



**BX GTI 16 Valves**

**"MOTRONIC ML 4.1."**

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## COMPONENTS OF THE ELECTRICAL CIRCUIT

Page 3 : Location of the items in the vehicle

Page 4 : Injection electrical circuit diagram

Number	Description	Made by	Reference	RP No.
45	Battery			
75	Ignition module		(MTR 01)	
131	Ignition sensor			
142	Electronic control unit (E.C.U.)	BOSCH	0 261 200 119	96 002 910
168	Battery connector			
192	Throttle spindle switch	BOSCH	0 280 120 310	91 519 925
229	Ignition switch			
302	Flowmeter	BOSCH	0 280 202 202	91 541 738
332	Idling actuator	BOSCH	0 280 140 516	91 540 797
576	Injectors	BOSCH	0 280 150 702	91 539 282
683	Fuel pump	BOSCH		95 470 530
720	Diagnostic plug			
731	Injection relay			96 011 361
749	Fuel pump relay	BOSCH		91 000 409
841	Coolant temperature sensor	BOSCH	0 280 130 026	

## PRINCIPLE OF OPERATION

The fuel is sprayed under a low pressure (3 bars approx.) upstream of the inlet valve by electronically controlled injectors. The excitation time for the injectors is very short (between 2 and 10 milli-seconds). The quantity of fuel sprayed varies according to the information the E.C.U receives.

## 1) Main parameters :

- Amount of air drawn into the cylinders : flowmeter "302"
- Engine rotational speed : transmitted by the flywheel sensor "131"

## 2) Variable parameters :

- Engine temperature : water temperature sensor "841"
- Temperature of the intake air : air temperature sensor (in the flowmeter)
- Idling, partial load, full engine load and deceleration : throttle spindle switch "192".

## 3) Precisely variable parameters :

- Enrichment during rapid acceleration : flowmeter (rapid movement of the flap)
- Enrichment after operation of the starter motor (independent of the engine temperature)
- Correction depending on the battery voltage.

## AUTODIAGNOSTIC

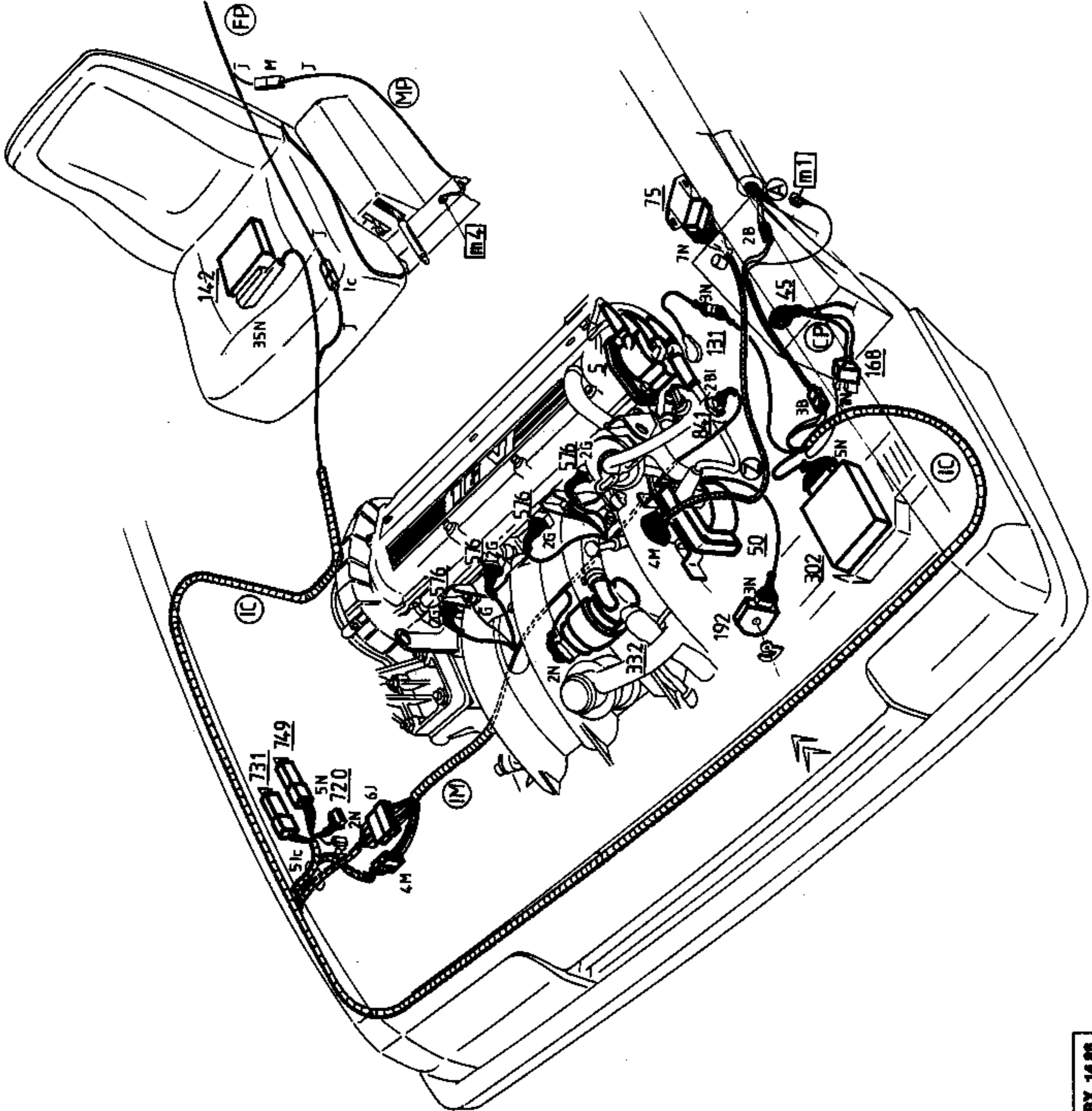
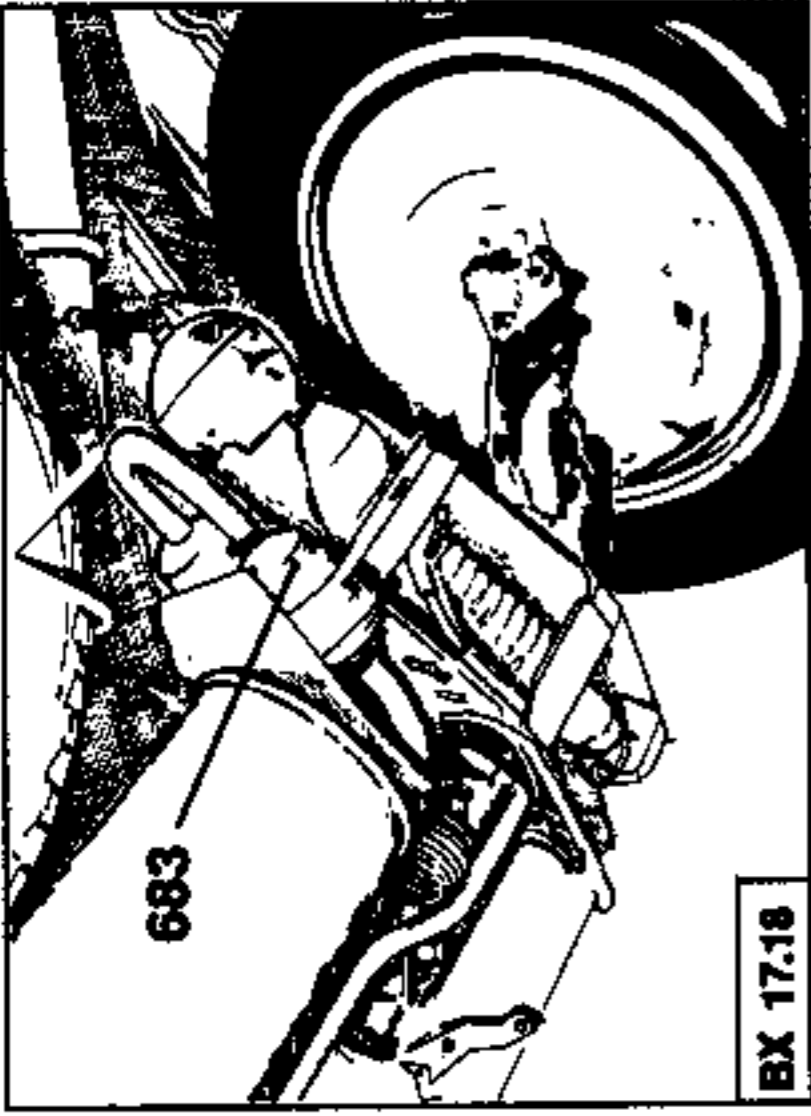
The ECU is equipped with an autodiagnostic system which memorises certain incidents (intermittent or permanent) which may happen when the vehicle is being driven.

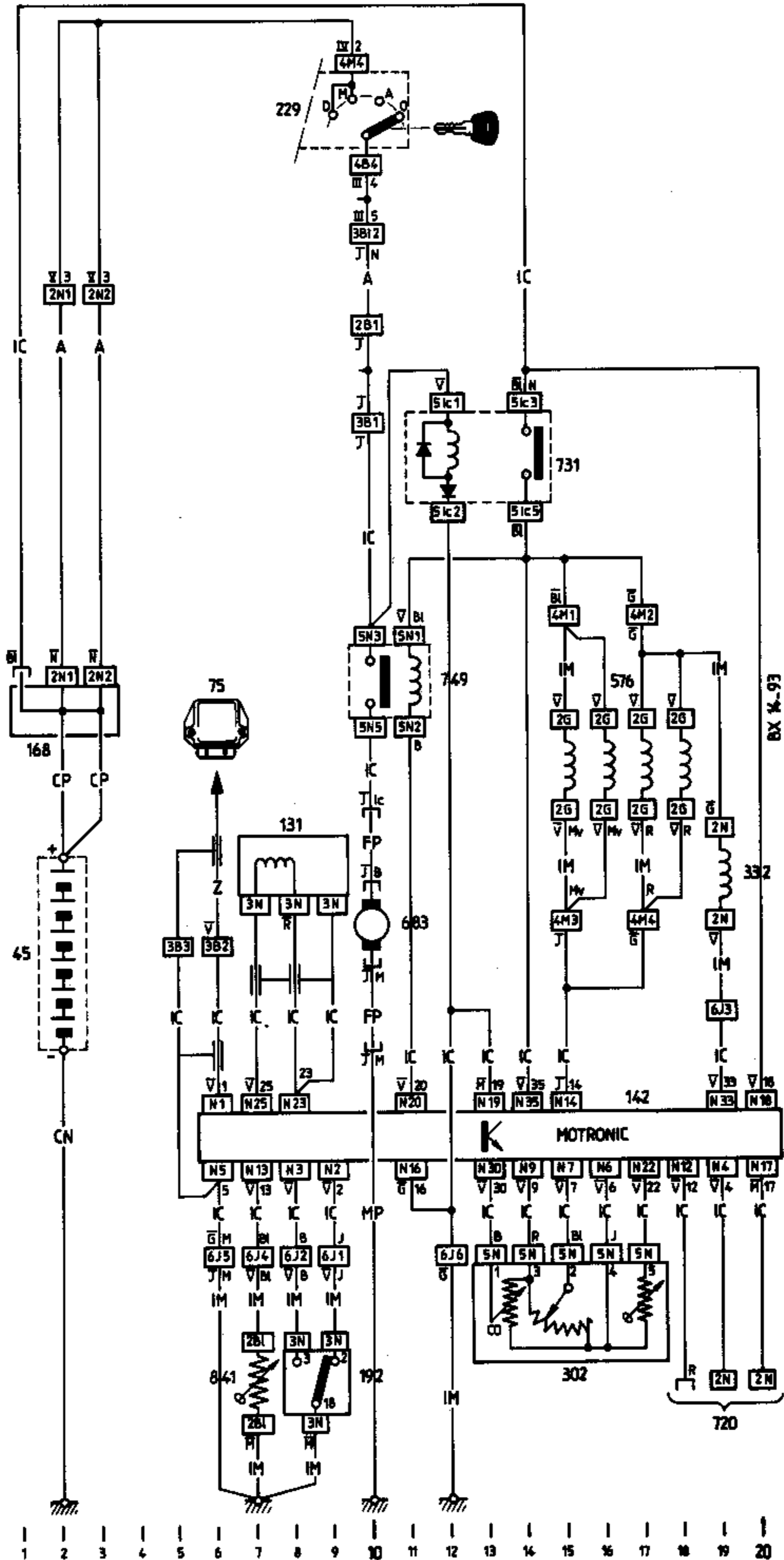
A **diagnostic plug** "720" (2 way black connector), to which can be connected an instrument adapted to extract the incidents from the memory of the ECU, makes it possible to "read" the faults.

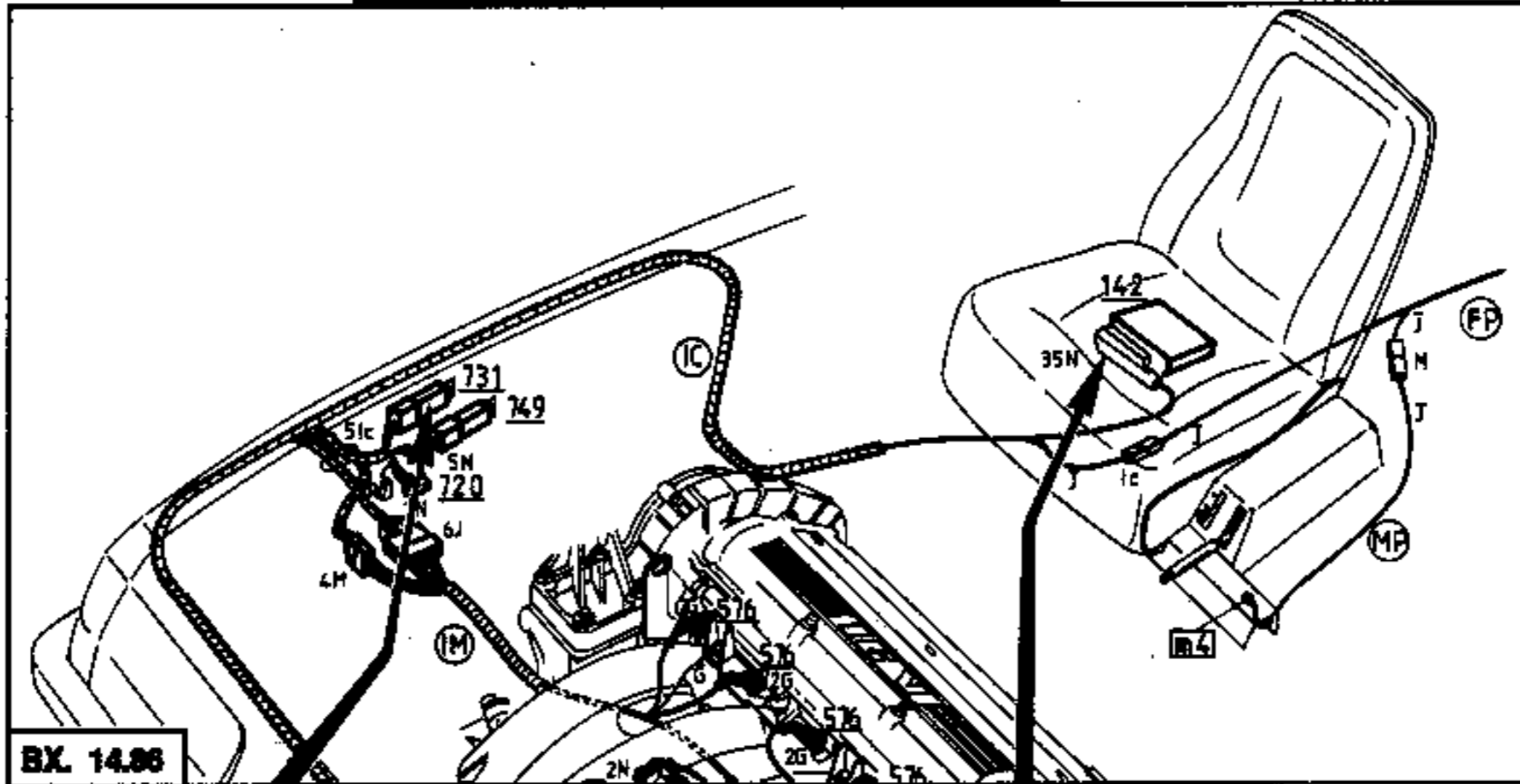
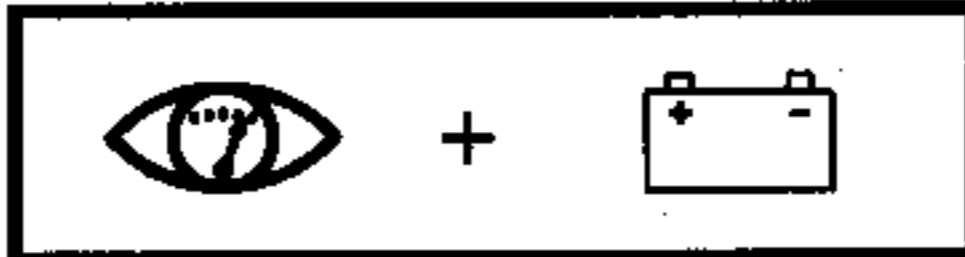
List of incidents which the ECU can memorise :

Code No	COMPONENTS OR CIRCUITS CONCERNED	EMERGENCY FUNCTION
13	Flowmeter air temperature sensor	X
14	Engine coolant temperature sensor	X
15	Fuel pump relay electrical supply	
21	Throttle butterfly switch idling contact	
22	Idling actuator	
33	Air flowmeter	X
35	Throttle butterfly switch full load contact	X
53	Battery voltage	
54	Electronic control unit	
55	Co mixture potentiometer (on flowmeter)	X
12	Start of test sequence code	
11	End of test code	

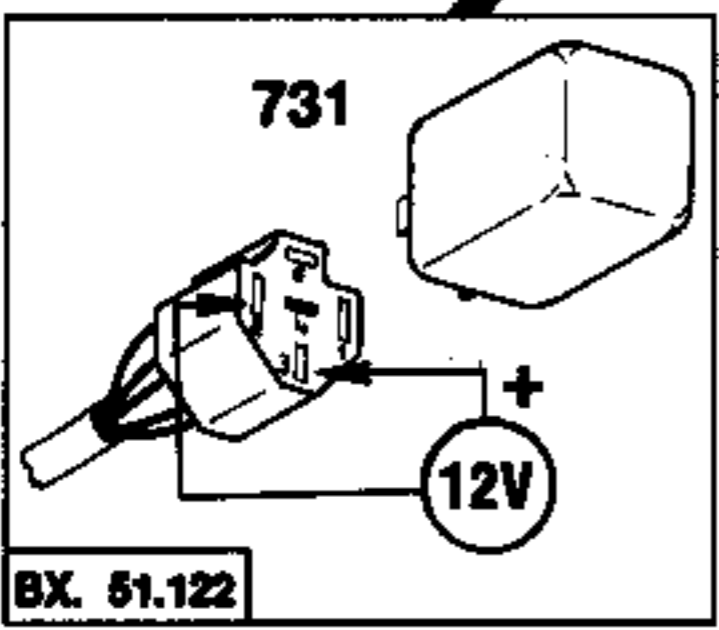
REMARK : Should certain components fail, the emergency functions of the ECU will allow the engine to keep on running (see the table opposite).



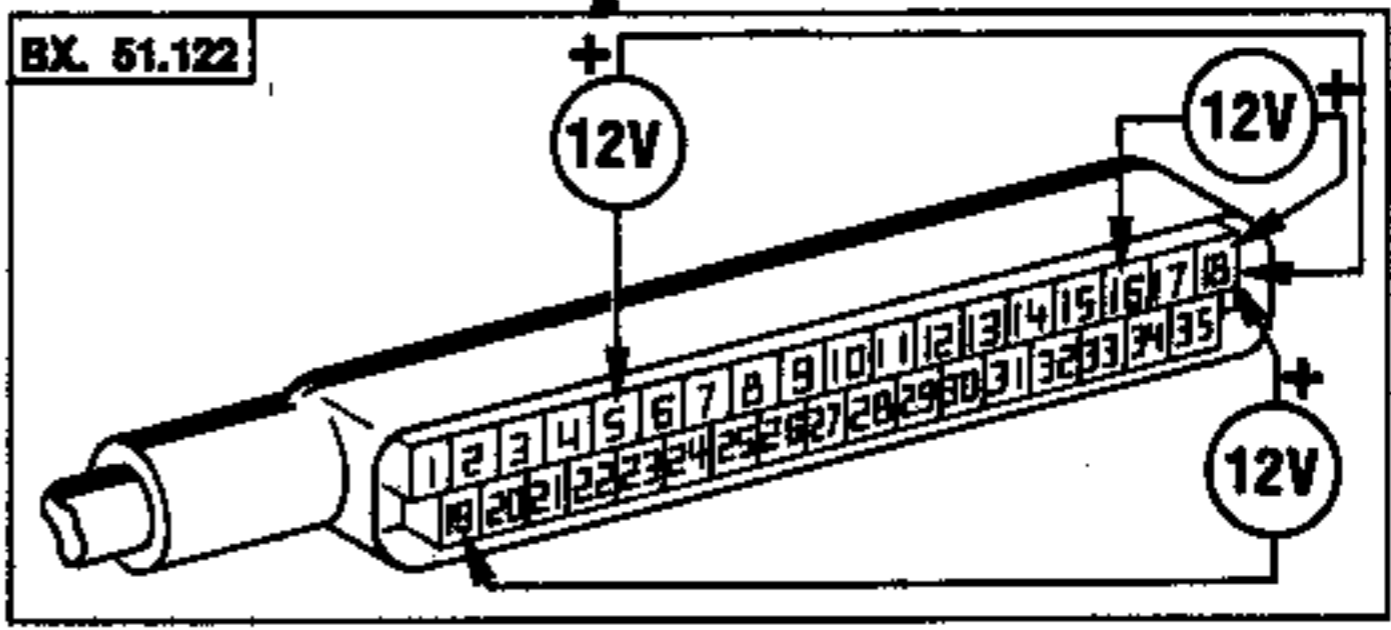




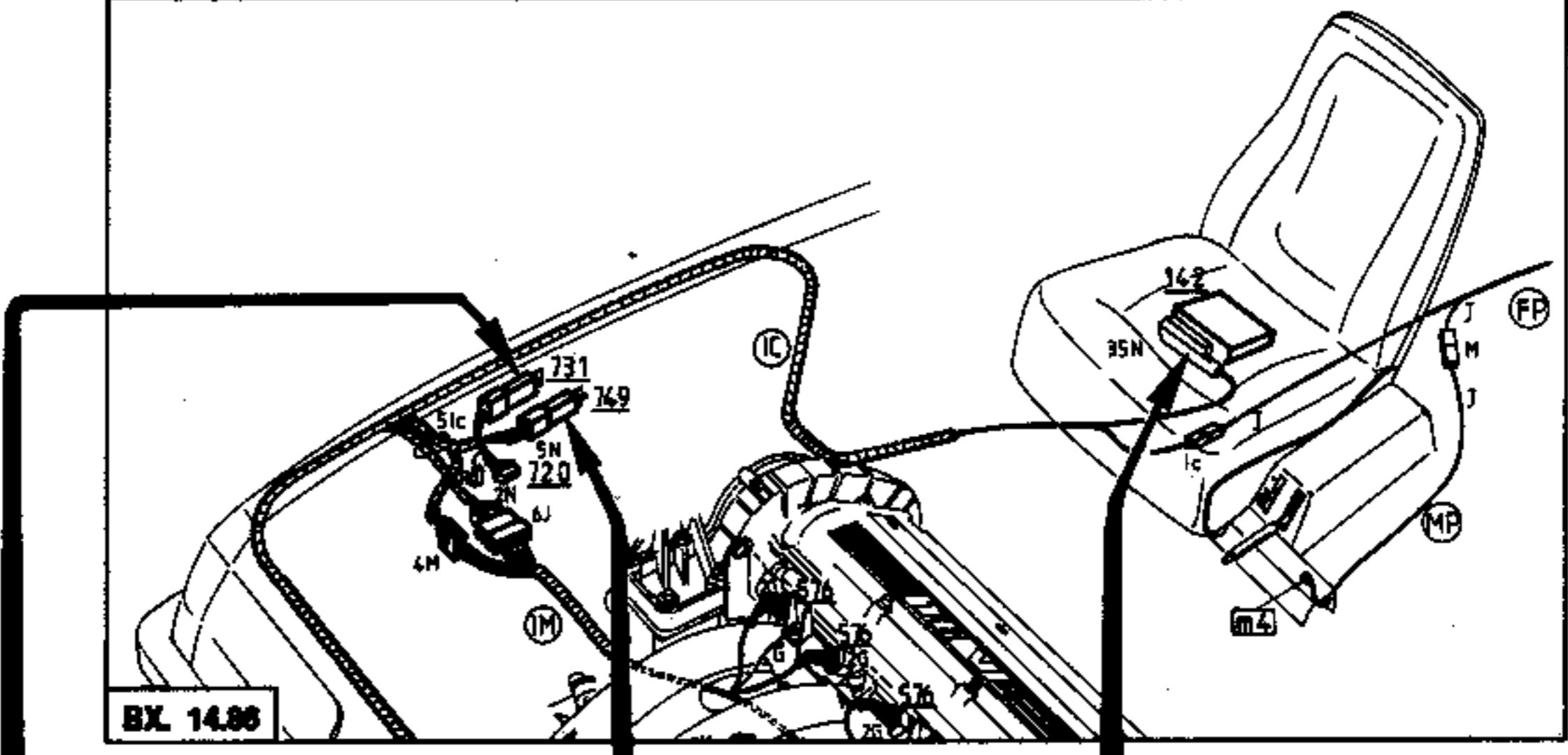
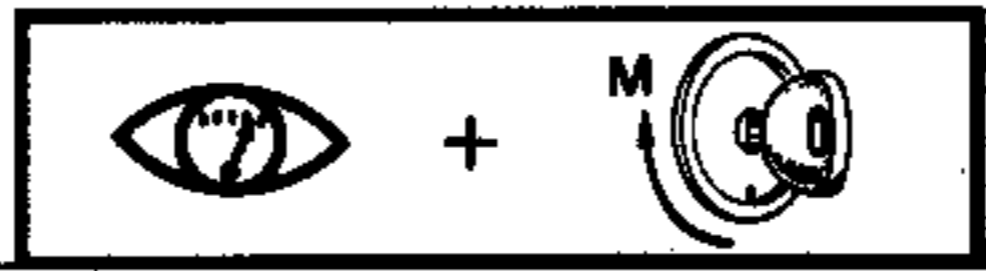
BX. 14.86



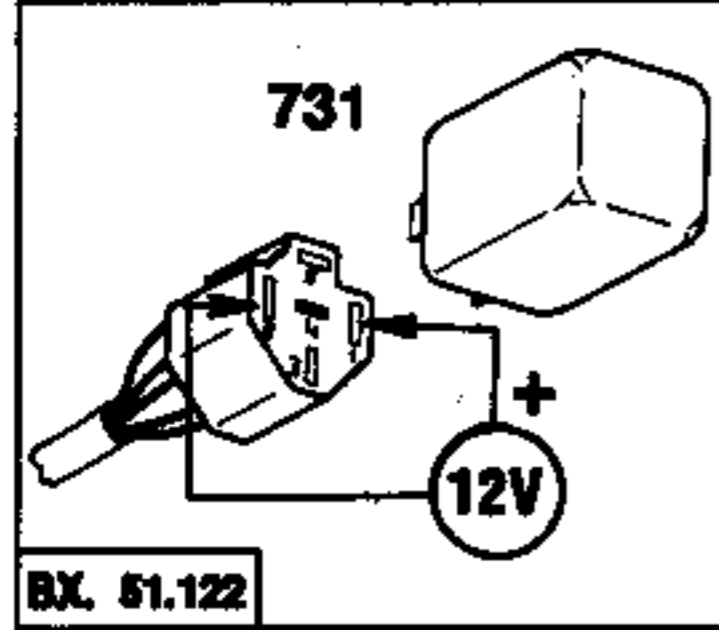
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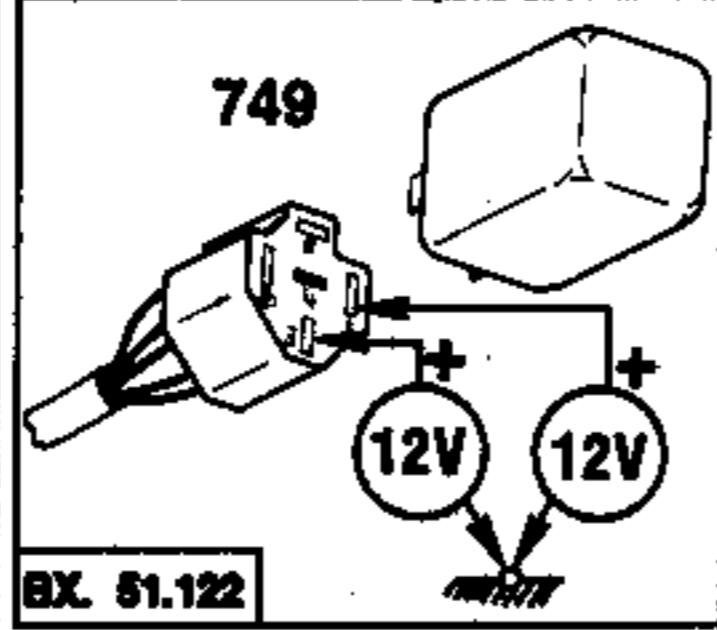
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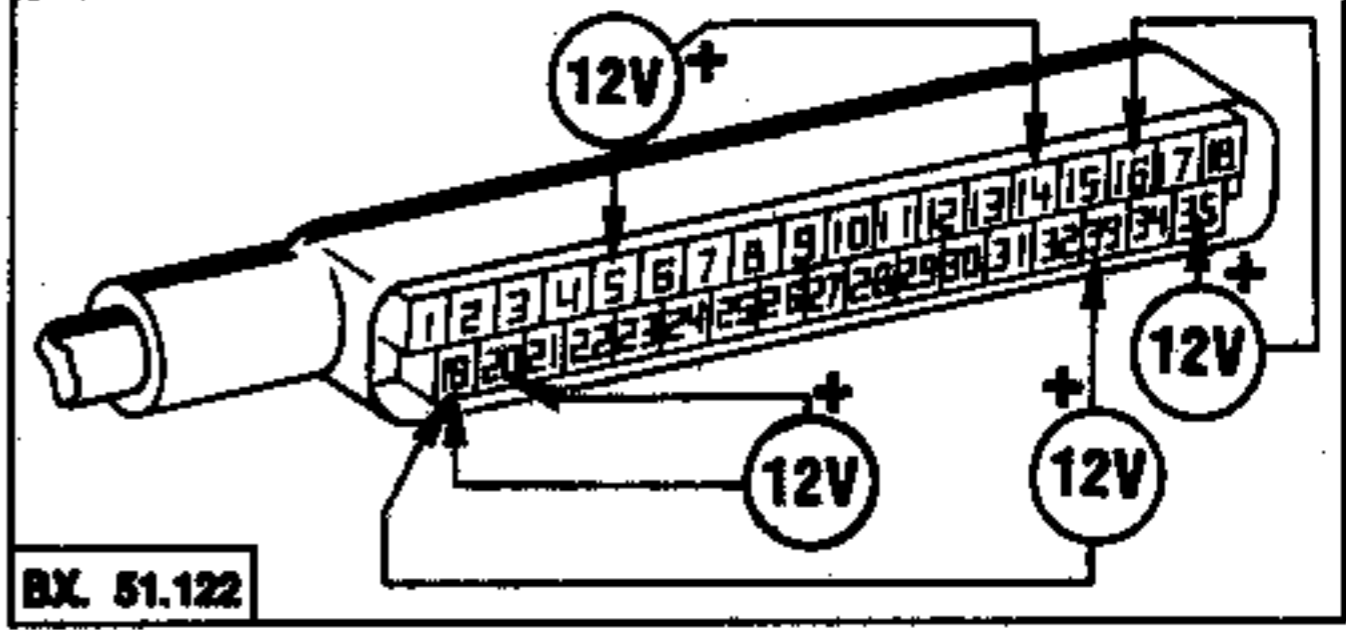
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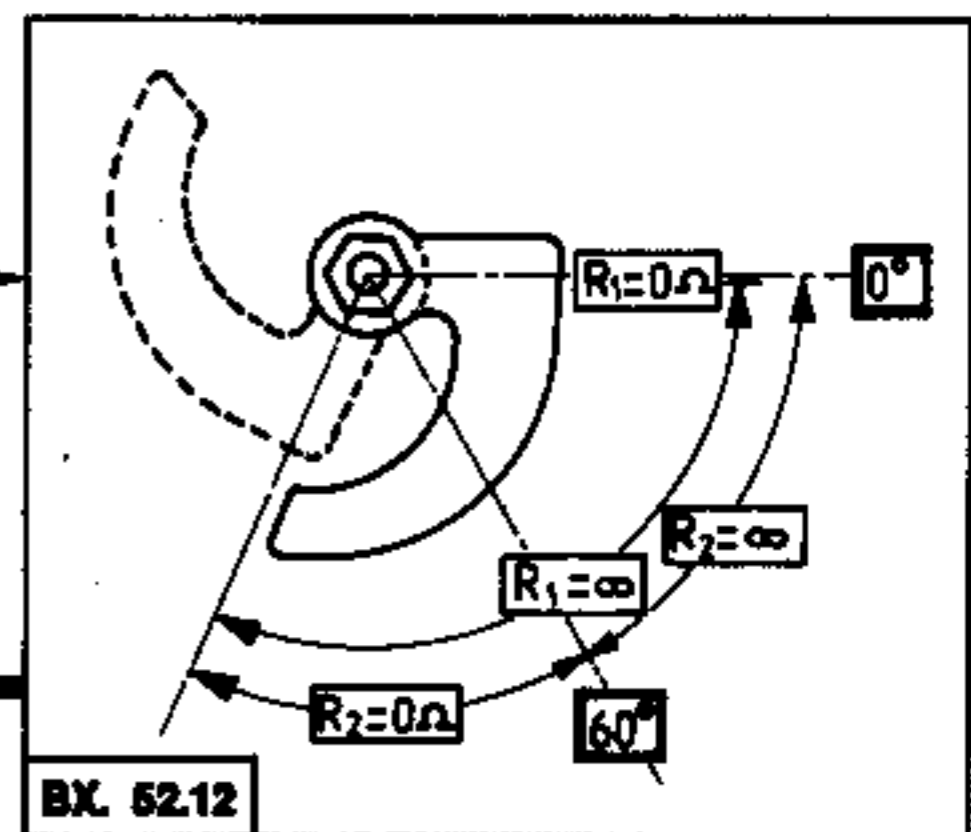
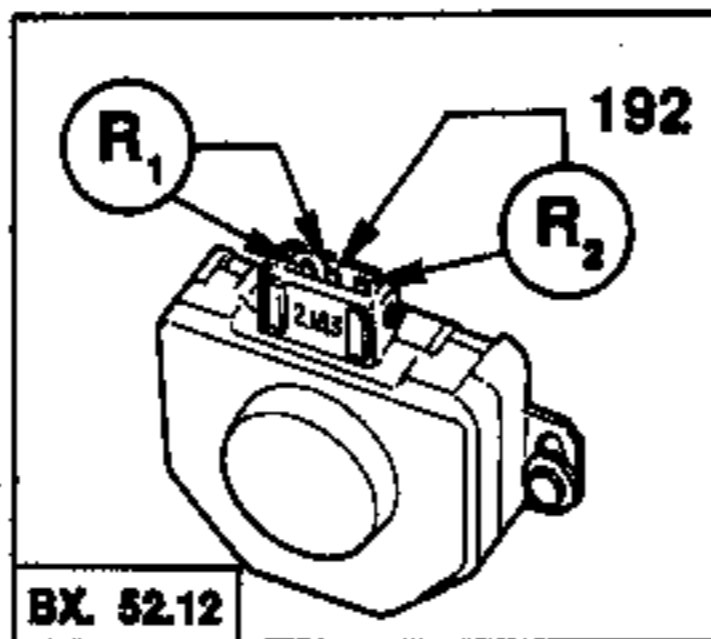
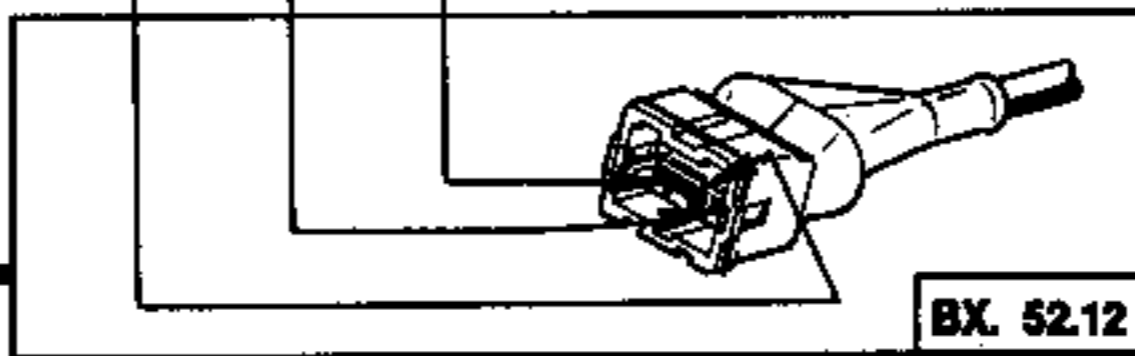
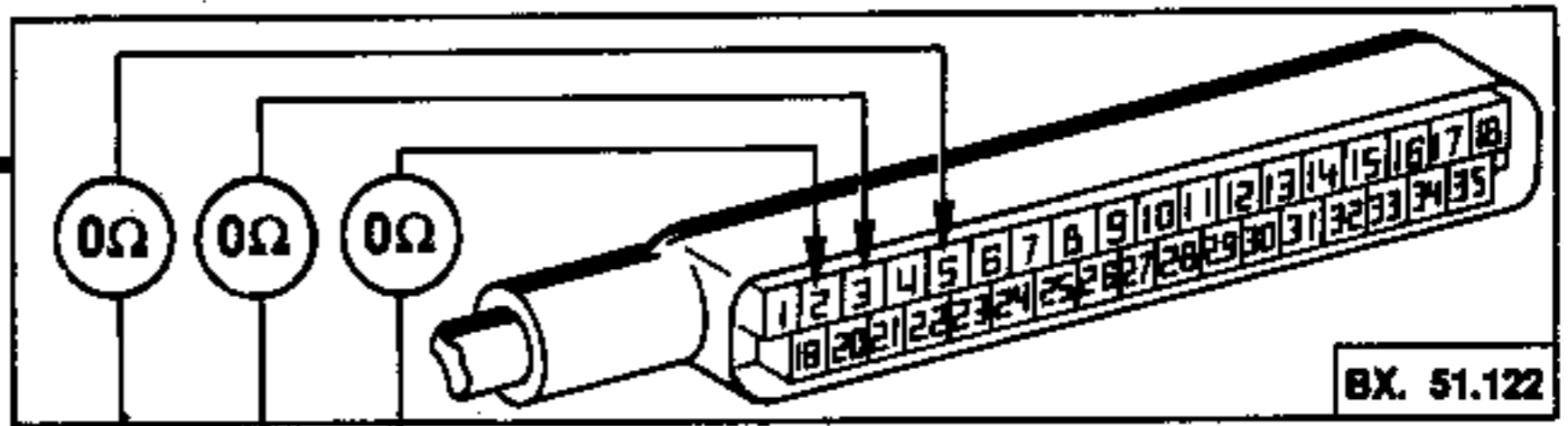
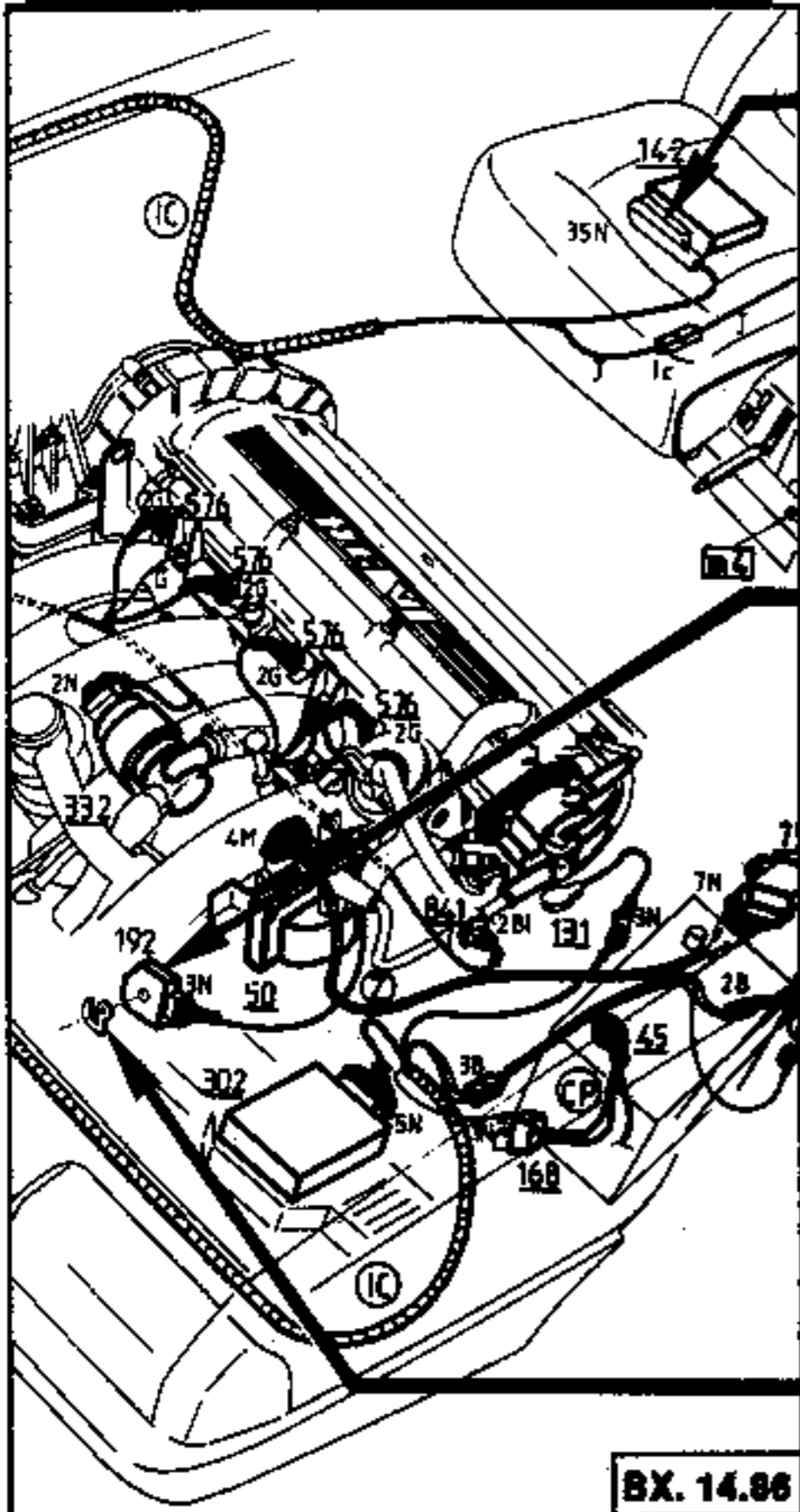
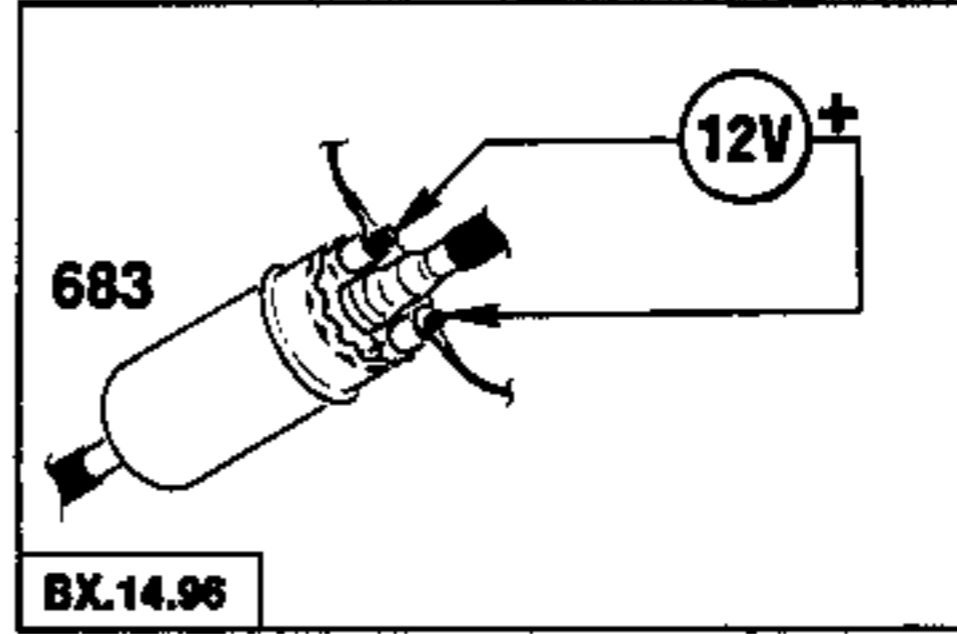
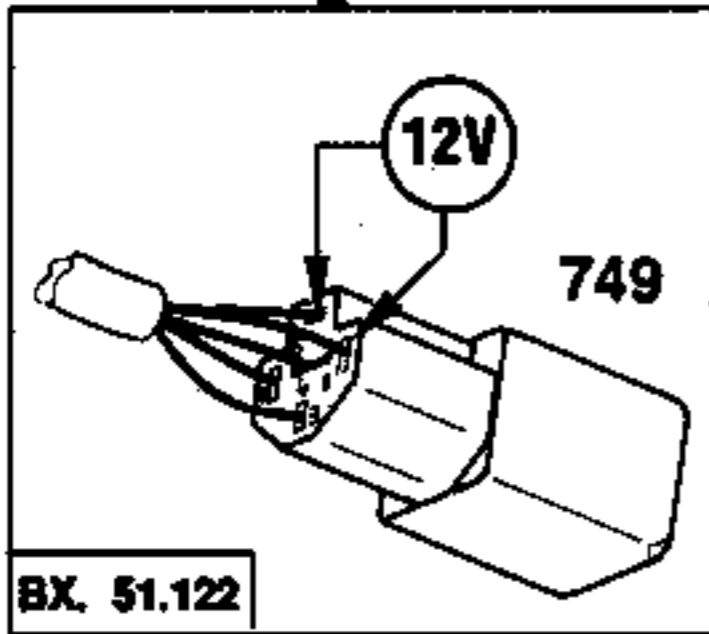
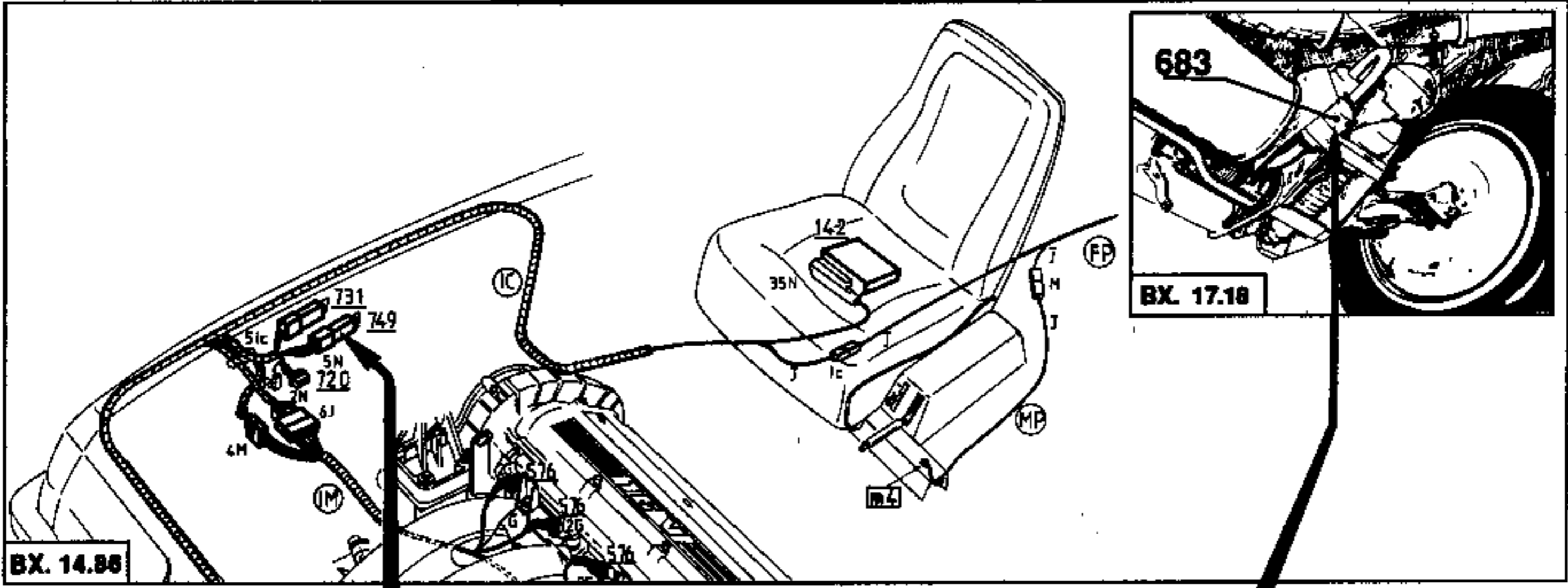
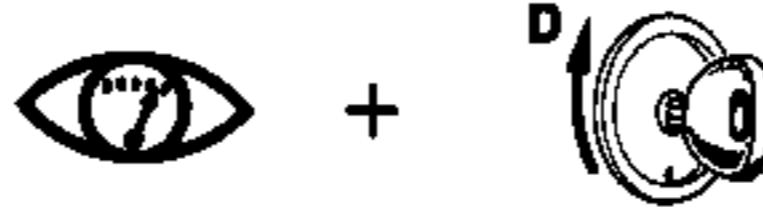
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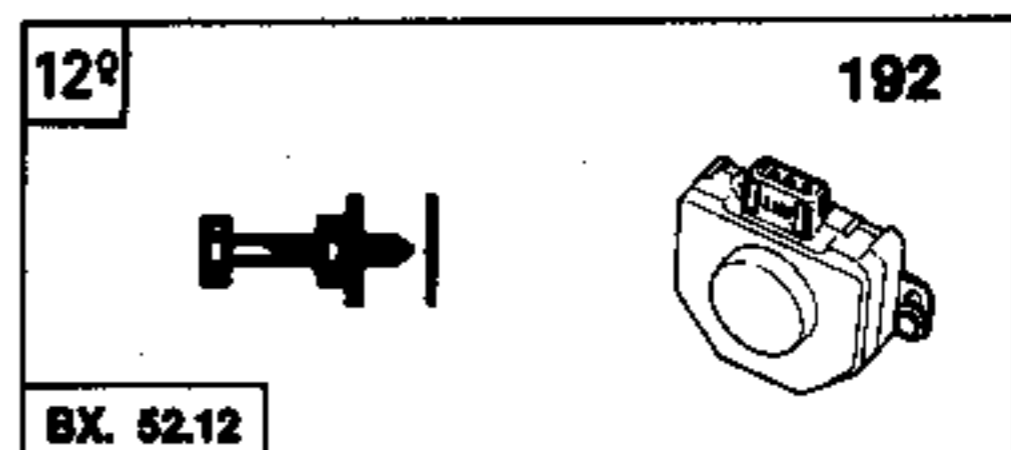
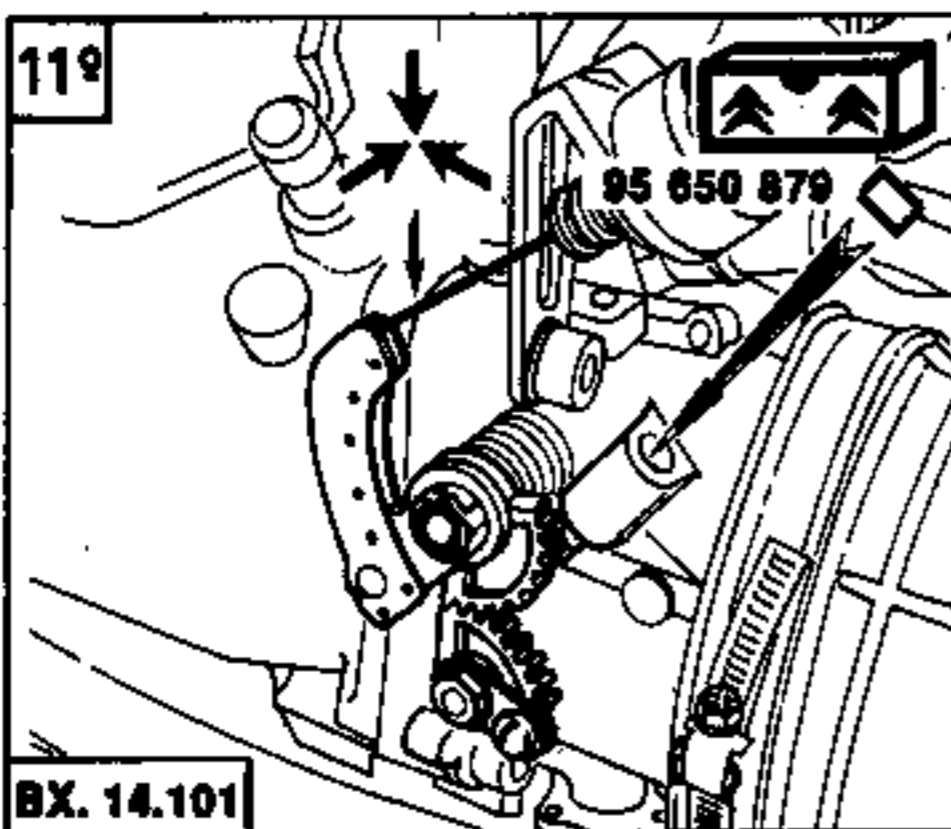
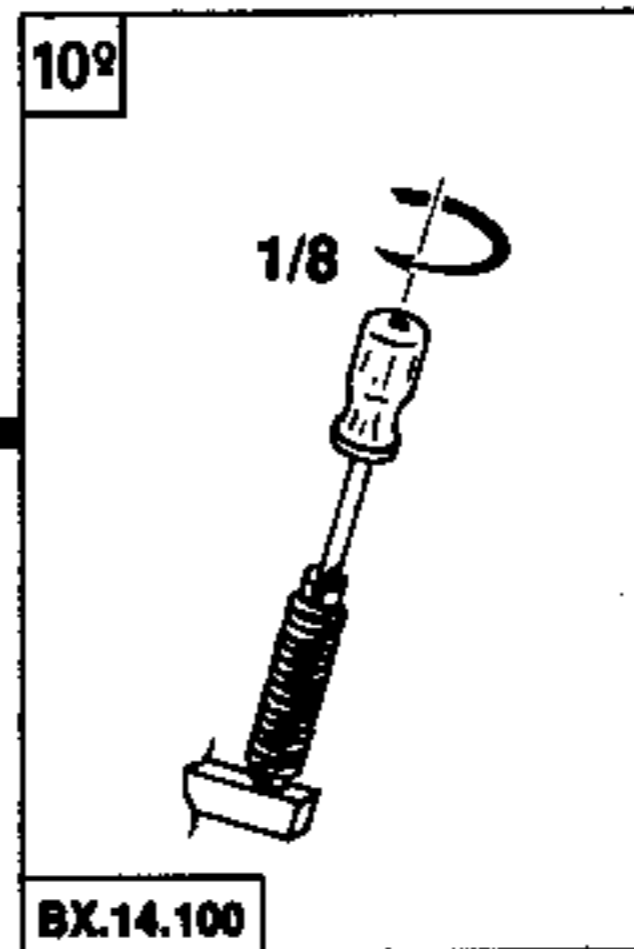
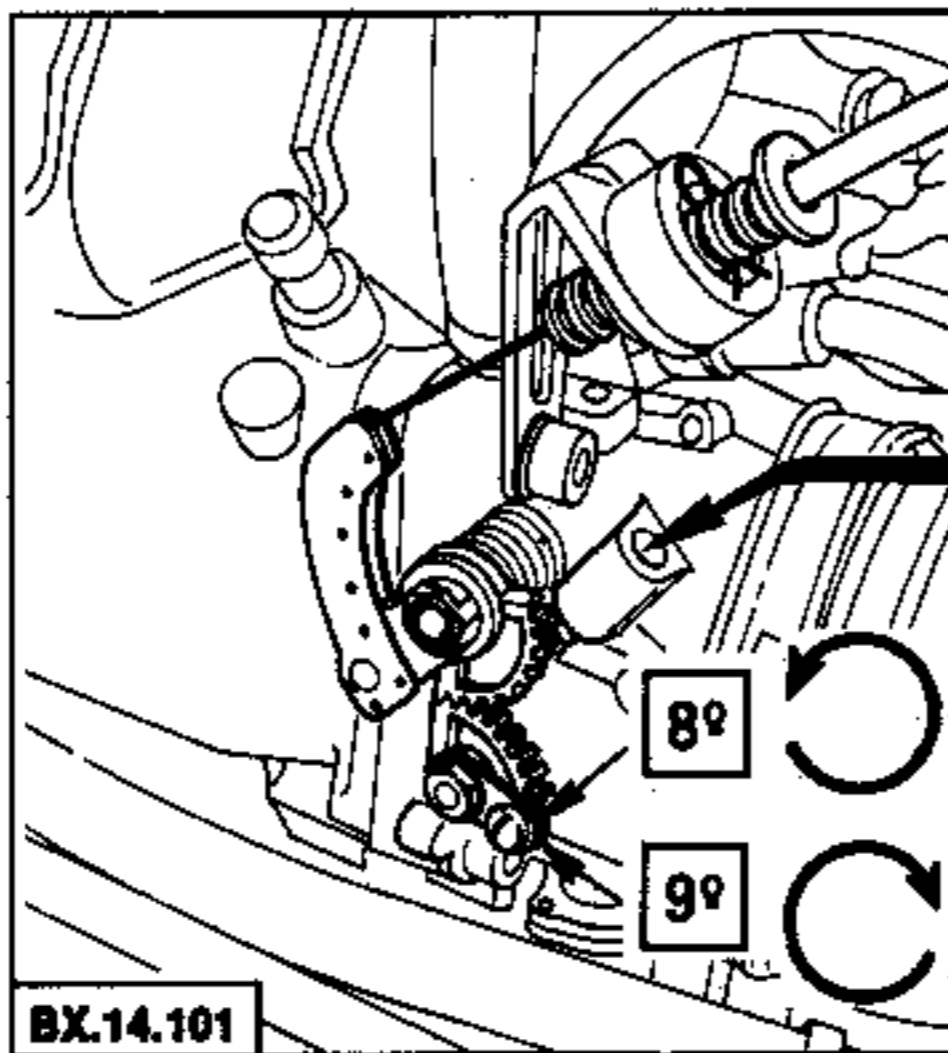
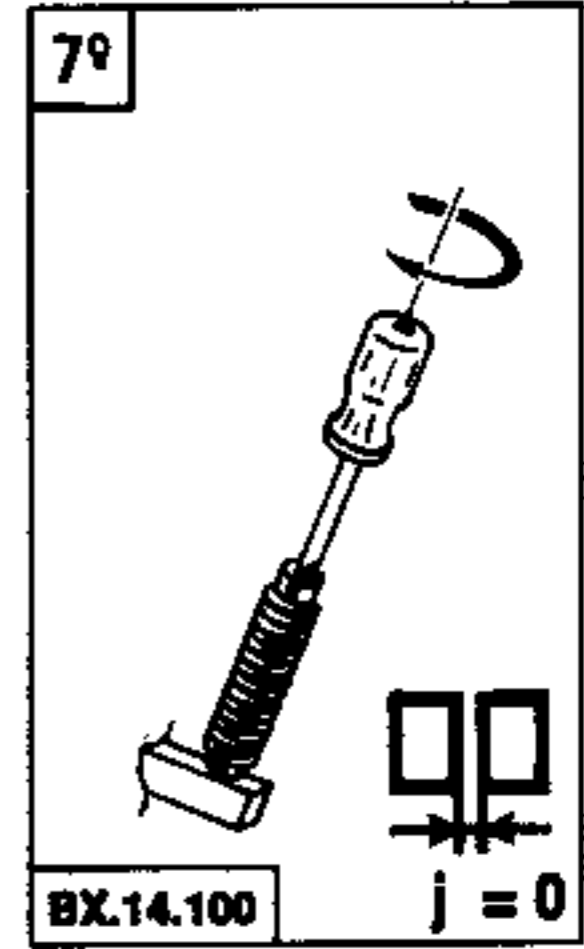
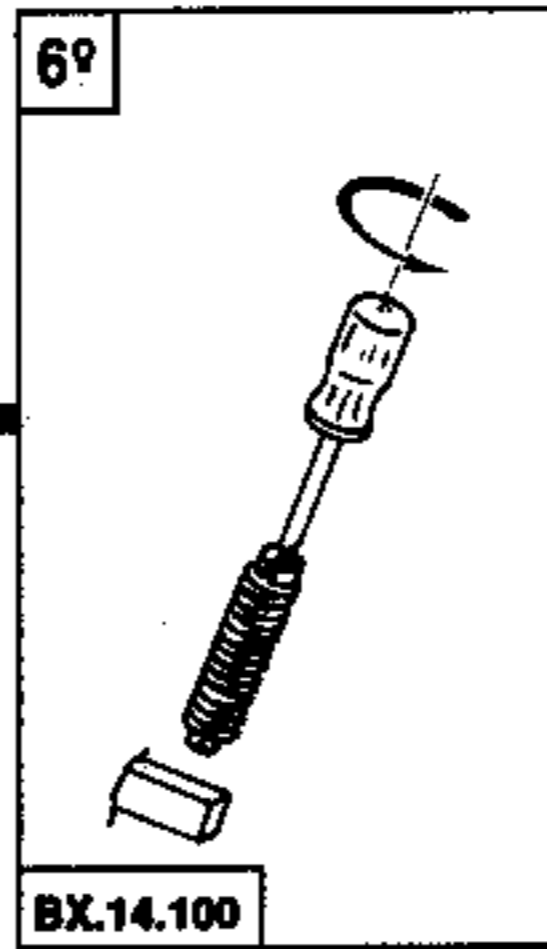
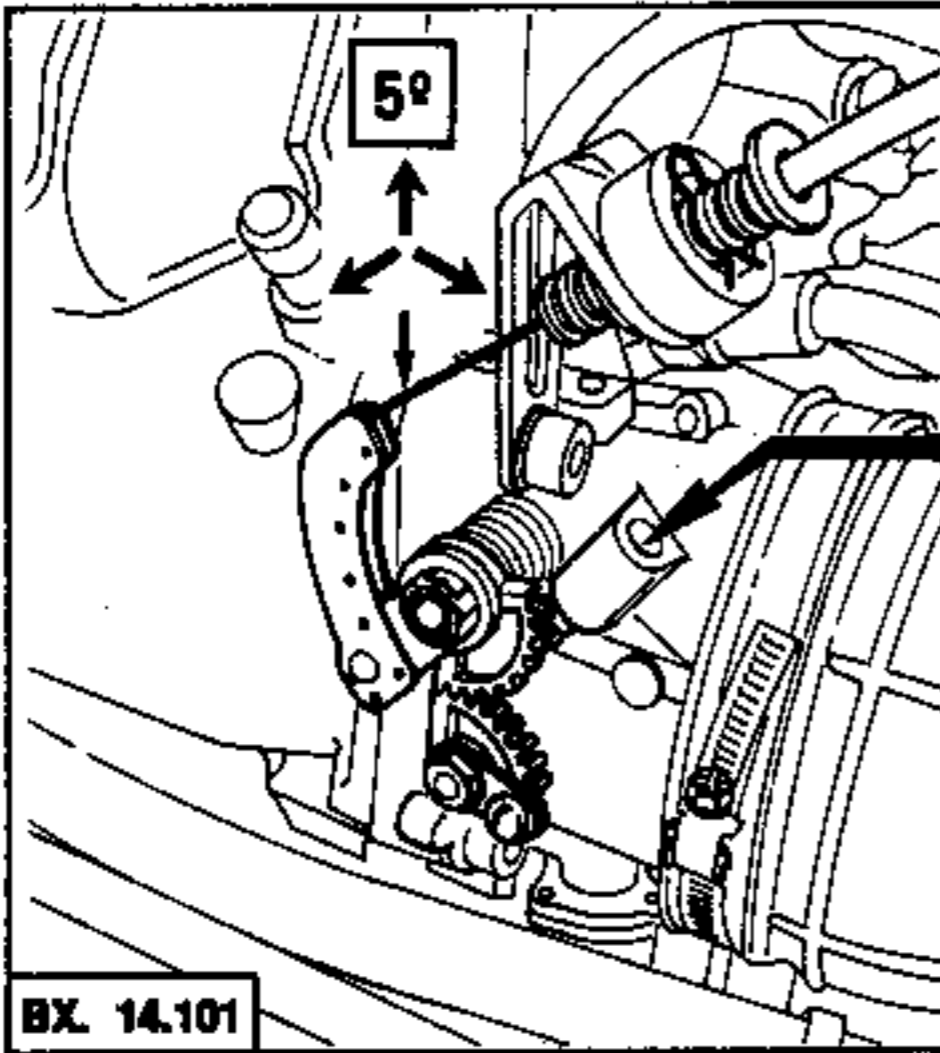
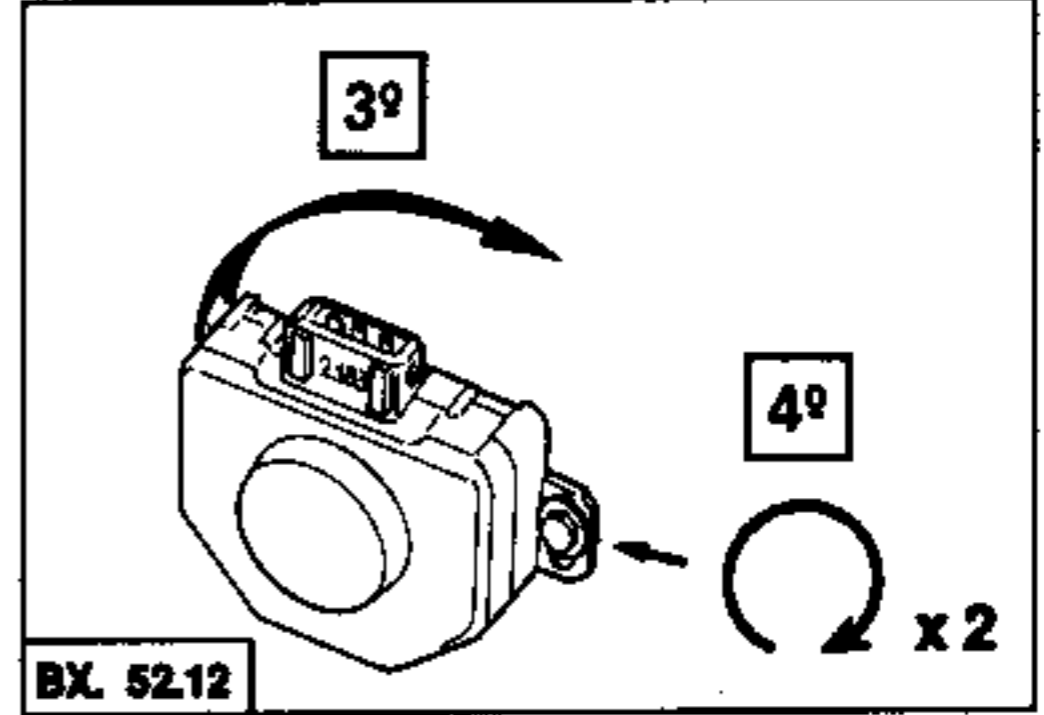
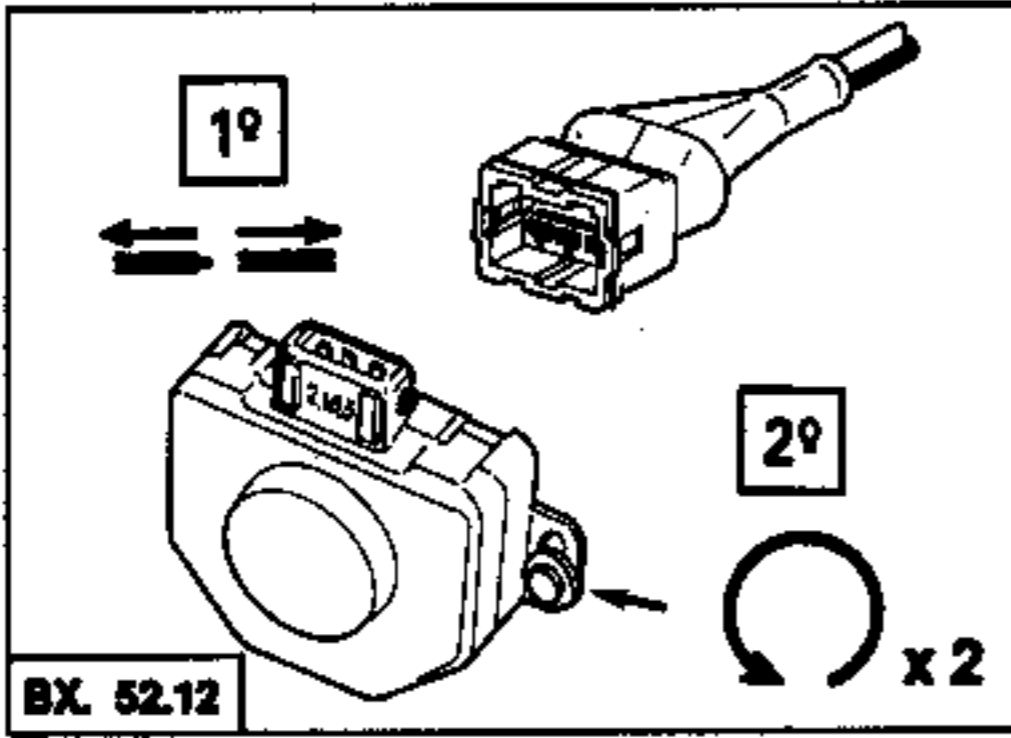
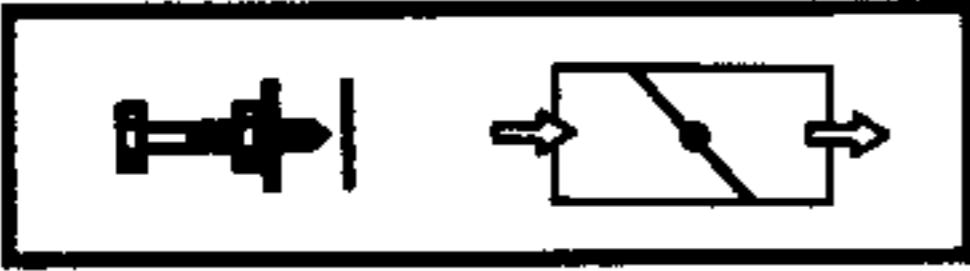


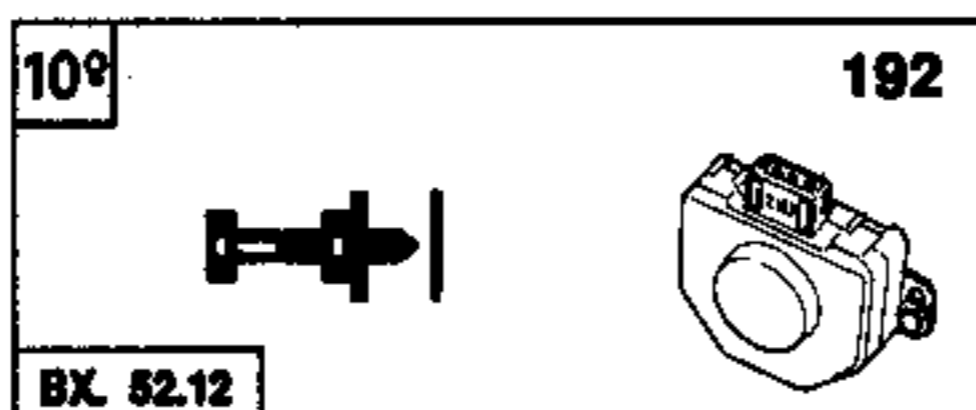
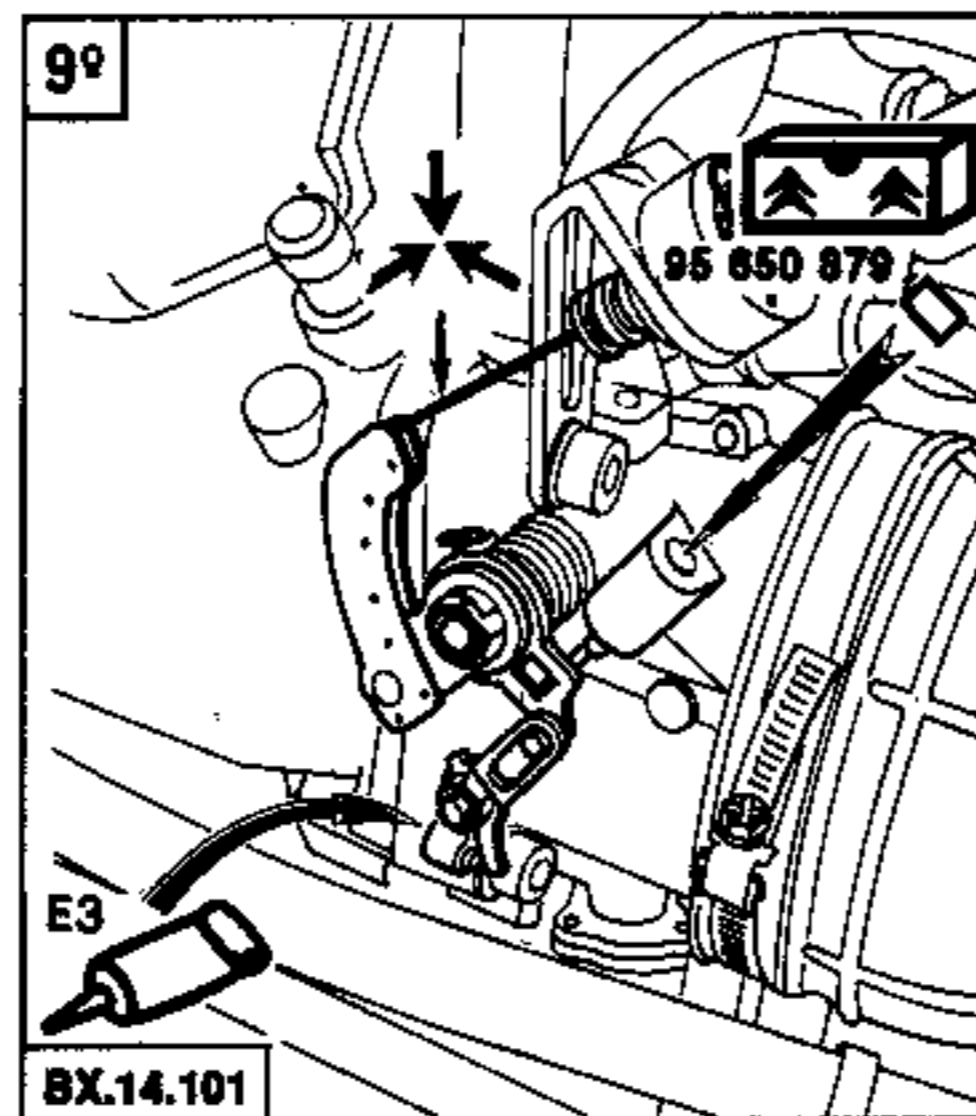
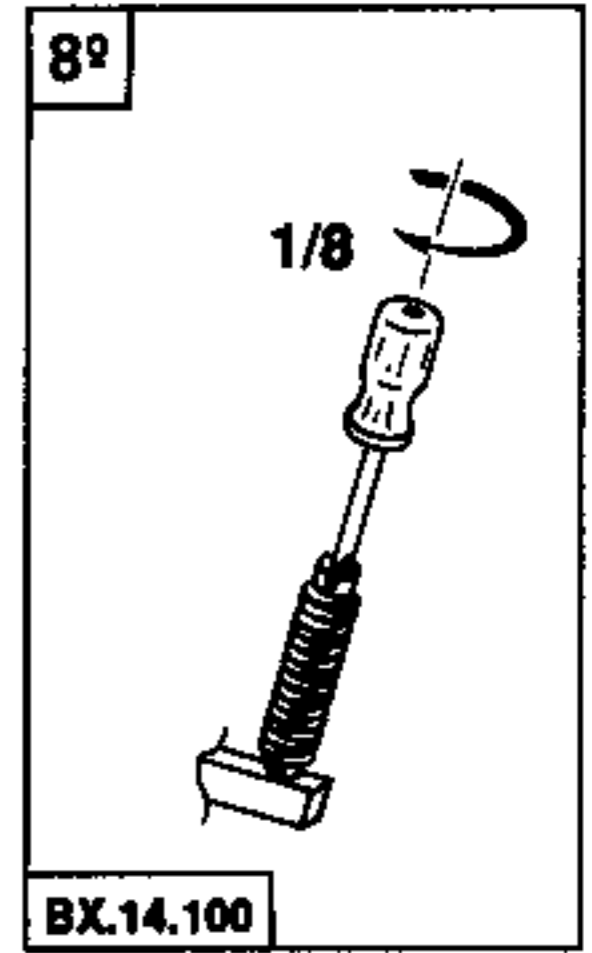
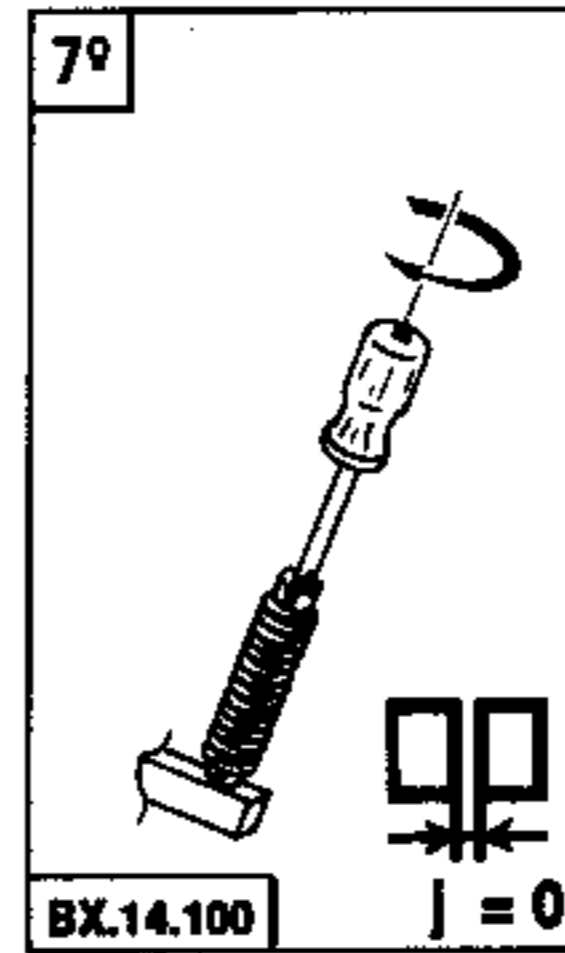
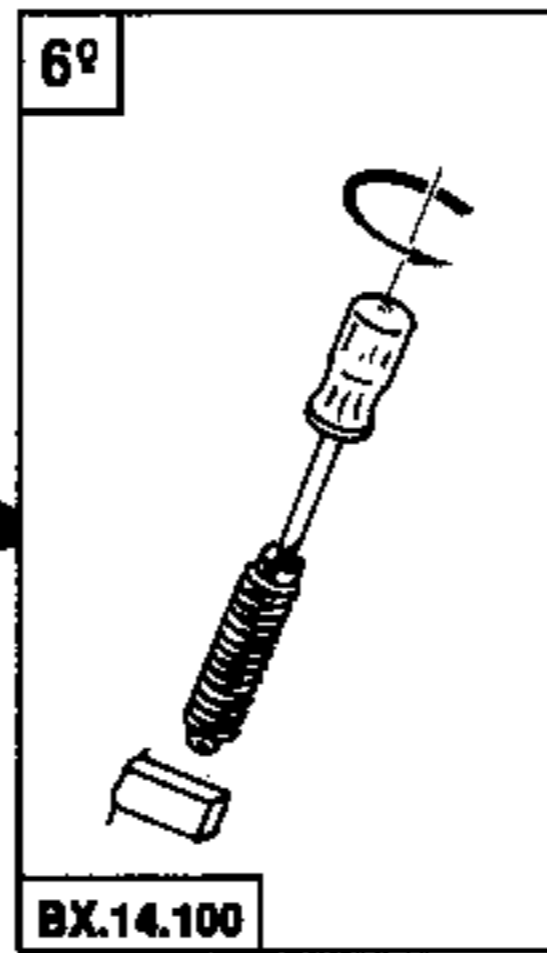
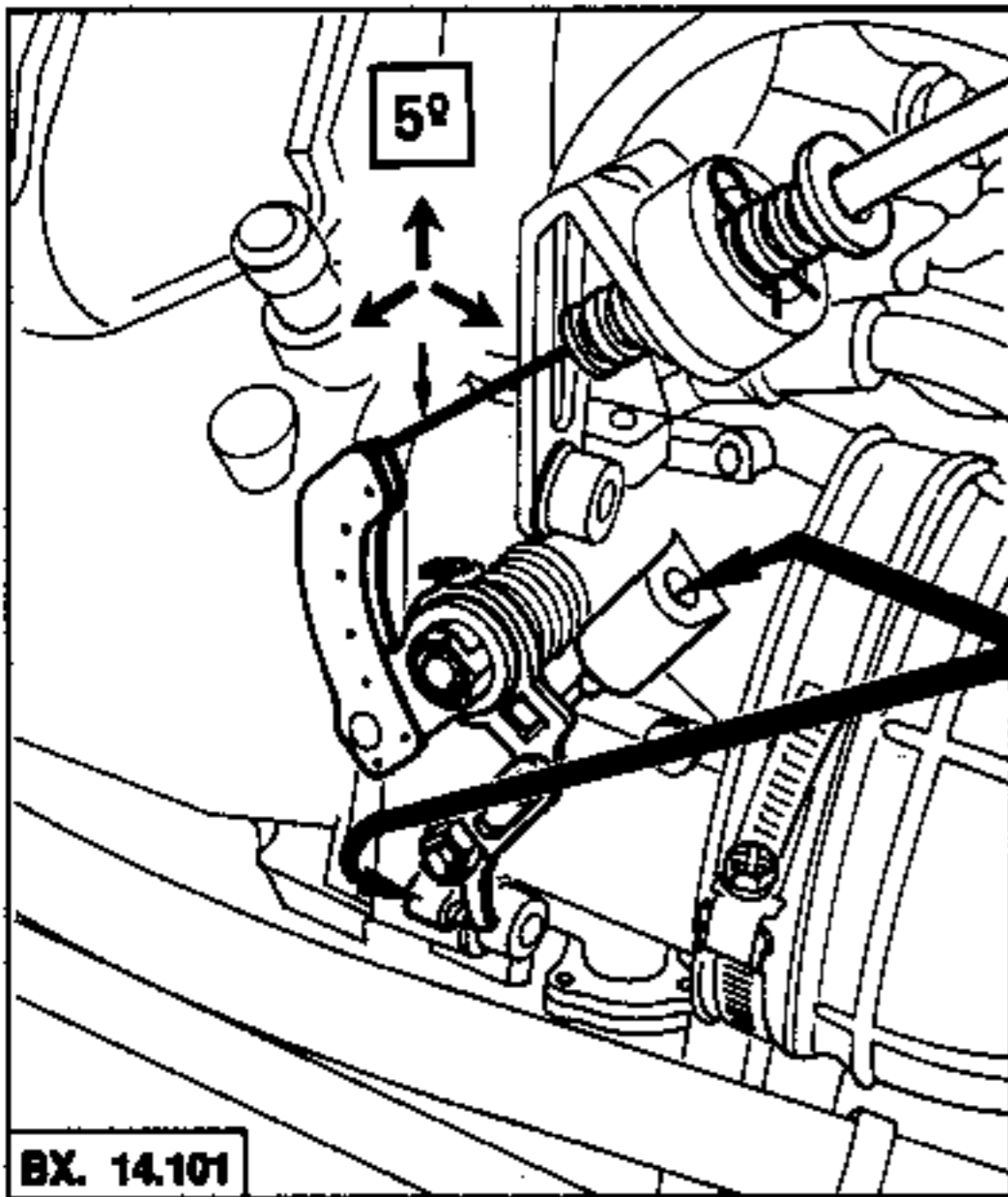
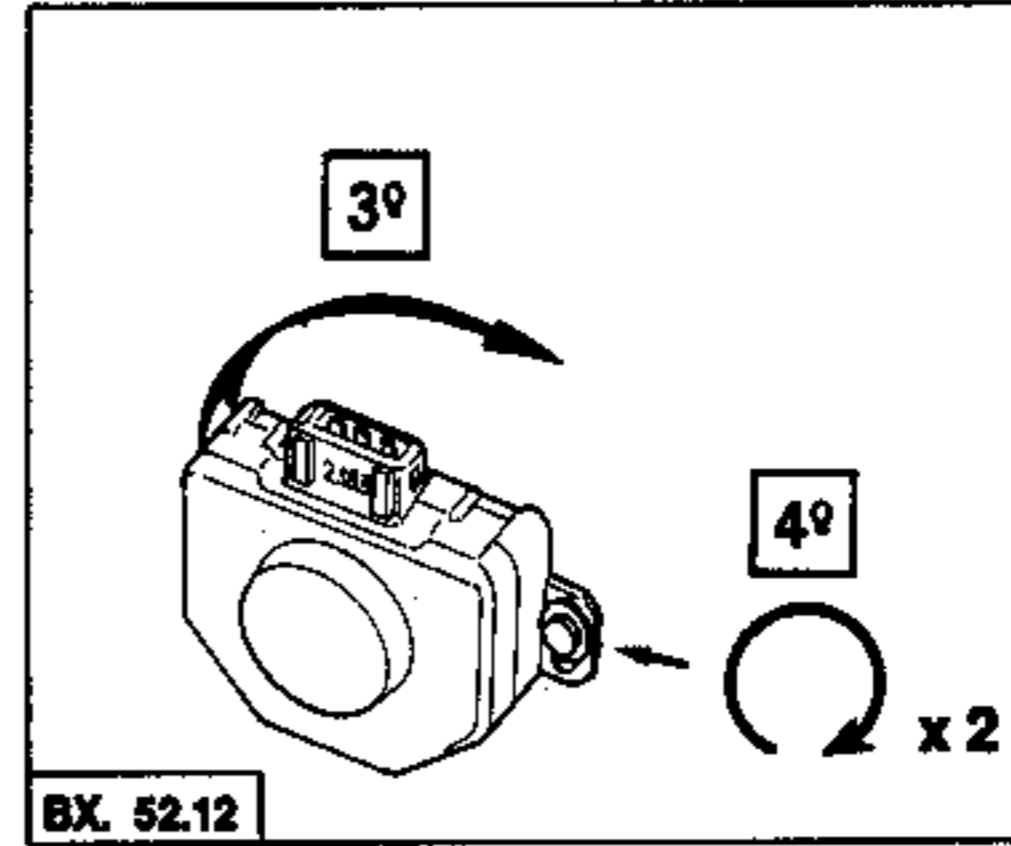
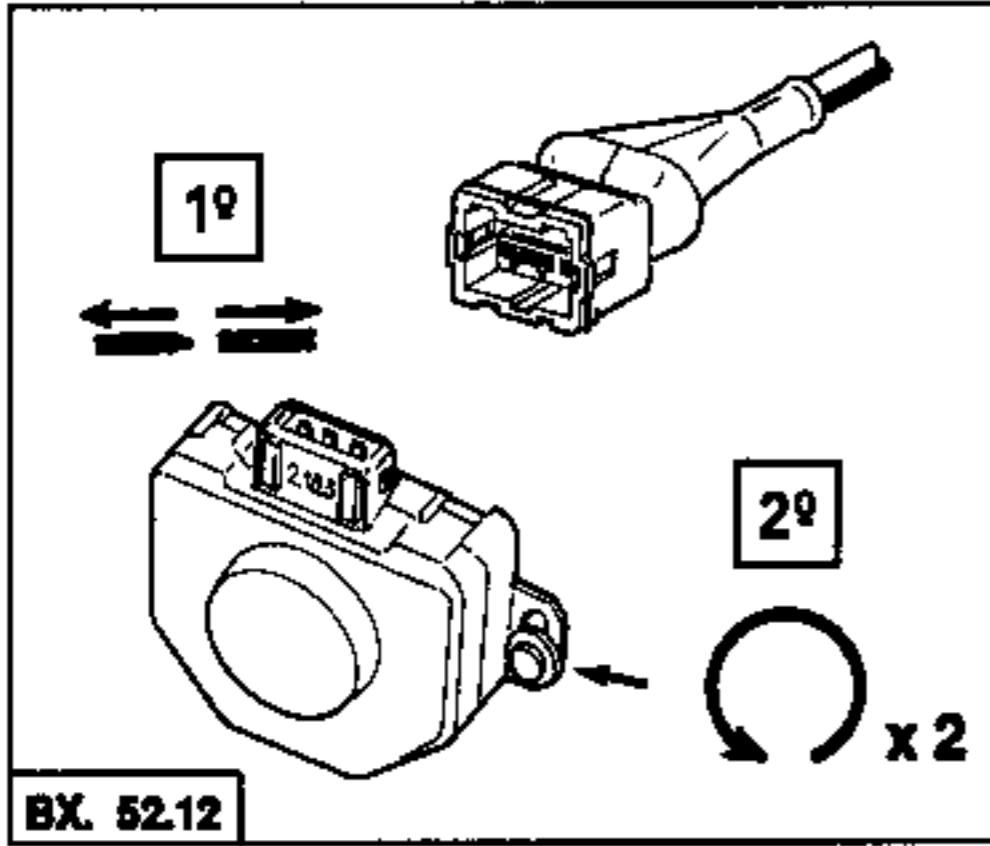
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BX. 51.122





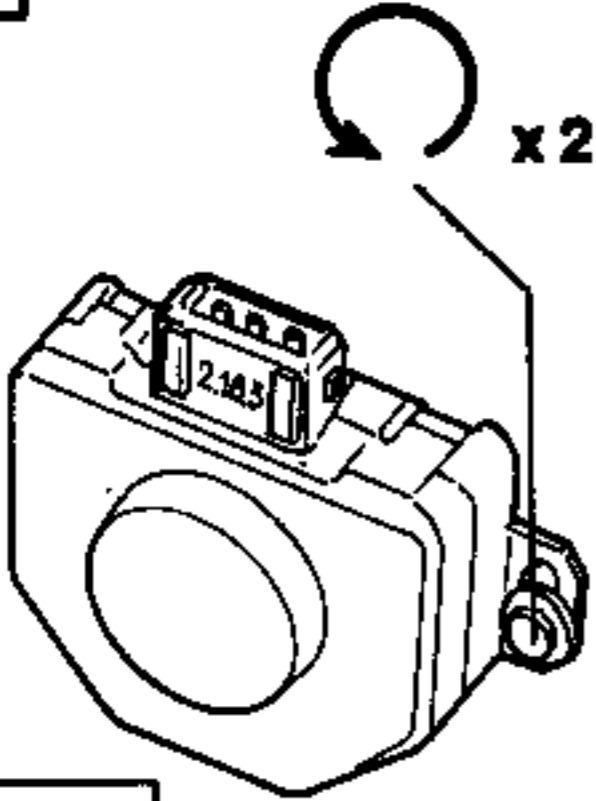






192

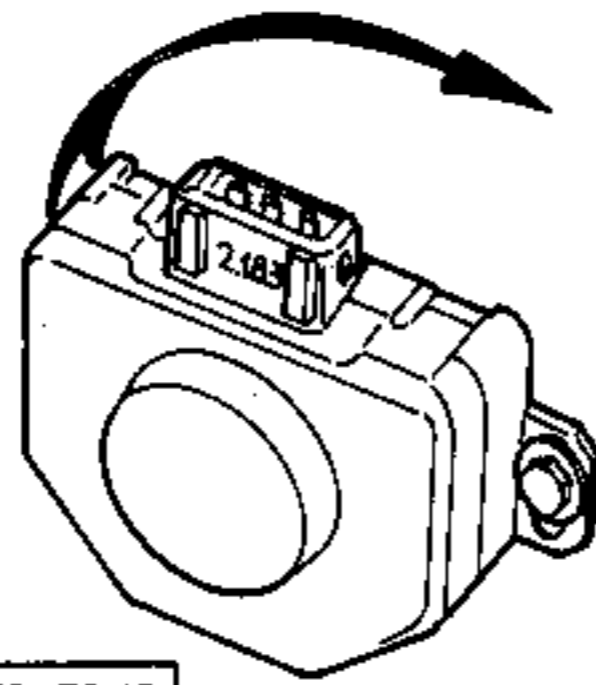
1<sup>re</sup>



x 2

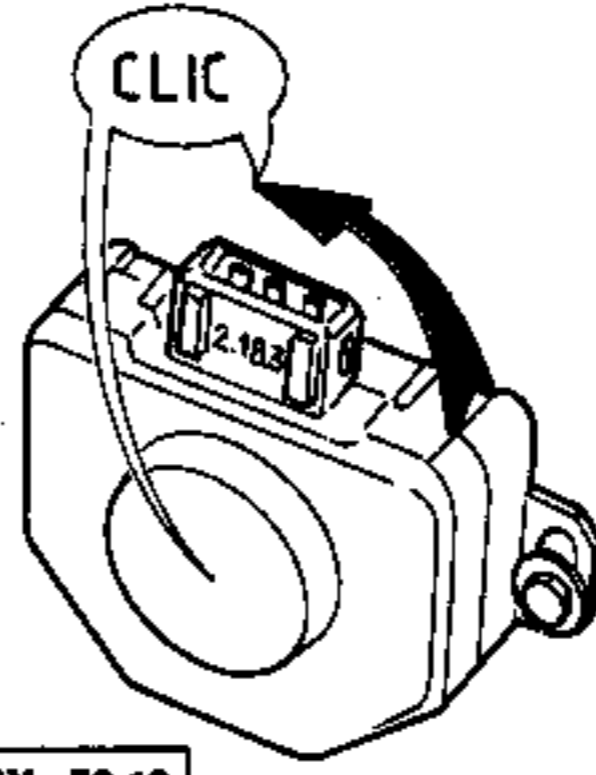
BX. 52.12

2<sup>de</sup>



BX. 52.12

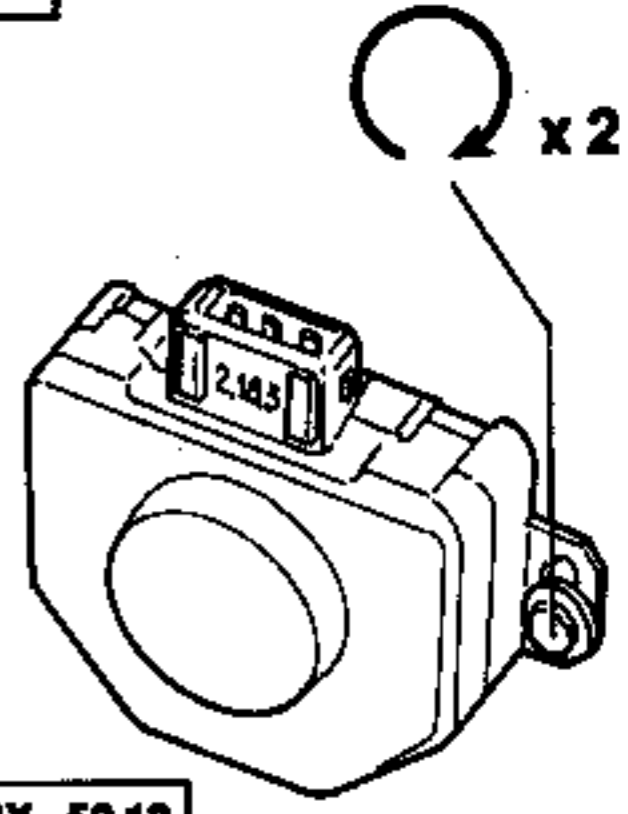
3<sup>de</sup>



CLIC

BX. 52.12

4<sup>de</sup>

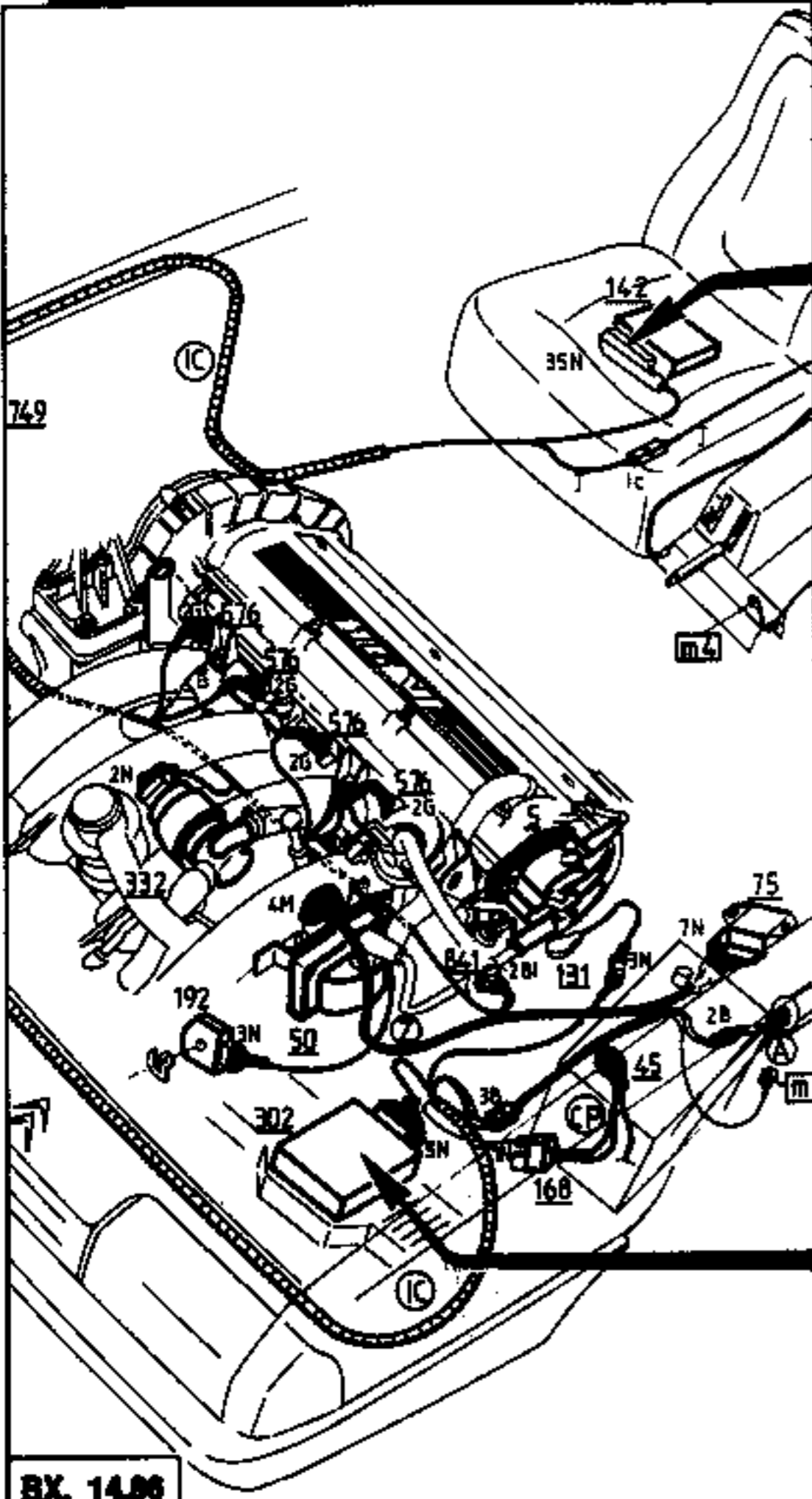


x 2

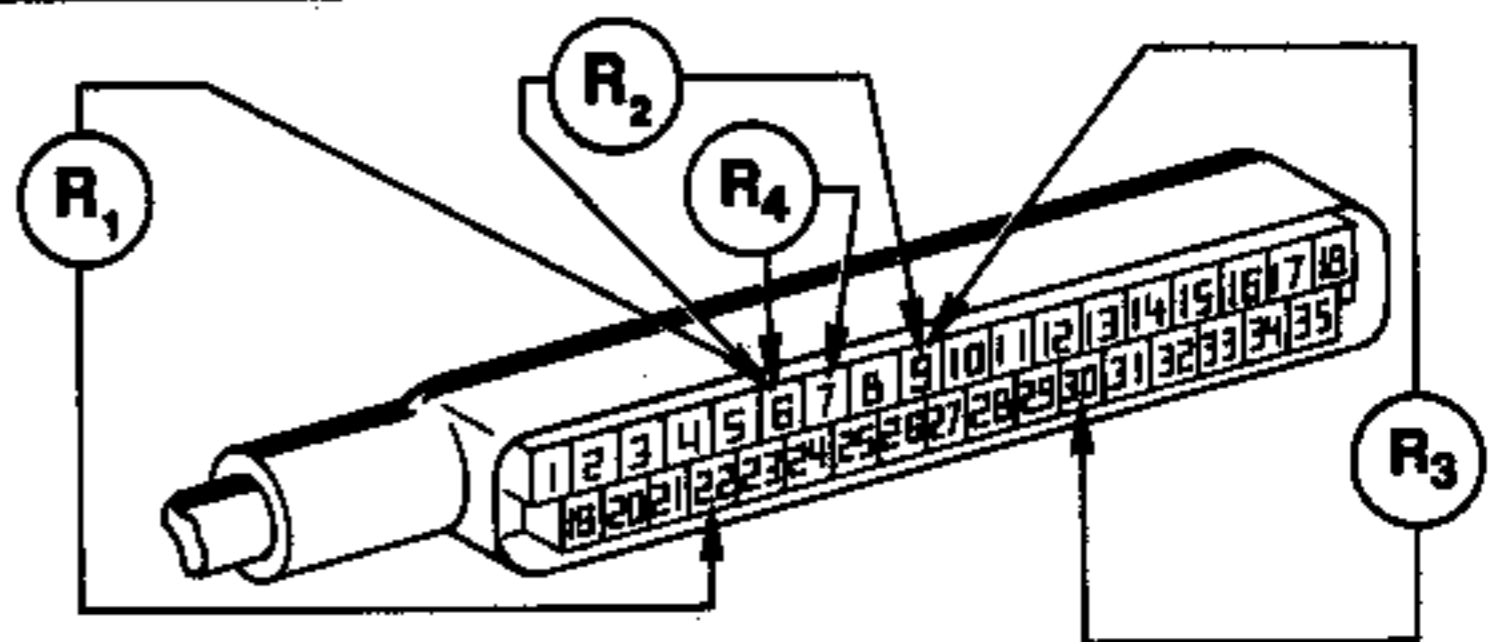
BX. 52.12



302



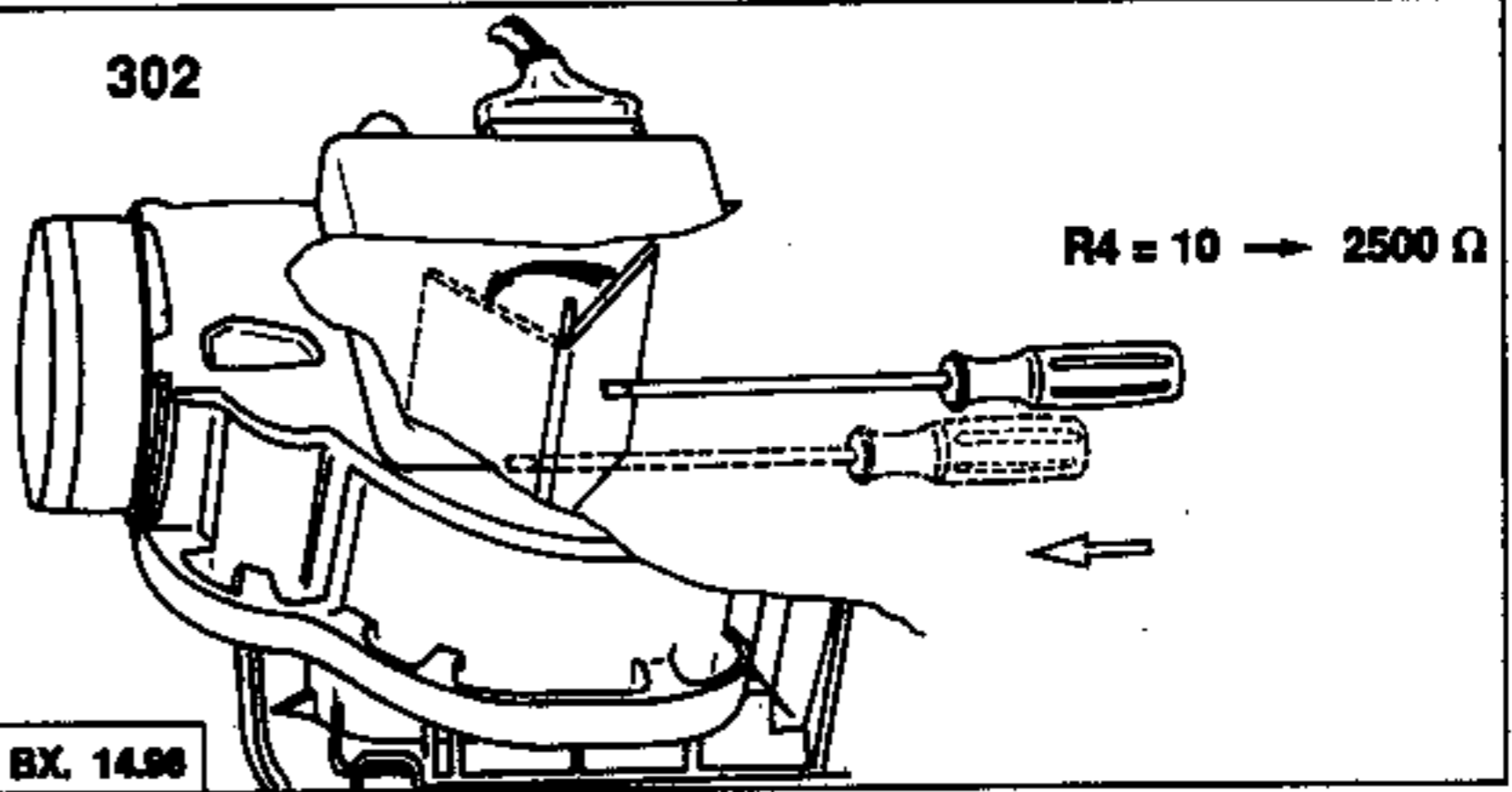
BX. 14.98



BX. 51.112

- 10° C : 8260 Ω < R<sub>1</sub> < 10560 Ω
- = + 20° C : 2280 Ω < R<sub>1</sub> < 2720 Ω
- + 50° C : 760 Ω < R<sub>1</sub> < 910 Ω
- 300 Ω < R<sub>2</sub> < 550 Ω
- R<sub>3</sub> = 300 Ω

302

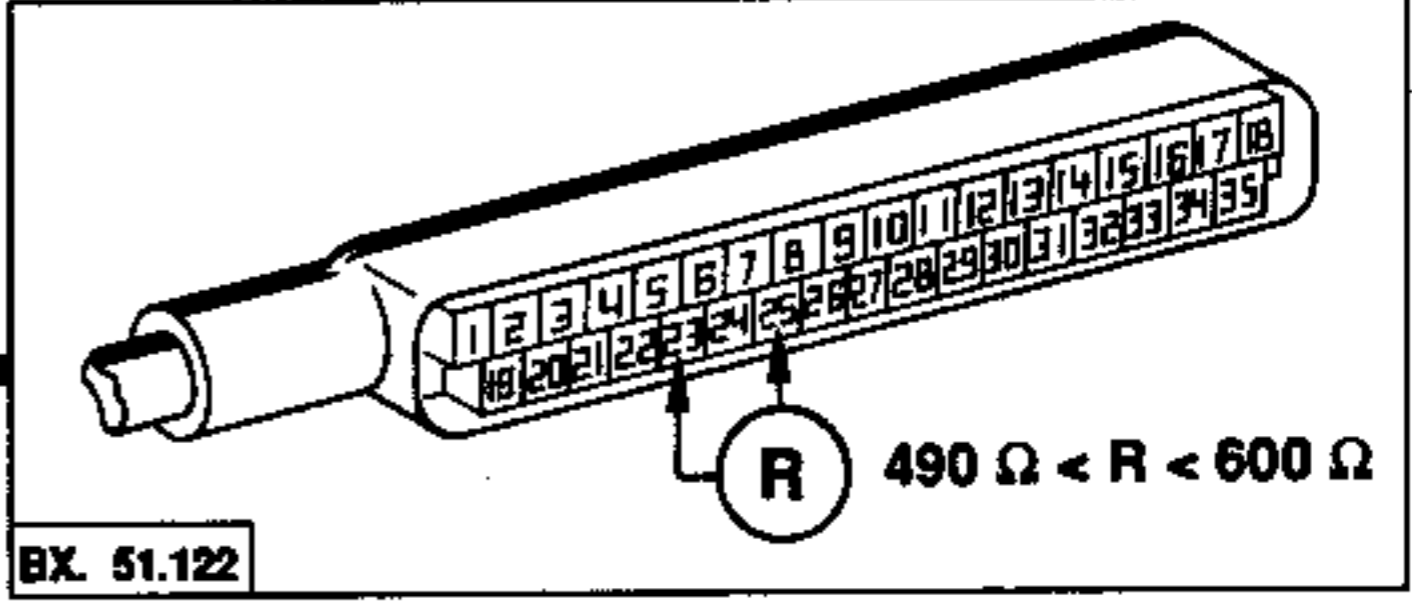
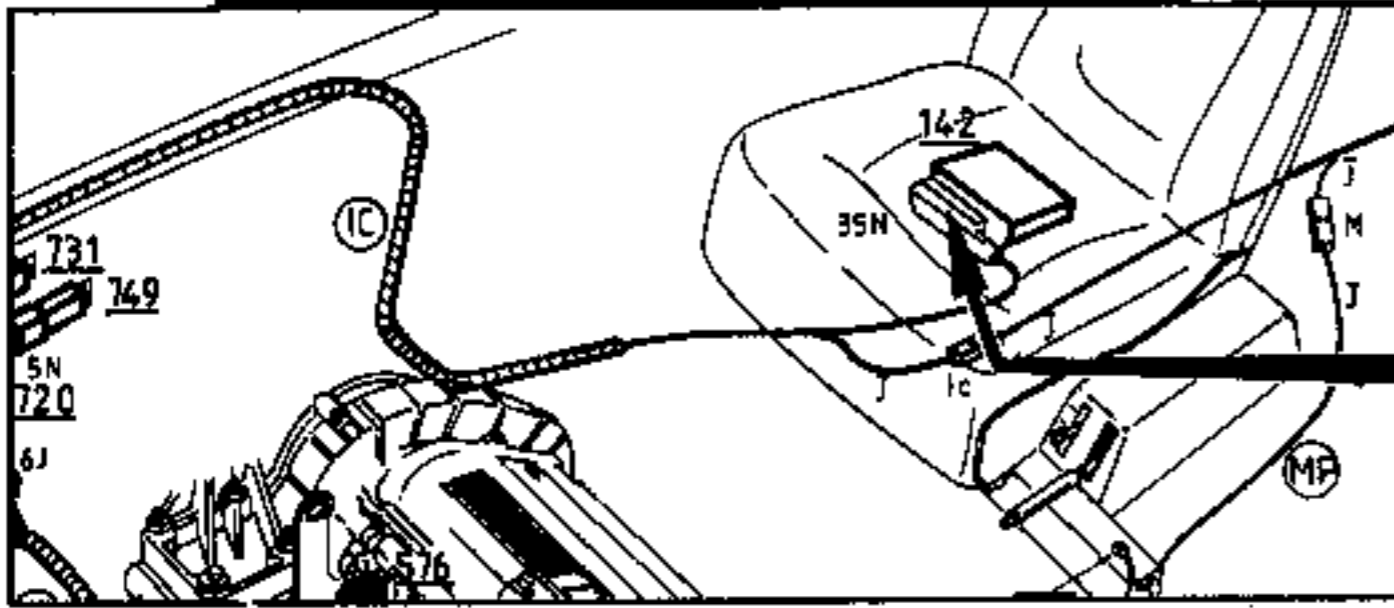


R<sub>4</sub> = 10 → 2500 Ω

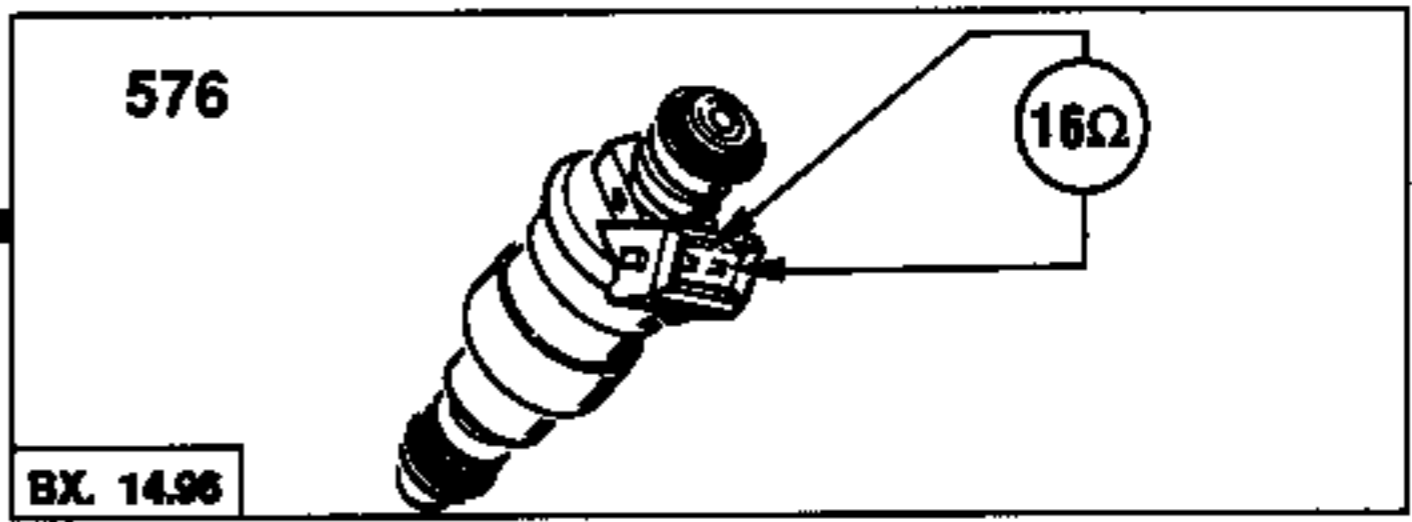
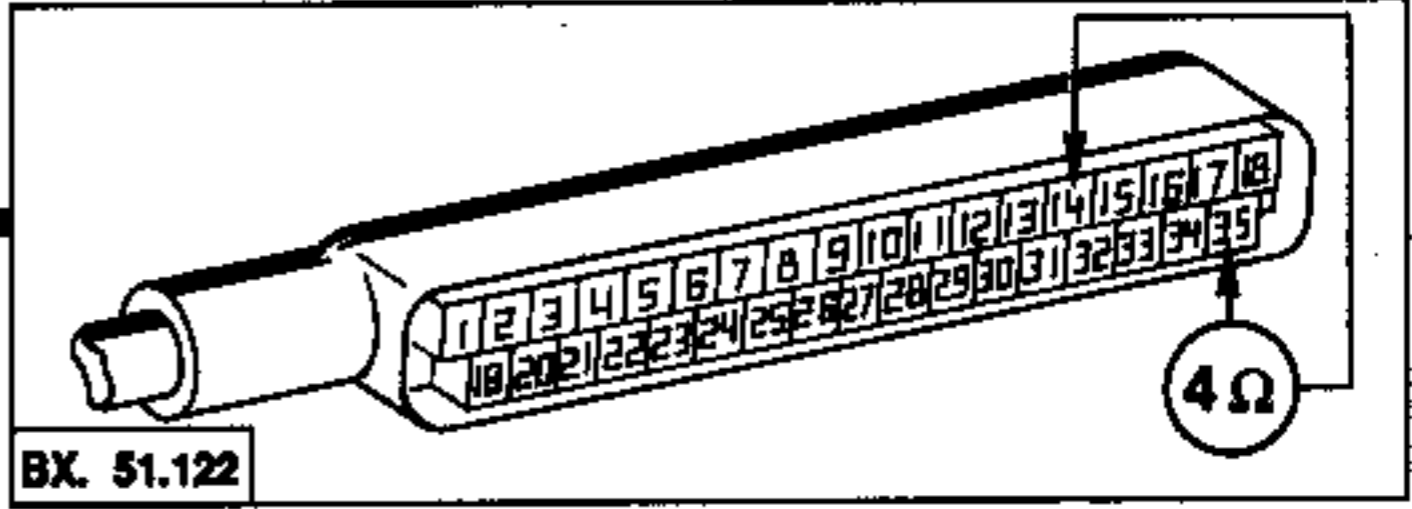
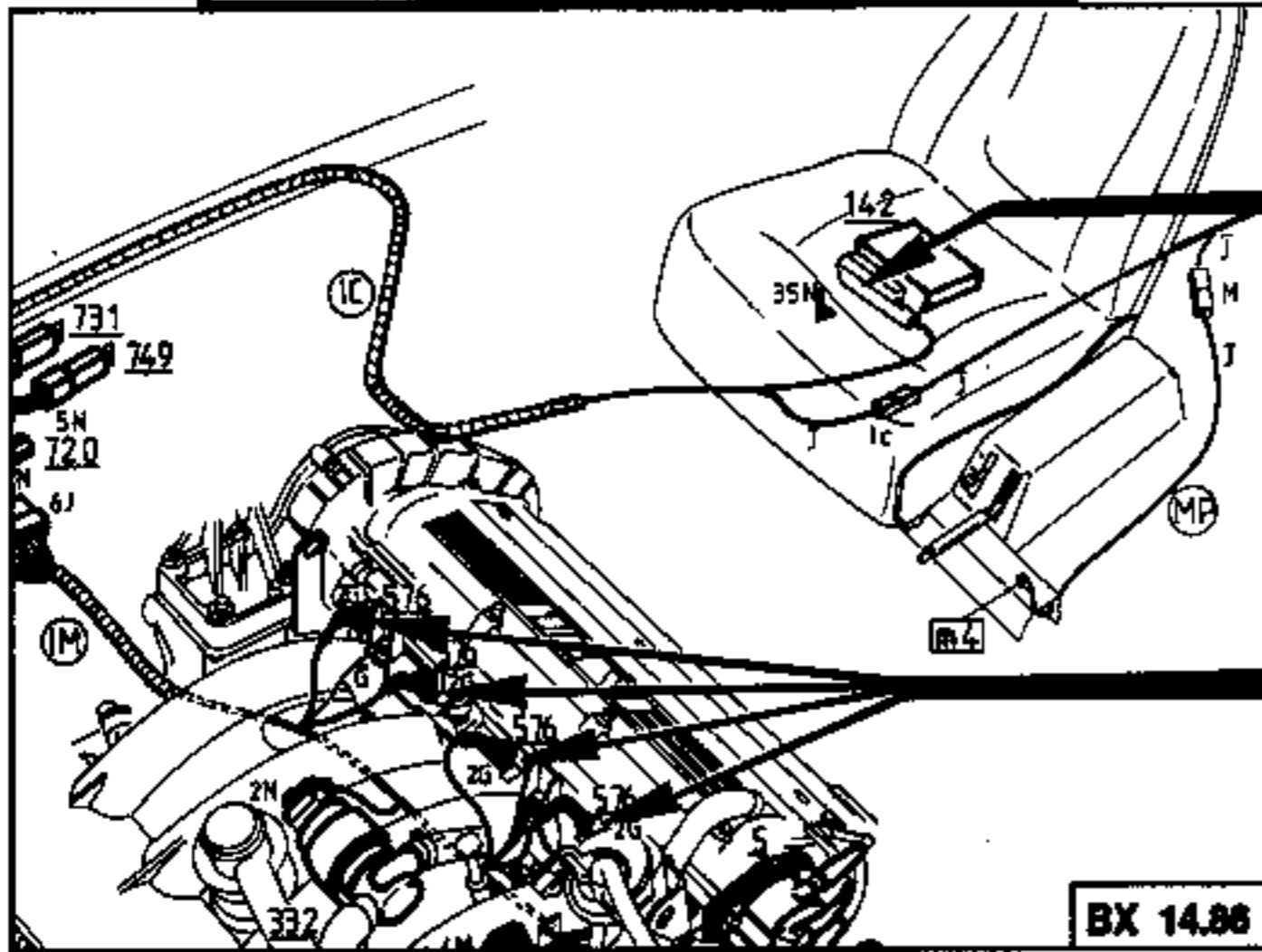
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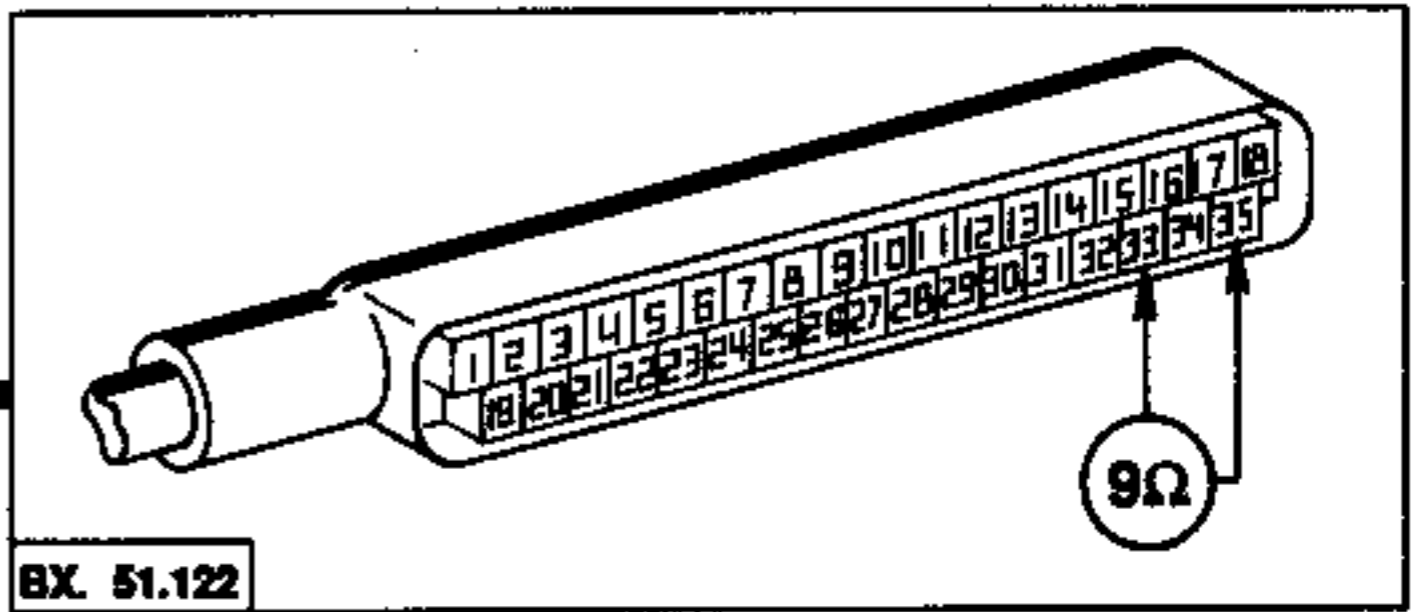
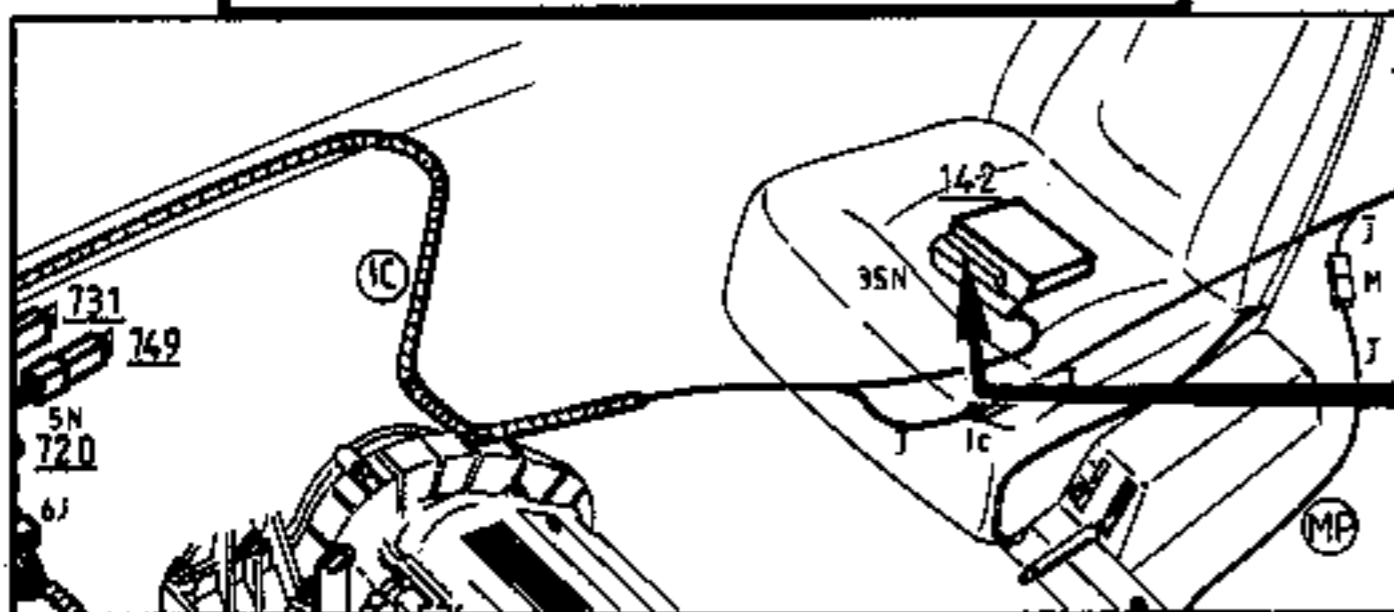
**131**



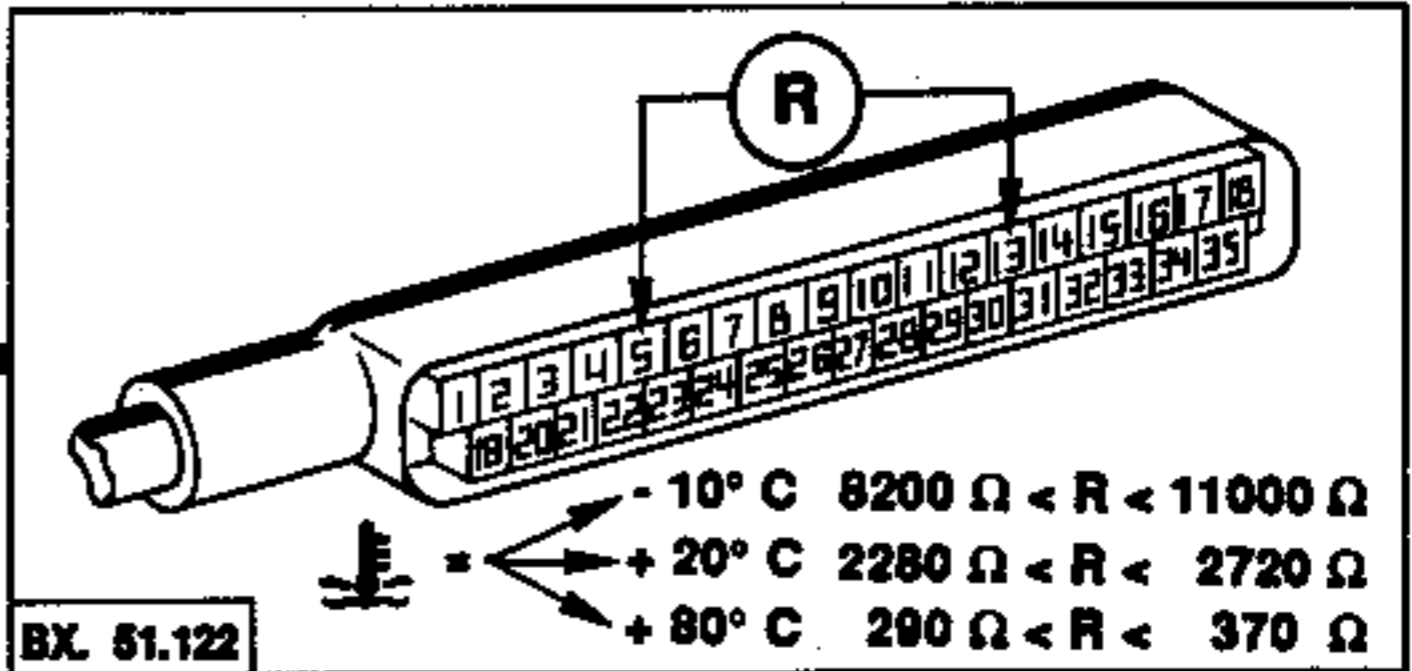
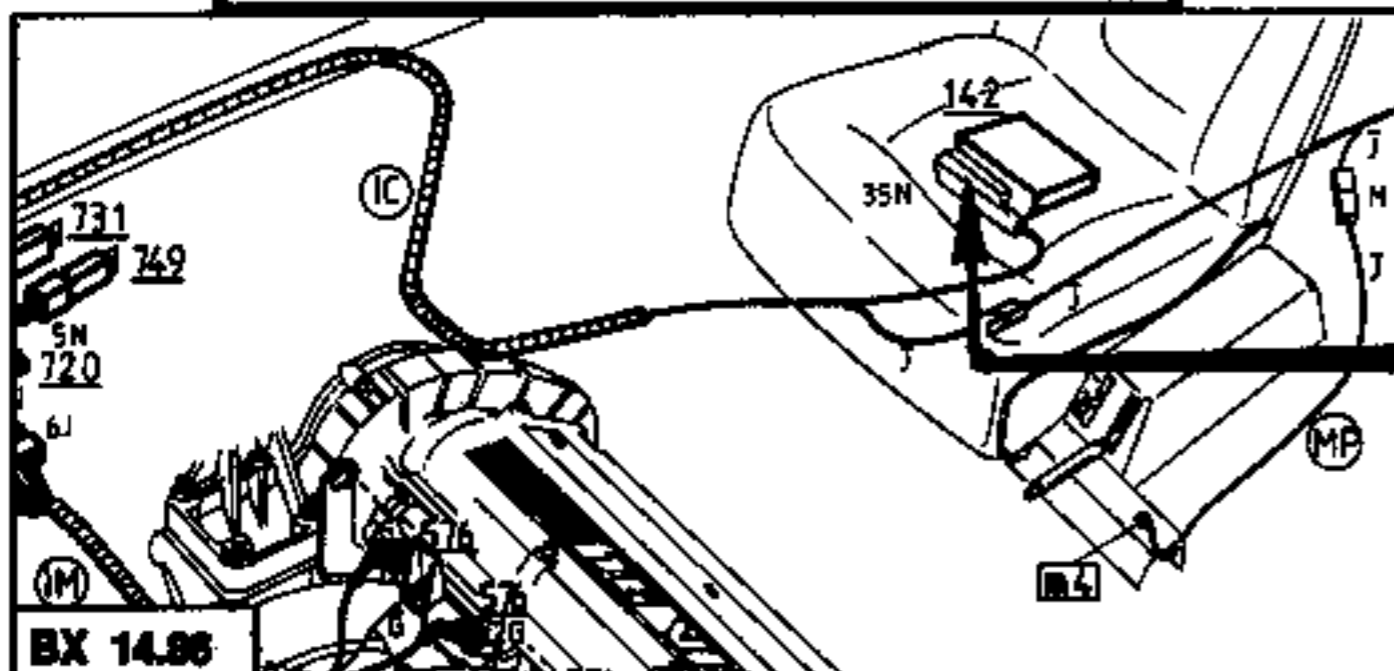
**576**



**332**



**841**



CO, CO<sub>2</sub>

1°

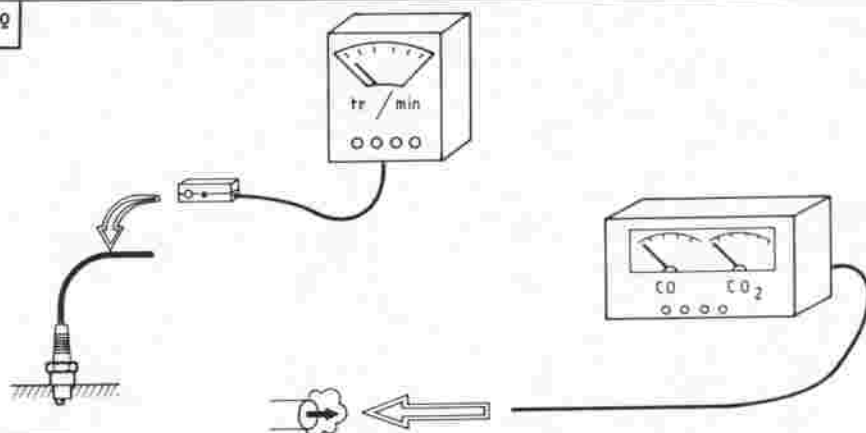


&gt;

80°C



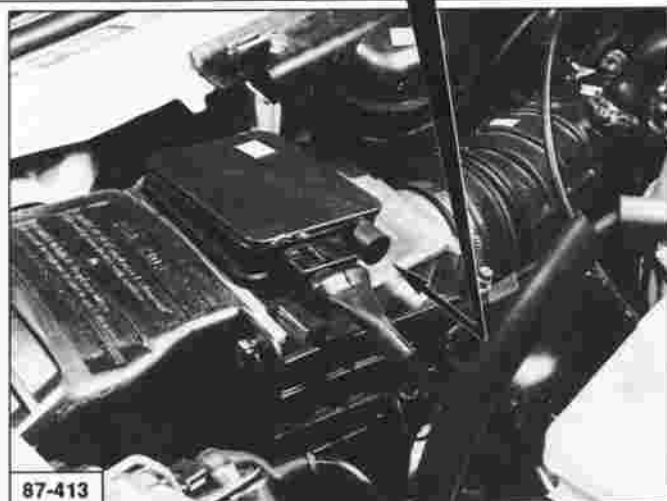
2°



TT 14-8

3°

tr/min	CO	CO <sub>2</sub>
≈ 850 tr/min	0,8 → 1,5 %	> 13 %



87-413

4°



87-413

91 517 208