eLEARN

ALIMENTAZIONE

150 - 500

POWER SUPPLY SYSTEM - DESCRIPTION

The entire electrical system is designed to increase the car's safety level and prevent the possibility of fires and other consequences of electrical malfunctions. State-of-the-art connectors have also been introduced to rule out the possibility of many connection defects.

Power is distributed via the junction units and/or fuse boxes located in the engine compartment and Body Computer under the dashboard. These are connected to control elements (relays and static actuators) to ensure maximum electrical protection and minimum wiring complexity.

All wiring looms have been made modular (sub-assembly composition) by changing the way functions are distributed inside the connectors and replacing welds with short-circuiting joints.

Two main types of protection are provided:

- active protection, to reduce possible fault causes at source;
- passive protection, to minimise the effects of a fault.

The first category covers careful design of wiring circuits, including well thought-out positioning and fastening and the definition of properly shielded and protected layouts.

All operations designed to reduce or interrupt faulty currents (overloading or short circuits) are included in this type of passive protection.

Details of the main safety solutions adopted are as follows:

- power supplies protected by Maxifuses to cut off the electrical system in the event of short circuit;
- the layout of the whole system is optimised to reduce the risk of damage in the event of faults or accidents;
- wiring installation has been optimised to reduce incorrect positioning and noise due to vibrations;
- all wires offer high resistance to abrasion;
- the wires in the engine compartment are resistant to high temperatures and are protected with piping or sheaths;
- wires in the passenger compartment are protected by corrugated pipes and felted tapes to reduce noise levels;
- the main connections come with secondary lock terminals and lever locks or CPA to prevent terminal deformation.

All systems and electrical equipment are supplied by the battery at a voltage of 12V.

The battery is, in turn, recharged by the alternator during engine operation.

See E5010 STARTING AND RECHARING

The main power supply lines are protected by MAXIFUSES contained in the engine compartment junction unit.

The engine compartment junction unit consists of two connectors: A and B. The control unit is directly supplied by the battery through connector A. Connector B is connected to the cables coming from the various consumers via fastoms in the lower part of the control unit itself. The control unit is therefore an integral part of the front wiring.

The Body Computer under the dashboard is connected via special multifunctional connectors in the various wires and protects the secondary load lines via dedicated fuses. A series of built-in relays operates these circuits.


The relays in the Body Computer are incorporated into the control unit itself; therefore no type of operation can be carried out (replacement, removal, etc.).

Some circuits are continuously supplied, even with the car at a standstill and the key out because they are connected directly to the battery.

Other circuits are supplied by turning the ignition key to various positions:

- when the ignition key is inserted and turned to the MAR position, numerous circuits are supplied - these are known as ignition-operated (INT and 15/54 lines with the power supply maintained even during starting and INT/A, whose power supply is interrupted during starting);
- the second position - AVV (starting) - supplies the starter (line 50), disconnecting some other circuits (those consuming a great quantity of power, INT/A line) thereby ensuring the maximum current flow to the starter itself.


The lines that distribute power to the various consumers are represented in the wiring diagrams for the various functions and systems.

This general diagram shows all the power supply lines as they leave the battery, engine compartment junction unit and Body Computer. Refer to specific diagrams for more details.

POWER SUPPLY SYSTEM - FUNCTIONAL DESCRIPTION

Refer to specific diagrams for all other protections.

Other circuits are supplied by turning the ignition key H001 to various positions:

- in the MAR position, numerous circuits and ignition-operated services protected by fuses in Body Computer M001 (INT line) are supplied - from pin 2 of connector B of H001 to pin 11 of connector E of M001 - and from the fuses in engine compartment junction unit B001 (15/54 line) - from pin 1 of connector A of H001 to pin 16 of connector B of B001 -;
- starter motor A (line 50) receives a power supply in the AVV position - from pin 3 of connector A of H001 -.

See E5010 STARTING AND RECHARING

In versions with a robotized transmission (1.2 8v and 1.4 16v), on the other hand, line 50 of ignition switch H001 supplies control unit M054 and relay switch T20 of engine compartment junction unit B001 to allow the engine to be started.

See E7051 ROBOTIZED GEARBOX

During starting, some circuits are disconnected (INT/A line) - pin 1 of connector B of H001 -.

Body Computer M001 receives this power supply at pin 1 of connector E, also providing it to the power relays in control unit B001 via the line protected by fuse F31 (pin 21 of connector C); in particular:

- T31, for the management of the cigar lighter/power socket system (pin 47 of connector B of B001);

See E3070 CIGAR LIGHTER / CURRENT SOCKET

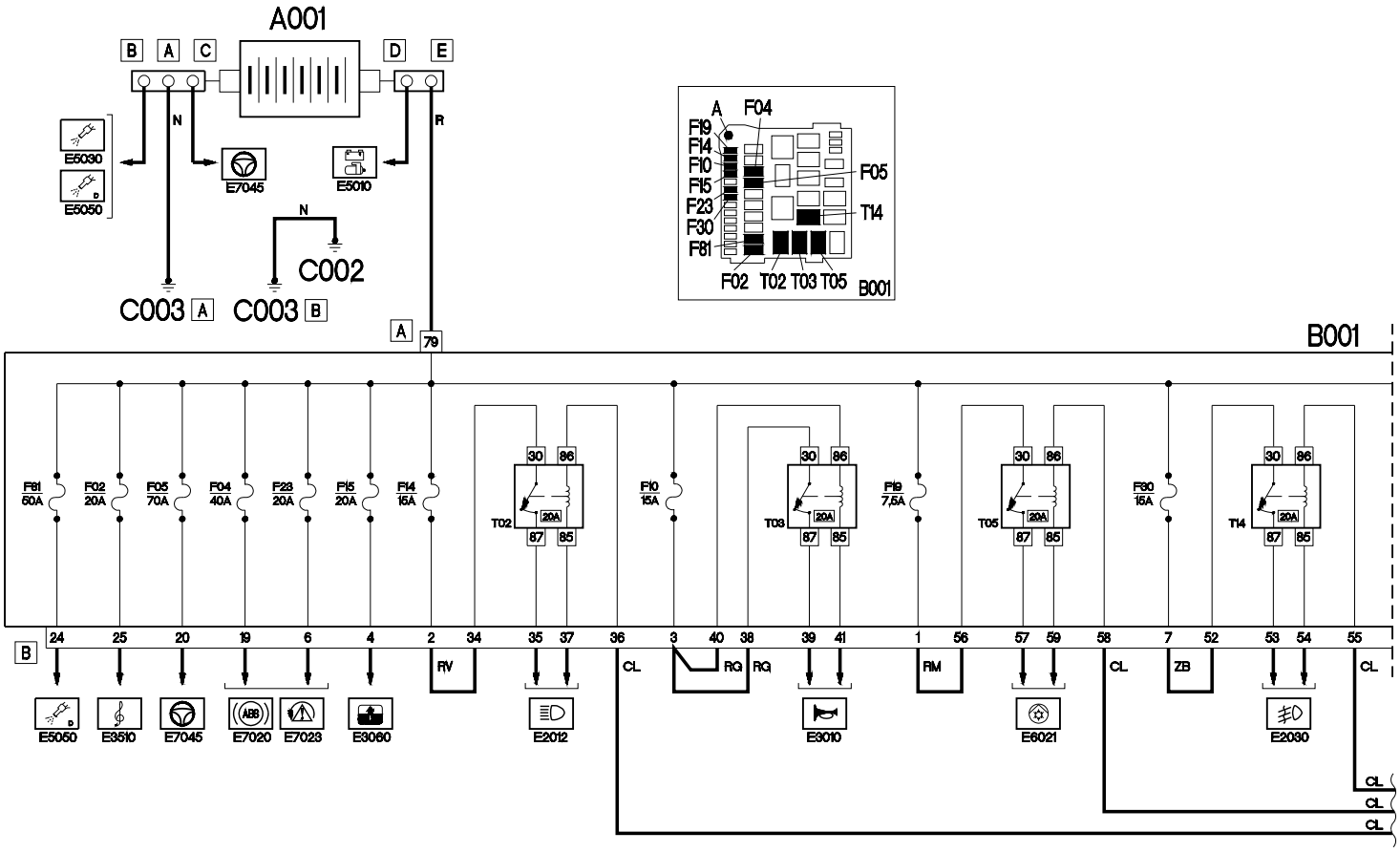
- T08, for the management of the heater/air conditioner (pin 45 of connector B of B001).

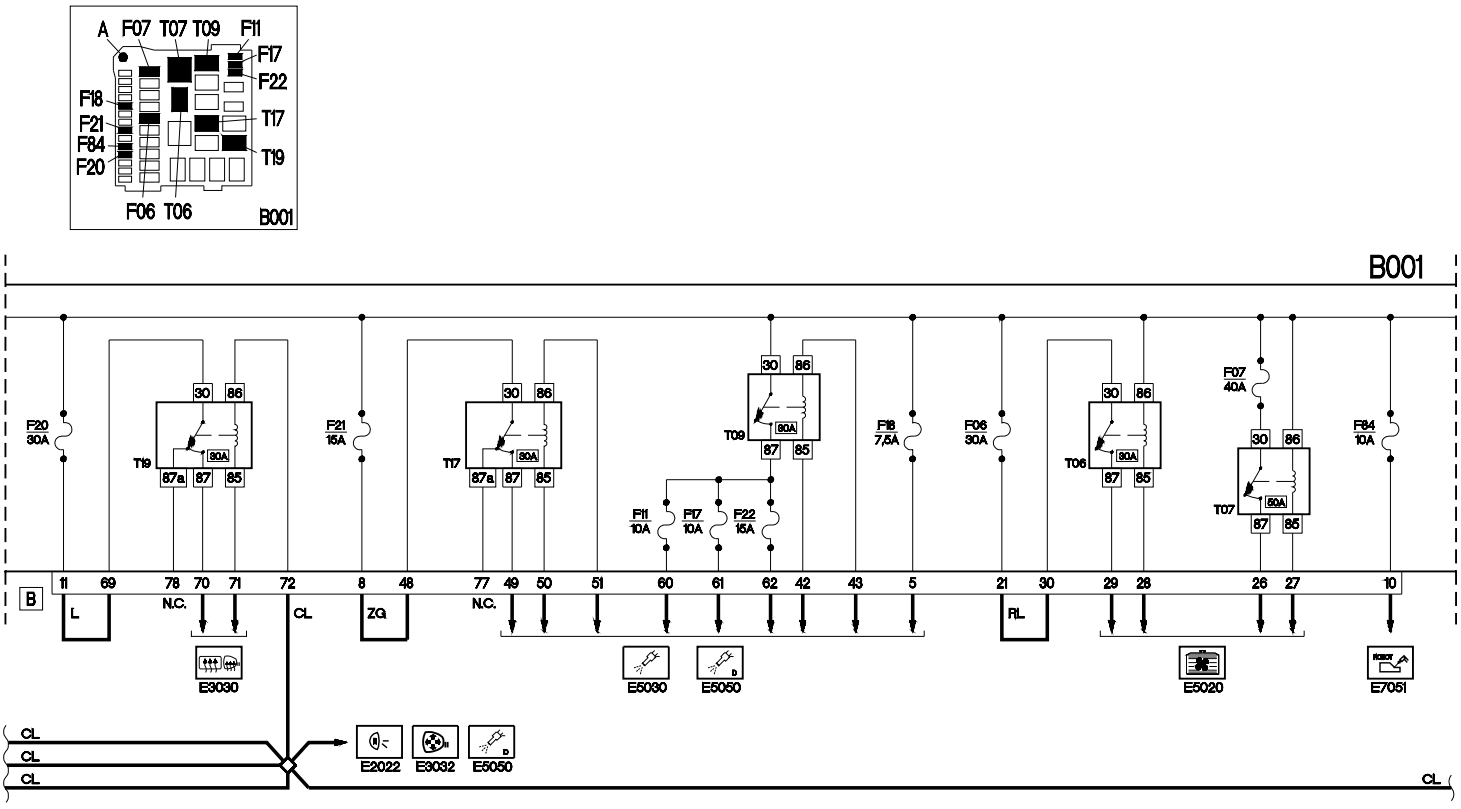
See E6010 HEATER

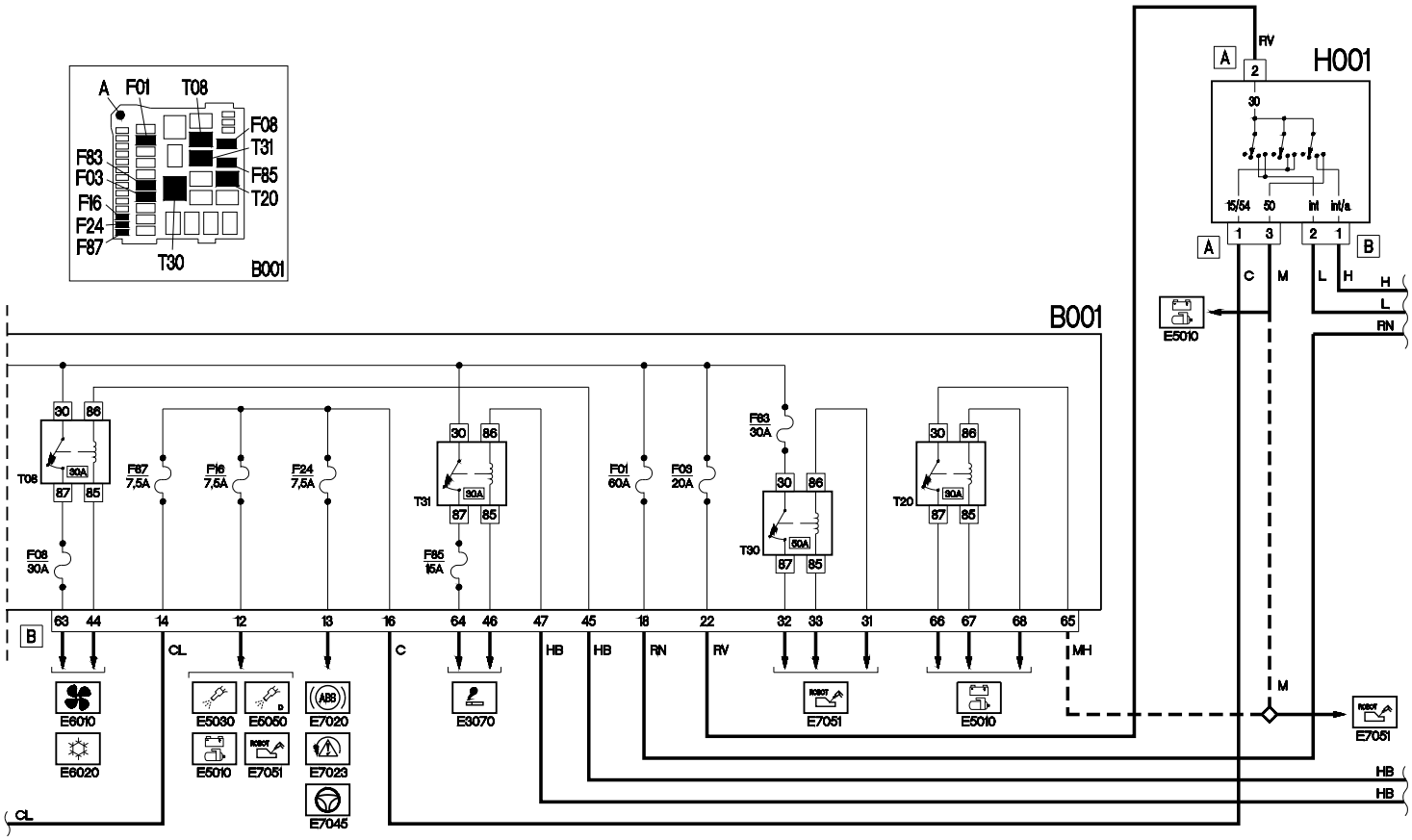
See E6020 AIR CONDITIONING

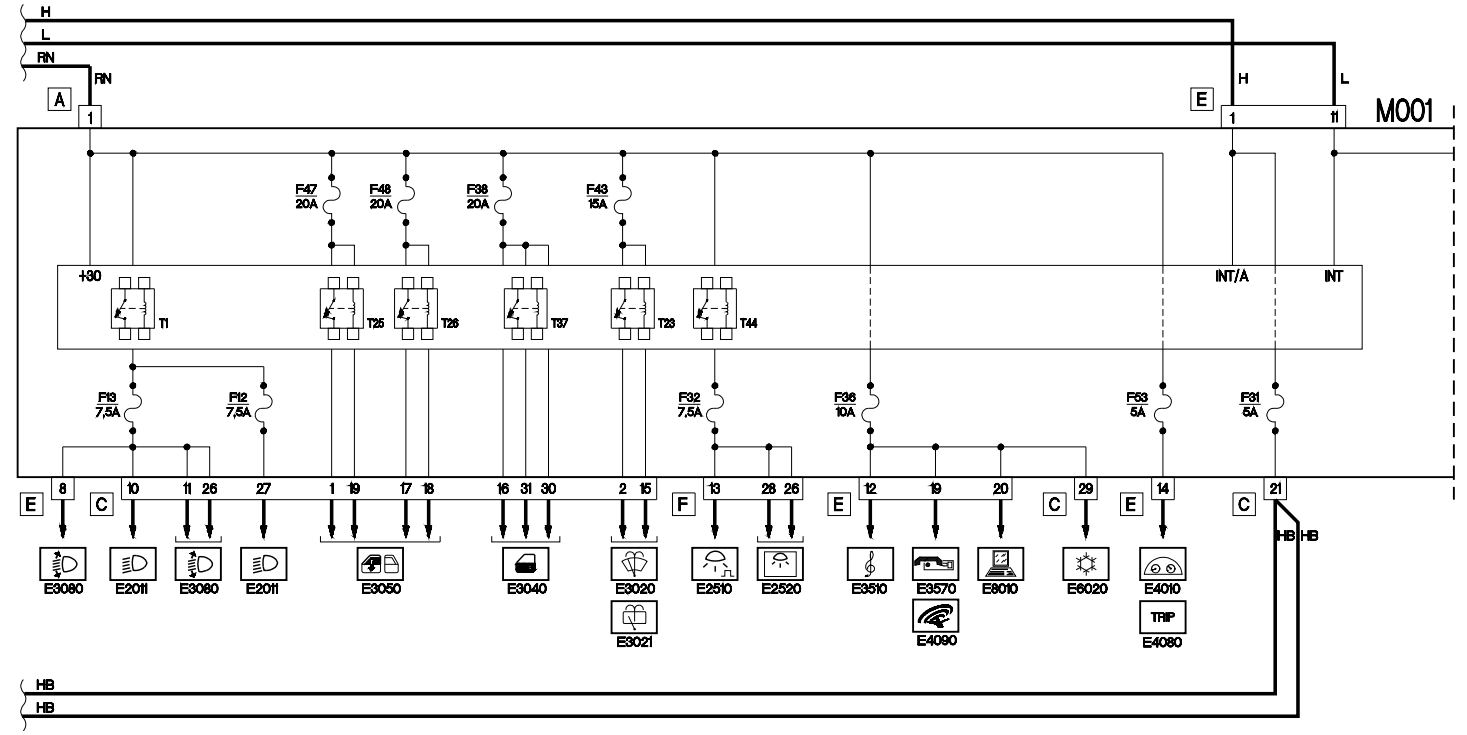
Body Computer M001 uses this power supply for the management of its own loads via its built-in relays.

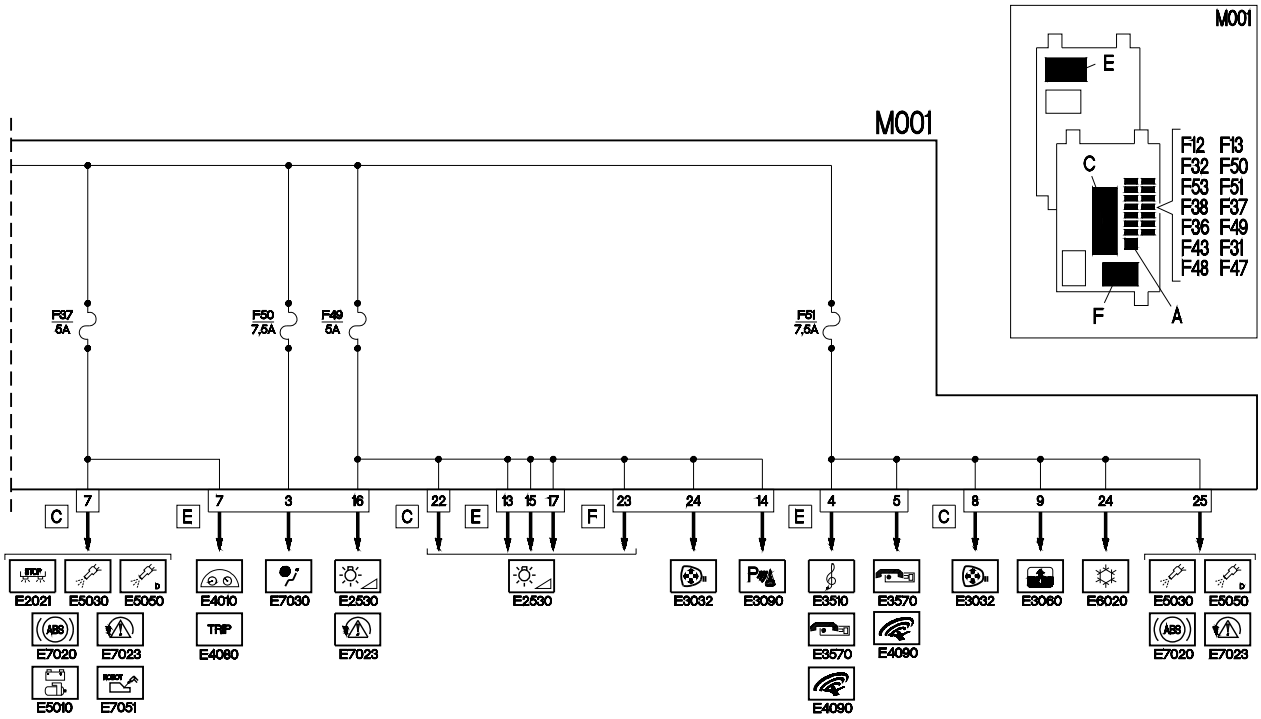
POWER SUPPLY SYSTEM - WIRING DIAGRAM






A F01 T08
F08
T31
F85
T20
F83
F03
F16
F24
F87
T30
B001
H001
RV
A
2
30
15/54 50 int int/a
1 3 2 1
C M L H H L RN
E5010
B001
T08 30A
F87 7,5A
F16 7,5A
F24 7,5A
T31 30A
F85 15A
F01 60A
F03 20A
F83 30A
T30 50A
T20 30A
F08 30A
B
63 44 14 12 13 16 64 46 47 45 18 22 32 33 31 66 67 68 65
CL C HB HB RN RV MH
E6010
E6020
E5030 E5050 E7020
E5010 E7051 E7023
E7045
E3070
E7051
E5010
M
E7051
HB
HB
CL

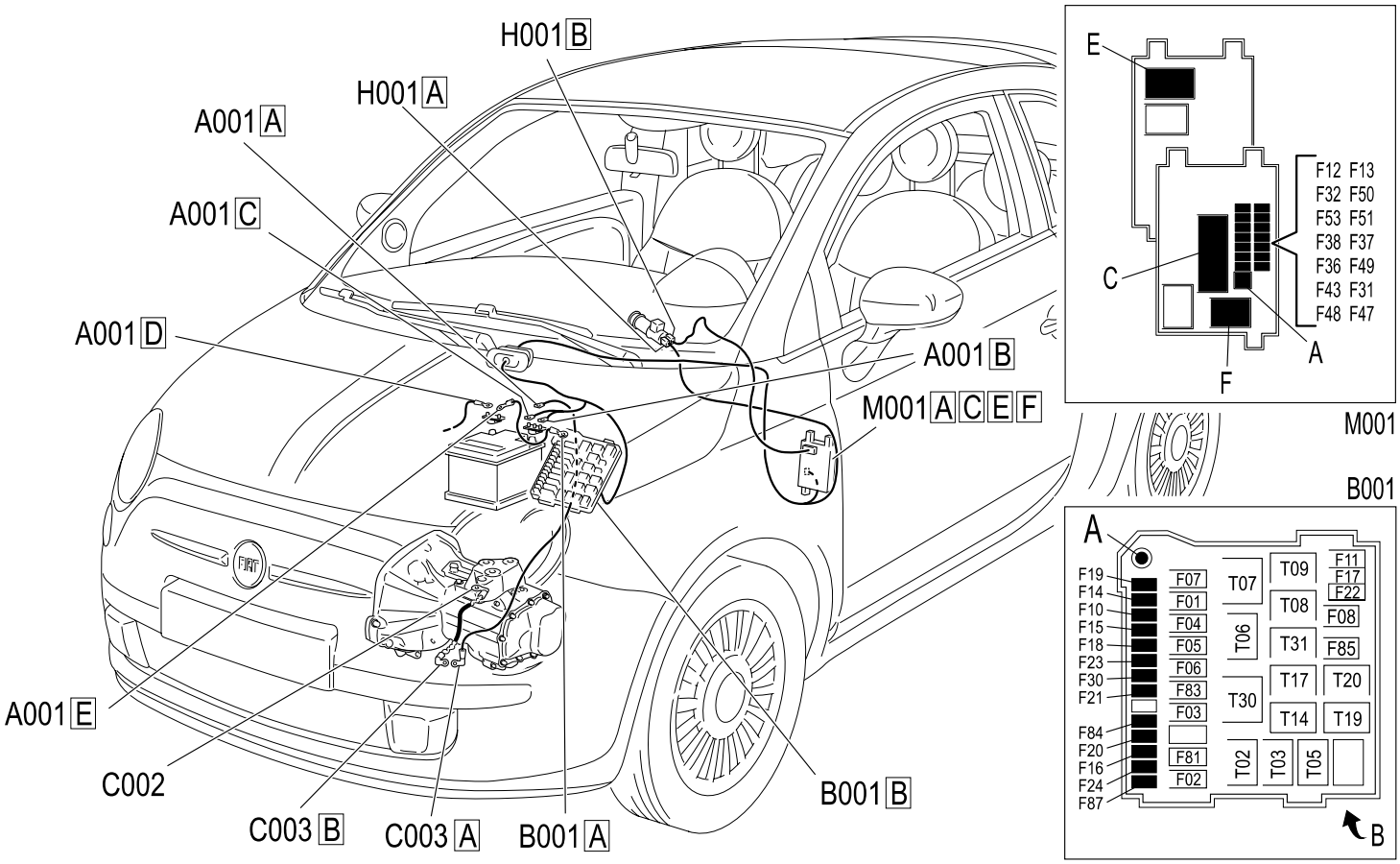

H
L
RN
A
RN
1
E
H
L
1 11
M001
F47 20A
F48 20A
F38 20A
F43 15A
+30
T1 T25 T26 T37 T23 T44
INT/A
INT
F13 7,5A
F12 7,5A
F32 7,5A
F36 10A
F53 5A
F31 5A
E 8 C 10 11 26 27 1 19 17 18 16 31 30 2 15 F 13 28 26 E 12 19 20 C 29 E 14 C 21
HB HB
E3080 E2011 E3080 E2011 E3050 E3040 E3020 E3021 E2510 E2520 E3510 E3570 E4090 E8010 E6020 E4010 TRIP E4080
HB
HB



Component code	Description	Reference to the operation
A001	BATTERY	Op. 5530B10 BATTERY - R+R

B001	JUNCTION UNIT	Op. 5505A10 JUNCTION UNIT - R+R
C002	BATTERY EARTH ON ENGINE	-
C003	BATTERY EARTH ON BODYSHELL	-
H001	IGNITION SWITCH	Op. 5520A10 IGNITION SWITCH ASSEMBLY - R+R
M001	BODY COMPUTER	Op. 5505A32 BODY COMPUTER - R.R

POWER SUPPLY SYSTEM - COMPONENT LOCATION



Component code	Description	Reference to the operation
A001	BATTERY	Op. 5530B10 BATTERY - R+R
B001	JUNCTION UNIT	Op. 5505A10 JUNCTION UNIT - R+R
C002	BATTERY EARTH ON ENGINE	-
C003	BATTERY EARTH ON BODYSHELL	-
H001	IGNITION SWITCH	Op. 5520A10 IGNITION SWITCH ASSEMBLY - R+R
M001	BODY COMPUTER	Op. 5505A32 BODY COMPUTER - R.R