## Drive Shaft, Disassemble and Reassemble

- 1. Illustration of drive shaft
  - 1. Drive shaft
  - 2. Needle roller bearing
  - 3. 5th gear (driving)
  - 4. Radial needle roller bearing
  - 5. 3rd gear (driving)
  - 6. Radial needle roller bearing
  - 7. Thrust washer
  - 8. 3rd gear synchroniser ring
  - 9. Sliding block
  - 10. Ball
  - 11. Spring
  - 12. 3rd/4th gear synchromesh body
  - 13. Shift sleeve
  - 14. 4th gear synchroniser ring
  - 15. Bushing/needle roller bearing assembly
  - 16. 4th gear (driving)
  - 17. Radial needle roller bearing
  - 18. Thrust washer

**Important:** If gears are damaged, always replace entire drive shaft assembly. Obtain appropriate synchroniser assembly repair kits from Aftersales

- 2. Remove drive shaft from transmission see operation "Drive Shaft, Remove and Install"
- Remove thrust washer (6) and radial needle bearing (5)
- Remove 4th gear (4), needle bearing (3), and 4th gear synchroniser ring (2) from drive shaft (1)





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**Important:** Ball (2), slider (3) are under spring tension. When removing shift sleeve (1), ensure that ball, slider, and spring (4) are not lost

5. Remove shift sleeve (1) from synchromesh body



- 6. Check all parts for damage, replace damaged parts as necessary
- 7. Press bushing (1) and 3rd/4th gear synchromesh body assembly (2), 3rd gear synchroniser ring (3), thrust washer (4), radial needle bearing (5), and 3rd gear (6) from drive shaft usingKM-6220 (7) and KM-6222 (8)



- 8. Check all parts for damage; replace damaged parts as necessary
- **9.** Carefully spread needle roller bearings (2, 3), then remove from drive shaft (4) in lateral direction
- **10.** Remove radial needle bearing (1) from drive shaft



- 11. Check all parts for damage; replace damaged parts as necessary
- 12. Install radial needle bearing (1) to drive shaft (4)
- 13. Carefully spread needle roller bearings (2, 3), then install onto drive shaft in lateral direction

**Important:** Before installation of 3rd gear synchroniser ring, molybdenum layer on reverse side must be removed (shaded area)

14. Sand down molybdenum layer on reverse side of 3rd gear synchroniser ring (2) using fine grained sandpaper (1) on smooth surface





- **15.** Install 3rd gear (4) to main shaft (3)
  - Ensure that needle roller bearings (1, 2) are not damaged
- **16.** Install radial needle bearing (5) to 3rd gear
  - Check for proper

## seating

- 17. Install thrust washer(6) to 3rd gear
  - Check for proper seating
- Install 3rd gear synchroniser ring (7) to 3rd gear Note: More recent transmissions as well as repair kits for 3rd/4th gear synchroniser ring contain wave springs (arrowed)



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- Install 3rd/4th gear synchromesh body for 1st/2nd (3) to drive shaft
- 20. Press bushing (2) onto drive shaft using KM-6219 (1)
  - · Ensure that fluid bores (5) coincide and guide (arrow I) of 3rd/4th gear synchroniser ring (4) is located over cavity (arrow II) of 3rd/4th gear synchromesh body Note: More recent transmissions as well as repair kits for 3rd/4th gear synchroniser ring contain wave springs (arrow)







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21. Assemble

## synchromesh

- (I) Identify parts
  - 1. 3rd/4th gear synchromesh body
  - 2. Shift sleeve
  - 3. Sliding block
  - 4. Ball
  - 5. Spring
- (II) Clamp drive shaft in vice - use protective jaws.
  Slide shift sleeve all the way back on synchromesh body. Install slider and spring in synchromesh body
- (III) Push slider slightly upwards. Press ball against spring in slider using screwdriver (6). Slide slider back downward into synchromesh body

**Important:** Before installation of 4th gear synchroniser ring, the molybdenum layer on the reverse side must be removed (shaded area)

22. Sand down molybdenum layer on reverse side of 4th gear synchroniser ring (2) using fine grained sandpaper (1) on smooth surface



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- 23. Attach 4th gear synchroniser ring (1) and needle roller bearing (2) to synchromesh body Note: Observe installed position
- 24. Install 4th gear (4) with radial needle bearing (3), radial roller bearing (5) and thrust washer (6) to drive shaft
  - Ensure that needle roller

bearings and radial needle bearings are not damaged **Note:** More recent transmissions as well as repair kits for 3rd/4th gear synchroniser ring contain wave springs (arrow)



25. Install drive shaft to transmission - see operation "Drive Shaft, Remove and Install"