AD27.19-P-3000-04A	Transmission adaptation of electronic transmission control (ETC)		

Transmission adaptation (ETC adaptation)

Definition

Transmission adaptation represents an automatic adaptation of data for the purpose of optimizing the ease of shifting.

In order to compensate for tolerances or wear, adaptation is automatically conducted for:
- response time
- charge time
- charging pressure
- control of torque converter lockup clutch

The data for this automatic adaptation are displayed on the HHT under menu item 07 (adaptation data) and can be reset.
After that the electronic control has to be matched to the transmission via an adaptation process.

General

Two methods are available for conducting the adaptation process:

- As part of a test drive (a second person is required here to observe the data displayed on the HHT).
- On an output dynamometer.

Engine speed limit:
When conducting the adaptation process care should be taken to ensure that the specified engine speed is **not exceeded**, as in this case **no adaptation** of the transmission will take place.

Torque values, refer to table.
Conducting the adaptation process

When conducting the adaptation process care should be taken to ensure that the torque values as given in the following table are adhered to.

1. **After exchanging the transmission or repairing it the following listed gearchanges should undergo an adaptation after the values have been reset:**

Drive upshifts
- 4 x the 1 → 2 gearchange
- 4 x the 2 → 3 gearchange

(Torque values, refer to the table given below)

Additional notes on procedure to follow for a necessary transmission exchange:
Print out all adaptation data displayed on the HHT and enclose with the faulty transmission.

2. **For shift-quality complaints the following listed gearchanges should undergo a new adaptation:**

Drive upshifts
- 4 x the 1 → 2 gearchange
- 4 x the 2 → 3 gearchange
- 4 x the 3 → 4 gearchange
- 4 x the 4 → 5 gearchange

(Torque values, refer to the table given below)

Coasting gearchange in form of deceleration downshift
- 3 x the 5 → 4 gearchange
- 3 x the 4 → 3 gearchange

(Torque values are **not** necessary for these gearchanges.)

After completing the adaptation process the engine should be allowed to run for approximately 10 minutes. This is necessary in order to ensure that all the data displayed by the HHT is actually sent to the memory in the ETC control module (N15/3). If this is not the case, or if only some of the data is sent to the memory in the ETC control module N15/3, the transmission must be assessed again after a subsequent test drive.

Test and adjustment values for electric transmission adaptation

Number	Designation			Engine 112	Engine 113.942 without touch shift	Engine 113.942 with touch shift
BE27.19-P-1001-01A	Drive upshift	Number of repeated gearshifts	at 1 → 2	4	4	4
		1 → 2	Nm	14...37	13...40	10...45
		Number of repeated gearshifts	at 2 → 3	4	4	4
		2 → 3	Nm	17...59	22...50	22...50
		Number of repeated gearshifts	at 3 → 4	3	3	3
		3 → 4	Nm	17...46	22...70	22...65
		Number of repeated gearshifts	at 4 → 5	3	3	3
		4 → 5	Nm	0...121	0...110	22...90
		Max. engine speed	rpm	2400	1800	1800