

Description and Operation

System Operation

General operation

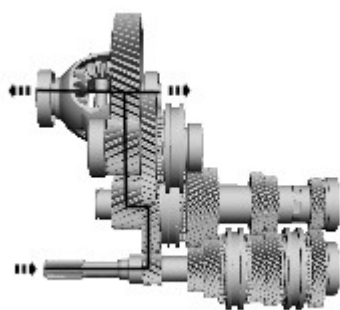
The engine torque is transferred from the input shaft to the output shaft in the transaxle. The front wheels are driven from there via the differential and the front wheel halfshafts.

When a gear is engaged, the corresponding synchronizer assembly creates a frictional connection between the gear wheel and the output or input shaft.

NOTE: In the descriptions below, the shafts are shown outside their actual position for greater clarity.

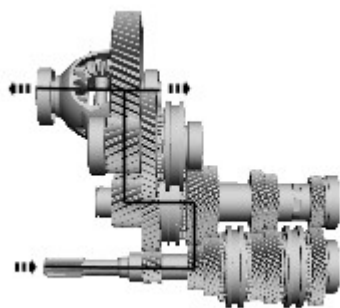
Schematic diagram of the torque path in all gears

First gear



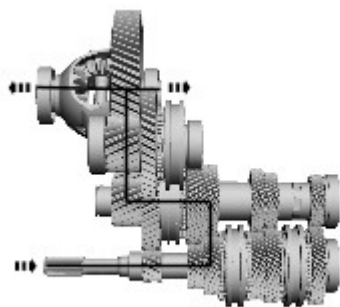
821 400 12

Second



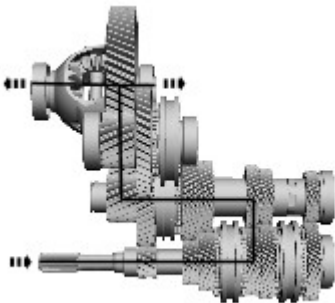
821 400 18

Third



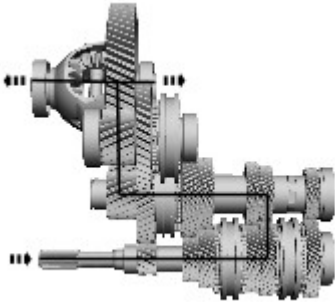
821 400 18

Fourth



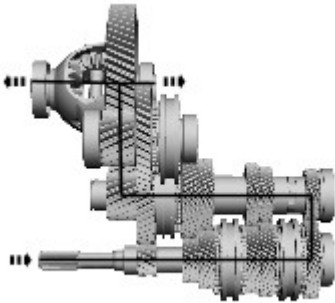
01-008.20

Fifth gear



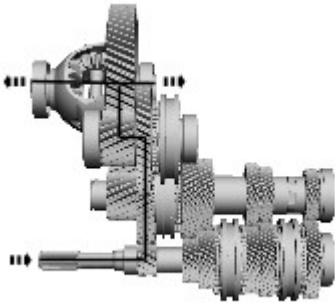
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6th



01-008.22

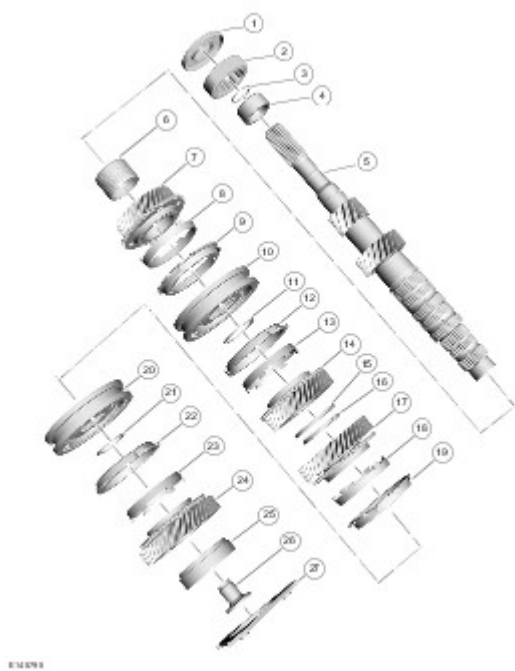
Reverse



01-008.23

Input shaft

Component Description



Item	Description
1	Seal
2	Roller bearing outer ring
3	Snap ring
4	Roller bearing inner ring
5	Input shaft
6	Needle bearing
7	Gear wheel (3rd gear)
8	Inner synchronizer ring - 3rd gear
9	Outer synchronizer ring - 3rd gear
10	3rd and 4th gear shift sleeve
11	Snap ring
12	Outer synchronizer ring - 4th gear
13	Inner synchronizer ring - 4th gear
14	Gear wheel - 4th gear
15	Retaining ring
16	Circlip
17	Gear wheel - 5th gear
18	5th gear inner synchronizer ring
19	5th gear outer synchronizer ring
20	5th and 6th gear shift sleeve
21	Snap ring
22	6th gear outer synchronizer ring
23	6th gear inner synchronizer ring
24	6th gear wheel
25	Ball bearing
26	Retaining screw
27	Bearing housing

On the **input shaft** are located

- the 3rd/4th gear and 5th/6th gear synchronizers
- the 1st and 2nd gear gears and
- the gearwheels, 3rd/4th/5th/6th gear.

The 1st and 2nd gears are an integral part of the input shaft.

The 1st gear wheel also serves as an idler gear for reverse gear.

The input shaft is connected to the ball bearing with a retaining bolt (**right-hand thread**). This compensates the

axial forces.

The **bearings of the input shaft** are:

- one ball bearing (transmission side) and
- one roller bearing (clutch side).

Oil pipe



The oil pipe has the task of collecting the fluid and forwarding it to the input shaft bearing for lubrication.

Service instructions

- Clean and check all parts carefully before reassembly.
- The synchronizer rings and the needle roller bearings must be coated with transmission fluid when assembling the output shaft.
- The retaining bolt must not be reused after it is removed.
- Synchronizer clutches:
 - Note the position of the components before removal.
 - Make sure that no component falls off during removal.
 - Note the correct installation height of the synchronizer lock in the synchronizer unit.
- The exact instructions can be found in the current workshop literature.

Output shaft



Item	Description
1	Oil thrower
2	Roller bearing
3	Output shaft
4	Thrust plate
5	Needle bearing
6	Gear wheel - 1st gear
7	Synchroniser cone - 1st gear
8	1st gear inner synchronizer ring
9	Outer synchroniser ring - 1st gear
10	1st and 2nd gear shift sleeve
11	Snap ring
12	Outer synchroniser ring - 2nd gear
13	Inner synchronizer ring - 2nd gear
14	Synchroniser cone - 2nd gear

- 15 Gear wheel - 2nd gear
- 16 Gear wheel - 3rd gear
- 17 Gear wheel - 4th gear
- 18 Gear wheel - 5th gear
- 19 Toothed wheel - 6th gear
- 20 Ball bearing
- 21 Retaining screw
- 22 Bearing housing

The following are located on the **output shaft**:

- the 1st/2nd gear synchronizer,
- the 1st and 2nd gear gearwheels and
- the gears, 3rd/4th/5th/6th gear.

The gears, 3rd/4th/5th/6th gear are pressed on the output shaft.

The 1st and 2nd gear gearwheels sit loose on the output shaft. The 1st gear gearwheel is mounted on a needle roller bearing on the output shaft.

The output shaft is connected to the ball bearing with a retaining bolt (**left-hand thread**). This compensates the axial forces.

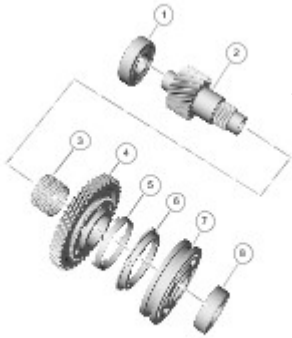
The **mounting of the output shaft** consists of:

- one ball bearing (transmission side) and
- one roller bearing (clutch side).

Service instructions

- Clean and check all parts carefully before reassembly.
- The synchronizer rings and the needle roller bearings must be coated with transmission fluid when assembling the output shaft.
- The retaining bolt must not be reused after it is removed.
- Synchronizer clutches:
 - Note the position of the components before removal.
 - Make sure that no component falls off during removal.
 - Note the correct installation height of the synchronizer lock in the synchronizer unit.
- The exact instructions can be found in the current workshop literature.

Output shaft (reverse gear)



Item Description

- | Item | Description |
|------|--------------------------------------|
| 1 | Ball bearing |
| 2 | Reverse gear output shaft |
| 3 | Needle bearing |
| 4 | Gear wheel - reverse gear |
| 5 | Reverse gear inner synchronizer ring |
| 6 | Reverse gear outer synchronizer ring |
| 7 | Reverse gear shift sleeve |
| 8 | Ball bearing |

The following are situated on the **output shaft (reverse gear)**:

- The reverse gear synchronizer clutch
- The reverse gear wheel

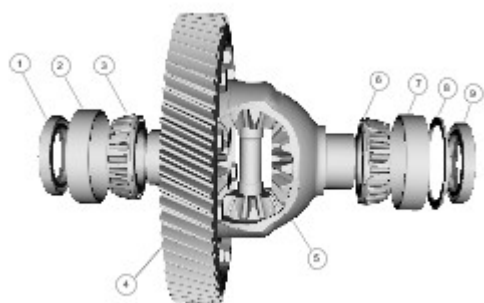
The reverse gear wheel sits loosely on a needle roller bearing on the output shaft.

The **bearings of the output shaft (reverse gear)** are each a ball bearing.

Service instructions

- Clean and check all parts carefully before reassembly.
- The synchronizer rings and the needle roller bearings must be coated with transmission fluid when assembling the output shaft.
- Synchronizer clutches:
 - Note the position of the components before removal.
 - Make sure that no component falls off during removal.
 - Note the correct installation height of the synchronizer lock in the synchronizer unit.
- The exact instructions can be found in the current workshop literature.

Differential



911-007-000

Item Description

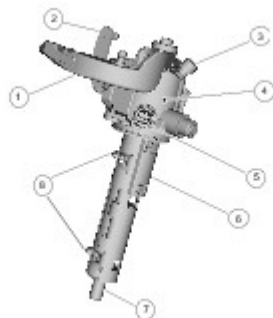
- | Item | Description |
|------|-------------------------------------|
| 1 | Seal |
| 2 | Bearing shell, taper roller bearing |
| 3 | Taper roller bearing |
| 4 | Differential ring gear |
| 5 | Differential |
| 6 | Taper roller bearing |
| 7 | Bearing shell, taper roller bearing |
| 8 | Shim |
| 9 | Seal |

The **bearings of the differential** are each a taper roller bearing.

Service instructions

- The differential bearings require a pre-load.
- For more information on calculating the preload, see the most recent workshop literature.

Internal gearshift mechanism



911-007-000

Item	Description
1	Shift arm with damping mass
2	Transmission range selector
3	Transmission vent
4	Selector gate
5	Reversing lamp switch
6	Magnet (if fitted)

Comments:

On vehicles with auto start-stop system there is a sensor on the transaxle, which detects the neutral position via a magnet positioned on the gearshift linkage.

7	Main selector shaft
8	Selector finger

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