

TRANSMISSION REMOVAL & INSTALLATION - A/T
Article Text

1998 Volkswagen Passat

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ARTICLE BEGINNING

1997-98 TRANSMISSION SERVICING

Volkswagen Transmission Removal & Installation

1997-98: Cabrio, Golf, GTI, Jetta, Passat

1998: Beetle

REMOVAL & INSTALLATION

* PLEASE READ THIS FIRST *

AUTOMATIC TRANSAXLE APPLICATIONS

| Application | Transaxle Model |
|---|-----------------|
| 1997 | 01M |
| 1998 | |
| Beetle, Cabrio, Golf, GTI & Jetta | 01M |
| Passat | 01N |
| Passat | 01V |

WARNING: Radio/cassette or radio/CD player is equipped with an anti-theft protection circuit. Whenever battery is disconnected, radio will go into anti-theft mode. When battery is reconnected, radio will display CODE, and will be inoperative until proper code number is entered. Obtain security code before disconnecting battery.

BEETLE

Removal & Installation

1) Obtain radio code. Disconnect negative battery cable. Remove engine cover. Without disconnecting hoses, remove power steering fluid reservoir from battery support and support aside. Remove battery and battery support bracket. Disconnect air intake hose and electrical connector from air flow sensor. Remove air cleaner as a complete unit.

2) Disconnect connector from vehicle speed sensor. Disconnect all harness connections at transaxle. Position harnesses aside. Remove power steering hose bracket from transaxle. Move gear selector lever to Park. Disconnect selector lever cable from lever/selector shaft. Remove selector lever cable circlip and remove selector lever cable.

3) On models with 2.0L engine, remove bolt and vehicle speed sensor from transaxle. Remove exhaust manifold heat shield from engine. On all models, remove ground strap from upper engine-to-transaxle bolt. Remove ground strap harness retainer. Disconnect connectors at starter motor and remove wiring harness retainer. Remove upper starter motor bolt.

4) Using appropriate tool, clamp-off ATF cooler hoses. Disconnect hoses at ATF cooler. Remove upper engine-to-transaxle

bolts. Support engine and transaxle assembly from top of vehicle using appropriate support fixture. Raise engine/transaxle assembly slightly. Raise and support vehicle. Remove left front wheel.

5) Remove center and left noise insulation panels from bottom of vehicle. On models with turbo diesel engines, remove air intake duct from between intake air cooler (intercooler) and turbocharger. On all models, remove right noise insulation panel from bottom of vehicle. Remove protective cover from transaxle pan. Remove power steering line from starter motor and transaxle. Remove lower starter motor bolt and starter motor.

6) Disconnect both axle shafts from transaxle flanges. Raise and support right axle shaft with wire. Remove transaxle center pendulum support. Remove auxiliary cooling fan (if equipped). Remove torque converter nut cover cap. Using appropriate tool, remove torque converter nuts (rotating crankshaft 120 degrees to access each nut). Turn steering wheel to full left lock.

7) Mark position of ball joint bolts on left control arm. Remove ball joint bolts. Remove left coupling rod from left control arm and rotate coupling rod upwards. Swing wheel bearing housing outward. Guide left axle shaft out from between subframe and transaxle. Raise and support left axle shaft with wire. Disconnect exhaust at front double clamp. Remove front exhaust support (if necessary).

8) Remove 2 top bolts from left engine-to-transaxle mount left support. Carefully tilt engine/transaxle assembly by lowering support bar left spindle 2.40" (60 mm). Remove left support assembly from transaxle. Install support rail (VW 457/1) to both pendulum support bolt holes in subframe. Install spacers totaling 2.40" (60 mm) between subframe and support rail.

9) Install Support Device (VW 3300 A) and tighten. Using support device, tilt engine/transaxle assembly forward. Assemble Transaxle Support (VW 3282). Transaxle support must be installed with Adjusting Plate (VW 3282/2) to remove transaxle. Markings on adjusting plate indicate required supports.

10) Position transaxle jack with transaxle support attached under transaxle. Place safety support pin on oil pan and secure it to transaxle housing. Turn transaxle axle shaft flange until flat side is vertical. Remove lower engine-to-transaxle bolts. Separate transaxle from engine while pushing torque converter from drive plate. Push torque converter against ATF pump.

11) Lower transaxle slightly. While lowering transaxle, guide power steering line past transaxle. Carefully rotate and lower transaxle. While lowering transaxle, guide right axle joint past support. Ensure multifunction switch does not contact engine/transaxle mount.

12) Secure torque converter to prevent it from falling. To install, reverse removal procedure. Adjust control cable. See ADJUSTMENTS in appropriate TRANSMISSION SERVICING - A/T article. Tighten bolts to specification. See TORQUE SPECIFICATIONS.

CABRIO, GOLF, GTI & JETTA

Removal & Installation

1) Obtain radio code. Disconnect negative battery cable. On models equipped with V6 engine, remove battery. On all models, disconnect speedometer cable from transaxle. Disconnect all harness connections at transaxle. Position harnesses aside.

2) On models equipped with V6 engine, remove multi-function Transaxle Range (TR) switch. On all models, move gear selector lever to Park. Disconnect selector lever cable from lever/selector shaft. Remove selector lever cable circlip and remove selector lever cable.

3) Using appropriate tool, clamp-off ATF cooler hoses. Disconnect hoses at ATF cooler. Support engine and transaxle assembly from top of vehicle using appropriate support fixture.

4) Remove starter. Remove power steering pressure hose bracket. On models equipped with V6 engine, disconnect cooling fan harness connector. On all models, remove front engine mount bolt and remove mount bracket.

5) Remove engine coolant recovery tank and set aside. Remove left engine mount assembly. Remove upper engine-to-transaxle bolts. Remove transaxle oil pan protective plate.

6) On models equipped with V6 engine, remove right-side drive belt cover and vibration dampening weight. On all models, remove torque converter cover plate and nuts from torque converter. Disconnect axle shafts at transaxle flanges.

7) Raise right-side axle shaft and secure with wire. Remove left front wheel. Turn steering full-right to lock position. Mark position of ball joint bolts on left-side control arm for installation reference. On models equipped with Plus Suspension option, remove both outer-most bolts. Loosen, but do not remove inner bolt. On models equipped with 4-cylinder engine, remove all bolts.

8) On all models, swing ball joint outward and secure left-side axle shaft aside (remove axle shaft if triple-roller type joint). Support transaxle with transmission jack.

9) Remove lower engine-to-transmission bolts. Tilt engine and transaxle forward. Separate transaxle from engine. Push torque converter up against pump. Lower engine, then transaxle slightly and guide power steering pressure line past transaxle.

10) Remove transaxle from vehicle. To install, reverse removal procedure. Adjust control cable. See ADJUSTMENTS in appropriate TRANSMISSION SERVICING - A/Article. Tighten bolts to specification. See TORQUE SPECIFICATIONS.

PASSAT

Removal & Installation (Model 01N)

1) Obtain radio code. Disconnect negative battery cable. Remove engine cover. Support engine and transaxle assembly from top of vehicle using appropriate support fixture. Raise and support vehicle. Remove front wheels.

2) Remove noise insulation tray and noise insulation tray bracket. Disconnect all harness connections and retainers from transaxle. Position harnesses aside. Disconnect speedometer connector from transaxle. Remove front exhaust and catalytic converter. Remove right axle shaft protective plate.

3) Remove selector lever cable protective plate. Remove right

bonded rubber mount protective plate from transaxle. Remove ATF lines from engine/transaxle assembly and wire aside. Disconnect axle shafts from flanges and support with wire. Remove starter motor. Remove nut from torque converter. Remove lower engine-to-transaxle bolts.

4) Assemble Transaxle Support (VW 3282). Transaxle support must be installed with Adjusting Plate (VW 3282/2) to remove transaxle. Markings on adjusting plate indicate required supports. Arrows on adjusting plates must point forward.

5) Position transaxle jack with transaxle support attached under transaxle. Align adjustment plate parallel to transaxle and lock safety support on transaxle. Move gear selector lever to Park. Disconnect selector lever cable from selector shaft. Remove selector lever cable anchor bolt and remove selector lever cable.

6) Remove right transaxle support with bonded rubber mount. Remove left bonded rubber mount. Lower rear of engine/transaxle assembly slightly with jack. Remove upper engine-to-transaxle bolts. Separate transaxle from engine. Push torque converter up against ATF pump.

7) Lower transaxle and secure torque converter to prevent it from falling. To install, reverse removal procedure. Adjust control cable. See ADJUSTMENTS in appropriate TRANSMISSION SERVICING - A/T article. Tighten bolts to specification. See TORQUE SPECIFICATIONS.

Removal & Installation (Model 01V)

1) Obtain radio code. Disconnect negative battery cable. Remove engine cover. Support engine and transaxle assembly from top of vehicle using appropriate support fixture. Raise and support vehicle. Remove front wheels.

2) Remove noise insulation tray and noise insulation tray bracket. Remove left and right axle shaft noise insulation from wheel housing. Remove right axle shaft protective plate. Remove left and right axle shaft assemblies. Remove multi-function Transaxle Range (TR) switch connector.

3) Disconnect all harness connections and retainers from transaxle. Position harnesses aside. Disconnect speedometer connector from transaxle. Mark position of selector lever support bracket on transaxle housing. Remove selector lever support bracket. Remove front exhaust. Remove ATF lines from engine/transaxle assembly. Install clean plugs in ATF lines and wire aside.

4) Remove selector lever cable from selector shaft lever. Remove starter motor. Using Socket (V 175), unbolt torque converter from drive plate. Remove lower engine-to-transaxle bolts. Assemble Transaxle Support (VW 3282).

5) Transaxle support must be installed with Adjusting Plate (VW 3282/19) to remove transaxle. Markings on adjusting plate indicate required supports. Arrows on adjusting plates must point forward. Position transaxle jack with transaxle support attached under transaxle. Align adjustment plate parallel to transaxle and lock safety support on transaxle.

6) Remove right bonded rubber mount protective plate from transaxle. Remove right transaxle support with bonded rubber mount. Remove left bonded rubber mount. Before loosening subframe bolts,

ensure alignment holes in subframe are aligned using Mandrel (3393). Remove 6 bolts from very rear of subframe. Remove 2 front subframe bolts (middle of subframe behind stabilizer bar brackets).

7) Loosen 4 bolts on very front of subframe 3 full turns. This will allow rear of subframe to drop about 5.9" (150 mm). Lower rear of engine/transaxle assembly slightly with jack. Remove upper engine-to-transaxle bolts. Separate transaxle from engine. Push torque converter from drive plate. Press torque converter against ATF pump.

8) Lower transaxle and secure torque converter to prevent it from falling. Swivel transaxle and carefully guide it out between subframe and underbody. To install, reverse removal procedure. Adjust control cable. See ADJUSTMENTS in TRANSMISSION SERVICING - A/T article. Tighten bolts to specification. See TORQUE SPECIFICATIONS.

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS (BEETLE)

AA

| Application | Ft. Lbs. (N.m) |
|---|----------------|
| Axle Shaft-To-Flange Bolts | 30 (41) |
| Ball Joint-To-Control Arm Bolts | 15 (20) |
| Coupling Rod-To-Control Arm Bolt | 33 (45) |
| Protective Cap-To-Axle Shaft Nuts | 24 (33) |
| Rear Transaxle Mount (1) | |
| Mount-To-Transaxle Bolts | (2) 30 (41) |
| Mount-To-Body Bolts | (2) 15 (20) |
| Torque Converter-To-Drive Plate Bolts | 44 (60) |
| Transaxle-To-Body (1) | |
| Lower Bolts | (2) 30 (41) |
| Upper Bolts | (2) 44 (60) |
| Transaxle-To-Engine | |
| M10 Bolts | 33 (45) |
| M12 Bolts | 59 (80) |
| Wheel Lug Nuts | 89 (121) |

(1) - Always use NEW bolts.

(2) - Tighten bolt an additional 90 degrees.

AA

TORQUE SPECIFICATIONS (PASSAT - MODEL 01N)

AA

| Application | Ft. Lbs. (N.m) |
|--|----------------|
| Axle Shaft Protective Plate-To-Transaxle Bolts | 18 (24) |
| Axle Shaft-To-Flange | |
| M8 Bolts | 30 (41) |
| M10 Bolts | 57 (77) |
| Axle-To-Hub Lock Nut | |
| Without Plus Suspension | 195 (265) |
| With Plus Suspension | (1) |
| Right Bonded Rubber Mount Protective | |

| | |
|---|----------|
| Plate-To-Transaxle Bolts | (2) |
| Selector Lever Cable Support Bracket Bolts | 17 (23) |
| Selector Lever Cable-To-Support Bracket Bolts | (3) |
| Selector Lever Protective Plate-To-Transaxle | |
| M6 | (2) |
| M10 | 18 (24) |
| Starter Motor Bolts | 48 (65) |
| Torque Converter-To-Drive Plate Bolts | 63 (85) |
| Transaxle-To-Engine | |
| M10 Bolts | 33 (45) |
| M12 Bolts | 48 (65) |
| Wheel Lug Nuts | 89 (121) |

- (1) - Tighten to 66 ft. lbs. (90 N.m) plus an additional 45 degrees.
- (2) - Tighten to 89 INCH Lbs. (10 N.m).
- (3) - Tighten to 106 INCH Lbs. (12 N.m).

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TORQUE SPECIFICATIONS (PASSAT - MODEL 01V)

AA

| Application | Ft. | Lbs. | (N.m) |
|---|-----|-------|-------|
| ATF Line Bracket Bolt | (1) | | |
| ATF Line-To-Transaxle | 15 | (20) | |
| Axle Shaft-To-Flange Bolts | 59 | (80) | |
| Axle Shaft-To-Wheel Hub | | | |
| M14 Bolts | (2) | 85 | (115) |
| M16 Bolts | (2) | 140 | (190) |
| Axle-To-Hub Lock Nut | | | |
| Without Plus Suspension | 195 | (265) | |
| With Plus Suspension | (3) | | |
| Subframe-To-Body | | | |
| M8 Bolts (4) | 17 | (23) | |
| M10 Bolts (4) | 44 | (60) | |
| M12 Bolts (4) | (5) | 81 | (110) |
| Torque Converter-To-Drive Plate Bolts | 63 | (85) | |
| Transaxle-To-Engine | | | |
| M10 Bolts | 33 | (45) | |
| M12 Bolts | 48 | (65) | |
| Wheel Lug Nuts | 89 | (121) | |

- (1) - Tighten to 89 INCH Lbs. (10 N.m).
- (2) - Tighten an additional 180 degrees.
- (3) - Tighten to 66 ft. lbs. (90 N.m) plus an additional 45 degrees.
- (4) - Always use NEW bolts.
- (5) - Tighten an additional 90 degrees.

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TORQUE SPECIFICATIONS (EXCEPT BEETLE & PASSAT)

AA

| Application | Ft. | Lbs. | (N.m) |
|-------------|-----|------|-------|
|-------------|-----|------|-------|

| | |
|---|-----------|
| Axle Shaft-To-Flange Bolts | 33 (45) |
| Axle-To-Hub Lock Nut | |
| Without Plus Suspension | 195 (265) |
| With Plus Suspension | (1) |
| Ball Joint-To-Control Arm Bolt | 26 (35) |
| Cover Plate-To-Transaxle Bolt | 11 (15) |
| Front Mount-To-Bracket Bolt | 44 (60) |
| Left Mount-To-Bracket Bolt | 44 (60) |
| Left Mount-To-Transaxle Bolt | 18 (25) |
| Starter-To-Transaxle Bolt | 44 (60) |
| Torque Converter-To-Drive Plate Bolts | 44 (60) |
| Transaxle-To-Engine | |
| M10 Bolts | 44 (60) |
| M12 Bolts | 59 (80) |

(1) - Tighten to 148 ft. lbs. (200 N.m), then back off one turn.

 Torque to 37 ft. lbs. (50 N.m) plus an additional 30 degrees.

AA

END OF ARTICLE