2002-2006 TRANSMISSION

6-Speed Automatic Transmission - SI Techniques - R52, R53

6-SPEED AUTOMATIC TRANSMISSION R52, R53

Fig. 1: Overview Of 6-Speed Automatic Transmission (R52, R53)
Courtesy of BMW OF NORTH AMERICA, INC.

INTRODUCTION

The 6-speed automatic transmission GA6F21WA (manufactured by AISIN LTD, Japan) will first be introduced on the MINI COOPER S and MINI COOPER S Convertible (from 01/2005).

The 6-speed automatic transmission can be operated like a manual transmission using the gearshift paddles on the steering wheel.

The Steptronic also allows gearshifts to be initiated manually using the selector lever in the centre console.
(mechanical link with Bowden cable to transmission).

For System Overview, refer to **R52, R53 - 6-SPEED AUTOMATIC TRANSMISSION, SYSTEM OVERVIEW**.

New feature: In drive position "D", it is possible to select an individual gear using the gearshift paddles on the steering wheel. The driver can change gear manually in drive position "D" without first having to move the selector lever to manual mode (Steptronic).

The automatic transmission is optional (option 205).

**R52, R53 - 6-Speed Automatic Transmission, System Overview**

For technical reasons, the system overview is divided up as follows:

- Overview Of Components
- Inputs/Outputs
- System Circuit Diagram

**Overview Of Components**
Fig. 2: Overview Of Components - 6-Speed Automatic Transmission
Courtesy of BMW OF NORTH AMERICA, INC.

Inputs/Outputs
Fig. 3: Inputs/Outputs Block Diagram - 6-Speed Automatic Transmission
Courtesy of BMW OF NORTH AMERICA, INC.
### Fig. 4: Legend For Inputs/Outputs Block Diagram

**Courtesy of BMW OF NORTH AMERICA, INC.**

<table>
<thead>
<tr>
<th>Key</th>
<th>Explanation</th>
<th>Key</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Dynamic Stability Control (DSC)</td>
<td>2</td>
<td>Instrument cluster</td>
</tr>
<tr>
<td>3</td>
<td>Hydraulic selector unit</td>
<td>4</td>
<td>BMW diagnosis system</td>
</tr>
<tr>
<td>5</td>
<td>EGS control unit</td>
<td>6</td>
<td>Gearshift paddles on steering wheel</td>
</tr>
<tr>
<td>7</td>
<td>Sensor for transmission output speed</td>
<td>8</td>
<td>Sensor for transmission input speed</td>
</tr>
<tr>
<td>9</td>
<td>ATF temperature sensor</td>
<td>10</td>
<td>Selector lever</td>
</tr>
<tr>
<td>11</td>
<td>Automatic transmission range switch</td>
<td>12</td>
<td>Reversing light</td>
</tr>
<tr>
<td>13</td>
<td>Electronic vehicle immobiliser (EWS)</td>
<td>14</td>
<td>Brake light switch</td>
</tr>
<tr>
<td>15</td>
<td>Accelerator pedal module</td>
<td>16</td>
<td>Digital engine electronics (DME)</td>
</tr>
<tr>
<td>PT-CAN</td>
<td>Powertrain controller area network</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The provided diagram is not included in this text representation due to formatting constraints. It contains details related to the inputs and outputs in a block diagram format, with keys for identification.
Fig. 5: System Circuit Diagram - 6-Speed Automatic Transmission
 Courtesy of BMW OF NORTH AMERICA, INC.
The automatic transmission consists of the following components:

**EGS control unit**

The automatic transmission is controlled by the EGS control unit. (EGS is the abbreviation for electronic transmission control)

The EGS control unit directly actuates the solenoid valves and the electronic pressure control valves.

Data is exchanged through the PT-CAN with the following control units:

- DME
- DSC
- Instrument cluster

**Installation Location**

The EGS control unit is installed in the vehicle interior beneath the instrument panel on the left-hand side.
Fig. 7: Locating EGS Control Unit
Courtesy of BMW OF NORTH AMERICA, INC.

Construction

The EGS control unit is connected to the vehicle wiring harness by 2 connectors.

Pin Assignments

<table>
<thead>
<tr>
<th>Pin</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A</td>
<td>Signal wire to electronic pressure control valve &quot;SLU&quot;</td>
</tr>
<tr>
<td>2</td>
<td>A</td>
<td>Signal wire to electronic pressure control valve &quot;SLB1&quot;</td>
</tr>
<tr>
<td>3</td>
<td>M</td>
<td>Terminal 31 (earth)</td>
</tr>
<tr>
<td>4</td>
<td>A</td>
<td>Signal wire to electronic pressure control valve &quot;SLT&quot;</td>
</tr>
<tr>
<td>5</td>
<td>A</td>
<td>Signal wire to electronic pressure control valve &quot;SLC2&quot;</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>A</td>
<td>Signal wire to solenoid valve &quot;S1&quot;</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>A</td>
<td>Signal wire to electronic pressure control valve &quot;SLT&quot;</td>
</tr>
<tr>
<td>10</td>
<td>A</td>
<td>Signal wire to electronic pressure control valve &quot;SLC3&quot;</td>
</tr>
<tr>
<td>11</td>
<td>A</td>
<td>Signal wire to electronic pressure control valve &quot;SLC2&quot;</td>
</tr>
<tr>
<td>12</td>
<td>A</td>
<td>Signal wire to electronic pressure control valve &quot;SLC1&quot;</td>
</tr>
</tbody>
</table>
### PIN ASSIGNMENT EGS CONTROL UNIT X11634, 35-PIN

<table>
<thead>
<tr>
<th>Pin</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>A</td>
<td>Signal wire to electronic pressure control valve &quot;SLU&quot;</td>
</tr>
<tr>
<td>14</td>
<td>A</td>
<td>Signal wire to electronic pressure control valve &quot;SLB1&quot;</td>
</tr>
<tr>
<td>15</td>
<td>A</td>
<td>Signal wire to electronic pressure control valve &quot;SLC3&quot;</td>
</tr>
<tr>
<td>16</td>
<td>A</td>
<td>Signal wire to electronic pressure control valve &quot;SLC1&quot;</td>
</tr>
<tr>
<td>17</td>
<td>A</td>
<td>Signal wire to solenoid valve &quot;S2&quot;</td>
</tr>
<tr>
<td>18</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>A</td>
<td>Positive wire to selector lever lock (shift-lock)</td>
</tr>
<tr>
<td>20</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>A</td>
<td>Positive wire to ATF temperature sensor</td>
</tr>
<tr>
<td>23</td>
<td>E</td>
<td>Negative wire from ATF temperature sensor</td>
</tr>
<tr>
<td>24</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>E</td>
<td>Terminal 87</td>
</tr>
<tr>
<td>27</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>E/A</td>
<td>PT-CAN Low</td>
</tr>
<tr>
<td>29</td>
<td>E/A</td>
<td>PT-CAN High</td>
</tr>
<tr>
<td>30</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>M</td>
<td>Terminal 31 (earth)</td>
</tr>
<tr>
<td>34</td>
<td>V</td>
<td>Power supply, terminal 30</td>
</tr>
<tr>
<td>35</td>
<td>V</td>
<td>Power supply, terminal 30</td>
</tr>
</tbody>
</table>

A = Output  
E = Input  
E/A = Input/output  
M = Earth  
V = Supply

For current specifications regarding pin assignment, please refer to BMW diagnosis system.
### Hydraulic Selector Unit

The input and brake clutches of the automatic transmission are hydraulically controlled in the hydraulic selector unit.

### Installation Location

The hydraulic selector unit is installed in the automatic transmission and is covered by the transmission oil pan.

### Construction

For current specifications regarding pin assignment, please refer to BMW diagnosis system.
The following components are installed in the hydraulic selector unit for the purpose of transmission control:

- 1 Gear Selector Valve
- 2 Solenoid Valves
- 6 Electronic Pressure Control Valves
- 1 ATF Temperature Sensor

Fig. 8: Identifying Hydraulic Selector Unit Components
Courtesy of BMW OF NORTH AMERICA, INC.

How It Works

Automatic Transmission Range Switch

The automatic transmission range switch is operated by the selector lever via a Bowden cable. The automatic transmission range switch is mechanically linked to the gear selector valve in the hydraulic selector unit. Depending on the selector lever position, the gear selector valve will direct the automatic transmission fluid to the corresponding valves.
Solenoid Valves

The 2 solenoid valves "S1" and "S2" are actuated by the EGS control unit and have 2 functions (open and closed). Depending on the actuation, reverse gear or the engine brake in 1st gear will be activated.

Electronic Pressure Control Valves

6 electronic pressure control valves ("SLC1", "SLC2", "SLC3", "SLB1", "SLT", "SLU") convert an electrical current (prescribed by the EGS control unit) into a proportional hydraulic pressure.

The electronic pressure control valves "SLC1", "SLC2", "SLC3" and "SLB1" actuate the input and brake clutches with ATF pressure.

The electronic pressure control valve "SLT" sets the ATF pressure according to the throttle-valve position and the torque.

The electronic pressure control valve "SLU" operates the converter lockup clutch.

Sensor For Transmission Input Speed

The transmission input speed is measured at the transmission input shaft (by a Hall sensor). The EGS control unit compares the transmission input and output speeds and from this calculates the shift time of the clutches.

In the event of a signal failure, the converter lockup clutch will be closed without slip.

The engine speed will be used as a substitute value.

Sensor For Transmission Output Speed

The transmission output speed is directly proportional to the road speed and is measured by a Hall sensor on the transmission's parking lock gear. The EGS control unit accepts the speed and uses this, together with the load signals, to calculate the necessary gear changes.

In the event of a signal failure, the substitute value is delivered by the DSC control unit via the wheel-speed sensors.

ATF Temperature Sensor

The ATF temperature sensor records the temperature of the automatic transmission fluid in the hydraulic selector unit. The signal is used for the control of the transmission functions in the EGS control unit. The signal is transmitted via a direct wire from the ATF temperature sensor to the EGS control unit.

In the event of a signal failure, the converter lockup clutch will be closed or opened without slip. Gearshifts will be harder.

A substitute value is derived from the operating period and the engine temperature.

Selector Lever, Drive Positions And Selector Lever Position Displays
The selector lever has the positions:

- P for Park
- R for Reverse
- N for Neutral
- D for Drive (= automatic mode)
- M/S - "M" for manual mode = Steptronic
- "S" for Sport program = automatic mode with sporty map

The selector lever position display is located in the selector lever trim.

**Installation Location**

The selector lever is installed in the centre console. The selector lever trim holds the illuminated display for the selector lever position.
**Fig. 9: Identifying Selector Lever**
Courtesy of BMW OF NORTH AMERICA, INC.

**Construction**

The selector lever position display is located in the selector lever trim. The drive position engaged is backlit in the display. Using the Steptronic switch, gears can be shifted up and down manually.

**Fig. 10: Selector Lever Circuit Diagram**
Courtesy of BMW OF NORTH AMERICA, INC.

**How It Works**

A lock prevents the selector lever from being inadvertently moved to positions "R" and "P". To overcome the lock, the button on the front of the selector lever knob must be pressed.

**Plausibility Check**
The selector lever can only be moved from position "D" to the "M/S" shift gate. For this shift to be carried out, the EGS control unit must detect the M/S shift gate and Position D signals at the same time.

**Gearshift Paddles**

2 gearshift paddles are on the steering wheel.

Pull one of the gearshift paddles briefly to change up a gear.

Press one of the gearshift paddles briefly to change down a gear.

**Installation Location**

In addition to the sequential gear selection with the selector lever, the gears can also be selected using the 2 gearshift paddles on the steering wheel.

![Fig. 11: Identifying Gear Shift Paddles](image)

**Fig. 11: Identifying Gear Shift Paddles**

*Courtesy of BMW OF NORTH AMERICA, INC.*
Construction

The two gearshift paddles are identical in construction and are wired in parallel.

How It Works

Pull one or both of the gearshift paddles to shift up a gear. Press one or both of the gearshift paddles to shift down a gear.

Automatic Transmission Range Switch

The automatic transmission range switch is connected to the selector lever by a Bowden cable.

The automatic transmission range switch mechanically shifts the gear selector valve in the hydraulic selector unit. At the same time, the automatic transmission range switch uses sliding contacts to convert the mechanical motion of the selector lever into electrical signals.

The automatic transmission range switch delivers the selector lever position signals for the transmission control and for the display in the instrument cluster to the EGS control unit.

The automatic transmission range switch directly actuates the reversing light.

The automatic transmission range switch is installed on the transmission.

Instrument Cluster Display

The drive ranges and drive program are displayed in the instrument cluster, the signal required for this is sent from the electronic transmission control (EGS).

P for Park
R for Reverse
N for Neutral
D for Drive (= automatic mode)
SD: When the selector lever is moved from position "D" into the "M/S" shift gate
M1-M6: For manual mode (Steptronic) using the gearshift paddles or the selector lever

Torque Converter With Converter Lockup Clutch

The torque of the engine is transmitted to the automatic transmission in 2 ways:

1. Hydraulically via the torque converter

The torque converter transmits the torque from the engine to the transmission as follows: High engine speeds and low engine torque are converted into low speeds and high torque.
2. Mechanically via the converter lockup clutch

When the converter lockup clutch is closed, the impeller and turbine wheel are non-positively linked without the influence of friction. This prevents power loss within the torque converter and optimises fuel consumption.

The converter lockup clutch creates a mechanical link between the output shaft of the engine and the input shaft of the transmission. The opening and closing of the converter lockup clutch is possible in 2nd to 6th gear. The converter lockup clutch is not closed at transmission oil temperatures less than 20°C.

Oil Pump

The oil pump in the automatic transmission generates the necessary hydraulic pressure.

Transmission Oil Cooler

The transmission oil cooler is installed on the transmission housing. The transmission oil cooler is connected to the engine cooling circuit. This ensures that the automatic transmission fluid is warmed up more quickly during the time taken for the engine to reach operating temperature. When the engine is at its normal operating temperature, the automatic transmission fluid is cooled by the engine cooling circuit.

Multi-Plate Clutches

The automatic transmission requires 5 multi-plate clutches to shift between the 6 gears: 3 input clutches and 2 brake clutches.

Lepelletier Planetary Gear Set

The automatic transmission is equipped with a Lepelletier planetary gear set. A Lepelletier planetary gear set is a Ravigneaux set (double planetary gear set) with a preceding planetary gear.

Brake Light Switch

**NOTE:** The electronic transmission control needs signals from the following components:

The signal from the brake light switch is needed for the function of the selector lever lock and the adaptive transmission control.

Signal path: Brake light switch -> DME -> PT-CAN -> EGS control unit

Accelerator Pedal Module

The signal from the accelerator pedal module is needed for the adaptive transmission control.

Signal path: Accelerator pedal module -> DME -> PT-CAN -> EGS control unit
DSC: Dynamic Stability Control

The Dynamic Stability Control optimises driving stability when starting and accelerating, and optimises traction. Within the limitations of the laws of physics, DSC compensates for driving conditions such as over/understeering. To do this, the DSC control unit is sent signals about the driving dynamics (e.g. wheel speed, lateral acceleration).

The DSC transmits the processed signals concerning cornering and acceleration identification to the EGS control unit.

The combination of front-wheel drive and DSC control eliminates the need for a special winter program in the electronic transmission control.

DME: Digital Engine Electronics

To control the transmission, the DME sends information concerning the current operating status of the engine to the EGS (e.g. engine speed or torque). (EGS is the abbreviation for electronic transmission control)

The EGS reports the current operating status of the transmission back to the DME.

SYSTEM FUNCTIONS

The automatic transmission has the following system functions:

- Adaptive Transmission Control
- Kickdown
- Overlap Control
- Starter Inhibitor
- Parking Lock
- Engine Intervention
- Downshift Inhibitor
- Reverse Gear Inhibitor
- Selector Lever Lock (Shiftlock)
- Interlock
- Emergency Program
- Rock Free From Snow Function

Adaptive Transmission Control

As with earlier automatic transmissions, the 6-speed automatic transmission offers the choice between a comfort program and a sport program.

The adaptive transmission control (component of electronic transmission control) adapts the shift characteristics of the comfort program and sport program to the driver's wish and the driving situation.
• Comfort program in selector lever position "D"

The comfort program allows comfortable automatic shift characteristics.

• Sport program in selector lever position "M/S"

The sport program allows dynamic, sporty shift characteristics. Gearshift are effected automatically.

The adaptive transmission control takes the following demands into account:

• Driving uphill
• Driving downhill
• Suppression of automatic upshifts if the throttle is closed quickly

**Driving Uphill**

These functions are based on a comparison of actual car acceleration with a nominal value. From the current engine operating situation, the acceleration with normal load on a level surface is calculated. If the actual acceleration is significantly below the theoretical value, the "Driving uphill" function is activated.

The design of the corresponding shift characteristics allows a high-speed driving style. Undesirable upshifts and frequent up/downshifts are eliminated or greatly reduced.

**Driving Downhill**

If the EGS control unit detects downhill driving, it will automatically shift down a gear as the vehicle's speed picks up. This enhances the engine's braking effect. A downshift is only made if the engine speed after the downshift will still be below the maximum speed allowed in the next gear down.

The EGS control unit recognises driving downhill from the following signals:

• Throttle valve potentiometer (load)
• Wheel-speed sensors (roadspeed)
• Brake light switch (braking).

**Suppression Of Automatic Upshifts If The Throttle Is Closed Quickly**

To decelerate the vehicle, the foot is taken off the gas and the brake depressed as necessary. The gearshift map triggers an upshift when the throttle is closed. These gearshifts are not necessary in conjunction with brake applications as they prevent the engine's braking effect from being exploited.

The intention to apply the brakes can often be anticipated from the accelerator pedal being rapidly released to the zero position. If such an action is detected, the upshift is suppressed for as long as the accelerator pedal is in the zero position and the vehicle is in overrun mode.

**Kickdown**
The accelerator pedal module uses Hall sensors to record the driver's intentions. When the accelerator pedal module is fully depressed, a full-load signal is transmitted to the DME control unit. If at the same time a full-load value defined in the DME control unit is reached, the DME control unit transmits a message through the PT-CAN to the EGS control unit.

Overlap Control

Overlap control provides gentle shift characteristics as follows: With overlap control, several multi-plate clutches are in use at the same time. Here, pressure is reduced in the active multi-plate clutch and at the same time built up in the multi-plate clutch that is about to be activated. The reduction and build-up of pressure is maintained until a synchronised speed is reached. At this point, the hydraulic pressure for the multi-plate clutch to be activated can be built up completely. Overlap control is active for all gearshifts from 2nd to 6th gear and from 6th to 2nd gear.

A freewheel control is used for gearshifts into 1st gear. The freewheel links certain components of the Lepelletier planetary gear set in one direction of rotation.

Starter Inhibitor

It is only possible to start the engine when the selector lever is in position "P" or "N".

The electronic immobiliser (EWS) evaluates the following signals from the automatic transmission range switch for the engine start:

- Selector lever position "P" or "N" as signal via the direct wire

Parking Lock

The parking lock (selector lever position "P") blocks the transmission output shaft. The vehicle is prevented from rolling unexpectedly. When the vehicle is stationary, the parking lock is engaged purely mechanically via the selector lever (Bowden cable from selector lever to automatic transmission range switch). The parking lock is designed to provide a reliable brake on gradients up to 32%.

Engine Intervention

During the gearshift, the EGS control unit influences the DME (digital engine electronics) with signals.

The DME then retards the ignition timing for a few milliseconds. This action briefly reduces the torque, improves shift quality, reduces the load on the transmission and shortens the shifting time.

Downshift Inhibitor

The gearshift lock only allows a downshift if the engine speed after the downshift will still be below the maximum speed allowed in the next gear down. The engine speed signal is transmitted by the DME to the EGS control unit.

The downshift inhibitor prevents damage to the engine and transmission.
Reverse Gear Inhibitor

The reverse gear inhibitor electronically prevents reverse gear from being engaged when the vehicle is moving forwards at speeds above 7 km/h (3 mph). When this speed is exceeded, the corresponding solenoid valves are no longer actuated.

Selector Lever Lock (Shiftlock)

The selector lever is locked in positions "P" and "N" by an electromagnet. The electromagnet is actuated by the EGS control unit. The selector lever lock is engaged when selector lever position "P" or "N" is detected and the ignition (terminal 15) is ON.

Interlock

The ignition lock is mechanically linked to the selector lever by a Bowden cable. The interlock only allows the ignition key to be removed when the selector lever is in position P. Conversely, the selector lever can only be moved from position "P" when the ignition key is in the ignition lock and turned at least to ignition ON.

Emergency Program

The emergency program is activated if the transmission management should fail or detect a malfunction that could lead to critical driving conditions. In the emergency program, the vehicle remains operational, albeit with limitations.

If the electronic transmission control fails (without current), the following forward gears can be engaged:

Failure in 1st-3rd gear -> emergency 3rd gear

Failure in 4th-6th gear -> the current gear is maintained

3rd gear will be engaged after a restart.

Rock Free From Snow Function

To rock the vehicle free from snow, it is possible to shift between selector lever positions "D" and "R" without the selector lever lock (effective in "N"). With the engine running, the position change must be completed within 0.5 seconds.

OPERATION

The different automatic transmission drive positions are selected with the selector lever.

When driving, there are the following possibilities:

D = Automatic Mode

When the selector lever is in position "D", gears are selected by the adaptive transmission control.
• **Gearshift using gearshift paddles**

  If the selector lever is in position "D" and a gearshift is initiated using the gearshift paddles, the automatic transmission will automatically change to manual mode.

  If no gearshift is made and the vehicle does not accelerate significantly within 6 seconds, the automatic transmission will change back to automatic mode.

**SD = Automatic Mode, Sport Program**

When the selector lever is moved to the right from position "D" into the shift gate "M/S", the automatic transmission's sport-shift program is activated. The display in the instrument cluster changes from "D" to "SD".

• **M1 to M6 = Steptronic**

  If the selector lever is in shift gate "M/S" and is briefly moved to "-" or "+", the electronic circuitry changes to Steptronic. Permanent manual mode is activated with the selector lever or gearshift paddles. The display in the instrument cluster changes from "SD" to "M1" to "M6".

  In manual (Steptronic) mode, the transmission management will only execute upshifts or downshifts at appropriate engine and road speeds. Gearshifts that would result in an excessively high or low engine speed are suppressed.

**NOTES FOR SERVICE STAFF**

Service staff should note the following points:

• Service notes: refer to **R52, R53 - GENERAL INFORMATION FOR SERVICING THE 6-SPEED AUTOMATIC TRANSMISSION**.
  
  • Diagnosis: N/A
  • Encoding/programming: N/A
  • Car & Key Memory: N/A

Subject to change.

**R52, R53 - General Information For Servicing The 6-Speed Automatic Transmission**

The following general information about the automatic transmission is provided for service staff:

• Repairs On The 6-Speed Automatic Transmission
  • Changing Automatic Transmission Fluid
  • Towing Vehicles With 6-Speed Automatic Transmission

**Repairs On The 6-Speed Automatic Transmission**
IMPORTANT: For the time being (until all MINI original parts are available), only exchange the complete automatic transmission.

Until all MINI original spare parts are available, a provisional procedure has been agreed for repairing the automatic transmission: Only exchange the complete transmission. For up-to-date details about parts availability, please refer to the Electronic Parts Catalogue (EPC).

IMPORTANT: Reset automatic transmission range switch after each installation.

After each installation, the automatic transmission range switch must be reset with an adjustment tool. Here, the automatic transmission range switch is aligned to the gear selector valve.

If the automatic transmission range switch is not correctly set, the engine may not be able to be started, even though the selector lever is in position "N" or "P". Another position is engaged in the automatic transmission itself. The upshot may be an incorrect display in the instrument cluster ("D" or "R" instead of "N"; "R" instead of "P").

Background: The automatic transmission range switch delivers the selector lever position signals for the instrument cluster. The automatic transmission range switch is directly connected to the electronic immobiliser.

IMPORTANT: Reset adaptation values in EGS control unit.

After the EGS control unit has been exchanged, the adaptation values must be reset with the BMW diagnosis system.

Changing Automatic Transmission Fluid

IMPORTANT: No oil change needed

The automatic transmission has a life-time oil filling. The automatic transmission does not need an oil change for its entire service life.

Towing Vehicles With 6-Speed Automatic Transmission

IMPORTANT: Always raise the driven axle of vehicles with 6-speed automatic transmission.

To prevent damage to the transmission, always raise the vehicle at the driven axle.

IMPORTANT: Towing a vehicle with 6-speed automatic transmission is possible, but with restrictions.
Towing on all wheels is permissible with the following restrictions:

- Towing speed: maximum 50 KPH
- Towing distance: maximum 50 KM