

TWINGO

3 Chassis

38C ANTI-LOCK BRAKING SYSTEM

Bosch 8.1 ESP
Vdiag No.: 05

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V3

Edition Anglaise

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

The procedures 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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1. APPLICABILITY OF THE DOCUMENT

This document presents the fault finding procedure applicable to all computers with the following specifications:

Vehicle: **New Twingo**

Function concerned: **Bosch ESP**

Computer name: **Bosch 8.1 ESP**

Vdiag No.: **05**

2. PREREQUISITES FOR FAULT FINDING:

Documentation type

Fault finding procedures (this document):

- Assisted fault finding (integrated into the **diagnostic tool**), Dialogys.

Wiring Diagrams:

- Visu-Schéma (CD-ROM), paper.

Type of diagnostic tools

- CLIP

Special tooling required

	Special tooling required
	Multimeter
Elé. 1681	Universal bornier

3. REMINDERS

Procedure

To run fault finding on the vehicle computers, switch on the ignition.

Depending on the type of vehicle equipment, proceed as follows:

For vehicles with key/radio frequency remote control, use the key to switch on the ignition.

For vehicles with a Renault card,

- with the vehicle card in the card reader,
- press and hold the start button (longer than **5 seconds**) with start-up conditions not fulfilled, connect the **diagnostic tool** and perform the required operations.

To cut off + after ignition feed, proceed as follows:

For vehicles with key/radio frequency remote control, use the key to switch off the ignition.

For vehicles with a Renault card,

- press the Start button twice briefly (less than **3 seconds**),
- ensure that the + after ignition feed has been cut off by checking that the computer indicator lights on the instrument panel have gone out.

Faults

Faults are declared present or stored (depending on whether they appeared in a certain context and have disappeared since, or whether they remain present but are not diagnosed within the current context).

The **present** or **stored** status of faults should be taken into consideration when the **diagnostic tool** is used after the + after ignition feed (without activating the system components).

For a **present fault**, apply the procedure described in the Interpretation of faults section.

For a **stored fault**, note the faults displayed and apply the Notes section.

If the fault is **confirmed** when the instructions in the Notes section are applied, the fault is present. Deal with the fault.

If the fault is **not confirmed**, check:

the electrical connections that correspond to the fault,

the connectors for this connection,

the resistance of the faulty component,

the condition of the wires.

Refer to paragraphs 4.1 Checking wiring and 4.2 Checking connectors

Conformity check

The aim of the conformity check is to check data which does not produce a fault on **the diagnostic tool** when the data is inconsistent. Therefore, this stage is used to:

carry out fault finding on faults that do not have a fault display, and which may correspond to a customer complaint.

check that the system is operating correctly and that there is no risk of a fault recurring after repair.

This section gives the fault finding procedures for statuses and parameters and the conditions for checking them.

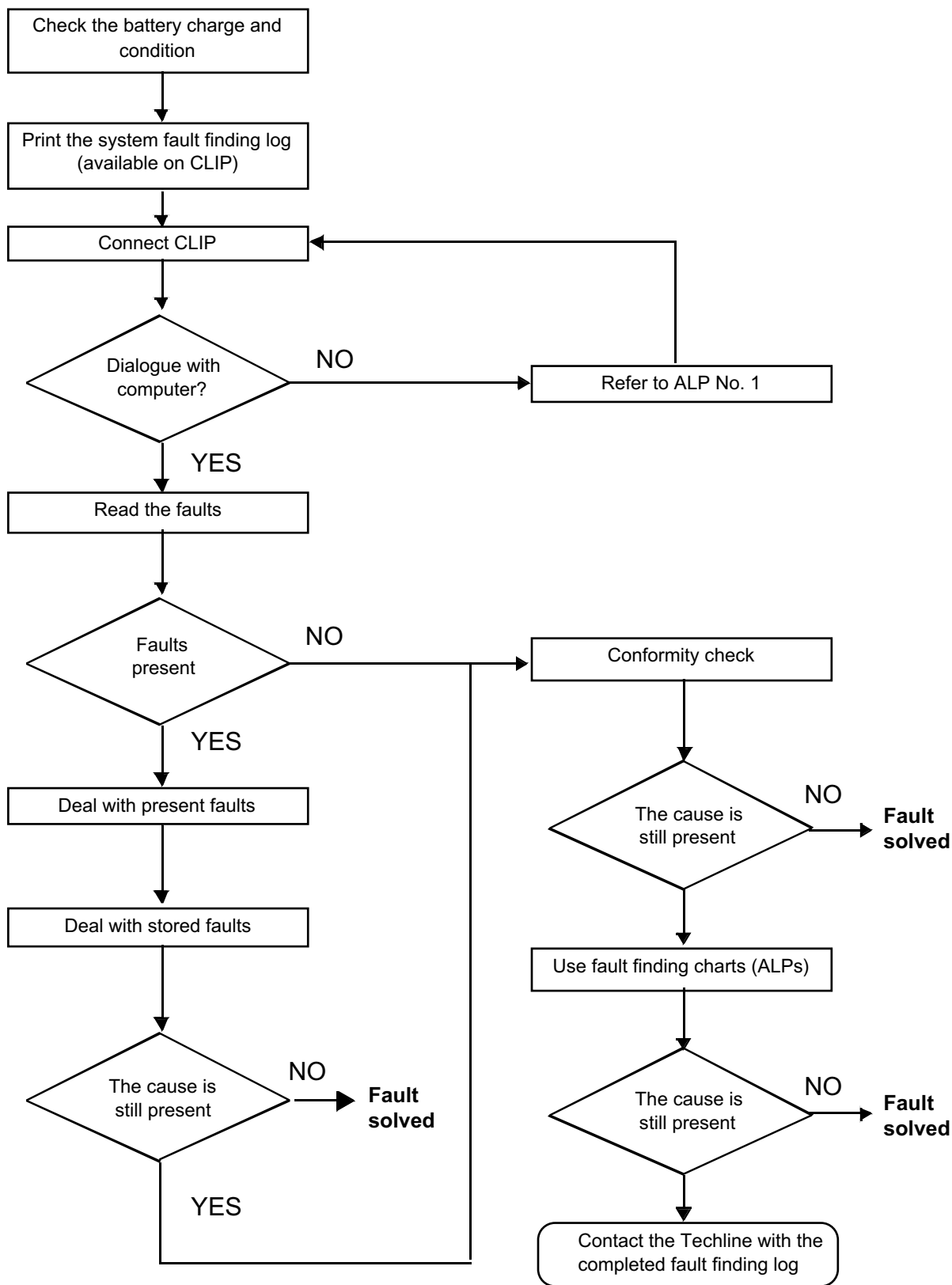
If a status is not behaving normally or a parameter is outside permitted tolerance values, you should consult the corresponding fault finding page.

Customer complaints - Fault finding chart

If the test with **the diagnostic tool** is OK but the customer complaint is still present, the fault should be dealt with by **customer complaints**.

A summary of the overall procedure to follow is provided on the following page in the form of a flow chart.

4. FAULT FINDING PROCEDURE



4. FAULT FINDING PROCEDURE (CONTINUED)

4.1 Wiring check

Fault finding problems

Disconnecting the connectors and/or manipulating the wiring may temporarily clear the cause of a fault.

Visual inspection

Look for damage under the bonnet and in the passenger compartment.

Carefully check the protectors, insulation, and routing of the wiring, as well as the mountings.

Physical inspection

When manipulating the wiring, either use the **diagnostic tool** to detect a change in status, from "stored" to "present", or the multimeter to view the status changes.

Make sure that the connectors are firmly secured.

Apply light pressure to the connectors.

Twist the wiring harness.

Checking earth insulation

This check is carried out by measuring the voltage (multimeter in voltmeter mode) between the suspect connection and the **12 V** or **5 V**. The correct measured value is **0 V**.

Checking insulation against + 12 V or + 5 V

This check is carried out by measuring the voltage (multimeter in voltmeter mode) between the suspect connection and the earth. In the first instance, the earth may be taken on the chassis. The correct measured value should be **0 V**

Continuity check

A continuity check is carried out by measuring the resistance (multimeter in ohmmeter mode), with the connectors disconnected at both ends. The expected result is **1 ± 1** for every connection. The line must be fully checked, and the intermediate connections are only included in the method if this saves time during the fault finding procedure. The continuity check on the multiplex lines must be carried out on both wires. The measured value should be **1 ± 1**.

Checking the supply

This check may be carried out using a test light (**21 W** or **5 W** depending on the maximum authorised load).

4.2 Checking the connectors

Note:

Carry out each requested check visually.
Do not remove a connector if it is not required.

Note:

Repeated connections and disconnections alter the functionality of the connectors and increase the risk of poor electrical contact. Limit the number of connections/disconnections as much as possible.

Note:

The check is carried out on the 2 parts of the connection. There may be 2 types of connections:

- Connector/Connector.
- Connector/Device.

Visual inspection of the connection:

- Check that the connector is connected correctly and that the male and female parts of the connection are correctly coupled.

Visual inspection of the area around the connection:

- Check the condition of the mounting (pin, strap, adhesive tape, etc.) if the connectors are attached to the vehicle.
- Check that there is no damage to the wiring trim (sheath, foam, adhesive tape, etc.) near the wiring.
- Check that there is no damage to the electrical wires at the connector outputs, in particular on the insulating material (wear, cuts, burns, etc.).

Disconnect the connector to continue the checks.

Visual inspection of the plastic casing:

- Check that there is no mechanical damage (casing crushed, cracked, broken, etc.), in particular to the fragile components (lever, lock, openings, etc.).
- Check that there is no heat damage (casing melted, darker, deformed, etc.).
- Check that there are no stains (grease, mud, liquid, etc.).

Visual inspection of the metal contacts:

(The female contact is called CLIP. The male contact is called TAB.)

- Check that there are no bent contacts (the contact is not inserted correctly and can come out of the back of the connector). The spring contact of the connector when the wire is pulled slightly.
- Check that there is no damage (folded tabs, clips open too wide, blackened or melted contact, etc.).
- Check that there is no oxidation on the metal contacts.

Visual inspection of the sealing:

(Only for watertight connectors)

- Check for the seal on the connection (between the 2 parts of the connection).
- Check the seal at the back of the connectors:
- For unit *joints* (1 for each wire), check that the unit joints are present on each electrical wire and that they are correctly positioned in the opening (level with the housing). Check that plugs are present on openings which are not used.
- For a *grommet* seal (one seal which covers the entire internal surface of the connector), check that the seal is present.
- For gel seals, check for gel in all of the openings without removing the excess or any protruding sections (it does not matter if there is gel on the contacts).
- For *hotmelt* sealing (heat-shrink sheath with glue), check that the sheath has contracted correctly on the rear of the connectors and electrical wires, and that the hardened glue comes out of the side of the wire.
- Check that there is no damage to any of the seals (cuts, burns, significant deformation, etc.).

If a fault is detected, consult **Technical Note 6015A, Repairing electrical wiring**.

5. FAULT FINDING LOG



IMPORTANT

IMPORTANT

All faults involving a complex system call for thorough diagnostics with the appropriate tools. The FAULT FINDING LOG, which should be completed during the fault finding procedure, ensures a record is kept of the procedure carried out. It is an essential document when consulting the manufacturer.

IT IS THEREFORE ESSENTIAL THAT THE FAULT FINDING LOG IS FILLED OUT EVERY TIME IT IS REQUESTED BY TECHLINE OR THE WARRANTY RETURNS DEPARTMENT.

You will always be asked for this log:

- when requesting technical assistance from the Techline,
- when requesting approval before replacing parts for which approval is compulsory,
- to be attached to monitored parts for which reimbursement is requested. The log is needed for warranty reimbursement, and enables better analysis of the parts removed.

6. SAFETY INSTRUCTIONS

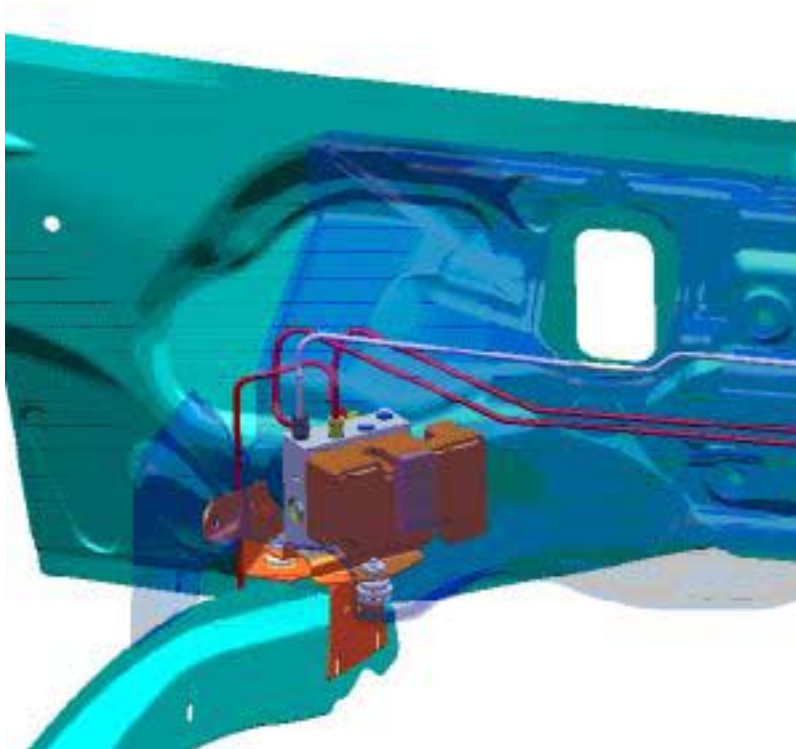
Safety rules must be observed during any work on a component to prevent any material damage or personal injury:

- check the battery voltage to avoid incorrect operation of computer functions,
- use the proper tools.

It is forbidden to carry out a road test with the diagnostic tool in dialogue with the ECU because the ABS and Electronic Brake Distribution functions are deactivated. Braking pressure is identical on both vehicle axles (risk of a spin under heavy braking).

The computer/hydraulic unit assembly:

- Located to the left of the bulkhead in the engine compartment.



Front wheel sensors:

- Screwed into the stub-axle, each front sensor has an intermediate connector located behind the plastic wheel arch liner.

Rear wheel sensor intermediate connectors:

- Located in a sealed unit under the vehicle.

Rear wheel sensors:

- Screwed into the rear brake drum flange (For vehicles equipped with drum brakes).
- Clipped onto the sensor mounting (For vehicles equipped with disc brakes).

Brake light switch:

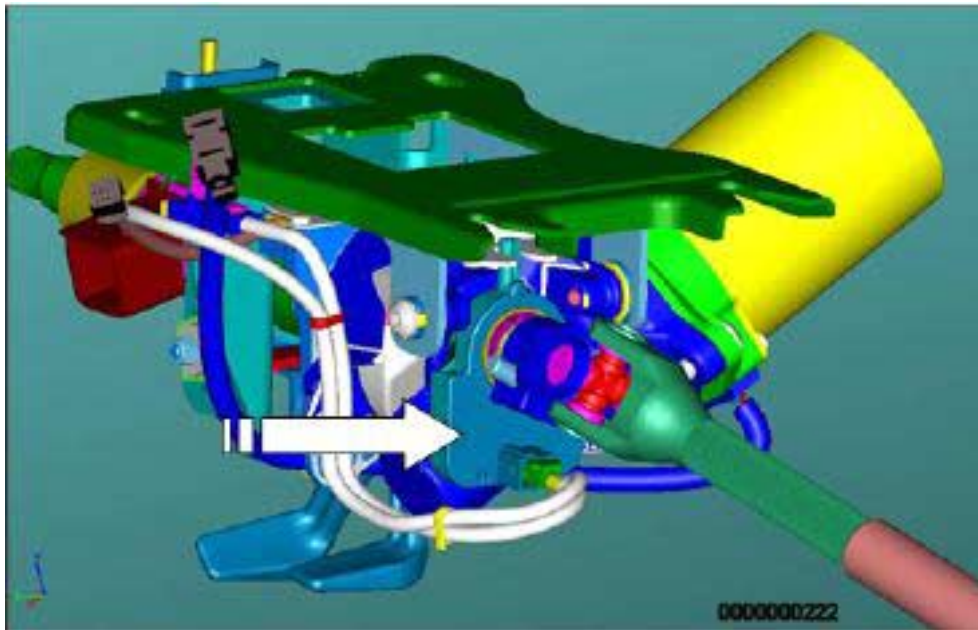
- Located on the pedal assembly.

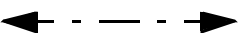



Lateral acceleration and yaw speed sensor:

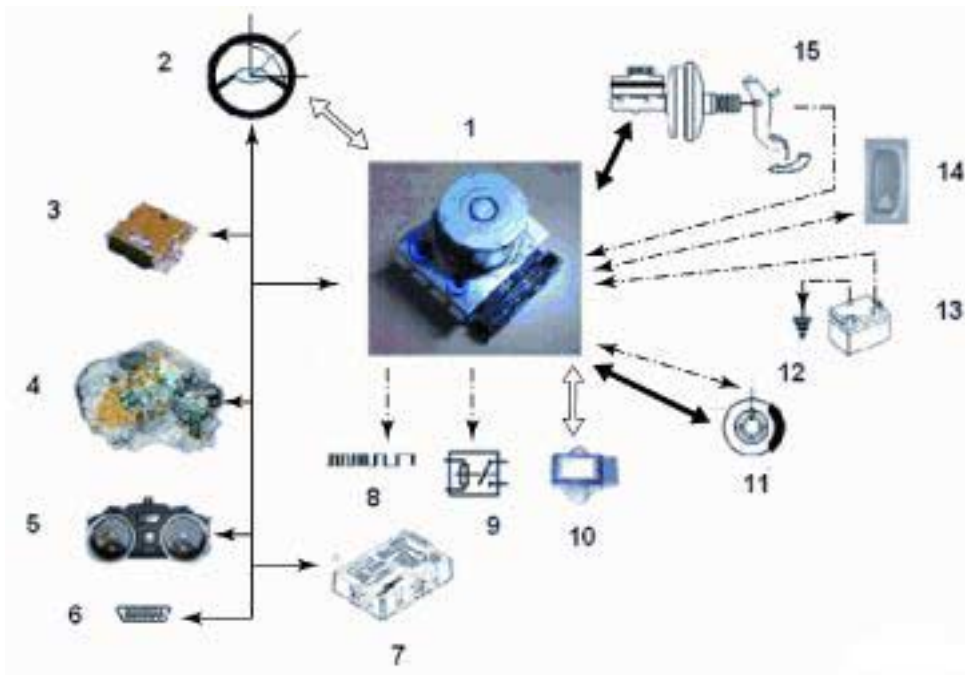
- Located under the passenger seat

Steering wheel angle sensor:

- Located on the steering column, on the intermediate shaft side.



Number	Description
1	Computer/hydraulic unit assembly
2	Steering wheel angle
3	Torque setpoint on the engine management computer
4	Sequential gearbox operating phase (if fitted)
5	Instrument panel
6	Diagnostic socket
7	UCH
8	Vehicle speed wire
9	Brake light control relay
10	Combined sensor: lateral acceleration and yaw speed
11	Brake disc with instrumented bearing target
12	Wheel speed sensor
13	Battery
14	Traction control deactivation button (Only on RS version)
15	Brake switch
	Electric circuit
	Hydraulic circuit
	Private multiplex line
	Vehicle multiplex line



EBD (electronic braking distribution):

The **electronic braking distribution unit** optimises the brakeforce distribution between the front and rear axles. This function ensures vehicle stability under braking.

ABS (anti-lock braking system):

The **ABS** prevents the wheels from locking when braking. This function allows the vehicle to be steered under braking and ensures vehicle stability under braking.

MSR (engine torque control):

This is a function that enhances the **ABS** function. Its purpose is to prevent the drive wheels from spinning excessively when lifting off the accelerator or changing down a gear on a low grip surface, by requesting the engine management to regulate the driving torque of the engine (resisting torque compensation) to "relaunch" the wheels.

ASR (wheel traction control):

This function keeps the drive wheels from slipping during starting or acceleration. The system brakes the wheel in a slippage situation to maintain full traction.

ESP: Electronic stability program:

The ESP guarantees within physical limits the dynamic stability of the vehicle by checking and correcting oversteer. In any case, the ESP system does not intervene in place of the driver. Using data from the steering wheel, it merely makes vehicle handling truer to the driver's intention.

CDC (Dynamic Driving Control):

The **Dynamic Driving Control** guarantees vehicle steerability within physical limits by checking and correcting understeer.

The **Dynamic Driving Control** is an advancement of the ESP system and has same objective: to maintain vehicle control in all operating situations.

The **ESP** computer supplies the other computers with information on the vehicle speed via a wire connection for the radio, the power-assisted steering and the electric sunroof, and via the multiplex network for the other computers. The **ESP** computer also supplies the multiplex network with the odometry for the instrument panel and navigation system.

If heavy braking produces very rapid deceleration, the **ESP** computer issues a request to the **UCH** (passenger compartment connection unit) via the multiplex network asking it to switch on the hazard warning lights (depending on the law in the relevant country).

Wheel speed sensors:

Give the speed of each of the vehicle's wheels. The analysis of the sensors allows the calculation of the vehicle speed.

Brake lights switch:

Signals the position of the brake pedal (pressed or released).

Combined sensor (Dual sensor):

Indicates the lateral acceleration and the yaw speed of the vehicle. The analysis of these data combined with the data from the other sensors allows the determination of the vehicle's path.

Steering wheel angle sensor:

Angular indication of the desired path of the vehicle.

ANTI-LOCK BRAKING SYSTEM

Fault finding – Defect and safe modes

38C

Fault finding warning lights programming

Instrument panel warning light					Meaning
Brake faults	ABS system	ESP	SERVICE	STOP	"Brake limiter" , ABS , and ESP functions not working
	ABS system	ESP	SERVICE		ESP and ABS functions not working, "brake limiter" operational
		ESP	SERVICE		ESP function not working, ABS and "brake limiter" operational
		ESP			"Wheel traction control" function deactivated by fault finding or ESP momentarily disconnected after the battery is disconnected
Brake faults flashing at 2 Hz (slowly)	ABS flashing at 2 Hz (slowly)	ESP flashing at 2 Hz (slowly)			ESP computer in fault finding mode
		ESP flashing at 8 Hz (quickly)			ESP or "wheel traction control" or "anti-lock brake system on engine torque control" active
	ABS flashing at 8 Hz (quickly)				Tachometric index not programmed
Brake faults	ABS system	ESP flashing at 8 Hz (quickly)	SERVICE	STOP	Vehicle variant not programmed
Brake faults	ABS flashing at 8 Hz (quickly)	ESP flashing at 8 Hz (quickly)		STOP	Vehicle option and tachometric index not programmed

Note:

The STOP warning light is always accompanied by a single audible warning (1 beep).

REPLACING THE COMPUTER:

When replacing the computer (see **MR 411, Mechanical, 38C, Anti-lock braking system, Braking computer:**

Removal - Refitting), use the following procedure:

- Switch off the ignition.
- Replace the computer.
- Enter the VIN number using command **VP001 Enter VIN** (see **Configurations and Programming**).
- Configure the tachometric index using command **VP007 Tachometric index** (see **Configurations and programming**).
- Configure the vehicle parameters using command **VP004 Vehicle parameters** (see **Configurations and programming**).
- Inhibit or authorise illumination of the automatic brake lights (depending on the country's legislation) using command **VP021 Inhibit automatic brake lights** or **VP022 Authorise automatic brake lights**.
- Clear the ESP sensor offsets using command **RZ011 Sensors offsets** (see **Configurations and programming**).
- Enter the After-Sales date using command **VP006 Enter last APV* operation date**.
- Perform a road test followed by a fault reading to confirm that the system is operating correctly.

REPLACING THE STEERING WHEEL ANGLE SENSOR:

- Calibrate the steering wheel angle sensor using command **VP003 Steering wheel angle sensor** (see **Configurations and programming**).
- Clear the ESP sensor offsets using command **RZ011 Sensor offsets**.

REPLACING THE COMBINED SENSOR:

- Clear the ESP sensor offsets using command **RZ011 Sensor offsets**.

* APV: After-Sales

Parameters:

VP001: Enter VIN

This command allows the **vehicle identification number** to be entered into the computer.
Use this command each time the computer is replaced. The VIN (**VF...**) is engraved on the manufacturer's plate on the front right-hand door pillar and stamped on the body under the windscreen on the left-hand side.

VP003: Steering wheel angle sensor

This command is used to calibrate the steering wheel angle.
With the steering wheel horizontal and the front wheels set straight ahead, calibrate the steering wheel angle sensor using command **VP003** on the **diagnostic tool**.

VP004: Vehicle parameters

This command configures the engine type configuration, the braking definition and the body type. Select the command **VP004** on the **diagnostic tool**.

VP006: Enter last After-Sales operation date

Whenever the **ABS** system is worked on in the shop, the date must be entered.
Select command **VP006** on the **diagnostic tool**.
Enter the service date using the **diagnostic tool** keypad.

VP007: Tachometric index

This command is used to program the computer memory with the index required to calculate the vehicle speed according to the tyre size.
The **BOSCH 8.1 ESP** computer supplies the vehicle speed signal to all areas where this information is needed (instrument panel, engine management, etc.). This vehicle speed signal replaces the one supplied by the speed sensor located on the gearbox.
The **ESP** computer calculates the vehicle speed from the wheel speed and the tyre circumference.

Note:

The vehicle speed is supplied by a wire (**connection 47F**) to the radio, to the electric power-assisted steering, to the electric sunroof and by the multiplex network for the other computers.

The tyre circumference must be programmed into the memory of a new computer. This consists of entering an index "X" using the command **VP007 "Tachometric index"** on the **diagnostic tool**.
Once the number has been entered using the **VP007** command, delete the fault in the computer memory and then switch off the ignition. Use parameter **PR030 "Tachometric index"** to check that the index entered has been recognised by the system.

VP021: Inhibit automatic brake lights

This command deactivates the automatic brake lights.
Select command **VP021** on the **diagnostic tool**.

VP022: Automatic brake lights authorisation

This command authorises the automatic brake lights.
Select command **VP022** on the **diagnostic tool**.

* APV: After-Sales

Tool fault	Associated DTC	Diagnostic tool title
DF001	50 Short circuit	Computer supply
DF006	501F	Front left-hand wheel speed sensor circuit
DF007	503F	Rear left-hand wheel speed sensor circuit
DF011	50 CB	Solenoid valve supply
DF017	50C3	Computer
DF020	50C3	Tachometric index programming
DF026	500F	Front right-hand wheel speed sensor circuit
DF027	502F	Rear right-hand wheel speed sensor circuit
DF055	50C3	Vehicle parameter programming
DF063	5046	Wheel speed inconsistency
DF066	5180	No injection multiplex signal
DF075	5158	Steering wheel angle sensor signal
DF086	50C3	Computer configuration
DF087	5158	Steering wheel angle sensor programming
DF090	5041	Front right-hand wheel target
DF091	5042	Front left-hand wheel target
DF092	5043	Rear right-hand wheel target
DF093	5044	Rear left-hand wheel target
DF098	5183	No UCH multiplex signal
DF099	50F4	Private multiplex network

ANTI-LOCK BRAKING SYSTEM

Fault finding – Fault summary table

38C

Tool fault	Associated DTC	Diagnostic tool title
DF100	5158	Steering wheel angle multiplex signal absent
DF108	5158	Steering wheel angle sensor
DF126	50F4	Combined sensor signal plausibility
DF152	50E6	Multiplex network
DF153	50C3	Multiplex network
DF186	5182	No instrument panel multiplex signal
DF187	50CE	Brake light activation relay circuit
DF188	50C6	Brake light switch circuit
DF189	50F4	Combined sensor circuit
DF190	50F4	Combined sensor
DF191	50C9	ESP on/off button circuit (only on RS version)
DF193	5180	Invalid inj.* multiplex signals
DF202	5183	Invalid UCH multiplex signals
DF216	5158	Steering wheel angle programming offset
DF300	50CA	Pump motor control circuit
DF311	5188	No sequential gearbox multiplex signal (depending on vehicle)
DF313	5188	Invalid sequential gearbox multiplex signals (depending on vehicle)
DF321	5180	Clutch switch signal consistency

* inj: Injection

DF001 PRESENT OR STORED	<p>COMPUTER SUPPLY VOLTAGE</p> <p>1.DEF: voltage outside tolerances 2.DEF: below minimum threshold 3.DEF: above maximum threshold</p>
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NOTES	<p>Conditions for applying the fault finding procedure to stored faults: Apply the fault finding procedure whether the fault is present or stored.</p>
	<p>Use the Wiring Diagram Technical Note for New Twingo.</p>

<p>1.DEF 2.DEF</p>	NOTES	<p>Special notes: This fault is declared present when the supply voltage of the computer is less than the minimum operating voltage (10 V < minimum battery voltage < 16 V).</p>
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<p>Check the tightness and condition of the battery terminals (see 80A, Battery). Check the charging circuit (see 16A, Starting - Charging).</p>
<p>Check the condition and position of fuses F1 and F2 (40A and 30A) in the engine fuse box and fuse F10 (5A) in the passenger compartment fuse box (see 81C, Fuse box).</p>
<p>Check the connection and condition (for possible wiring damage) of the connector of components 1094, 1834 and the intermediate connector R107. If the connector is faulty (see Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair), repair the connector, otherwise replace the wiring.</p>
<p>With the connector of component 1094 disconnected, check the insulation and continuity of connections MAH of component 1094 (tightness, oxidation etc.). With the connectors of component 1094, 1175, 583 and intermediate connector R107 disconnected, check the insulation and continuity of connection AP5 between component 1094 and intermediate connector R107. Check the insulation and continuity of connection AP5 between intermediate connector R107 and component 1016. With the connectors of components 1094 and 1834 disconnected, check the continuity and insulation of connection BP14 between components 1094 and 1834. With the connectors of components 1094 and 1834 disconnected, check the continuity and insulation of connection BP8 between components 1094 and 1834. If the connection(s) are faulty (see Technical Note 6015A, Electrical wiring repair, Wiring: Precautions for repair), repair the wiring, otherwise replace the wiring.</p>

AFTER REPAIR	<p>Clear the computer fault memory. Carry out a road test followed by another check with the diagnostic tool If the fault is still present, contact the Techline.</p>
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DF001 CONTINUED	
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3.DEF	NOTES	Special notes: Special notes: This fault appears if the computer supply voltage is above the maximum operating voltage (16 V < maximum battery voltage < 19.6 V). This fault may appear when starting using a charger or a 24 V battery.
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Check the charging circuit (see **16A, Starting - Charging**).

AFTER REPAIR	Clear the computer fault memory. Carry out a road test followed by another check with the diagnostic tool If the fault is still present, contact the Techline.
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ANTI-LOCK BRAKING SYSTEM

Fault finding – Interpretation of faults

38C

DF006 PRESENT OR STORED	<p>FRONT LEFT-HAND WHEEL SPEED SENSOR CIRCUIT</p> <p>CO.0: open circuit or short circuit to earth CO.1: open circuit or short circuit to +12 V</p> <p>1. DEF: internal electronic fault 2. DEF: magnetic or mechanical fault on the target or interference</p>
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NOTES	Use the Wiring Diagram Technical Note for New Twingo .
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CO.0 CO.1 1.DEF	NOTES	None.
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Check the connection and condition (possible wiring damage) of the connectors of **components 1094 and 153**. If the connector is faulty (see **Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.

Swap the 2 front wheel speed sensors (see **MR 411 Mechanical, 38C, Wheel speed sensor, Removal - Refitting**).

Clear the computer fault memory.

Switch off the ignition.

Switch on the ignition again.

Did the fault initially declared as **DF006** become fault **DF026 "Front right-hand wheel speed sensor circuit" present**?

YES	Replace component 153 (see MR 411 Mechanical, 38C, Anti-lock braking system, Front wheel speed sensor, Removal - Refitting).
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NO	<p>Check the insulation and continuity of connections 4C and 4E between components 153 and 1094.</p> <p>Also check the insulation between these 2 connections.</p> <p>If the connection(s) are faulty (see Technical Note 6015A, Electrical wiring repair, Wiring: Precautions for repair), repair the wiring, otherwise replace the wiring.</p>
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AFTER REPAIR	<p>Clear the computer fault memory.</p> <p>Carry out a road test followed by another check with the diagnostic tool</p> <p>If the fault is still present, contact the Techline.</p>
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DF006 CONTINUED 1	
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2.DEF	NOTES	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after a road test.
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Check the connection and condition (possible wiring damage) of the connectors of **components 1094** and **153**.
If the connector is faulty (see **Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.
Swap the 2 front wheel speed sensors (see **MR 411 Mechanical, 38C, Anti-lock braking system, Wheel speed sensor: Removal - Refitting**).
Clear the computer fault memory.
Switch off the ignition.
Switch on the ignition again.
Carry out a road test.
Did the fault initially declared as **DF006** become fault **DF026 "Front right-hand wheel speed sensor circuit" present**?

AFTER REPAIR	Clear the computer fault memory. Carry out a road test followed by another check with the diagnostic tool If the fault is still present, contact the Techline.
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<p>DF006 CONTINUED 2</p>	
<p>YES</p>	<p>Replace component 153 (see MR 411 Mechanical, 38C, Anti-lock braking system, Front wheel speed sensor, Removal - Refitting).</p>
<p>NO</p>	<p>Check the insulation and continuity of connections 4C and 4E between components 153 and 1094. Also check the insulation between these 2 connections. If the connection or connections are faulty (see Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair), repair the wiring, otherwise replace it. Visually inspect the condition of the target (metallic contamination, etc.) and clean using compressed air if necessary. Check the sensor / target air gap through one wheel revolution (0.4 < front wheel air gap < 1.7 mm). If the air gap is incorrect: – Replace the instrumented bearing/wheel sensor mounting assembly (see MR 411, Mechanical, 31A, Front axle components, Front hub carrier bearing: Removal – Refitting).</p> <p>If the air gap is correct: – After cleaning the target, clear the computer fault memory. – Carry out a road test followed by another check with the diagnostic tool. – If the fault is still present, replace the instrumented bearing/wheel sensor mounting assembly (see MR 411 Mechanical, 31A, Front axle components, Front hub carrier bearing: Removal – Refitting).</p>

<p>AFTER REPAIR</p>	<p>Clear the computer fault memory. Carry out a road test followed by another check with the diagnostic tool If the fault is still present, contact the Techline.</p>
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DF007 PRESENT OR STORED	<p>REAR LEFT-HAND WHEEL SPEED SENSOR CIRCUIT</p> <p>CO.0: open circuit or short circuit to earth CO.1: open circuit or short circuit to +12 V 1.DEF: internal electronic fault 2.DEF: magnetic or mechanical fault on the target or interference</p>
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NOTES	Use the Wiring Diagram Technical Note for New Twingo .
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CO.0 CO.1 1.DEF	NOTES	None.
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Check the connection and condition (possible wiring damage) of the connectors of **components 1094 and 151**. If the connector is faulty (see **Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.

Using command **AC013 Wheel speed sensor supply test** (see **Interpretation of commands**), check for a voltage of approximately **12 V** between **connections 4G and 4H** of **component 151**.

Is the voltage measured correct?

YES	Replace component 151 (see MR 411, Mechanical, 38C, Anti-lock braking system, Rear wheel speed sensor, Removal - Refitting).
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NO	<p>With the connectors of components 151 and 1094 disconnected, check the continuity and insulation of connections 4G and 4H between components 151 and 1094.</p> <p>Also check the insulation between these 2 connections.</p> <p>If the connection or connections are faulty (see Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair), repair the wiring, otherwise replace it.</p>
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AFTER REPAIR	<p>Clear the computer fault memory.</p> <p>Carry out a road test followed by another check with the diagnostic tool</p> <p>If the fault is still present, contact the Techline.</p>
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DF007 CONTINUED 1	
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2.DEF	NOTES	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after a road test.
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<p>Check the connection and condition (possible wiring damage) of the connectors of components 1094 and 151. If the connector is faulty (see Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair), repair the connector, otherwise replace the wiring. Check the insulation and continuity of connections 4G and 4H between components 151 and 1094. Also check the insulation between these 2 connections. If the connection or connections are faulty (see Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair), repair the wiring, otherwise replace it. Inspect the condition of the target (metallic contamination etc.). Clean the target with compressed air if necessary.</p> <p>For versions equipped with disc brakes: Check the sensor / target air gap through one wheel revolution (0.1 < rear wheel air gap < 0.9 mm).</p> <p>If the air gap is incorrect:</p> <ul style="list-style-type: none"> – Replace the instrumented bearing/wheel sensor mounting assembly (see MR 411, Mechanical, 33A, Rear axle components, Rear hub carrier bearing: Removal - Refitting).
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AFTER REPAIR	<p>Clear the computer fault memory. Carry out a road test followed by another check with the diagnostic tool If the fault is still present, contact the Techline.</p>
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DF007 CONTINUED 2

If the air gap is correct:

- Swap both rear wheel brake discs as well as the brake pads.
- Clear the computer fault memory.
- Carry out a road test followed by another check with **the diagnostic tool**.
- If the fault initially declared as **DF007** has become **DF027 Rear right-hand wheel speed sensor circuit**, replace the instrumented bearing/wheel sensor mounting assembly (see **MR 411, Mechanical, 33A, Rear axle components, Rear hub carrier bearing: Removal - Refitting**).
- If the fault remains on the same side, replace component **151** (see **MR 411, Mechanical, 38C, Anti-lock braking system, Rear wheel speed sensor, Removal - Refitting**).

For versions equipped with drum brakes:

- Swap both rear wheel brake drums.
- Clear the computer fault memory.
- Carry out a road test followed by another check with **the diagnostic tool**.
- If the fault initially declared as **DF007** has become **DF027 Rear right-hand wheel speed sensor circuit**, replace the target (see **MR 411, Mechanical, 33A, Rear axle components, Rear brake drums, Removal - Refitting**).
- If the fault remains on the same side, replace component **151** (see **MR 411, Mechanical, 38C, Anti-lock braking system, Rear wheel speed sensor, Removal - Refitting**).

AFTER REPAIR

Clear the computer fault memory.

Carry out a road test followed by another check with the **diagnostic tool**
If the fault is still present, contact the Techline.

DF011 PRESENT OR STORED	<u>SOLENOID VALVE SUPPLY</u> DEF: Abnormal voltage
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NOTES	Conditions for applying the fault finding procedure to stored faults: Apply the fault finding procedure whether the fault is present or stored .
	Use the Wiring Diagram Technical Note for New Twingo .

Check the tightness and condition of the battery terminals (see 80A, Battery). Check the charging circuit (see 16A, Starting - Charging).
Check the condition and position of fuse F2 (30A) in the engine fuse box .
Check the connection and condition (possible wiring damage) of the connector of component 1094 . If the connector is faulty (see Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair), repair the connector, otherwise replace the wiring.
With the connector of component 1094 disconnected, check the insulation and continuity of connections MAH of component 1094 (tightness, oxidation, etc.). With the connectors of components 1094 and 1834 disconnected, check the continuity and insulation of connection BP8 between components 1094 and 1834 . If the connection or connections are faulty (see Technical Note 6015A, Electrical wiring repair, Wiring: Precautions for repair), repair the connectors or wiring, otherwise replace the wiring.

AFTER REPAIR	Clear the computer fault memory. Carry out a road test followed by another check with the diagnostic tool If the fault is still present, contact the Techline.
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DF017 PRESENT OR STORED	<p>COMPUTER</p> <p>1. DEF: Supply fault or internal electronic fault</p>
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NOTES	<p>Conditions for applying the fault finding procedure to stored faults: Apply the fault finding procedure whether the fault is present or stored.</p>
	<p>Use the Wiring Diagram Technical Note for New Twingo.</p>

<p>Check the tightness and condition of the battery terminals (see 80A, Battery).</p> <p>Check the charging circuit (see 16A, Starting - Charging).</p>
<p>Check the condition and position of fuses F1 and F2 (40A and 30A) in the engine fuse box and fuse F10 (5A) in the passenger compartment fuse box (see MR413, Fault finding, 81C, Fuse box).</p>
<p>Check the connection and condition (possible wiring damage) of the connector of component 1094. If the connector is faulty (see Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair), repair the connector, otherwise replace the wiring.</p>
<p>With the connector of component 1094 disconnected, check the insulation and continuity of connections MAH of component 1094 (tightness, oxidation etc.).</p> <p>With the connectors of component 1094, 1175, 583 and intermediate connector R107 disconnected, check the insulation and continuity of connection AP5 between component 1094 and intermediate connector R107. Check the insulation and continuity of connection AP5 between intermediate connector R107 and component 1016.</p> <p>With the connectors of components 1094 and 1834 disconnected, check the continuity and insulation of connection BP14 between components 1094 and 1834.</p> <p>With the connectors of components 1094 and 1834 disconnected, check the continuity and insulation of connection BP8 between components 1094 and 1834.</p> <p>If the connection(s) are faulty (see Technical Note 6015A, Electrical wiring repair, Wiring: Precautions for repair), repair the wiring, otherwise replace the wiring.</p>

AFTER REPAIR	<p>Clear the computer fault memory.</p> <p>Carry out a road test followed by another check with the diagnostic tool If the fault is still present, contact the Techline.</p>
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DF020 PRESENT	TACHOMETRIC INDEX PROGRAMMING 1. DEF: tachometric index not programmed
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NOTES	None.
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The **ESP** computer with the tachometric function supplies the vehicle speed signal to all areas where this information is needed (instrument panel, engine management, etc.).
This vehicle speed signal replaces the one supplied by the speed sensor located on the gearbox.
The **ESP** computer calculates the vehicle speed from the wheel speed and the tyre circumference.
The tyre circumference must be programmed into the memory of a new computer. This consists of entering an X index using command VP007 Tachometric index on the diagnostic tool.
Once the index has been entered using command **VP007 Tachometric index**, clear the computer fault memory and then switch off the ignition.
Use parameter **PR030 Tachometric index** to check that the index entered is being used correctly by the system.

AFTER REPAIR	Clear the computer fault memory. Carry out a road test followed by another check with the diagnostic tool If the fault is still present, contact the Techline.
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DF026 PRESENT OR STORED	<p>FRONT RIGHT-HAND WHEEL SPEED SENSOR CIRCUIT</p> <p>CO.0: open circuit or short circuit to earth CO.1: open circuit or short circuit to +12 V</p> <p>1. DEF: internal electronic fault 2. DEF: magnetic or mechanical fault on the target or interference</p>
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NOTES	Use the Wiring Diagram Technical Note for New Twingo .
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CO.0 CO.1 1.DEF	NOTES	None.
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Check the connection and condition (possible wiring damage) of the connectors of **components 1094 and 152**. If the connector is faulty (see **Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.

Swap the 2 front wheel speed sensors (see **MR 411 Mechanical, 38C, Wheel speed sensor, Removal - Refitting**).

Clear the computer fault memory.

Switch off the ignition.

Switch on the ignition again.

Did the fault initially declared as **DF026** become fault **DF006 "Front left-hand wheel speed sensor circuit" present?**

YES	Replace the wheel speed sensor (see MR 411 Mechanical, 38C, Anti-lock braking system, Front wheel speed sensor, Removal - Refitting).
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NO	<p>Check the insulation and continuity of connections 4M and 4N between components 152 and 1094.</p> <p>Also check the insulation between these 2 connections.</p> <p>If the connection or connections are faulty (see Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair), repair the wiring, otherwise replace it.</p> <p>If all the checks are in order, contact Techline.</p>
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AFTER REPAIR	<p>Clear the computer fault memory.</p> <p>Carry out a road test followed by another check with the diagnostic tool</p> <p>If the fault is still present, contact the Techline.</p>
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DF026 CONTINUED	
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2.DEF	NOTES	<p>Conditions for applying the fault finding procedure to stored faults: The fault is declared present after a road test.</p>
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<p>Check the connection and condition (possible wiring damage) of the connectors of components 1094 and 152. If the connector is faulty (see Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair), repair the connector, otherwise replace the wiring. Swap the 2 front wheel speed sensors (see MR 411 Mechanical, 38C, Wheel speed sensor, Removal - Refitting). Clear the computer fault memory. Switch off the ignition. Switch on the ignition again. Carry out a road test. Did the fault initially declared as DF026 become DF006 "Front left-hand wheel speed sensor circuit" present?</p>

YES	<p>Replace component 152 (see MR 411, Mechanical, 38C, Anti-lock braking system, Front wheel speed sensor, Removal - Refitting).</p>
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NO	<p>Check the insulation and continuity of connections 4M and 4N between components 152 and 1094. Also check the insulation between these 2 connections. If the connection or connections are faulty (see Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair), repair the wiring, otherwise replace it. Inspect the condition of the target (metallic contamination etc.). Clean the target with compressed air if necessary. Check the sensor / target air gap through one wheel revolution (0.4 < front wheel air gap < 1.7 mm).</p> <p>If the air gap is incorrect:</p> <ul style="list-style-type: none"> – Replace the instrumented bearing/wheel sensor mounting assembly (see MR 411, Mechanical, 31A, Front axle components, Front hub carrier bearing: Removal – Refitting). <p>If the air gap is correct:</p> <ul style="list-style-type: none"> – After cleaning the target, clear the computer fault memory. – Carry out a road test followed by another check with the diagnostic tool. – If the fault is still present, replace the instrumented bearing/wheel sensor mounting assembly (see MR 411 Mechanical, 31A, Front axle components, Front hub carrier bearing: Removal – Refitting).
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AFTER REPAIR	<p>Clear the computer fault memory. Carry out a road test followed by another check with the diagnostic tool If the fault is still present, contact the Techline.</p>
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DF027 PRESENT OR STORED	<p>REAR RIGHT-HAND WHEEL SPEED SENSOR CIRCUIT</p> <p>CO.0: open circuit or short circuit to earth CO.1: open circuit or short circuit to +12 V</p> <p>1. DEF: internal electronic fault 2. DEF: magnetic or mechanical fault on the target or interference</p>
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NOTES	Use the Wiring Diagram Technical Note for New Twingo .
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CO.0 CO.1 1.DEF	NOTES	None.
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Check the connection and condition (possible wiring damage) of the connectors of **components 1094 and 150**. If the connector is faulty (see **Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.

Using command **AC013 Wheel speed sensor supply test** (see **Interpretation of commands**), check for a voltage of approximately **12 V** between **connections 4S and 4T** of the component.

Is the voltage measured correct?

YES	Replace component 150 (see MR 411, Mechanical, 38C, Anti-lock braking system, Rear wheel speed sensor, Removal - Refitting).
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NO	<p>Check the insulation and continuity of connections 4S and 4T between components 150 and 1094.</p> <p>Also check the insulation between these 2 connections.</p> <p>If the connection or connections are faulty (see Technical Note 6015A, Electrical wiring repair, Wiring: Precautions for repair), repair the wiring, otherwise replace the wiring.</p> <p>If all the checks are in order, contact Techline.</p>
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AFTER REPAIR	<p>Clear the computer fault memory.</p> <p>Carry out a road test followed by another check with the diagnostic tool</p> <p>If the fault is still present, contact the Techline.</p>
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DF027 CONTINUED	
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2.DEF	NOTES	<p>Conditions for applying the fault finding procedure to stored faults: The fault is declared present after a road test.</p>
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<p>Check the connection and condition (possible wiring damage) of the connectors of components 1094 and 150. If the connector is faulty (see Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair), repair the connector, otherwise replace the wiring.</p> <p>Check the insulation and continuity of connections 4S and 4T between components 150 and 1094. Also check the insulation between these 2 connections.</p> <p>If the connection or connections are faulty (see Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair), repair the wiring, otherwise replace it.</p> <p>Inspect the condition of the target (metallic contamination etc.). Clean the target with compressed air if necessary.</p> <p>For versions equipped with disc brakes: Check the sensor/target air gap through one wheel revolution (0.1 mm < rear wheel air gap < 0.9 mm).</p> <p>If the air gap is incorrect:</p> <ul style="list-style-type: none"> – Replace the instrumented bearing/wheel sensor mounting assembly (see MR 411, Mechanical, 33A, Rear axle components, Rear hub carrier bearing: Removal - Refitting). <p>If the air gap is correct:</p> <ul style="list-style-type: none"> – Swap both rear wheel brake discs as well as the brake pads. – Clear the computer fault memory. – Carry out a road test followed by another check with the diagnostic tool. – If the fault initially declared as DF007 Rear left-hand wheel speed sensor circuit has become DF027, replace the instrumented bearing/wheel sensor mounting assembly (see MR 411, Mechanical, 33A, Rear axle components, Rear hub carrier bearing: Removal - Refitting). – If the fault remains on the same side, replace component 150 (see MR 411, Mechanical, 38C, Anti-lock braking system, Rear wheel speed sensor, Removal - Refitting). <p>For versions equipped with drum brakes:</p> <ul style="list-style-type: none"> – Swap both rear wheel brake drums. – Clear the computer fault memory. – Carry out a road test followed by another check with the diagnostic tool. – If the fault initially declared as DF007 Rear left-hand wheel speed sensor circuit has become DF027, replace the target (see MR 411, Mechanical, 33A, Rear axle components, Rear brake drums, Removal - Refitting). – If the fault remains on the same side, replace component 150 (see MR 411, Mechanical, 38C, Anti-lock braking system, Rear wheel speed sensor, Removal - Refitting).
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AFTER REPAIR	<p>Clear the computer fault memory. Carry out a road test followed by another check with the diagnostic tool If the fault is still present, contact the Techline.</p>
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DF055 PRESENT	<u>VEHICLE PARAMETER PROGRAMMING</u> DEF: configuration absent or incorrect
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NOTES	None.
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Configure the vehicle parameters using command **VP004 Vehicle parameters** (see help table in clip).
Clear the fault memory, and initialise the computer (switch the **+ after ignition feed** off and on again).
Check for any possible faults.

AFTER REPAIR	Clear the computer fault memory. Carry out a road test followed by another check with the diagnostic tool If the fault is still present, contact the Techline.
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DF063 PRESENT OR STORED	<p><u>WHEEL SPEED CONSISTENCY</u> DEF: inconsistency CC.1: short-circuit to +12 volts</p>
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NOTES	<p>Special notes: This fault indicates that the wheel speeds are inconsistent with each other. The computer does not know how to determine which one is faulty.</p>
	<p>Priorities when dealing with a number of faults: Deal first with faults DF090 Front right-hand wheel target, DF091 Front left-hand wheel target, DF092 Rear right-hand wheel target and DF093 Rear left-hand wheel target even if they are stored.</p>
	<p>Use the Wiring Diagram Technical Note for New Twingo.</p>

DEF	NOTES	<p>Conditions for applying the fault finding procedure to stored faults: The fault is declared present after a road test.</p>
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Check the quality of the mounting of the wheel speed sensors (correct clipping without excessive play).
Check the conformity of the targets (condition, number of teeth = **48**) using the specific command **SC001 Check target teeth** for each wheel.
Are the numbers of teeth correct?

YES	<p>Visually inspect the condition of the axles (impacts, deformations, etc.) and check that the tyre mountings conform and are in good condition (see MR 411, Mechanical, 35A, Wheels and tyres, Identification). Ensure that the braking system is in good condition (condition of the linings, tightness, grip, bleeding, bearing play, lubricant on the targets, etc.).</p>
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NO	<p>Apply the target fault procedure for the wheel(s) concerned:</p> <ul style="list-style-type: none"> – DF090 Front right-hand wheel target – DF091 Front left-hand wheel target – DF092 Rear right-hand wheel target – DF093 Rear left-hand wheel target
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AFTER REPAIR	<p>Clear the computer fault memory. Carry out a road test followed by another check with the diagnostic tool If the fault is still present, contact the Techline.</p>
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DF063 CONTINUED	
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2.DEF	NOTES	None.
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Check the connection and condition (possible wiring damage) of the connectors:

- of **component 1094**,
- of **component 150**,
- of **component 151**,
- of **component 152**,
- of **component 153**.

If the connector is faulty (see **Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.

Check the **insulation and continuity** of **connections 4M** and **4N** between **components 152** and **1094**.

Also check the **insulation** between these 2 connections.

Check the **insulation and continuity** of **connections 4S** and **4T** between **components 150** and **1094**.

Also check the **insulation** between these 2 connections.

Check the **insulation and continuity** of **connections 4C** and **4E** between **components 153** and **1094**.

Also check the **insulation** between these 2 connections.

Check the **insulation and continuity** of **connections 4G** and **4H** between **components 151** and **1094**.

Also check the **insulation** between these 2 connections.

If the connection(s) are faulty (see **Technical Note 6015A, Electrical wiring repair, Wiring: Precautions for repair**), repair the wiring, otherwise replace the wiring.

Perform the procedure of counting the poles for each wheel (number of teeth = **48**) using special command **SC001 Check target teeth** to confirm the disappearance of the fault.

AFTER REPAIR	<p>Clear the computer fault memory.</p> <p>Carry out a road test followed by another check with the diagnostic tool</p> <p>If the fault is still present, contact the Techline.</p>
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DF066 PRESENT OR STORED	<u>INJECTION MULTIPLEX SIGNAL ABSENT</u>
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NOTES	Special notes: The injection does not always store these transient faults as quickly as the ESP system . If no fault is stored in the injection computer, start the engine; if there is no fault present, contact the Techline. Once the fault in the injection system has been repaired, clear the ESP computer fault memory.
	Priority in the event of a number of faults: Deal with fault DF152 Multiplex network first if it is present or stored.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present when the engine is started.

Check the injection computer (see 13B, Diesel injection or 17B, Petrol injection) using the diagnostic tool .
Run a multiplex network test (see 88B, Multiplex).

AFTER REPAIR	Clear the computer fault memory. Carry out a road test followed by another check with the diagnostic tool If the fault is still present, contact the Techline.
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DF075 PRESENT OR STORED	<p>STEERING WHEEL ANGLE SENSOR SIGNAL</p> <p>1. DEF: inconsistency 2. DEF: constant signal</p>
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NOTES	<p>Conditions for applying the fault finding procedure to stored faults: The fault is declared present after a road test.</p>
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1.DEF	NOTES	<p>Special notes: Question the customer to find out if he regularly drives on a speed track. If this is the case, follow the procedure below but never replace component 583.</p>
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<p>Clear the ESP offsets using command RZ011 Sensor offset. Position the steering wheel straight ahead (the wheels must be directly in line with the vehicle) and read the value of the steering wheel angle using the parameter PR033 "Steering wheel angle". If the value is not close to 0 ± 5°, calibrate component 583 using command VP003 Steering wheel angle sensor (see Configurations and programming). Clear the ESP sensor offsets using command RZ011 Sensor offset.</p>	
<p>With the steering wheel horizontal and the front wheels set straight ahead, turn the steering wheel a quarter of a turn to the left. Using parameter PR033 Steering wheel angle, check that the steering wheel angle value is close to - 90. With the steering wheel horizontal and the front wheels set straight ahead, turn the steering wheel a quarter of a turn to the right. Using parameter PR033 Steering wheel angle, check that the steering wheel angle value is close to + 90. If the steering wheel angle values are not correct, replace component 583 (see MR 411, Mechanical, 36A, Steering assembly, Steering column, Removal - Refitting).</p>	
<p>Drive in a straight line. If the steering wheel is not horizontal when the vehicle is driving in a straight line (the vehicle "pulls" to the left or right): Check the conformity of the tyres, pressures, wear and dimensions (see MR 411, 35A, Wheels and tyres, Tyres, Identification and tyre pressure, Identification). Replace the tyre(s) if necessary (see MR 411, 35A, Wheels and tyres, Tyres, Removal - Refitting). Adjust the wheel alignment (see MR 411, Mechanical, 30A, General information, Front axle: Adjustment). Calibrate component 583 using command VP003 Steering wheel angle sensor (see Configurations and programming). Clear the ESP sensor offsets using command RZ011 Sensor offsets.</p>	

AFTER REPAIR	<p>Clear the computer fault memory. Carry out a road test followed by another check with the diagnostic tool If the fault is still present, contact the Techline.</p>
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DF075 CONTINUED	
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2.DEF	NOTES	None.
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Clear the ESP offsets using command **RZ011 Sensor offset**.
When stationary, turn the steering wheel from left to right and check that the value changes using parameter **PR033 Steering wheel angle**.
If the value is inconsistent, replace **component 583** (see **MR 411, Mechanical, 36A, Steering assembly, Steering column, Removal - Refitting**).

AFTER REPAIR	Clear the computer fault memory. Carry out a road test followed by another check with the diagnostic tool If the fault is still present, contact the Techline.
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DF086 PRESENT OR STORED	<u>COMPUTER CONFIGURATION</u> DEF: incorrect vehicle configuration
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NOTES	None.
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Configure the inhibition or authorisation of the automatic brake lights (according to the legislation of the country).
Using command **VP021 Automatic brake light inhibition**:
Configure the inhibition of the automatic brake lights using command **VP021 Automatic brake light inhibition**
Using command **VP022 Automatic brake light authorisation**:
Configure the authorisation of the automatic brake lights using command **VP022 Automatic brake light authorisation**.

AFTER REPAIR	Clear the computer fault memory. Carry out a road test followed by another check with the diagnostic tool If the fault is still present, contact the Techline.
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DF087 PRESENT OR STORED	PROGRAMMING THE STEERING WHEEL ANGLE SENSOR DEF: Programming not performed
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NOTES	None.
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<p>Position the steering wheel horizontally and the front wheels set straight ahead. Check and store the internal fault code of component 583 using parameter PR113 Steering wheel angle sensor internal fault code. The internal fault code of the steering wheel angle sensor must be 0, 10 or 11, if it is different, replace component 583 (see MR 411, Mechanical, 36A, Steering assembly, Steering column, Removal - Refitting).</p> <p>Calibrate component 583 using command VP003 Steering wheel angle sensor (see Configurations and programming). Clear the ESP sensor offsets using command RZ011 Sensor offsets. Check the value of parameter PR033 Steering wheel angle. The steering wheel angle value must be close to 0° ± 5°.</p>

AFTER REPAIR	Clear the computer fault memory. Carry out a road test followed by another check with the diagnostic tool If the fault is still present, contact the Techline.
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DF090 PRESENT OR STORED	<u>FRONT RIGHT-HAND WHEEL TARGET</u>
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NOTES	<p>Priorities when dealing with a number of faults: Deal with fault DF026 Front right-hand wheel speed sensor circuit first if it is present.</p>
	<p>Conditions for applying the fault finding procedure to stored faults: The fault is declared present during a road test.</p>

<p>Visually inspect the condition of the axle assemblies (impacts, deformations etc.) and the conformity and good condition of the tyre mountings (see MR 411, Mechanical, 35A, Wheels and tyres, Tyres, Identification and Tyre pressure, Identification).</p> <p>Check that the braking system (condition of brake pads, sealing, sticking, bleed, bearing clearance, etc.) is in good condition.</p>
<p>Visually inspect the condition of the target (for clogging, metallic contamination, bearing grease, etc.) and clean using compressed air if necessary.</p> <p>Check that the wheel speed sensor mounting is in good condition.</p> <p>Check the sensor/target air gap through one wheel revolution (0.4 < front wheel air gap < 1.7 mm).</p> <p>If the air gap is incorrect:</p> <ul style="list-style-type: none"> – Replace the instrumented bearing/wheel sensor mounting assembly if necessary (see MR 411, Mechanical, 31A, Front axle components, Hub carrier bearing: Removal - Refitting). <p>If the air gap is correct.</p> <ul style="list-style-type: none"> – Swap both front wheel speed sensors. – Clear the computer fault memory. – Carry out a road test followed by another check with the diagnostic tool. – If the fault initially declared as DF090 has become DF091 Front left-hand wheel target, replace the magnetic target (see MR 411, Mechanical, 31A, Front axle components, Front hub carrier bearing: Removal – Refitting). – If the fault remains on the same side, replace component 152 (see MR 411, Mechanical, 38C, Anti-lock braking system, Front wheel speed sensor, Removal - Refitting).

AFTER REPAIR	<p>Clear the computer fault memory. Carry out a road test followed by another check with the diagnostic tool If the fault is still present, contact the Techline.</p>
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DF091 PRESENT OR STORED	<u>FRONT LEFT-HAND WHEEL TARGET</u>
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NOTES	<p>Priorities when dealing with a number of faults: Deal with fault DF006 Front left wheel speed sensor circuit first if it is present.</p>
	<p>Conditions for applying the fault finding procedure to stored faults: The fault is declared present during a road test.</p>

<p>Visually inspect the condition of the axle assemblies (impacts, deformations etc.) and the conformity and good condition of the tyre mountings (see MR 411, Mechanical systems, 35A, Wheels and tyres, Tyres, Identification and Tyre pressure, Identification).</p> <p>Replace the tyre(s) if necessary (see MR 411, Mechanical, 35A, Wheels and tyres, Tyres, Removal - Refitting).</p> <p>Check that the braking system (condition of brake pads, sealing, sticking, bleed, bearing clearance, etc.) is in good condition.</p>
<p>Visually inspect the condition of the target (for clogging, metallic contamination, bearing grease, etc.) and clean using compressed air if necessary.</p> <p>Check that the wheel speed sensor mounting is in good condition.</p> <p>Check the sensor/target air gap through one wheel revolution (0.4 < front wheel air gap < 1.7 mm).</p> <p>If the air gap is incorrect:</p> <ul style="list-style-type: none"> – Replace the instrumented bearing/wheel sensor mounting assembly if necessary (see MR 411, Mechanical, 31A, Front axle components, Hub carrier bearing: Removal - Refitting). <p>If the air gap is correct.</p> <ul style="list-style-type: none"> – Swap both front wheel speed sensors. – Clear the computer fault memory. – Carry out a road test followed by another check with the diagnostic tool. – If the fault initially declared as DF091 has become DF090 Front right-hand wheel target, replace the magnetic target (see MR 411, Mechanical, 31A, Front axle components, Front hub carrier bearing: Removal – Refitting). – If the fault remains on the same side, replace component 153 (see MR 411, Mechanical, 38C, Anti-lock braking system, Front wheel speed sensor, Removal - Refitting).

AFTER REPAIR	<p>Clear the computer fault memory.</p> <p>Carry out a road test followed by another check with the diagnostic tool</p> <p>If the fault is still present, contact the Techline.</p>
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DF092 PRESENT OR STORED	<u>REAR RIGHT-HAND WHEEL TARGET</u>
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NOTES	Priorities when dealing with a number of faults: Deal with fault DF027 Rear right-hand wheel speed sensor circuit first if it is present.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present during a road test.

Visually inspect the condition of the axle assemblies (impacts, deformations etc.) and the conformity and good condition of the tyre mountings (see **MR 411, Mechanical systems, 35A, Wheels and tyres, Tyres, Identification and Tyre pressure, Identification**).

Replace the tyre(s) if necessary (see **MR 411, Mechanical, 35A, Wheels and tyres, Tyres, Removal - Refitting**).

Check that the braking system (condition of brake pads, sealing, sticking, bleed, bearing clearance, etc.) is in good condition.

AFTER REPAIR	Clear the computer fault memory. Carry out a road test followed by another check with the diagnostic tool If the fault is still present, contact the Techline.
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DF092 CONTINUED

Check that the wheel speed sensor mounting is in good condition.
Visually inspect the condition of the target (for clogging, metallic contamination, bearing grease, etc.) and clean using compressed air if necessary.

For versions equipped with disc brakes:

Check the sensor/target air gap through one wheel revolution ($0.1 < \text{rear wheel air gap} < 0.9 \text{ mm}$).

If the air gap is incorrect:

- Replace the instrumented bearing/wheel sensor mounting assembly (see **MR 411, Mechanical, 33A, Rear axle components, Rear hub carrier bearing: Removal - Refitting**).

If the air gap is correct.

- Swap both rear wheel brake discs as well as the brake pads.
- Clear the computer fault memory.
- Carry out a road test followed by another check with **the diagnostic tool**.
- If the fault initially declared as **DF092** has become **DF093 Rear left-hand wheel target**, replace the instrumented bearing/wheel sensor mounting assembly (see **MR 411 Mechanical, 33A, Rear axle components, Rear hub carrier bearing: Removal - Refitting**).
- If the fault remains on the same side, replace component **150** (see **MR 411, Mechanical, 38C, Anti-lock braking system, Wheel speed sensor, Removal - Refitting**).

For versions equipped with drum brakes:

- Swap both rear wheel brake drums.
- Clear the computer fault memory.
- Carry out a road test followed by another check with **the diagnostic tool**.
- If the fault initially declared as **DF092** has become **DF093 Rear left-hand wheel target**, replace the target (see **MR 411, Mechanical, 33A, Rear axle components, Rear brake drums, Removal - Refitting**).
- If the fault remains on the same side, replace component **150** (see **MR 411, Mechanical, 38C, Anti-lock braking system, Rear wheel speed sensor, Removal - Refitting**).

AFTER REPAIR

Clear the computer fault memory.

Carry out a road test followed by another check with the **diagnostic tool**
If the fault is still present, contact the Techline.

DF093 PRESENT OR STORED	<u>REAR LEFT-HAND WHEEL TARGET.</u>
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NOTES	Priorities when dealing with a number of faults: Deal with fault DF007 Left rear wheel speed sensor circuit first if it is present.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present during a road test.

Visually inspect the condition of the axle assemblies (impacts, deformations etc.) and the conformity and good condition of the tyre mountings (see **MR 411, Mechanical systems, 35A, Wheels and tyres, Tyres, Identification and Tyre pressure, Identification**).

Replace the tyre(s) if necessary (see **MR 411, Mechanical, 35A, Wheels and tyres, Tyres, Removal - Refitting**).

Check that the braking system (condition of brake pads, sealing, sticking, bleed, bearing clearance, etc.) is in good condition.

AFTER REPAIR	Clear the computer fault memory. Carry out a road test followed by another check with the diagnostic tool If the fault is still present, contact the Techline.
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DF093 CONTINUED

Check that the wheel speed sensor mounting is in good condition.

Visually inspect the condition of the target (for clogging, metallic contamination, bearing grease, etc.) and clean using compressed air if necessary.

For versions equipped with disc brakes:

Check the sensor/target air gap through one wheel revolution ($0.1 < \text{rear wheel air gap} < 0.9 \text{ mm}$).

If the air gap is incorrect:

– Replace the instrumented bearing/wheel sensor mounting assembly (see **MR 411, Mechanical, 33A, Rear axle components, Rear hub carrier bearing: Removal - Refitting**).

If the air gap is correct.

- Swap both rear wheel brake discs as well as the brake pads.
- Clear the computer fault memory.
- Carry out a road test followed by another check with **the diagnostic tool**.
- If the fault initially declared as **DF093** has become **DF092 Rear right-hand wheel target**, replace the instrumented bearing/wheel sensor mounting assembly (see **MR 411 Mechanical, 33A, Rear axle components, Rear hub carrier bearing: Removal - Refitting**).
- If the fault remains on the same side, replace component **151** (see **MR 411, Mechanical, 38C, Anti-lock braking system, Wheel speed sensor, Removal - Refitting**).

For versions equipped with drum brakes:

- Swap both rear wheel brake drums.
- Clear the computer fault memory.
- Carry out a road test followed by another check with **the diagnostic tool**.
- If the initially declared fault **DF093** became **DF092 "Rear right-hand wheel target "**, replace the target (see **MR 411 Mechanical system, 33A, Rear axle components, Rear brake drums, removal-refitting**).
- If the fault remains on the same side, replace component **151** (see **MR 411, Mechanical, 38C, Anti-lock braking system, Rear wheel speed sensor, Removal - Refitting**).

AFTER REPAIR

Clear the computer fault memory.

Carry out a road test followed by another check with the **diagnostic tool**
If the fault is still present, contact the Techline.

DF098 PRESENT OR STORED	<u>NO UCH MULTIPLEX SIGNAL</u>
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NOTES	Special notes: Even though this is stored in the computer, this fault does not cause the warning lights to come on or a fault message, because the ESP system is not faulty. Perform fault finding on the UCH (Passenger compartment connection unit) using the diagnostic tool . Note: After repairing the fault in the UCH (Passenger compartment connection unit), clear the fault memory in the ESP system.
	Priority in the event of a number of faults: Deal with fault DF152 Multiplex network first if it is present or stored.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present when the engine is started.

Check the UCH (Passenger compartment connection unit) using the diagnostic tool (see 87B, Passenger compartment connection unit).
Run a multiplex network test (see 88B, Multiplex).

AFTER REPAIR	Clear the computer fault memory. Carry out a road test followed by another check with the diagnostic tool If the fault is still present, contact the Techline.
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DF099 PRESENT OR STORED	<u>PRIVATE MULTIPLEX NETWORK</u>
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NOTES	Use the Wiring Diagram Technical Note for New Twingo .
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Check the connection and condition (possible wiring damage) of the connectors of **components 1094** and **1175**. If the connector is faulty (see **Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.
Check for a voltage of **12 V** between **connections MAM** and **AP5** of **component 1175**.
Is the voltage measured correct?

YES	<p>Connector of component 583 and intermediate union R107 disconnected. Check the insulation and continuity of connections 4AP and 4AH between component 1175 and the intermediate union R107. Check the insulation and continuity of connections 4AP and 4AH between intermediate union R107 and component 1094. If the connections are faulty (see Technical Note 6015A, Electrical wiring repair, Wiring: Precautions for repair), repair the wiring, otherwise replace it. If the checks do not reveal any faults, replace component 1175 (see MR 411, Mechanical, 38C, Anti-lock braking system, Lateral acceleration and yaw speed sensor, Removal - Refitting).</p>
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NO	<p>Check the condition and position of fuse F10 (5A) in the passenger compartment fuse and relay box (see 81C, Fuse box). Connectors of components 1175, 583, 1094 and intermediate union R107 disconnected. Check the insulation and continuity of connection MAM of component 1175. Check the insulation and continuity of connection AP5 between components 1016 and 1175. Check the insulation and continuity of connection AP5 between component 1094 and intermediate union R107. If the connections are faulty (see Technical Note 6015A, Electrical wiring repair, Wiring: Precautions for repair), repair the wiring, otherwise replace it.</p>
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AFTER REPAIR	<p>Clear the computer fault memory. Carry out a road test followed by another check with the diagnostic tool If the fault is still present, contact the Techline.</p>
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DF100 PRESENT OR STORED	<u>NO STEERING WHEEL ANGLE MULTIPLEX SIGNAL</u>
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NOTES	Use the Wiring Diagram Technical Note for New Twingo .
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Check that the connections and location of any special fittings (CB, car phone, amplifier, etc.) are not preventing the system from working correctly.	
With the ignition on, check for 12 V between connections NAM and AP5 of component 583 . Is the voltage measured correct?	

YES	<p>Connectors of components 1175, 1094, 583 and intermediate union R107 disconnected.</p> <p>Check the insulation and continuity of connections 4AP and 4AH between component 583 and intermediate union R107.</p> <p>Check the insulation and continuity of connections 4AP and 4AH between intermediate union R107 and component 1094.</p> <p>If the connections are faulty (see Technical Note 6015A, Electrical wiring repair, Wiring: Precautions for repair), repair the wiring, otherwise replace it.</p>
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NO	<p>Check the condition and position of fuse F10 (5A) in the passenger compartment fuse box (see 81C, Fuse box).</p> <p>Check the connection and condition (possible wiring damage) of the connectors of components 583 and 1016.</p> <p>If the connector is faulty (see Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair), repair the connector, otherwise replace the wiring.</p> <p>Connectors of components 1175, 1094, 583 and intermediate union R107 disconnected.</p> <p>Check the insulation and continuity of connection AP5 between component 1016 and component 583.</p> <p>Check the continuity and insulation of connection AP5 between component 1094 and intermediate connector R107.</p> <p>Check the continuity and insulation of connection NAM between component 583 and the chassis earth (tightness, oxidation, etc.).</p> <p>If the connections are faulty (see Technical Note 6015A, Electrical wiring repair, Wiring: Precautions for repair), repair the wiring, otherwise replace it.</p>
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AFTER REPAIR	<p>Clear the computer fault memory.</p> <p>Carry out a road test followed by another check with the diagnostic tool</p> <p>If the fault is still present, contact the Techline.</p>
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<p>DF108 PRESENT OR STORED</p>	<p><u>STEERING WHEEL ANGLE SENSOR</u> DEF: sensor fault</p>
<p>NOTES</p>	<p>None.</p>
<p>Check the internal fault code of the steering wheel angle sensor using parameter PR113 Steering wheel angle sensor internal fault code. Is the internal fault code of the steering wheel angle sensor 10 or 11?</p>	
<p>YES</p>	<p>Calibrate component 583 using command VP003 Steering wheel angle sensor (see Configurations and programming). Clear the ESP sensor offsets using command RZ011 Sensor offsets.</p>
<p>NO</p>	<p>Note the internal fault code of the steering wheel angle sensor for the purposes of completing the approval request. Replace component 583 (see MR 411, Mechanical, 36A, Steering assembly, Steering column, Removal - Refitting).</p>

<p>AFTER REPAIR</p>	<p>Clear the computer fault memory. Carry out a road test followed by another check with the diagnostic tool If the fault is still present, contact the Techline.</p>
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DF126 PRESENT OR STORED	<u>COMBINED SENSOR SIGNAL PLAUSIBILITY</u>
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NOTES	Special notes: If the fault appears while the vehicle is being driven on a steep gradient, during a very tight turn or while the vehicle is being transported on a lorry, train, boat etc., with the engine running, clear the fault and test drive, if possible, to check that the fault does not return.
	Conditions for applying fault finding procedures to stored faults: The fault is declared present after a road test.

<p>Check that component 1175 is fitted and attached correctly (the arrow indicating the front of the vehicle). Check the conformity of the tyres (see MR 411, Mechanical, 35A, Wheels and tyres, Tyres: Identification and Tyre pressure, Identification). Check the axle assembly geometry (see MR 411, Mechanical, Chassis, Front axle adjustment). Calibrate component 583 using command VP003 Steering wheel angle sensor (see Configurations and programming). Clear the ESP sensor offsets using command RZ011 Sensor offset.</p>
<p>Re-establish dialogue with the ABS/ESP computer, and if no other fault is to be dealt with, clear the computer fault memory. Carry out a road test. If the fault is still present, contact the Techline.</p>

AFTER REPAIR	Clear the computer fault memory. Carry out a road test followed by another check with the diagnostic tool If the fault is still present, contact the Techline.
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DF152 PRESENT OR STORED	MULTIPLEX NETWORK 1. DEF: apply the multiplex network fault finding procedure
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NOTES	Priorities when dealing with a number of faults: Deal with fault DF099 Private multiplex network first if it is present or stored.
	Special notes: If several computers are affected by a similar multiplex network fault, contact the Techline to check the cases previously noted first.

Use the wiring diagram Technical Note for **New Twingo**.

Test the multiplex network using **the diagnostic tool** (see **88B, Multiplexing**).

AFTER REPAIR	Clear the computer fault memory. Carry out a road test followed by another check with the diagnostic tool If the fault is still present, contact the Techline.
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DF153 PRESENT OR STORED	<u>MULTIPLEX NETWORK</u> 1. DEF: apply the multiplex network fault finding procedure
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NOTES	Special notes: If several computers are affected by a similar multiplex network fault, contact the Techline to check the cases previously noted first.
	Use the wiring diagram Technical Note for New Twingo .

Test the multiplex network using **the diagnostic tool** (see **88B, Multiplexing**).

AFTER REPAIR	Clear the computer fault memory. Carry out a road test followed by another check with the diagnostic tool If the fault is still present, contact the Techline.
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DF186 PRESENT OR STORED	<u>NO INSTRUMENT PANEL MULTIPLEX SIGNAL</u>
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NOTES	Note: When the fault in the instrument panel has been repaired, clear the ESP fault memory.
	Priority in the event of a number of faults: Deal with fault DF152 Multiplex network first if it is present or stored.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present when the engine is started.

Check the instrument panel using the diagnostic tool (see 83A, Instrument panel).
Run a multiplex network test (see 88B, Multiplex).

AFTER REPAIR	Clear the computer fault memory. Carry out a road test followed by another check with the diagnostic tool If the fault is still present, contact the Techline.
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DF187 PRESENT OR STORED	<u>BRAKE LIGHT ACTIVATION RELAY CIRCUIT</u> DEF: open circuit or short circuit
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NOTES	Special notes: If this fault appears after running command AC187 Brake light activation relay , ignore this fault.
	Use the Wiring Diagram Technical Note for New Twingo .

Are the brake lights continuously lit?

YES	Connector of components 1281 , 1094 and intermediate union R107 disconnected, Check the insulation to earth of connection 4GJ between component 1281 and intermediate union R107 . Check the insulation to earth of connection 4GJ between intermediate union R107 and component 1094 . If the connections are faulty (see Technical Note 6015A, Electrical wiring repair, Wiring: Precautions for repair), repair the wiring, otherwise replace it.
	If all these checks are in order, replace component 1281 .

AFTER REPAIR	Clear the computer fault memory. Carry out a road test followed by another check with the diagnostic tool If the fault is still present, contact the Techline.
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DF187 CONTINUED	
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NO	<p>Check that the "Automatic brake light" function is activated using status ET030 Automatic brake light.</p>
	<p>If the status ET030 "Automatic brake lights" is "PROHIBITED": inhibit or authorise the automatic brake lights (depending on the country's legislation) using command VP021 Automatic brake light inhibition or VP022 Automatic brake light authorisation.</p>
	<p>Check the condition and position of fuse F5 (15 A) in the passenger compartment fuse box (see 81C, Fuse box). Connector of components 1281, 1094 and intermediate union R107 disconnected, Check the continuity of connection 4GJ between component 1281 and intermediate union R107. Check the continuity of connection 4GJ between intermediate union R107 and component 1094. If the connections are faulty (see Technical Note 6015A, Electrical wiring repair, Wiring: Precautions for repair), repair the wiring, otherwise replace it.</p>
	<p>With the connector of components 1281 and 1016 disconnected, check the continuity and insulation of connection AP10 between components 1016 and 1281. If the connection is faulty (see Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair), repair the wiring, otherwise replace it. If all these checks are in order, replace component 1281.</p>

AFTER REPAIR	<p>Clear the computer fault memory. Carry out a road test followed by another check with the diagnostic tool If the fault is still present, contact the Techline.</p>
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DF188 PRESENT OR STORED	<u>BRAKE LIGHT SWITCH CIRCUIT</u> 1.DEF: Inconsistency 2.DEF: Permanent high signal
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NOTES	Conditions for applying the fault finding procedure to stored faults: Clear the stored fault, carry out a road test at a speed of > 36 mph (60 km/h) and test the brakes using ABS . Use the interpretation of the fault if it recurs.
	Special notes: The fault is detected if the computer does not detect a brake lights switch status change for 4 acceleration/braking cycles and/or the contact is closed for over 6 minutes with the vehicle speed above 24 mph (40 km/h) .

Using the **diagnostic tool**, check on the status screen that **ET017 Brake pedal** recognises the correct pressed and released positions of the brake pedal.
If the correct pedal position is not displayed, use the interpretation of **ET017 Brake pedal**.

AFTER REPAIR	Clear the computer fault memory. Carry out a road test followed by another check with the diagnostic tool If the fault is still present, contact the Techline.
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DF189 PRESENT OR STORED	<u>COMBINED SENSOR CIRCUIT</u>
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NOTES	Use Wiring Diagram Technical Note, New Twingo .
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Check the condition and position of fuse F10 (5 A) in the passenger compartment fuse box (see 81C, Fuse box).
Check the connection and condition (possible wiring damage) of the connectors of components 1175, 1094 and 1016 . If the connector is faulty (see Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair), repair the connector, otherwise replace the wiring.
Check the connection and condition (possible wiring damage) of intermediate connector R107 . If the connector is faulty (see Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair), repair the connector, otherwise replace the wiring.
Connector of components 1175, 1094, 1016 and intermediate union R107 disconnected. – check the insulation and continuity of connection AP5 between components 1175 and 1016 . – check the insulation and continuity of connection AP5 between component 1094 and intermediate connector R107 . – check the insulation and continuity of connection MAM of component 1175 (tightness, oxidation, etc.). If the connection or connections are faulty (see Technical Note 6015A, Electrical wiring repair, Wiring: Precautions for repair), repair the wiring, otherwise replace it.

AFTER REPAIR	Clear the computer fault memory. Carry out a road test followed by another check with the diagnostic tool If the fault is still present, contact the Techline.
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DF190 PRESENT OR STORED	<p>COMBINED SENSOR</p> <p>1.DEF: Sensor internal electronic fault 2.DEF: Sensor incorrectly fitted 3.DEF: Abnormal voltage</p>
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NOTES	Use the Wiring Diagram Technical Note for New Twingo .
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1.DEF	NOTES	None.
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Replace **component 1175** (see **MR 411 Mechanical, 38C, Anti-lock braking system, Lateral acceleration and yaw speed sensor, Removal - Refitting**) then it is essential to clear the ESP sensor offsets using command **RZ011 Sensor offsets**.

2.DEF	NOTES	None.
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Check the connection and condition (possible wiring damage) of the connector of **component 1094**.
 Check the connection and condition (possible wiring damage) of the connector of **component 1175**.
 Check the connection and condition (possible wiring damage) of intermediate connector **R107**.
 If the connector is faulty (see **Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.

Check the **continuity** of **connections 4AP and 4AH** between **components 1094 and 1175**.
 If the connection or connections are faulty (see **Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Check that **component 1175** is fitted and attached correctly (the arrow indicates the front of the vehicle).

AFTER REPAIR	<p>Clear the computer fault memory.</p> <p>Carry out a road test followed by another check with the diagnostic tool If the fault is still present, contact the Techline.</p>
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DF190 CONTINUED	
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3.DEF	NOTES	None.
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Check the tightness and condition of the battery terminals (see 80A, Battery). Check the charging circuit (see 16A, Starting - Charging).
Apply the fault finding procedure for fault DF189 Combined sensor circuit .

AFTER REPAIR	Clear the computer fault memory. Carry out a road test followed by another check with the diagnostic tool If the fault is still present, contact the Techline.
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DF191 PRESENT OR STORED	<u>ESP ON/OFF BUTTON CIRCUIT</u> CO.0: Open circuit or short circuit to earth
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NOTES	Special notes: This fault does not cause the warning lights to come on or a fault message on the instrument panel. The ESP is not faulty, but it is no longer possible to disable the ESP using the button.
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Apply the interpretation of status **ET023 ESP on/off button**.

AFTER REPAIR	Clear the computer fault memory. Carry out a road test followed by another check with the diagnostic tool If the fault is still present, contact the Techline.
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DF193 PRESENT OR STORED	<u>INJ. MULTIPLEX SIGNALS INVALID</u>
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NOTES	<p>Special notes: Even though it is stored in the computer, the ABS/ESP system is not faulty. The ESP is deactivated following unusable information from the injection system. Perform fault finding on the injection system using the diagnostic tool.</p> <p>Note: The injection does not always store these transient faults as quickly as the ABS/ESP.</p> <p>Note: Once the fault in the injection system has been repaired, clear the ABS/ESP computer fault memory.</p>
	<p>Conditions for applying the fault finding procedure to stored faults: The fault is declared present when the engine is started.</p>

Check the injection computer (see 13B, Diesel injection or 17B, Petrol injection) using the diagnostic tool .
Run a multiplex network test (see 88B, Multiplex).

AFTER REPAIR	<p>Clear the computer fault memory. Carry out a road test followed by another check with the diagnostic tool If the fault is still present, contact the Techline.</p>
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DF202 PRESENT OR STORED	<u>UCH MULTIPLEX SIGNALS DISABLED</u> DEF: Reverse gear signal consistency
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NOTES	Special notes: Even though this is stored in the computer, this fault does not cause the warning lights to come on or a fault message, because the ESP system is not faulty. Perform fault finding on the UCH (Passenger compartment connection unit) using the diagnostic tool . Note: After repairing the fault in the UCH (Passenger compartment connection unit), clear the fault memory in the ESP system.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present when the engine is started.

Run a check on the UCH (Passenger compartment connection unit) using the diagnostic tool (see 87B, Passenger compartment connection unit).
Run a multiplex network test (see 88B, Multiplex).

AFTER REPAIR	Clear the computer fault memory. Carry out a road test followed by another check with the diagnostic tool If the fault is still present, contact the Techline.
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DF216 PRESENT OR STORED	<u>STEERING WHEEL ANGLE PROGRAMMING OFFSET</u>
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NOTES	<p>Conditions for applying the fault finding procedure to stored faults: The fault is declared present after an extended road test.</p>
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<p>With the steering wheel horizontal and the wheels set straight ahead (the wheels must be directly in line with the vehicle), read the value of the steering wheel angle using parameter PR033 Steering wheel angle. If the value is not close to 0 ± 5°, calibrate component 583 using command VP003 Steering wheel angle sensor (see Configurations and programming). Clear the ESP sensor offsets using command RZ011 Sensor offsets.</p>	
<p>With the steering wheel horizontal and the wheels set straight ahead, turn the steering wheel a quarter of a turn to the left. Using parameter PR033 Steering wheel angle, check that the steering wheel angle value is close to - 90. With the steering wheel horizontal and the wheels set straight ahead, turn the steering wheel a quarter of a turn to the right. Using parameter PR033 Steering wheel angle, check that the steering wheel angle value is close to + 90. If the values are not correct, replace component 583 (see MR 411, Mechanical, 36A, Steering assembly, Steering column, Removal - Refitting).</p>	
<p>Drive in a straight line. If the steering wheel is not horizontal when the vehicle is driving straight ahead (the vehicle "pulls" to the left or right). Check the conformity of the tyres, pressures, wear, and dimensions (see MR 411, Mechanical, 35A, Wheels and tyres, Tyres: Identification and Tyre pressure, Identification). Replace the tyre(s) if necessary (see MR 411, Mechanical, 35A, Wheels and tyres, Tyres, Removal - Refitting). Adjust the wheel alignment (see MR 411, Mechanical, 30A, General information, Front axle: Adjustment). With the steering wheel horizontal and the wheels set straight ahead, calibrate component 583 using command VP003 Steering wheel angle sensor. Clear the ESP sensor offsets using command RZ011 Sensor offsets.</p>	

AFTER REPAIR	<p>Clear the computer fault memory. Carry out a road test followed by another check with the diagnostic tool If the fault is still present, contact the Techline.</p>
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DF300 PRESENT OR STORED	PUMP MOTOR CONTROL CIRCUIT DEF: Abnormal voltage.
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NOTES	Use the Wiring Diagram Technical Note for New Twingo .
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<p>Check the tightness and condition of the battery terminals (see 80A, Battery).</p> <p>Check the charging circuit (see 16A, Starting - Charging).</p>
<p>Check the condition and position of fuse F1 (40A) and F2 (30A) in the engine fuse box (see 81C, Fuse box).</p>
<p>Check the connection and condition (possible wiring damage) of the connectors of components 1094, 1834, 1016 and intermediate connector R107.</p> <p>If the connector is faulty (see Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair), repair the connector, otherwise replace the wiring.</p>
<p>With the connector of component 1094 disconnected, check the insulation and continuity of connections MAH of component 1094 (tightness, oxidation, etc.).</p> <p>Connectors of components 1094, 1175, 583 and intermediate union R107 disconnected,</p> <ul style="list-style-type: none"> – check the insulation and continuity of connection AP5 between component 1094 and intermediate connector R107. – Check the insulation and continuity of connection AP5 between intermediate connector R107 and component 1016. – Check the insulation and continuity of connection BP14 between components 1094 and 1834. – Check the insulation and continuity of connection BP8 between components 1094 and 1834. <p>If the connections are faulty (see Technical Note 6015A, Electrical wiring repair, Wiring: Precautions for repair), repair the wiring, otherwise replace it.</p>

AFTER REPAIR	<p>Clear the computer fault memory.</p> <p>Carry out a road test followed by another check with the diagnostic tool</p> <p>If the fault is still present, contact the Techline.</p>
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DF311 PRESENT OR STORED	<u>NO SEQUENTIAL GEARBOX MULTIPLEX SIGNAL</u>
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NOTES	Special notes: Even though it is stored in the computer, this fault does not cause the warning light to come on or a fault message, because the ESP system is not faulty. Perform fault finding on the BVR (sequential gearbox) using the diagnostic tool . Note: After repairing the fault in the BVR (sequential gearbox), clear the fault memory in the ESP system.
	Priority in the event of a number of faults: Deal with fault DF152 Multiplex network first if it is present or stored.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present when the engine is started.

Run a check on the BVR using the diagnostic tool (see 21B, Sequential gearbox).
Run a multiplex network test (see 88B, Multiplex).

AFTER REPAIR	Clear the computer fault memory. Carry out a road test followed by another check with the diagnostic tool If the fault is still present, contact the Techline.
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DF313 PRESENT OR STORED	<u>INVALID SEQUENTIAL GEARBOX MULTIPLEX SIGNALS</u>
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NOTES	Special notes: The ABS/ESP system is not faulty, but has received unusable signals from the BVR . Perform fault finding on the BVR using the diagnostic tool . Note: Once the fault in the sequential gearbox system has been repaired, clear the ABS/ESP computer fault memory.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present when the engine is started.

Run a check on the BVR using the diagnostic tool (see 21B, Sequential gearbox).
Run a multiplex network test (see 88B, Multiplex).

AFTER REPAIR	Clear the computer fault memory. Carry out a road test followed by another check with the diagnostic tool If the fault is still present, contact the Techline.
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DF321 PRESENT OR STORED	<u>CLUTCH SWITCH SIGNAL CONSISTENCY</u> DEF: Inoperative
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NOTES	Special notes: The ABS/ESP system is not faulty. Perform fault finding on the injection system using the diagnostic tool . Note: Once the fault in the INJECTION system has been repaired, clear the ABS/ESP computer fault memory.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present when driving after having exceeded a speed of 42 mph (70 km/h).

Check the injection computer (see **13B, Diesel injection** or **17B, Petrol injection**) using the **diagnostic tool**.

AFTER REPAIR	Clear the computer fault memory. Carry out a road test followed by another check with the diagnostic tool If the fault is still present, contact the Techline.
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ANTI-LOCK BRAKING SYSTEM

Fault finding – Conformity check

38C

NOTES

Only carry out this conformity check after a **complete check** with the **diagnostic tool**.

SUB-FUNCTION: ELECTRONIC STABILITY PROGRAM

Function	Parameter or Status Check or Action		Display and Notes	Fault finding
Diagnostic tool dialogue			ESP	Apply ALP1
Computer configuration	PR030:	Tachometric index	Check that the index entered corresponds to the tyres fitted to the vehicle (see Clip help)	See Configurations and Programming (VP007).
Brake pedal not depressed detection	ET017:	Brake pedal	State Released confirmed, brake pedal not depressed	In the event of a fault, apply the interpretation of ET017 Brake pedal .
Depressed brake pedal detection	ET017:	Brake pedal	State Depressed confirmed, brake pedal fully depressed	In the event of a fault, apply the interpretation of ET017 Brake pedal .
Check calibration Steering wheel angle	PR033:	Steering wheel angle	Right-hand wheel values within: -5° < X < +5°	In the event of a fault, see Configurations and programming (VP003)
Vehicle parameter reading	PR063:	Vehicle parameters	Check that the version corresponds to the vehicle being tested (see the Clip help)	See Configuration and programming (VP004 "Vehicle parameters").

ANTI-LOCK BRAKING SYSTEM

Fault finding – Status summary table

38C

Tool status	Diagnostic tool title
ET017	Brake pedal
ET023	ESP on/off button
ET030	Automatic brake light lighting
ET108	Steering wheel angle programming

ET017	<u>BRAKE PEDAL</u>
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NOTES	<p>Special notes: Only carry out the checks if the PRESSED and RELEASED statuses are inconsistent with the pedal position.</p>
	<p>Use the Wiring Diagram Technical Note for New Twingo.</p>

"Released" STATUS Brake pedal depressed.

If the brake lights are working:

With the connectors of components **1094**, **160**, intermediate union **R107** and component **119** disconnected (depending on equipment), check the **continuity** of **connection 65A** between **components 160 and 1094**. If the connection is faulty (see **Technical Note 6015A, Electrical wiring repair, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

If the brake lights are not working:

- Check the condition, fitting and the adjustment of **component 160** as well as the conformity of the bulbs.
- Remove (see **MR 411, Mechanical, 37A, Mechanical component control, Brake light switch: Removal - Refitting**) and test the operation of **component 160**:

	Continuity between tracks	Insulation between tracks
Switch engaged (Brake pedal released)	AP10 and 5A	AP10 and 65A
Switch released (Brake pedal depressed)	AP10 and 65A	AP10 and 5A

Replace **component 160** if necessary.

Check the condition and position of fuse **F5 (15A)** (see **81C, Fuse box**).

Check for **+12 V after ignition feed** on connection **AP10** of component **1016** to the earth **MAH**.

With intermediate connector **R107** and **component 160**, **1281** and **1081** disconnected (depending on equipment):

- Check **the continuity and insulation** of **connection AP10** between **component 1016** and intermediate connector **R107**.
- Check **the continuity and insulation** of **connection AP10** between **component 160** and intermediate connector **R107**.

AFTER REPAIR	<p>Clear the computer fault memory. Carry out a road test followed by another check with the diagnostic tool.</p>
---------------------	---

ET017
CONTINUED 1

If the connection is faulty (see **Technical Note 6015A, Electrical wiring repair, Wiring: Precautions for repair**), repair the wiring, or replace it.

Connectors of **components 645, 172, 173, 639, 1281 and 1094**, intermediate connectors **R107** and **R15** and connector of **component 119** (if present on the vehicle) disconnected from **connection 65A**:

Check the **continuity** and **insulation** of **connection 65A** between **component 160** and intermediate connector **R107**.

Check the **insulation** of **connection 65A** between **component 172** and intermediate connector **R107**.

Check the **insulation** of **connection 65A** between **component 173** and intermediate connector **R107**.

Check the **insulation** of **connection 65A** between intermediate connectors **R107** and **R15**.

Check the **insulation** of **connection 65A** between **component 639** and intermediate connector **R15**.

Check the **insulation** of **connection 65G** between **component 645** and intermediate connector **R107**.

Check the **insulation** of **connection 65G** between **component 1281** and intermediate connector **R107**.

If the connection is faulty (see **Technical Note 6015A, Electrical wiring repair, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

If these checks do not reveal any faults:

Carry out a complete check of **component 645** using **the diagnostic tool**.

Perform a visual inspection of **components 172, 173, 639** present on connections **65A** and **AP10** (short circuit to earth).

Replace the component(s) if necessary:

See **MR 411 Mechanical, Rear lighting, Rear wing lights, Removal - Refitting** for **components 172** and **173**.

See **MR 411 Mechanical, Rear lighting, High level brake light, Removal - Refitting** for **component 639**.

AFTER REPAIR

Clear the computer fault memory.

Carry out a road test followed by another check with **the diagnostic tool**.

ET017 CONTINUED 2

STATUS "DEPRESSED": Brake pedal released.

- Check the condition, fitting and adjustment of **component 160** as well as the conformity of the bulbs.
- Remove (see **MR 411, Mechanical, 37A, Mechanical component control, Brake light switch: Removal - Refitting**) and test the operation of **component 160**:

	Continuity between tracks	Insulation between tracks
Switch engaged (Brake pedal released)	AP10 and 5A	AP10 and 65A
Switch released (Brake pedal depressed)	AP10 and 65A	AP10 and 5A

Replace **component 160** if necessary.

Connectors of **components 645, 172, 173, 639** and **1094**, intermediate connectors **R107** and **R15** and connector of **component 119** (if present on the vehicle) disconnected from **connection 65A**:

Check the **insulation** of **connection 65A** between **component 160** and intermediate connector **R107**.

Check the **insulation** of **connection 65A** between **component 172** and intermediate connector **R107**.

Check the **insulation** of **connection 65A** between **component 173** and intermediate connector **R107**.

Check the **insulation** of **connection 65A** between intermediate connectors **R107** and **R15**.

Check the **insulation** of **connection 65A** between **component 639** and intermediate connector **R15**.

Check the **insulation** of **connection 65A** between **component 645** and intermediate connector **R107**.

If the connection is faulty (see **Technical Note 6015A, Electrical wiring repair, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

If these checks do not reveal any faults:

Perform a complete check of **component 645** using **the diagnostic tool**.

Perform a visual inspection of **components 172, 173, 639** present on connections **65A** and **AP10** (short circuit to earth).

Replace the component(s) if necessary:

See **MR 411 Mechanical, Rear lighting, Rear wing lights, Removal - Refitting** for **components 172** and **173**.

See **MR 411 Mechanical, Rear lighting, High level brake light, Removal - Refitting** for **component 639**.

AFTER REPAIR

Clear the computer fault memory.

Carry out a road test followed by another check with **the diagnostic tool**.

ET023	<u>ESP ON/OFF BUTTON</u>
NOTES	<p>Special notes: Apply the checks only if the PRESSED and RELEASED statuses are not consistent with the position of the ESP on/off button (RS version only)</p>
	<p>Use the Wiring Diagram Technical Note for New Twingo.</p>

PRESSED STATUS

Connector of component **1106** disconnected and without action on the component.
Check that there is no continuity between connections **MAM** and **4AQ** of component **1106**.
Otherwise, replace **component 1106**.

Check the connection and condition (possible wiring damage) of the connectors of components **1106, 1094**.
Check the connection and condition (possible wiring damage) of intermediate union **R107**.
If the connector is faulty (see **Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.
Connector of components **1106 and 1094** and intermediate union **R107** disconnected,
Check the **insulation** of **connection 4AQ** between **component 1106** and intermediate union **R107**.
Check the **insulation** of **connection 4AQ** between intermediate union **R107** and **component 1094**.
If the connection is faulty (see **Technical Note 6015A, Electrical wiring repair, Wiring: Precautions for repair**), repair the wiring, or replace it.
If the fault is still present, contact the Techline.

AFTER REPAIR

Clear the computer fault memory.
Carry out a road test followed by another check with **the diagnostic tool**.

**ET023
CONTINUED**

RELEASED STATUS

Connector of component **1106** disconnected and with action on the component.
Check for continuity between connections **MAM** and **4AQ** of component **1106**.
Otherwise, replace **component 1106**.

Check the connection and condition (possible wiring damage) of the connectors of components **1106 and 1094**.
Check the connection and condition (possible wiring damage) of intermediate union **R107**.
If the connector is faulty (see **Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.
Connector of components **1106 and 1094** and intermediate union **R107** disconnected,
check the **continuity** of **connection MAM** between **component 1106** and the **chassis earth** (tightness, oxidation, etc.),
check the **continuity** of **connection 4AQ** between **component 1106** and intermediate union **R107**,
check the **continuity** of **connection 4AQ** between intermediate union **R107 and component 1094**.
If the connection or connections are faulty (see **Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.
If the fault is still present, contact the Techline.

AFTER REPAIR

Clear the computer fault memory.
Carry out a road test followed by another check with **the diagnostic tool**.

Tool parameter code	Diagnostic tool title	Comments
PR001	Front right-hand wheel speed	These parameters indicate the speed in mph (km/h) of each wheel on the vehicle.
PR002	Front left-hand wheel speed	
PR003	Rear right-hand wheel speed	
PR004	Rear left-hand wheel speed	
PR005	Computer feed voltage	This parameter indicates the computer supply voltage in volts .
PR007	Longitudinal acceleration	This parameter indicates the longitudinal acceleration of the vehicle in ms⁻² . It should be 0 when the vehicle is stationary.
PR016	Lateral accel.* programming offset	This parameter gives the correction made by the ESP on the gross value of the lateral acceleration sensor.
PR030	Tachometric index	This parameter specifies the tachometric index entered in the computer for the tyres fitted to the vehicle.
PR033	Steering wheel angle	This parameter gives the steering wheel angle in degrees . It must be equal to $0^\circ \pm 5^\circ$ with the wheels set straight ahead.
PR034	Yaw angle	This parameter indicates the yaw angle in °/s supplied by the combined sensor. It should be 0 when the vehicle is stationary.
PR036	Transverse acceleration	This parameter indicates the lateral acceleration in g supplied by the combined sensor. It should be 0 when the vehicle is stationary.
PR038	Vehicle speed	This parameter indicates the vehicle speed in mph (km/h) .
PR063	Vehicle parameters	This parameter shows whether the configuration (VP004 "Vehicle parameters") matches the vehicle undergoing fault finding.
PR065	Yaw angle programming offset	This parameter indicates the correction applied by the ESP to the yaw sensor gross value.
PR066	Steering wheel angle programming offset	This parameter indicates the correction applied by the ESP to the gross value of the steering wheel angle sensor.

accel.*: acceleration

AFTER REPAIR	Clear the computer fault memory. Carry out a road test followed by another check with the diagnostic tool .
---------------------	---

ANTI-LOCK BRAKING SYSTEM

Fault finding – Command summary table

38C

Tool command	Diagnostic tool title	Comments
RZ001	Fault memory	This command is used for clearing the computer's stored faults
RZ011	Sensor offsets	This command reinitialises programming of the ESP sensors. Run this command each time an operation required the steering wheel angle to be programmed or following any operation on the axle assemblies. Also run this command when the combined sensor has been removed or replaced
SC001	Check target teeth	This command tests the condition of the teeth on each wheel. Select the command SC001 and follow the instructions. The test result should indicate 48 teeth .
SC006	Bleed the hydraulic unit and brake circuits	This command should only be used if an abnormally long brake pedal travel is noted during a road test with ABS control (the system must have been bled beforehand by the usual method). Select command SC006 and follow the instructions given by the diagnostic tool .
AC003	Front left-hand wheel solenoid valves	See the interpretation of command (see Interpretation of commands).
AC004	Front right-hand wheel solenoid valves	See the interpretation of command (see Interpretation of commands).
AC005	Rear left-hand wheel solenoid valves	See the interpretation of command (see Interpretation of commands).
AC006	Rear right-hand wheel solenoid valves	See the interpretation of command (see Interpretation of commands).
AC013	Wheel speed sensor supply test	See the interpretation of command (see Interpretation of commands).
AC016	Pump motor test	See the interpretation of command (see Interpretation of commands).
AC187	Brake light activation relay	See the interpretation of command (see Interpretation of commands).
AC195	Vehicle speed signal	See the interpretation of command (see Interpretation of commands).
AC196	Hazard warning light activation request	See the interpretation of command (see Interpretation of commands).

AFTER REPAIR	Clear the computer fault memory. Carry out a road test followed by another check with the diagnostic tool .
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AC003 AC004 AC005 AC006	<u>FRONT LEFT-HAND WHEEL SOLENOID VALVES</u> <u>FRONT RIGHT-HAND WHEEL SOLENOID VALVES</u> <u>REAR LEFT-HAND WHEEL SOLENOID VALVES</u> <u>REAR RIGHT-HAND WHEEL SOLENOID VALVES</u>
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NOTES	Conditions of use of the command. Ignition on, engine stopped and vehicle speed zero.
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The previous four commands allow the hydraulic check of each wheel.
Raise the vehicle in order to be able to rotate the wheels, and check that they rotate freely.
Keep the brake pedal depressed to prevent the wheel being tested from being turned (do not brake so firmly that full brake power is reached).
Select and confirm the command of the wheel being examined (e.g. Front left-hand wheel solenoid valves, etc.)
Turn the wheel concerned by hand to see it go through several locking/unlocking cycles.

AFTER REPAIR	Clear the computer fault memory. Carry out a road test followed by another check with the diagnostic tool .
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AC013	<u>WHEEL SPEED SENSOR SUPPLY TEST</u>
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NOTES	Conditions of use of the command. Ignition on, engine off.
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This command is used to test the supply to every wheel speed sensor.
Select command **AC013** and check for **12 V** between:

- **connections 4T and 4S of component 150,**
- **connections 4H and 4G of component 151,**
- **connections 4E and 4C of component 153,**
- **connections 4N and 4M of component 152.**

AFTER REPAIR	Clear the computer fault memory. Carry out a road test followed by another check with the diagnostic tool.
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AC016	<u>PUMP MOTOR TEST</u>
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NOTES	Conditions of use of the command. Ignition on, engine off.
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This command is used to test the pump motor control circuit.
Select the command **AC016**.
Engine operation must be audible.

AFTER REPAIR	Clear the computer fault memory. Carry out a road test followed by another check with the diagnostic tool .
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AC187	<u>BRAKE LIGHT ACTIVATION RELAY</u>
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NOTES	Conditions of use of the command. Ignition on, engine off.
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This command is used to test brake light activation by the **ESP** when controlling oversteer with sharp deceleration.

AFTER REPAIR	Clear the computer fault memory. Carry out a road test followed by another check with the diagnostic tool .
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AC195	<u>VEHICLE SPEED SIGNAL</u>
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NOTES	Conditions of use of the command. Ignition on, engine stopped and vehicle speed zero.
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This command is used to generate a speed other than **0 mph (0 km/h)** at the computer's vehicle speed wire output (**connection 47F**) for users of that signal (radio, sunroof, power-assisted steering).
This command has no visible effect on the dashboard speedometer needle.

Radio: Switch on the radio and check that the "adjustment of volume according to speed" function is active (see **86A, radio**).
Run the command **AC195**. During the command, you should hear the volume of the sound increase and then decrease.
Variable electric power-assisted steering: Start the vehicle then return to the conditions of use of the command. Turn the steering wheel from lock to lock using command **AC195**, to note a variation in the assistance level.

AFTER REPAIR	Clear the computer fault memory. Carry out a road test followed by another check with the diagnostic tool .
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AC196	<u>HAZARD WARNING LIGHT ACTIVATION REQUEST</u>
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NOTES	Conditions of use of the command. Ignition on, engine stopped and vehicle speed zero.
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This command is used to send a hazard warning lights activation request to the **UCH** (Passenger compartment connection unit) to test their operation in the event of emergency braking depending on the **UCH** configuration (Passenger compartment connection unit).

AFTER REPAIR	Clear the computer fault memory. Carry out a road test followed by another check with the diagnostic tool .
---------------------	---

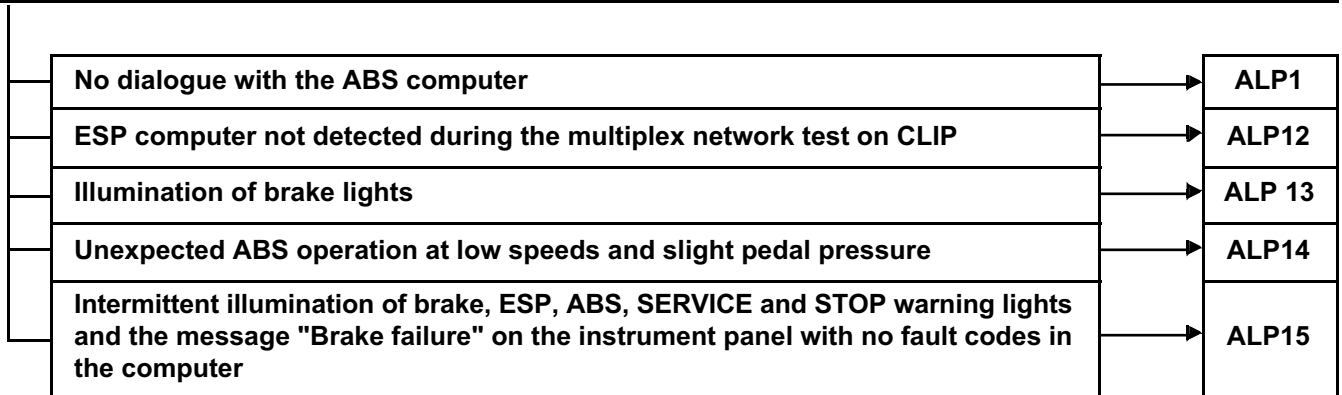
NOTES

Only check the customer complaint after performing a full check with the diagnostic tool.

FAULTS DETECTED ON BRAKING WITH ABS/BRAKING REGULATION

Locking of one or more wheels	ALP2
Pull	ALP3
Drift	ALP4
Unexpected ABS operation at low speed and with slight pedal pressure	ALP5
Unexpected ABS operation on a poor road surface	ALP6
Unexpected ABS operation when using special equipment (car phone, CB, etc.)	ALP7
Lengthening of the brake pedal travel following a regulation phase (with an irregular pedal when entering the regulation phase)	ALP8
Spongy pedal	ALP9
Brake pedal vibration	ALP10
Noises from the pump, the pipes or the hydraulic unit	ALP11

OTHER CASES



ALP1	No dialogue with the ABS/ESP computer
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NOTES	Only address this customer complaint after a complete check with the diagnostic tool .
	Use the Wiring Diagram Technical Note for New Twingo .

<p>Try to establish dialogue with an ESP computer on another vehicle to make sure that the diagnostic tool is not faulty. If the tool is not at fault, and dialogue cannot be established with any other computer on the same vehicle, the cause could be a faulty computer interfering on the multiplex network.</p> <p>Check the tightness and condition of the battery terminals (see 80A, Battery).</p> <p>Check the charging circuit (see 16A, Starting - Charging).</p> <p>Check that the power supply to the diagnostic socket is correct:</p> <p>Check for + 12 V on connection BP19 of component 225.</p> <p>Check for earth on connections MAM and NAM of component 225.</p> <p>If the connections are faulty (see Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair), repair the wiring, otherwise replace it.</p>
Apply the fault finding procedure for specification 1. DEF of fault DF001 Computer supply .
Carry out fault finding on the multiplex network using the diagnostic tool (see 88B, Multiplexing).
If dialogue has still not been established after these checks, contact Techline.

AFTER REPAIR	<p>Clear the computer fault memory.</p> <p>Carry out a road test followed by another check with the diagnostic tool.</p>
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ALP2	Locking or braking of one or more wheels
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NOTES	Only consult this customer complaint after a full check with the diagnostic tool . Check the conformity of the mechanical components (see MR 411, Mechanical, 30A, General information, Brake, Specifications).
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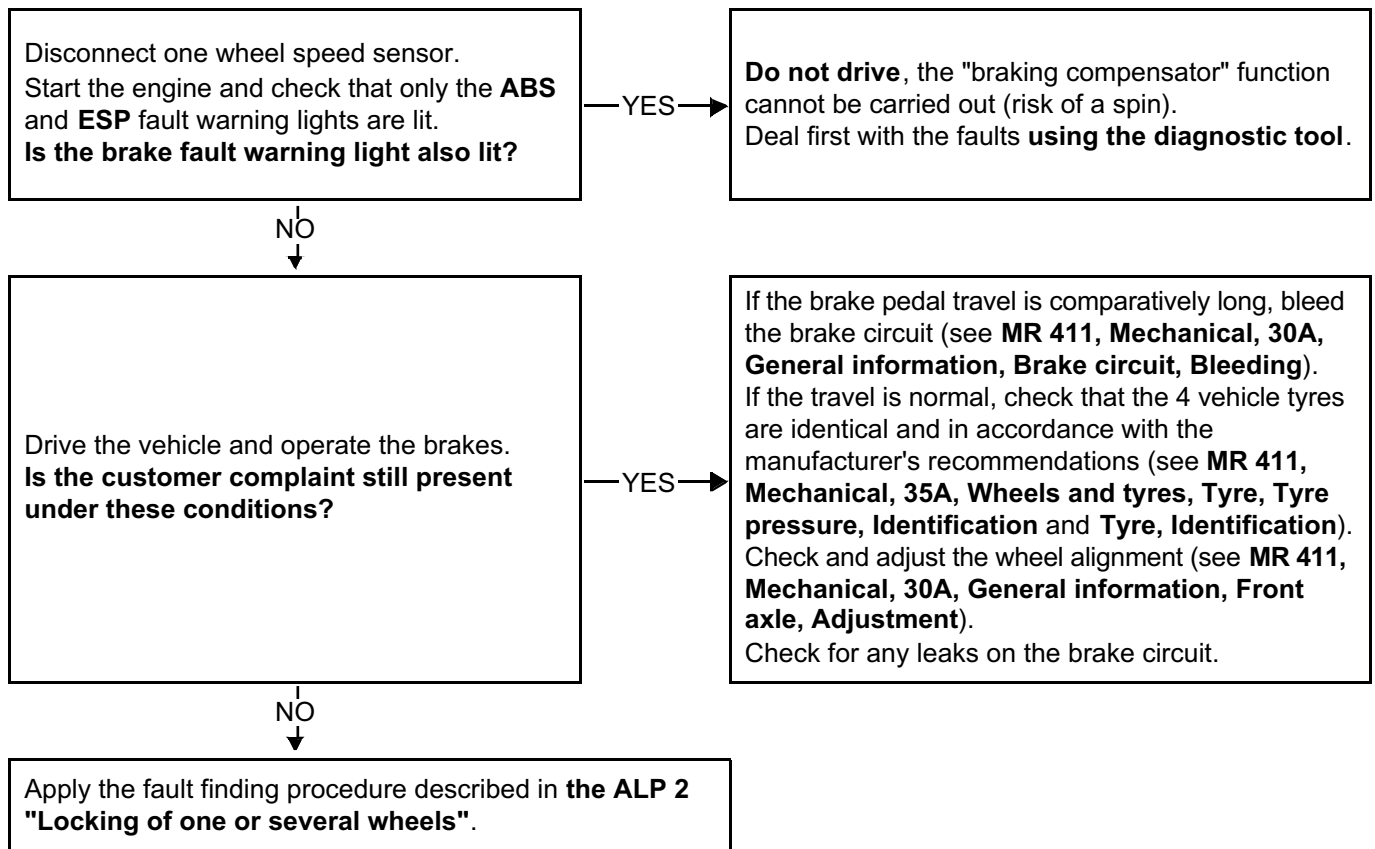
REMINDER	Locking of wheels on a vehicle fitted with ABS or squealing of the tyres, which feels like locking to the customer, may be linked to normal operation of the system and should not always be considered a fault. Braking with ABS regulation on very poor roads can cause significant squealing.
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<p>However, if the wheel(s) is/are actually locking, lift the vehicle in order to be able to rotate the wheels and check: Possible inversion when connecting the speed sensors. Use parameters PR001 Front right-hand wheel speed, PR002 Front left-hand wheel speed, PR003 Rear right-hand wheel speed and PR004 Rear left-hand wheel speed whilst slowly turning the wheels in question and checking the consistency of the results obtained. If the value measured is zero, rotate the other wheels to confirm an electrical inversion of the sensors and repair the wiring harness. If a single reading is incorrect:</p> <ul style="list-style-type: none"> – Check that the sensor casing is secured when rotating. – Check that the wheel speed sensor mounting is in good condition. – If that is unsuccessful, replace the corresponding sensor and repeat the check procedure (see MR 411 Mechanical, 38C, Anti-lock braking system, Wheel speed sensor: Removal - Refitting). – A possible inversion of the pipes on the hydraulic unit (see MR 411, Mechanical, 38C, Anti-lock braking system, Hydraulic braking unit, List and location of components). <p>Run commands AC003 Front left-hand wheel solenoid valves, AC004 Front right-hand wheel solenoid valves, AC005 Rear left-hand wheel solenoid valves and AC006 Rear right-hand wheel solenoid valves while depressing the brake pedal and check for locking/unlocking cycles on the wheel concerned (see Dealing with command modes).</p> <p>If the cycles are not detected on the wheel tested (wheel remains locked), check if they occur on another wheel (confirmation of a reversal after a repair, see MR 411, Mechanical, 38C, Hydraulic braking unit, List and location of components).</p> <p>If the cycles are not detected on a wheel and the pipes have not been inverted, replace component 1094 (see MR 411, Mechanical, 38C, Hydraulic braking unit, Removal- Refitting).</p>	
<p>Check that the sensor holder does not rotate (depending on fitting). Check the quality of the mounting of the wheel speed sensors (correct clipping for the front wheels). Check the conformity of the targets: the condition and the number of teeth= 48 (using the command SC001 "Check target teeth"). Replace if necessary. If the fault is still present after these checks, replace component 1094 (see MR 411, Mechanical, 38C, Hydraulic braking unit, Removal- Refitting).</p>	

AFTER REPAIR	Clear the computer fault memory. Carry out a road test followed by another check with the diagnostic tool .
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ALP3	Pull
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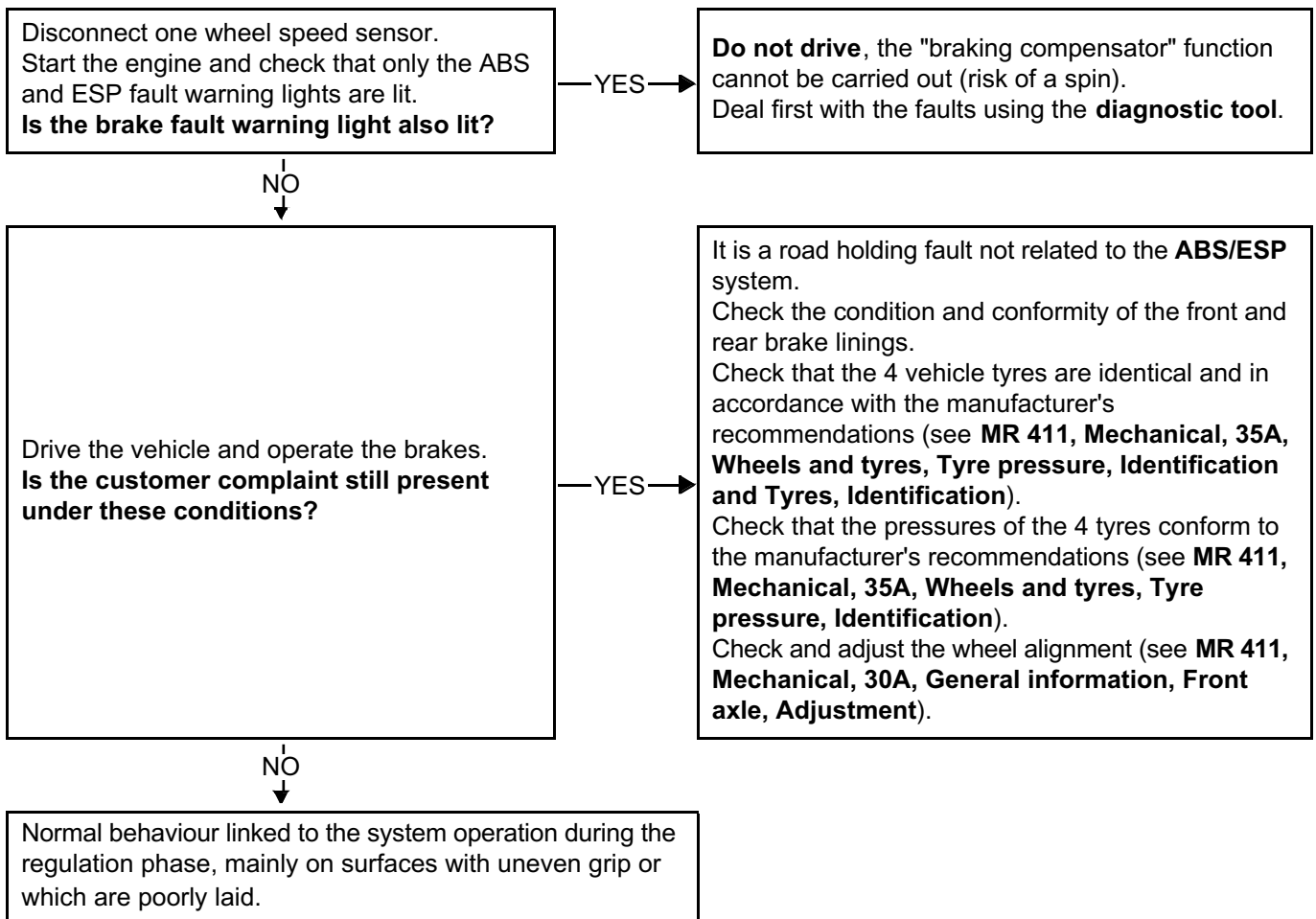
NOTES	Only consult this customer complaint after a full check with the diagnostic tool . Check the conformity of the mechanical components (see MR 411, Mechanical, 30A, General information, Brake, Specifications).
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AFTER REPAIR	Clear the computer fault memory. Carry out a road test followed by another check with the diagnostic tool .
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ALP4	Drift
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NOTES	Only address this customer complaint after a complete check with the diagnostic tool .
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AFTER REPAIR	Clear the computer fault memory. Carry out a road test followed by another check with the diagnostic tool .
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ALP5	Unexpected ABS operation at low speed and with slight pedal pressure
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NOTES	<p>Only address this customer complaint after a complete check with the diagnostic tool. Important: ABS regulation is sensitive on slippery surfaces (ice, wet cobbled streets, etc.).</p> <p>Brake pedal vibrations associated with the reactions of the system may be felt in particular circumstances, such as:</p> <ul style="list-style-type: none">– Crossing speed bumps.– Tight cornering with lifting of the inside rear wheel. <p>These vibrations also may be linked merely to activation of the Braking distributor function, when the pressure on the rear axle is limited.</p> <p>Check the conformity of the mechanical components (see MR 411, Mechanical, 30A, General information, Brake, Specifications).</p>
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<p>If the fault is not one of the situations indicated above, check the correct connection of the wheel speed sensors, the air gap between these sensors and the magnetic targets.</p> <p>Refer to the interpretation of fault DF063 Wheel speed consistency.</p>
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AFTER REPAIR	<p>Clear the computer fault memory.</p> <p>Carry out a road test followed by another check with the diagnostic tool.</p>
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ALP6	Unexpected ABS system intervention on a poor road surface
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NOTES	Only address this customer complaint after a complete check with the diagnostic tool . Check the conformity of the mechanical components (see MR 411, Mechanical, 30A, General information, Brake, Specifications).
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On poor road surfaces it is normal to feel hesitation and vibrations of the pedal as well grating which is more significant than on good surfaces.
This gives the impression of a variation in efficiency, but this should be considered normal.

AFTER REPAIR	Clear the computer fault memory. Carry out a road test followed by another check with the diagnostic tool .
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ALP7	Unexpected ABS operation when using special equipment (car phone, CB, etc.)
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NOTES	Only address this customer complaint after a complete check with the diagnostic tool .
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<p>Check that the equipment which is causing the fault is approved. Check that this equipment was correctly installed without modification of the original wiring, in particular that of the ABS/ESP. Connections to earth and to the ABS/ESP supply are forbidden.</p>
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AFTER REPAIR	Clear the computer fault memory. Carry out a road test followed by another check with the diagnostic tool .
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ALP8	Lengthening of the brake pedal travel following a regulation phase (with an irregular pedal when entering the regulation phase)
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NOTES	Only address this customer complaint after a complete check with the diagnostic tool . Check the conformity of the mechanical components (see MR 411, Mechanical, 30A, General information, Brake, Specifications).
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Bleed the primary hydraulic circuit (see MR 411, Mechanical, 30A, General information, Brake circuit, Bleeding). After the operation, carry out a road test with ABS regulation.
If the fault is still present: Carry out an After-Sales bleed using command SC006 Bleed hydraulic unit and brake circuit . After the operation, carry out a road test with ABS regulation.
If the fault is still present: Bleed the primary hydraulic circuit again (see MR 411, Mechanical, 30A, General information, Brake circuit, Bleeding). After the operation, carry out a road test with ABS regulation.
If the customer complaint is particularly pronounced, and bleeding the circuit does not improve matters, replace component 1094 (see MR 411, Mechanical, 38C, Hydraulic brake unit, Removal - Refitting).

AFTER REPAIR	Clear the computer fault memory. Carry out a road test followed by another check with the diagnostic tool .
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ALP9	Spongy pedal
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NOTES	Only address this customer complaint after a complete check with the diagnostic tool . Check the conformity of the mechanical components (see MR 411, Mechanical, 30A, General information, Brake, Specifications).
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Bleed the primary hydraulic circuit (see MR 411, Mechanical, 30A, General information, Brake circuit, Bleeding). After the operation, carry out a road test with ABS regulation.	
If the fault is still present: Carry out an After-Sales bleed using command SC006 Bleed hydraulic unit and brake circuit . After the operation, carry out a road test with ABS regulation.	
If the fault is still present: Bleed the primary hydraulic circuit again (see MR 411, Mechanical, 30A, General information, Brake circuit, Bleeding). After the operation, carry out a road test with ABS regulation.	
If the customer complaint is particularly pronounced, and bleeding the circuit does not improve matters, replace component 1094 (see MR 411, Mechanical, 38C, Hydraulic brake unit, Removal - Refitting).	

AFTER REPAIR	Clear the computer fault memory. Carry out a road test followed by another check with the diagnostic tool .
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ALP10	Brake pedal vibration
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NOTES	Only address this customer complaint after a complete check with the diagnostic tool . Check the conformity of the mechanical components and in particular check that the brake discs are not warped.
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It is normal that the brake pedal vibrates during **ABS** regulation or braking pressure distribution on the front and rear axles ("braking compensator" function).

AFTER REPAIR	Clear the computer fault memory. Carry out a road test followed by another check with the diagnostic tool .
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ALP11	Noises from the pump, the pipes or the hydraulic unit
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NOTES	Only address this customer complaint after a complete check with the diagnostic tool . Check the conformity of the mechanical components (see MR 411, Mechanical, 30A, General information, Brake, Specifications).
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Vibration of the unit: check the presence and condition of the unit mounting **insulating** rubber mountings.
Vibration of pipes: check that all the pipes are securely clipped in their retaining clips and that there is no contact between pipes or between pipes and bodywork.
To identify the source of the noise, use the control commands of the solenoid valves **AC003 "Front left-hand wheel solenoid valves"**, **AC004 "Front right-hand wheel solenoid valves"**, **AC005 "Rear left-hand wheel solenoid valves"** and **AC006 "Rear left-hand wheel solenoid valves"** and of the pump **AC016 "Pump motor test"**.

AFTER REPAIR	Clear the computer fault memory. Carry out a road test followed by another check with the diagnostic tool .
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ALP12	ABS computer not detected during the multiplex network test on CLIP
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NOTES	Only address this customer complaint after a complete check with the diagnostic tool .
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After the multiplex network test on CLIP, if the **ABS/ESP** computer is not detected, carry out the following operations:

- Return to the home menu of the CLIP screen.
- Switch off the ignition.
- Restart the engine (**+ after ignition feed**).
- Repeat the multiplex network test.
- If the fault is still present, perform the fault finding described in **ALP1 No dialogue with the ABS/ESP computer**.

AFTER REPAIR	Clear the computer fault memory. Carry out a road test followed by another check with the diagnostic tool .
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ALP 13

Faulty brake light illumination

NOTES

Only address this customer complaint after a **complete check** with **the diagnostic tool**.

Using **the diagnostic tool**, check the consistent status **ET017 "Brake pedal"** for pedal pressed and pedal released.

If inconsistent, apply the fault finding procedure for status **ET017 Brake pedal**.

If the lights come on continuously, check the operation of component **1281** using command **AC187 Brake light activation relay**. The brake lights must light only when the command is run.

Otherwise, with **component 1281** removed, check the continuity between connections **65A** and **65G** of **component 1281**.

If continuity is not guaranteed, replace **component 1281**.

AFTER REPAIR

Clear the computer fault memory.

Carry out a road test followed by another check with **the diagnostic tool**.

ALP14	Erratic ESP regulation
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NOTES	Only address this customer complaint after a complete check with the diagnostic tool .
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<p>Check that the 4 vehicle tyres are identical and in accordance with the manufacturer's recommendations (see MR 411, Mechanical, 35A, Wheels and tyres, Tyres, Identification).</p> <p>Check that the pressures of the 4 tyres conform to the manufacturer's recommendations (see MR 411, Mechanical, 35A, Wheels and tyres, Tyre pressure, Identification).</p> <p>Using the diagnostic tool, check that the vehicle version corresponds to the vehicle type.</p> <p>If necessary, reconfigure the vehicle version using command VP004 Vehicle parameters to correspond to the vehicle type.</p> <p>Using parameter PR030 Tachometric index, check that the tachometric index corresponds to the vehicle type.</p> <p>If necessary, reconfigure the tachometric index using command VP007 Tachometric index to correspond to the vehicle.</p> <p>Check the connection and condition (possible wiring damage) of the connector of component 1175.</p> <p>If the connector is faulty (see Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair), repair the connector, otherwise replace the wiring.</p> <p>Check that component 1175 is properly mounted on the body and in the correct direction (the arrow must point towards the front of the vehicle).</p> <p>Calibrate component 583 using command VP003 Steering wheel angle sensor (see Configurations and programming).</p> <p>Clear the ESP sensor offsets using command RZ011 Sensor offsets.</p> <p>Clear the faults from the computer using the command RZ001 "Fault memory".</p> <p>Carry out a road test followed by another check with the diagnostic tool.</p>	
<p>If the fault is still present:</p> <ul style="list-style-type: none"> – Adjust the axle geometry (see MR 411, Mechanical, 30A, General information, Front axle, Adjustment). – Calibrate component 583 using command VP003 Steering wheel angle sensor (see Configurations and programming). – Clear the ESP sensor offsets using command RZ011 Sensor offsets. – Clear the faults from the computer using the command RZ001 "Fault memory". – Carry out a road test followed by another check with the diagnostic tool. 	
<p>If the fault is still present, contact the Techline.</p>	

AFTER REPAIR	<p>Clear the computer fault memory.</p> <p>Carry out a road test followed by another check with the diagnostic tool.</p>
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ALP15	Intermittent illumination of brake, ESP, ABS, SERVICE and STOP warning lights and the message "brake failure" on the instrument panel with no fault codes in the computer
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NOTES	Special notes: Only address this customer complaint after a complete check with the diagnostic tool . Problem with external supply to the computer: The computer is intermittently without supply because of bad contacts in the electrical supply circuit.
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Refer to the interpretation of fault DF001 Computer supply .

AFTER REPAIR	Clear the computer fault memory. Carry out a road test followed by another check with the diagnostic tool .
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