

LuK GearBOX – Repair Solution for Manual Transmissions

Disassembly and Assembly – Special tool
Ford, MT82 Transmissions 2WD till 07/2007



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May 2019

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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 instructions are used for this purpose, e.g. (1).

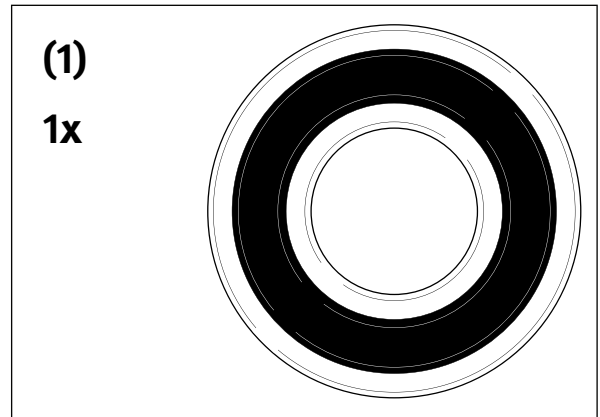


Fig. 1

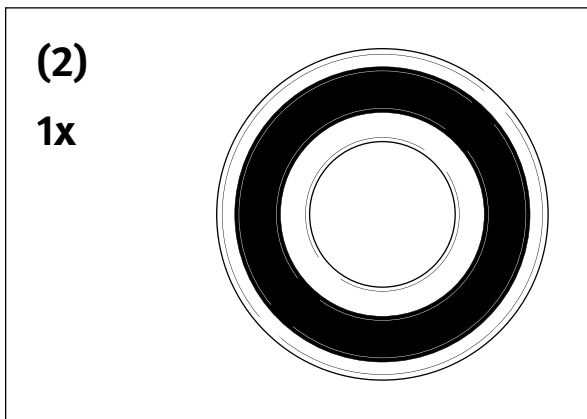


Fig. 2

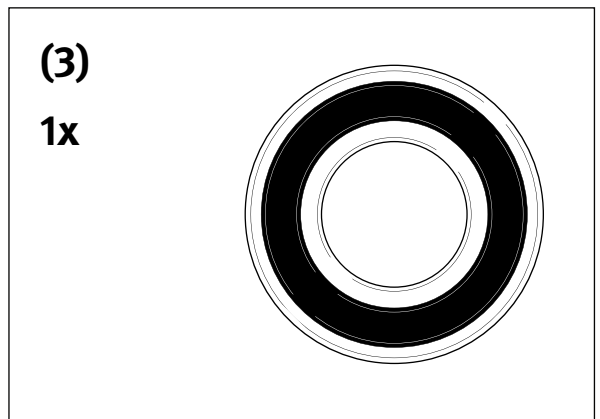


Fig. 3

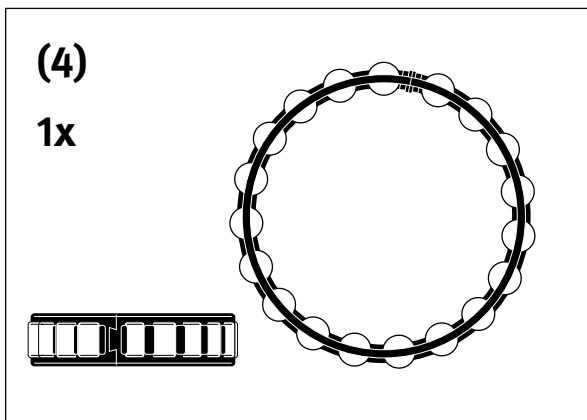


Fig. 4

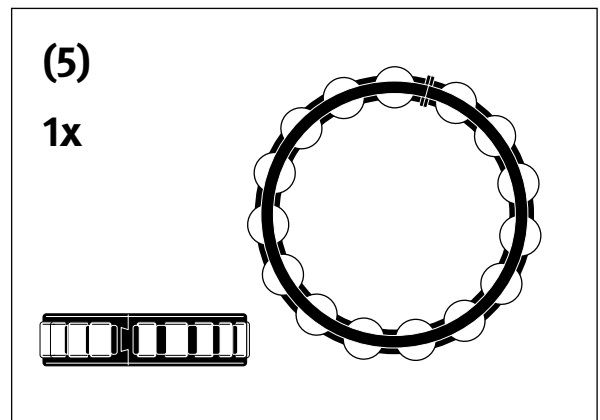


Fig. 5

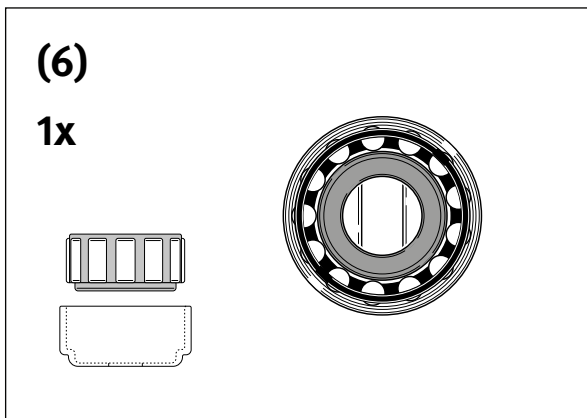


Fig. 6

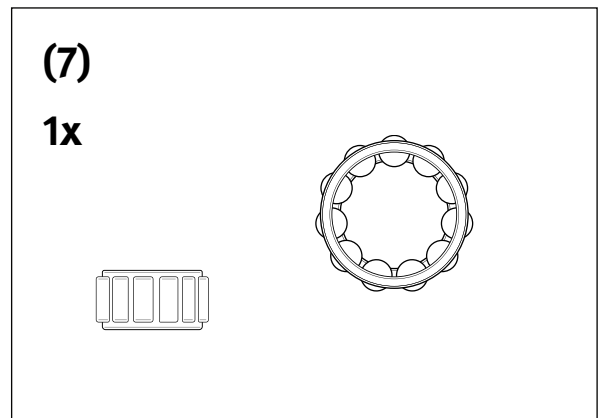


Fig. 7

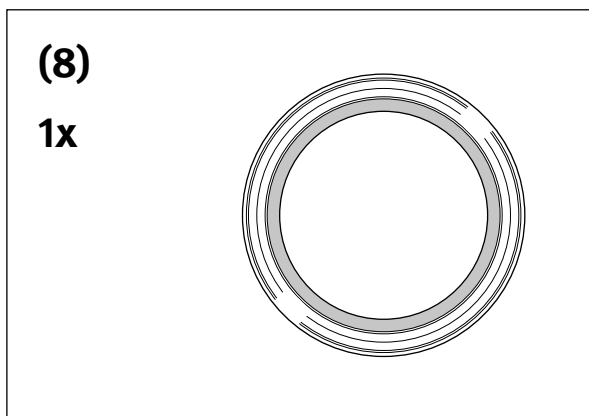


Fig. 8

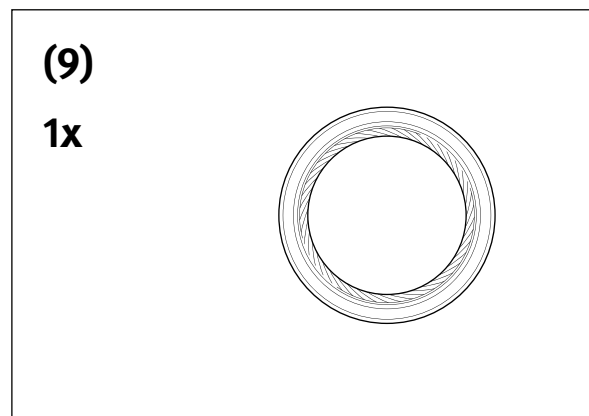


Fig. 9

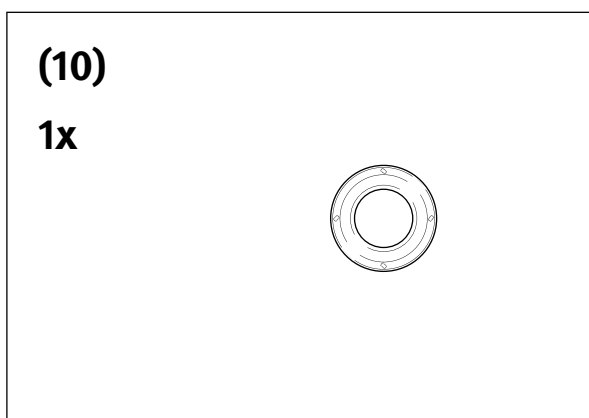


Fig. 10

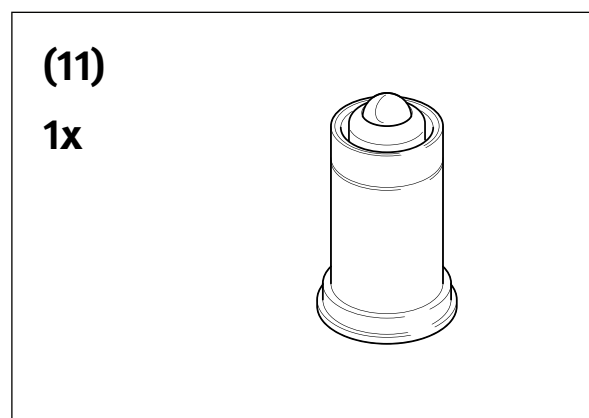


Fig. 11

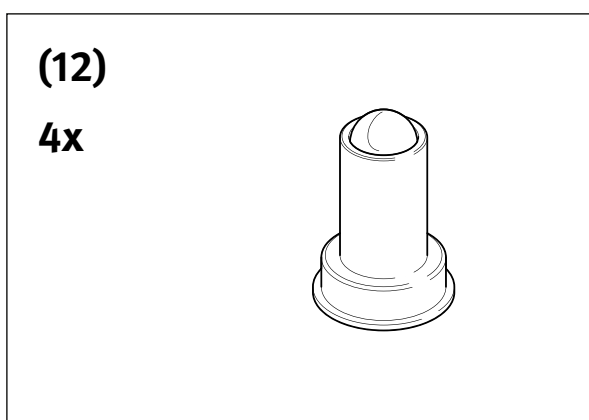


Fig. 12

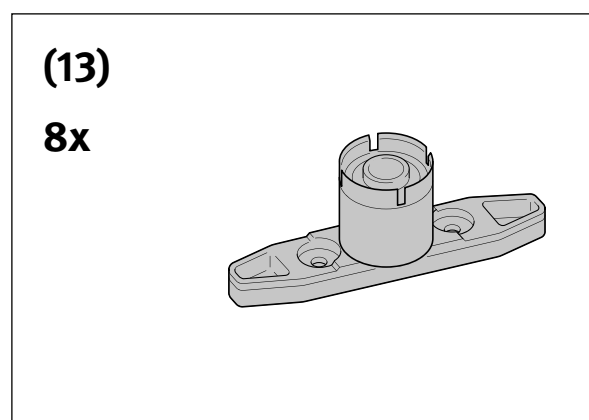


Fig. 13

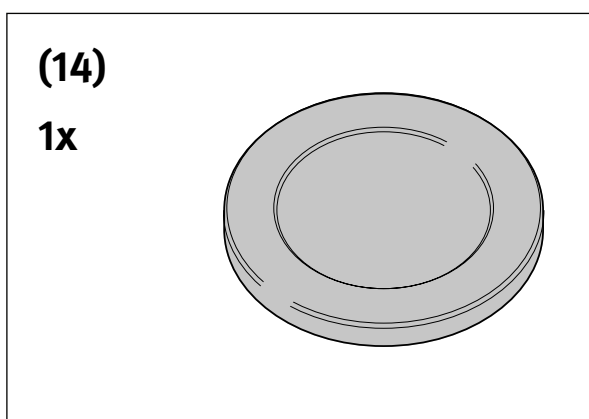


Fig. 14

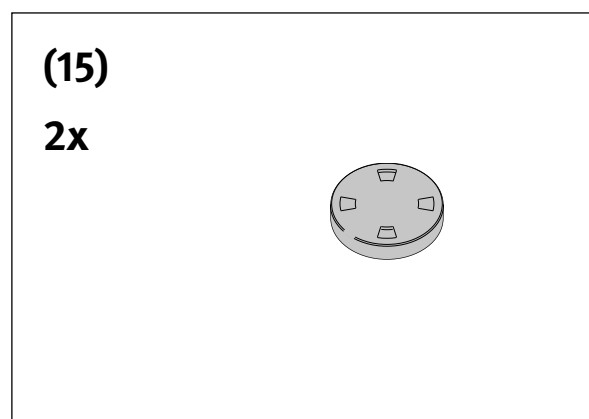


Fig. 15

Tool set (400 0579 10) for the professional repair of Ford MT82 transmissions

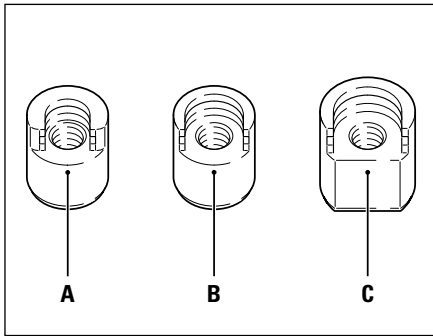


Fig. 16

Shift detent extractor:

- Removing the shift rod detents

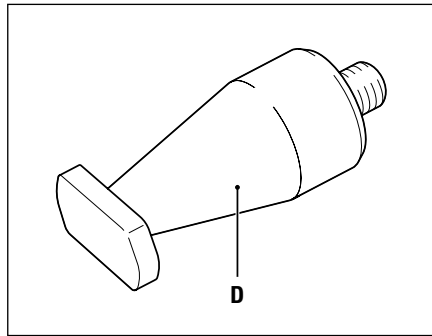


Fig. 17

Conical bearing extractor:

- Removing the bearing from the transmission casing cover (2WD)

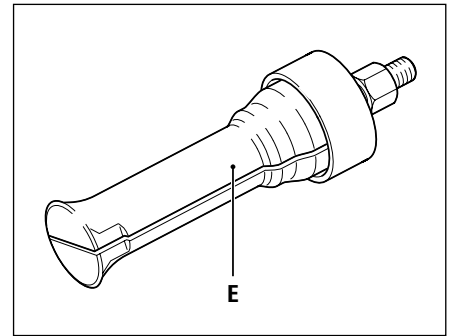


Fig. 18

Bearing extractor:

- Removing the bearing from the transmission casing cover (4WD)

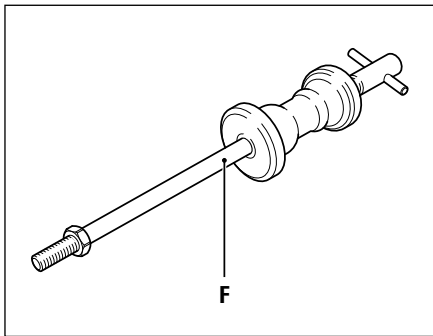


Fig. 19

Slide hammer:

- Removing the shift detents

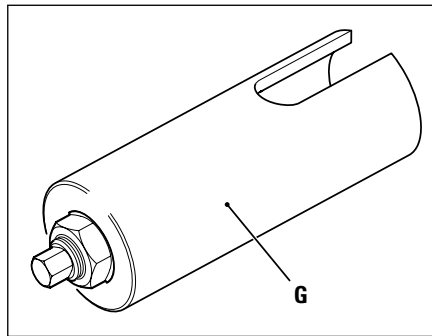


Fig. 20

Support sleeve:

- Support sleeve for removing the bearing from the transmission casing cover

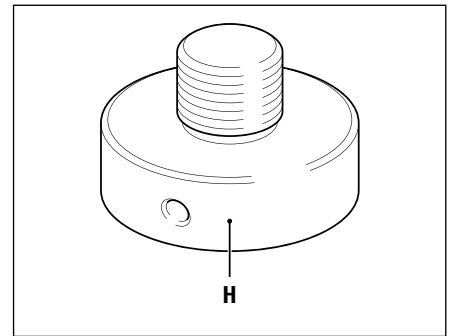


Fig. 21

Supporting bolt:

- Removing the transmission casing cover

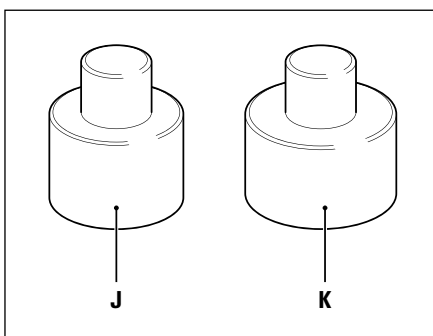


Fig. 22

Heating plates:

- Fitting the gear sets
- Fitting the transmission casing cover

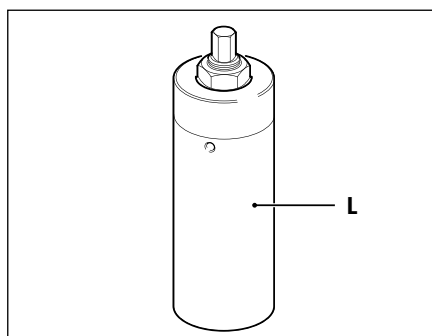


Fig. 23

Compression sleeve with threaded rod:

- Fitting the synchro for 1st/2nd gear
- Fitting the bush for the reverse gear needle bearing
- Fitting the reverse gear synchro

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

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

Support the transmission or the transmission casing parts during repair using suitable tools (e.g. metal blocks).

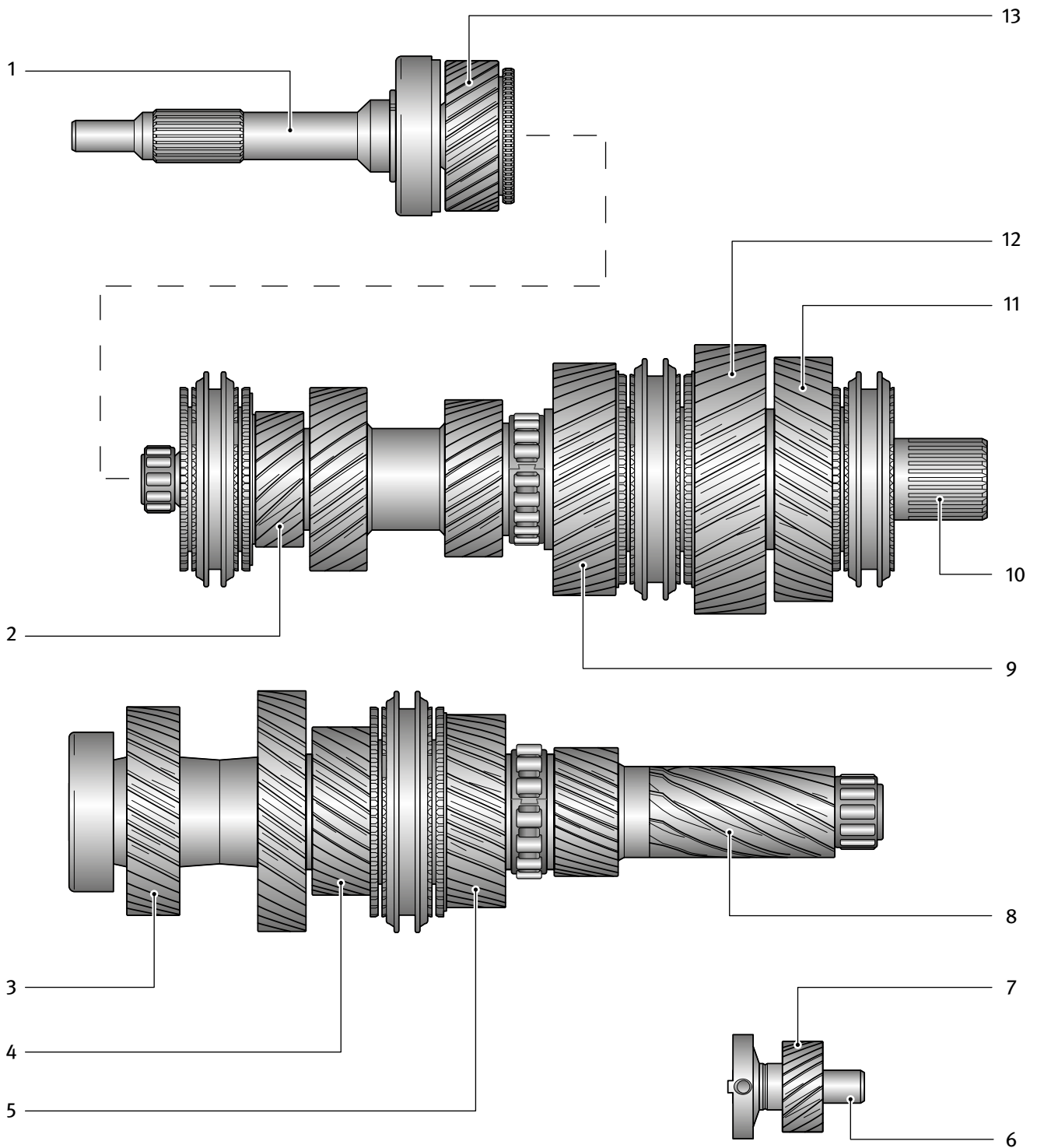


Fig. 24

- | | |
|---|---|
| 1. Drive shaft | 8. Layshaft |
| 2. 6th gear | 9. 2nd gear |
| 3. Layshaft toothed gear (direct drive) | 10. Output shaft |
| 4. 3rd gear | 11. Reverse gear |
| 5. 4th gear | 12. 1st gear |
| 6. Reverse gear shaft | 13. Drive shaft toothed gear (direct drive) |
| 7. Reverse gear | |

Note:

The 5th gear is a direct gear. The input speed and the output speed are equal.

- Drain the transmission oil and screw the drain plug back in
Tightening torque: 35 Nm
- Remove the gearbox in accordance with the vehicle manufacturer's instructions

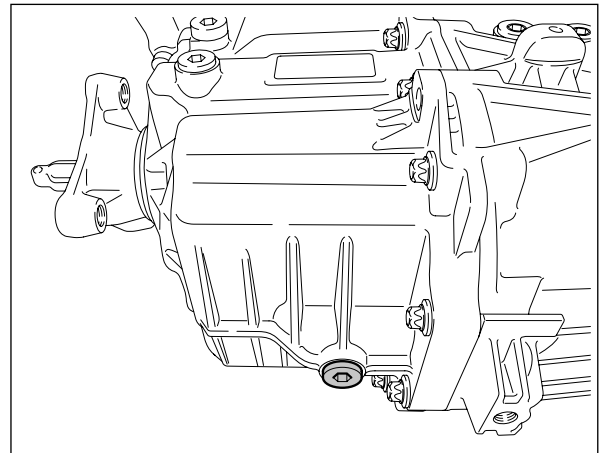


Fig. 25

- Use suitable aids to support the transmission at the sides
- Remove the locking clip [1]
- Remove the connection pipe for the central release [2]

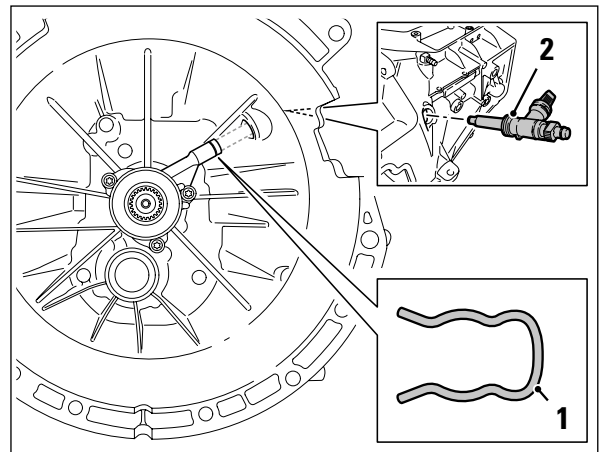


Fig. 26

- Remove the central release

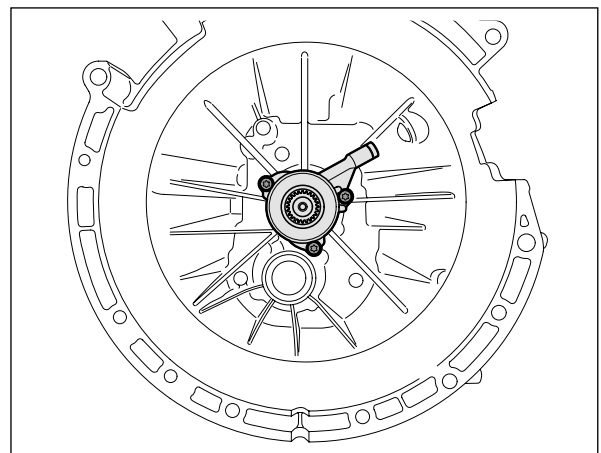


Fig. 27

- Remove the cover using suitable tools (e.g. Gedore Automotive KL-0369-59)

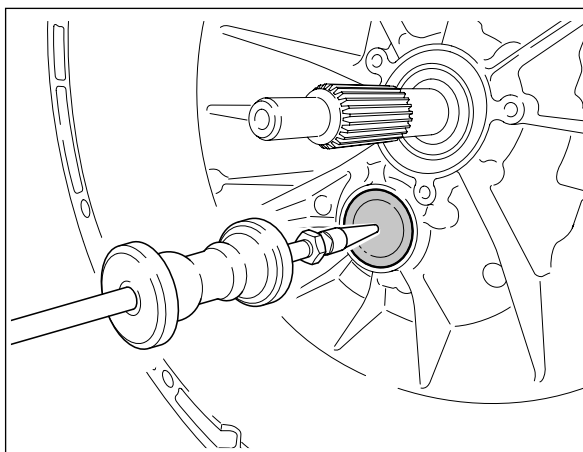


Fig. 28

- Engage 4th gear by pulling the gear linkage weight [1] in the direction of the arrow until the stop
- Attach a suitable counter support [2] to the output flange

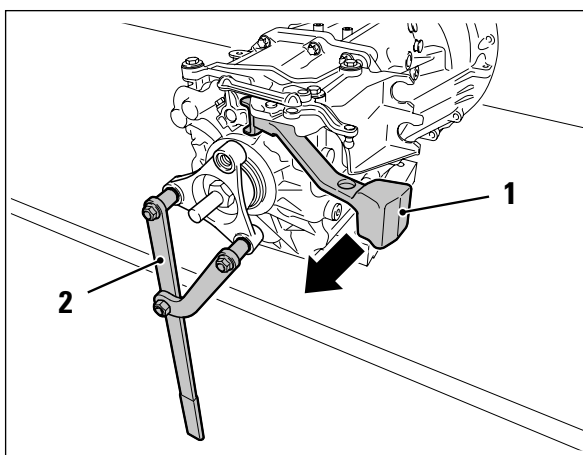


Fig. 29

- Hold the counter support on the output flange in place and unscrew the screw of the layshaft in the clutch housing

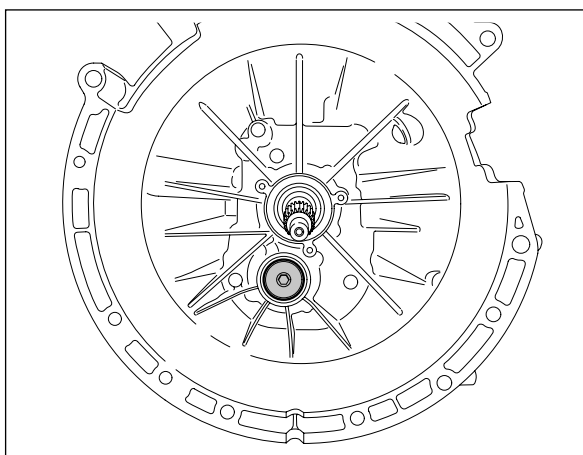


Fig. 30

- Remove the screw of the output flange
- Remove the counter support

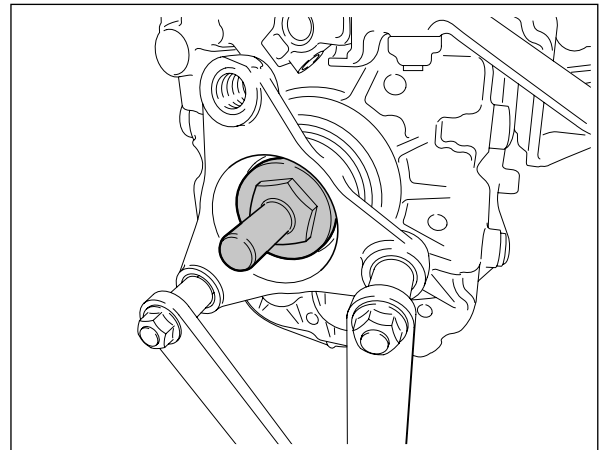


Fig. 31

- Remove the switch for the reversing light

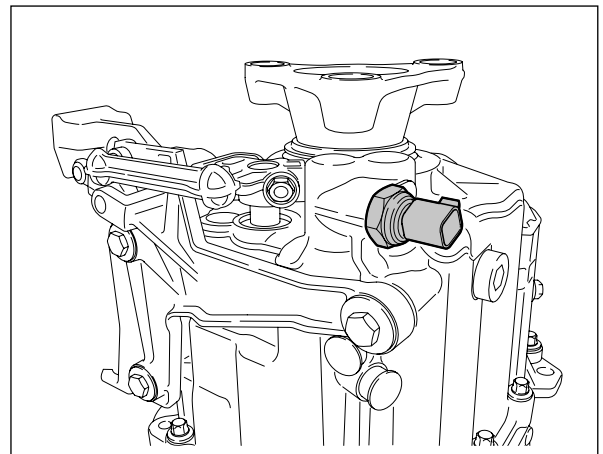


Fig. 32

- Remove nut [1] and remove the locking bolt [2]
- Remove the shift fork [3]

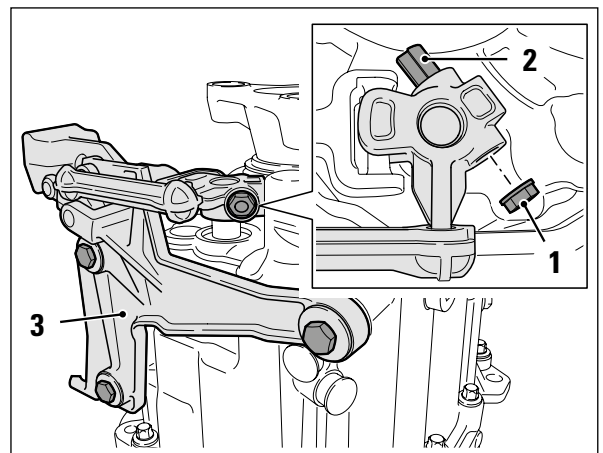


Fig. 33

- Extract the output flange

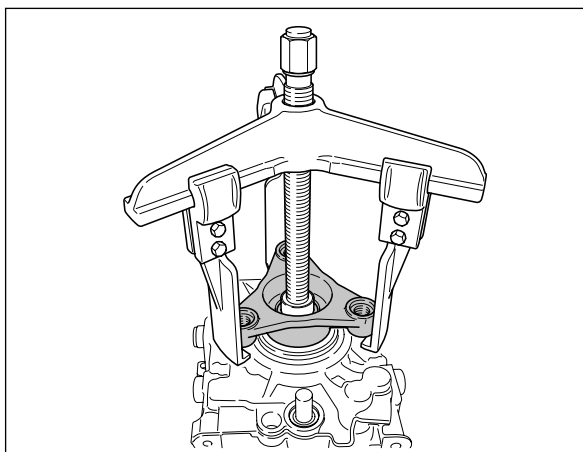


Fig. 34

- Pull out both selector rod detents for reverse gear and 1st/2nd gear using slide hammer (F) and extractor (A)
- Remove the screw on the selector lever for reverse gear

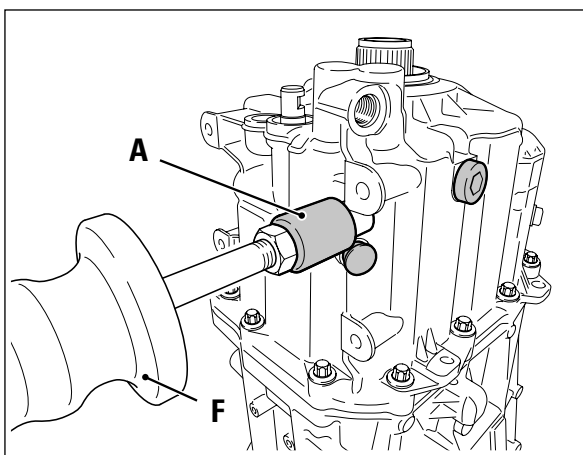


Fig. 35

- Extract both selector rod detents for 3rd/4th gear and 5th/6th gear using slide hammer (F) and extractor (A)

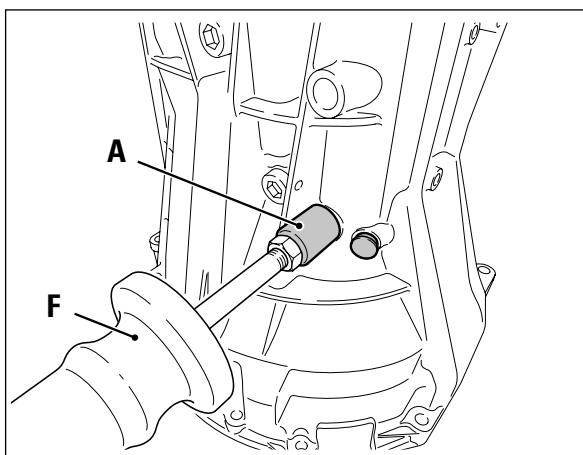


Fig. 36

- Extract the main shift rod detent using slide hammer (F) and extractor (C)
- Remove the screw on the selector lever for reverse gear

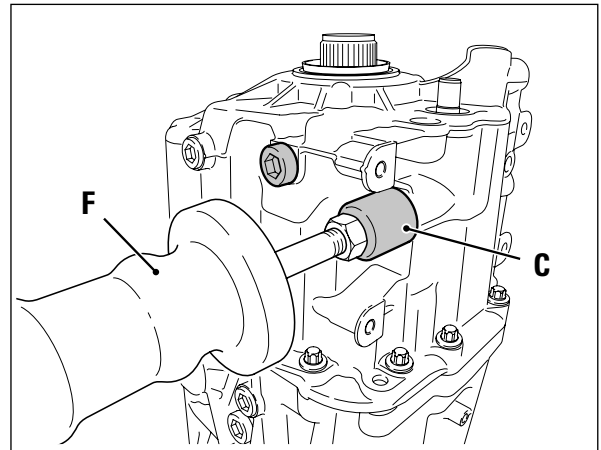


Fig. 37

- Remove the screws on the transmission casing cover

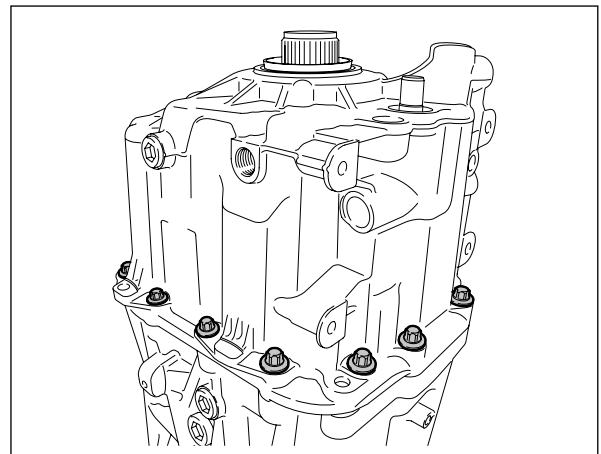


Fig. 38

- Remove the two guide pins from the transmission casing

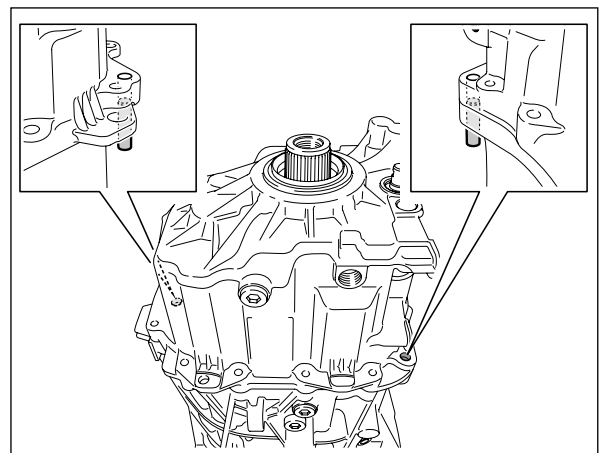


Fig. 39

- Check whether the 4th gear is still engaged (arrow)
- Screw support screw (H) into the output shaft
- Remove the transmission casing cover
- Remove support screw (H)

Note:

Engage 4th gear by pressing down the main selector shaft.

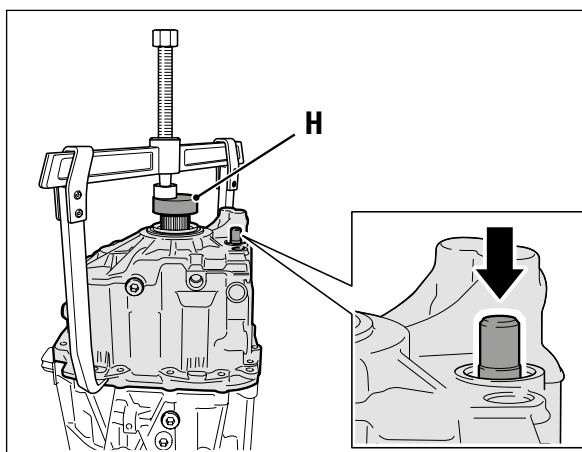


Fig. 40

- Remove and clean the magnet

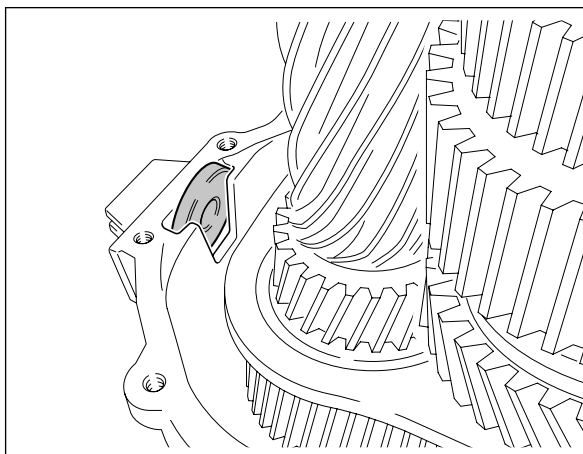


Fig. 41

- Move the selector levers into the neutral position
- Disconnect the reverse selector lever [1] from the selector rod [2]
- Extract the selector rod and selector lever

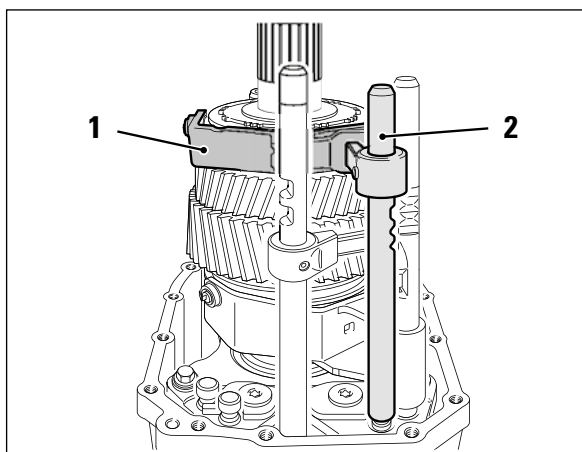


Fig. 42

- Remove the clamping pin [1] from the selector lever for 1st/2nd gear
- Extract the selector rod and selector lever [2]

Note:

Keep the roll pin [1] in a safe place.

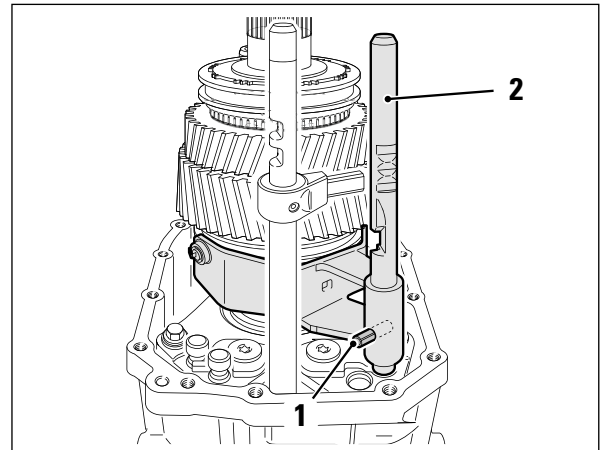


Fig. 43

- Extract the reverse synchro unit and the output gear for reverse and 1st gear
- Remove the synchro rings

Note:

Before removing, mark the position of the sliding sleeve relative to the synchro body.

Apply the two-leg extractor below the output gear for 1st gear.

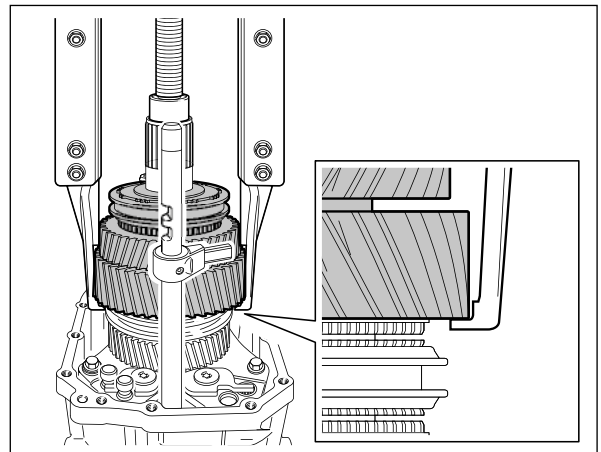


Fig. 44

- Remove the needle bearing and snap ring

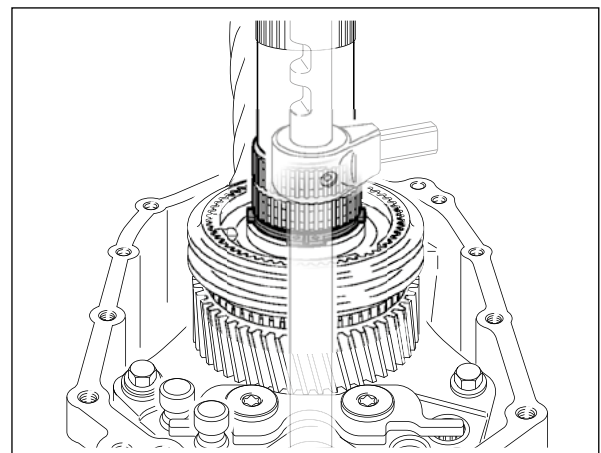


Fig. 45

- Remove the locking plate
- Remove both washers

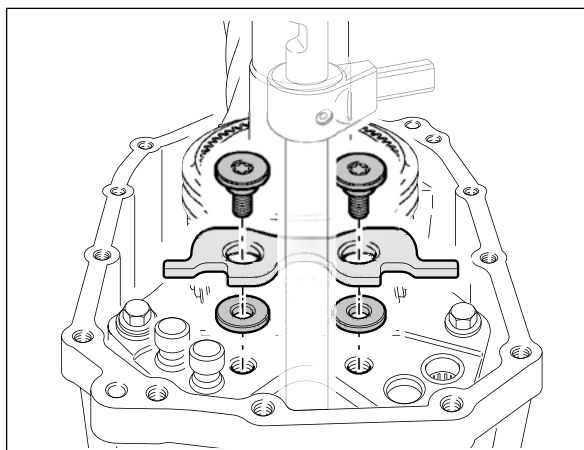


Fig. 46

- Extract the synchro unit for 1st/2nd gear along with the output gear for 2nd gear

Note:

Before removing, mark the position of the sliding sleeve relative to the synchro body.

Apply the two-leg extractor below the output gear for 2nd gear. Lift the output shaft slightly to position the extractor legs.

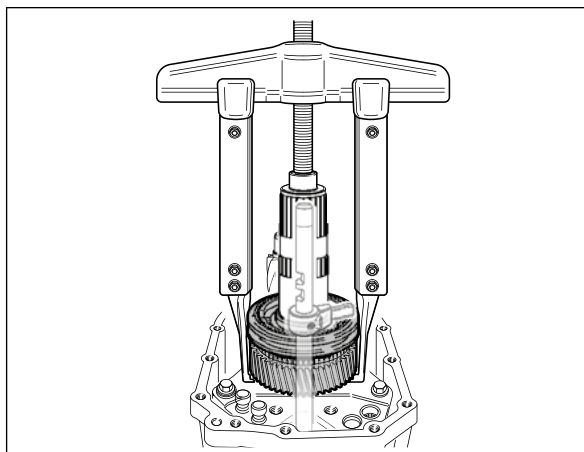


Fig. 47

- Remove the needle bearing

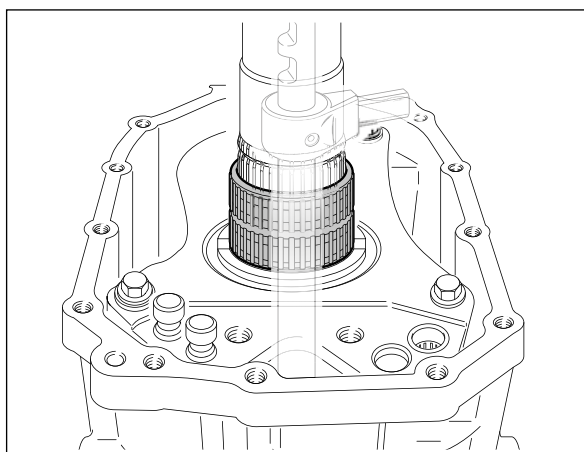


Fig. 48

- Remove the intermediate plate

Note:

Read the non-verbal installation note 999 6008 770 (LuK GearBOX package insert).

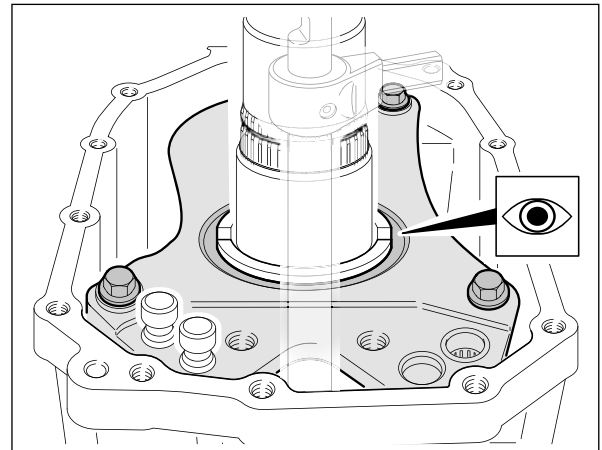


Fig. 49

- Mark the positions of the cylindrical roller bearings
- Remove both cylindrical roller bearings from the output shaft and layshaft

Note:

Open the cylindrical roller bearing by twisting the fastener.

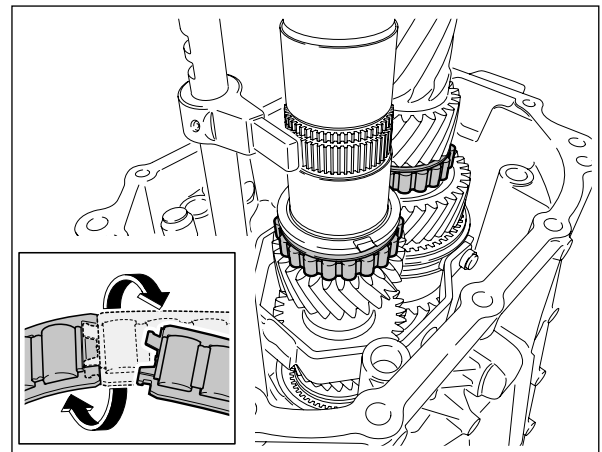


Fig. 50

- Unscrew the screws [1 and 2] from the selector lever for 3rd/4th gear
- Extract the selector rod [3] and selector lever [4]

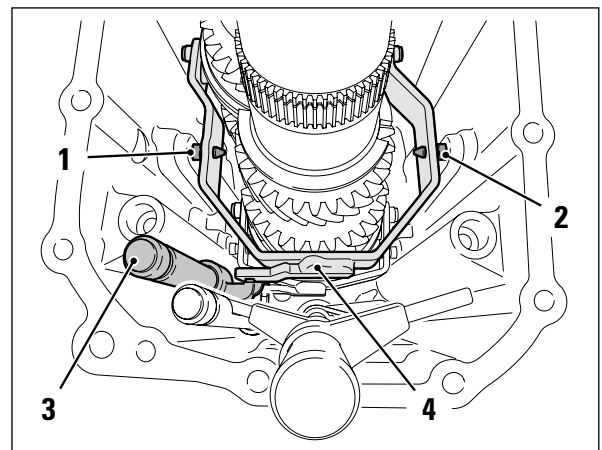


Fig. 51

- Pull the main selector rod up and out

Note:

Secure the parts against falling.

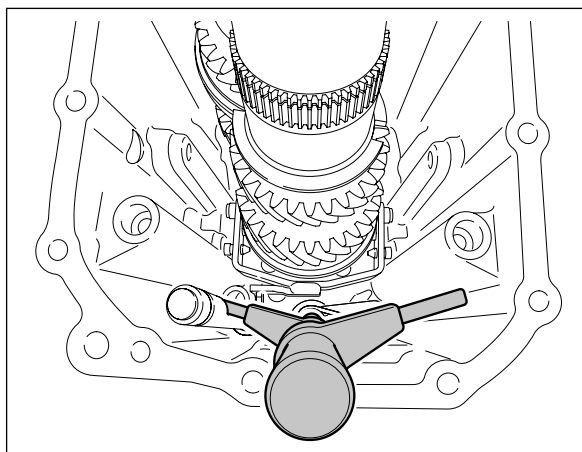


Fig. 52

- Unscrew the screws [1 and 2] from the selector lever for 5th/6th gear
- Extract the selector rod [3] and selector lever [4]

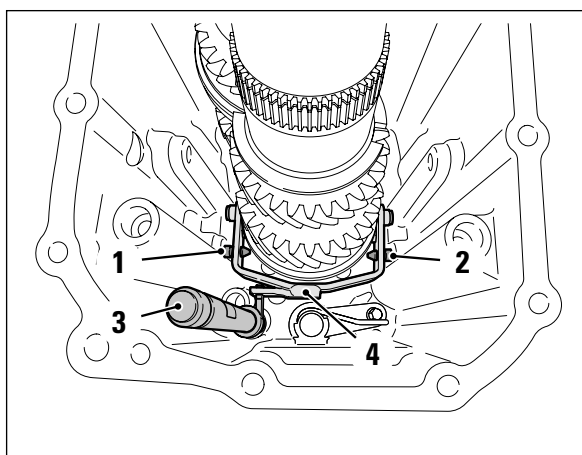


Fig. 53

- Press out the layshaft [1] from the transmission casing along with the output shaft [2]

Note:

The gear sets must be guided/supported by a second person. Press off the gear sets over the layshaft using a suitable sleeve [3].

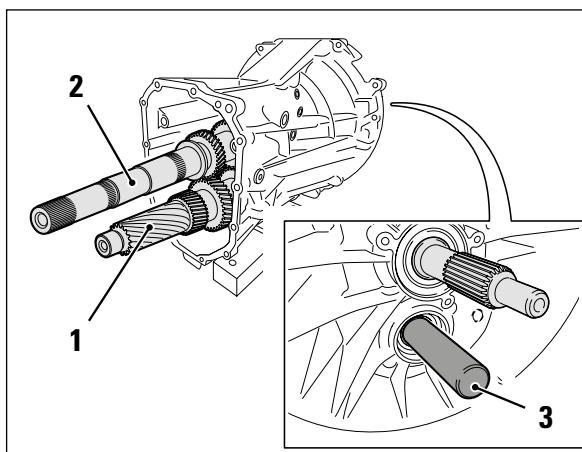


Fig. 54

- Unscrew the bearing bolts for drive shaft and layshaft

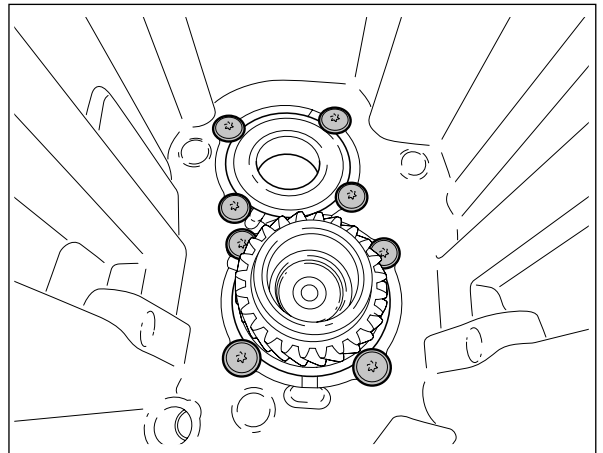


Fig. 55

- Press the drive shaft out of the transmission casing

Note:
Secure the drive shaft against falling.

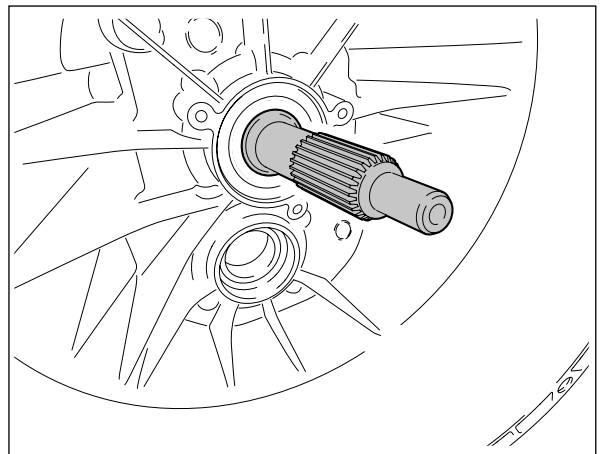


Fig. 56

- Remove the snap ring

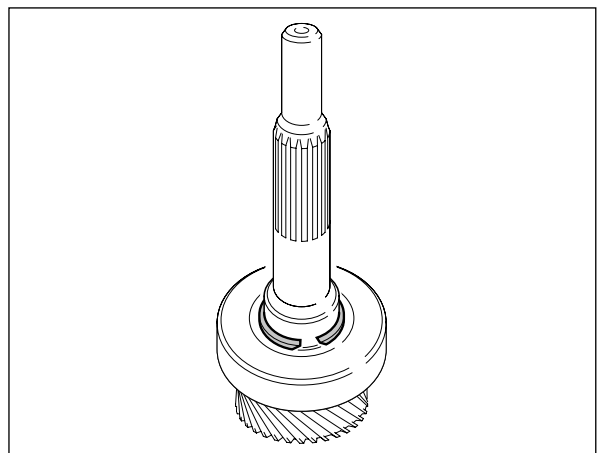


Fig. 57

- Press off the bearing of the drive shaft

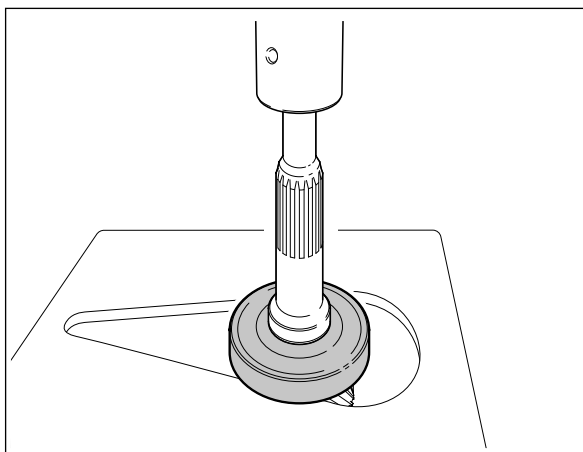


Fig. 58

- Remove the drive shaft seal

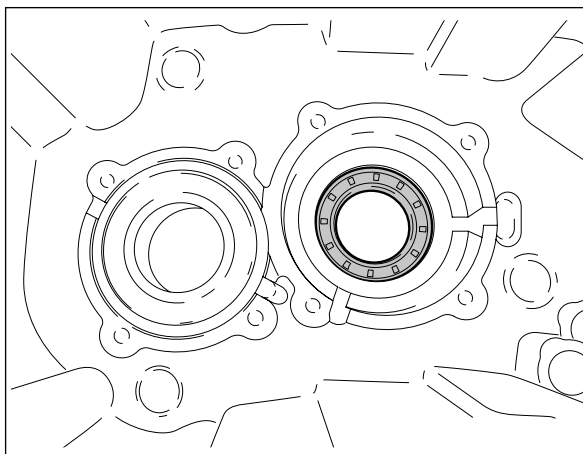


Fig. 59

- Remove the layshaft bearing

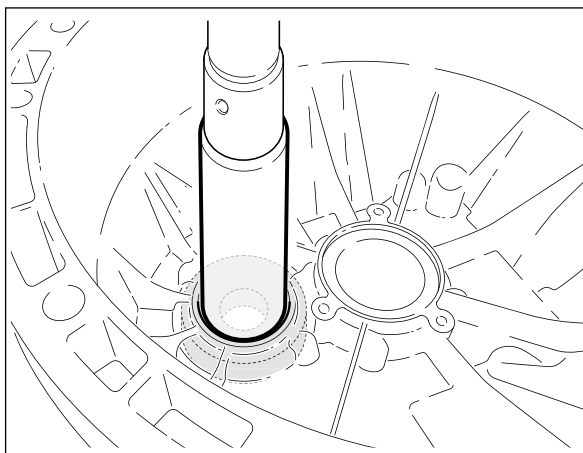


Fig. 60

- Heat the bearing seats in the transmission casing to 120°C
- Press the new bearing (3) on to the layshaft
- Press in the new drive shaft bearing (2) with the shoulder facing upwards

Note:

Fit the bearing over the bearing outer ring with a suitable sleeve.

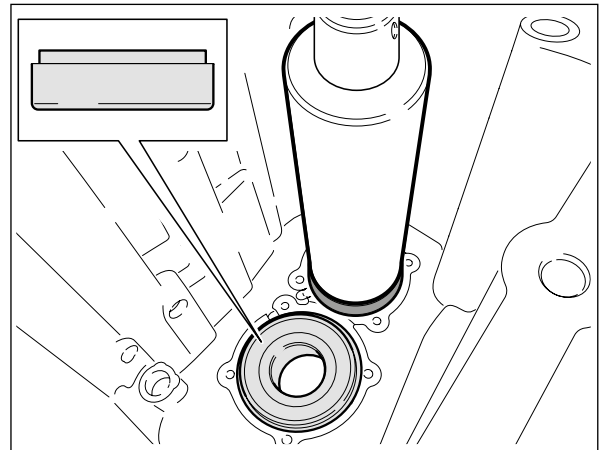


Fig. 61

- Fit the screws
Tightening torque: 10 Nm

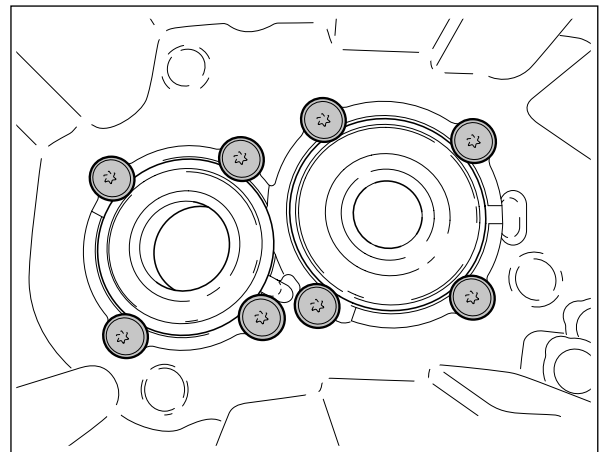


Fig. 62

- Remove the screw for the reverse idler gear shaft

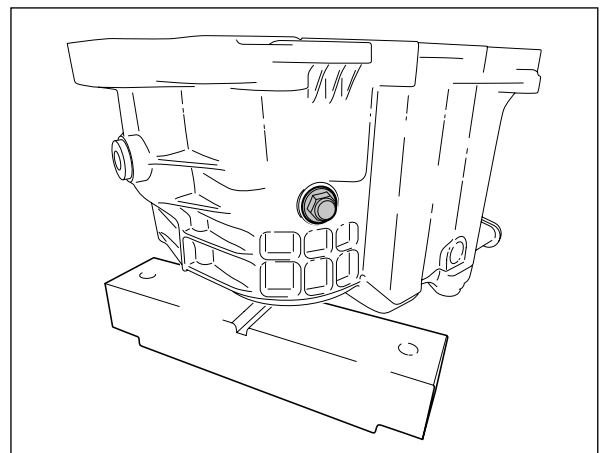


Fig. 63

- Remove the bearing block [1] together with the reverse idler gear shaft
- Remove the reverse idler gear [2] together with the needle bearing
- Remove the layshaft bearing [3]

Note:

Mark the position of the idler gear shaft relative to the bearing block and the position of the bearing block relative to the transmission casing cover.

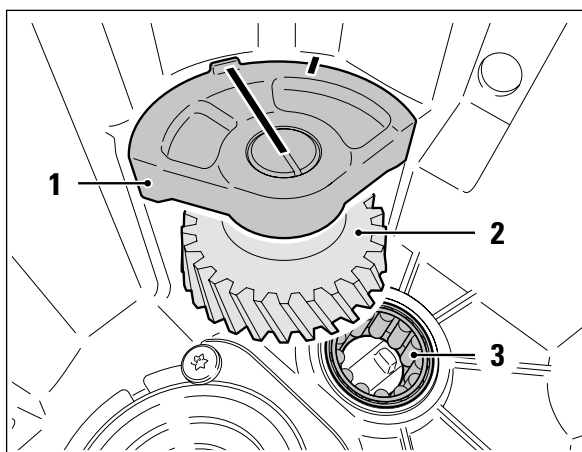


Fig. 64

- Extract the bearing shell of the layshaft bearing using support sleeve (G) and extractor (D)

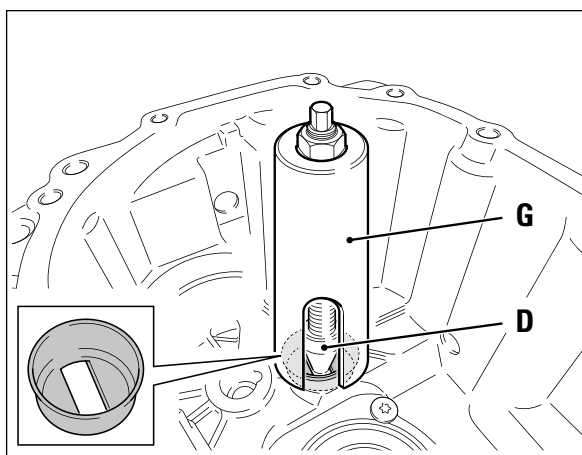


Fig. 65

- Unscrew the screws for the output shaft bearing

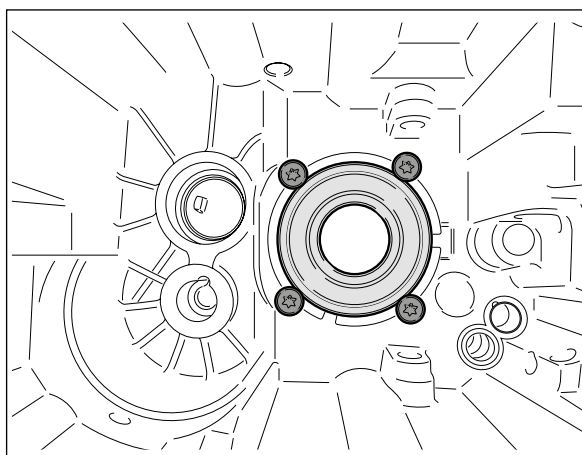


Fig. 66

- Remove the selector shaft seal [1] and output shaft seal [2]

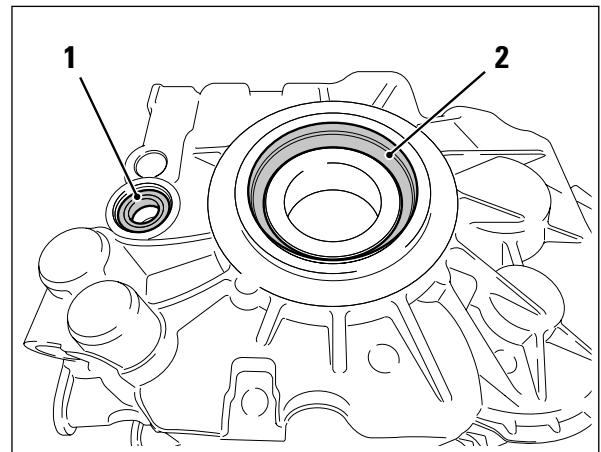


Fig. 67

- Push out the output shaft bearing

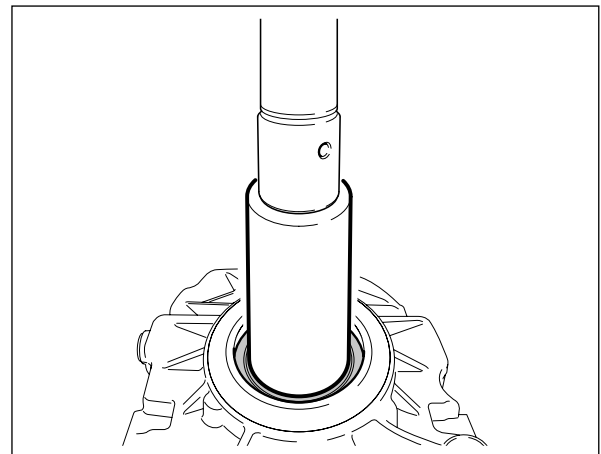


Fig. 68

- Heat the bearing seat in the transmission casing cover to 120°C
- Press in the new bearing (1) of the output shaft with the shoulder facing upwards

Note:

Fit the bearing over the bearing outer ring using a suitable sleeve.

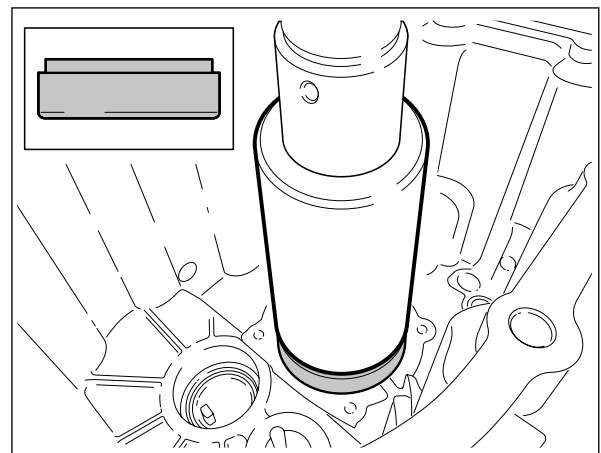


Fig. 69

- Remove the transport lock [1] of the new layshaft bearing (6)
- Remove the layshaft bearing from the bearing shell [2]

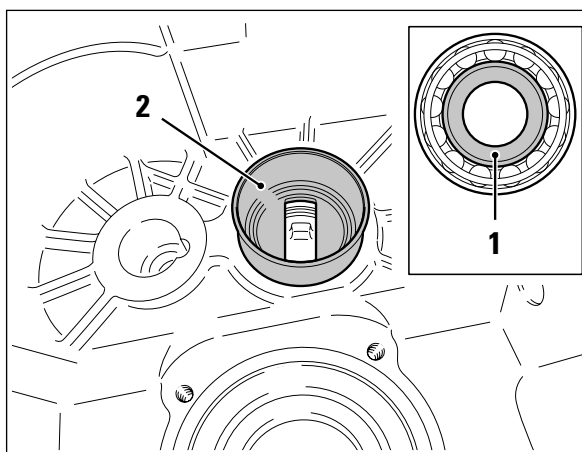


Fig. 70

- Heat the bearing shell seat in the transmission casing cover to 120°C
- Press in the new bearing shell (6)

Note:

Note the installation position of the bearing shell relative to the transmission casing.

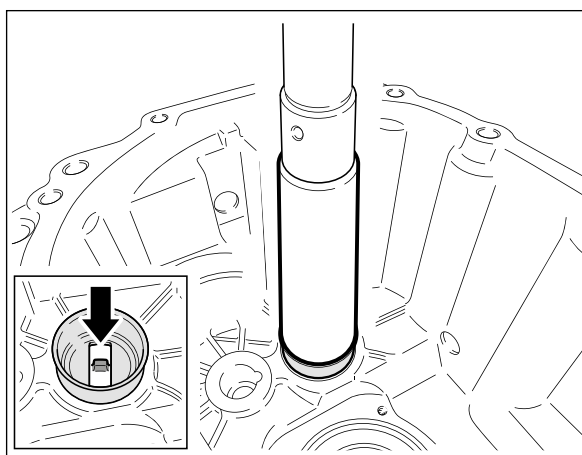


Fig. 71

- Fit the screws
- Tightening torque: 10 Nm
- Insert the new bearing (6) into the layshaft

Note:

Note the installation position of the bearing.

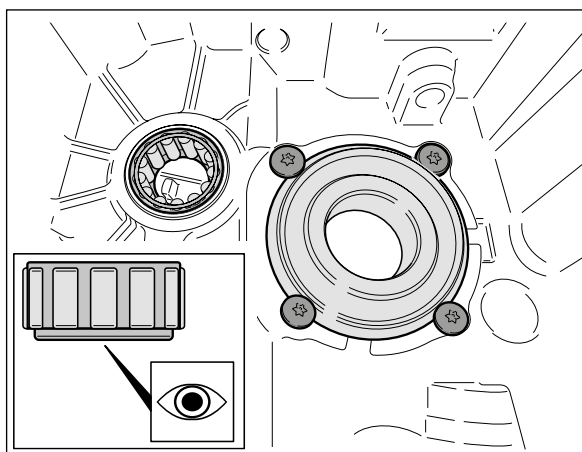


Fig. 72

- Fit the reverse idler gear shaft together with the needle bearing, the reverse idler gear and the bearing block

Note:

Position the idler gear shaft and bearing block in line with the markings. Note the installation position of the idler gear.

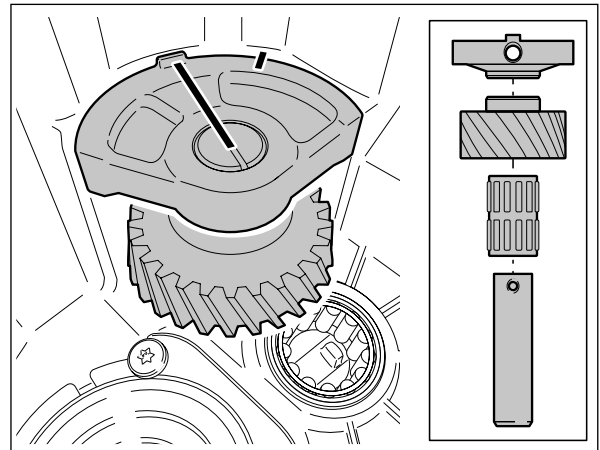


Fig. 73

- Align the bearing block and idler gear shaft
 - Fit the screw
- Tightening torque: 27 Nm

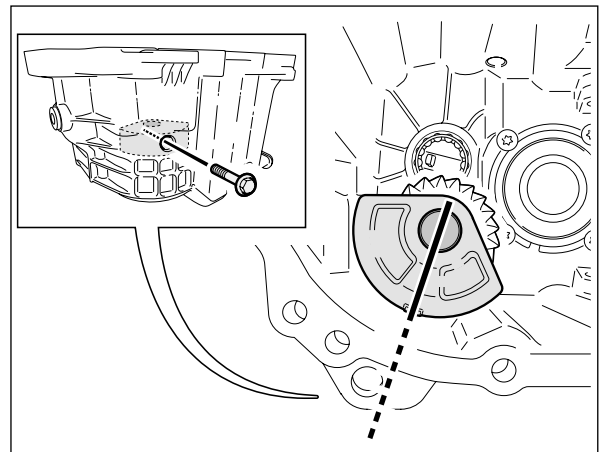


Fig. 74

- Position the new guide bearing (7) of the output shaft in the drive shaft

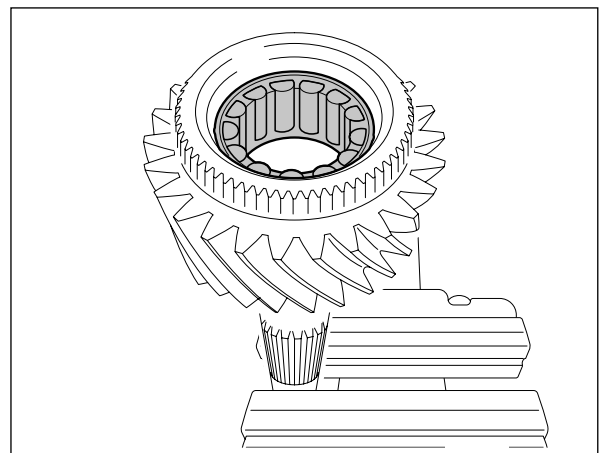


Fig. 75

- Fit the switching teeth [1] and synchro ring [2]

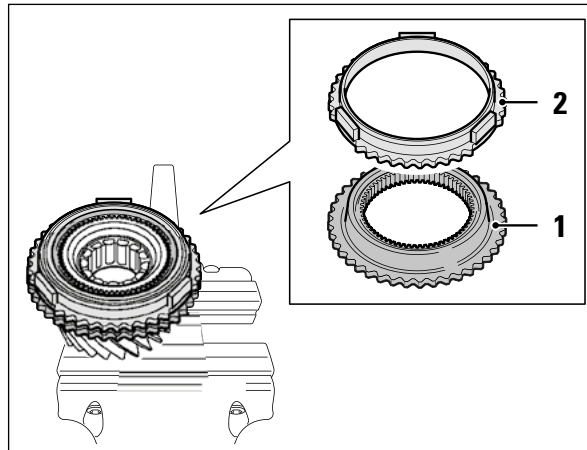


Fig. 76

- Fit the drive shaft and output shaft together

Note:

Ensure that the synchro ring is correctly seated in the synchro hub for 5th/6th gear.

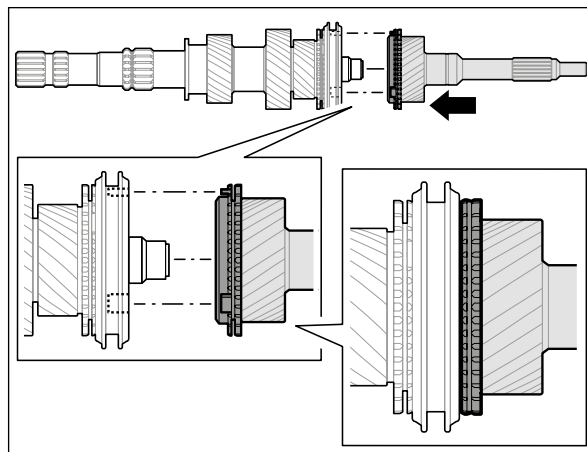


Fig. 77

- Position the drive shaft and output shaft together with the layshaft
- Fix the transmission shafts in place using cable ties

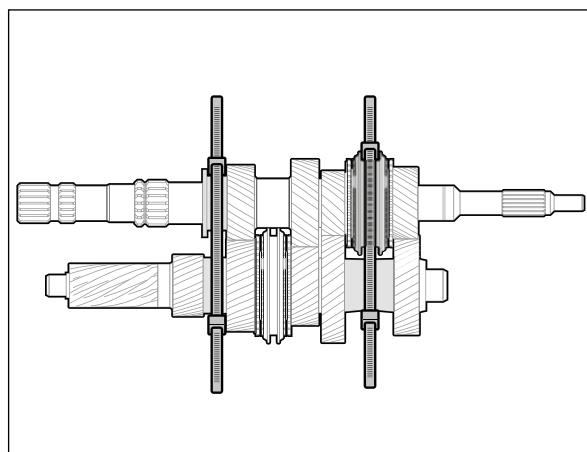


Fig. 78

- Heat both heating plates (J) and (K) to 180°C
- Heat both inner bearing rings in the transmission casing using a hot air blower
- Lay both heating plates (J) and (K) on the corresponding bearings in the transmission casing for 2 minutes until the inner rings reach a temperature of 150°C

Caution:
This may cause burns!

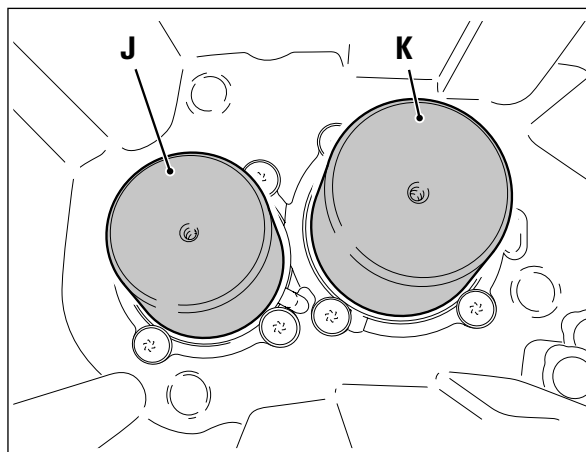


Fig. 79

- Remove both heating plates (J) and (K)
- Fit the gear sets
- Turn the output shaft and layshaft and check that the gears are aligned
- Remove both cable ties

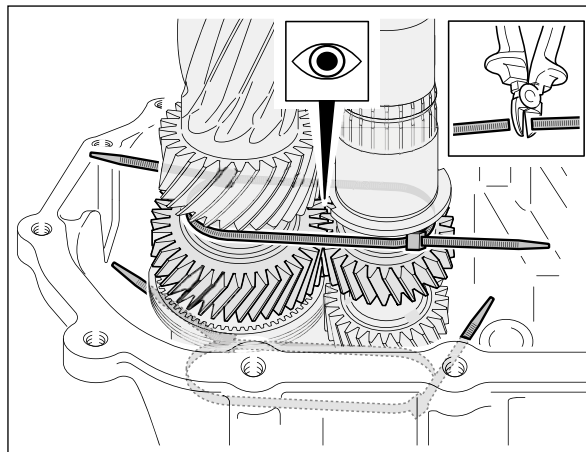


Fig. 80

- Renew all sliders (13) on the selector levers

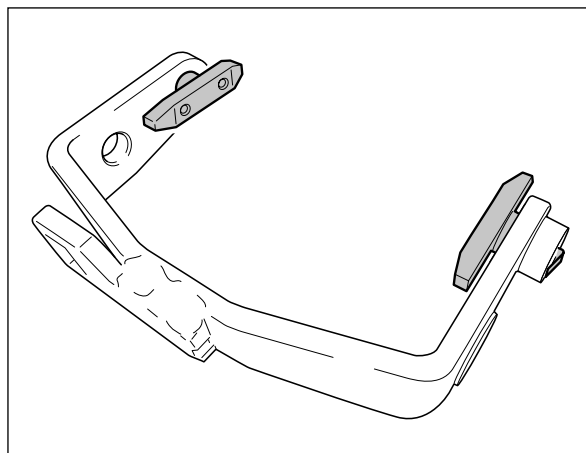


Fig. 81

- Insert the selector lever for 5th/6th gear [1] and fit the selector rod [2]
 - Fit screws [3 and 4]
- Tightening torque: 37 Nm

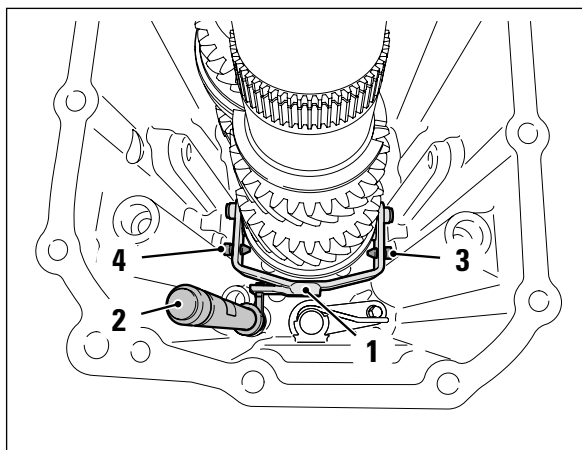


Fig. 82

- Secure the main shift rod bearing using high temperature grease
Ford Spezifikation: ESD-M1C220-A
- Insert the main shift rod [1]

Note:

If necessary replace both covers [2] (15).

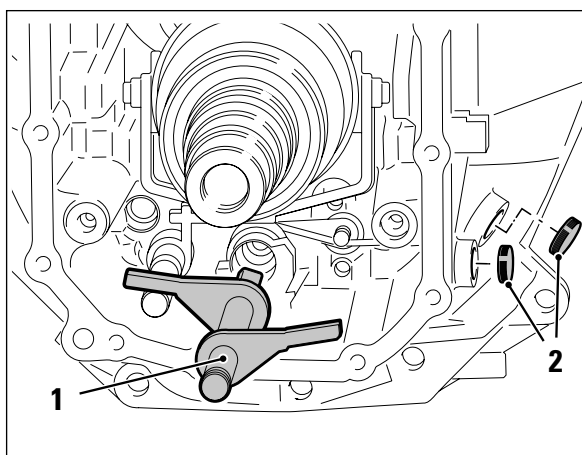


Fig. 83

- Insert the selector lever for 3rd/4th gear [1] and fit the selector rod [2]
 - Fit screws [3 and 4]
- Tightening torque: 37 Nm

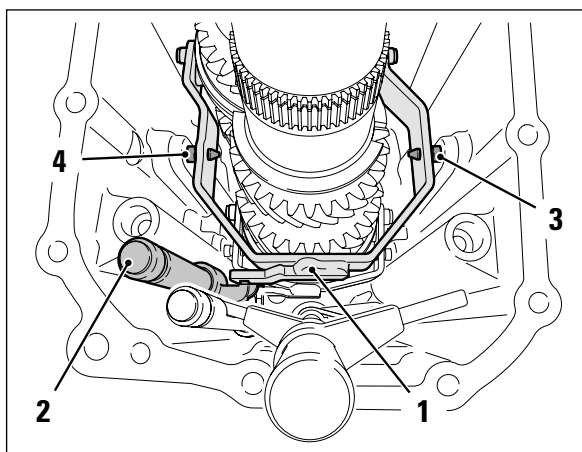


Fig. 84

- Fit the new cylindrical roller bearings (4 and 5) on the output shaft and layshaft

Note:

Open and close the cylindrical roller bearing by twisting the fastener.

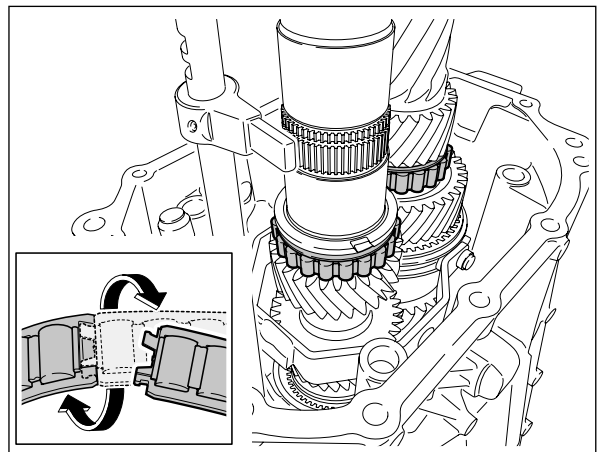


Fig. 85

- Mount the intermediate plate
Tightening torque: 24 Nm

Note:

Check whether the drive shaft and output shaft can be rotated against each other. If not, an error has occurred.

Read the non-verbal installation note 999 6008 770 (LuK GearBOX package insert).

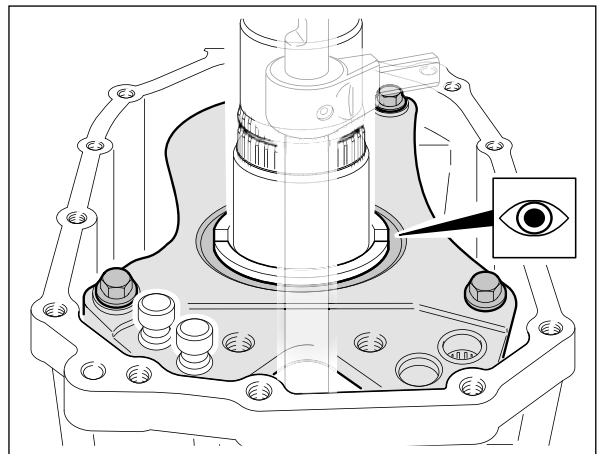


Fig. 86

- Insert the two washers
- Fit the locking plate
Tightening torque: 24 Nm

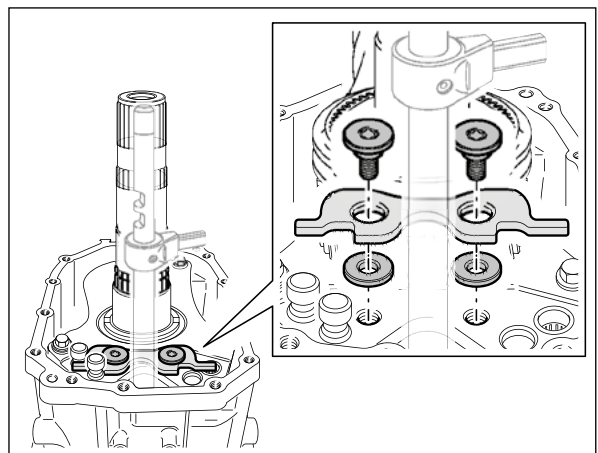


Fig. 87

- Fit the needle roller bearing [1], output gear for 2nd gear [2], synchro cone [3], inner synchro ring [4] and outer synchro ring [5]

Note:

Ensure the synchro rings are correctly positioned.

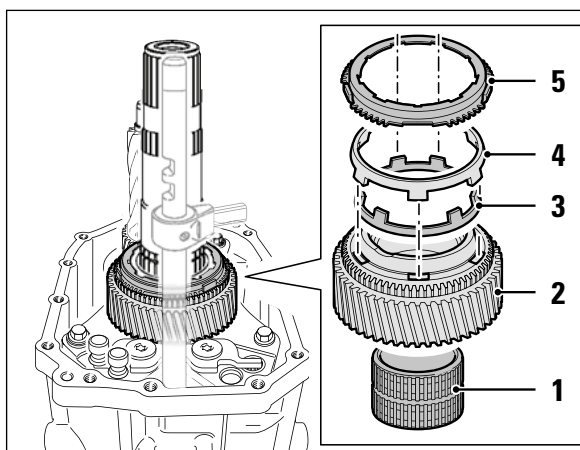


Fig. 88

- Fit the synchro unit for 1st/2nd gear using pressure sleeve (L)

Note:

Ensure that the outer synchro ring is correctly positioned and note the marks made during removal.

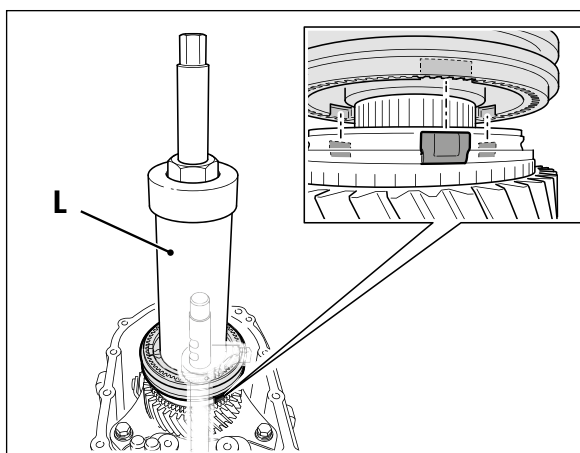


Fig. 89

- Fit the snap ring and needle bearing

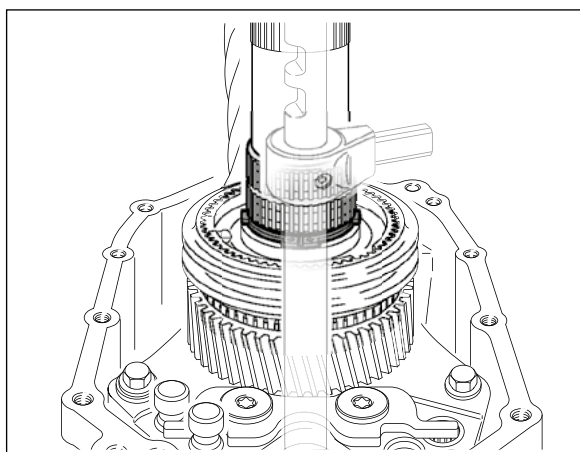


Fig. 90

- Fit the outer synchro ring [1] and inner synchro ring [2]

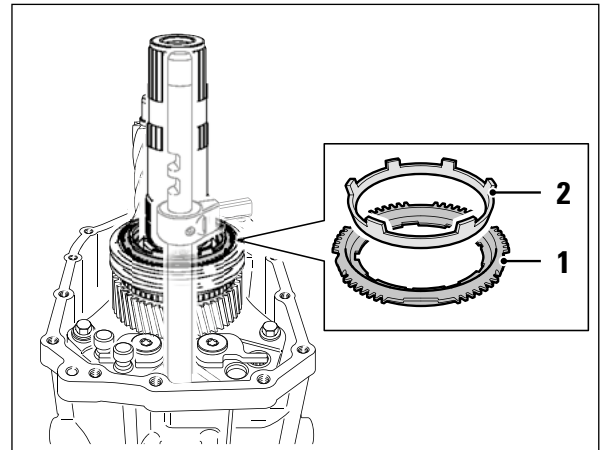


Fig. 91

- Fit synchro cone [1] and output gear for 1st gear [2]

Note:

Ensure that the locking teeth are correctly positioned relative to the output gear.

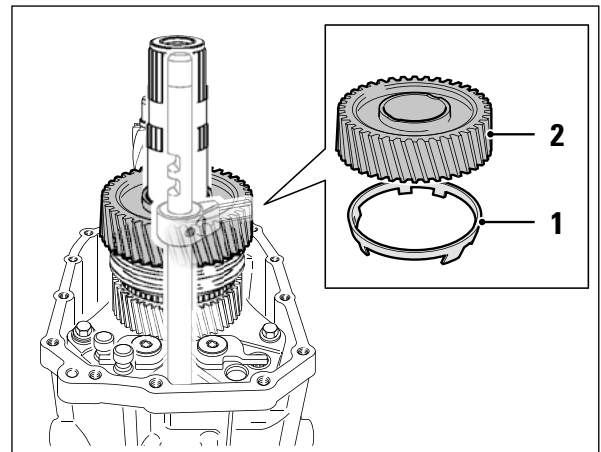


Fig. 92

- Heat the bushing for the needle bearing to 100°C
- Press on the bushing along with pressure sleeve (L)

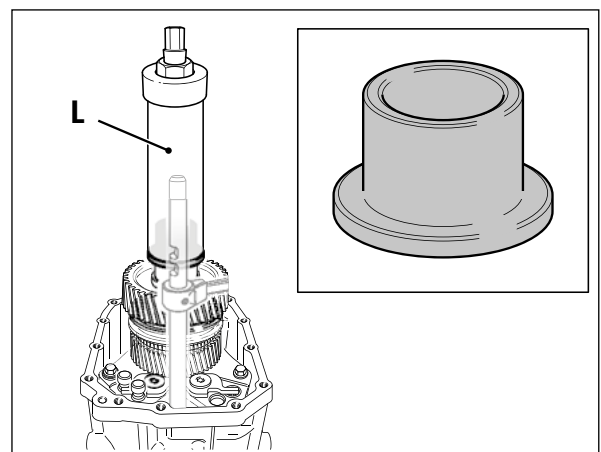


Fig. 93

- Fit the needle roller bearings [1], reverse output gear [2] and synchro ring [3]

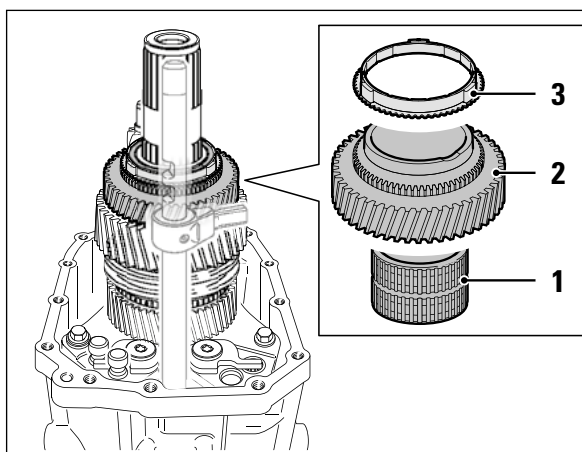


Fig. 94

- Fit the synchro for reverse gear using pressure sleeve (L)

Note:

Ensure that the synchro ring is correctly positioned and note the marks made during removal.

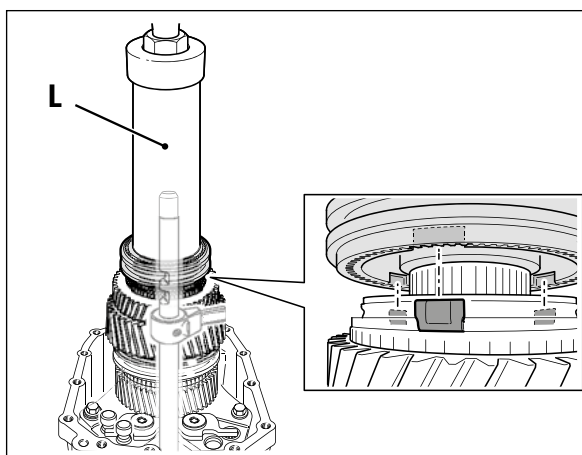


Fig. 95

- Fit the selector lever for 1st/2nd gear and install the selector rod [1]
- Drive in the roll pin [2]

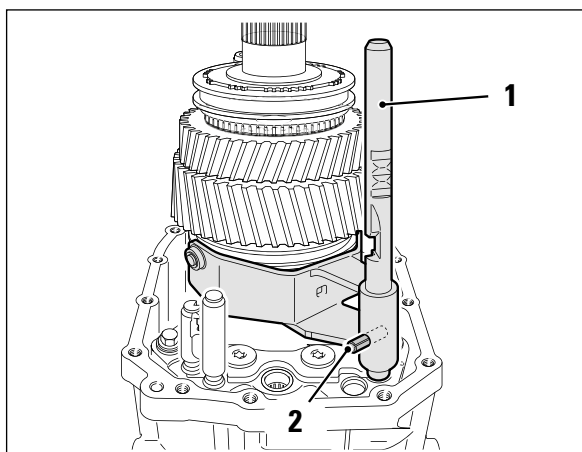


Fig. 96

- Move the selector lever into the neutral position
- Fit the reverse gear selector lever [1] and the selector rod [2]

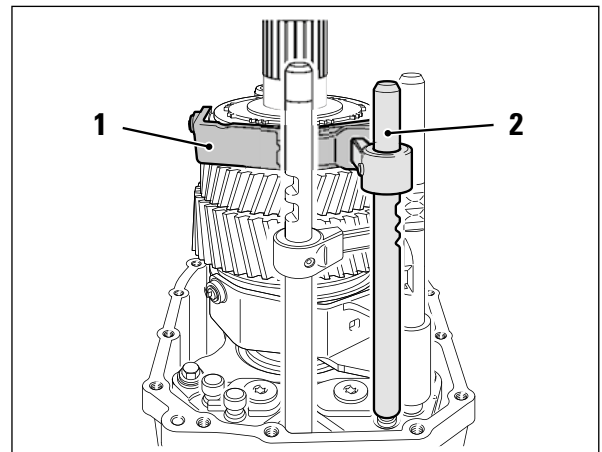


Fig. 97

- Engage 4th gear
- Press down the shift rods [1] and [2]

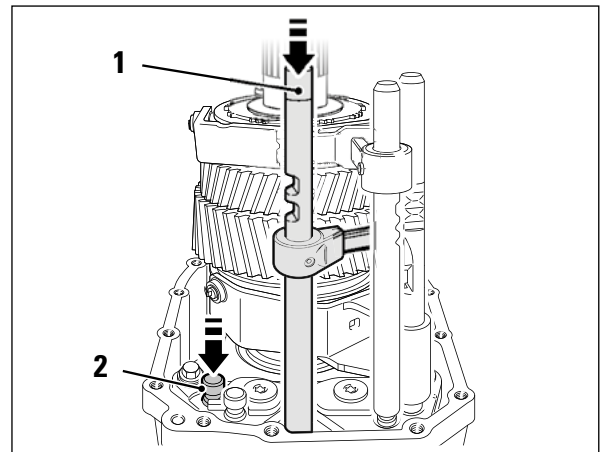


Fig. 98

- Insert the magnet

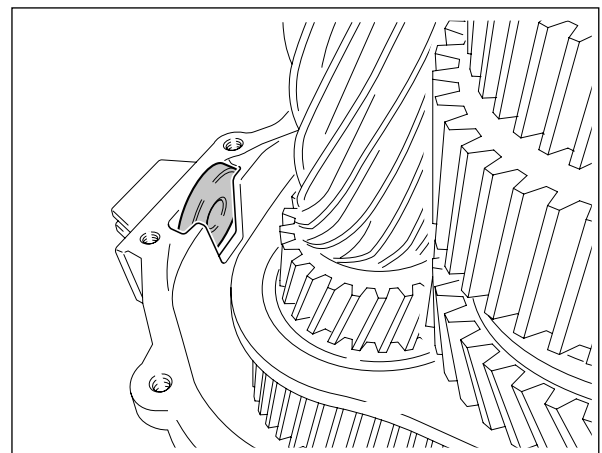


Fig. 99

- Heat heating plate (J) to 150°C
- Heat the bearing inner ring using a hot air blower
- Lay heating plate (J) on the bearing for 3 minutes until the inner ring has reached a temperature of 120°C

Caution:

This may cause burns!

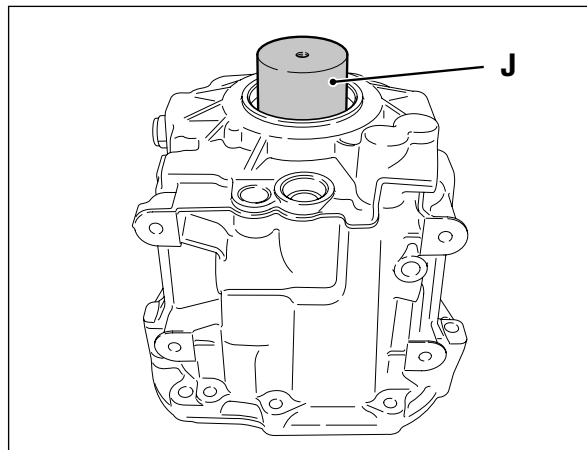


Fig. 100

- Apply sealing compound to the transmission casing evenly, as shown in the diagram

Ford specification: WSK-M2G348-A5

Alternative: e.g. Loctite Gasket Maker 518

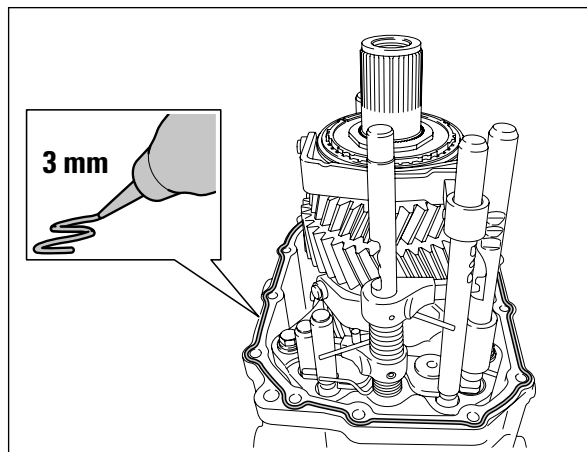


Fig. 101

- Remove heating plate (J)
- Fit the transmission casing cover
- First, tighten the bolts by hand

Note:

Two threaded rods should be used to guide the gearbox cover when assembling.

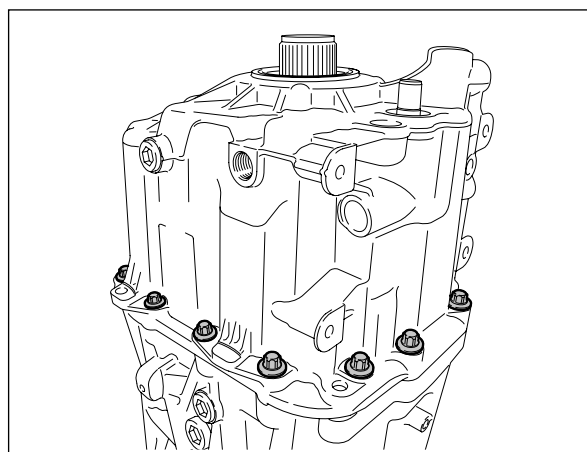


Fig. 102

- Fit the new selector rod detents (12)

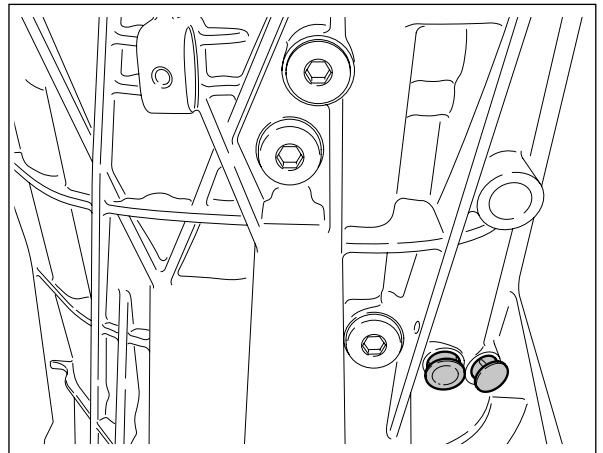


Fig. 103

- Drive in both guide pins
- Tighten screws crosswise
- Tightening torque: 24 Nm

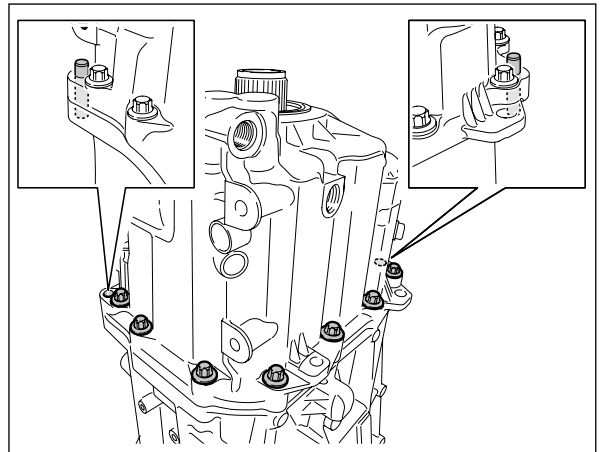


Fig. 104

- Fit the new output shaft seal (8) and new selector shaft seal (10)

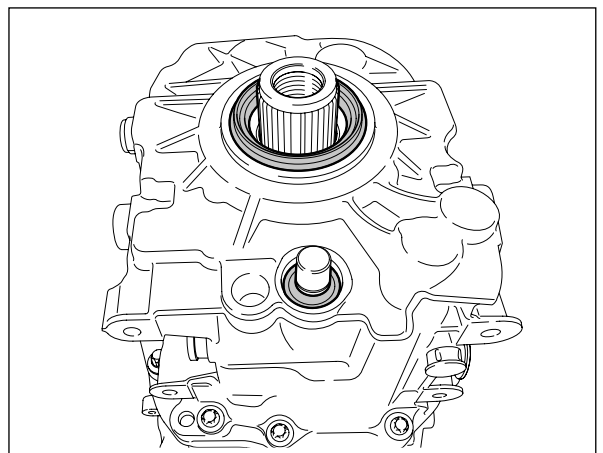


Fig. 105

- Fit the new selector rod detents (12)
- Tighten the screw on the selector lever for reverse gear
Tightening torque: 37 Nm

Note:

If necessary, use a slotted screwdriver to align the selector levers.

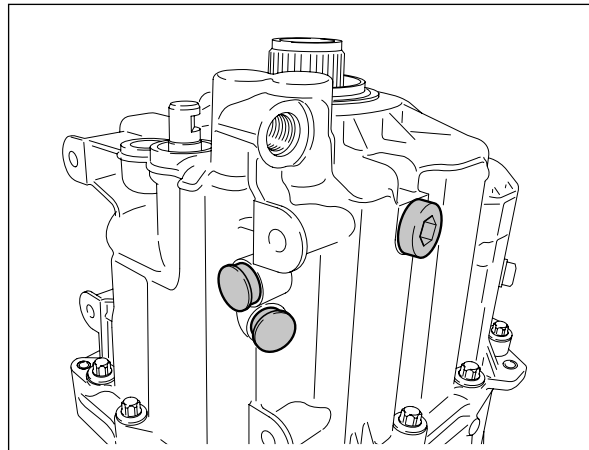


Fig. 106

- Move the selector levers into the neutral position
- Fit the new detents (11) on the main shift rod
- Tighten the screw on the selector lever for reverse gear
Tightening torque: 37 Nm

Note:

If necessary, use a slotted screwdriver to align the selector levers.

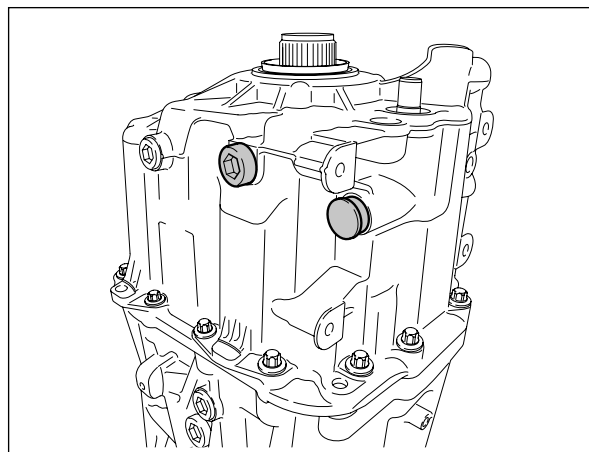


Fig. 107

- Heat the output shaft flange to 100°C
- Position the output shaft flange on the output shaft
- Attach a suitable counter support to the output shaft flange
- Fit the screw
Tightening torque: 210 Nm,
Loosen the screw
Tighten the screw
Tightening torque: 180 Nm

Caution:

This may cause burns!

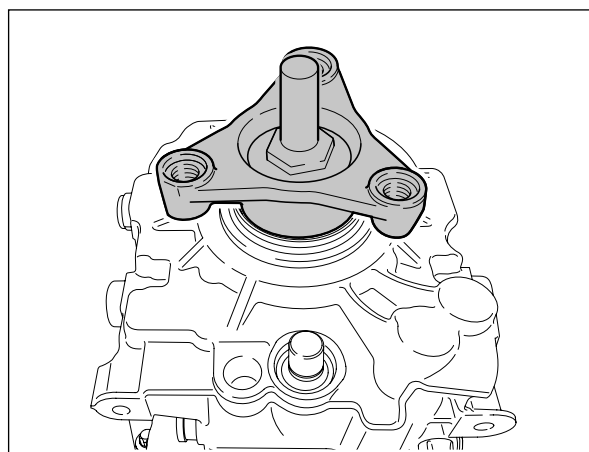


Fig. 108

- Move the selector levers into the neutral position
 - Attach the shift fork to the main selector rod and fit the locking bolt [1]
 - Fit the shift fork [2] and initially tighten the screws by hand
 - Fit the nut [3]
- Tightening torque: 12 Nm

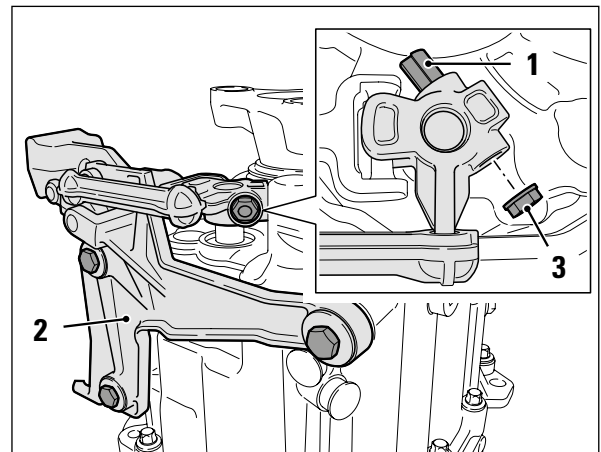


Fig. 109

- Align the shift fork holder with the gear linkage weight
X = 154 mm

Note:
The selector levers must be in a neutral position.

- Tighten the screws
- Tightening torque: 25 Nm

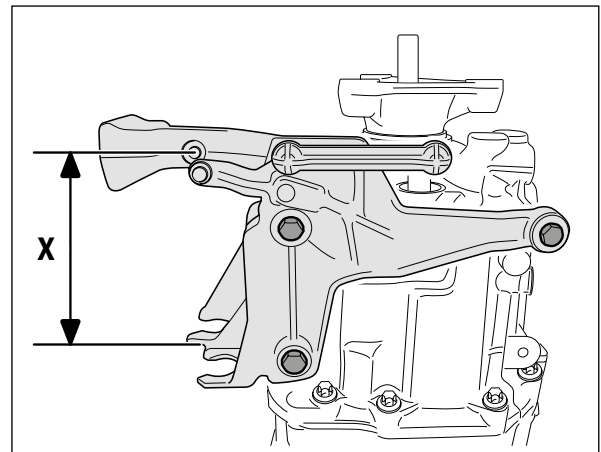


Fig. 110

- Engage 4th gear
 - Hold the counter support on the output flange in place and fit the screw
- Tightening torque: 95 Nm
- Fit the snap ring
 - Turn the transmission shafts and shift the transmission

Note:
Pay attention to the installation position of the snap ring.

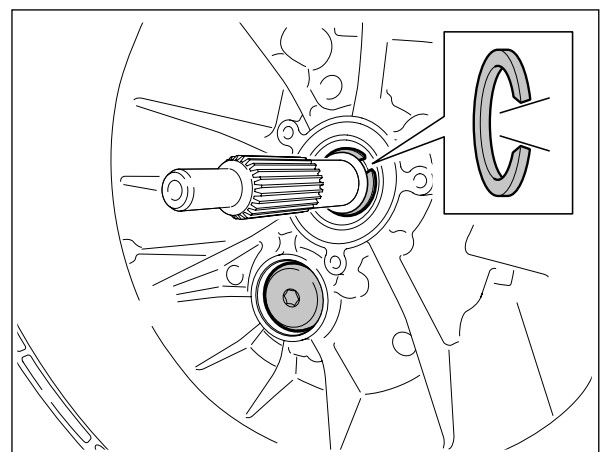


Fig. 111

- Fit the new drive shaft seal (9)
- Install the new cover (14) on the layshaft screw

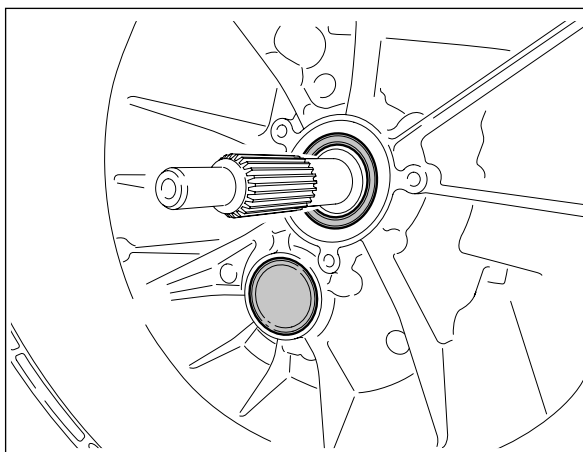


Fig. 112

- Fit the concentric slave cylinder
Tightening torque: 11 Nm

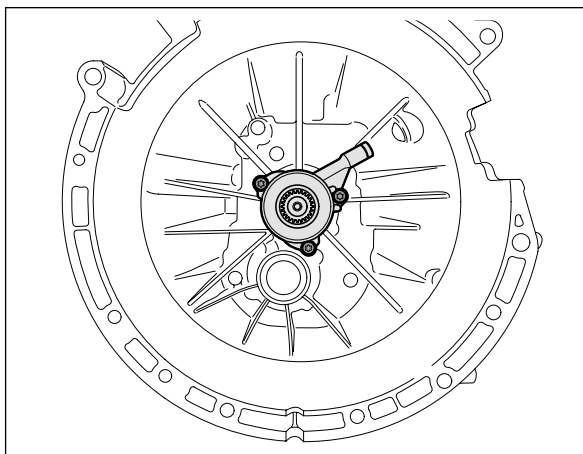


Fig. 113

- Engage the locking clip [1] in the concentric slave cylinder
- Fit the concentric slave cylinder connecting piece [2]

Note:

The concentric slave cylinder connecting piece must audibly click into place.

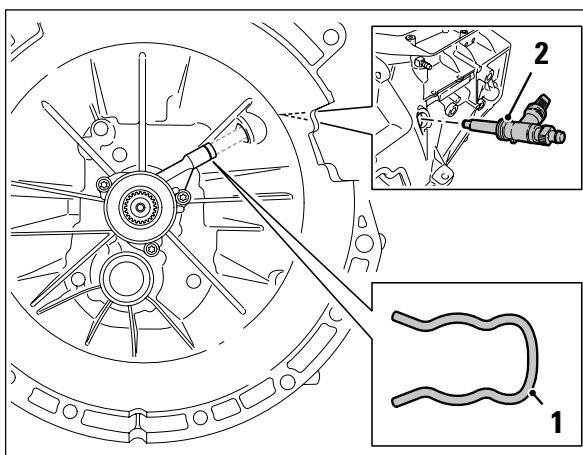


Fig. 114

- Fit the reversing light switch
Tightening torque: 20 Nm

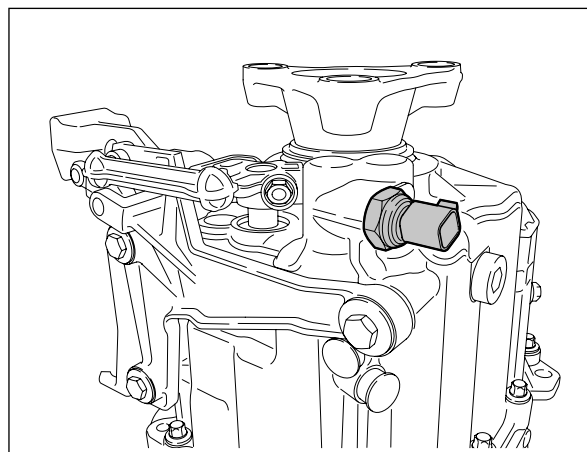


Fig. 115

- Install transmission according to vehicle manufacturer's instructions
- Fill the transmission in accordance with the vehicle manufacturer's instructions



Fig. 116

