

PRINCIPLE OF OPERATION : ENGINE FUSE BOX (BSM)

SINCE RPO NO. 09618

1. Description of the engine fusebox

The engine fusebox protects and distributes the supplies of the various functions by means of its relays, fuses and maxi-fuses .

The engine fuse box consists of two linked modules :

- Module 1 : module incorporating the maxi fuses
- Module 2 : module incorporating an electronic card, the fuses and the relays

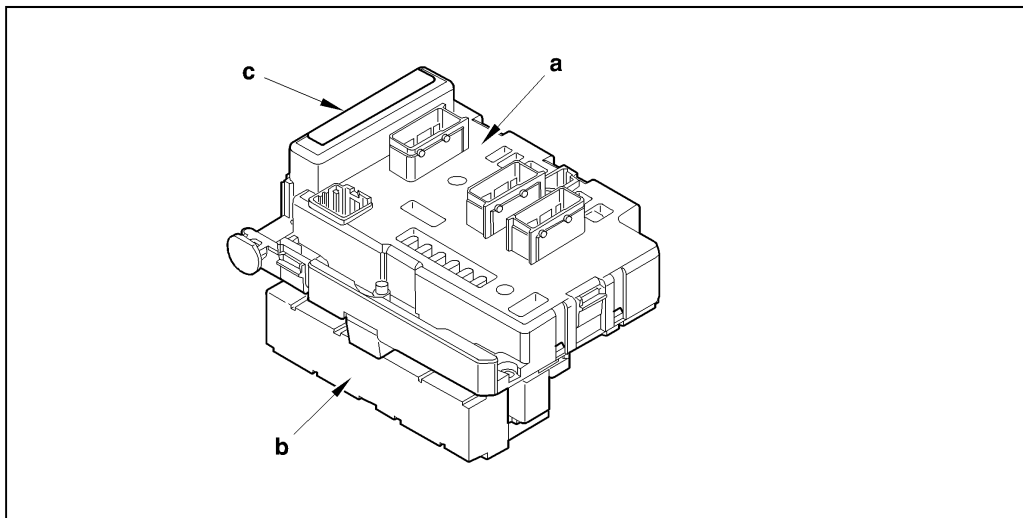


Рисунок : D4EP02YD

Key :

- " a " : module 1
- " b " : module 2
- " c " : product identification label

2. General description of the electrical supply

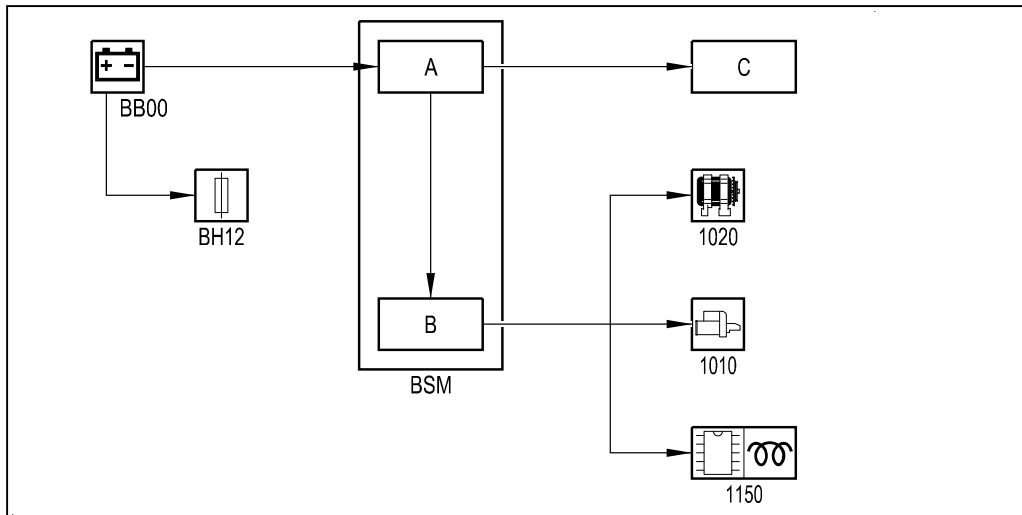


Рисунок : D4EP0DXD

Single arrow : +BAT electrical supply .

Reference	Description
Engine fusebox	Engine fuse box
A	Module 1 of the engine fusebox
B	Module 2 of the engine fusebox
C	Maxi fuses MF1, MF2, MF3, MF4, MF5, MF6, MF7, MF8
BB00	Battery
BH12	Passenger compartment fuse box
1010	Starter
1020	Alternator
1150	Pre-heater unit

3. Module 1 of the engine fusebox

3.1. Benefit

Module 1 assures, from the battery positive cable, :

- The distribution, and protection by maxi-fuses, of the BAT+ electrical supplies to the components connected via the main harness
- The BAT+ electrical power supply of module 2

3.2. Diagram

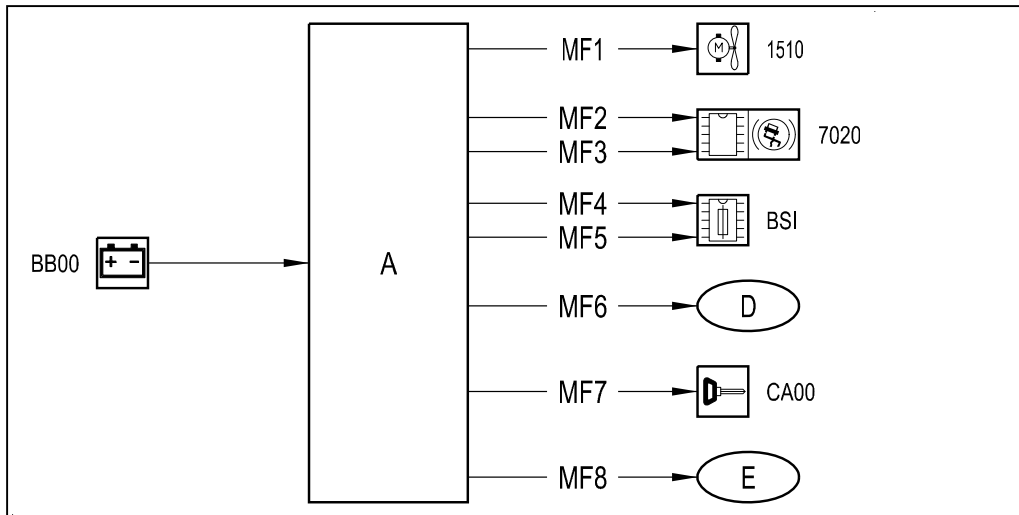


Рисунок : D4EP0DYD

Single arrow : +BAT electrical supply .

Reference	Description
A	Module 1 of the engine fusebox
D	Heated and/or electric seats
E	Suspension electropump assembly
BSI	Built-in systems interface
BB00	Battery
CA00	Anti-theft switch
1510	Fan unit
7020/7800	Anti-lock braking system (ABS) . stability control (ESP)

3.3. Referencing of the maxi fuses

Maxi-fuse	Protected outputs	Rating (amps)
MF1	Supply of cooling fan	50 A
MF2	Supply to the anti-lock braking system (ABS) or electronic stability program (ESP)	30 A
MF3	Supply of electrovalves	30 A
MF4	Supply of the BSI	80 A
MF5	Supply of the BSI	80 A
MF6	Heated and/or electric seats	50 A or 80 A
MF7	Supply of ignition	30 A
MF8	Suspension electropump assembly	40 A

4. Module 2 of the engine fusebox

4.1. Benefit

Module 2 of the engine fusebox assures the following :

- Via the BAT+ and a wire link with the ignition+ output of the ignition switch, the distribution and protection of the BAT+ and ignition+ electrical supplies to the connected components

- Slave mode communication with the BSI via the BODY VAN 1 network
- Cutting of the fuel pump in the event of an impact suffered by the vehicle (deployment of the airbags)
- "power latch" electrical supply (maintaining of supply of the engine ECU following cutting of the ignition+) of the engine ECU and certain of its actuators
- Supply of the aircon blower on demand from the BSI via the COMFORT VAN network
- Control of the horn on demand from the BSI via the BODY VAN 1 network
- Control of the dipped beams on demand from the BSI via the BODY VAN 1 network and emergency supply in the event of a loss of a component essential to lighting or the need to maintain dipped beams ("watchdog" function)
- Control of the main beams on demand from the BSI via the BODY VAN 1 network
- Control of the front foglamps on demand from the BSI via the BODY VAN 1 network
- Control of the windscreen wash pump on demand from the BSI via the BODY VAN 1 network
- Control of the rear screen wash pump on demand from the BSI via the BODY VAN 1 network
- Control of the headlamp wash pump on demand from the BSI via the BODY VAN 1 network
- Control of windscreen wiping on demand from the BSI via the BODY VAN 1 network

4.2. Description of module 2 of the engine fusebox

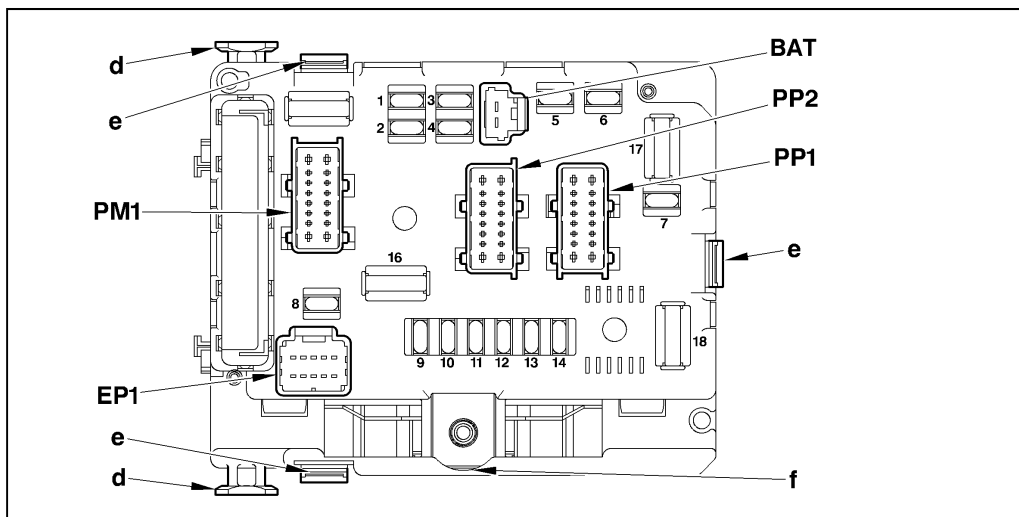


Рисунок : D4EP09WD

Reference	Components
d	Main bearing journal
e	Flexible rocker
f	Battery supply terminal screw

4.2.1. Electronics section connector

Connectors				
Rating	Description	Type of connector	Number of channels	Colour of harness connected
EP1	Electronics connector towards main harness	SICMA 2	10	Black

4.2.2. Power section connector

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Connectors				
Rating	Description	Type of connector	Number of channels	Colour of harness connected
PM1	Power connector towards engine harness	SICMA 2	16	Black
PP1	Power connector towards main harness	SICMA 2	16	Green
PP2	Power connector towards main harness	SICMA 2	16	Grey

4.2.3. Supply connector

Connectors				
Rating	Description	Type of connector	Number of channels	Colour of harness connected
BAT	Battery connector via battery cable	SICMA 2	2	Black

5. Allocation of connector pins

5.1. BAT connector

Pin	Name
1	Output: + starter motor supply
2	Input/output: alternator excitation

5.2. PM1 connector

Pin	Name
1	Supply to oxygen sensor (lambda probe)
2	Supply to reversing lamps
3	Input: engine ECU power relay control
4	Input: oil temperature information
5	Earth
6	Input: oil level
7	Output: air conditioning compressor supply
8	Output: power latch relay
9	Output: ignition coil supply
10	Output: electrovalve supply
11	Input: oil pressure information
12	Input: water in diesel fuel information
13	Power latch relay control
14	Input: speed sensor on gearbox
15	Supply to engine ECU memories
16	Output: injector supply or control

5.3. PP1 connector

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Pin	Name
1	Output: windscreen wipers slow speed
2	
3	
4	Input: windscreen wipers relay control
5	
6	Output: headlamp wash
7	Output: horn
8	Output: air conditioning or passenger compartment blower
9	Output: windscreen wipers fast speed
10	Output: front foglamps
11	Output: rear screen wash
12	Output: engine ECU ignition on supply
13	Power earth
14	Output: windscreen wash
15	Output: horn
16	Output: air conditioning or passenger compartment blower

5.4. PP2 connector

Pin	Name
1	Input: + starter motor supply
2	Input/output: alternator excitation
3	Output: ABS ECU ignition on supply (ABS)
4	Output: automatic gearbox ECU ignition on supply
5	Electronic earth
6	Output: RH main beam
7	Output: LH main beam
8	Output: RH dipped beam
9	Input: ignition on
10	Output: ignition on
11	Output: fuel pump
12	Output: canister electrovalve (petrol only)
13	Input: air conditioning compressor supply
14	Output: power latch relay
15	Output: LH dipped beam
16	Output: blower motor

5.5. EP1 connector

Pin	Name
1	BODY VAN 1 signal
2	Output: speed sensor on gearbox
3	Earth
4	Output: oil temperature information
5	BODY VAN 1 signal (DATA bar)

6	
7	
8	
9	BODY VAN 1 +
10	Output: oil level

6. Referencing of the fuses of module 2 of the engine fusebox

Marking of the fuses	Name of the function	Rating
F1	Reversing lamps	10 A
F2	Supply of fuel pump	15 A
F3	Supply to ABS ECU (ABS or ESP)	10 A
F4	Supply of automatic gearbox ECU . supply of engine ECU	10 A
F5	Supply of diesel fuel additive ECU	10 A
F6	Front foglamps	15 A
F7	Headlamp wash pump	20 A
F8	Main relay of the engine ECU	20 A
F9	Left hand dipped beams	15 A
F10	Right hand dipped beams	15 A
F11	Left hand main beams	10 A
F12	Right hand main beams	10 A
F13	Horn	15 A
F14	Front and rear screen wash pump	10 A
F15	Engine ECU actuators : oxygen sensor heater ; petrol injector supply ; supply of ignition coils ; canister purge electrovalve (fuel vapour from the tank)	30 A
F16	Supply of air pump	30 A
F17	Windscreen wiper slow and fast speed	30 A
F18	Air conditioning blower	40 A