

BMW - Condition Based Service (CBS)

What is CBS?

Conditional Based Service (CBS) is an evolution of BMW's standard service indicator system (SIA) previously fitted across the model range. It was first introduced in 2002 when the 'new' 7' series model was launched and is now a standard feature on the following models:

- 1' Series E87 (2004 on)
- 3' Series E90/91 (2004 on)
- 5' Series E60/61 (2003 on)
- 6' Series E63/64 (2004 on)
- 7' Series E65/66 (2002 on)



Benefits of CBS

The concept of CBS was to create a flexible yet economical maintenance schedule for serviceable items fitted to a vehicle. Unlike its predecessor (SIA) which used fixed time and distance service schedules (days and km's) the innovative CBS system goes one step further. This intelligent system constantly gathers information from modules and sensors from around the vehicle which allows flexible intervals to be created preventing unnecessary replacement of components which still have substantial service life left. In essence there is an aim to lengthen service intervals and maximise the use of serviceable components.

Components supported by CBS

The type of CBS components supported on a particular model will vary depending on specification and engine type. Items fall into 2 main groups:

1) Sensor based items

These items are monitored by physical and virtual sensors with some reference being made to variables such as vehicle mileage, driving styles and temperature. Items included in this group are:

- Engine oil – Monitored by the DME/DDE engine control module
- Micro filter/Pollen filter – Monitored by the IHKA climate control module
- Front brake pads – Monitored by the DSC stability control module
- Rear brake pads – Monitored by the DSC stability control module
- Diesel Particulate filter - Monitored by the DME/DDE engine control module

2) Internally calculated items

Certain items monitored by the CBS system do not require physical sensors. These serviceable items still operate under fixed intervals with remaining service life calculated by the instrument cluster based on time and distance. Items included in this group are:

- Brake fluid
- Spark plugs

User interface

Instrument cluster

The instrument cluster gives advanced notification of any pending service requirements via information displayed on the LCD. This is displayed in the form on a 'SERVICE' warning followed by information relevant to the component requiring maintenance. BMW aim to give approximately four weeks advanced notification of any maintenance requirements to prevent drivers accidentally 'running over' service schedules.



i-Drive

Further information can be accessed on the larger BMW models (5' series, 6' series and 7 Series) via the i-Drive system. By navigating through the i-Drive menu into the 'Service Menu' it is possible to check the current state and remaining serviceable life of all CBS monitored components. Each item will be highlighted in either Green, Yellow or Red and display a percentage value indicating remaining serviceable life.

- o Green item – No service required at present
- o Yellow item – Service life nearing its end
- o Red item – Service deadline has been passed



Note: BMW screen shot

Resetting CBS service indicators

Inevitably this extra complexity demands more advanced reset procedures. The first noticeable requirement is the need to set the on-board time and date prior to making any resets. This is taken as the reference point for any 'time dependant' CBS items such as 'Brake fluid'

Resetting manually

It is possible to carry out the reset of CBS items manually by following specific procedures relevant to supported vehicles. These procedures will NOT work if:

- o The remaining percentage is greater than 80%
- o The time and date have not been set

Resetting using diagnostic equipment

By using suitable diagnostic equipment connected to the vehicle diagnostic connector it is possible to reset CBS service schedules at any time. By selecting the 'CBS' option the diagnostic equipment will gather information regarding the current state of CBS items from their relevant modules on the CAN network.



Example: BMW 530d E60 my2005

CBS information read back via serial diagnostic equipment

Note: Instrument cluster and i-Drive menu showing 'Service Due' for 'Brake fluid' and 'Micro filter'

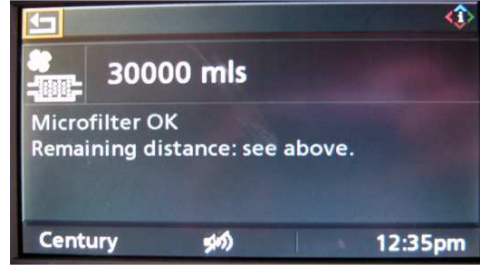
- Engine Oil 22%
- Front Brakes 27%
- Rear Brakes 35%
- Brake Fluid 0%
- Micro Filter 0%



Note: BMW screen shot

After the relevant reset procedure were carried out on the Micro (Pollen) filter the CBS information read back shows the change as follows:

- Engine Oil 22%
- Front Brakes 27%
- Rear Brakes 35%
- Brake Fluid 0%
- *Micro Filter* 100%



Note: BMW screen shot

Conclusion

The method by which BMW models now calculate the remaining service life of CBS monitored items may be more complex than older models with fixed service length intervals but the reset procedure is still only a simple 'button click' with the right equipment.