



Technical Note 3755A

C06C - C06D - C06G - C068 - S068

Basic manual: Workshop Repair Manual 305

Special notes on the Twingo equipped with BOSCH 8.0 ABS

77 11 322 422

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EDITION ANGLAISE

"The repair methods given by the manufacturer in this document are based on the technical specifications current when it was prepared.

The methods may be modified as a result of changes introduced by the manufacturer in the production of the various component units and accessories from which his vehicles are constructed."

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Essential equipment
Brake circuit bleeding device (approved by RENAULT)
Diagnostic tool



To ensure correct operation, a brake circuit must be free of gas (external air, water vapour etc.). Whenever the circuit has been opened, therefore, the air contained in the circuit must be bled once the circuit is closed.

As the brake fluid ages (see service intervals) it absorbs a significant amount of moisture which may create water vapour in the circuit, in certain extreme conditions. This ageing process means that the circuit must be drained completely and then the air contained in it must be bled.

Prerequisites for any bleeding of air from the brake circuit:

- make sure that there are no leaks in the fuel system,
- fill brake fluid reservoir (1) to its maximum level,
- depress the brake pedal several times to bring the moving parts of the brake system into contact (pistons, brake shoes, discs),
- add brake fluid (1) to top up the level in the reservoir,
- set up the bleeding device and top up the brake fluid level (1) to maximum (refer to the driver's handbook, the recommended pressure being between **2 bar** and **2.5 bar**).

There are two different types of brake circuit air bleeding operations:

- a conventional air bleed, which does not allow bleeding of air from the hydraulic unit regulation circuit (2);
- bleeding the air from the hydraulic unit regulation circuit (2) should only be carried out if the brake pedal travel is considered correct following conventional bleeding (3) but is then incorrect after a road test.

- (1) Brake fluid **SAE J 1703 DOT4**.
- (2) The regulation circuit is an internal part of the hydraulic unit. It is isolated from the conventional circuit until the solenoid valves are actuated by the computer or the diagnostic tool.
- (3) Confirmed by a road test triggering the hydraulic unit regulation.

Bleeding the brake circuit not including the regulation circuit

Special precaution to be taken when bleeding the brake circuit:

- The ignition must be switched off to ensure that the hydraulic unit solenoid valves do not operate.

This procedure, known as conventional bleeding, can be applied after removal or during replacement of:

- a rigid pipe,
- a hose,
- a calliper,
- the master cylinder,
- the hydraulic unit,
- the brake fluid,
- the reservoir.

Put the vehicle on a two-post lift.

Connect the air bleeding device to the vehicle brake fluid reservoir (refer to the instructions).

Fit the bleed reservoirs to the bleed screws.

Bleed the circuit by opening the bleed screws in the following order (remember to close them after the operation):

- rear right-hand circuit,
- front left-hand circuit,
- rear left-hand circuit,
- front right-hand circuit.

With the engine switched off, check the pedal travel.

If it is not correct, start the bleeding procedure again.

Top up the brake fluid level in the reservoir having disconnected the bleeding device. Check the tightness of the bleed screws and that the sealing caps are all present.

During a road test, trigger brake regulation to confirm that the brake pedal travel is correct. If the pedal travel becomes incorrect during the road test, follow the procedure for ***bleeding the brake regulation circuit***.

Bleeding the brake regulation circuit

This procedure can be applied after a road test with brake regulation during which the pedal travel becomes incorrect.

Put the vehicle on a two-post lift.

Reconnect the air bleeding device to the vehicle brake fluid reservoir (refer to the instructions).

Connect the CLIP diagnostic tool.

Fit the bleed reservoirs to the bleed screws.

Bleed the control circuit using the CLIP diagnostic tool:

- Activate command **SC006** Bleed the hydraulic unit and brake circuits;
- Follow the instructions for the diagnostic tool.

Note:

Throughout the bleeding procedure, depress and release the brake pedal (pumping action).

Bleed the circuits in the order given by the diagnostic tool.

Remove the bleeding device. Top up the brake fluid level in the reservoir. Check the tightness of the bleed screws and that the sealing caps are all present.

During a road test, trigger brake regulation to confirm that the brake pedal travel is correct.

If the travel becomes spongy, **repeat the brake circuit bleeding operation except for the brake regulation circuit and the brake regulation circuit bleeding operation** until correct brake pedal travel is obtained.

It is therefore possible to use a quantity of brake fluid greater than the capacity of the circuit.

ANTI-LOCK BRAKING SYSTEM

Introduction

38C

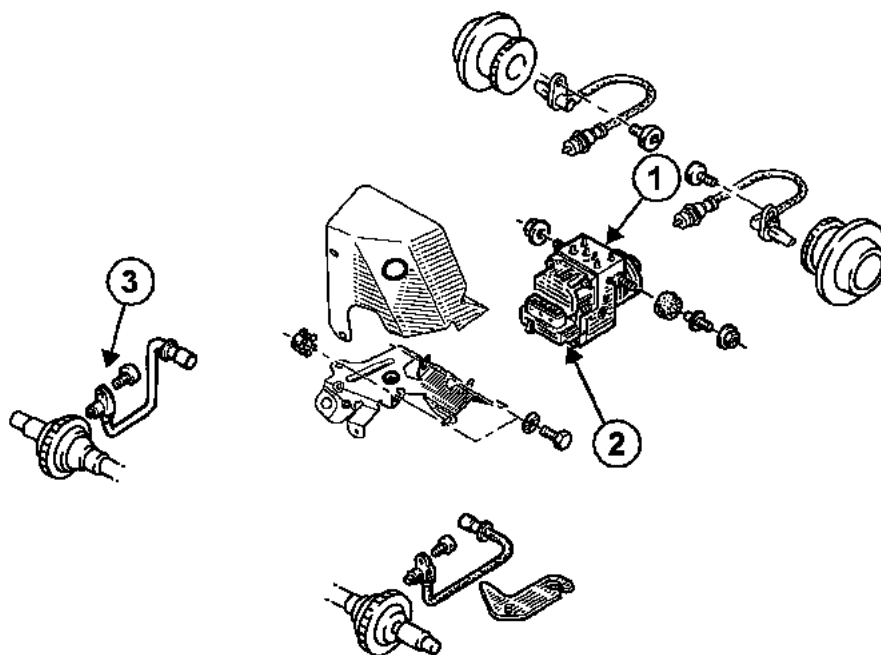
The **Twingo** is equipped with **BOSCH 8.0** which consists of an ABS system only.

IMPORTANT

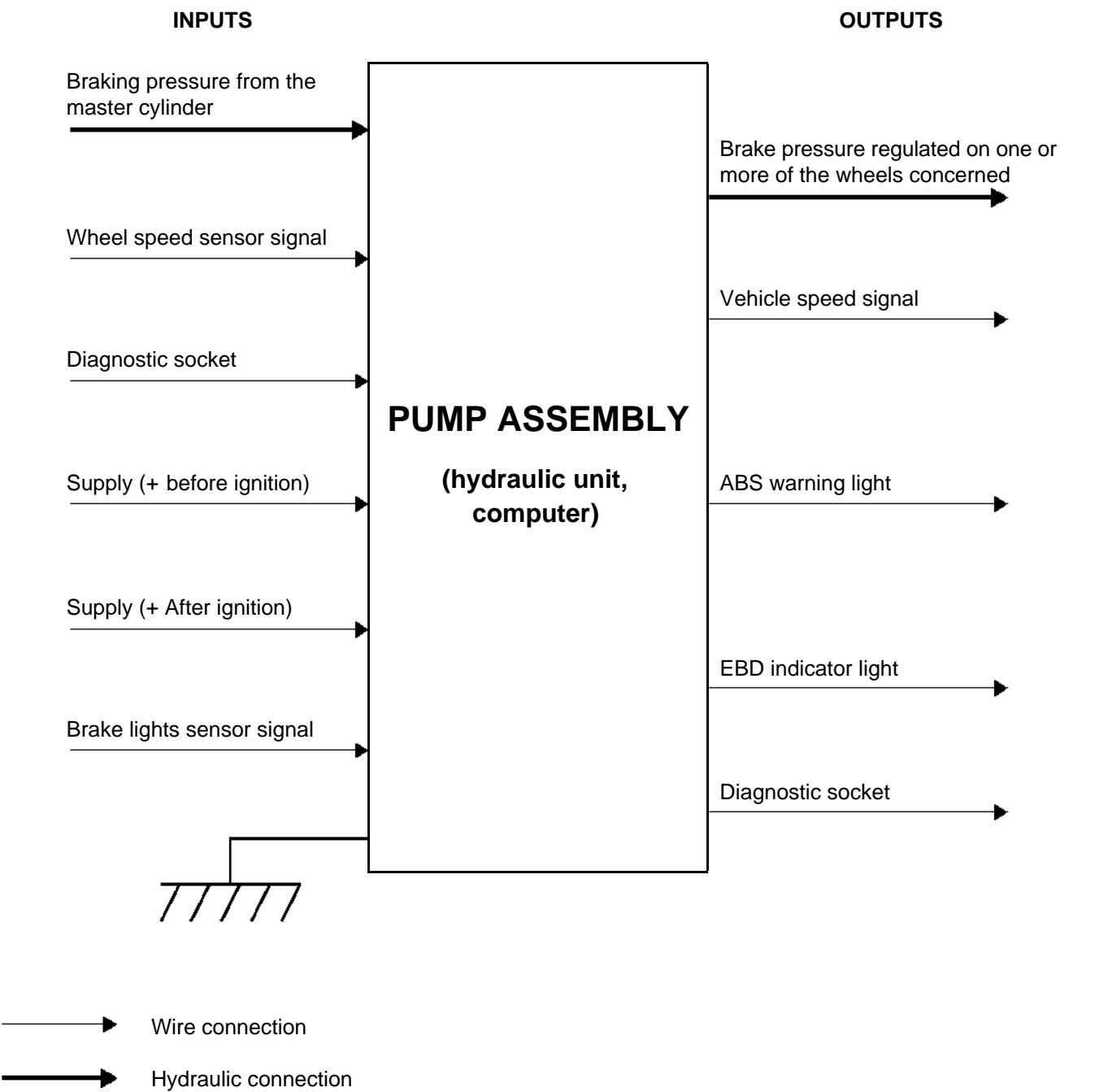
AFTER ANY OPERATIONS ON THE ABS, YOU MUST ROAD TEST THE VEHICLE TO CONFIRM REPAIR.

The ABS consists of:

- a brake servo assembly,
- a pump unit consisting of:
 - a hydraulic pump (1),
 - a pressure modulation unit (eight solenoid valves),
 - a computer (2),
- four wheel sensors (3).



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Note:
The computer cannot be separated from the pump assembly.



Track	Description
1	Pump motor earth
2	Engine pump supply (+ Before ignition)
3	Solenoid valve supply (+ Before ignition)
4	Solenoid valves and computer
5	Front left-hand speed signal
6	Rear left-hand speed sensor power supply
7	Not used
8	Rear right-hand speed sensor power supply
9	Front right-hand speed sensor power supply
10	Front right-hand speed sensor signal
11	Line K
12	EBD indicator light
13	Not used
14	Not used
15	Not used
16	Front left-hand speed sensor supply
17	Rear left-hand speed sensor
18	12 V after ignition
19	Rear right-hand speed sensor signal
20	Brake lights switch
21	Not used
22	ABS indicator light
23	Vehicle speed wire connection
24	Not used
25	Not used
26	Not used

ANTI-LOCK BRAKING SYSTEM

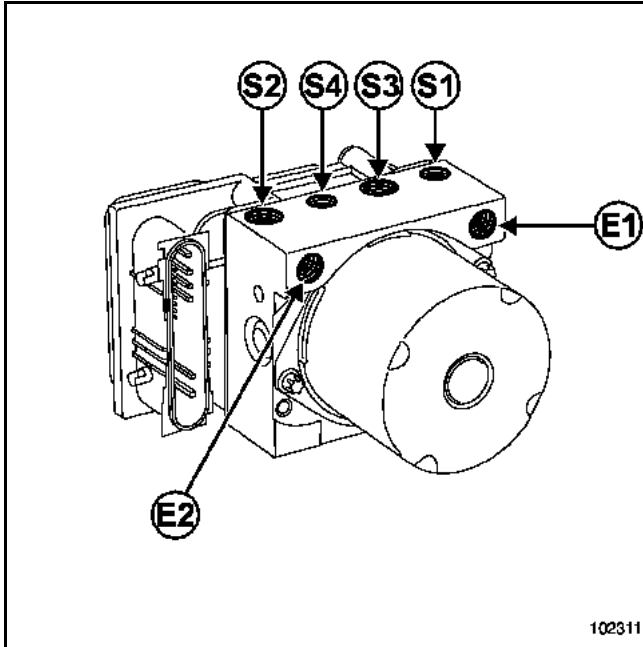
Hydraulic unit: presentation

38C

The ABS pump unit is equipped with a **26-track** computer.

Note:

The computer cannot be separated from the hydraulic unit.



The hydraulic unit consists of eight solenoid valves. It is located between the bulkhead and the engine.

- E1 master cylinder primary circuit
- E2 master cylinder secondary circuit
- S1 output to left-hand front wheel
- S2 output to right-hand front wheel
- S3 output to right-hand rear wheel
- S4 output to left-hand rear wheel

ANTI-LOCK BRAKING SYSTEM

Hydraulic unit

38C

Essential equipment

Pedal press

Tightening torques



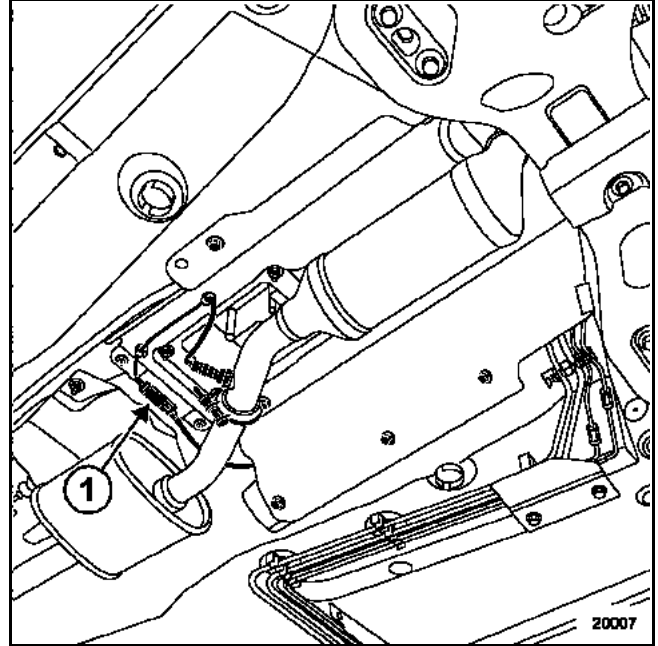
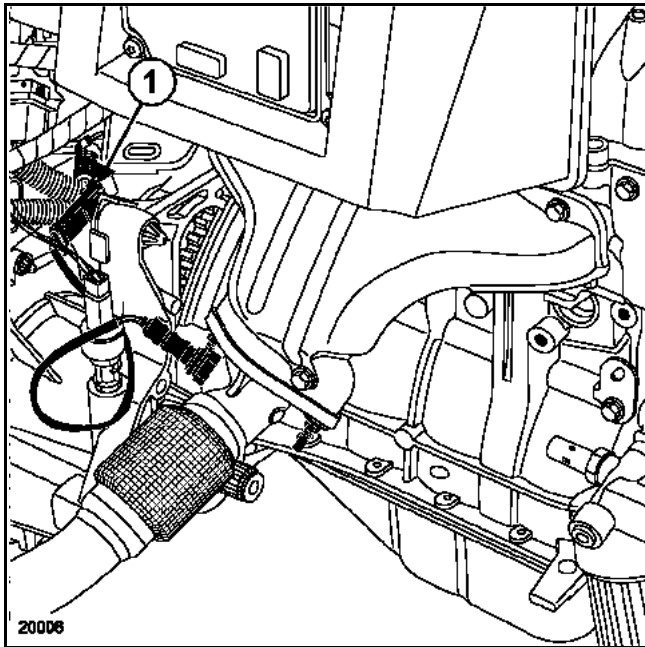
exhaust downpipe mounting stud	1.2 daNm
exhaust downpipe mounting nut	2.5 daNm
hydraulic pipe unions on the unit	1.6 daNm
hydraulic unit mounting nuts on the mounting	0.8 daNm

REMOVAL

Disconnect the battery starting with the negative terminal.

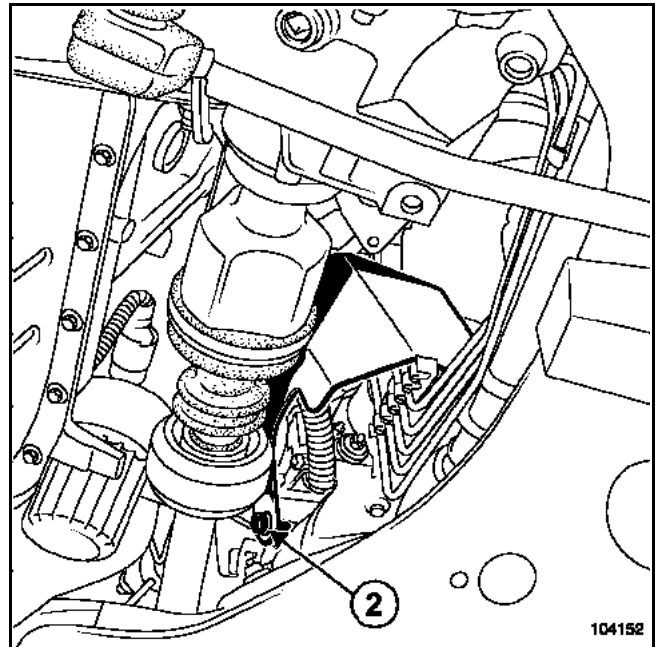
Fit a pedal press to the brake pedal to restrict the flow of brake fluid.

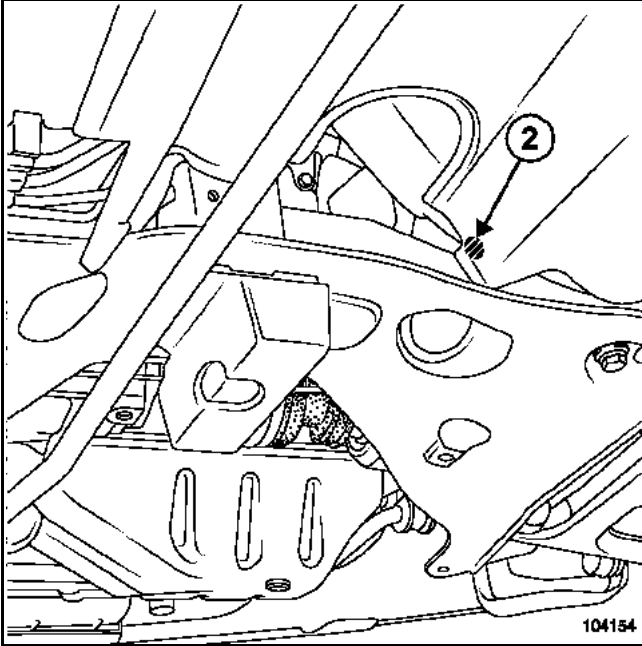
Remove the engine undertray.



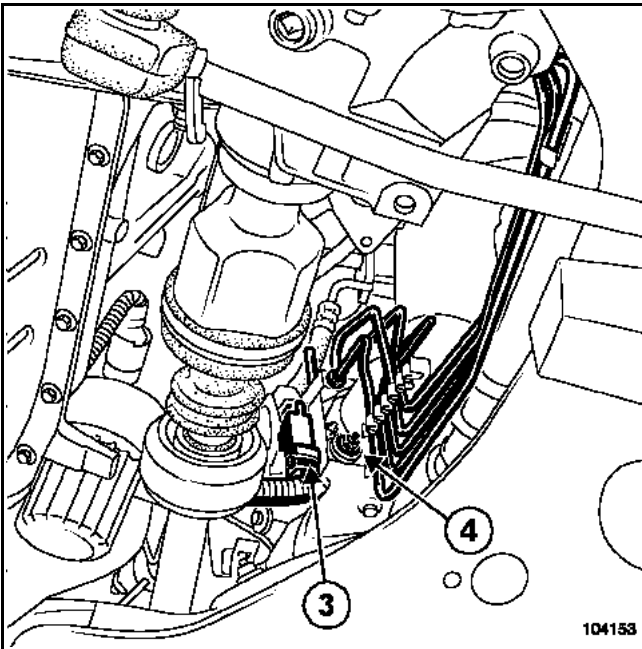
Disconnect the oxygen sensor connectors (1).

Remove the exhaust downpipe.





Remove the mounting nuts (2) from the hydraulic unit protective screen.



Disconnect:

- the computer connector (3),
- the six pipes on the hydraulic unit.

Remove:

- the two hydraulic unit mounting nuts (4),
- the hydraulic unit.

REFITTING

Proceed in the reverse order to removal.

Replace the exhaust downpipe gasket.

Bleed the brake circuit (see bleeding procedure in the **Bleeding the brake circuit** section).

Make sure all the exhaust pipe heat shields are in place and properly attached.

Configuring the new ABS computer

- Connect the diagnostic tool.
- Establish dialogue with the **ABS/EBD** system.

Vehicle identification

- In the **Command mode** menu, **Specific command**, confirm the **VP004: Vehicle parameters** line.
- Identify the vehicle.

VIN entry

- In the **Command menu**, **Specific command**, confirm the **VP001: Enter VIN** line.
- Enter the VIN.
- Clear the computer memory.
- Exit fault finding mode.
- Switch off the ignition.
- On the identification screen, make sure the code entered has been registered.

Tachometric index

- In the **Command menu, Specific command**, confirm the **VP007: Tachometric index** line.
- Enter the value according to the size of the tyres.
- Clear the computer memory.
- Switch off the ignition.
- Check in the **parameters list** parameter **PR030: Tachometric index value**, which should display the index entered.

Entering the last after-sales operation date

- In the **Command menu, Specific command**, confirm the **VP006: Enter last After-Sales operation date**.
- Enter the service date with the diagnostic tool keypad.