



Mercedes-Benz

G Class

Powertrain Electronics



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2 Speed Transfer Case

High / Low / Neutral range indicator



Transfer Case Switch (S97/5)

High to Low shift:

- Engine running
- Transmission "N"
- VS < 25 mph

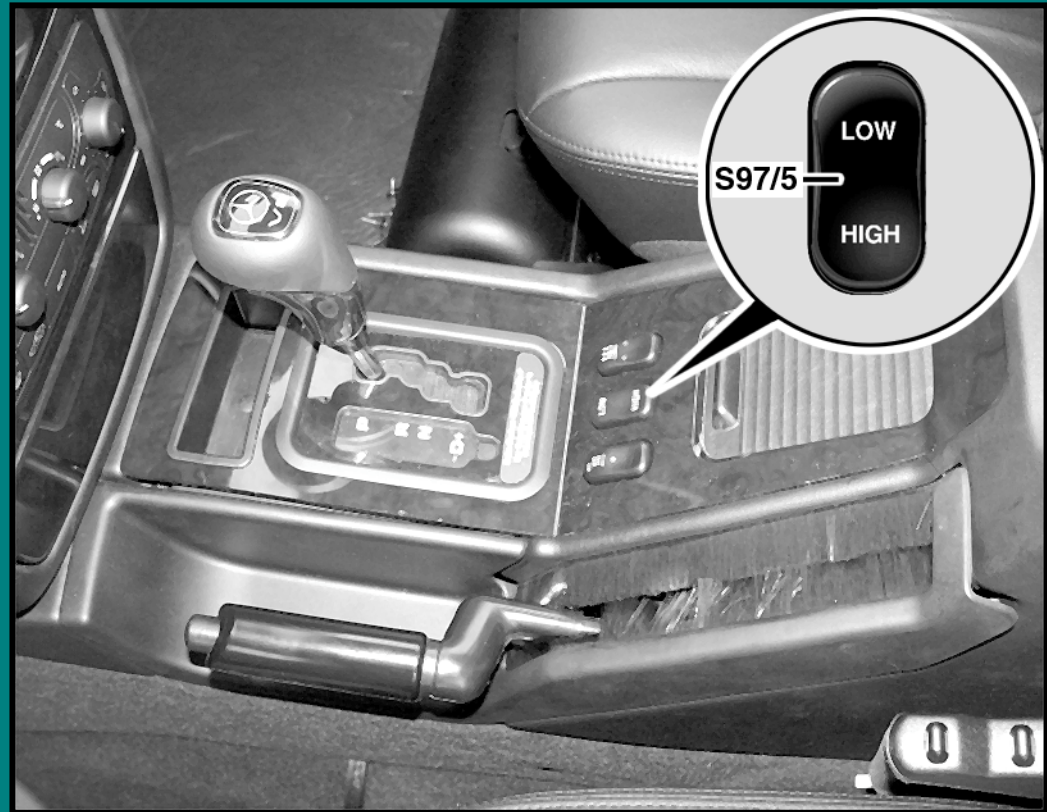
Low to High shift:

- Engine running
- Transmission "N"
- VS < 40 mph

Neutral shift:

- Stop engine
- Apply park brake
- Apply service brake
- Turn electronic key to position 1 or 2
- Transmission "N"
- Press and hold "LOW" for > 4 seconds
- Repeat all steps to shift TC out of neutral

3 settings: High, Low, and Neutral

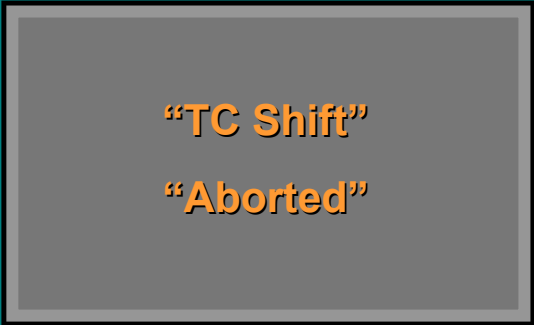


Transfer Case Multi-Function Displays



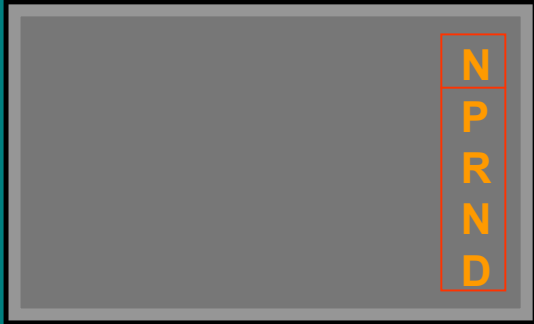
“TC Shift Conditions”
“Not Met”

- Shift will not occur
- Repeat shift procedure



“TC Shift”
“Aborted”

- Shift will not occur
- Repeat shift procedure



N
P
R
N
D

- TC Neutral



“Transfer Case”
“Visit Workshop”

- Fault in system go to Mercedes-Benz service point without delay

Transfer Case Control Module (N15/7)

Task:

Activates TC shift operation
if all conditions are met

Inputs:

- TC switch (S97/5)
- TC case motor (M46/2)
- CAN data from
ME-SFI / ESP
ESM / ETC

Outputs:

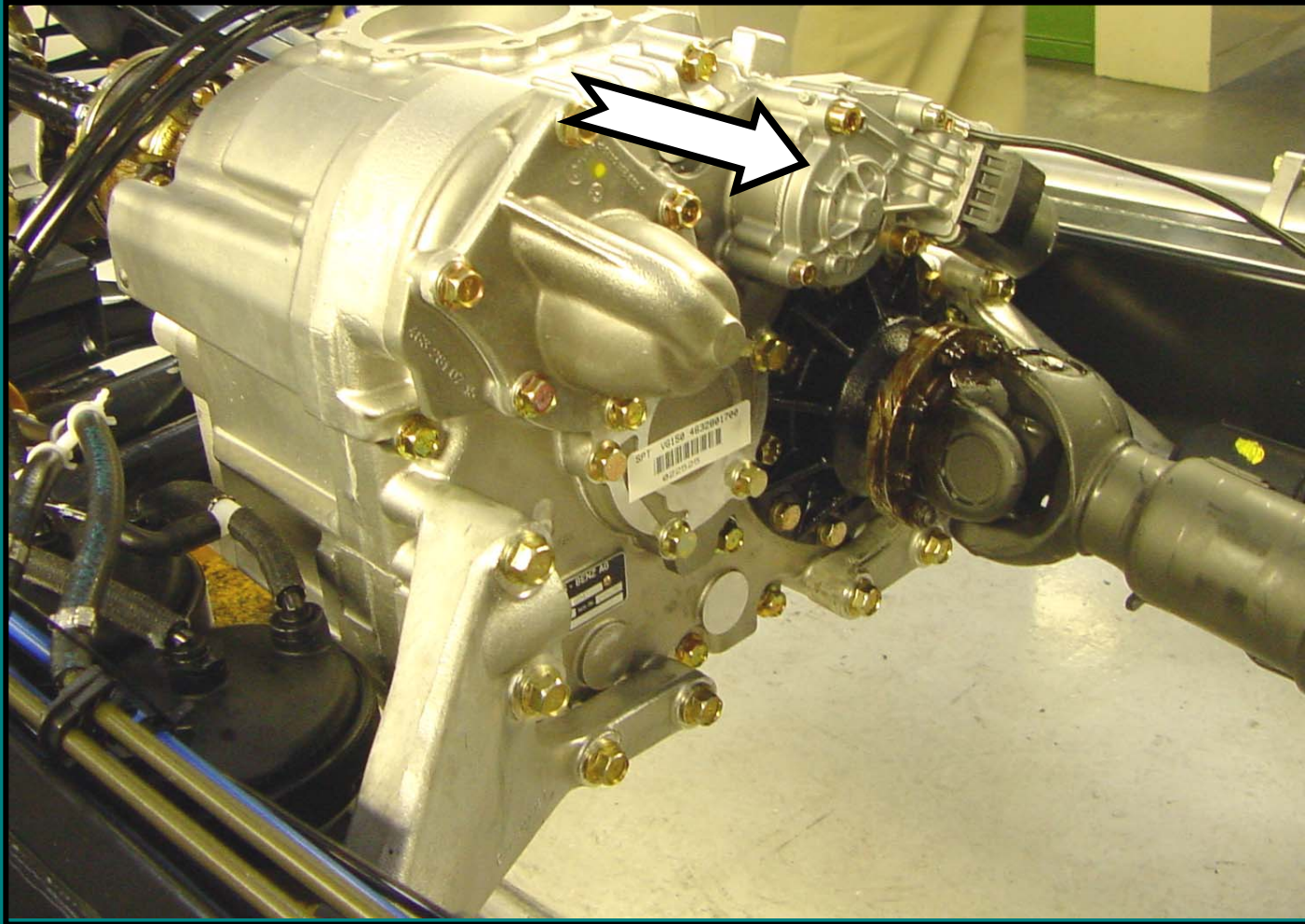
- TC motor (M46/2)
- Instrument cluster

Diagnostics available using
SDS / DAS



Location: under center console storage
compartment

Transfer Case Motor (M46/2)



Location: on the rear of the transfer case

Transfer Case Motor (M46/2)

- DC electric motor reversible with polarity change
- Hall effect technology for rotational speed and direction
- Must be adapted with SDS / DAS after:
 - installation / replacement
 - control module replacement



Transfer Case Motor (M46/2) Connector

Circuit

Wire Color / Size

Pin

Motor + / -

Wh / 2.5 mm

1

Ground

Bl / 0.5 mm

2

VCC (12v supply)

Gn / 0.5 mm

3

Direction

Gy / 0.5 mm

4

Speed

Or / 0.5 mm

5

Motor - / +

Bn / Wh / 2.5 mm

6

Service Notes

Safety:

- 4-wheel dynamometer, you must engage center differential lock
- 2-wheel dynamometer, remove front propeller shaft and engage center differential lock

ESP Overview

- ABS (Anti-lock Braking System)
 - on road / off-road program
 - inductive wheel speed sensors
- EBP (Electronic Brake Proportioning)
 - adjusts front to rear brake force distribution for stability (cornering)
 - increase brake force to rear (straight-line)
- BAS (Brake Assist System)
 - immediately provide maximum braking pressure during emergency braking
- 4-ETS (4 wheel Electronic Traction System)
 - brake individual slipping wheels
- ASR (Anti-Skid Regulation)
 - regulate throttle valve
 - can be switched off via the “ESP OFF” switch
- ESP (Electronic Stability Program)
 - help correct understeer / oversteer condition

ESP OFF Mode

- ESP cannot be switched off above 40 mph
- If a vehicle speed of 40 mph is attained ESP will activate automatically
- If vehicle stability dynamics are exceeded, ESP will activate to correct vehicle instability

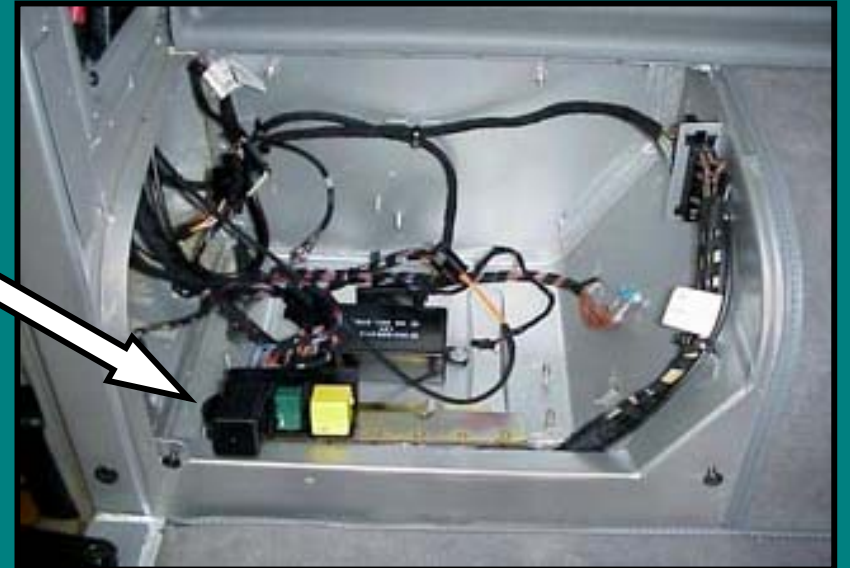


Note:

- ESP throttle reduction occurs at a lower threshold as compared to other Mercedes-Benz products equipped with ESP
- ESP will be deactivated if a differential lock is engaged

Automatic Transmission

- 722.6 with additional speed sensor B49 mounted on transmission output shaft housing
- B49 measures the transmission output shaft speed
- B49 signal used to determine shift points
 - no speed signal, no up shift
- B49 requires voltage regulating relay (N36) to function correctly



Automatic Transmission

- No winter / summer switch, vehicle always starts and starts off in 1st gear
- Shift into Optimal Gear (SOG) feature
 - transfer case in “high range”, transmission will up shift when maximum engine rpm limiter is reached
 - transfer case in “low range”, transmission will hold gear manually selected - no up shift when maximum engine rpm limiter is reached
- Auxiliary transmission cooler in addition to standard radiator transmission cooler
 - G500 → behind front bumper
 - G55 → rear of engine skid plate
- Always use factory designed front license plate bracket (state requirement)