FUNCTION : INDEPENDENT TELEMATIC UNIT

N.B. : (*) According to version.

1. Glossary

Abbreviation	Meaning
GPS	Global Positioning System
GSM	Global System for Mobile communication(900 / 2100 MHz)
SIM	Subscriber Identification Module
SMS	Short Message Service

2. Emergency and assistance call function

2.1. Functional description

This function is used to reduce the time taken by the assistance services to reach the vehicle in the event of a problem or an accident.

The vehicle communicates its geographic position and other information to a service provider which serves as an interface for dispatch of the assistance and/or emergency services.

The emergency call is made in one of the following ways :
- Manually using with the "SOS" button (Press for more than 2 seconds)
- Automatically when the airbags are triggered

The assistance call is made by means of the assistance call button (Press for more than 2 seconds) (*).
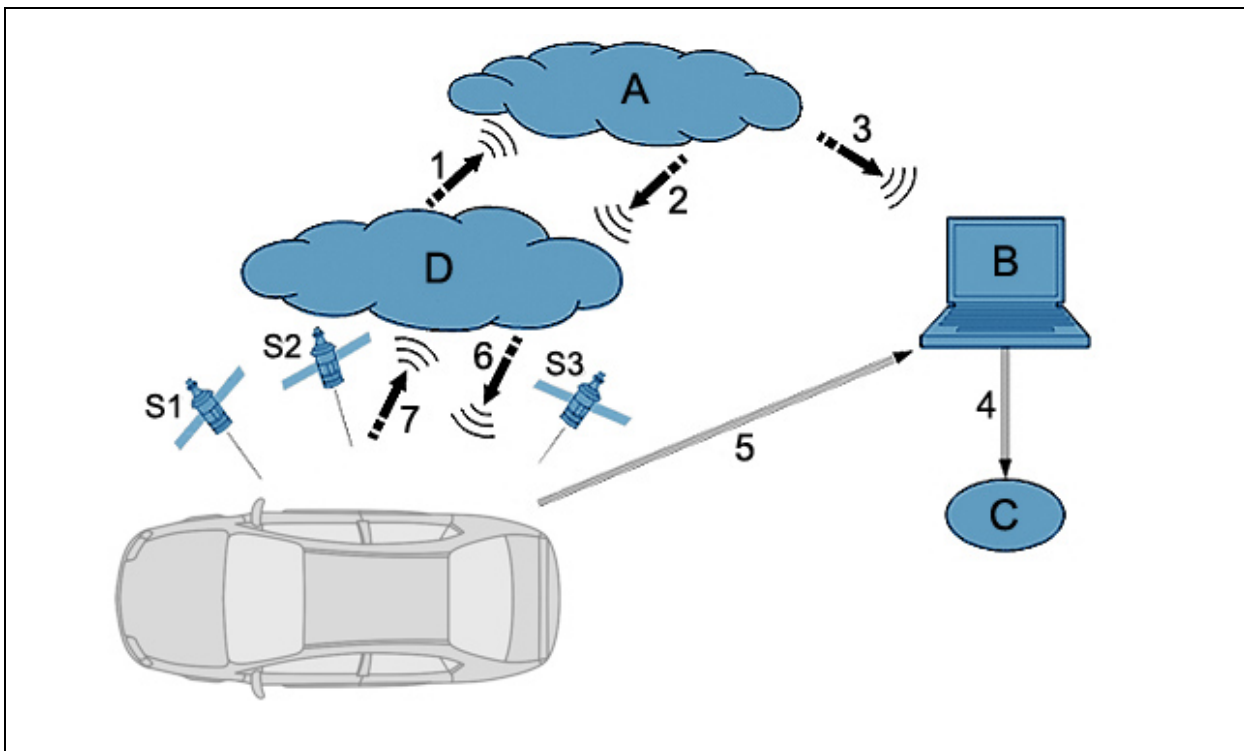

Figure : D4EA04LD

"A" : PSA's SMS processing centre.
"B" : Service provider.

"C" : SOS (Emergency: police, ambulance, breakdown assistance, etc.).

"D" : Server centre (Telephone operators).

"S1", "S2", "S3" : GPS satellites(used for locating the vehicle).

Connection number	Connections
1	SMS number (**)
2	Acknowledgement
3	Decrypted SMS information
4	Emergency and breakdown call number
5	Voice number
6	Acknowledgement
7	SMS centre number (***)

(**) The SMS number is different for each operator but the same for all the services of an operator (***) SMS centre number : Number specific to each operator

2.2. Step by step functional sequence : Emergency call

Stage	Connection number	Description
1	7	When the user makes an emergency call, the independent telematic unit enters into communication with the SMS centre of its operator (Telephone operators)
		2 identical SMS (security) are sent containing the following information : Vehicle description (VIN code) ; Call type (manual or automatic emergency call) ; Type of airbag triggered ; Status of the vehicle (engine running or not, speed of the vehicle, etc.) ; Vehicle position (GPS coordinates) ; Record of the last 9 positions calculated every 50 metres
2	1	The 2 SMS are sent to an SMS processing centre(PSA platform)
3	2 / 6	An acknowledgement of receipt (green diode flashing) of the 2 SMS is sent to the user via the GSM network
4	3	The 2 SMS are decoded and routed to the service provider
5	5	Following the 2 SMS, a voice communication is established between the user and the service providerApproximately 30 seconds after the "SOS" button was pressed or an airbag was triggered
		The progress of the call is displayed on the multifunction screen
6	4	The service provider contacts the appropriate emergency services with all of the information from the SMS

N.B. : The sound from the audio system or the audio/navigation is cut off when a call is received by the independent telematic unit.

2.3. Step by step functional sequence : Assistance call (*)

Stage	Connection number	Description
1	7	When the user makes an assistance call, the independent telematic unit enters into communication with the SMS centre of its operator (Telephone operators)
		An initial SMS is sent containing the following information : Vehicle description (VIN code) ; Status of the vehicle (engine running or not, speed of the vehicle, etc.) ; Vehicle position (GPS coordinates) A second SMS is sent containing the vehicle status diagnostics information
2	1	The 2 SMS are sent to an SMS processing centre(PSA platform)

3	2 / 6	An acknowledgement of receipt (green diode flashing) of the 2 SMS is sent to the user via the GSM network
4	3	The 2 SMS are decoded and routed to the service provider
5	5	Following the 2 SMS, a voice communication is established between the user and the service provider
		The progress of the call is displayed on the multifunction screen
6	4	The service provider contacts the assistance services with all of the information from the SMS

Services available via the assistance call button :
- Operator services
- Call to the marque

N.B. : A SIM card is necessary for making the assistance call. The telephone keypad remains active during the assistance call.

2.4. Check indicator of the emergency call function

Condition of the diode	Conditions
Orange, permanent	This status is active if the internal battery of the independent telematic unit is flat
	This status is active when the independent telematic unit starts up, for as long as the "airbag not initialised" information is received from the independent telematic unit, during a download
Orange, flashing	Emergency call "faulty"(fault on the peripheral equipment used for the telephone and navigation functions)
	This status occurs when a fault appears and stops when the fault disappears or after 3 minutes
	This status generates a "downgraded emergency call" message
Green, flashing	Emergency call sent
Green, permanent	Either acknowledging receipt of SMS or voice communication in progress
Fixed red / Green, permanent (*)	This status is active on starting for 3 seconds then switches off

3. Emergency call following impact information function

To increase the reliability of the automatic triggering of the emergency call, a direct connection is made between the independent telematic unit and the airbags ECU.
The information is binary :
- No crash (High level : 12 V)
- Crash information (Low level : 0 V)

This diagnostic is carried out for as long as the networks are operational, that is for as long as the CAN+ is present. The independent telematic unit indicates that the emergency call service is unavailable only if the multiplexed connection and the wire connection are faulty simultaneously.
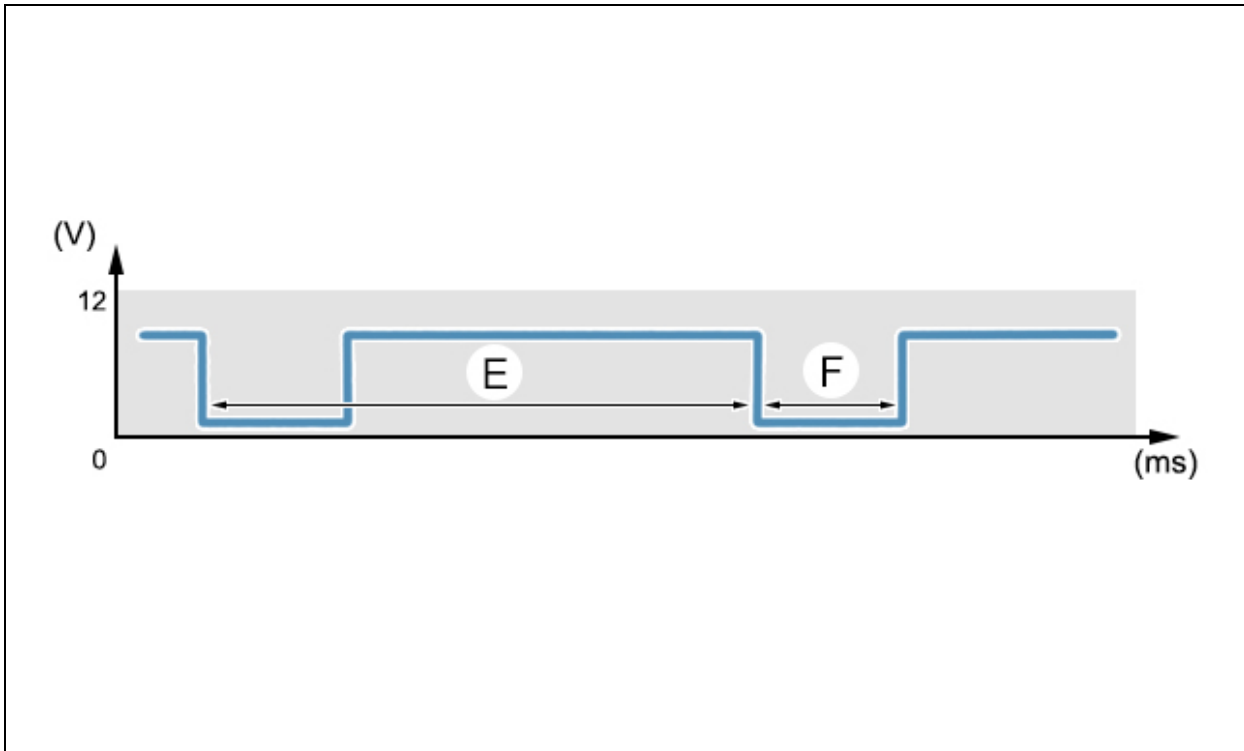
3.1. Nominal mode

Figure : D4EAFIFD

(V) : Voltage (In volts).
(ms) : Time (In milliseconds).
"E" : 1000 ms.
"F" : 25 ms.
In normal mode, the airbags ECU earths the wire output for 25 ms every second.
The absence, 3 times in succession, of the activation by the airbags ECU of the low status of the wire output allows the independent telematic unit to declare that the connection is faulty.
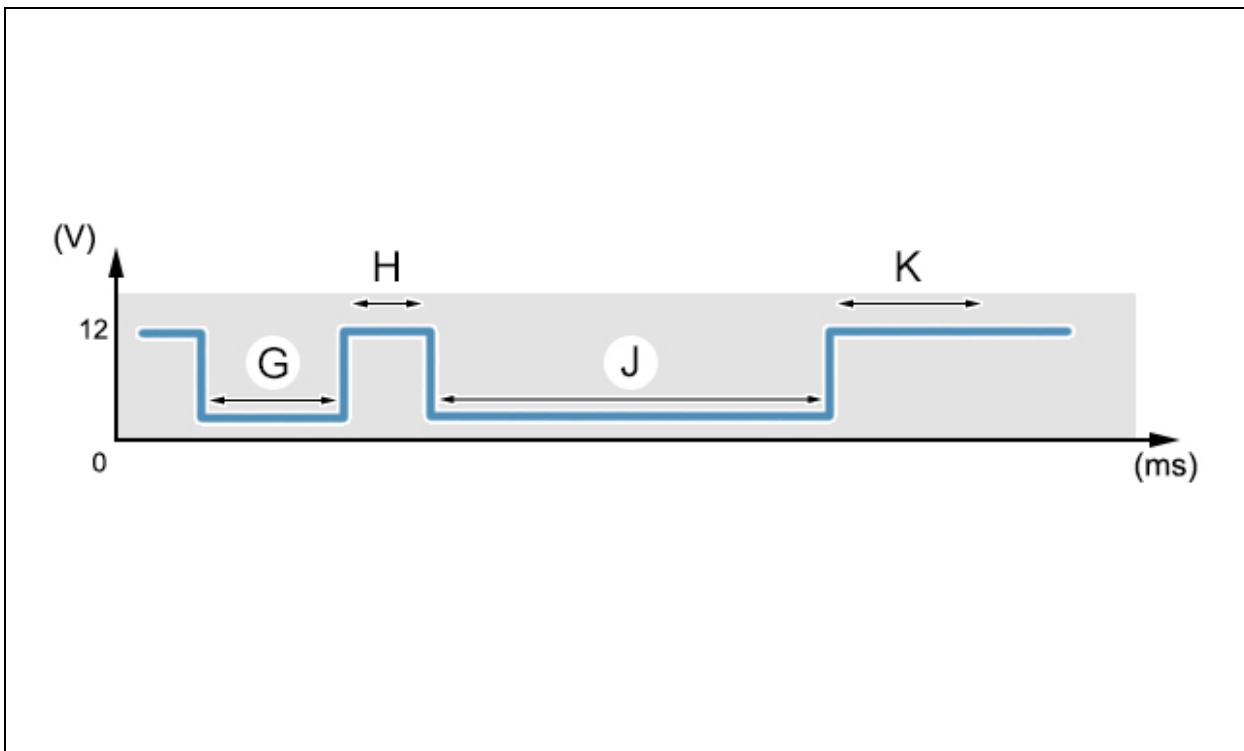
3.2. Impact information

Figure : D4EAFIGD

(V) : Voltage (In volts).
(ms) : Time (In milliseconds).
"G" : 25 ms.
"H" : 10 ms(minimum).
"J" : 70 ms.
"K" : 895 ms(max.).
The start of the impact information is indicated by an exclusion time of 10 ms minimum between the end of the diagnostic pulse and the start of the triggering pulse.
After the period of 70 ms at low status and 30 ms at high status, the independent telematic unit deduces a collision situation and triggers the emergency call.

3.3. Triggering decision matrix

Operating mode	MUX connection	Wire connection	Triggering : Emergency call
Nominal	Airbag ECU incapable of detecting an impact	No collision	No
	Airbag ECU incapable of detecting an impact	Collision	No
	No collision	No collision	No
	No collision	Collision	Yes
	Collision	No collision	Yes
	Collision	Collision	Yes
Back-up mode : Fault : Wire connection	No collision	Link : Not operational (Diagnosis)	No
	Collision	Link : Not operational (Diagnosis)	Yes
Back-up mode : Loss of the ancillaries battery supply	No longer a MUX connection	No collision	No
	No longer a MUX connection	Collision	Yes
Back-up mode : Loss of CRASH INFO datastreams	Default value : No collision	No collision	No
Back-up mode : Loss of CRASH INFO datastreams	Default value : No collision	Collision	Yes

When an emergency call is made without the ancillaries battery positive present on the on-board network, the independent telematic unit is supplied by a back-up battery which has the following characteristics :
- Range : 11 mn (Only between -20°C and +85°C)
- Functioning temperature : - 40 °C to + 85 °C
- Range : 1 year without loss of capacity and authorised loss of 75 % after 8 years

A speaker is integrated in the independent telematic unit with a nominal power of 1 W and 1,5 W maximum power (loss of the ancillaries battery positive on the on-board network).

4. Vehicle fleet management

4.1. Virtual maintenance booklet

The user can access their virtual maintenance booklet via a personal space accessible on the website or mobile app.
The virtual maintenance booklet function is used to :
- Inform the user when a technical operation or routine service is required
- Send to the user's personal space the following information

Type of information transmitted	Description of information

	transmitted
Vehicle information	Vehicle's VIN code
	Total vehicle mileage
	Mileage remaining to next servic
	Current consumption
	Average consumption
	Fuel level
Mechanical and safety information of the Diagnostics type (transmitted on Mondays and Fridays)	Engine oil level
	Engine oil temperature
	Engine coolant temperature
Mechanical and safety information of the Alert type (transmitted in real time)	Mileage before next service exceeded
	Engine oil level to be checked
	Oil temperature too high
	Engine coolant temperature excessive

4.2. "Eco driving" function (*)

The "eco driving" function provides the user with personalised advice to reduce their fuel consumption, taking into account their style of driving (acceleration, braking, engine speed, etc.).

5. Vehicle location

5.1. Stolen vehicle locating (*)

This function is used to follow the geographical position of the vehicle if it is stolen and send all of the information about the vehicle.
The location information sent to the service provider is identical to that in the emergency or assistance call message (*).

5.2. "Find my vehicle" function (*)

This function allows the user to see where their vehicle is parked via a smartphone.

5.3. Journey display (*)

This function allows the user to view current and previous journeys via their smartphone and find all the information available for each journey (average consumption, duration and distance travelled).

5.4. Vehicle use alert (*)

This function allows the user to set alerts that will be sent to them by email according to the time band and areas within which their vehicle is driven.

5.5. "Continue navigation" function (*)

When the vehicle is parked, the "Continue navigation" function guides the user to the selected destination in pedestrian mode.

6. Modem (*)

For services, the modem permits :
- The sending and receiving of SMS
- The making and receiving of voice calls
- The establishing of communication between the user and the server via the GSM network with a remote server

The modem can connect to the internet via the GSM network.

7. Internet access (Vehicle equipped with audio-navigation system)

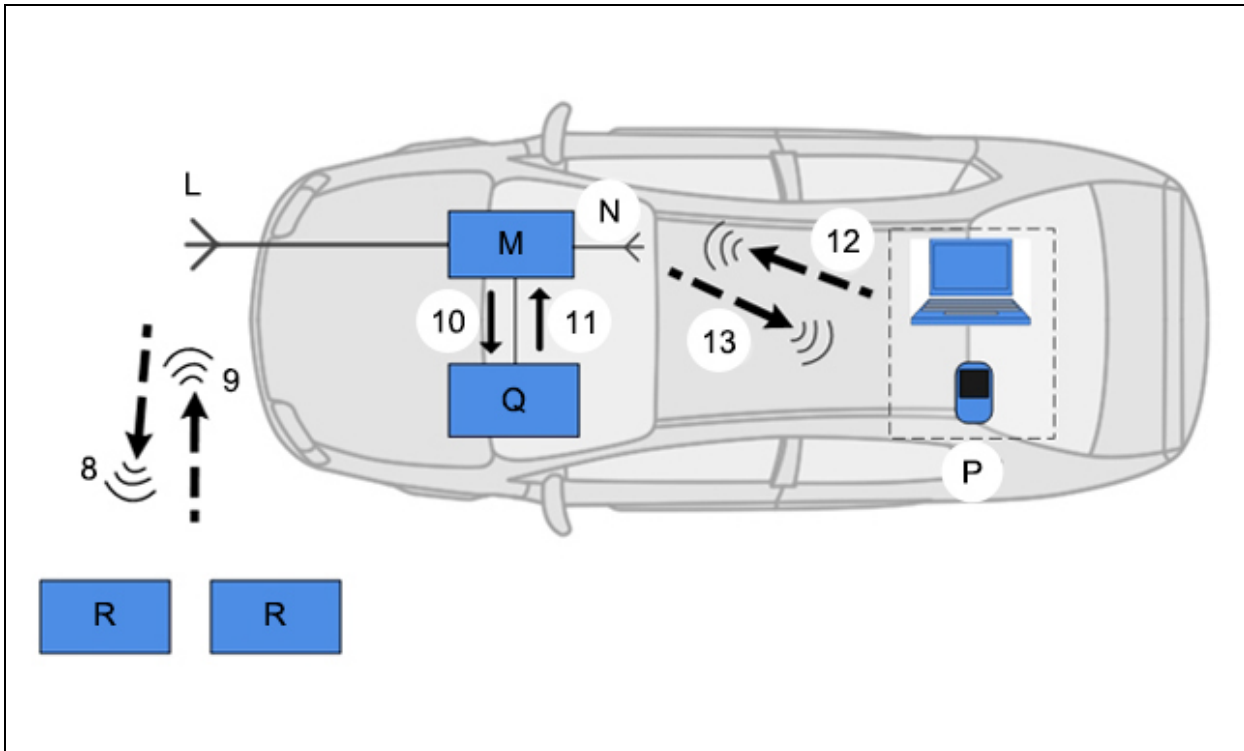This function allows mobile devices to connect to the internet via a Wi-Fi access point.

Figure : D4EA8PDD

"L" : GSM aerial.
"M" : Independent telematic unit.
"N" : Wi-Fi aerial.
"P" : Mobile devices.
"Q" : Audio-navigation system.
"R" : Internet server.

Connection number	Connections
8 / 9	GSM connection
10 / 11	USB connection
12 / 13	Wi-Fi connection

Stage	Connection number	Description
1	11	When the user requests internet access via the multifunction screen, the audio-navigation system sends a connection request to the independent telematic unit via a USB connection
	12	When the user requests internet access on a mobile device, a connection request is sent to the independent telematic unit via the Wi-Fi aerial
2	8	The independent telematic unit sends a request for connection to the internet server
3	9	The internet connection is established via the independent telematic unit's GSM aerial
4	10	The multifunction screen is connected to the internet via the independent telematic unit's USB connection
	13	The mobile device is connected to the internet via the independent telematic unit's Wi-Fi aerial

8. Remote diagnostics (*)

The independent telematic unit sends the vehicle status diagnostics information to the service platform to confirm its operation.

9. Updating the software of the independent telematic unit

The independent telematic unit is updated remotely and in a manner transparent for the customer.
The system analyses the concordance of the software with the database available on the server.
If there is an inconsistency, an update is downloaded automatically via the server.
The software may be updated for the following reasons :
- Correction of bugs in the software
- Development of the software (Addition of functions or new services)
- Adaptation following a modification of the telematic environment

Stage	Description
Triggering	The independent telematic unit is informed that an update is available during its periodic connection to the service platform
Downloading	The independent telematic unit receives the update request sent by the service platform and connects to the server to download the new software
installation	The independent telematic unit flash memory (EPROM) is rewritten
Notification	The independent telematic unit connects to the service platform to inform it of the success or failure of the software update