid valve group, and sensors; do not disassemble the valve body to avoid damage to internal components. When handling transmission fluid, operate in a well-ventilated area, avoid contact with skin and eyes, and collect waste oil for professional disposal.

5. Installation & Replacement Steps & Specifications

5.1 Installation Steps

1. Confirm the installation preparation is complete: the installation area is clean, the transmission oil channels are unobstructed and intact, the new valve body

matches the original vehicle parameters, and the valve body oil channels are pre-filled with transmission fluid.

2. **Install the Sealing Element**: Take out the new sealing gasket/O-ring from the accessories, apply a small amount of transmission fluid to the sealing surface (enhance sealing performance and facilitate installation), and install it on the oil interface of the valve body and the installation seat; if required by the original vehicle, apply an appropriate amount of gasket sealant to the sealing surface (avoid excessive sealant blocking oil channels).

3. **Install the New Valve Body**: Align the new transmission valve body with the installation seat and oil interface, gently place it in place (ensure the valve body is closely attached to the installation seat, no gap); pay attention to the installation direction, and ensure the wiring connector faces the correct direction (consistent with the original valve body).

4. **Fix the Valve Body**: Install the matching fixing bolts (apply a small amount of anti-seize lubricant to the bolt threads), tighten the bolts evenly with a torque wrench (torque: 12–18N·m), do not over-tighten to avoid cracking the valve body housing or damaging the installation seat.

5. **Connect the Wiring Harness**: Align the vehicle wiring harness connector with the valve body's wiring terminal, insert it firmly until the lock buckle is closed with a "click" sound; check the connector for loose contact, and ensure the wiring is neatly arranged (avoid interference with transmission moving parts).

6. **Reinstall the Transmission Case Cover (if disassembled)**: Clean the transmission case cover and installation surface, install the new sealing gasket, align the cover with the transmission case, tighten the fixing bolts evenly with a torque wrench (according to the original vehicle specified torque), ensure no leakage.

7. **Refill Transmission Fluid**: According to the original vehicle maintenance manual, add the specified type and amount of transmission fluid to the transmission; check the oil level to ensure it is within the normal range (between the upper and lower scale lines of the oil dipstick).

8. **Air Bleeding and Oil Circulation**: Start the vehicle engine, run it at idle speed for 5–10 minutes, shift the gear lever to each gear position (P, R, N, D, L) and stay for 2–3 seconds each, then return to P position; this operation is to circulate the transmission fluid, fill the valve body oil channels, and discharge the air in the system (air in the system will affect valve body control and gear shifting performance).

5.2 Post-installation Test & Final Inspection

1. **Power On and Test**: Reconnect the negative electrode of the vehicle battery, turn on the ignition switch (do not start the engine), check the transmission fault indicator light on the instrument panel (it should turn off automatically after 2–3 seconds, indicating the transmission system is normal); use a multimeter to test the solenoid coil resistance and sensor electrical connection of the valve body (confirm it is within the rated range); check the wiring connection for normalcy, and ensure there

is no short circuit.

2. **Comprehensive Function Test**: Start the vehicle engine, run it at idle speed for 3–5 minutes, then drive the vehicle at a low speed (10–20km/h), shift gears smoothly (from 1st to 2nd, 2nd to 3rd, etc.) to test the gear shifting performance; then drive at different speeds (30–60km/h), test the upshifting and downshifting response, ensure there is no gear slipping, shifting shock, or abnormal noise.

3. Check for transmission oil leakage at the valve body installation interface, transmission case cover, and oil interface (no oil stains, dripping).

4. Listen for abnormal noise in the transmission and valve body (no buzzing, clicking or other abnormal sounds during operation).

5. Use a vehicle diagnostic instrument (if equipped) to read the transmission system data, confirm the valve body works normally, and there is no fault code.

6. **Final Inspection**: Check the valve body fixing status, ensure no looseness; check the wiring harness for firm connection, no pulling; check the transmission fluid level again after driving 5–10km, and add fluid if necessary; confirm the gear shifting is smooth, the transmission works normally, and the transmission fault indicator light is off during driving.

5.3 Key Installation & Replacement Notes

1. **Strict Power Off & Oil Drainage**: Must disconnect the vehicle battery negative electrode before installation and replacement, and drain all transmission oil; avoid transmission oil spraying, short circuit of the electrical system, and damage to the TCU and valve body.

2. **Correct Wiring Connection**: Mark the wiring position before disassembly, ensure that the wiring harness is connected correctly during installation (wrong connection will cause the valve body, TCU to burn out, and transmission system failure), and check the connector for firm contact.

3. **Sealing and Leakage Prevention**: Do not omit the sealing gasket/O-ring, and ensure it is installed in place; apply a small amount of transmission fluid to the sealing surface to enhance sealing performance; if required, apply gasket sealant correctly (avoid excessive sealant blocking oil channels); check for oil leakage after installation and oil circulation.

4. **Transmission Fluid Circulation**: Must perform oil circulation operation after refilling the transmission fluid; air in the system will lead to poor valve body control, gear shifting shock, and even damage to the valve body and transmission.

5. **Standard Torque Fixing**: Tighten the fixing bolts and transmission case cover bolts with the specified torque, do not over-tighten or under-tighten; over-tightening will damage the valve body, transmission case, or bolts, and under-tightening will cause looseness, oil leakage, or abnormal noise.

6. **Transmission Fluid Check**: Use the specified type of transmission fluid, do not mix different types of fluid; check the oil level in time, and add fluid if necessary;

avoid using inferior transmission fluid, which will corrode internal components, block oil channels, and affect the valve body's working performance and service life.

7. **No Random Modification**: Do not modify the valve body, solenoid valve group, or sensors without authorization; do not connect the valve body to the wrong voltage, otherwise the TCU, solenoid valve group, and sensors will be burned out immediately.

6. Usage Notes

1. **Use Specified Transmission Fluid**: Use the transmission fluid specified by the original vehicle manufacturer, do not use inferior or mismatched fluid; inferior transmission fluid will corrode the valve body housing, valve core, and solenoid valve, block oil channels, and affect the valve body's control precision and service life.

2. **Regularly Replace Transmission Fluid and Filter**: According to the original vehicle maintenance cycle (usually 60,000–80,000km), replace the transmission fluid and oil filter; clean the transmission oil pan and oil channels, avoid impurities, sludge blocking the valve holes and solenoid valves, ensuring smooth oil flow.

3. **Avoid Abnormal Gear Shifting Operation**: Do not shift gears violently (such as shifting from D to R or P when the vehicle is moving at high speed); avoid long-term half-clutch operation, which will cause excessive load on the valve body and transmission, reducing the service life of the valve body.

4. **Do Not Disassemble the Valve Body**: The transmission valve body is a sealed precision component; do not disassemble the valve body by yourself, otherwise the internal components will be damaged, and the valve body will lose its control precision, leading to transmission failure and losing the warranty.

5. **Timely Handle Fault Codes**: If the vehicle diagnostic instrument reports transmission system or valve body-related fault codes (such as P0700, P0740, etc.), stop using the vehicle in time, check the valve body, transmission fluid, and wiring harness, and eliminate the fault before continuing to use, to avoid transmission damage and safety accidents.

6. **Avoid High-Temperature Operation**: Avoid long-term high-speed driving, heavy-load driving, or driving in high-temperature environments, which will cause the transmission oil temperature to rise too high, damage the valve body's sealing element and solenoid valve, and affect the valve body's working performance.

7. **Protect the Valve Body and Wiring Harness**: Do not impact the transmission area, avoid damaging the valve body and wiring harness; check the wiring harness regularly for wear, aging, or damage, and repair or replace it in time to avoid poor electrical connection.

8. **Regularly Check the Transmission Fluid Level and Quality**: During daily maintenance, check the transmission fluid level (ensure it is within the normal range) and oil quality (normal oil is transparent or light yellow, no peculiar smell); if the oil is black, turbid, or has metal debris, replace the transmission fluid and filter immediately, and check the valve body and transmission for faults.

7. Safety Warnings

IMPORTANT SAFETY WARNINGS

1. **Electrical Safety**: Disconnect the vehicle battery negative electrode before installation, disassembly, and maintenance; do not touch the electrical terminal and wiring harness connector with wet hands, to avoid electric shock, short circuit of the vehicle electronic system, and damage to the TCU, valve body, and sensors.

2. **Transmission Safety**: The transmission valve body is a core component of the vehicle's transmission system; do not install damaged valve bodies (cracked housing, faulty solenoid valve, damaged sensors, damaged sealing element); faulty valve bodies will cause gear shifting failure, gear slipping, transmission lock-up, and serious safety accidents.

3. **Transmission Fluid Safety**: When draining or refilling transmission fluid, operate in a well-ventilated area; avoid transmission fluid splashing on high-temperature parts (such as exhaust pipe), to avoid fire; avoid transmission fluid contact with skin and eyes (if contacted, clean with clean water and soap in time); collect waste transmission fluid and dispose of it by professional institutions, do not randomly discard it.

4. **Anti-scalding Warning**: The engine and transmission will generate high temperature during operation; do not touch the transmission, valve body, or other high-temperature parts with bare hands during or within 60 minutes after the engine is running, to avoid high-temperature scalding.

5. **Forbid Wrong Voltage Connection**: Do not install a 12V valve body on a 24V vehicle system, or vice versa; wrong voltage connection will cause the TCU, solenoid valve group, and sensors to burn out instantly, leading to transmission failure and safety accidents.

6. **Forbid Disassembling the Valve Body**: Disassembling the valve body will damage the internal precision components, leading to transmission oil leakage, gear shifting failure, and other safety hazards; damaged valve bodies must be replaced with new ones, not repaired by themselves.

7. **Prohibit Use of Faulty Valve Bodies**: Do not use valve bodies with abnormal operation, oil leakage, or faulty electronic components; faulty valve bodies will cause the transmission system to fail, leading to gear slipping, transmission lock-up, and serious safety accidents.

8. **Emergency Treatment for Abnormal Phenomena**: If the vehicle has abnormal gear shifting (difficult shifting, shifting shock, gear slipping), transmission oil leakage, or the instrument panel reports a serious transmission fault code during use, turn off the ignition switch immediately, stop the vehicle, and do not use the vehicle until the fault is eliminated to avoid safety accidents.

9. **Environmental Protection**: Waste transmission valve bodies and waste transmission fluid are hazardous waste, which must be recycled by professional institutions and cannot be randomly discarded; do not directly discharge the leaked transmission fluid into the environment (in violation of environmental protection laws and regulations).

8. Daily Maintenance & Inspection

8.1 Before Each Vehicle Start

1. Turn on the ignition switch, check the transmission fault indicator light on the instrument panel (it should turn off automatically after 2–3 seconds); if the indicator light remains on, there is a fault in the transmission system, and it needs to be checked and handled in time.

2. Check the transmission fluid level (when the engine is idling, the vehicle is in P position, and the transmission is at normal temperature); ensure the oil level is between the upper and lower scale lines of the oil dipstick; if the oil level is too low, add the specified transmission fluid in time.

3. Visually inspect the transmission area for oil leakage (no oil stains on the ground under the transmission, no oil leakage at the valve body installation interface).

8.2 Every 1 Month or 1000km

1. Clean the surface of the transmission and valve body wiring connector with a clean dry cloth, remove dust and oil stains; check the wiring harness connector for loose, falling off, or water intake.

2. Check the transmission fluid quality (color, viscosity); if the oil is turbid, has peculiar smell, or contains impurities, replace the transmission fluid and filter in time.

3. Check the valve body installation area for oil leakage; if oil leakage is found, check the sealing gasket/O-ring and oil interface, and replace or repair if necessary.

8.3 Every 3 Months or 5000km

1. Use a multimeter to test the solenoid coil resistance and sensor electrical connection of the valve body, confirm it is within the rated range (allowable error ±5%); if the resistance is too large, too small, or open circuit, the valve body is faulty and needs to be replaced.

2. Check the transmission oil pan for deformation or damage; clean the oil pan drain plug, check for metal debris (metal debris indicates internal wear of the transmission or valve body, which needs to be inspected in detail).

3. Clean the transmission oil dipstick, check for wear or damage; ensure the dipstick is inserted in place to avoid incorrect oil level detection.

8.4 Every 6 Months or 10000km

1. Inspect the valve body wiring harness for wear, aging, or damage; wrap the damaged part with insulating tape if necessary, and replace the wiring harness if it is severely damaged.

2. Check the transmission mount for looseness or damage; loose mounts will cause vibration of the transmission and valve body, affecting the valve body's working stability and service life.

3. Apply a small amount of anti-rust oil to the valve body fixing bolts and installation seat, and apply electrical contact grease to the wiring harness connector to enhance anti-oxidation and corrosion resistance performance.

8.5 Every 60000–80000km (According to Original Vehicle Maintenance Cycle)

1. Replace the transmission fluid and oil filter; clean the transmission oil pan and oil channels, remove internal impurities and sludge, ensure smooth oil flow.

2. Disassemble the valve body for comprehensive inspection: check the valve body housing for cracks, the valve core for wear, the solenoid valve group for damage, the sealing element for aging and hardening; replace the sealing element if it is aging, and replace the valve body if the housing, valve core, or solenoid valve group is damaged.

3. Test the valve body's hydraulic pressure and control performance with a hydraulic pressure gauge, confirm it is within the rated range; adjust or replace the valve body if there is any abnormality.

8.6 Long-term Vehicle Maintenance (more than 1 month of non-use)

1. Turn off all electronic systems of the vehicle, disconnect the negative electrode of the vehicle battery to avoid battery power loss and electrical circuit fault of the TCU and valve body.

2. Start the engine and run it at idle speed for 5–10 minutes every 2 weeks, shift the gear lever to each gear position and stay for 2–3 seconds, to circulate the transmission fluid, lubricate the valve body and transmission internal components, and avoid rust and jamming.

3. Before reusing the vehicle, check the transmission fluid level and quality; start the vehicle and test the gear shifting performance, confirm the valve body and transmission work normally before driving.

9. Common Fault Diagnosis & Solutions

Fault Symptom	Possible Cause	Solution
Transmission fault indicator light is always on	1. Transmission valve body is faulty (solenoid valve damage, sensor failure); 2. TCU failure; 3. Wiring harness open circuit or loose contact; 4. Transmission fluid level is too low or contaminated; 5. Oil channels are blocked.	1. Replace the transmission valve body; 2. Check and repair/replace the TCU; 3. Check the wiring harness and reconnect firmly; 4. Add or replace the transmission fluid; 5. Clean the oil channels.
Difficult gear shifting, shifting shock	1. Valve body oil pressure is abnormal (solenoid valve stuck, pressure regulating valve failure); 2. Transmission fluid is contaminated or insufficient; 3. Valve core wear, oil leakage; 4. TCU signal is abnormal.	1. Replace the transmission valve body; 2. Replace the transmission fluid and filter; 3. Replace the valve body; 4. Check and repair the TCU.
Transmission oil leakage	1. Sealing gasket/O-ring is aging, damaged or not installed in place; 2. Valve body fixing bolts are loose; 3. Valve body housing is cracked; 4. Transmission case interface is damaged.	1. Replace the new sealing gasket/O-ring and install it in place; 2. Tighten the fixing bolts with standard torque; 3. Replace the valve body; 4. Repair or replace the transmission case.
Gear slipping during driving	1. Valve body oil pressure is insufficient (solenoid valve failure, pressure sensor failure); 2. Transmission fluid is insufficient or contaminated; 3. Valve core wear, oil leakage; 4. Clutch/brake components of the transmission are worn.	1. Replace the transmission valve body; 2. Add or replace the transmission fluid and filter; 3. Replace the valve body; 4. Check and repair the transmission clutch/brake components.

Valve body has abnormal noise (buzzing, clicking)	1. Solenoid valve is stuck or worn; 2. Transmission fluid is insufficient or contaminated; 3. Valve core is stuck; 4. Oil channels are blocked.	1. Replace the transmission valve body; 2. Replace the transmission fluid and filter; 3. Replace the valve body; 4. Clean the oil channels.
Transmission lock-up, cannot shift gears	1. Valve body is completely faulty (solenoid valve short circuit, sensor failure); 2. TCU failure; 3. Wiring harness short circuit or open circuit; 4. Oil channels are severely blocked.	1. Replace the transmission valve body; 2. Repair or replace the TCU; 3. Check and repair the wiring harness; 4. Clean the oil channels or replace the transmission.
Valve body is damaged repeatedly after replacement	1. Transmission fluid is inferior or mismatched; 2. Oil channels are blocked, impurities enter the valve body; 3. TCU is faulty, sending incorrect signals; 4. Wrong valve body model (mismatched with original vehicle); 5. Long-term heavy-load, high-temperature operation.	1. Use the specified transmission fluid; 2. Clean the oil channels and replace the filter; 3. Check and repair the TCU; 4. Replace the valve body matching the original vehicle model; 5. Avoid heavy-load, high-temperature operation.