TWINGO

8 Electrical equipment

83E REV COUNTER INSTRUMENT

Vdiag No.: 04

V2 **Edition Anglaise**

1. SCOPE OF THIS DOCUMENT

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

Vehicle(s): **New Twingo**

Function concerned: **Rev counter**

Computer name: **Rev counter**
3 levels:
- **Petrol version**
- **Diesel version**
- **Sport version**

Vdiag no.: **04**

2. PREREQUISITES FOR FAULT FINDING

Documentation type

Fault finding procedures (this manual):
– 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. Proceed as follows:
– turn the ignition key to APC,
– connect the **diagnostic tool** and perform the required operations.

To **cut off + after ignition feed**, proceed as follows:
– disconnect the diagnostic tool,
– turn the ignition key to OFF,
– verify that the forced + after ignition feed has been switched off by checking that the computer warning lights on the control panel have gone out.

Conformity check

The aim of the conformity check is to check data that does not produce a fault on the **diagnostic tool** because 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 repairs.

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

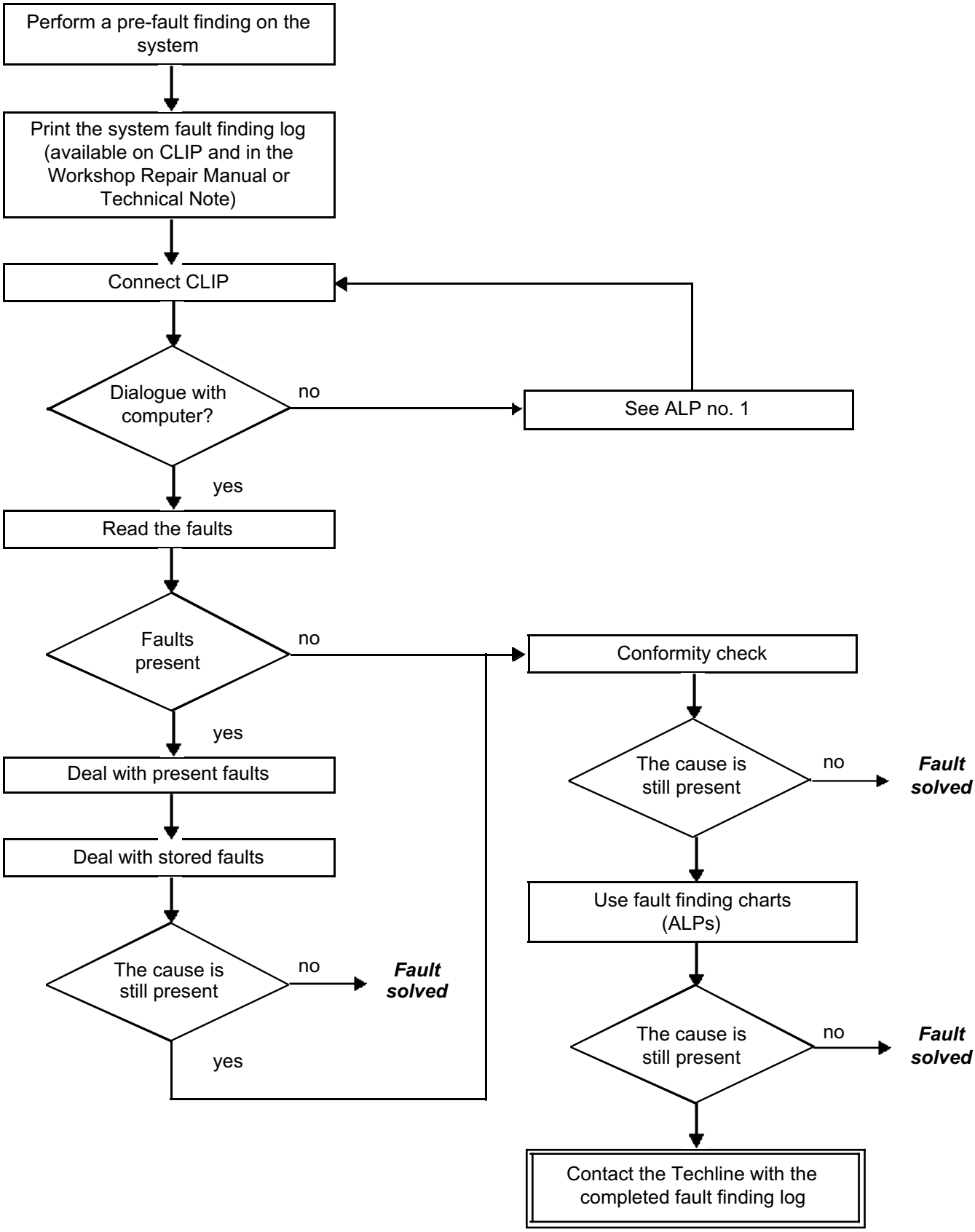
If a status is not behaving normally or a parameter is outside the permitted tolerance values, consult the corresponding fault finding page.

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 processed 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

Wiring check

Fault finding problems
Disconnecting the connectors and/or manipulating the wiring harness may temporarily remove the cause of a fault.
Electrical measurements of voltage, resistance and insulation are generally correct, especially if the fault is not present when the analysis is made (stored fault).

Visual inspection
Look for damage under the bonnet and in the passenger compartment.
Carefully check the fuses, insulators and wiring harness routing.
Look for signs of oxidation.

Tactile inspection
While manipulating the wiring harness, use the **diagnostic tool** to note any change in fault status from stored to present.
Make sure that the connectors are properly locked.
Apply light pressure to the connectors.
Twist the wiring harness.
If there is a change in status, try to locate the source of the fault.

Inspection of each component
Disconnect the connectors and check the appearance of the clips and tabs, as well as the crimping (no crimping on the insulating section).
Make sure that the clips and tabs are properly locked in the sockets.
Check that no clips or tabs have been dislodged during connection.
Check the clip contact pressure using an appropriate model of tab.

Resistance check
Check the continuity of entire lines, then section by section.
Look for a short circuit to earth, to **+ 12 V** or to another wire.

If a fault is detected, repair or replace the wiring harness.

5. FAULT FINDING LOG

IMPORTANT

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Any fault on a complex system requires thorough fault finding with the appropriate tools. The FAULTFINDING LOG, which should be completed during the procedure, enables you to keep track of the procedure which is 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 Techline,
- for approval requests when replacing parts for which approval is mandatory,
- 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 damage or injury:

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

The rev counter is located on the instrument panel, facing the driver, just behind the steering wheel.

Three versions of the rev counter are available depending on the equipment level:
– “Sport” rev counter graduated up to **8000 rpm.**
– Petrol engine rev counter graduated up to **7000 rpm.**
– Diesel engine rev counter graduated up to **6000 rpm.**

– Rev counter: engine speed signal. The **engine speed** signal is sent to the rev counter by the injection computer on the multiplex network.
– Electronic stability program (ESP) indicator light:

The ESP indicator light comes from the ABS and is sent by the multiplex network.

The ESP indicator light is an amber coloured light.

The indicator light is tested for **3 seconds** by the rev counter when the + after ignition feed is switched on (only if the ESP function is present on the vehicle and programmed on the Renault production line or in After-Sales).
This indicator light will only be activated if the configuration **LC002 ELECTRONIC STABILITY CONTROL (ESP)** is **WITH**.

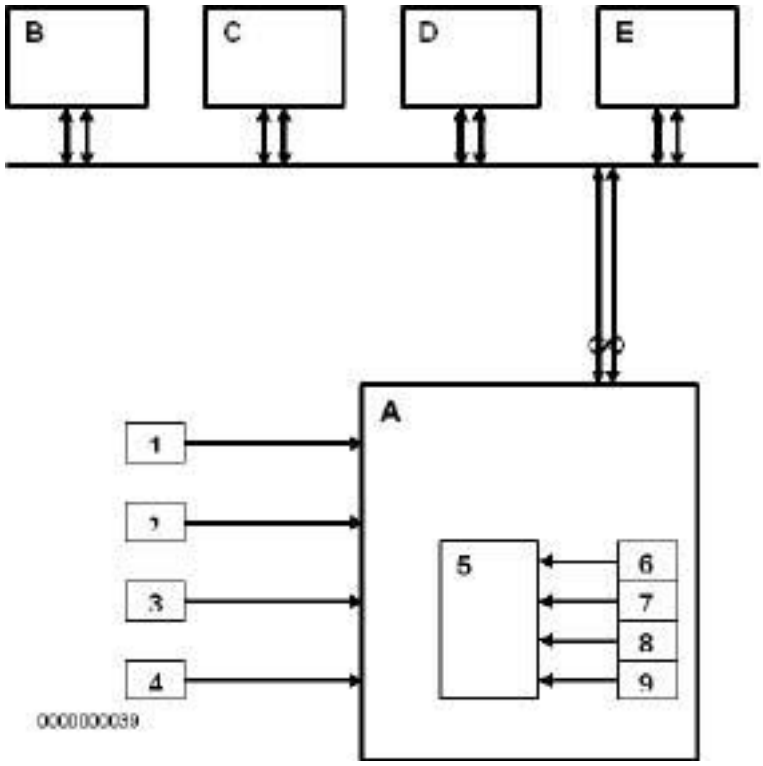
The electronic stability program indicator light gives information about the following statuses of the ESP system:

ESP system status	Rev counter	Instrument panel
	ESP warning light	Service warning light
ESP operational	Warning light not lit	Warning light not lit
ESP faulty	Warning light lit	Warning light lit
ESP off (activation/ deactivation by successively pressing the ESP button)	Warning light lit	Warning light not lit
ESP operational (no programming)	Indicator light flashes at **8 Hz**	Warning light not lit
ESP regulation without fault	Indicator light flashes at **8 Hz**	Warning light not lit
ESP regulation with fault	Warning light lit	Warning light lit
ESP calibration (fault finding mode)	Indicator light flashes at **2 Hz**	Warning light not lit

– Lighting function - dimmer lighting:

The rev counter lights up in accordance with the illumination of the lights and the instrument panel.

The dimmer lighting function is controlled by the instrument panel using the control located under the steering wheel. The request is sent to the rev counter by the multiplex network. The rev counter varies the light intensity in accordance with the signal received.



1 – + after ignition feed
2 – + battery feed
3 – Side light
4 – Earth
5 – Rev counter computer
6 – Backlighting
7 – Lighting dimmer
8 – Rev counter needle
9 – ESP warning light

Multiplex connections
A – Rev counter
B – Diagnostic tool
C – Instrument panel
D – Injection
E – ABS/ESP

System outline

The system is composed solely of an offset rev counter on the instrument panel facing the driver, which incorporates its own computer.

The function of the “rev counter” system' is:

- To display the **"engine speed"** signal image in rpm sent by the injection computer on the multiplex network.
- To identify the traction control system warnings on equipped vehicles.

Depending on the configuration, when the lights are switched on, the rev counter backlighting may vary depending on the instrument panel backlighting dimmer request, the light signal is sent on the multiplex network by the instrument panel.

REV COUNTER CONFIGURATION

Summary of available configuration readings

LC003: DIMMER LIGHTING
- YES
- NO

LC002: ELECTRONIC STABILITY CONTROL (ESP)
- WITH
- NONE

LC001: OVERSPEED INDICATOR LIGHT
- ABSENT
- PRESENT

Summary of available configurations

CF003: DIMMER LIGHTING
- YES
- NO

CF002: ELECTRONIC STABILITY CONTROL
- WITH
- NONE

CF001: OVERSPEED INDICATOR LIGHT
- ABSENT
- PRESENT

After configuring the rev counter, enter the vehicle identification number (VIN) using the command **VP001 ENTER VIN.**

NOTES	Only check conformity after a full check with the **diagnostic tool**. The values shown in this conformity check are given as a guide. Application conditions: **Vehicle under + after ignition feed**.

MAIN SCREEN

Function	Parameter or state checked or action	Display and notes		Fault finding
Rev counter lighting	**ET002:** Side lights control	**Side lights on**	**ACTIVE**	In the event of a fault, consult the interpretation of status **ET002 SIDE LIGHTS CONTROL**.
		Side lights off	**INACTIVE**	

DISPLAY SUB-FUNCTION

Function	Parameter or state checked or action	Display and notes	Fault finding
Display	**AC001:** Rev counter indicator lights	Activating this lights up all of the indicator lights integrated in the rev counter.	Carry out fault finding on the multiplex network (see **88B, Multiplexing**). If the fault is still present, contact the **techline**.
	AC002: Back lighting + needle	Activating this lights up the back of the rev counter and needle.	Carry out fault finding on the multiplex network (see **88B, Multiplexing**). If the fault is still present, contact the **techline**.
	AC003: Rev counter needle	Activating this moves the needle: Position 0 then mid-range position and maximum value position.	Carry out fault finding on the multiplex network (see **88B, Multiplexing**). If the fault is still present, contact the **techline**.

CONFIGURATION CHECK

ESP configuration check depending on equipment:

Check if the vehicle is fitted with the ESP system (ESP button on the console).

If the vehicle is fitted with the ESP system, when the **+ after ignition feed** is switched on, the indicator light should come on for **3 seconds**. In the event of a fault, configure the rev counter using the command **CF002 ELECTRONIC STABILITY (ESP) CONTROL** (see **Configuration**).

Dimmer lighting function check:

With the side lights on, activate the rev counter variation control, the rev counter lighting varies at the same time.

If the rev counter lighting does not change, check the configuration of the rev counter using configuration reading **LC003 DIMMER LIGHTING** (see **Configuration**) and configure the rev counter in accordance with the requirements using command **CF003 DIMMER LIGHTING** (see **Configuration**).

Tool status	Diagnostic tool title
ET002	Side lights control

ET002	SIDE LIGHTS SWITCH

STATUS DEFINITION	– **ACTIVE:** This status indicates that the side light control is active. – **INACTIVE:** This status indicates that the side light control is inactive.

NOTES	– Ignition on. – Side lights on.

If the status of the side light control remains at status **INACTIVE**, apply the following fault finding procedure.

Check **fuse F43 (10A)** of the **passenger compartment fuse box, component code 1016**.
Check that the connection and condition of the rev counter connector are correct **(see Wiring Diagram Technical Note, Twingo II, Component code 995)**.
If there is a repair method (see **Technical Note 6015A, Electrical wiring repair, Wiring: Precautions for repair**) repair the connector, otherwise replace the wiring.

Check the **+ 12 V feed** on **connection LPG of component 995**.
If there is a repair method (see **Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair**) repair the wiring, otherwise replace it.

Check the **continuity** and **insulation** of:
Connection LPG between the **passenger compartment fuse box, component code 1016** and the **rev counter, component code 995**.
Connection MAM of the **rev counter, component code 995**.
Connection MAN of the **rev counter, component code 995**.
If there is a repair method (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**.

NO DIALOGUE WITH THE COMPUTER	→ ALP1

ALP1	No dialogue with the computer

NOTES	None

Test the **diagnostic tool** on another vehicle which is in perfect working order.
Check that the sensor's green indicator light comes on.
If communication with the second vehicle is impossible, follow the instructions in the **CLIP diagnostic tool test** section.
If dialogue with the second vehicle is possible, follow the instructions in the **Vehicle check** section.

DIAGNOSTIC TOOL CHECK	Check **the cleanliness** and **condition** of the diagnostic socket contacts on the vehicle. Check the condition of the cable from the diagnostic socket to the sensor, and the cleanliness and condition of the connections. Check the sensor connections. Check the condition of the cable from the sensor to the **CLIP tool**, and the cleanliness and condition of the connections. Check the cleanliness and condition of the **CLIP** socket. If the fault is still present, contact Techline.
VEHICLE CHECK	Check the **electrical voltage** of the battery. Check the **cleanliness** and **condition** of the battery terminals. Check the **condition** of the battery **earth** cable and ensure that there is a **good electrical connection** with the bodywork.
	Check the condition and correct connection of the **rev counter connector, component code 995**. If there is a repair method (see **Technical Note 6015A, Electrical wiring repair, Wiring: Precautions for repair**) repair the connector, otherwise replace the wiring.
	Check rev counter supply **fuse F18 (15 A)** on the **passenger compartment fuse box component code 1016,** and the **status** and **cleanliness** of the contacts.
	Check the rev counter **after ignition feed supply fuse F2 (15A)** on the **passenger compartment fuse box, component code 1016,** and the **condition** and **cleanliness** of the contacts.

ALP1 CONTINUED	

NOTES	**Vehicle under + after ignition feed.**

VEHICLE CHECK

Use the Universal bornier to check the following tracks on the **vehicle diagnostic socket**: **Connection BP19 "+ protected battery feed"** of the **diagnostic socket, component code 225.** **Connection MAN "Right-hand dashboard cross member electronic earth"** of the **diagnostic socket, component code 225.** **Connection MAM "Left-hand dashboard cross member earth"** of the **diagnostic socket, component code 225.**
Check the **earth** of connections **MAM** and **MAN** of the **rev counter, component code 995.**
If the **earth** of **connections MAM** and **MAN** is poor, check the **insulation** to **+ 12 V** and the **continuity** of the following connections: **MAM** and **MAN** of the **rev counter, component code 995.** If there is a repair method (see **Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair**) repair the wiring, otherwise replace it.
Check for **+ 12 V** on **connection AP71** and **connection BP6** of the **rev counter, component code 995.**
If there is no **+ 12 V**, check the **insulation** to **earth** and the **continuity** of the following connections: **AP71** and **BP6 of the rev counter, component code 995.** If there is a repair method (see **Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair**) repair the wiring, otherwise replace it.
If the fault is still present, contact Techline.