



LuK GearBOX Repair Solution for Manual Transmission



Disassembly and Assembly
Schaeffler Special Tool

Audi, SEAT, ŠKODA, Volkswagen, 02T Transmissions



The content of this brochure shall not be legally binding and is for information purposes only. To the extent legally permissible, Schaeffler Automotive Aftermarket GmbH & Co. KG assumes no liability out of or in connection with this brochure.

Copyright ©
Schaeffler Automotive Aftermarket GmbH & Co. KG
August 2018

All rights reserved. Any copying, distribution, reproduction, making publicly available or other publication of this brochure in whole or in extracts without the prior written consent of Schaeffler Automotive Aftermarket GmbH & Co. KG is prohibited.

Schaeffler in the Automotive Aftermarket – more innovation, more quality and more service.



Schaeffler REPERT – the service brand for garage professionals.

With REPERT, we offer a comprehensive service package for the products and repair solutions of the LuK, INA, FAG and Ruville brands. Looking for specific information about damage diagnosis? Are you in need of particular tools to help make your everyday garage routine easier? Whether online portal, service hotline, installation instructions and videos, training seminars, or events – you get all technical services from a single source.

Register now for free, in just a few clicks, at: www.repxpert.com.

Schaeffler in the Automotive Aftermarket – always the first choice for vehicle repair.

Whenever a vehicle needs to go to the garage, our products and repair solutions are first choice to fix them. With our four strong brands LuK, INA, FAG und Ruville and our service brand REPERT, we are a reliable partner around the world. Whether passenger cars, light and heavy commercial vehicles, or tractors – our optimally tuned components allow fast and professional parts replacement.

Our products are based on a comprehensive systems approach. Innovation, technical expertise, and the highest material and manufacturing quality make us not only one of the leading development partners for vehicle manufacturers, but also a pioneering provider of value-retaining spare parts and complete repair solutions for clutches and clutch release systems, engine and transmission applications, and chassis applications in original-equipment quality – right up to the appropriate special tools.

For over 50 years, we have offered everything needed for transmission repair under the LuK brand. Besides the LuK RepSet family and products for the entire hydraulic release system for professional clutch repair, the portfolio also includes the dual mass flywheel and components for expert repair of transmissions and differentials. It also includes professional solutions for transmission repair of commercial vehicles and tractors.

SCHAEFFLER
REP>XPERT



The spare parts contained in the LuK GearBOX can be assigned to the relevant installation position in the transmission with the help of the parts list and this brochure. The figures in parentheses are used for this purpose, e.g. (1).

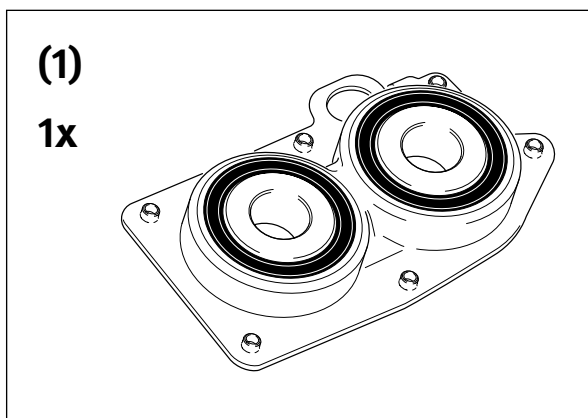


Fig. 1

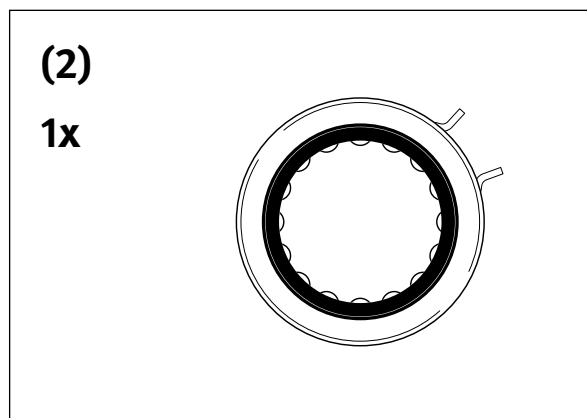


Fig. 2

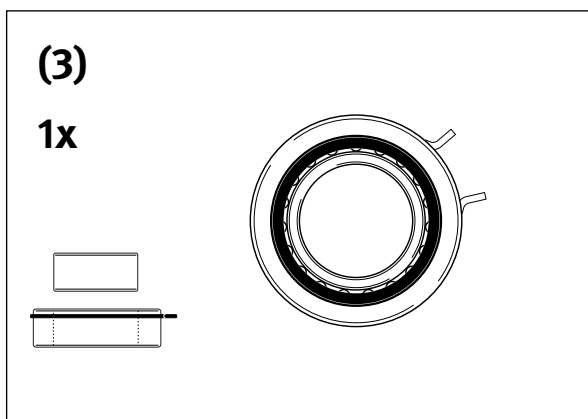


Fig. 3

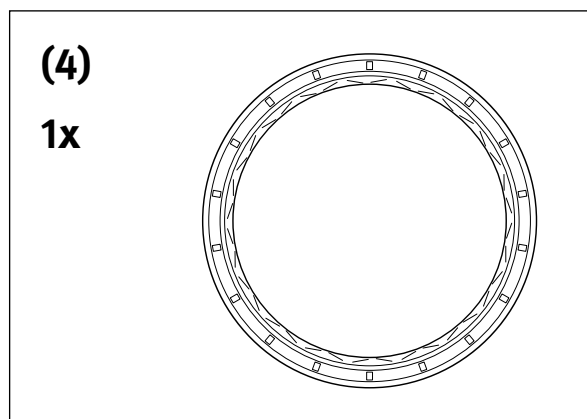


Fig. 4

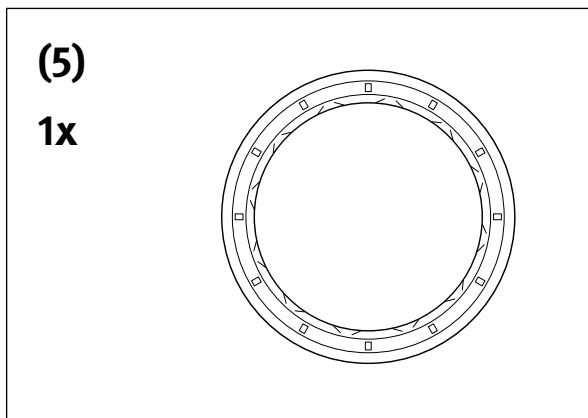


Fig. 5

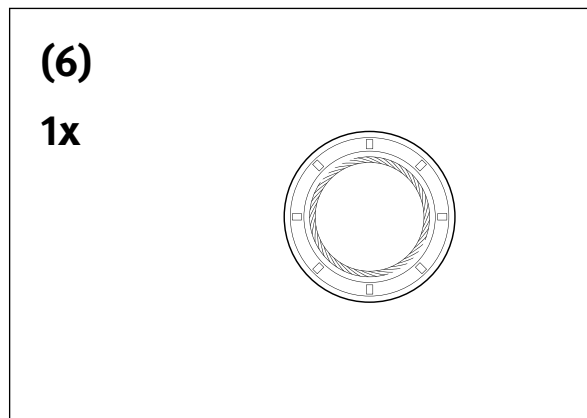


Fig. 6

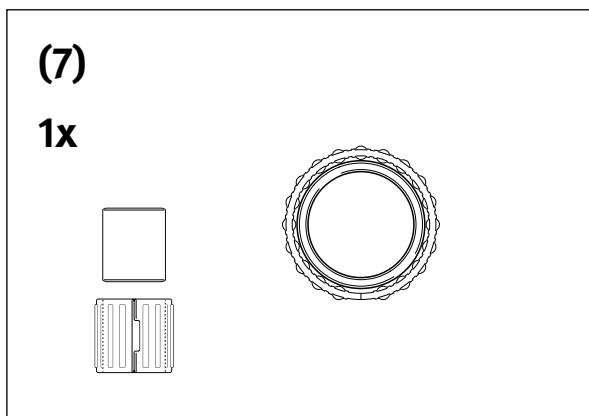


Fig. 7

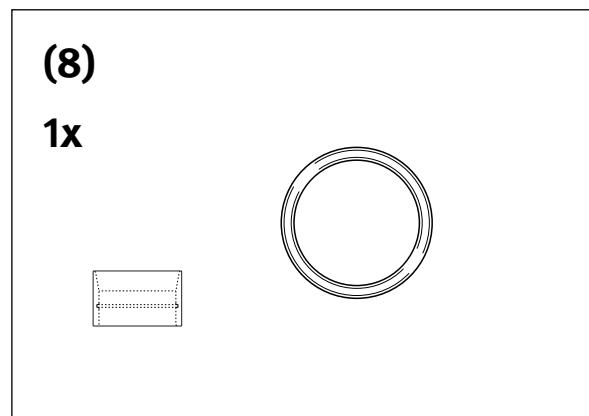


Fig. 8

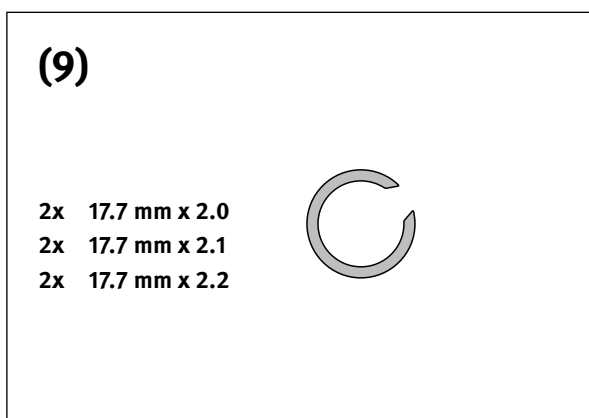


Fig. 9

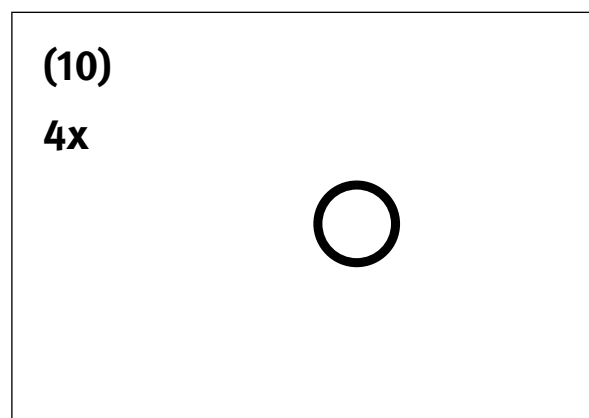


Fig. 10

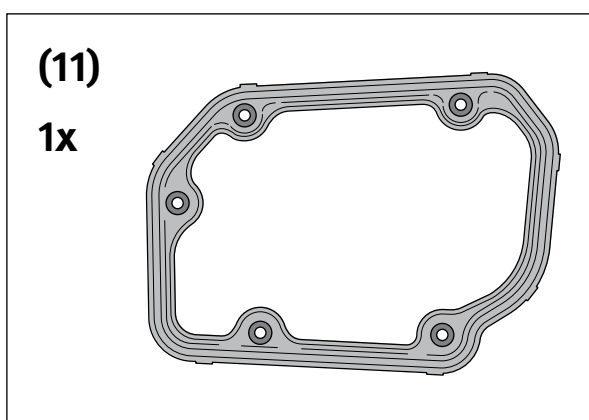


Fig. 11

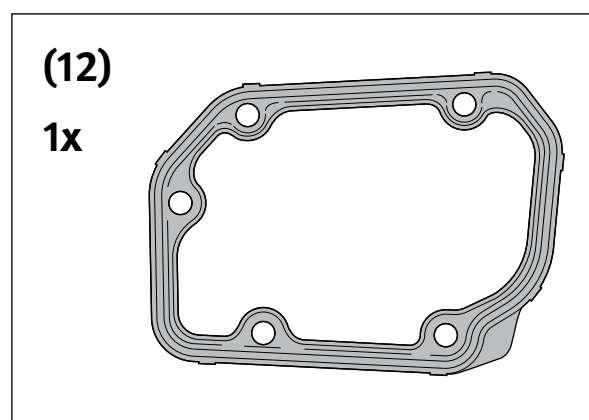


Fig. 12

Tool set (400 0521 10) for the professional repair of 02T transmissions.

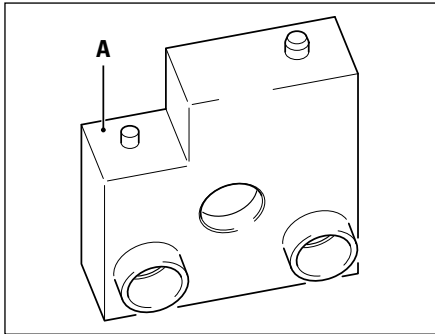


Fig. 13

Thrust piece:

- Disassembling and assembling the bearing connector for the transmission shafts
- Installing the sleeve for the cylindrical roller bearing of the input shaft

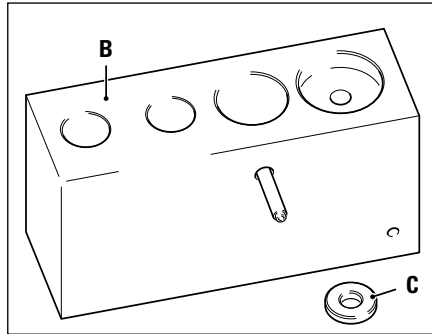


Fig. 14

Thrust piece:

- Force fitting the bearing connector and transmission shafts in the transmission housing
- Shaft connector including height compensating disc for different drive shaft lengths

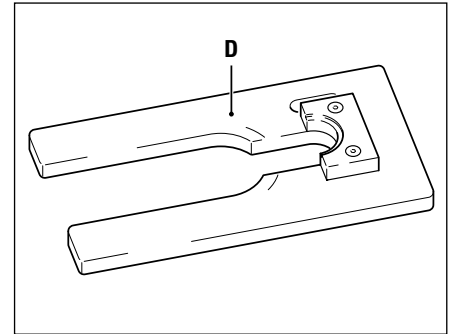


Fig. 15

Compensating plate:

- Removing the bearing connector for the transmission shafts

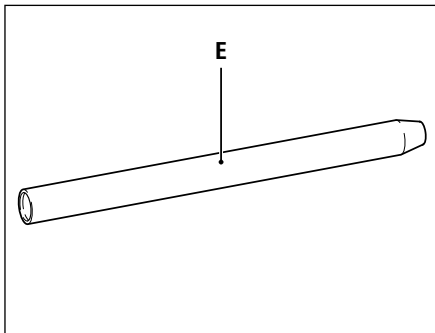


Fig. 16

Guide bolts:

- Positioning the shift fork when inserting the transmission shafts

The country-specific and vehicle manufacturer-specific safety requirements and guidelines must be followed during all work!

Further information can be found at www.rexpert.com and in our technical brochures.

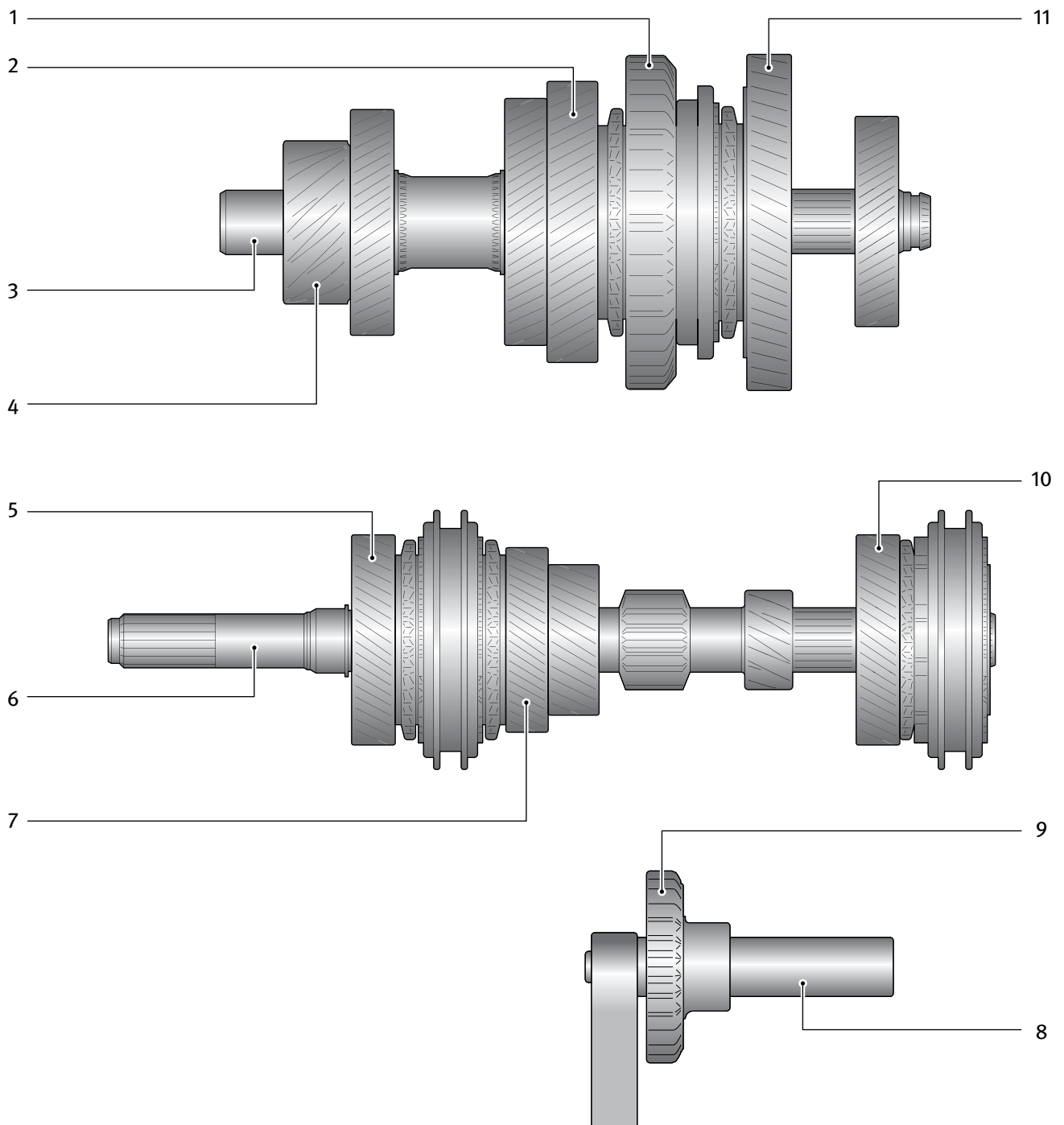


Fig. 17

- | | |
|------------------------------|-----------------------|
| 1. Reverse gear | 7. 3rd gear |
| 2. 2nd gear | 8. Reverse gear shaft |
| 3. Output shaft | 9. Reverse gear |
| 4. Differential toothed gear | 10. 5th gear |
| 5. 4th gear | 11. 1st gear |
| 6. Drive shaft | |

- Drain the transmission oil and screw the drain plug back in
Tightening torque: 25 Nm
- Remove the gearbox in accordance with the vehicle manufacturer's specifications

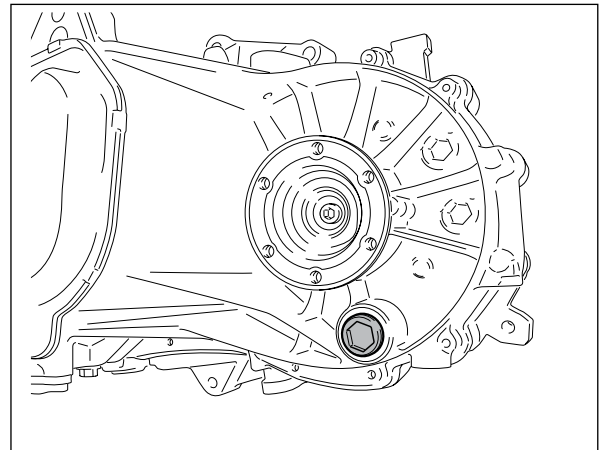


Fig. 18

- Unhook the retaining spring
- Loosen the bolts
- Remove the release system and guide sleeve

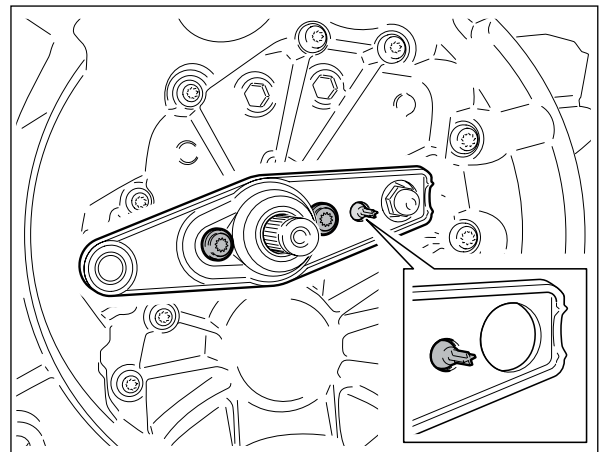


Fig. 19

- Loosen the bolts on the left-hand and right-hand flanged shafts
- Remove the flanged shafts along with the pressure spring, thrust washer and conical ring

Note:

During the loosening process, the flanged shafts can be secured in place using two bolts and a tyre lever.

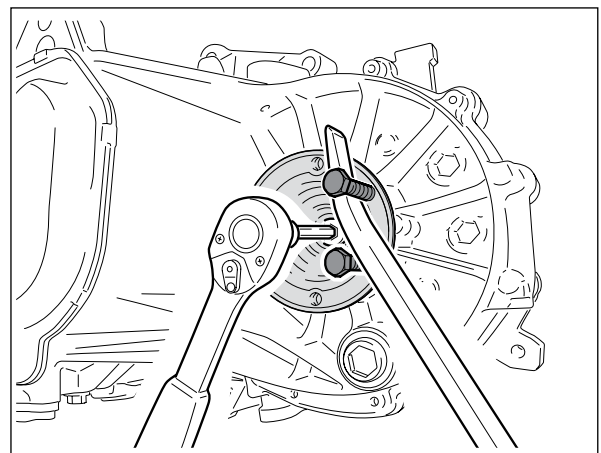


Fig. 20

- Remove the transmission housing cover for fifth gear
- Clean the sealing surfaces

Note:

Use a suitable aid to support the transmission.

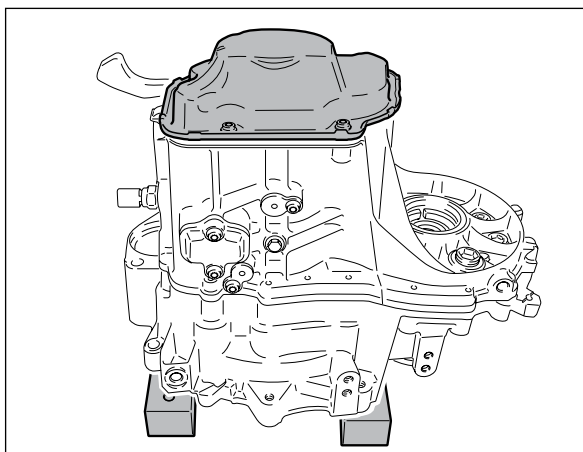


Fig. 21

- Remove the bearing pin [1]
- Remove the gear shift fork [2]

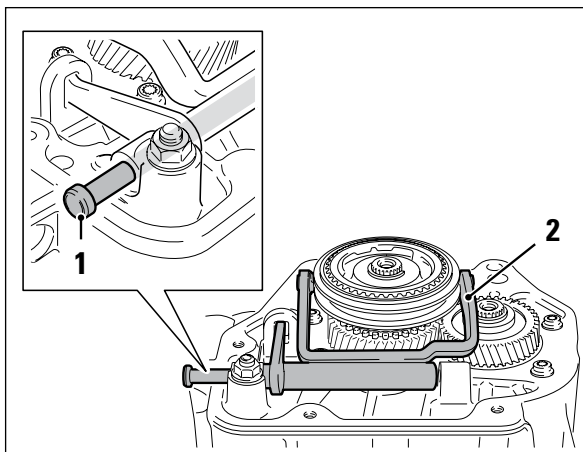


Fig. 22

- Remove both snap rings [2]
- Remove the synchroniser unit [1], gears [3 and 4] and needle roller bearing for fifth gear from the shaft

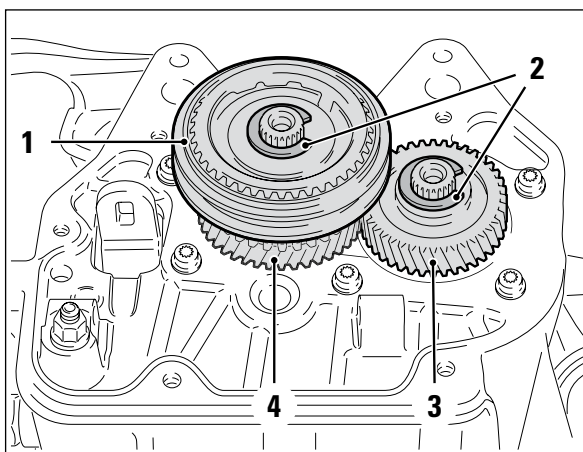


Fig. 23

- Loosen the six bolts from the bearing connector
- Loosen the hexagon nut with collar

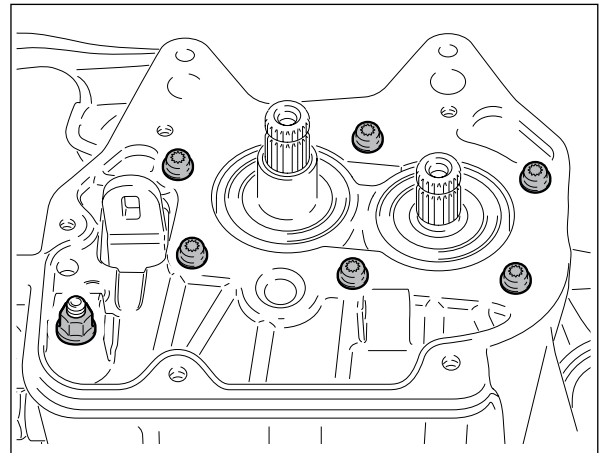


Fig. 24

- Turn the transmission over
- Support the transmission housing using an appropriate aid so that the shafts do not become damaged
- Remove the bolts for the clutch housing
- Lift the clutch housing

Note:

Do not damage the sealing surfaces.
Clean the sealing surfaces.

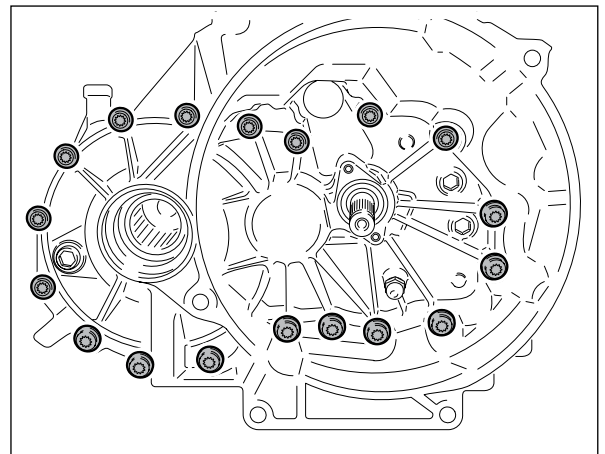


Fig. 25

- Lift out the differential

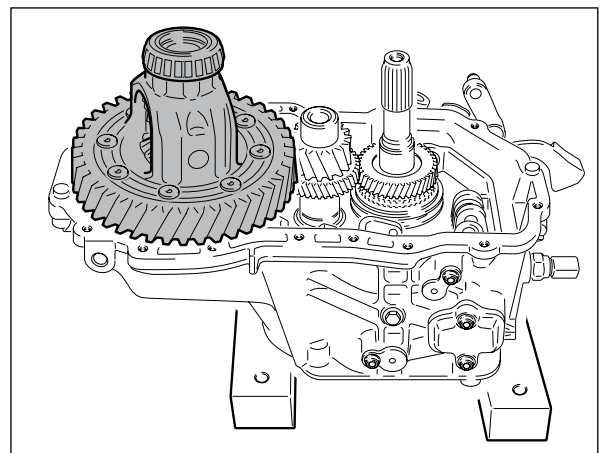


Fig. 26

- Remove the transmitter for the transmission neutral position

Note:

Applies only to vehicles with a start/stop system.

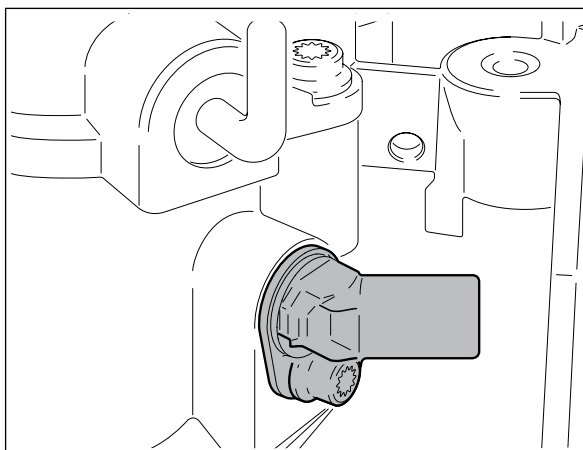


Fig. 27

- Remove the lock washer [2]
- Remove the changeover lever [1]

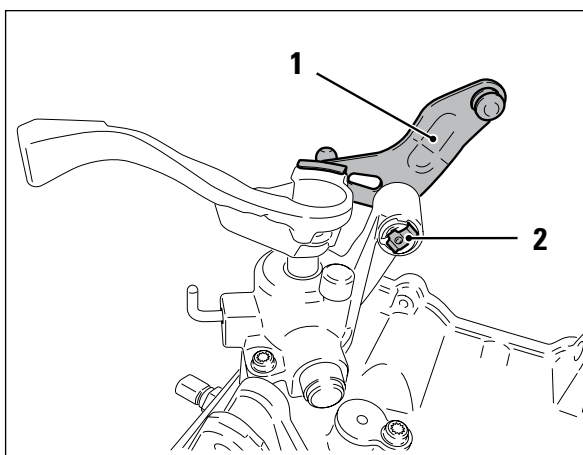


Fig. 28

- Loosen the bolts for the selector shaft [1 and 3] and remove the selector shaft
- Remove both of the bearing journals [2]
- Clean the sealing surfaces

Note:

The selector shaft must be in the neutral position.

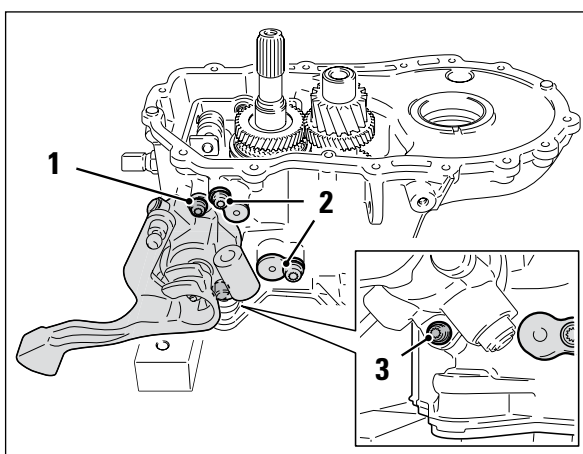


Fig. 29

- Loosen the bolt [1] for the reverse gear shaft
- Remove both of the bearing journals [2]

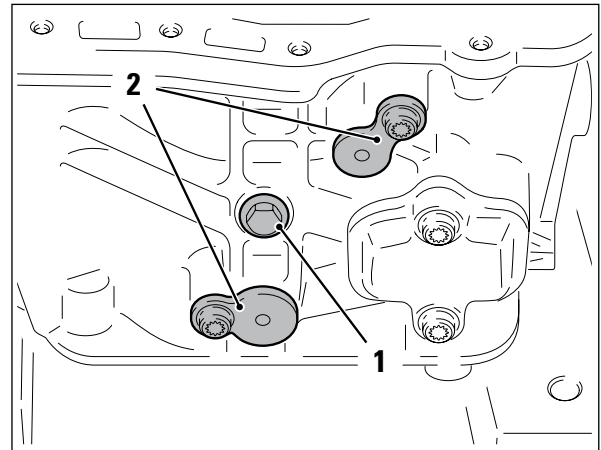


Fig. 30

- Press out the transmission shafts and the bearing connector using thrust piece (A)
- Disconnect the shift rails, shift forks and reverse gear from the transmission shafts

Note:

Ensure that the components cannot fall.

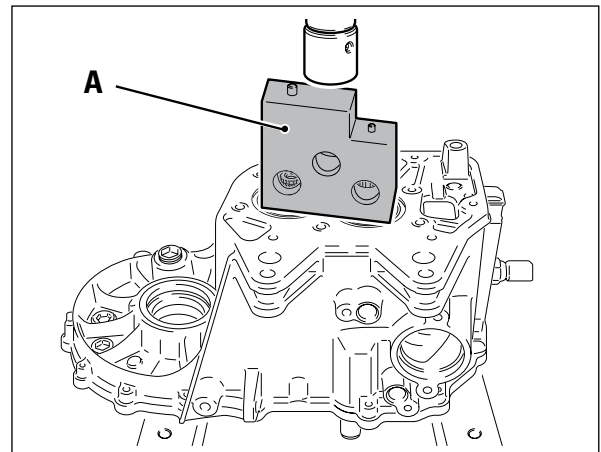


Fig. 31

- Support the transmission shafts and compensating plate (D) below the toothed gears for first gear
- Remove the transmission shafts including the needle roller bearing sleeve for fifth gear from the bearing connector using thrust piece (A)
- Place the toothed gear for first gear on the output shaft again

Note:

The compensating plate (D) can only be guided using the transmission shafts if the selector sleeve for second gear is engaged.

Place the press ram in the position shown.

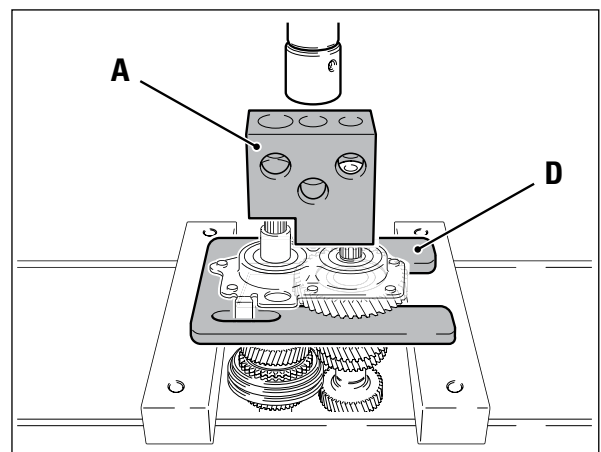


Fig. 32

- Replace the flanged shaft seal (4) on the transmission housing

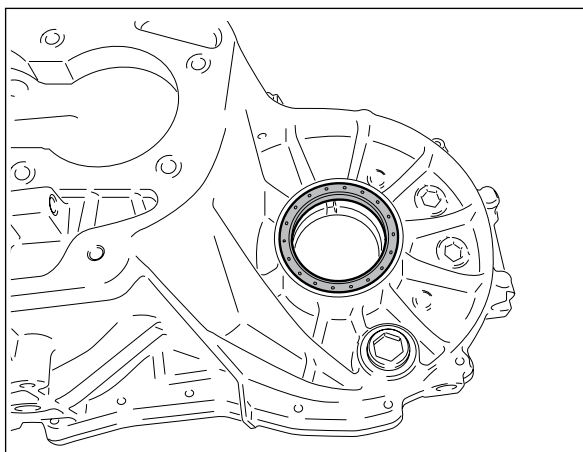


Fig. 33

- Remove both of the cylinder roller bearings in the clutch housing
- Push the snap ring together using pliers when pulling out the bearings

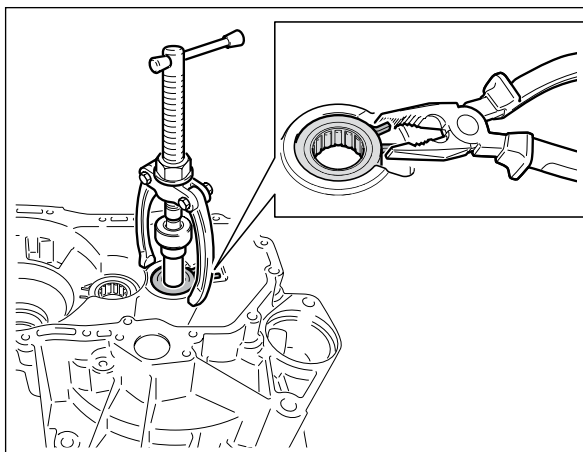


Fig. 34

- Replace the drive shaft seal [6]

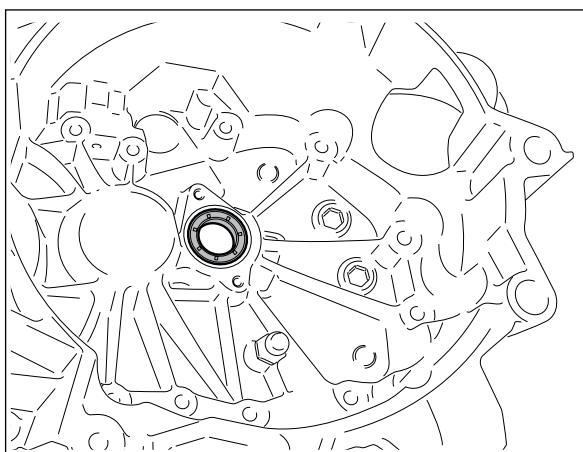


Fig. 35

- Replace the flanged shaft seal (5) on the clutch housing

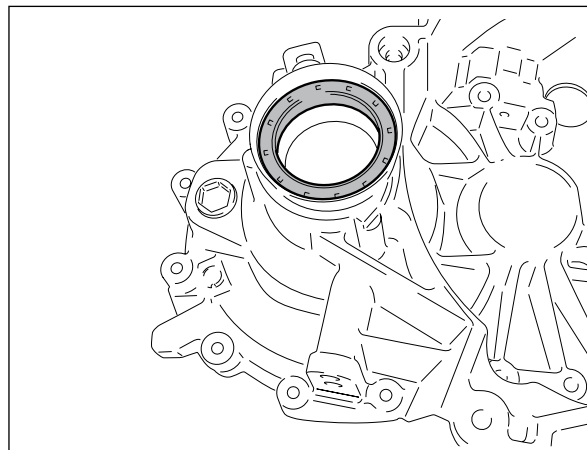


Fig. 36

- Install both of the new cylinder roller bearings (2 and 3)
- When pressing in the new bearings, press the snap ring together using pliers

Note:

After pressing in the bearing, check whether the snap ring is engaged in the groove in the clutch housing.

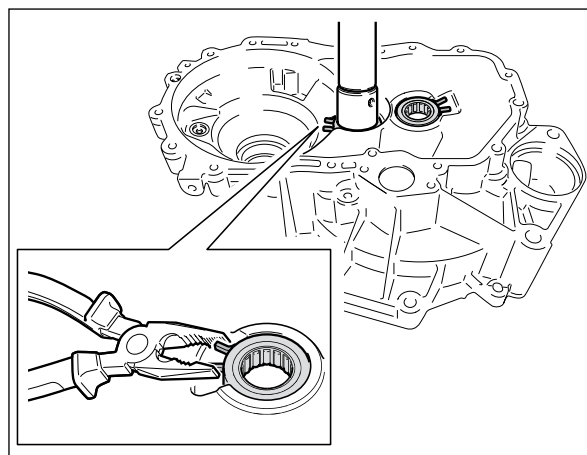


Fig. 37

- Check the diameter of the output shaft against the non-verbal fitting instructions (9996005990 enclosed in the LuK GearBOX packaging) and press the inner ring (8) onto the output shaft if necessary



Fig. 38

- Remove the snap ring from the drive shaft

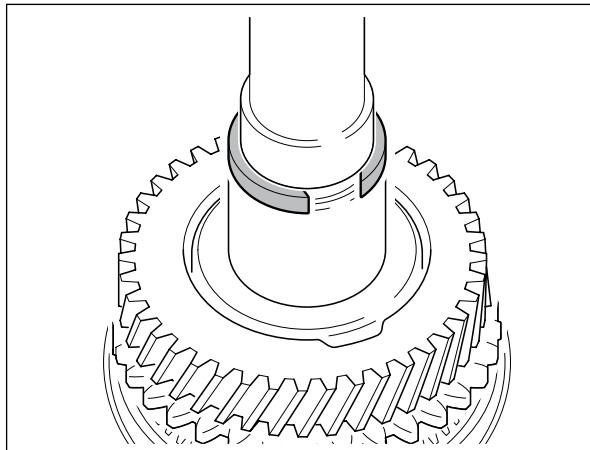


Fig. 39

- Place the drive shaft in the thrust piece (B)
- Attach the separating device between the gear wheel and synchro ring and tighten both items

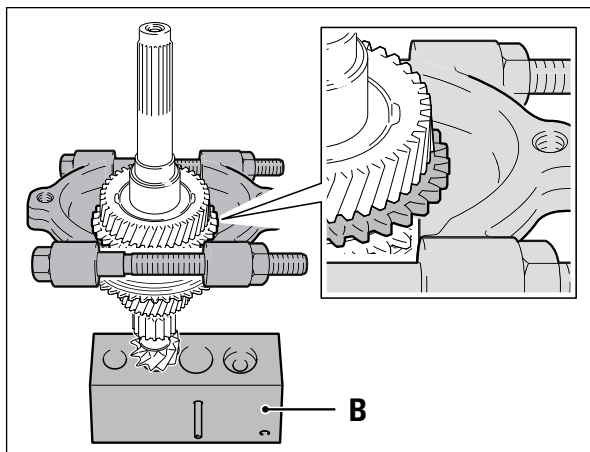


Fig. 40

- Press the gear off the drive shaft along with the thrust washer and sleeve

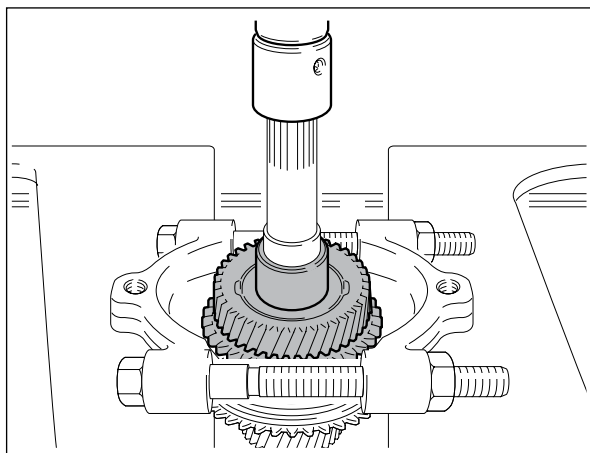


Fig. 41

- Assemble the gear wheel and thrust washer on the drive shaft
- Press the new sleeve for the cylindrical roller bearing (3) onto the drive shaft using the thrust piece (A)

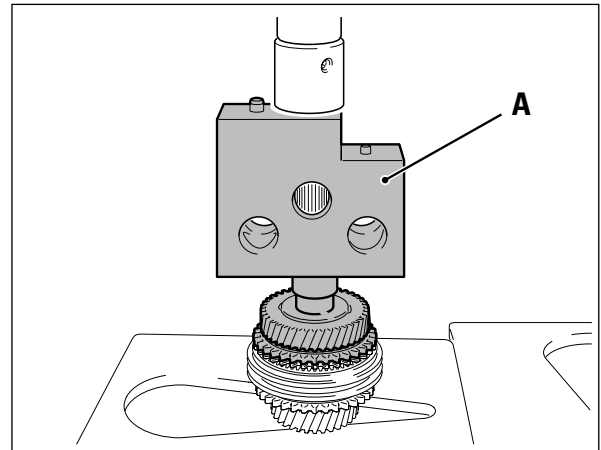


Fig. 42

- Assemble the snap ring on the drive shaft

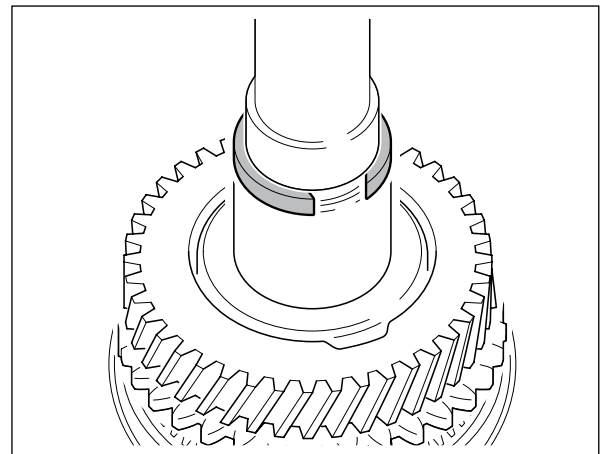


Fig. 43

- Place the transmission shafts in the thrust piece (B)
- Heat up the bearing connector to 100°C
- Press the new bearing connector (1) onto the drive shaft and output shaft using the thrust piece (A)

Note:

If the contact surfaces on the drive shaft and output shaft for the bearing connector are offset, the height compensating disc (C) can be placed into the shaft connector (B).

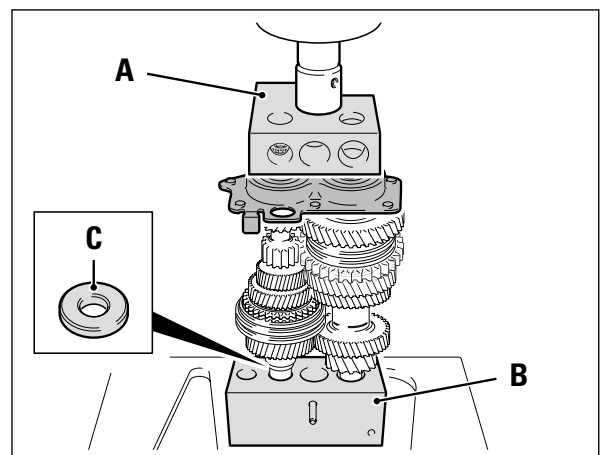


Fig. 44

- Press the new needle bearing sleeve for fifth gear (7) using the thrust piece (A)

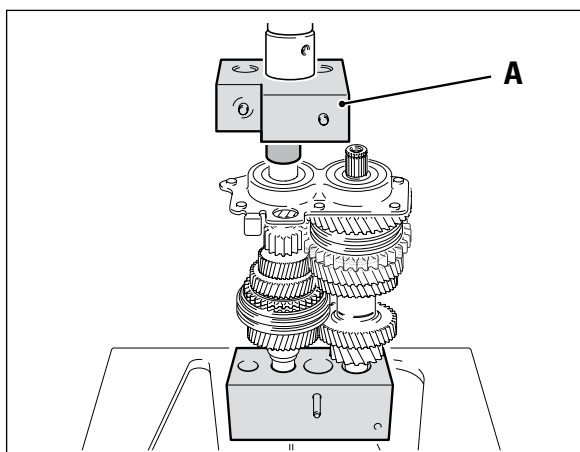


Fig. 45

- Place the shaft package in the thrust piece (B) as shown in the image
- Assemble the reverse gear [2] and shift fork
- Support the shift rails and shift forks using thrust piece (A)
- Tighten the guide bolt (E)

Note:

Check the selector lever [1] for the reverse gear is properly engaged.

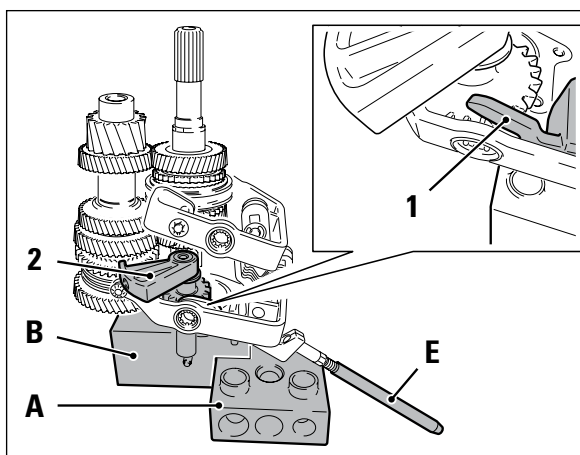


Fig. 46

- Insert the gear sets into the transmission housing
- Guide the guide bolt (E) through the bore for securing the selector lever in the transmission housing (see arrow)

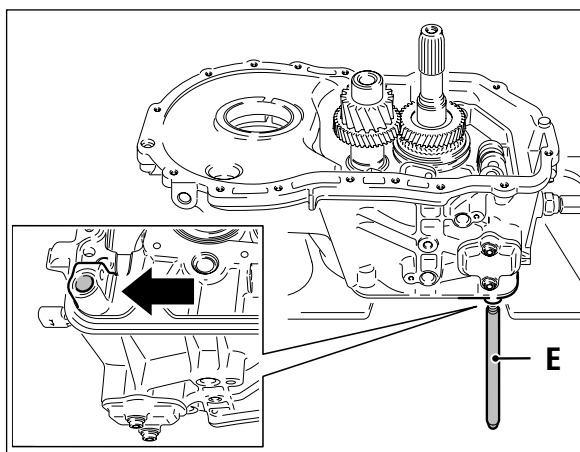


Fig. 47

- Press the bearing connector along with drive shaft and output shaft using the thrust piece (B)
- Remove the guide bolt (E)

Note:

Check the selector forks are properly engaged in the sliding sleeves before force fitting the bearing connector.

If the height compensating disc (C) has been placed in the shaft connector (B) when pressing the bearing connector, it must also be used in this step.

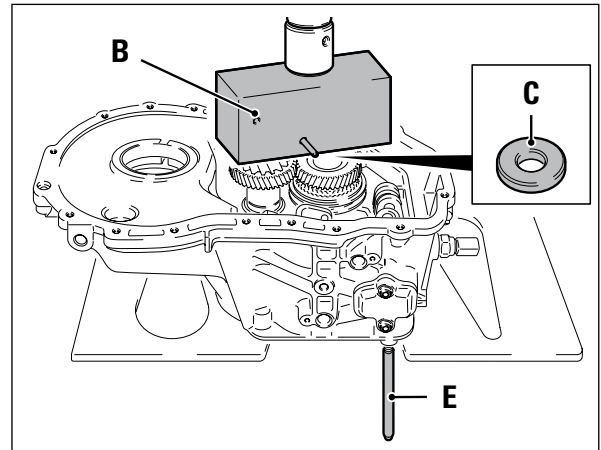


Fig. 48

- Replace the O-rings (10) on the four bearing journals

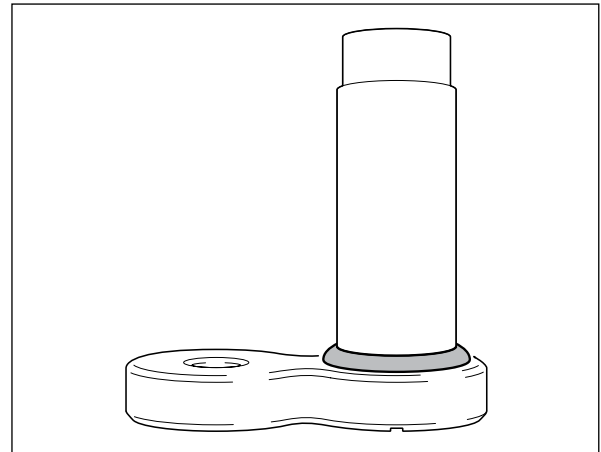


Fig. 49

- Tighten the bolt [1] for the reverse gear shafts
Tightening torque:
M6 = 5 Nm + 90°
M8 = 25 Nm + 45°
- Install both of the bearing journals [2]
Tightening torque: 5 Nm + 90°

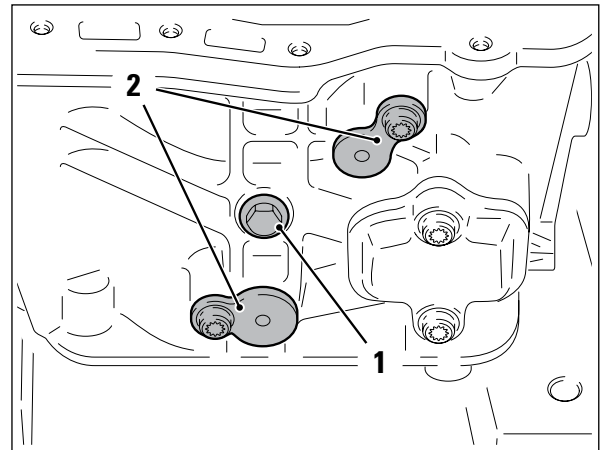


Fig. 50

- Install both of the bearing journals [1]
- Tightening torque: 5 Nm + 90°
- Apply sealing compound evenly over the surface [2]

OE specification: AMV 188 200 03

Alternative: Corteco EVO300

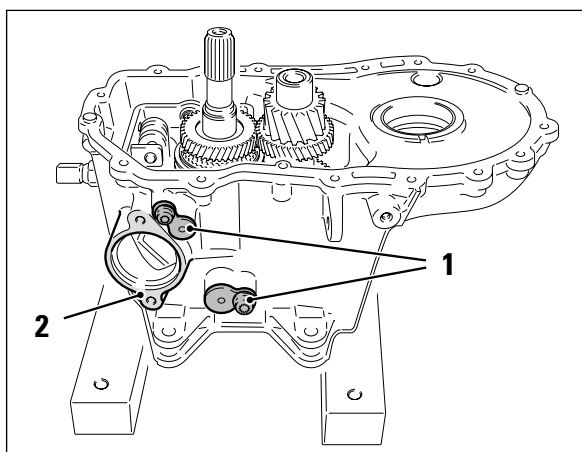


Fig. 51

- Install the selector shaft and tighten the bolts [1 and 2]
- Tightening torque: 5 Nm + 90°

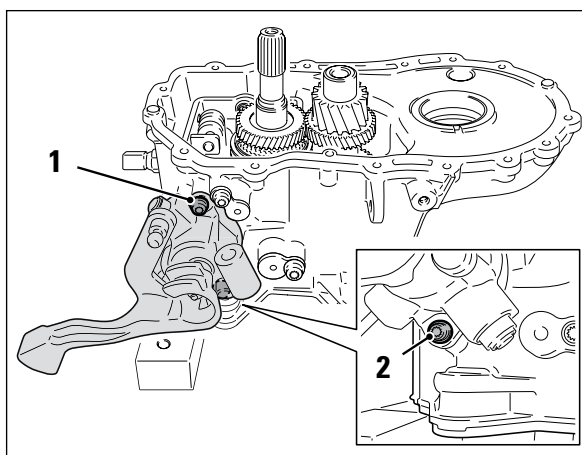


Fig. 52

- Install the changeover lever [1]
- Mount snap ring [2]

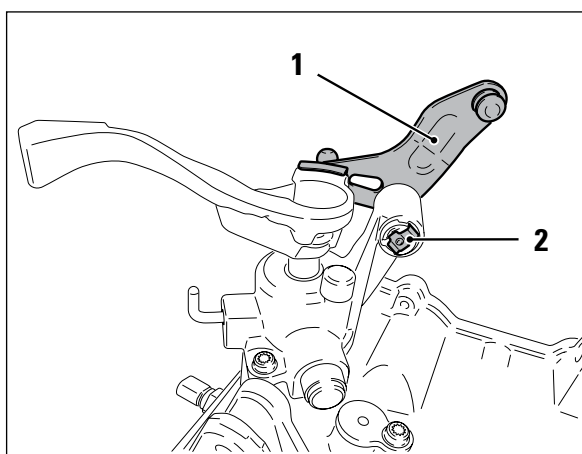


Fig. 53

- Install the transmitter for the transmission neutral position
Tightening torque: 6 Nm

Note:
Applies only to vehicles with a start/stop system.

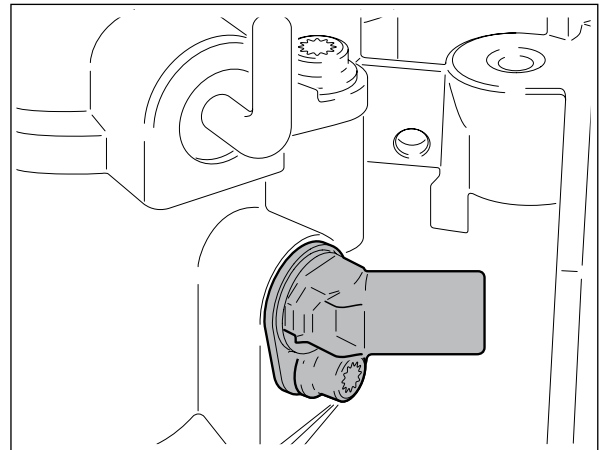


Fig. 54

- Insert the differential

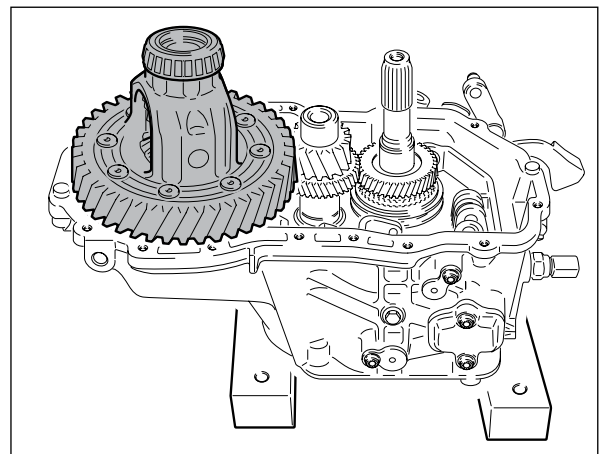


Fig. 55

- Apply sealing compound evenly to the transmission casing

VW specification: AMV 188 200 03
Alternative: Corteco EVO 300

- Attach the transmission casing

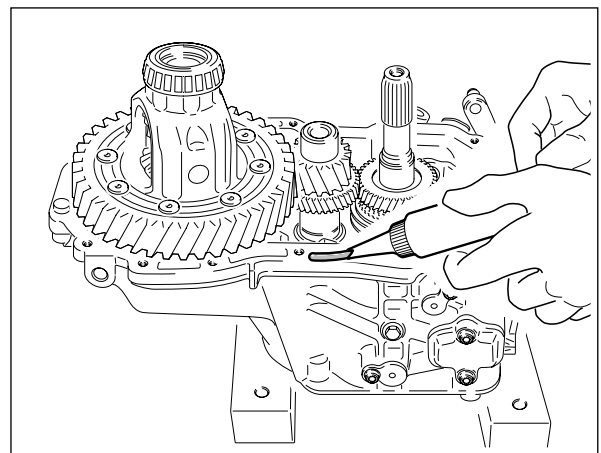


Fig. 56

- Tighten the bolts for the transmission casing in a crosswise pattern in several stages
Tightening torque: 5 Nm + 90°

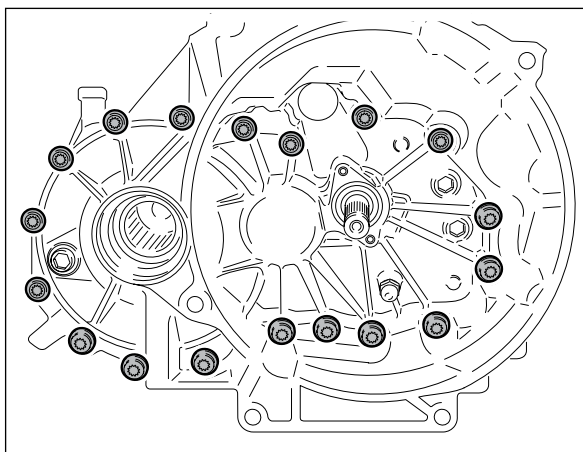


Fig. 57

- Turn the transmission on the clutch housing
- Tighten the six bolts for the bearing connector
Tightening torque: 5 Nm + 90°
- Tighten the hexagon nut with collar
Tightening torque: 23 Nm

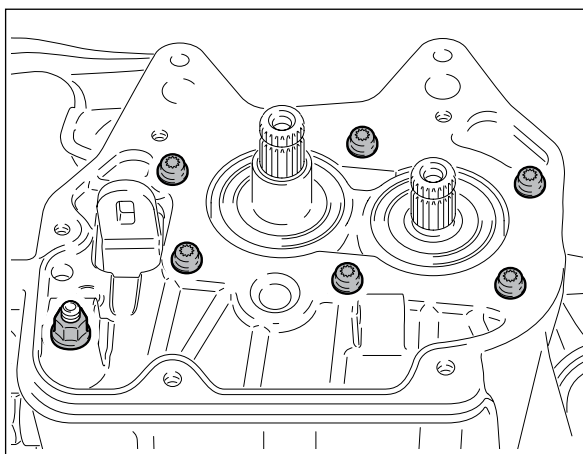


Fig. 58

- Attach fifth gear with the high collar facing upwards

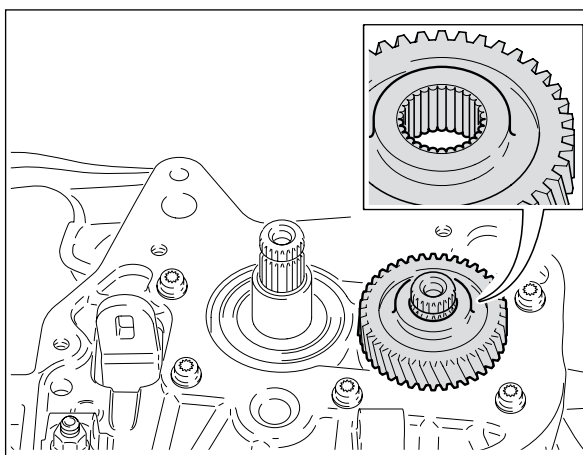


Fig. 59

- Attach the new needle roller bearing (7) [1] for fifth gear
- Assemble the output gear for fifth gear [2], the synchro ring [3] and the synchroniser unit [4] on the shaft

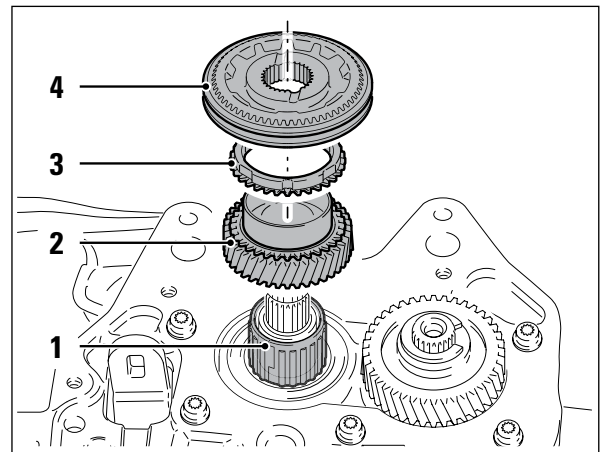


Fig. 60

- Attach the selector fork for fifth gear [2]
- Insert the bearing pin [3] as far as it will go
- Select and fit the thickest new snap ring that can be used (9) [1 and 4]

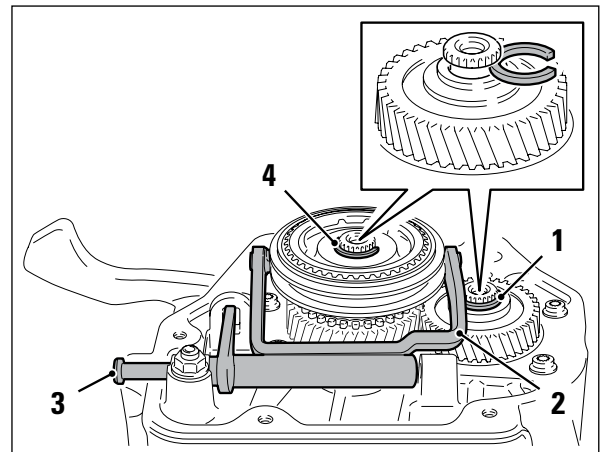


Fig. 61

- Replace the cover seal (11 or 12)

Note:

Ensure that the correct cover seal is used.

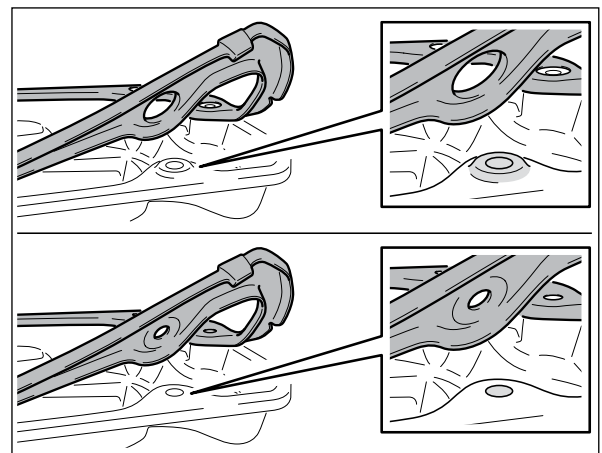


Fig. 62

- Assemble the housing cover and tighten the bolts in a crosswise pattern

Tightening torque: 5 Nm + 90°

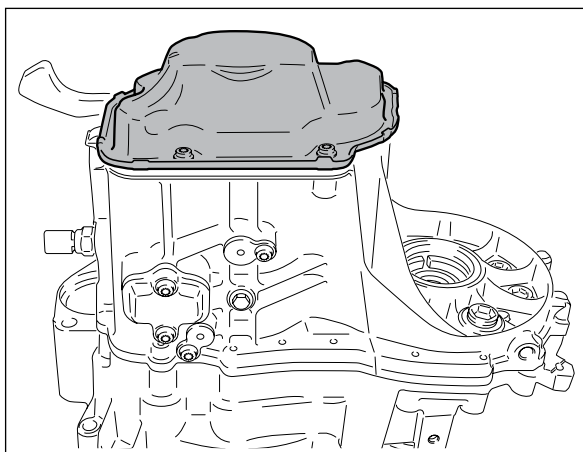


Fig. 63

- Assemble both of the flanged shafts with the pressure spring, thrust washer and conical ring

Tightening torque: 25 Nm

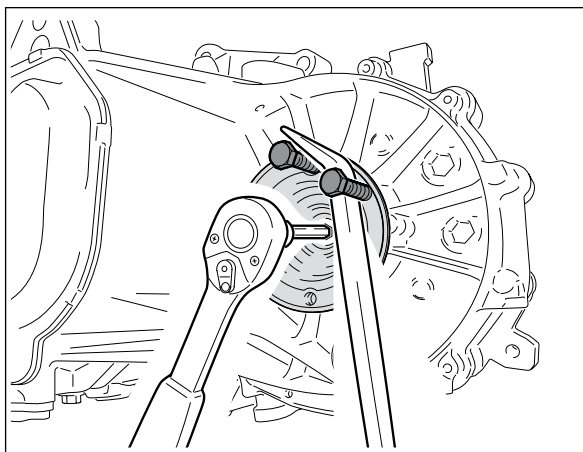


Fig. 64

- Assemble the guide sleeve
Tightening torque: 5 Nm + 90°
- Install the clutch release bearing along with the retaining spring and the release bearing
- Hook in the retaining spring

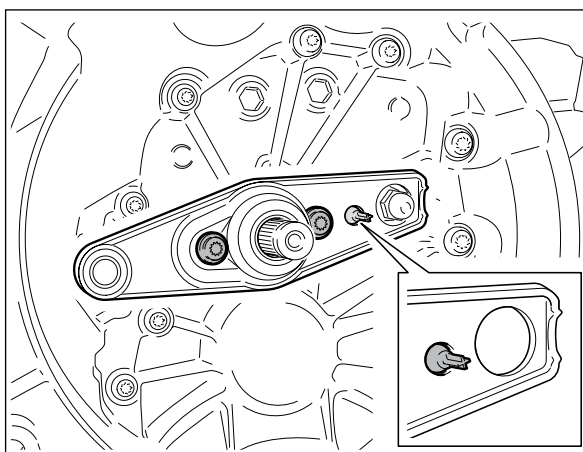


Fig. 65

- Replace the gearbox oil in accordance with the vehicle manufacturer's specifications
Tightening torque:
Screw with internal serrations = 24 Nm
Hexagon flange screw = 32 Nm
- When adding oil, refer to LuK Service Information 0076 "Note for repairs to O2T transmissions", which can be found at www.repxpert.co.uk
- Install transmission according to vehicle manufacturer's specifications



Fig. 66

More garage knowledge:
www.rexpert.com