

TRANSMISSION

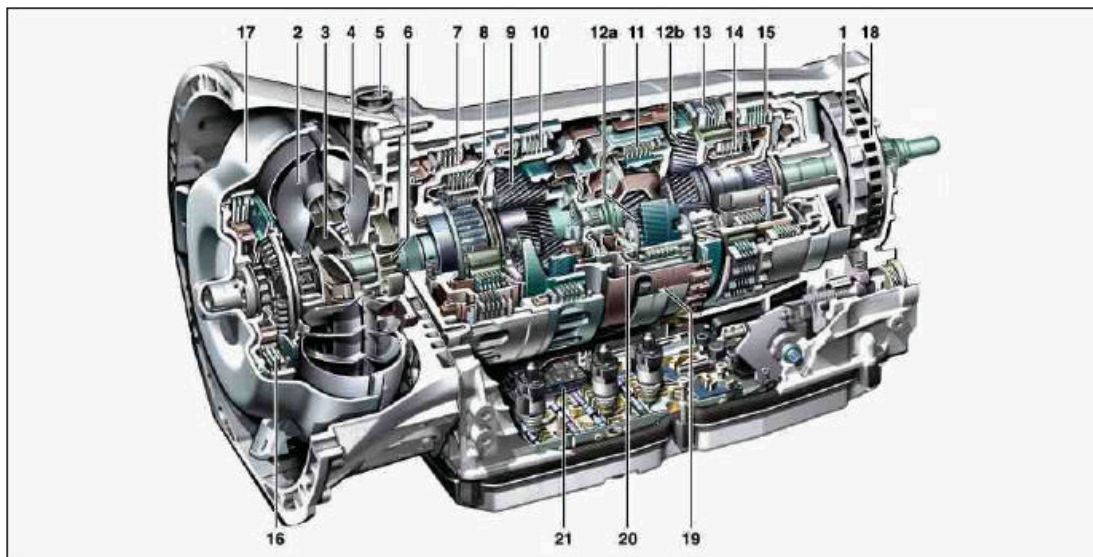
Automatic Transmission - Basic Knowledge - 164 Chassis

BASIC KNOWLEDGE (-2008)

AUTOMATIC TRANSMISSION (AT), FUNCTION - GF27.10-P-0001GZ

TRANSMISSION 722.9 in MODEL 164.1

TRANSMISSION 722.9 in MODEL 164.8

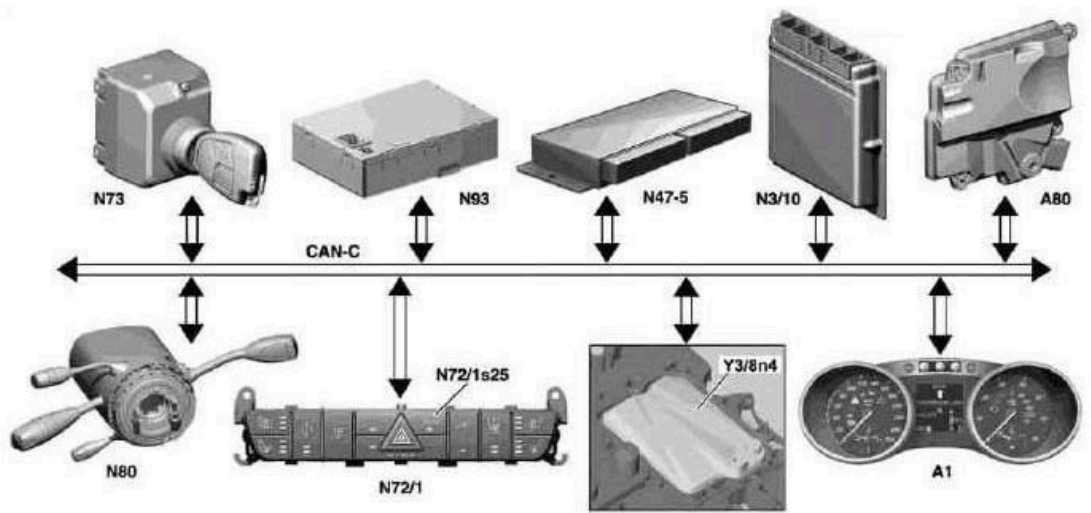


P27.10-2202-79

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|----------------------------------|--|---|
| 1 Parking lock gear | 9 Ravigneaux gear set | 16 Torque converter lockup clutch |
| 2 Turbine wheel | 10 Multidisk brake B3 | 17 Torque converter housing |
| 3 Stator | 11 Multidisk clutch K2 | 18 Pulse ring for measuring rotational speed |
| 4 Impeller | 12a Front single planetary gear system | 19 Ring magnet for measuring rotational speed |
| 5 Transmission housing breathing | 12b Rear single planetary gear system | 20 Ring magnet for measuring rotational speed |
| 6 Oil pump | 13 Multi-disk brake BR | 21 Electrohydraulic controller unit |
| 7 Multidisk brake B1 | 14 Multidisk clutch K3 | |
| 8 Multidisk clutch K1 | 15 Multidisk brake B2 | |

Fig. 1: Identifying Automatic Transmission (AT) Components
 Courtesy of MERCEDES-BENZ OF NORTH AMERICA.

Networking of components, shown: model 164.175 with engine 113, except code (430) Offroad package



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A1	Instrument cluster	N47-5	ESP control unit	N80	Steering column module
A80	Intelligent servo module for DIRECT SELECT	N72/1	Upper control panel control unit	N93	Central gateway control unit
N3/10	ME control unit	N72/1s25	Offroad program switch unit	Y3/8n4	Fully integrated transmission control (VGS) control unit
		N73	EIS [EZS] control unit		

Fig. 2: Identifying Automatic Transmission (AT) Networking Of Components - Shown Model 164.175 With Engine 113

Courtesy of MERCEDES-BENZ OF NORTH AMERICA.

Transmission 722.9 is an electronically controlled automatic transmission with 7 forward gears and 2 reverse gears. All the transmission functions and transmission components for this automatic transmission are combined in one assembly module. Integrating the electrohydraulic controller unit in transmission 722.9 minimizes the number of interfaces to the wiring harness. The electrohydraulic controller unit is installed below the transmission housing; the transmission oil is continuously flushed around the outside of the controller unit, which amongst other things, ensures the controller unit is cooled.

Transmission 722.9 can be roughly divided into the following component groups:

- Torque converter with torsional damper and torque converter lockup clutch.
- Oil pump to produce the necessary oil pressure and for reliable lubrication of the actuators and bearing points.
- Transmission housing with transmission mechanism and the electrohydraulic controller unit. The transmission housing is made of a light alloy.
- The mechanical transmission components, consisting of a Ravigneaux gear set, front single planetary gear set, rear single planetary gear set and a park pawl. Additionally, a multi-disk clutch K1, multi-disk clutch K2, multi-disk clutch K3, multi-disk brake B1, multi-disk brake B2, multi-disk brake B3 and the BR multi-disk brake are also integrated. Single-sided disks are used on multidisk clutch K1, on multidisk clutch K2 and on multidisk clutch K3 Single-sided disks are also used on multidisk brake B1 and on multidisk brake B3 On this type the friction lining is only applied on one side. Among other things, this

improves heat distribution in the disk pack, the design of the disk pack is more compact, the load bearing capacity is increased and the mass is reduced. For the multi-disk brake B2 and BR multi-disk brake disks coated on both sides are also used.

- Electrohydraulic controller unit consisting of the electric controller unit VGS (Y3/8), valve body and valve housing.

The following information are taken into account when shifting the drive positions:

- Vehicle speed
- Vehicle load
- Driving resistance
- Position and operating speed of accelerator pedal
- Selected drive position and engaged gear
- Selected transmission mode
- Oil temperature and other information about the status of the transmission
- Further signals which are available via the Controller Area Network bus class C (engine compartment) (CAN-C)

Data is exchanged with the following control units via CAN-C:

- Instrument cluster
- Intelligent servo module for DIRECT SELECT
- CDI control unit (N3/9)
- ME control unit
- ESP control unit
- Upper control panel control unit
- EIS [EZS] control unit
- Steering column module
- Central gateway control unit

This involves the processing of the following data from other systems:

Intelligent servo module for DIRECT SELECT

- Actual position of selection range lever

CDI control unit (with engine 629, with engine 642)

- Start-off in 1st gear, aids engine warm-up
- Shift line displacement, aids engine warm-up
- Shift line displacement, dependent on load condition of diesel particulate filter (DPF), a heavily loaded DPF results in slightly lower upshift speed for full-load and kick-down upshifts