TECHNICAL NOTE
Edition Anglaise

77 11 205 445
JUNE 1999

3239A
Service 0422

Espace

Type **JE0 X**

Sub-section **38**

38 BOSCH 5.3 ABS WITH SPEED INFORMATION FUNCTION

- Engine: **XXX**
- Gearbox: **XXX**

Basic manual: N.T. **3034A**

This note is in addition to Technical Note 3034A.

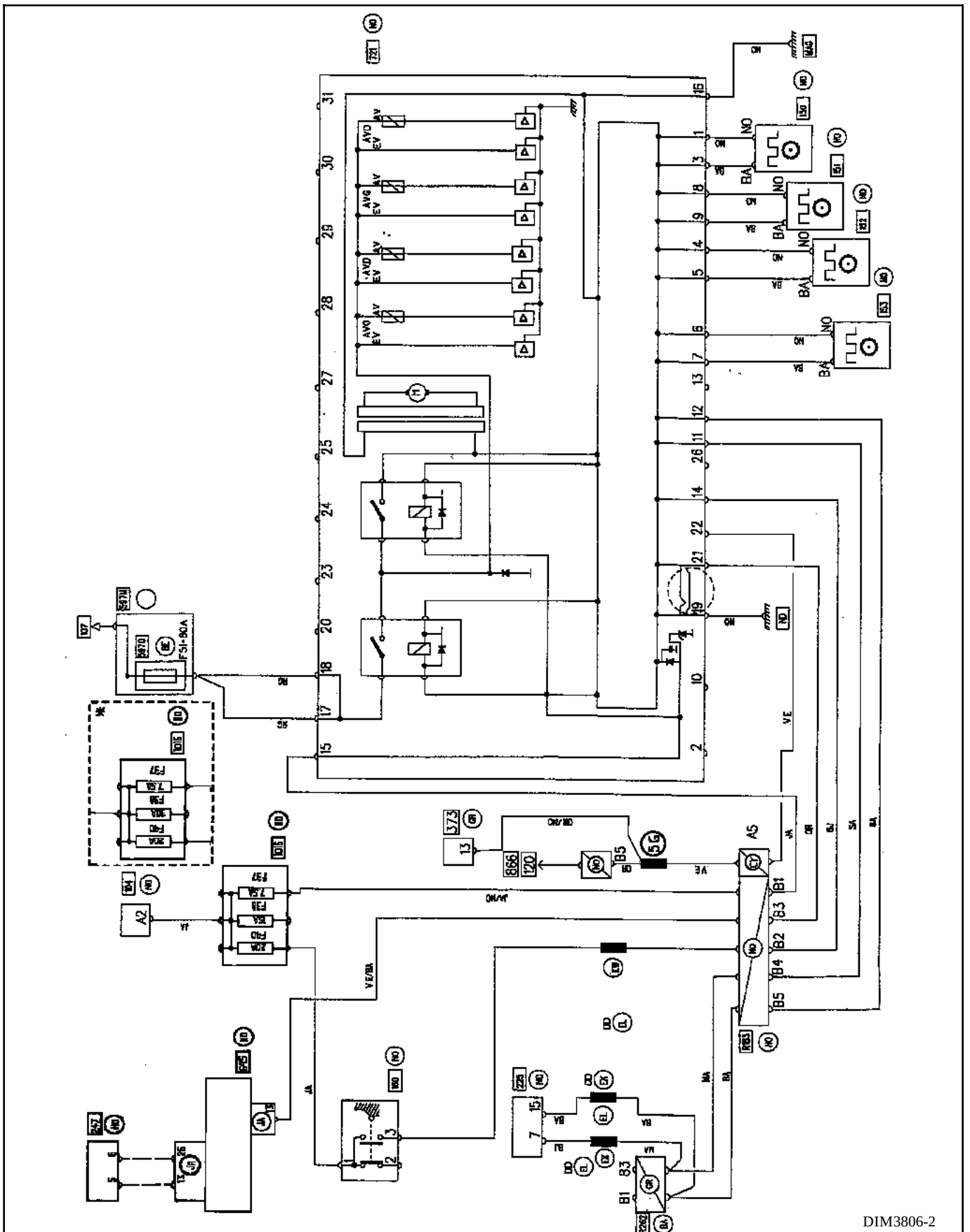
Contents

The new BOSCH 5.3 ABS computers fitted to the ESPACE provide a vehicle speed signal (this signal replaces that from the speed sensor located on the gearbox).

OPERATING PRINCIPLE

The ABS computer calculates the vehicle speed from the wheel speed and the tyre circumference in the memory (see page 38-9).

WIRING DIAGRAM



WIRING DIAGRAM KEY

104 Ignition switch

120 Injection computer

150 Rear right hand wheel sensor

151 Rear left hand wheel sensor

152 Front right hand wheel sensor

153 Front left hand wheel sensor

160 Stop switch

225 Diagnostic socket

247 Instrument panel

373 Cruise control unit

597 Engine fuse box

645 Passenger compartment connection unit

721 ABS hydraulic assembly and computer

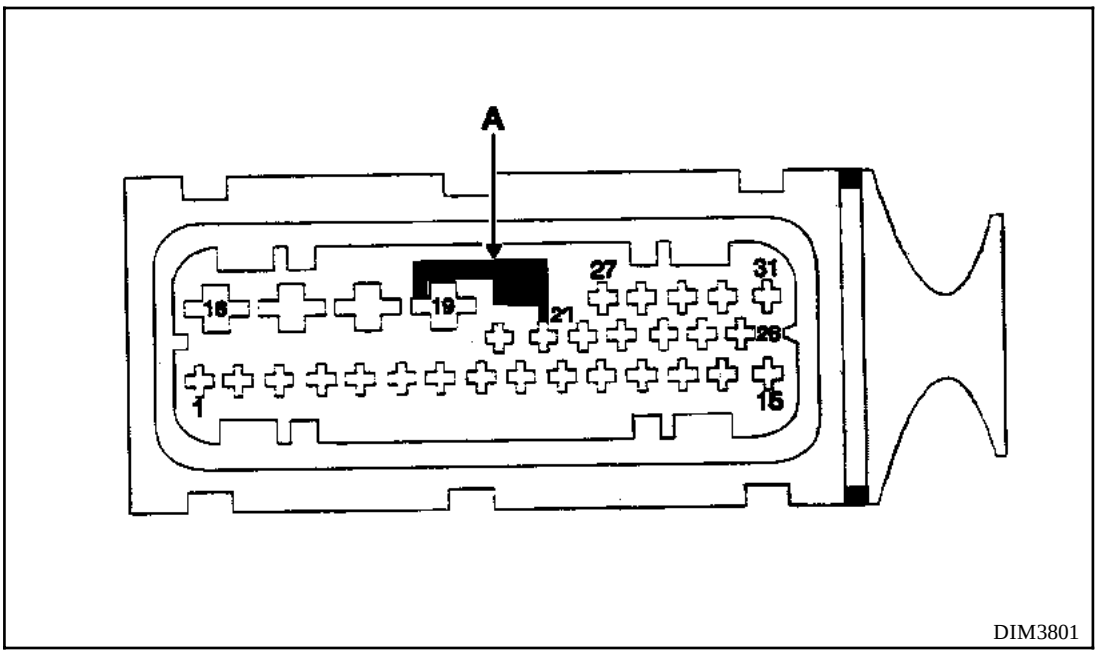
866 Diesel injection computer

1016 Passenger compartment electronic unit

R183 Intermediate connection - engine connection unit / **ABS**

R262 Connection - passenger compartment- engine compartment

31 TRACK COMPUTER



A Micro-spring connecting to earth (terminal **19**) and pin **21** (**ABS** and **NIVOCODE** warning lights) in case connector is disconnected.

Allocation of connector tracks

Track	Description
1	RRH sensor earth
2	Not connected
3	RRH sensor information
4	FRH sensor earth
5	FRH sensor information
6	FLH sensor earth
7	FLH sensor information
8	RLH sensor earth
9	RLH sensor information
10	Not connected
11	Diagnostic line **K**
12	Diagnostic line **L**
13	Not connected
14	Stop lights switch information

Track	Description
15	+ after ignition computer feed
16	Pump motor earth
17	**+ BATT** (solenoid valves and pump motor)
18	**+ BATT** (solenoid valves and pump motor)
19	Electronic earth
20	Not connected
21	ABS fault warning light
22	Vehicle speed information
25	Not connected
26	Not connected
27	Not connected
31	Not connected

The tyre circumference is to be programmed into the memory of the new computer. This is done by entering the wheel diameter configuration **(G30*X*)** using the fault finding tool.

TYRES	VALUE TO ENTER ("X")
195 / 65 / 15	45
205 / 65 / 15	96
215 / 65 / 15	147
215 / 55 / 16	76
225 / 55 / 16	121

Following entering of the value, erase the computer memory then switch off the ignition.

The tachometer value **(#30)** can be used to check the correct value has been entered.

INTERCHANGEABILITY OF COMPUTER AND COMPLETE HYDRAULIC ASSEMBLY

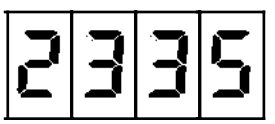
Since the computers and hydraulic assemblies of the BOSCH 5.3 ABS are mechanically, hydraulically and electrically completely interchangeable, with or without the speed information function, the part numbers have been unified.

For exchange or repair only computers with the speed information function are fitted, even on vehicles fitted with the first generation computer as standard (without the speed information function).

When a computer is replaced, when the ignition is switched on, the ABS warning light will flash rapidly to indicate that the tyre circumference has not been programmed. This is used to calculate the vehicle speed (even if the computer speed information function is not used on the vehicle).

The ABS warning light can be made to stop flashing using the **configuration of wheel diameter (G30*X*).**

ABS computers with the speed information function are identified by the following **computer number (#12)** :



FAULT FINDING - INTRODUCTION

CONDITIONS FOR APPLYING THE CHECKS DEFINED IN THIS FAULT FINDING DOCUMENT

The checks defined in this fault finding document are only to be applied to the vehicle where the title of the fault dealt with corresponds exactly to the display noted on the fault finding tool.

If a fault is dealt with when the bargraph is flashing, the conditions for confirming the actual presence of the fault (and the necessity of applying the fault finding) are given in the "Notes" section or at the start of the interpretation of the bargraph.

If a bargraph is only interpreted in the case where it is permanently illuminated, applying the checks recommended in the fault finding when the bargraph is flashing will not allow the origin of the memorisation of the fault to be determined. In this case, only a check of the wiring and connections of the component at fault may be carried out (the fault is simply memorised as it is not present at the time of checking).

NOTE : the ignition must be switched off before the fault finding tool is used.

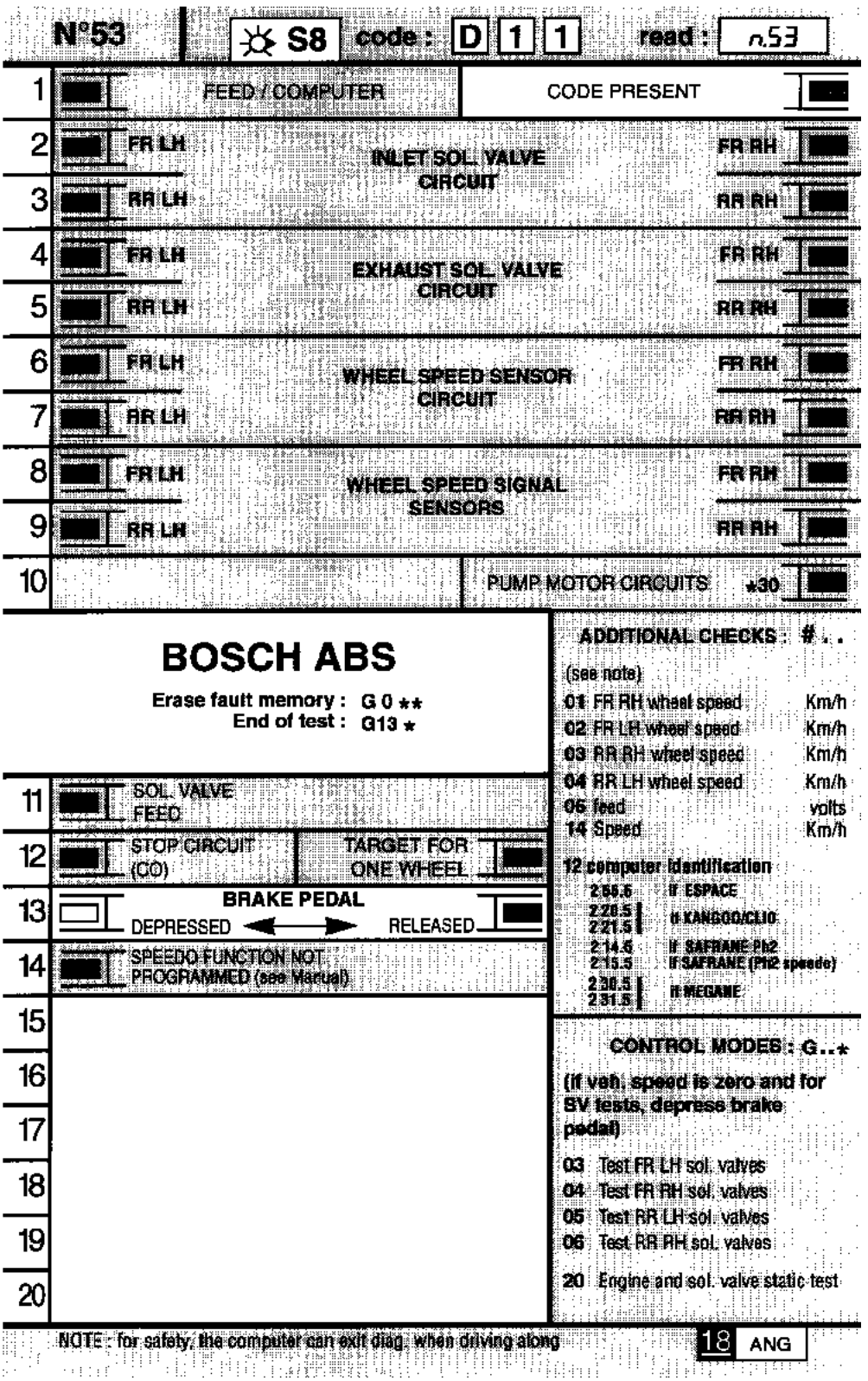
TOOLING REQUIRED FOR OPERATIONS ON THE ABS SYSTEM

Fault finding tools.

Reminders:

When an intermittent fault is memorised, the ABS warning light will illuminate when the vehicle is next used until a speed equal to 7.5 mph (12 km / h) is reached. When the fault is memorised, a counter associated with the fault is set to 40. This counter is decreased each time the ignition is switched on if the fault is not present when the vehicle speed exceeds 7.5mph (12 km / h).
When the counter reaches 1, it is no longer decreased and the fault is not erased.

FAULT FINDING - XR25 FICHE

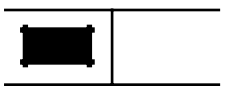


FI21853

FAULT FINDING - XR25 FICHE

BARGRAPH SYMBOLS

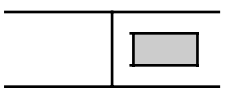
FAULTS (always on a coloured background)



If illuminated, this indicates a fault on the product tested. The associated text defines the fault.
The bargraph may be :

- Permanently illuminated : fault present.
- Flashing : fault memorised.
- Extinguished : no fault or fault not found.

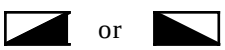
STATUS (always on a white background)



Bargraph always at the top right hand side.
If illuminated dialogue has been established with the computer for the product.
If it remains extinguished:

- The code does not exist.
- There is a fault with the tool, the computer or the XR25 / computer connection.

The representation of the following bargraphs indicates their initial status:
Initial status: (ignition on, engine stopped, no operator action)



Indefinite — illuminated when the function or condition on the fiche is met.

Extinguished

Illuminated — extinguishes when the function or condition specified on the fiche is no longer being met.

ADDITIONAL NOTES

Certain bargraphs have a *. The *.. command, when the bargraph is illuminated, allows additional information on the type of fault or status to be displayed.

14	**Bargraph 14 LH side** Speed information programming

NOTES	None.

The **BOSCH 5.3** ABS computer with "speed information" function is capable of providing a vehicle speed signal to all the users of this information in the vehicle (engine management, passenger compartment connection unit,...).
This vehicle speed signal will replace that currently supplied by the speed sensor on the gearbox.
The ABS computer calculates the vehicle speed from the wheel speeds and the circumference of the tyres fitted to the vehicle.

The tyre circumference is to be programmed into the memory of the new computer. This is done by entering the wheel diameter configuration (G30*X*) using the fault finding tool.

TYRES	VALUE TO ENTER ("X")
195 / 65 / 15	45
205 / 65 / 15	96
215 / 65 / 15	147
215 / 55 / 16	76
225 / 55 / 16	121

Following entering of the value, erase the computer memory then switch off the ignition.
The tachometer value **(#30)** can be used to check the correct value has been entered.

AFTER REPAIR	Erase the computer memory (G0**). Carry out another check using the fault finding tool.

FAULT FINDING - CHECKING CONFORMITY

NOTES	None

Order	Function	Title	Display and notes	Diagnostic
1	Battery voltage	**Parameter (#06)** : Computer feed voltage	11.6 <X< 13.2 V	**If there is a fault, refer to the fault finding for this parameter**
2	Computer conformity	**Parameter (#12)** : Computer number	233.5	**None**
3	Reading the value	**Parameter (#30)** : Speed information value	45 47 96 76 121	**45 = 195/65/15** **47 = 215/65/15** **96 = 205/65/15** **76 = 215/55/16** **121 = 225/55/16**

Using the commands:

Operating the solenoid valves for a hydraulic test:

Lift the vehicle to check that the wheels turn freely.
Hold the brake pedal down to prevent the wheel to be tested from turning if it is turned by hand (do not brake too hard so that you are at the releasing limit).

Use the **wheel solenoid valve command (G0X*)** → The wheel concerned should lock / release ten times.

Operating the pump motor:

Use the **pump motor test command (G08*)** and press the brake pedal → The motor should operate for **2 seconds**.

Operating the pump motor and the solenoid valves:

Execute the **static actuator test (G020*)** and press the brake pedal → The motor and the solenoid valves should operate briefly.

Bleeding the hydraulic circuits:

Follow the procedure described in the section "**Bleeding the circuits**" in **N.T. 3034A.**

Replacing the computer:

The **BOSCH 5.3** ABS computer with "speed information" function is capable of providing a vehicle speed signal to all the users of this information in the vehicle (engine management, passenger compartment connection unit, ...).
This vehicle speed signal will replace that currently supplied by the speed sensor on the gearbox.
The ABS computer calculates the vehicle speed from the wheel speeds and the circumference of the tyres fitted to the vehicle.

The tyre circumference is to be programmed into the memory of the new computer. This is done by entering the wheel diameter configuration (G30*X*) using the fault finding tool.

TYRES	VALUE TO ENTER ("X")
195 / 65 / 15	45
205 / 65 / 15	96
215 / 65 / 15	147
215 / 55 / 16	76
225 / 55 / 16	121

Following entering of the value, erase the computer memory then switch off the ignition.
The tachometer value **(#30)** can be used to check the correct value has been entered.

FAULT FINDING - CUSTOMER COMPLAINT

NOTES	Only refer to this customer complaint after a complete check using the fault finding tool.

FAULTS NOTED IN OPERATION OF THE WARNING LIGHT

No vehicle speed information on the instrument panel. **Chart 1**

FAULT FINDING - FAULT CHART

Chart 1	NO VEHICLE SPEED INFORMATION ON THE INSTRUMENT PANEL (COMPUTER WITH SPEED INFORMATION FUNCTION)

NOTES	Only refer to this customer complaint after a complete check using the fault finding tool.

Check using the fault finding tool for the presence or absence of vehicle speed information on the other systems which use the signal from the ABS computer (engine management, passenger compartment connection unit,...).

- If the instrument panel is the only system not receiving the signal, ensure the continuity of the connection between track **22** on the ABS computer and track **17** on the **blue 26 track connector** (**F**) for the passenger compartment connection unit.
- If no system is receiving the signal, look for a continuity or insulation fault on the connection between track **22** on the ABS computer connector and the various users of the vehicle speed information or an internal fault in one of the signal user systems (proceed by making successive disconnections).

If the fault persists after these checks, replace the ABS computer.

AFTER REPAIR	Carry out a road test then a check with the fault finding tool.