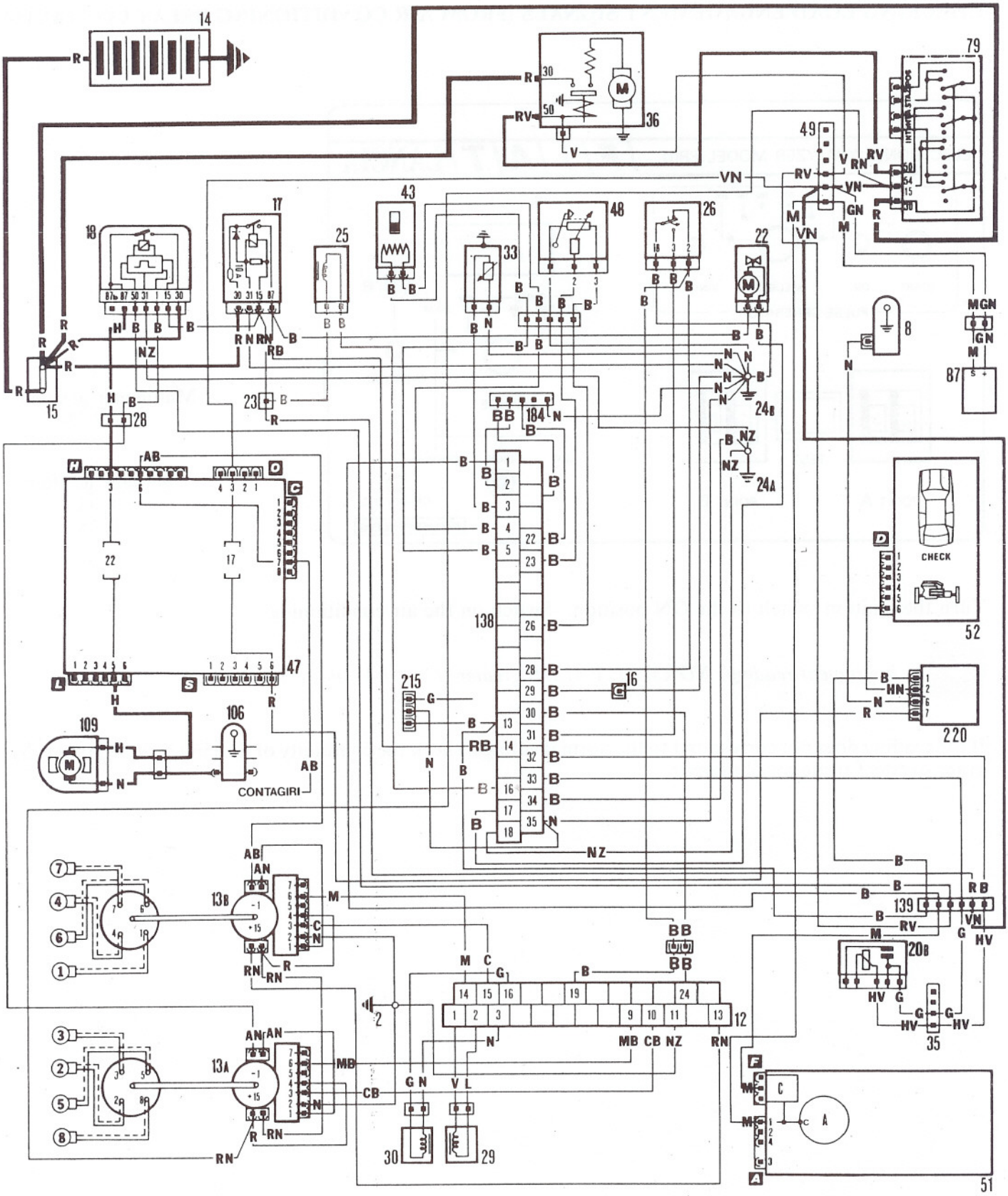
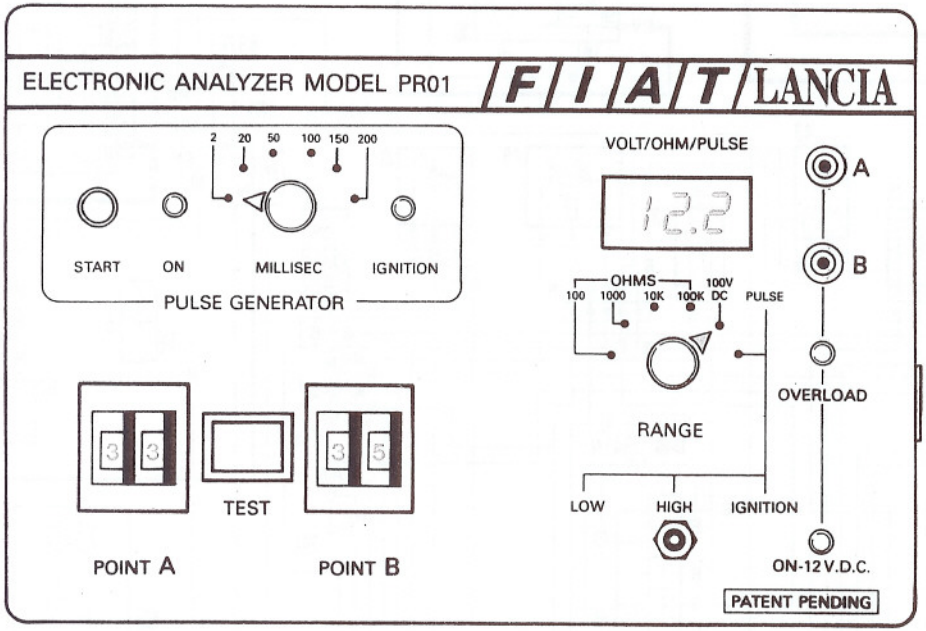


See the key on page 166 to identify the system components.

10.

CHECKING LOAD ENGAGEMENT SIGNALS (FROM AIR CONDITIONING RELAY CONTACTS)



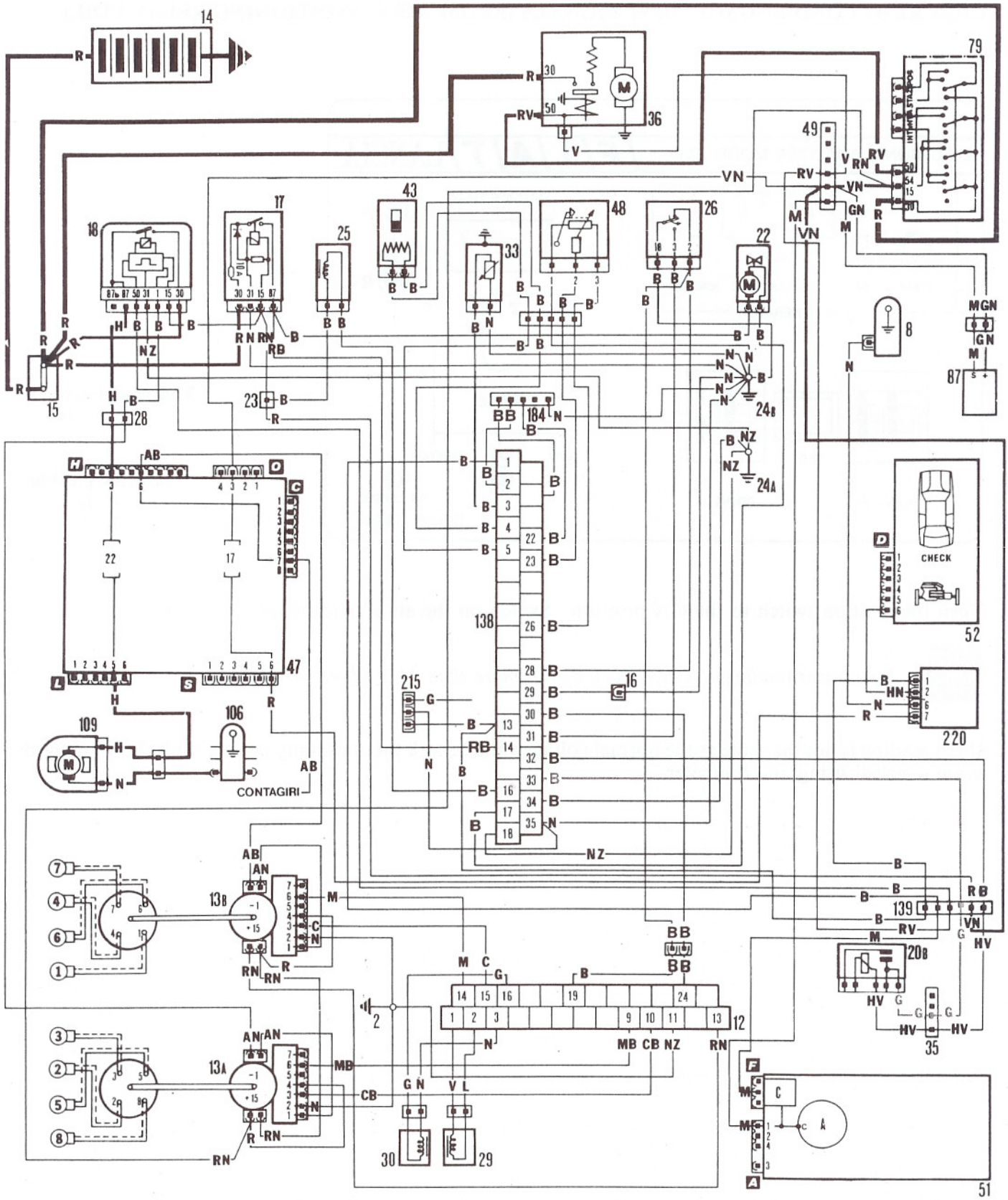
Multimeter position
100 V DC

Selector position
A 33
B 35

Turn the ignition switch to the ON position. Switch on the air conditioning.

Instrument reading: NORMAL VALUE greater than 11 V (battery voltage).

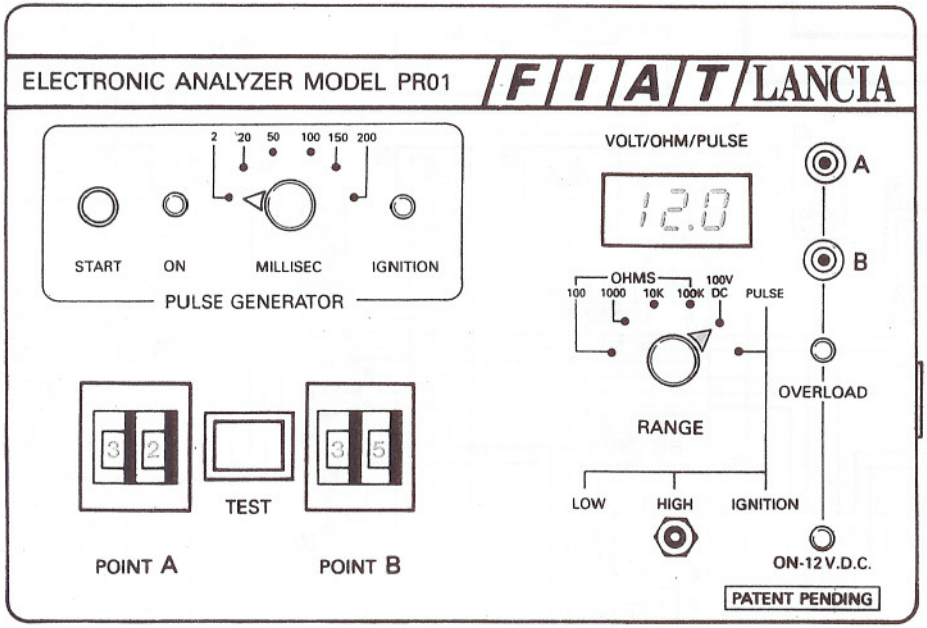
If the reading does not correspond to the normal voltage, check the continuity of the circuit shown in the diagram overleaf using an ohmmeter.



See the key on page 166 to identify the system components.

10.

CHECKING LOAD ENGAGEMENT SIGNALS (FROM AIR CONDITIONING RELAY COIL)



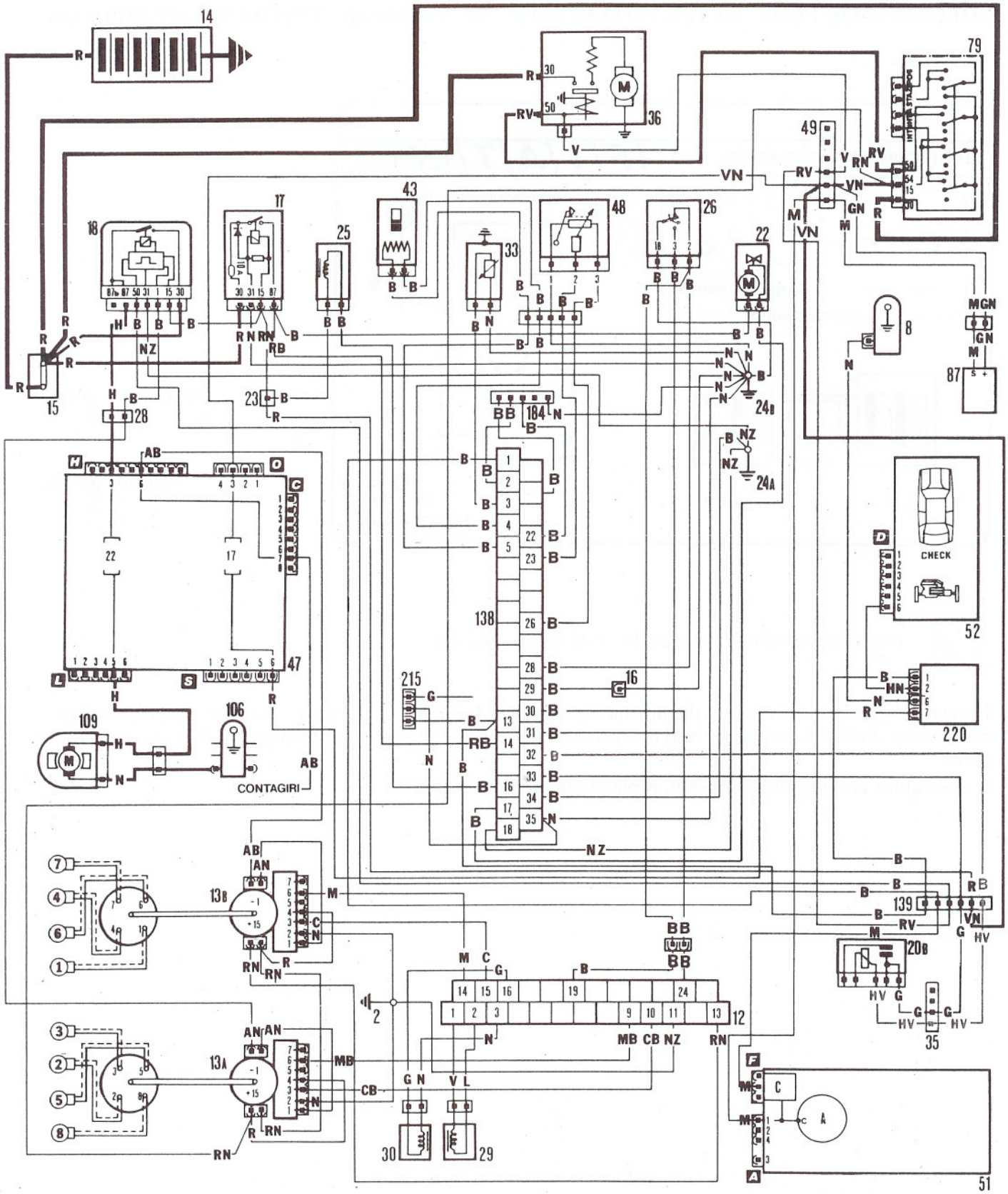
Multimeter position
100 V DC

Selector position
A 32
B 35

Turn the ignition switch to the ON position. Switch on the air conditioning.

Instrument reading: NORMAL VALUE more than 11 V (battery voltage)

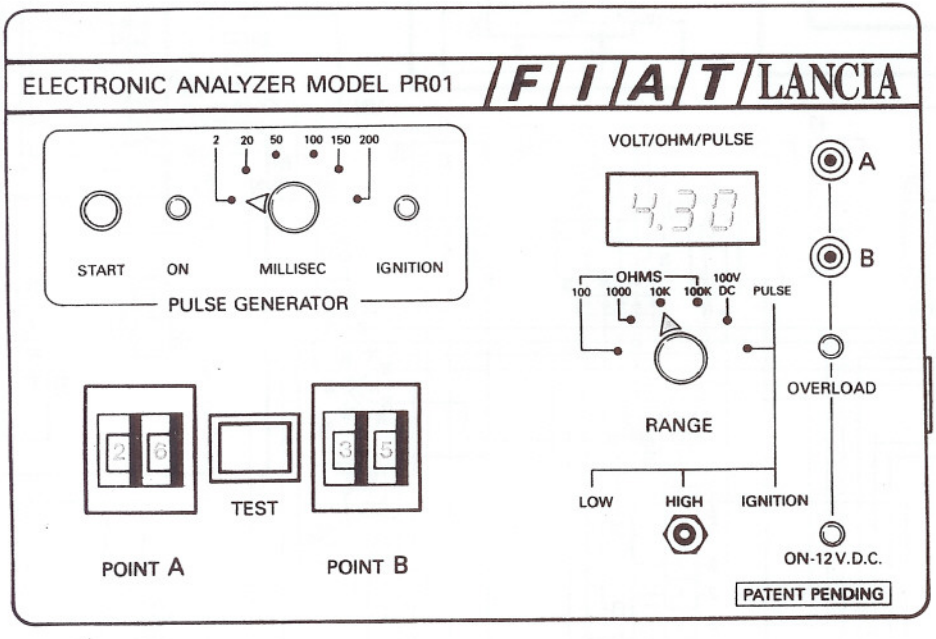
If the reading is not the same as the normal voltage value, check the continuity of the circuit shown in the diagram overleaf using an ohmmeter.



See the key on page 166 to identify the system components.

10.

CHECKING AIR FLOW METER POTENTIOMETER RESISTOR CONTINUITY (PLUGS 1 and 3)



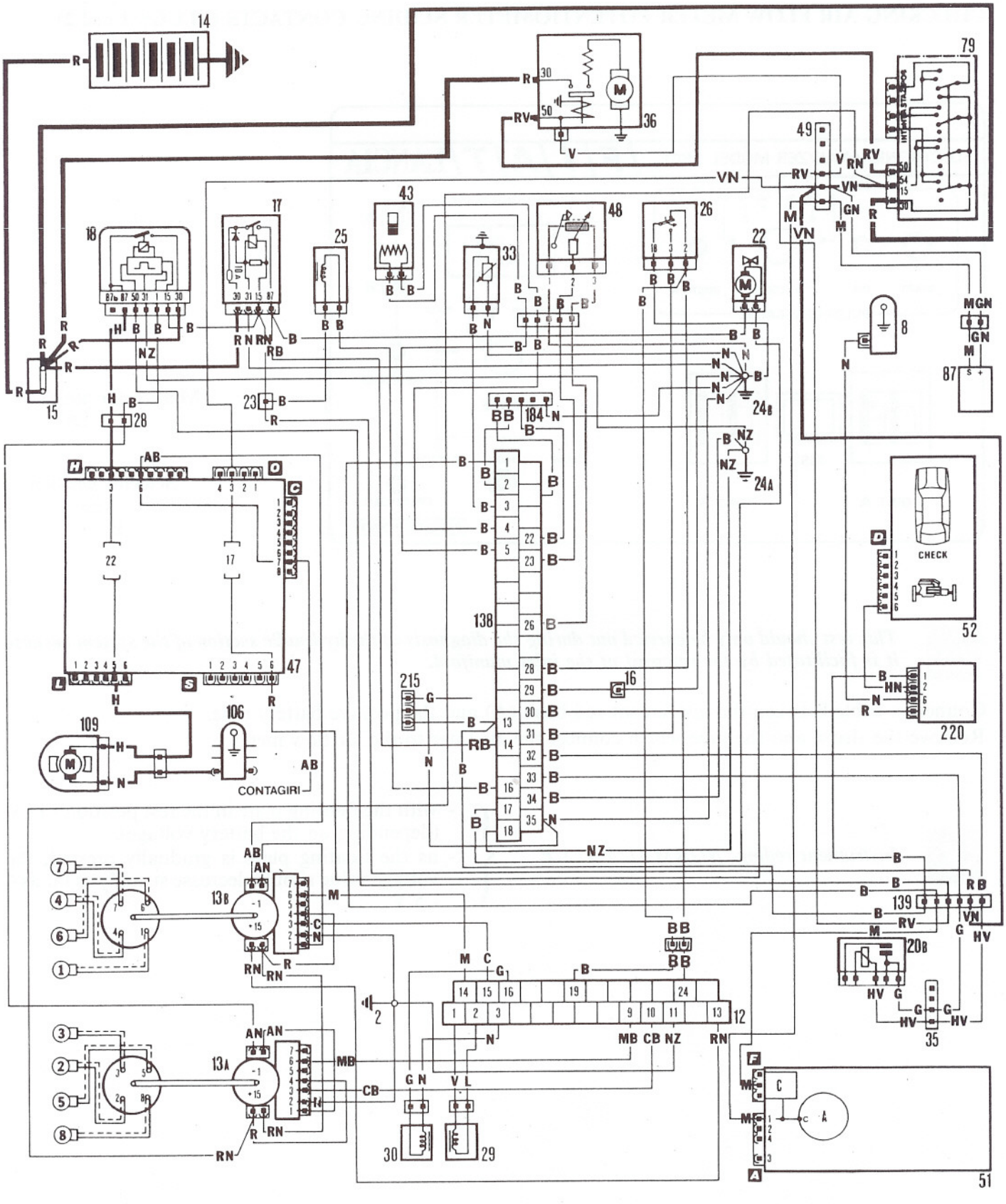
Multimeter position
10 kΩ

Selector position
A 26
B 35

Instrument reading: NORMAL VALUE 4 - 4,3 kΩ

If the reading is not the same as the normal resistance value, disconnect the air flow meter potentiometer connector and check the continuity and the insulation of the circuit shown in the diagram overleaf using an ohmmeter.

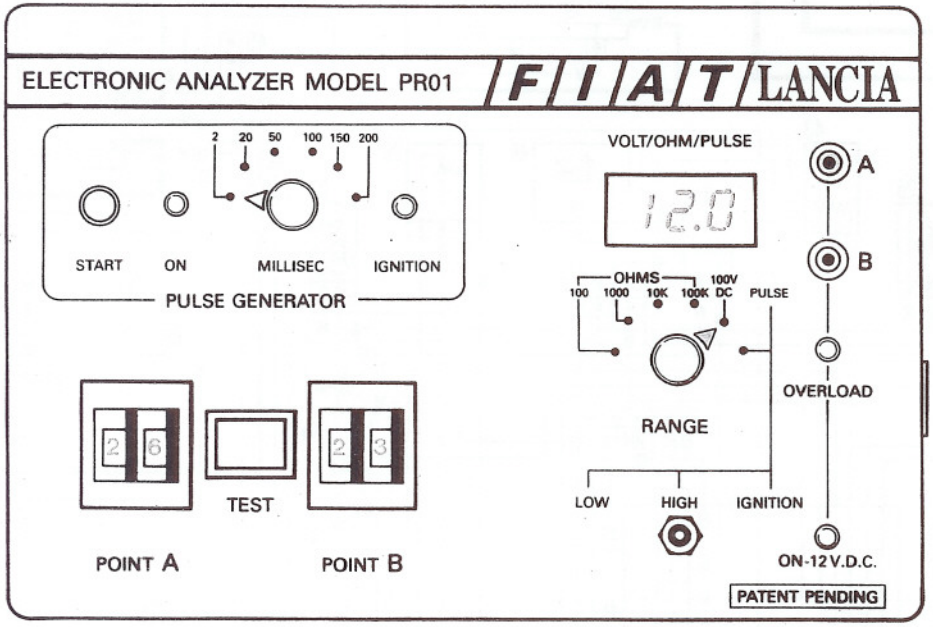
If the cables are working properly, replace the air flow meter.



See the key on page 166 to identify the system components.

10.

CHECKING AIR FLOW METER POTENTIOMETER SLIDING CONTACTS (PLUGS 1 and 2)



Multimeter position
100 V DC

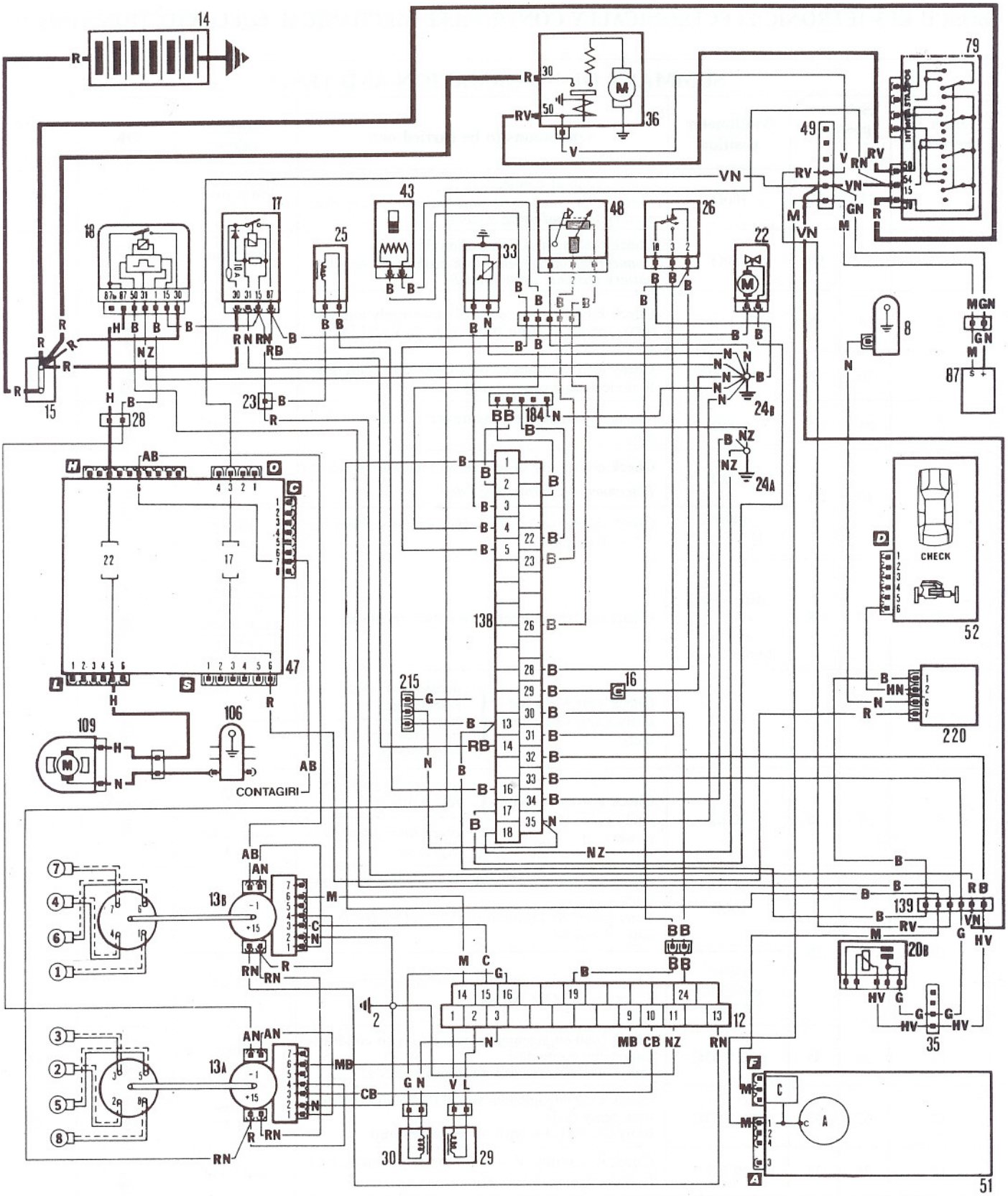
Selector position
A 26
B 23

This test should only be carried out during the diagnosis of the hydraulic section of the system because it is facilitated by the removal of the inlet manifold.

Connect a cable between the instrument red bush (A) and the positive battery pole.
Remove the sleeve and the pipe which connect the air filter to the air flow meter.

Instrument reding: NORMAL VALUE

- with the floating plate in the rest position - 11 V (depending on the battery voltage).
- as the floating plate is gradually pressed, the voltage value should decrease steadily as far as 4 - 5 V.



See the key on page 166 to identify the system components.

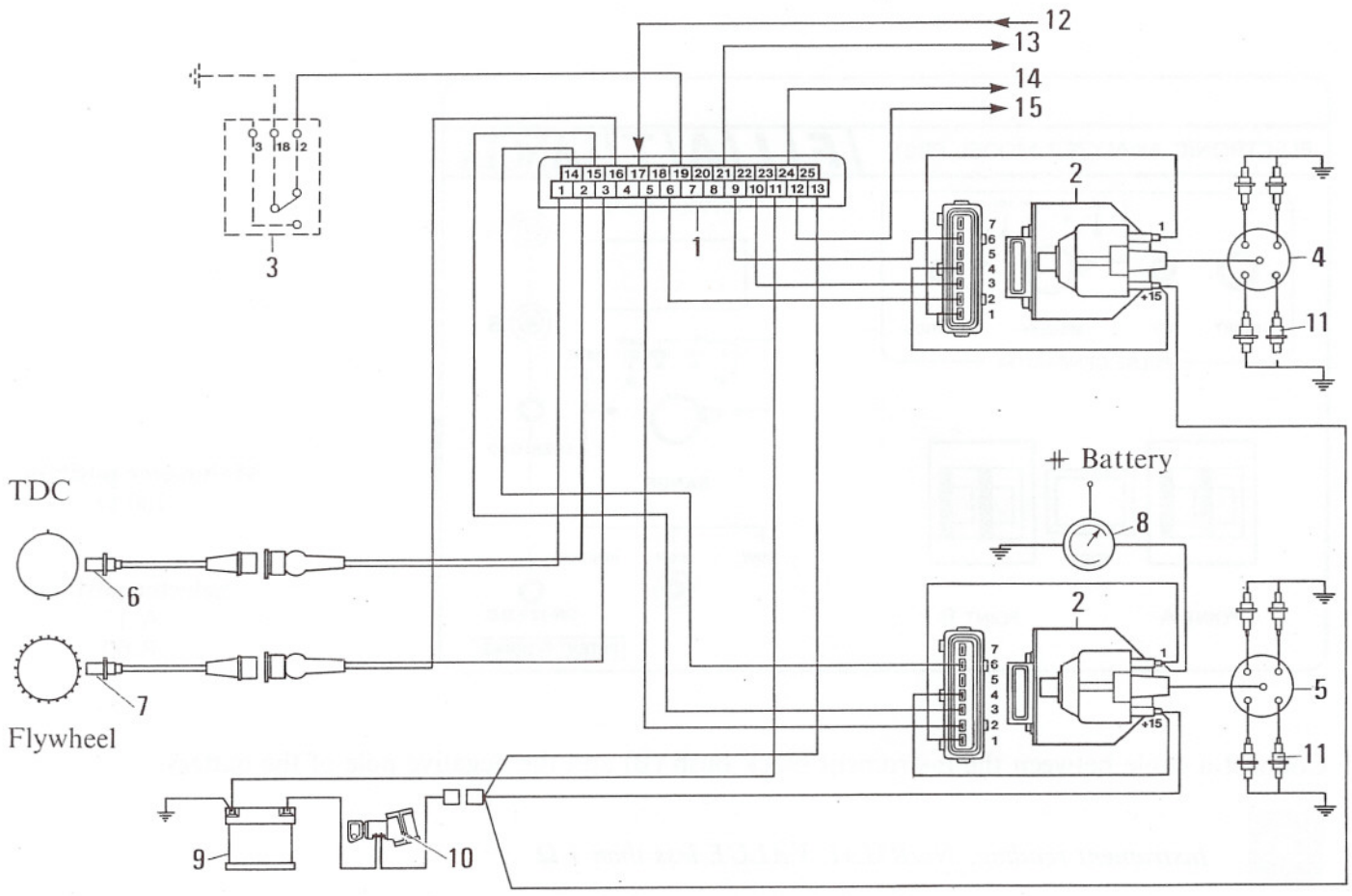
10.

BOSCH KE3-JETRONIC ELECTRONICALLY CONTROLLED MECHANICAL FUEL INJECTION SYSTEM

SUMMARY OF INFORMATION AND TESTS

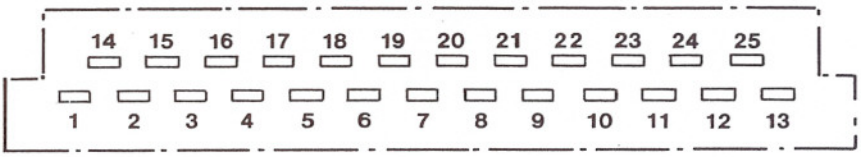
Order of operations	Selector position A	Selector position B	Multimeter position	Operations to be carried out	Normal values	OK	Not OK See page
1	18	00	100Ω	Check earth at connection 18 *Connect the instrument black bush to the negative battery terminal using a cable*	lower than 1 Ω	continue ⬇	118
2	35	00	100Ω	Check the earth at connection 35 *Connect the instrument black bush to the negative battery terminal using a cable*	lower than 1 Ω	continue ⬇	120
3	14	18	100 V DC	Check KE3-Jetronic control unit supply and idle servo regulator from protective relay and fuse	battery voltage above 11 V	continue ⬇	122
4	30	18	PULSE LOW	Check rpm impulses coming from Microplex ignition electronic control unit	above 20	continue ⬇	124
5	04	05	100Ω	Check continuity of pressure servo regulator winding	15÷25Ω	continue ⬇	126
6	17	14	100Ω	Check continuity of idle servo regulator winding *Disconnect the protective relay*	5÷12Ω	continue ⬇	128
			pulse generator 20 msec	Check operation of idle servo regulator. *Press the START button*	ticking heard		
7	03	18	Ω dependent on the engine temperature	Check coolant temperature sensor resistance	at 20°C 2-4kΩ at 50°C 600-900Ω at 90°C 100-300Ω	continue ⬇	130
8	28	35	100Ω	Check switch on butterfly valve (idle contact) — *accelerator pedal in rest position*	lower than 1Ω	continue ⬇	132
				Check switch on butterfly valve (idle contact) — *accelerator pedal partly depressed*	EEE		
9	31	35	100Ω	Check switch on butterfly valve (full power) — *accelerator pedal in rest position*	EEE	continue ⬇	134
				Check switch on butterfly valve (full power) — *accelerator pedal fully depressed*	lower than 1Ω		
10	14	16	100Ω	Check continuity of cold start injector coil winding. *Disconnect the protective relay and bridge terminals 15 and 87*	3-5Ω	continue ⬇	136
			pulse generator 20 msec.	Check dynamic operation of cold start injector *Press the START button*	ticking heard		
11	33	35	100 V DC	Check load engagement signal (from air conditioning relay contacts) (only for vehicles with air conditioniong)	above 11 V	continue ⬇	138
12	32	35	100 V DC	Check load engagement signal (from air conditioning relay coil) (only for vehicles with air conditioning)	above 11 V	continue ⬇	140
13	26	35	10 kΩ	Check continuity of air flow meter potentiometer resisstor (plugs 1 and 3)	4-4,3 kΩ	continue ⬇	142
14	26	23	100 V DC	Check air flow meter potentiometer sliding contacts (plugs 2 and 1) *with floating plate in rest position* *Connect the instrument red bush to the positive battery terminal using a cable*	battery voltage above 11 V	End if OK	144
				Check air flow meter potentiometer sliding contacts (plugs 2 and 1) *with floating plate fully depressed*	4-5 V		

MICROPLEX ELECTRONIC IGNITION WIRING DIAGRAM



1. Microplex electronic ignition control unit - 2. Ignition unit with coil - 3. Bosch injection system butterfly valve switch - 4. High tension distributor for cylinders 8-2-3-5 - 5. High tension distributor for cylinders 1-4-7-6 - 6. TDC sensor (on cylinder block/crankcase, flywheel side) - 7. Rpm sensor on flywheel - 8. Rev counter - 9. Battery - 10. Ignition switch - 11. Spark plugs - 12. Series inlet for Fiat-Lancia Tester - 13. Series outlet for Fiat-Lancia Tester - 14. Bosch electronic injection control - 15. Earth for Fiat-Lancia Tester.

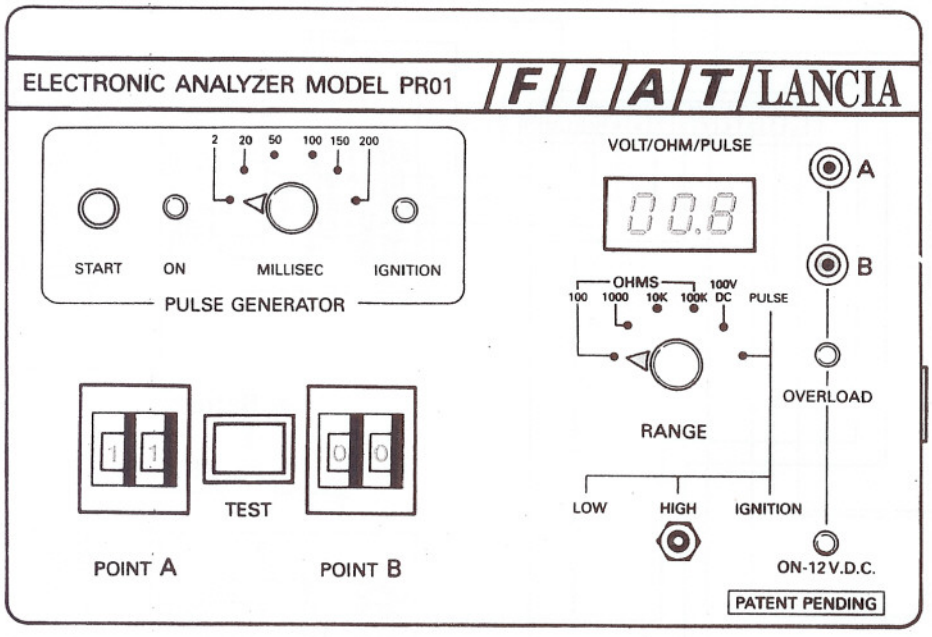
Microplex electronic ignition control unit terminal connections



1. TDC sensor signal - 2. TDC sensor earth - 3. Rpm sensor earth - 4. Wiring for earth ON/OFF n° 2 - 5. Earth for 1st external power module - 6. Earth for 2nd external power module - 7. Wiring for earth ON/OFF n° 1 - 8. Wiring for earth ON/OFF n° 3 - 9. 2nd external power module control - 10. Earth for 2nd external power module inlet - 11. Control unit supply from negative battery pole - 12. Earth for Fiat-Lancia Tester - 13. Control unit supply from positive battery pole (under ignition key) - 14. 1st external power module control - 15. Earth for 1st external power module inlet - 16. Engine rpm signal - 17. Series inlet for Fiat-Lancia Tester - 18. Wiring for ON/OFF n° 1 - 19. Earth switch for signalling butterfly closed (release curve) on KE3-Jetronic injection system - 20. Spare - 21. Series outlet for Fiat-Lancia Tester - 22. Absolute pressure sensor signal - 23. Wiring for ON/OFF n° 3 - 24. Bosch KE3-Jetronic injection system control (engine rpm signal) - 25. Spare

10.

CHECKING MICROPLEX ELECTRONIC IGNITION SYSTEM CONTROL UNIT EARTH



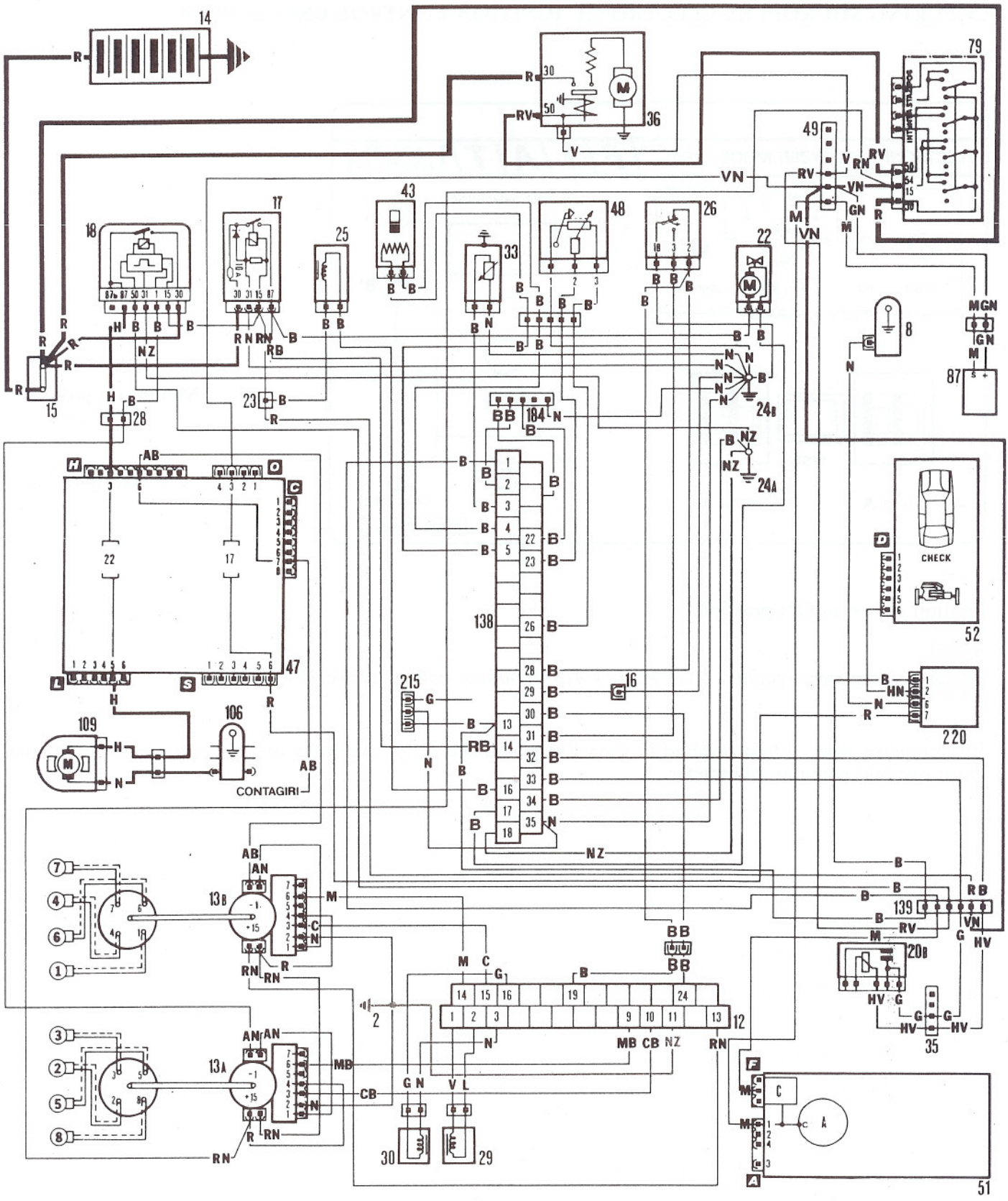
Multimeter position
100 Ω

Selector position
A 11
B 00

Connect a cable between the instrument black bush (B) and the negative pole of the battery.

Instrument reading: NORMAL VALUE less than 1 Ω

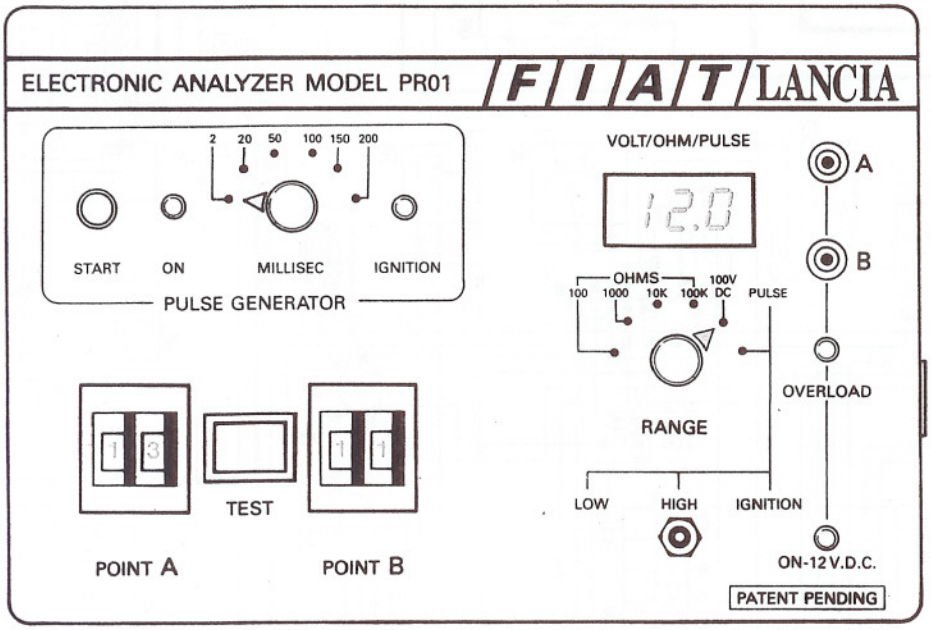
If the recommended resistance value is not found, check the continuity of the circuit shown in the diagram overleaf using an ohmmeter.



See the key on page 166 to identify the system components.

10.

CHECKING MICROPLEX ELECTRONIC IGNITION CONTROL UNIT SUPPLY



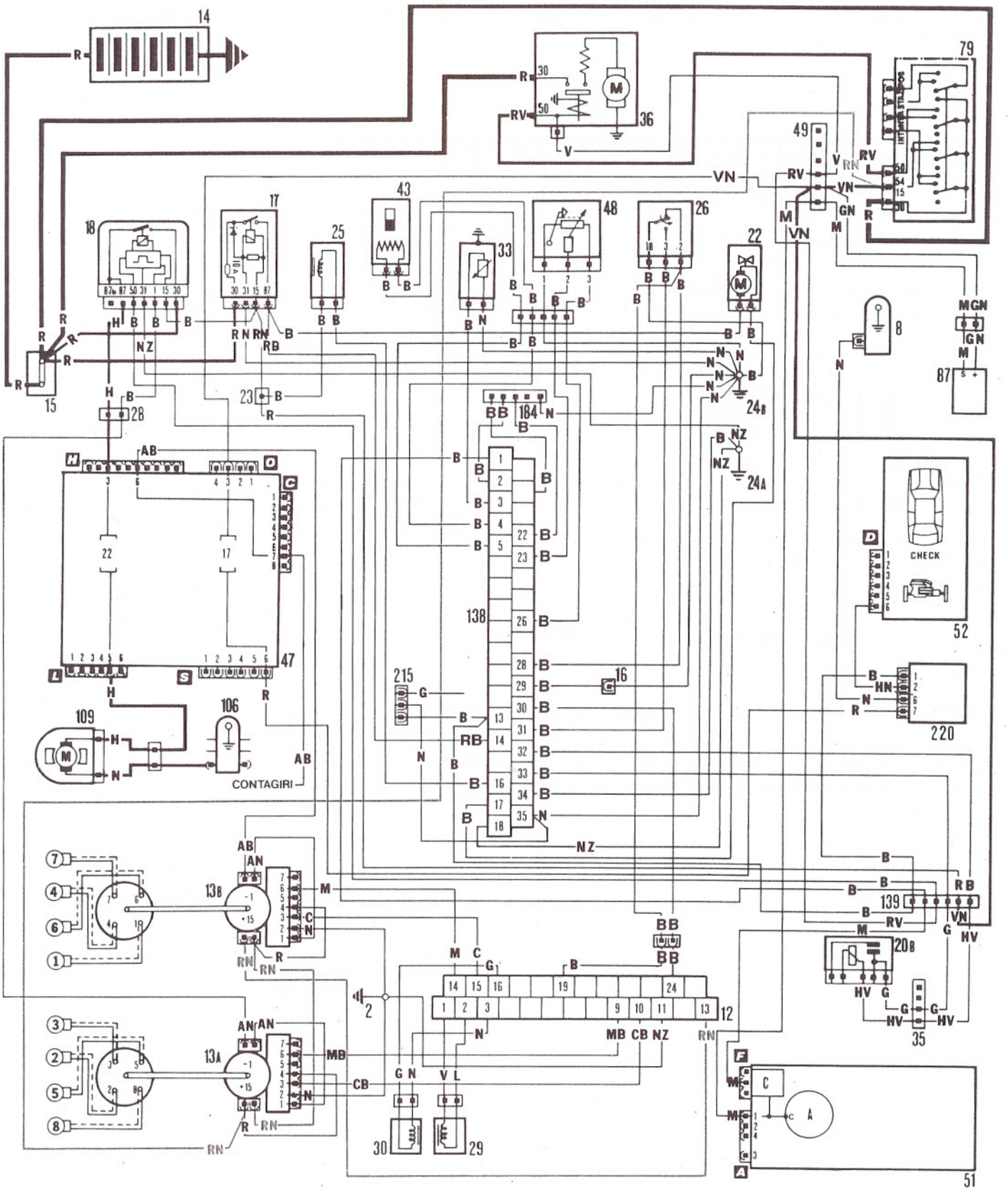
Multimeter position
100 V DC

Selector position
A 13
B 11

Ignition switch in ON position

Instrument reading: NORMAL VALUE battery voltage above 11 V

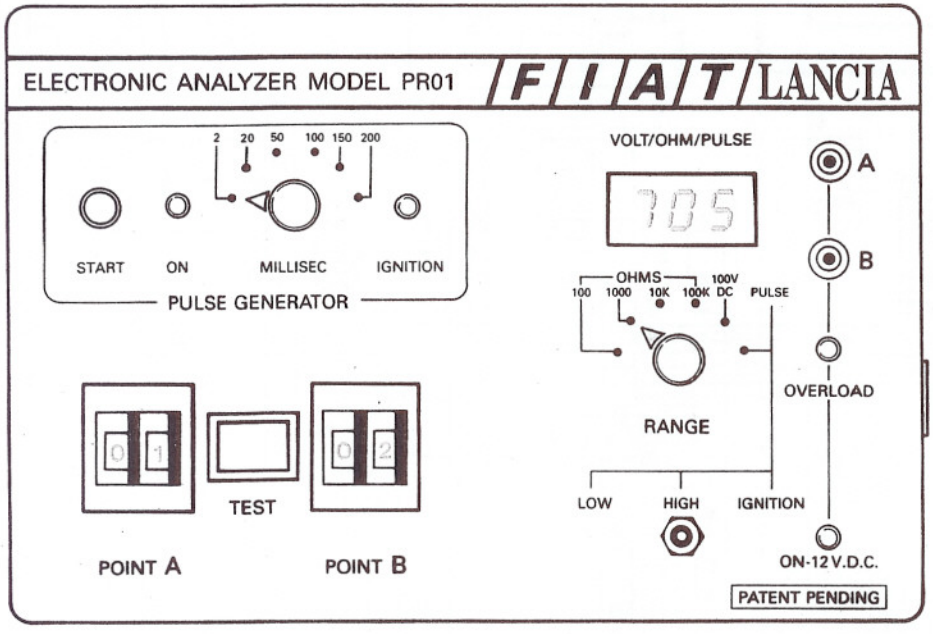
If the reading does not correspond to the value given, check the continuity of the circuit shown in the diagram overleaf using an ohmmeter.



See the key on page 166 to identify the system components.

10.

CHECKING CONTINUITY OF TDC SENSOR (ON CYLINDER BLOCK/CRANKCASE, FLYWHEEL SIDE)

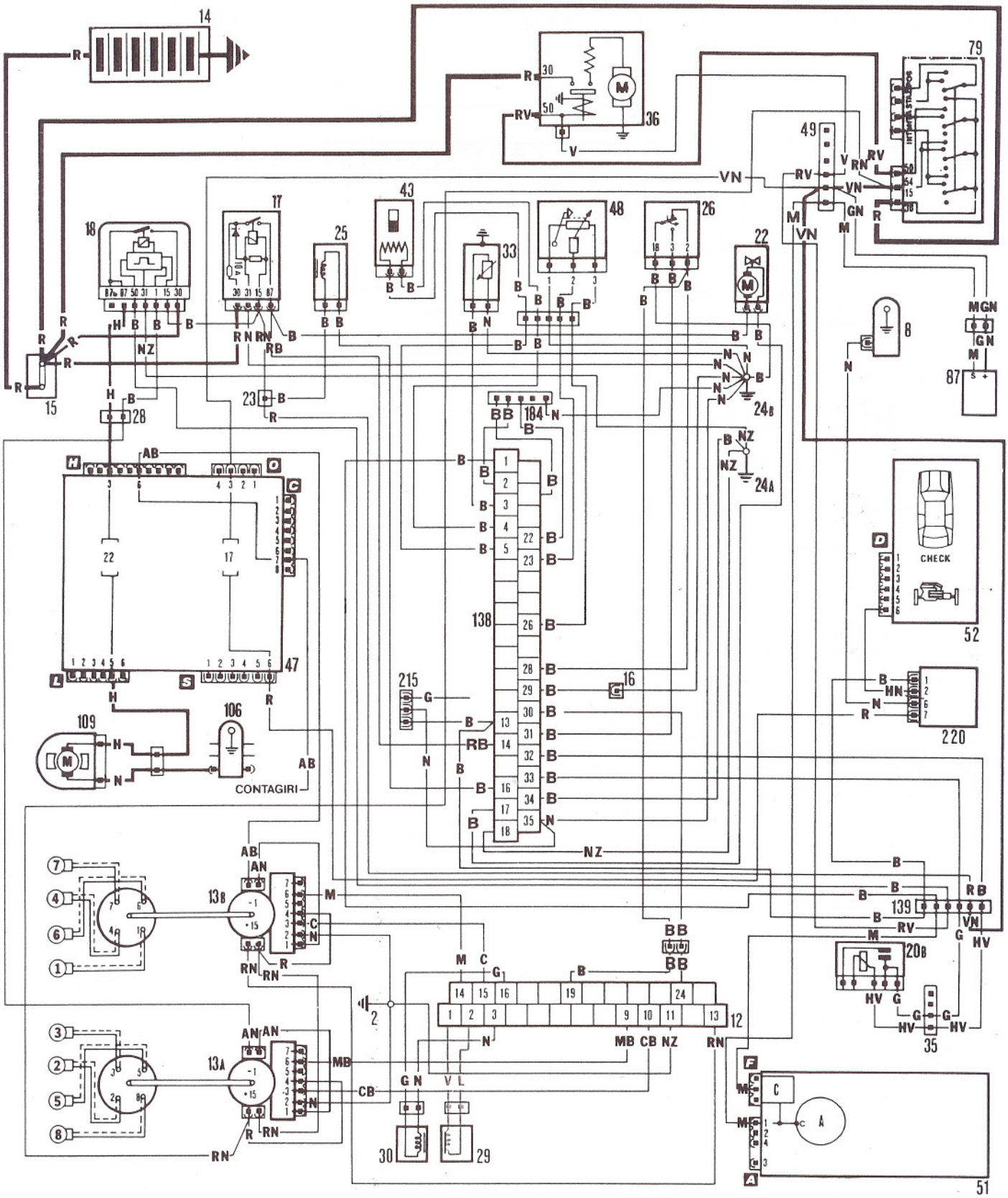


Multimeter position
1000 Ω

Selector position
A 01
B 02

Instrument reading: NORMAL VALUE 600 - 800 Ω

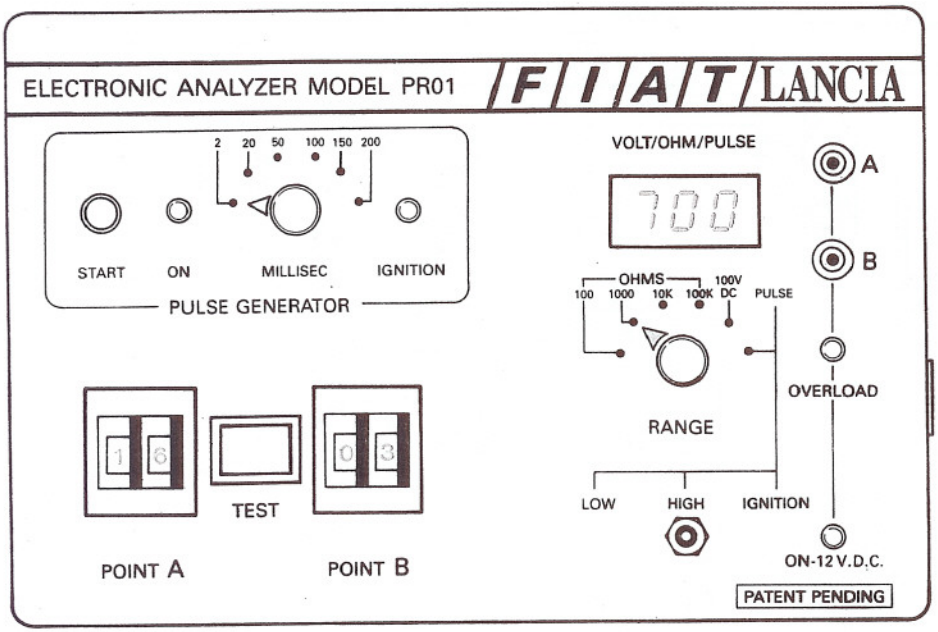
If the reading is not the same as the recommended resistance value, disconnect the TDC sensor connector and connect the tester resistor supplied with the instrument (68 Ω) in its place.
Repeat the test: if the reading is now the same as the tester resistor, replace the TDC sensor as it is faulty.
If the reading is different, check the continuity and the insulation of the circuit shown in the diagram overleaf.



See the key on page 166 to identify the system components.

10.

CHECKING CONTINUITY OF ENGINE RPM SENSOR (ON BELL HOUSING)

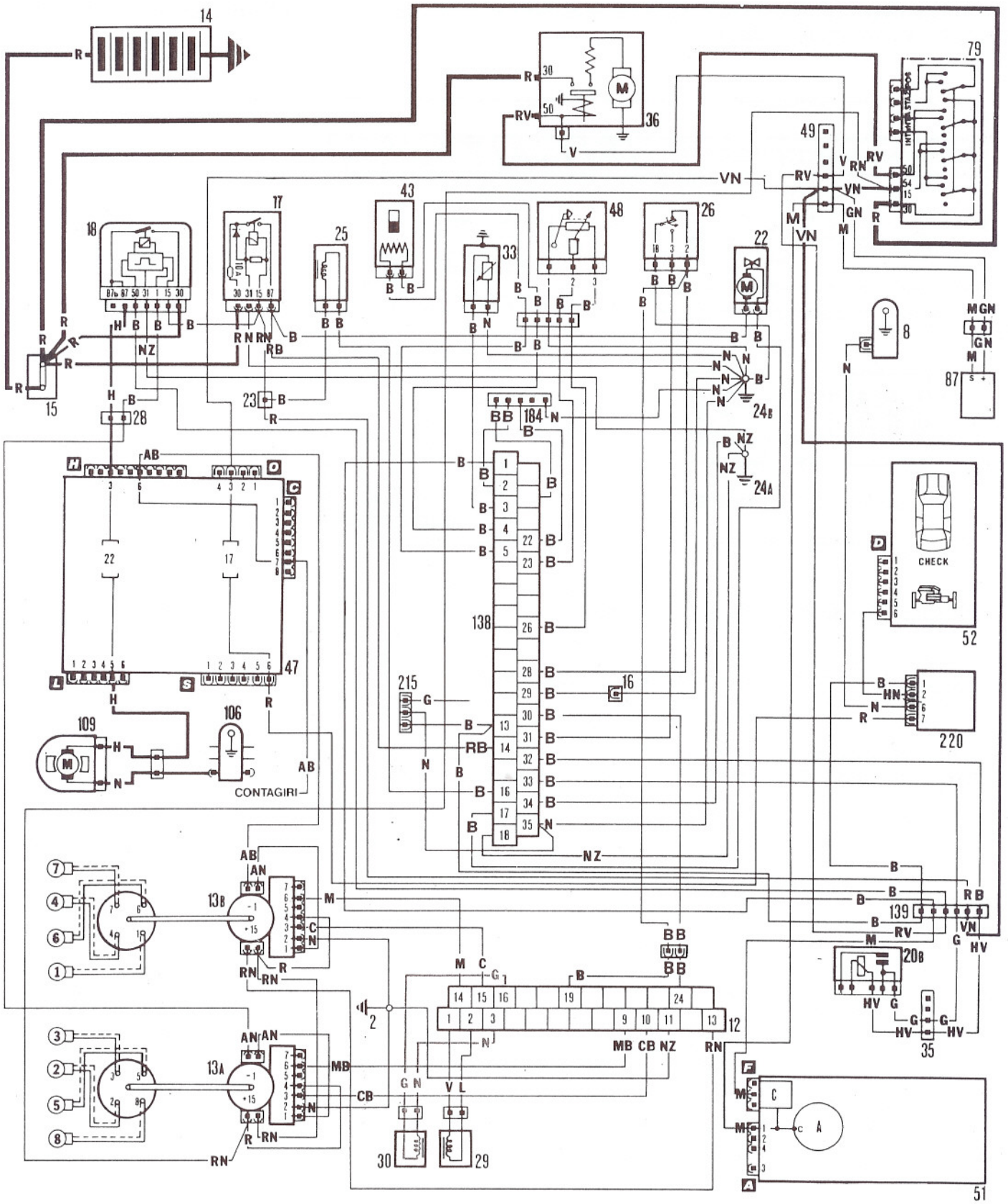


Multimeter position
1000 Ω

Selector position
A 16
B 03

Instrument reading: NORMAL VALUE 600 - 800 Ω

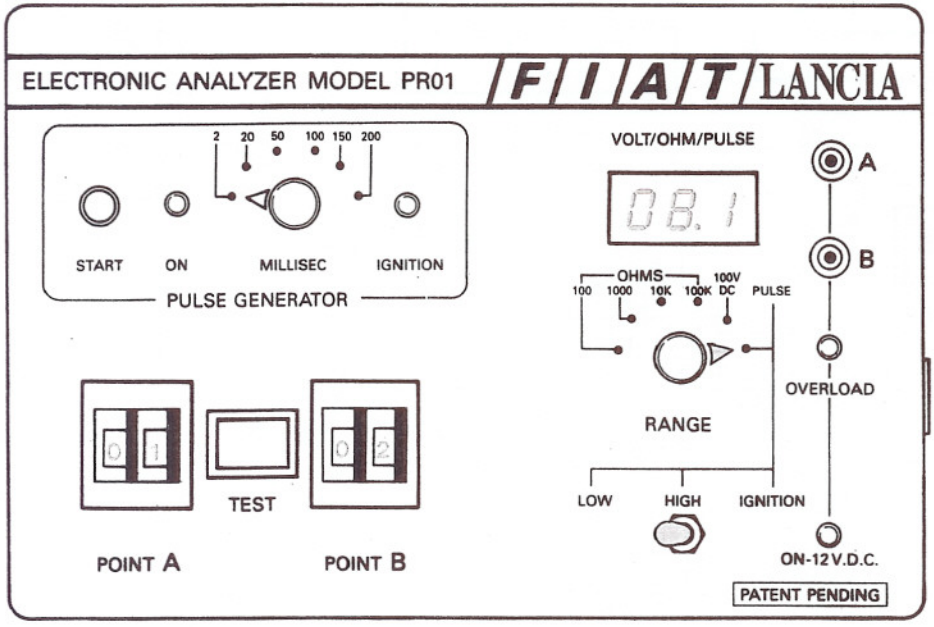
If the reading differs from the recommended resistance value, disconnect the rpm sensor connector and connect the tester resistor supplied with the instrument (68 Ω) in its place.
Repeat the test: if the reading is the same as the tester resistor, replace the rpm sensor because it is defective.
If the reading is different, check the continuity of the circuit shown in the diagram overleaf using an ohmmeter.



See the key on page 166 to identify the system components.

10.

CHECKING TDC SENSOR GAP AND MAGNETIC EFFICIENCY (ON CYLINDER BLOCK/CRANKCASE, FLYWHEEL SIDE)



Multimeter position
PULSE

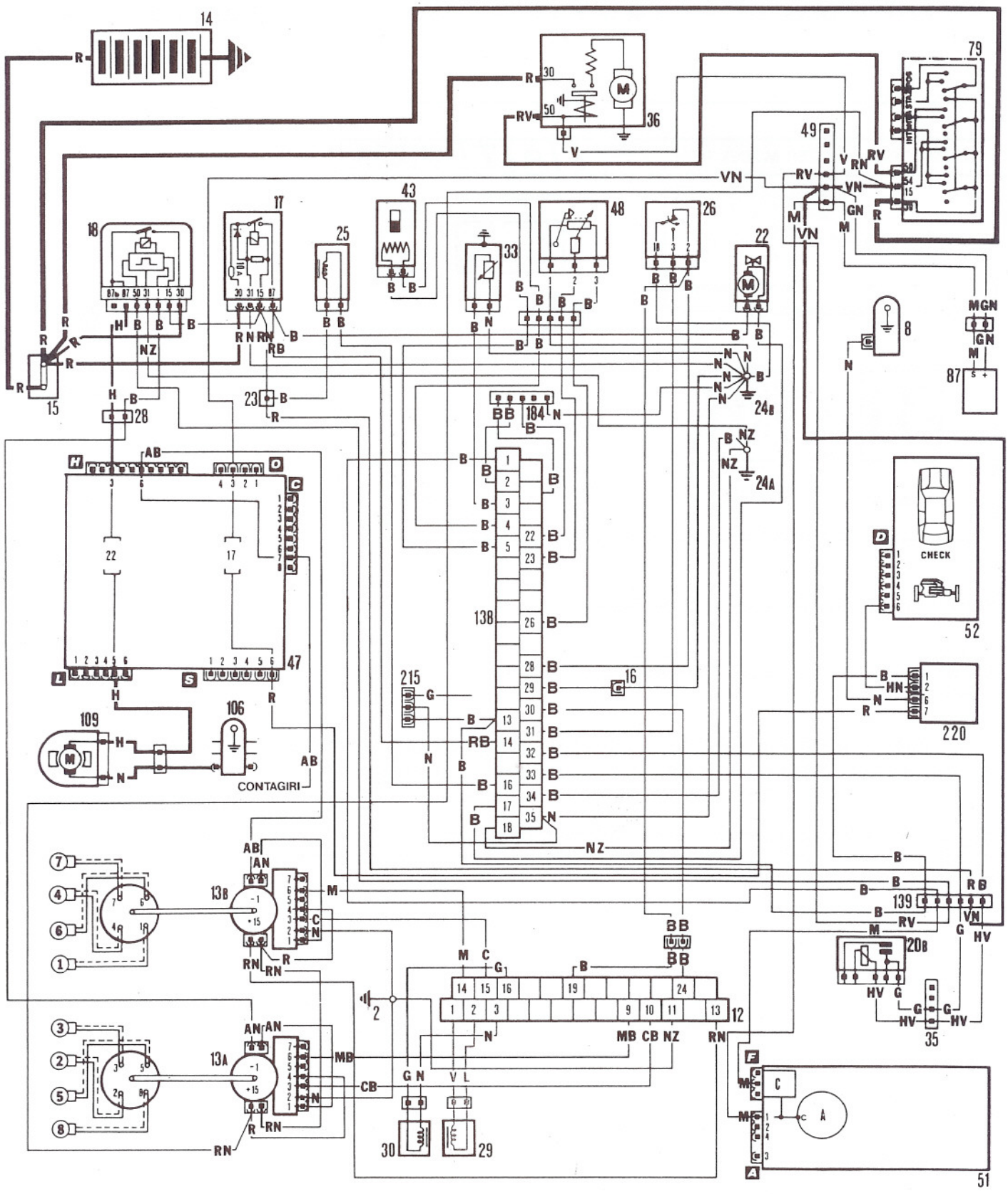
Switch position
LOW

Selector position
A 01
B 02

Start up the engine for around 15 seconds

Instrument reading: NORMAL VALUE above 7

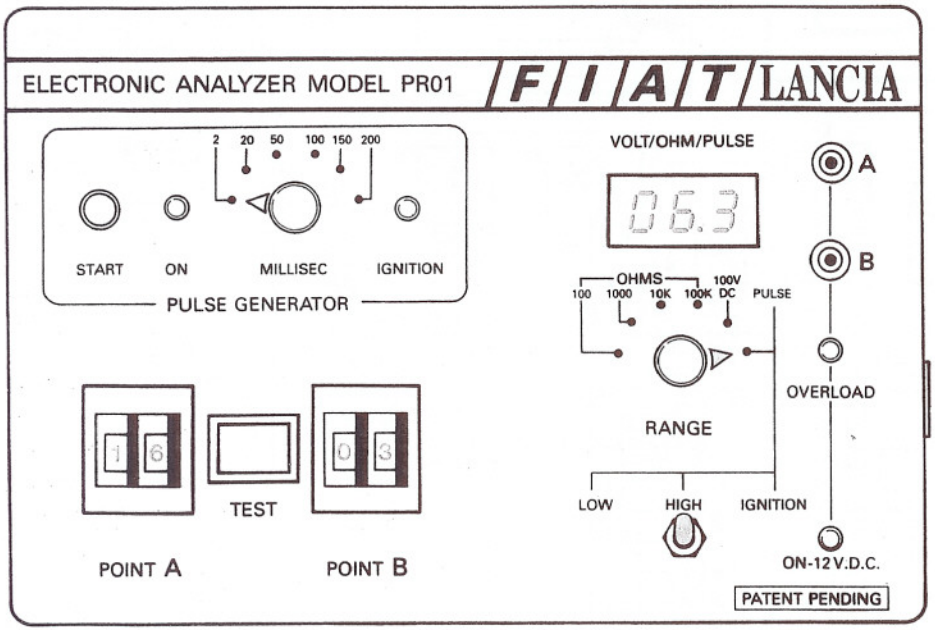
If the reading does not correspond with the value given, check and if necessary adjust the TDC sensor gap Repeat the test. If the result is still negative, replace the TDC sensor as it is faulty.



See the key on page 166 to identify the system components.

10.

CHECKING ENGINE RPM SENSOR GAP AND MAGNETIC EFFICIENCY (ON BELL HOUSING)



Multimeter position
PULSE

Switch position
HIGH

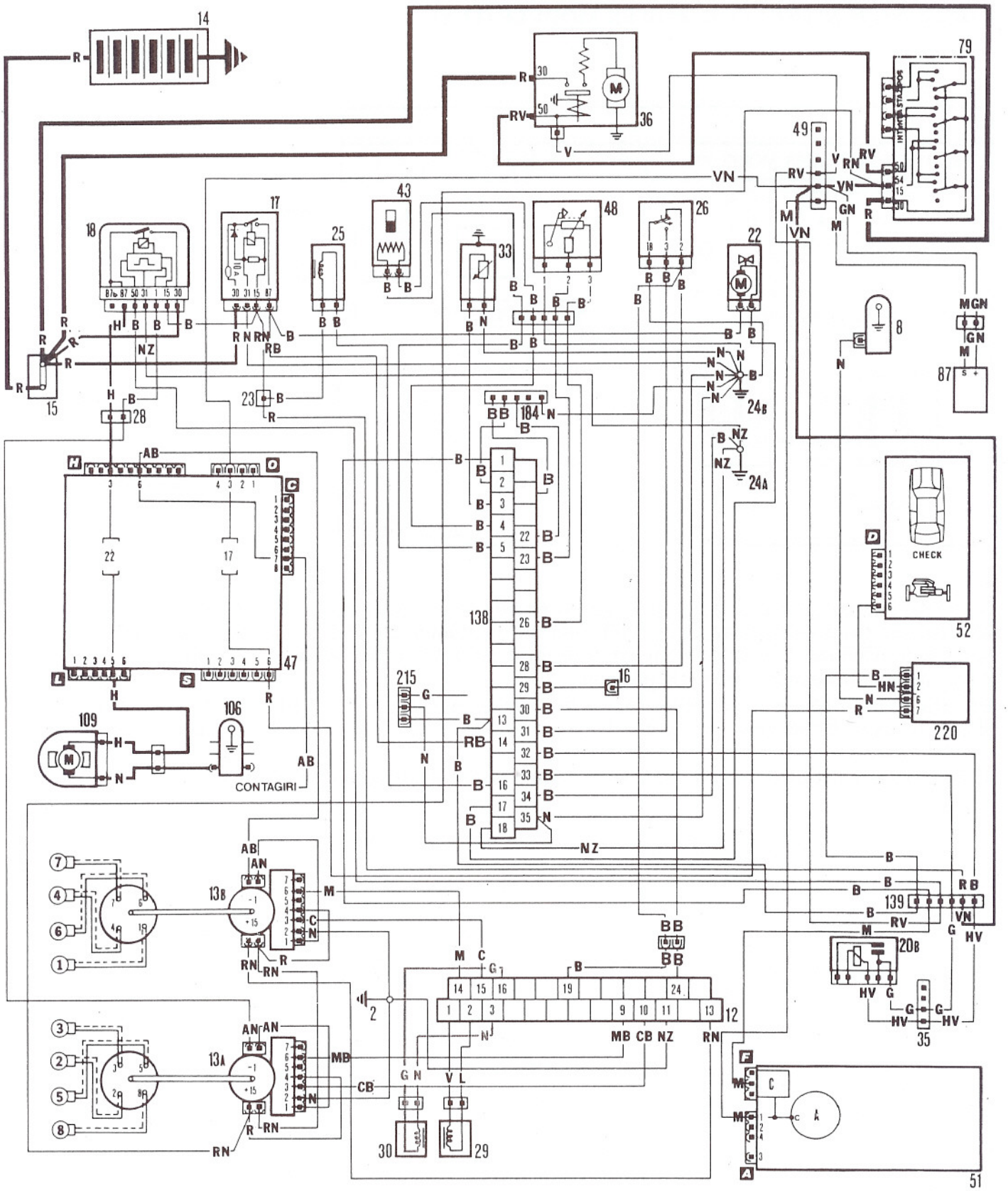
Selector position
A 16
B 03

Start up the engine for around 15 seconds

Instrument reading: NORMAL VALUE above 4

If the reading differs from the figure given, check and if necessary adjust the rpm sensor gap. Repeat the test. If the result is still negative, replace the rpm sensor.

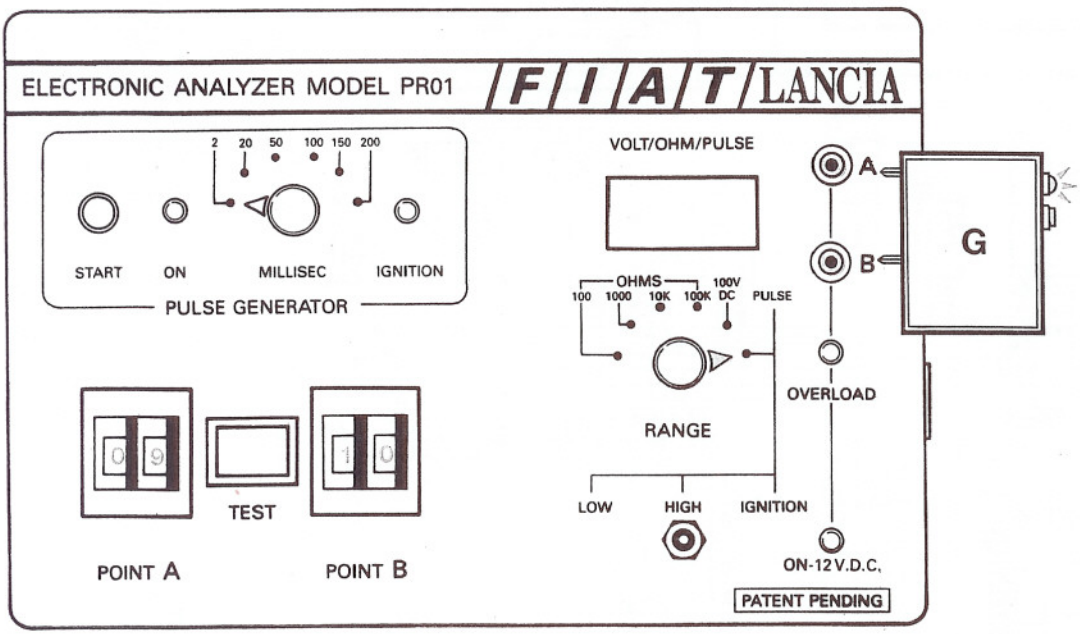
If the results of all these tests conform with the values given, check the continuity of the ignition coil primary windings and the cables connecting them to the Microplex electronic control unit using an ohmmeter.



See the key on page 166 to identify the system components.

10.

CHECKING IGNITION COIL POWER MODULE (13 A)



Multimeter position
PULSE

Selector position
A 09
B 10

Insert the impulse generator (G) in the instrument red (A) and black (B) bushes. Remove the high tension lead coming front the ignition coil (13 A) from the distributor cap (8-5-2-3) and connect it to earth via a spark gap. Connect a cable between the instrument black bush (B) and an earth point.

Turn the ignition switch to the ON position.

Press the impulse generator (G) red button. The impulse generator (G) red LED should come on and a spark should be seen. If there is no spark, check the continuity of the circuit shown in the diagram overleaf using an ohmmeter.

If no faults are detected, replace the power module on the ignition coil (13 A).