



STRUMENTO DI BORDO

244 - Ducato

INSTRUMENT PANEL DESCRIPTION

The role of the control panel is to display vehicle operating parameters and to notify the driver of any possible faults in the on-board electronic systems.

The main functions performed by the instrument panel are listed below:

- electronic speedometer and basic version speedometer repetition unit with a speedometer output.
- mileometer/trip counter
- electronic rev counter
- engine coolant temperature gauge with overheating warning light;
- fuel level gauge with reserve warning light and signal repetition unit
- various warning lights (fault, activation etc.)
- led panel lighting, graphics and gauges
- led mileometer lighting even during daylight
- panel lighting and fixed graphics with lights on
- automatic transmission failure and speed engaged warning light for vehicles with automatic transmission
- clock function with hour and minute regulation
- engine oil level (only for optional versions)
- services.



When a ZF automatic transmission is fitted, the panel receives speed information via a serial line

The control panel is lit by high-efficiency leds and is activated when it receives a side-light on signal. No other lighting control strategy is active on the panel while the mileometer display is automatically back-lit when the key is turned on.

The servicing function lets the user know when the vehicle is ready for service when the distance or time parameters approach the deadline set for the engine and application type.

The instrument panel control unit turns the warning lights on or off by means of commands downloaded directly from sensors of components connected to the control unit.

When a fault occurs, the warning lights come on in accordance with a planned strategy. Some warning lights also come on with the key ON for a period no longer than four seconds to indicate the check status of the system to which they are connected.

The control panel is also equipped with some smart warning lights that are used for the air bag system fault warning light and ABS warning light

The direct battery power supply is supplied from the control panel. The entire system is protected by dedicated fuses housed in the engine bay and under-facia junction units.

INSTRUMENT PANEL FUNCTIONAL DESCRIPTION

The control panel is ignition-operated from a line protected by fuse F37, housed in under-facia junction unit B002, and receives a direct battery supply from control panel H090 - pin 16 connector B - from a line protected by fuse F01, housed in engine bay control unit B001. The earth connection is guaranteed by the connection of pin 4 connector A to earth C015 - pin 1 -.

The instrument panel is made up of five different connectors, each of which implements the following functions:

Connector A:

- pin 1: speedometer output signal for the engine management control unit M010 - pin 49 connector D -; for the 2.0 petrol versions the signal reaches control unit M010 at pin G2 connector A;
- pin 2: water in diesel filter warning light control from sensor K031 - pin 2 or, for vehicles with a Green Filter, the diesel pre-heating resistance O020 - pin 1 connector B;
- pin 3: Code system fault warning light management;
- pin 4: earth reference C015;
- pin 5: speedometer sensor earth reference K084 - pin 2 -;
- pin 6: handbrake on warning light control from switch I040;
- pin 7: injection system/EOBD fault warning light control;
- pin 9: engine coolant temperature signal input, coming from sensor K035 - pin 2 -; for the 2.0 petrol versions, the signal is supplied by sensor K036, pin 3;

Connector B:

- pin 1: alternator recharging warning light control;
- pin 2: brake pad wear warning light control from sensor K020 - pin 1 -;
- pin 3: low brake fluid level warning light control from sensor K025 - pin 1 -;
- pin 4: glow plug preheating warning warning light control;
- pin 5: right turn signal warning light control;
- pin 6: left turn signal warning light control;
- pin 7: low engine oil pressure warning light control from sensor K028 - pin 1 -;
- pin 8: Air Bag system failure warning light control;
- pin 9: side light on warning light control;
- pin 11: engine oil level input from sensor K032 - pin 1 -;
- pin 12: earth reference to sensor K032 - pin 3 -;

Connector C:

- pin 1: doors open warning light control;
- pin 3: doors open warning light control;
- pin 6: automatic transmission input;
- pin 7: ABS fault warning light control;
- pin 8: EBD fault warning light control;
- pin 9: Cruise Control system warning light control;

Connector D:

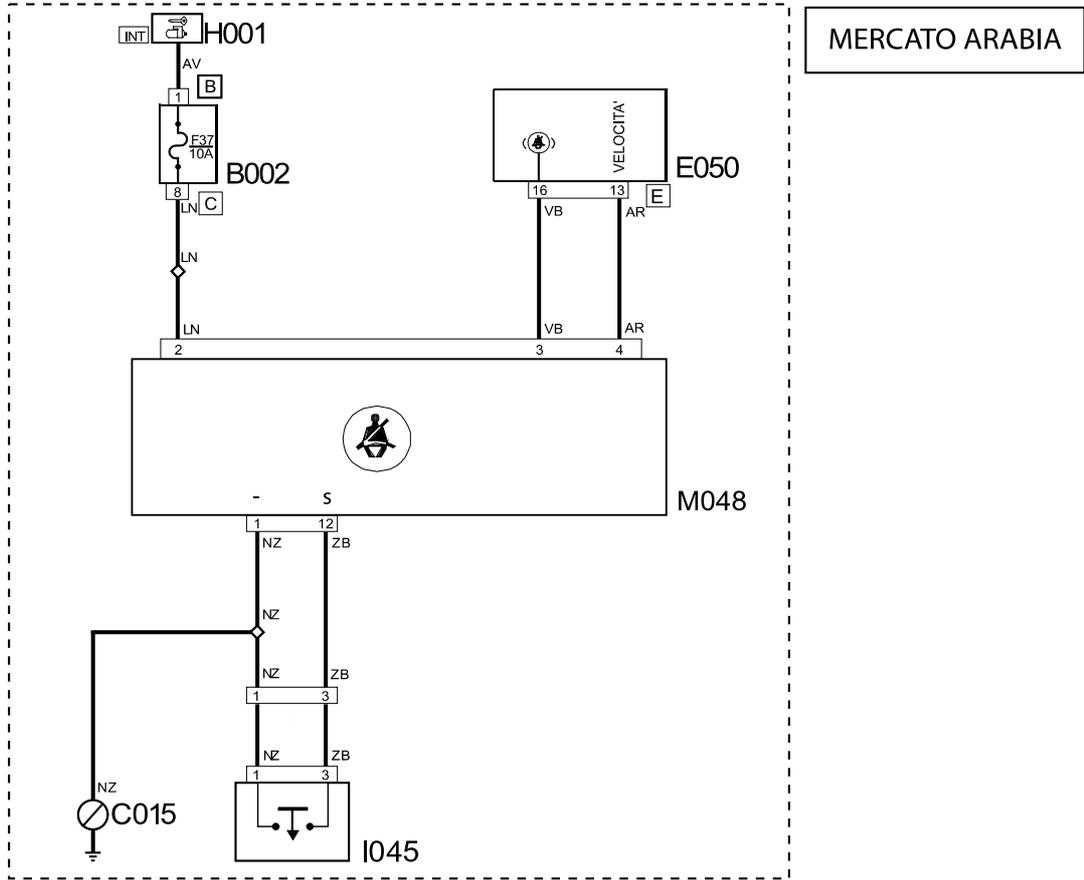
- pin 10: battery supply;
- pin 11: high beam warning light control;
- pin 12: ignition-operated power supply;
- pin 13: fuel level sensor earth reference N041 - pin 2 -;
- pin 14: input signal from fuel level sensor N041 - pin 1 -;
- pin 15: input signal from speedometer sensor K084 - pin 3 -;
- pin 16: engine coolant overheating warning light control, coming from sensor K035 - pin 1 -; for versions with automatic transmission the signal is supplied by the automatic transmission control unit M055; for the 2.0 petrol versions, the signal is supplied by the engine management control unit M010, pin K3 connector (see wiring diagram E5030 - PETROL ENGINES ELECTRONIC MANAGEMENT);
- pin 17: signal input for rev counter;
- pin 18: coolant level warning light control from sensor K026 - pin 2 -;

Connector E:

- pin 11: speedometer signal output;
- pin 13: speedometer signal output;
- pin 14: speedometer signal input;
- pin 15: ASR system fault warning light control;
- pin 16: seat belts unfastened warning light control;
- pin 17: passenger Air Bag deactivation warning light control.

On versions for the Arab market, the seat belt control unit M048 fitted has a dual function: to signal that a seat belt is not fastened (driver's only) and that the speed limit of 120 km/h has been exceeded by means of an auditory warning.

The above control unit receives a power supply at pin 2 along the line protected by fuse F37; pin 12 receives the seat belt not fastened signal from the seat belt warning lights switch I045; it operates the switching on of the seat belt not fastened warning light from pin 3 and receives the speed signal at pin 4 from the instrument panel E050; pin 1 is earthed.



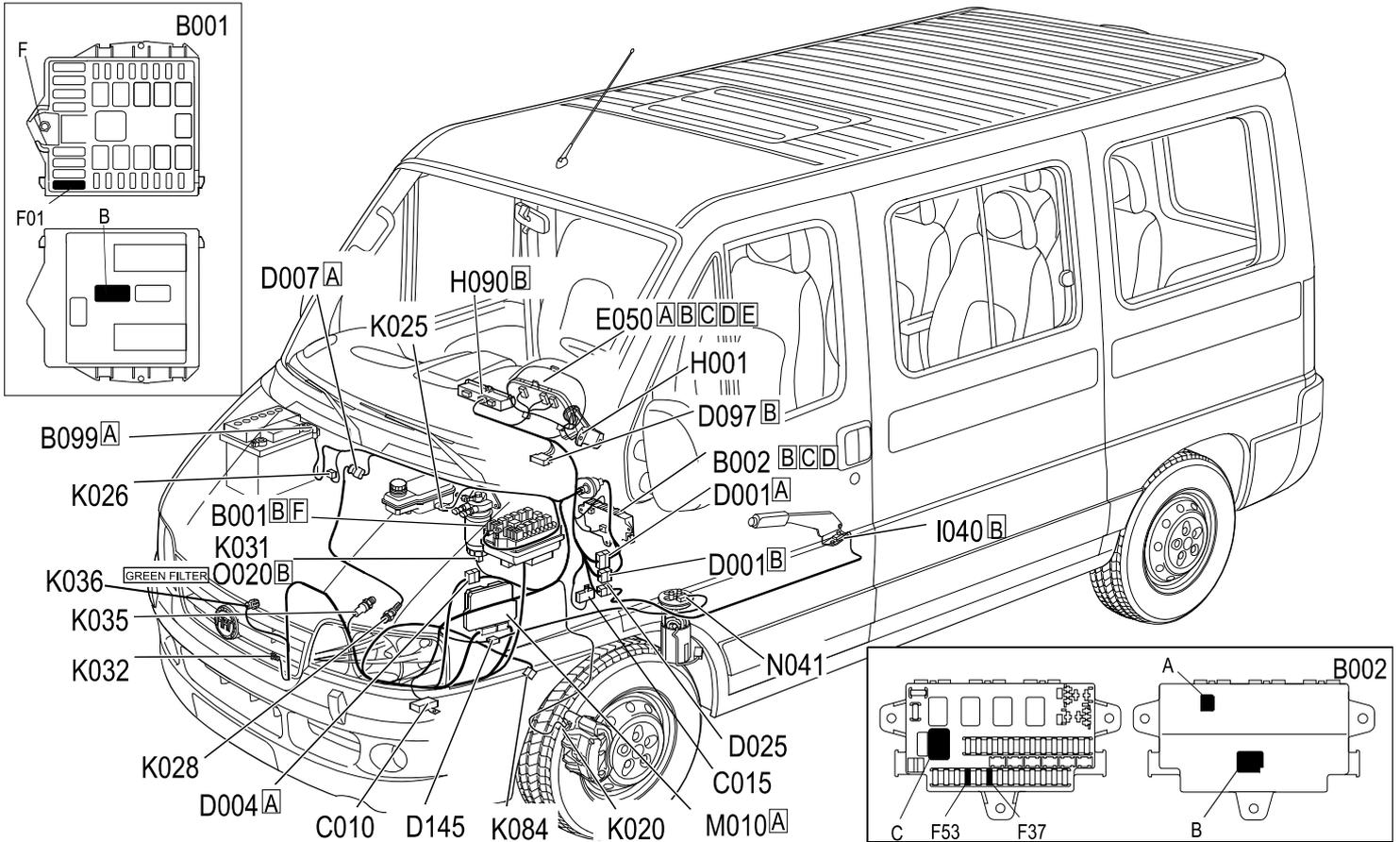
Component code
B001

Description
JUNCTION UNIT

Reference to the assembly
5,505A

B002	JUNCTION UNIT UNDER DASHBOARD	-
B099	MAXI FUSE BOX ON BATTERY	-
C010	LEFT FRONT EARTH	-
C015	DASHBOARD EARTH, DRIVER'S SIDE	-
D001	FRONT/DASHBOARD COUPLING	-
D004	FRONT/ENGINE COUPLING	-
D007	ALTERNATOR COUPLING	-
D025	DASHBOARD/LEFT REAR COUPLING	-
D097	SHORT CIRCUITING COUPLING	-
D145	FRONT/CILC (FUEL LEVEL GAUGE CIRCUIT) COUPLING	-
E050	INSTRUMENT PANEL	5,560B
H001	IGNITION SWITCH	Op. 5520A IGNITION SWITCH
H090	SWITCH CONTROL PANEL	5,505A
I040	HANDBRAKE SWITCH	-
K020	LEFT BRAKE PAD WEAR SENSOR (SWITCH)	-
K025	BRAKE FLUID LEVEL SENSOR (SWITCH)	-
K026	Engine coolant level sensor	-
K028	ENGINE OIL PRESSURE SENSOR	-
K031	WATER IN DIESEL FILTER SENSOR	-
K032	ENGINE OIL LEVEL SENSOR	1,084A
K035	DO NOT USE SENDER UNIT	-
K036	ENGINE COOLANT TEMPERATURE SENSOR/SENDER UNIT	-
K084	SPEEDOMETER SENSOR	-
M010	ENGINE MANAGEMENT ECU	-
N041	FUEL PUMP AND EPIC LEVEL GAUGE	1,040A
O020	Diesel heating resistance	-

INSTRUMENT PANEL COMPONENT LOCATION



Component code	Description	Reference to the assembly
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B002	JUNCTION UNIT UNDER DASHBOARD	-
B099	MAXI FUSE BOX ON BATTERY	-
C010	LEFT FRONT EARTH	-
C015	DASHBOARD EARTH, DRIVER'S SIDE	-
D001	FRONT/DASHBOARD COUPLING	-
D004	FRONT/ENGINE COUPLING	-
D007	ALTERNATOR COUPLING	-
D025	DASHBOARD/LEFT REAR COUPLING	-
D097	SHORT CIRCUITING COUPLING	-
D145	FRONT/CILC (FUEL LEVEL GAUGE CIRCUIT) COUPLING	-
E050	INSTRUMENT PANEL	5,560B
H001	IGNITION SWITCH	Op. 5520A IGNITION SWITCH
H090	SWITCH CONTROL PANEL	5,505A
I040	HANDBRAKE SWITCH	-
K020	LEFT BRAKE PAD WEAR SENSOR (SWITCH)	-
K025	BRAKE FLUID LEVEL SENSOR (SWITCH)	-
K026	Engine coolant level sensor	-
K028	ENGINE OIL PRESSURE SENSOR	-
K031	WATER IN DIESEL FILTER SENSOR	-
K032	ENGINE OIL LEVEL SENSOR	1,084A
K035	DO NOT USE SENDER UNIT	-
K036	ENGINE COOLANT TEMPERATURE SENSOR/SENDER UNIT	-
K084	SPEEDOMETER SENSOR	-
M010	ENGINE MANAGEMENT ECU	-
N041	FUEL PUMP AND EPIC LEVEL GAUGE	1,040A
O020	Diesel heating resistance	-

