MODEL 129 as of 1.6.97
MODEL 140 as of 1.6.97
MODEL 163
MODEL 168
MODEL 170 as of 1.6.97
MODEL 202 as of 1.6.97
MODEL 208 up to 31.7.99
MODEL 210 as of 1.3.97 up to 30.6.99

The service intervals which are possible with ASSYST range

- D on engines with oil sensor (e.g. 112, 113, 166, 611) between 15 000 and 30 000 km,
- D for the new direct injection diesel lengine 668 between 20 000 and 40 000 km,
- D for engines with oil level switch between 15 000 and 22 500 km (for engine 602.982 between 20 000 and 30 000 km).

The service interval achieved depends on the start distance and the driving conditions (cf. remaining distance).

Start distance and remaining distance

Start distance refers to the service interval in km/miles which is the **minimum distance** which may be driven until the next service. On engines with oil sensor (e.g. 112, 113, 166, 611, 668) this applies only, however, if the specified quantity of oil has been added during the oil change.
The start distance is dependent on:

- D the set **quality factors**
  (The quality factors are factory-set to a basic setting. They can be altered with the HHT, if operating conditions so necessitate.)

The start distance is **not** dependent on the driving conditions (weighting of the distance driven) and on any oil replenishments.

- D the **driving conditions** (a **weighting** of the distance driven takes place)
- D any **oil replenishments** in the case of engines with oil sensor (e.g. 112, 113, 166, 611, 668)

Consequently, ASSYST also takes into account the driving conditions: In the case of a **favorable weighting** (e.g. small number of cold starts, no high engine revs, small number of short-distance trips, minimum extent of towing a trailer etc.) and oil replenishments, the driver is provided with a bonus which extends the remaining distance and thus the service interval. Account is also taken of whether the vehicle is actually driven or whether the engine runs at idle speed. ASSYST is constantly supplied with the data regarding the current operating conditions of the vehicle for this purpose.

The standard value is normally 15 000 km, for the new direct injection diesel engine 668 20 000 km.
The figure may differ from this, however, depending on quality factors.

The start distance is automatically reset to its initial value by the oil change reset each time the oil is changed. The start distance is an **internal** computed quantity and **cannot** be displayed in the instrument cluster. It is possible to display the start distance with the HHT.
What is normally displayed in the instrument cluster is the **remaining distance**.
The remaining distance is the same as the start distance immediately after the oil change. On engines with oil sensor (e.g. 112, 113, 166, 611, 668) this applies only, however, if the specified quantity of oil has been added during the oil change.

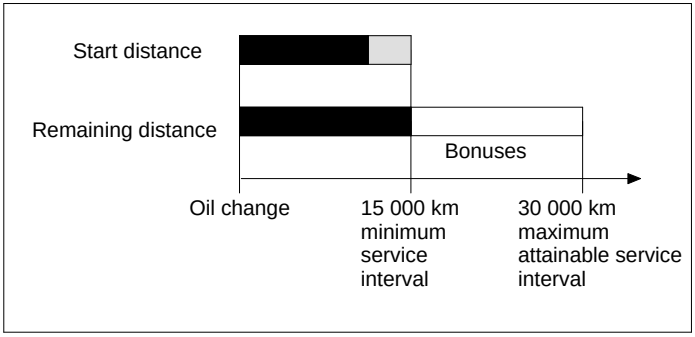
The remaining distance is the distance which remains from the current kilometer reading until the next service. The possible length of the interval is at least as great as the remaining distance displayed immediately after an oil change, and is at the most twice the start distance.

The remaining distance is dependent on

- D the **start distance**

In the case of the **best weighting**, only **0.6 km** are added for each kilometer driven.
In the case of the **most unfavorable weighting of the distance** (e.g. frequent short-distance trips, large number of cold starts), the remaining distance and thus the service interval is smaller than in the case of the most favorable weighting (assuming identical quality factors).
In the case of the **most unfavorable** weighting, up to **3 km** are added for each kilometer driven.

The start distance and the remaining distance are once again presented in the form of a graph in the diagram opposite, taking the **example of gasoline engines**.
Each time the oil is changed, the start and remaining distances are set to the initial value. In this case, the normal value of 15 000 km is entered as the start distance (top bar) (shaded + dark section). The start distance may differ from 15 000 km (e.g. 14 000 km; shaded section) if the quality factors do not correspond to the basic setting. In the case of engines fitted with oil sensor (e.g. 112, 113, 166) the start distance may also be less than 15 000 kmif the specified oil quantity was not added during the oil change. **The remaining distance (bottom bar) is always 15 000 km, however, immediately after an oil change. In addition, the service interval is always at least 15 000 km.**



The total remaining distance and thus the service interval may be increased to not more than twice the start distance, 30 000 km in this case (white section) as a result of corresponding **bonuses** (favorable weighting of distances driven) and in the case of engines fitted with oil sensor (e.g. 112, 113, 166).
However, a start distance of less than 15 000 km results in a reduction in the **maximum** attainable service interval.
Refer also to the diagrams in the document "Engine oil monitoring".

Warning threshold (km)
With the HHT it is possible to set a warning threshold between 250 km and 8000 km for the remaining distance.
This warning threshold is set differently for 3 different distances driven. The system adjusts to the correct annual distance driven by calculating the daily distance driven (refer to table):

annual distance driven in km	possible warning thresholds in km	standard setting in km
< 10 000	250, 500, 1000, 2000	1000
10 000 to 30 000	500, 1000, 2000, 4000	2000
> 30 000	1000, 2000, 4000, 8000	4000

On **Model 168**, only the settings 1000 km and 2000 km are possible as the warning threshold (irrespective of the annual distance driven). The figure is set with the HHT, the standard setting being 1000 km.

If the remaining distance is less than the set warning threshold, the remaining distance is automatically displayed.

Display of remaining distance (The readout is shown in kilometers or miles depending on the national code.)**:**

D at driver request

D automatically, after 5 s start switch in position 2 or driving if the **warning threshold is reached**:
The warning symbol and the readout: "SERVICE IN .... KM" appears for 10 s. (On models not fitted with multifunction display, the service symbol appears together with the remaining distance in kilometers, from mid July 97 "... km".)

D automatically, after 5 s start switch in position 2 or driving if the **remaining distance is exceeded**:
In this case, the readout "KM .... EXCEEDED" appears together with the service symbol for 30 s (up to mid July 97 for 10 s). (On models not fitted with multifunction display, the service symbol appears together with the remaining distance with a negative sign in kilometers as a flashing display, as of mid July 97 "... km".)
As of approx. 06.97 a brief warning signal sounds in addition.

The remaining distance is displayed with a resolution of 100 km.
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If a speed limit is set at the cruise control, the speed limit appears for a short moment in the display before the ASSYST text.

In the normal case, it is the remaining distance which is displayed. However, the time information is always processed in the background to enable the attention of "low-mileage drivers" to be drawn to any service due. The remaining distance is compared each day with the remaining time. In certain circumstances, the display switches over, and it is the remaining time which is displayed
(i see document "Remaining time").

If certain measured values are not supplied to the ASSYST system, e.g. because of failure of a sensor, it switches over to stored substitute values. A corresponding entry is made in the fault memory of the relevant control module.

The data are retained if the operating voltage is disconnected or fails.

	Active service system (ASSYST) operating information	Engines with oil sensor (e.g. 112, 113, 611) Model 210 as of 01.03.97 with engines 111, 602, 604, 605, 606 Model 129, 140, 170, 202 as of 06.97 except engine 112 , 113, 611 (Valid for engines with oil level switch.)	GF00.20-P-0003-01A GF00.20-P-0003-01B
	Active service system (ASSYST) display facilities		GF00.20-P-0003-04A

	Remaining time function		GF00.20-P-2008A
	Engine oil monitor function	Engines with oil sensor (e.g. 112, 113, 611) Model 210 as of 01.03.97 with engines 111, 602, 604, 605, 606 Model 129, 140, 170, 202 as of 06.97 except engine 112 , 113, 611 (Valid for engines with oil level switch.)	GF00.20-P-2009A GF00.20-P-2009B
	Displaying service function	Model 129, 202 as of 8.99 Model 163 as of 1.00 Model 168 as of 9.99 Model 170 as of 12.99	GF00.20-P-2010B