

Servicing, notes

The maximum possible care, cleanliness and proper tools are essential to ensure satisfactory and successful transmission repairs. The usual basic safety precautions also apply when carrying out vehicle repairs.

A number of generally applicable instructions for individual repair procedures, which are otherwise mentioned at various points in the Repair Manual, are summarized here. They apply to this Repair Manual. They apply to this Repair Manual.

Special tools and equipment

For a complete list of special tools used in this repair manual: see "Special tools and equipment" or "Special tools".

Transmission

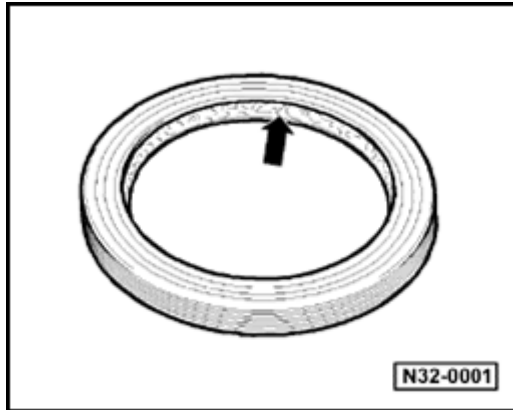
- ◆ Rules of cleanliness for working on automatic transmissions ⇒ [page 37-148](#) .
- ◆ Do not run engine with the oil pan removed or without ATF filling and do not tow vehicle.
- ◆ Secure torque converter on removed transmission to keep it from falling out.

- ◆ Thoroughly clean all connections and the surrounding area before disconnecting.
- ◆ Check installation dimension of torque converter before installing transmission ⇒ [page 32-8](#)

- ◆ When installing transmission, make sure centering sleeves are correctly seated.
- ◆ Place parts that have been removed on a clean surface and cover. Use foils and paper. Use lint-free cloths only!
- ◆ Carefully cover over opened components or seal, if repairs are not carried out immediately.
- ◆ Only install clean components: Only unpack replacement parts immediately prior to installation.
- ◆ Check, and if necessary correct amount of the following fluids when replacing the automatic transmission. ATF in planetary gear ⇒ [page 37-133](#) , Gear oil in front final drive ⇒ [page 39-1](#) , Transmission oil in center differential ⇒ [page 39-40](#) . Capacities and specifications ⇒ [page 00-22](#) onward.
- ◆ When replacing the rear final drive, check and if necessary, correct oil level in rear final drive ⇒ [page 39-94](#) Capacities and specifications ⇒ [page 00-23](#) .

O-rings, gaskets, seals

- ◆ Always replace O-rings, gaskets and sealing rings.
- ◆ After removing gaskets and seals, always inspect the contact surfaces at housing or shaft for burrs resulting from removal or for other signs of damage.



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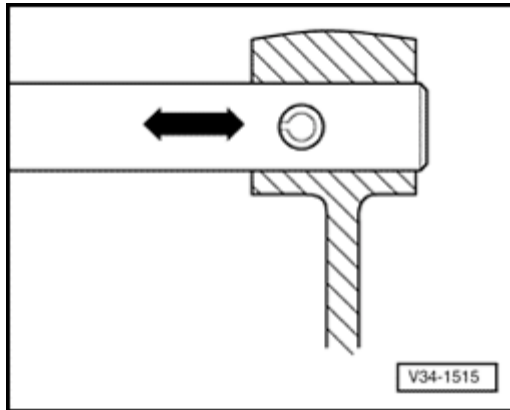
- ◆ Thoroughly clean housing joint surfaces before assembling and apply sealing compound AMV 188 200 03.
- ◆ Before installing, fill gap between sealing lips (arrow) of radial-shaft seals half way with sealing grease 052 128 A1.
- ◆ The open side of the seals face toward the fluid to be sealed in.
- ◆ For installation, lightly coat outer circumference and sealing lip with ATF or transmission oil, depending on the installation location.
- ◆ Lightly lubricate O-rings before installing, this prevents the rings from being pinched when inserting.
- ◆ Use only ATF in areas near ATF. Other lubricating substances cause functional problems in the hydraulic transmission control.
- ◆ When pressing in new seals, make sure the sealing lip does not run on the same point as the sealing lip of the old seal (use insertion depth tolerances).
- ◆ After installing, check and if necessary correct fluid levels in the affected area. ATF in planetary gear ⇒ [page 37-133](#) , Gear oil in front final drive ⇒ [page 39-1](#) , Transmission oil in center differential ⇒ [page 39-40](#) , Transmission oil in rear final drive ⇒ [page 39-94](#) . Capacities and specifications ⇒ [page 00-22](#) onward.

Nuts, bolts

- ◆ Loosen bolts in reverse order of tightening sequence.
- ◆ Tighten and loosen bolts or nuts for securing covers and housings without tightening sequence in diagonal sequence in stages.
- ◆ Do not cant, and loosen and tighten especially sensitive parts - e.g. valve body - in diagonal manner in stages.
- ◆ The tightening torques stated apply to non-oiled nuts and bolts.
- ◆ Always replace self-locking nuts and bolts.
- ◆ Using a wire brush, clean threads of bolts which are secured with locking compound. Next, insert bolts using AMV 185 101 A1.
- ◆ Threaded holes into which self-locking bolts or bolts with locking compound are threaded in, must be cleaned (e.g. using threaded tap). Otherwise there is danger that the bolts may shear when removed again.

Circlips

- ◆ Do not over-stretch circlips.
- ◆ Always replace damaged or over-stretched circlips.
- ◆ Circlips must be fully seated in grooves.



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- ◆ Replace roll pins. Installation position: Slot is longitudinal to line of force.

Mounts

- ◆ Install needle bearings with the lettering on the bearing (the side with thicker metal) facing the drift.
- ◆ Insert bearing with transmission oil or ATF, depending on installation location.
- ◆ Tapered roller bearings for output shaft and differential in rear final drive are low-friction bearings. Do not grease new tapered roller bearings additionally for friction torque measurement. The bearings are already greased with a special oil from the factory for this reason.
- ◆ Do not interchange inner and outer bearing races with those from other bearings of the same size.
- ◆ Tapered roller bearings are allocated to the date of transmission manufacture and code letters in the parts catalog.
- ◆ Always replace tapered roller bearings on one shaft together and use new bearings from the same manufacturer.

- ◆ Heat tapered roller bearing inner races to approx. 100 5C before installing. Press in to stop so that there is no axial play.

Shims

- ◆ Measure shims at several points using a micrometer. Different tolerances make it possible to measure the required shim size exactly.
- ◆ Check for burrs and signs of damage. Only install perfect adjustment shims.
- ◆ Only install perfect undamaged adjustment shims.

Valve body

- ◆ Replace valve body if shift members are burnt.
- ◆ The valve body is allocated to the transmission code letters ⇒ parts catalog.

Guided Troubleshooting, Vehicle On Board Diagnostic (OBD) and Test Instruments

- ◆ Before performing repairs on the automatic transmission, the malfunction cause must be determined as precisely as possible via the VAS5051 Tester in operating modes "Guided Troubleshooting", "Vehicle Self-Diagnosis" and "Test Instruments."

On Board Diagnostic (OBD) is described in:

⇒ [Repair Manual, 5 Spd. Automatic Transmission 01V On Board Diagnostic \(OBD\), Repair Group 01, Performing On Board Diagnostic \(OBD\)](#)

