

MODEL 211.004 /006 /016 /023 /026 /028 /042 /056 /061 /065 /070 /076 /206 /216 /223 /226 /242 /256 /261 /265 /270 /276 /606 /616 as of 1.6.04 up to 31.5.06,

211.080 /082 /083 /087 /280 /282 /283 as of 1.12.04 up to 31.5.06

except CODE (494) USA version

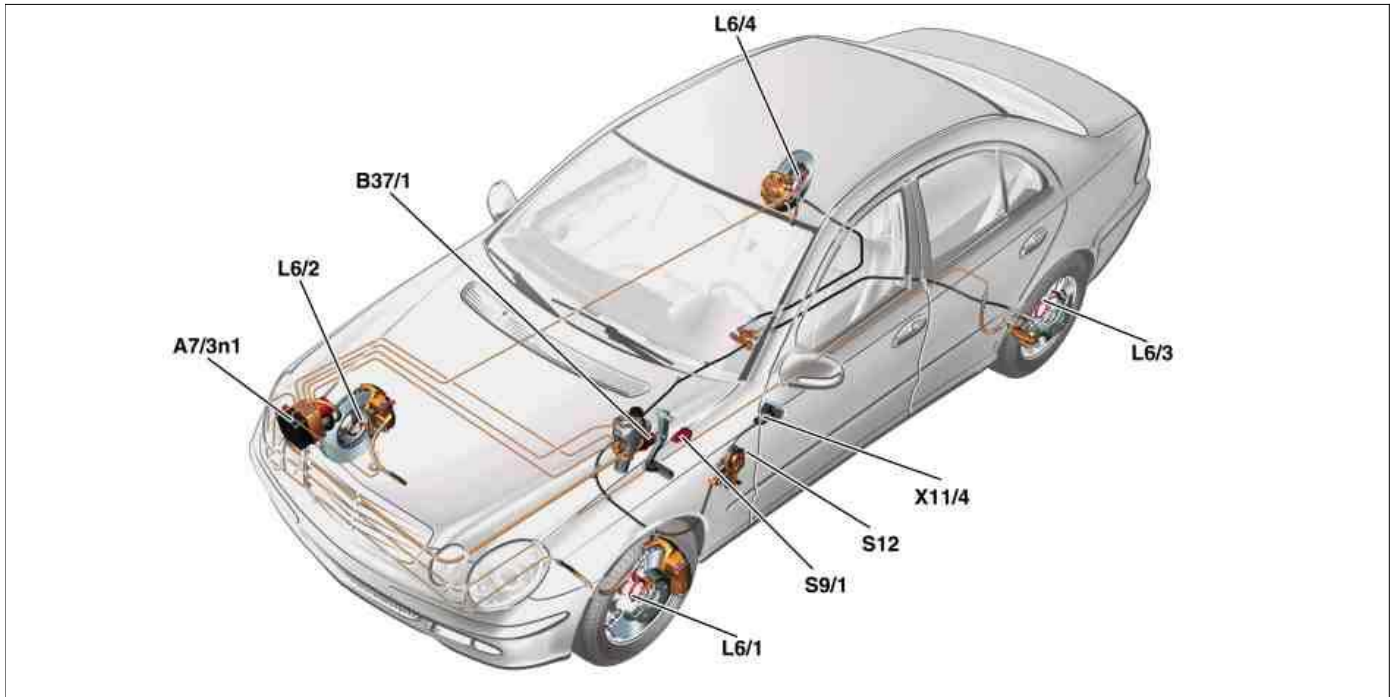
except CODE (498) Japan version

MODEL 211.004 /006 /016 /023 /026 /028 /042 /056 /061 /065 /070 /076 /206 /216 /223 /226 /242 /256 /261 /265 /270 /276 /606 /616 as of 1.6.04 up to 30.6.06,

211.080 /082 /083 /087 /280 /282 /283 as of 1.12.04 up to 30.6.06

with CODE (494) USA version

with CODE (498) Japan version



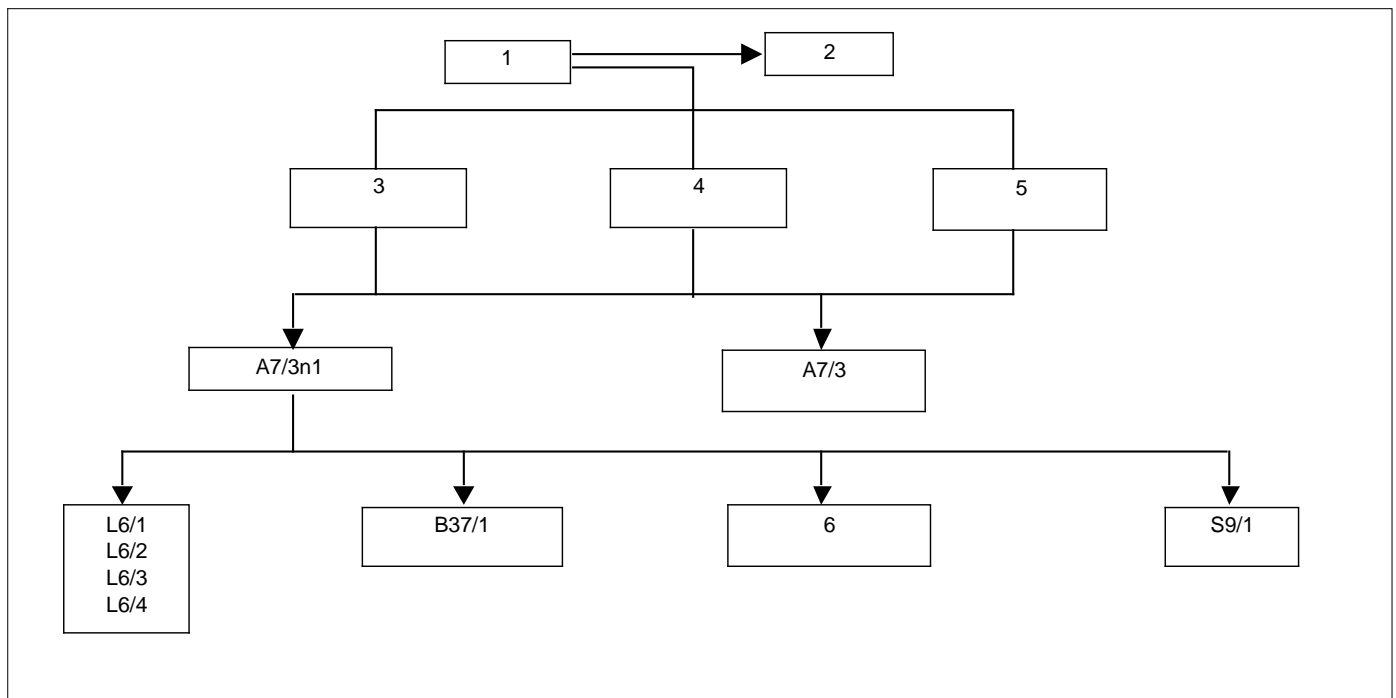
P42.46-2041-79

Shown on model 211.0

A7/3n1 SBC control unit
 B37/1 SBC pedal value sensor
 L6/1 Left front rpm sensor

L6/2 Right front rpm sensor
 L6/3 Left rear rpm sensor
 L6/4 Right rear rpm sensor

S9/1 Stop lamp switch (4-pin)
 S12 Parking brake indicator switch
 X11/4 Data link connector



Dataflow display

1	Sensotronic Brake Control (SBC), function	5	Emergency mode function	L6/1	Left front rpm sensor
2	Electronic stability program (ESP) function	6	Operating unit	L6/2	Right front rpm sensor
3	Normal braking function	A7/3	Traction system hydraulic unit	L6/3	Left rear rpm sensor
4	Additional functions	A7/3n1	SBC control unit	L6/4	Right rear rpm sensor
		B37/1	SBC pedal value sensor	S9/1	Stop lamp switch (4-pin)

Function

The Sensotronic Brake Control (SBC) is an electrohydraulic brake system.

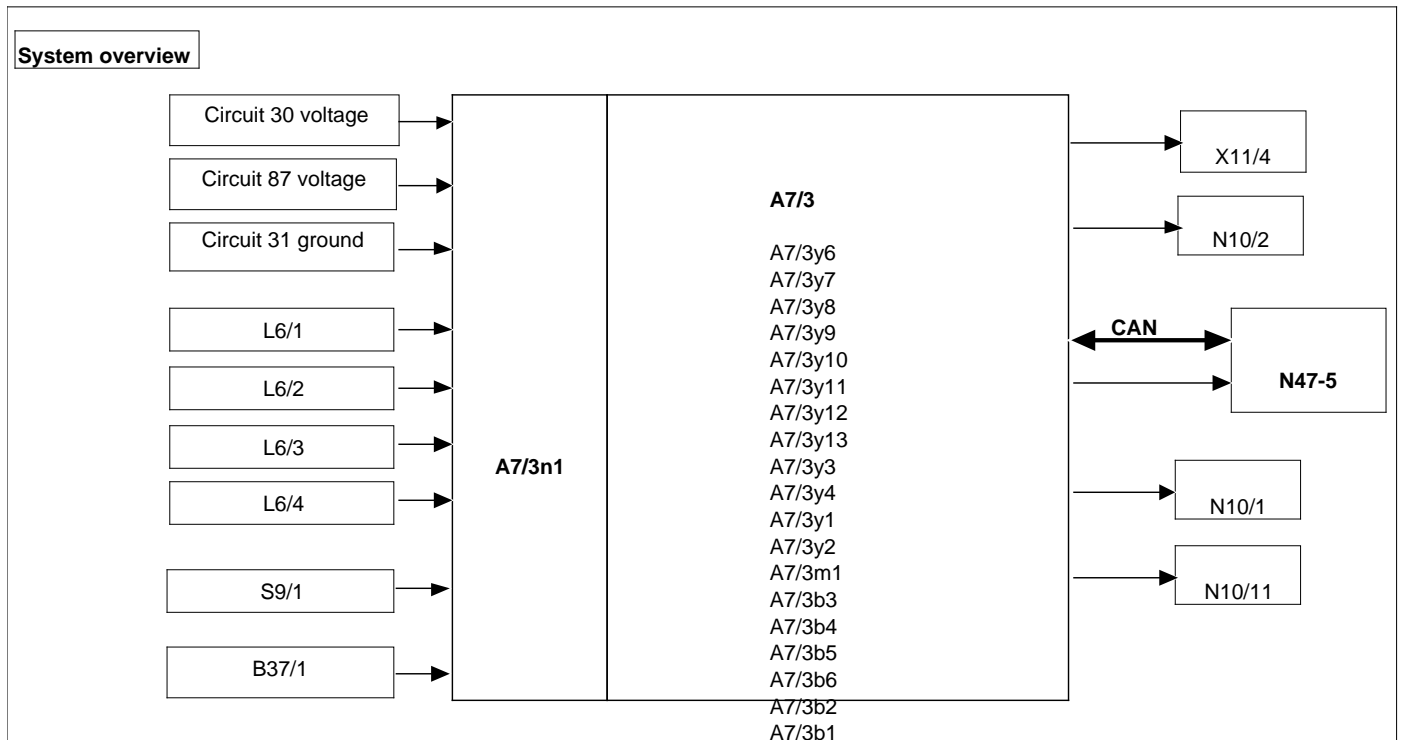
In normal operation the hydraulic link between brake pedal and wheel brakes is interrupted by separation valves.

In contrast with the conventional braking system, an electrohydraulic control ensues with every type of intervention by the braking system.

The SBC provides the following advantages:

- Improvement in the metering of the required brake pressure, more exact and quicker.
- Reduction in stopping distance in particular during an emergency stop (improved BAS function).
- Increase in active vehicle dynamics safety as the vehicle dynamics control systems ABS and BAS as well as ASR and ESP can be used in an optimized manner.
- Leads to a more timely and comfortable stabilization of the vehicle during an ASR or ESP control.

- Takes care of more uniform wear on the brake pads and improves response characteristics of the brakes as a result of optimal braking force distribution between the front and rear wheels.
- Use of the brake force reserve at the rear axle due to increasing the brake force share in the partial braking range and when braking from a low speed.
- Results in more stable braking performance with optimal deceleration values when cornering as a result of the braking forces being shifted to the outer wheels.
- No reaction (vibration) on the brake pedal during ABS control intervention functions
- Additional functions relevant to comfort and safety:
 - SBC Hold (SBC hold).
 - Softstop (SBC gentle braking to a stop).
 - Dry braking of brake disks under wet conditions and precharging (overcoming the play).



System overview

A7/3	SBC hydraulic unit	A7/3y6	Left front inlet control valve	N10/1	Driver-side SAM control unit with fuse and relay module
A7/3b1	Front axle pre-pressure sensor	A7/3y7	Left front outlet control valve	N10/2	Rear SAM control unit with fuse and relay module
A7/3b2	Reservoir pressure sensor	A7/3y8	Right front inlet control valve	N10/11	Passenger-side SAM control unit
A7/3b3	Left front pressure sensor	A7/3y9	Right front outlet control valve	N47-5	ESP control unit
A7/3b4	Right front pressure sensor	A7/3y10	Left rear inlet control valve	S9/1	Stop lamp switch (4-pin)
A7/3b5	Left rear pressure sensor	A7/3y11	Left rear outlet control valve	X11/4	Data link connector
A7/3b6	Right rear pressure sensor	A7/3y12	Right rear inlet control valve		
A7/3m1	High-pressure charging pump	A7/3y13	Right rear outlet control valve		
A7/3n1	SBC control unit	B37/1	SBC pedal value sensor		
A7/3y1	Left front separation valve	L6/1	Left front rpm sensor		
A7/3y2	Right front separation valve	L6/2	Right front rpm sensor		
A7/3y3	Front axle balance valve	L6/3	Left rear rpm sensor		
A7/3y4	Rear axle balance valve	L6/4	Right rear rpm sensor		

The system is activated via various waking events:

- Circuit 15R ON
- Stop light switch (S9/1)
- Operate parking brake release handle
- Parking brake switch (S12)
- Left front door contact switch (S17/3)
- Right front door contact switch (S17/4)
- Vehicle unlocking via remote control

After "waking up", the SBC control unit (A7/3n1) carries out a self-test (PreDriveCheck). The storage pressure is checked and corrected if necessary. In addition, the pressure sensors and the control valves are checked and various leak and operational checks performed. Self-tests are also carried out constantly while driving.

In order to prevent the system being switched off when the vehicle is rolling (e.g. rolling downhill or traffic jam situation) when the ignition is switched off, a signal is transmitted which displays the vehicle standstill.

i During the "PreDriveCheck" pressure is built up in the braking system. In order to prevent the pistons moving out of the brake calipers unintentionally (e.g. when changing the brake pads), the system must be deactivated using the diagnosis tool during work on the brake system.

The driver's brake actuation is conveyed electronically to the SBC control unit (A7/3n1) via the SBC pedal value sensor (B37/1). The brake pressures computed by the ESP control unit (N47-5) are allocated individually to the individual wheel brakes via the traction system hydraulic unit (A7/3).



The hydraulic energy required for this is provided by a high pressure reservoir which is supplied with pressure by a high-pressure charging pump (A7/3m1).

If faults exist in the electrohydraulic system, the hydraulic link between brake pedal and wheel is automatically restored.

System relationships, Sensotronic Brake Control (SBC)

The ESP control unit (N47-5) takes priority over the SBC control unit (A7/3n1). Both control units are interlinked by their own CAN databus. The SBC control unit (A7/3n1) conveys to the ESP control unit (N47-5) data about the driver's braking requirement and pressures in the system.

The ESP control unit (N47-5) computes the specified pressures required and transmits these to the SBC control unit (A7/3n1). The pressures for the control are then adjusted in the SBC control unit (A7/3n1) and the actual pressures reported back.

 AH	Notes on towing		AH42.00-P-0001-05B
 AH	Notes on testing electronic components and systems for damage resulting from an accident		AH42.00-P-0001-06B
	Sensotronic Brake Control (SBC) function, location of electrical components		GF42.46-P-0001-03E
	Sensotronic Brake Control (SBC) function, location of hydraulic components		GF42.46-P-0001-02E
	Electronic stability program (ESP), driver information		GF42.45-P-0001-04T
	SBC normal braking, function		GF42.46-P-1000T
	SBC additional functions, function		GF42.46-P-2000TA
	SBC function brake application in the event of system fault		GF42.46-P-3000T
	Electronic stability program (ESP) function		GF42.45-P-0001T
	Traction systems hydraulic unit, location/task/design/function		GF42.50-P-4000S
	SBC control unit, location/task/function		GF42.46-P-4500SL
	SBC pedal value sensor, location/task/design/function		GF42.46-P-4210SL