

## GENERAL

The computer (BE) comprises a self-test system for the peripheral units of the automatic transmission.

If there is an incident on one of these units, the computer triggers a warning by illuminating the "electronic incident" warning light on the instrument panel.

At the same time, it triggers transmission operation in "defect mode" (see page 23-3) which enables the user to reach the nearest workshop without causing a major risk to the transmission.

The incident which caused the warning light to illuminate can be visualised by connecting the vehicle's diagnostic socket to the XR25 equipped with the appropriate cassette (visualisation by bar graphs 7 to 19 being permanently illuminated)

If there is an anomaly, after the ignition has been switched off, if it is stored in the computer's permanent memory, which can be consulted at any time by using the XR25 and the appropriate cassette (bar graphs 7 to 19 flashing, except 11).

**Note :** If a solution to the incident cannot be found using XR25, check connector I

**ELECTRONIC INCIDENT WARNING LIGHT MESSAGE**

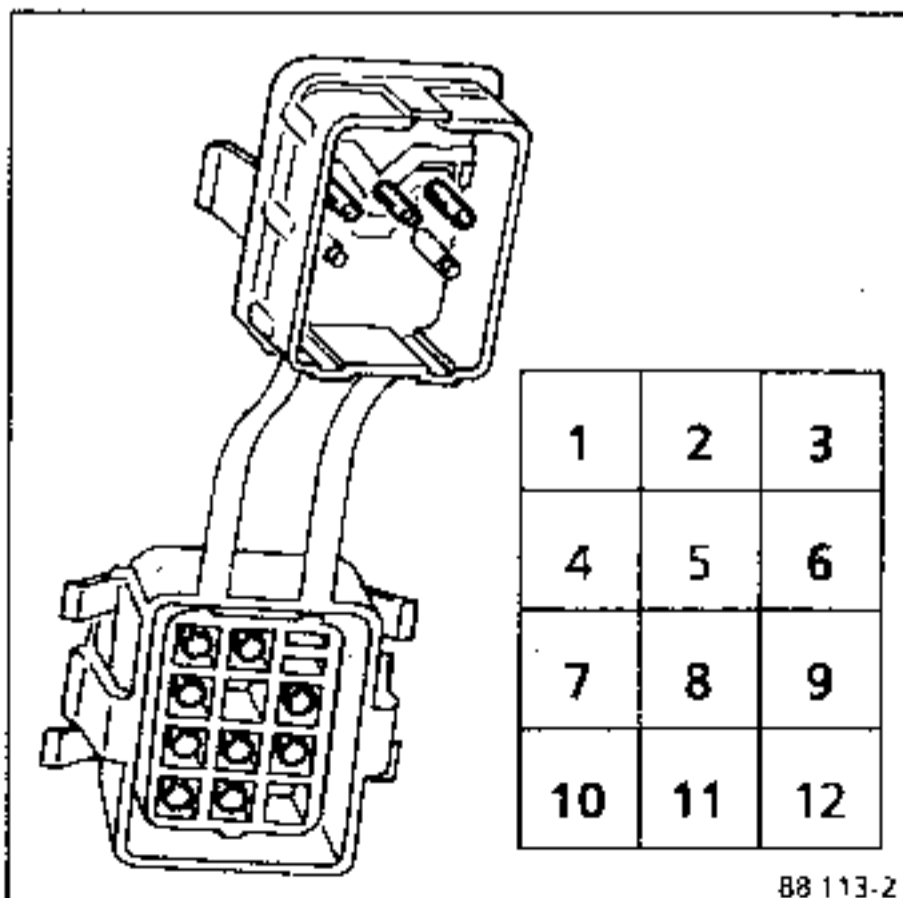
No fault	<p>The warning light comes on when the ignition is switched on, vehicle and engine stopped, lever in P or N</p> <ul style="list-style-type: none"> <li>- The light remains on when the starter is operated</li> <li>- When the key is released, ignition on, engine running, the light extinguishes about 3 seconds after the engine starts.</li> </ul>
With fault	<ul style="list-style-type: none"> <li>- The light remains illuminated when the vehicle is stationary with the engine running or stopped.</li> <li>- When the vehicle is moving, the light illuminates and is extinguished without touching the ignition key.</li> <li>- When the vehicle is moving, the light illuminates briefly.</li> </ul>
Oil temperature <-25°C or > +145°C	<ul style="list-style-type: none"> <li>- When the vehicle is moving or stationary, the light flashes about once every second</li> </ul>

**Diagnostic socket**

The diagnostic socket allows the XR25 connector to be connected for testing the microprocessor system.

**Allocation of diagnostic socket terminals**

- 1 - "A" AT. fault finding
  - 2 - Earth
  - 3 - Foolproof plug
  - 4 - Not used
  - 5 - Not used
  - 6 - + 12 V before ignition
  - 7 - Fault finding AT "M". Incident warning light "A"
  - 8 - To electronic warning light
  - 9 - Injection fault finding
  - 10 - L ISO diagnostic line
  - 11 - K ISO diagnostic line
  - 12 - Not used
- } depending on version



If any peripheral component fails or the 12V positive feed fails, the computer illuminates the incident warning light and the defect modes for the transmission are initiated, which may be different according to the component at fault.

**DEFECT MODES IN CASE OF INCIDENT.**

Defect	Light illuminated	Stored	Forward	Other gears available	Observations
Feed + 12 V	Yes	No	3H	N R.P.	Passes to 3H when incident occurs
Earth or Negative Feed	No	No	3H	N R.P.	Passes to 3H when incident occurs
Sequence solenoid valve (1 to 4)	Yes	Yes	3H	N.R.P.	Passes to 3H when incident occurs
Computer	Yes	No	3H	N.R.P.	Passes to 3H when incident occurs
Vehicle speed	Yes	Yes	3H	N.R.P.	Passes to 3H when incident occurs
Temperature sensor	Yes	Yes	all	N.R.P.	Fixed temperature reference value of 100°C
Full load validation	Yes	No	all	N.R.P.	Goes out immediately after validation
Multifunction switch	Yes	Yes	3H	N.R.P.	Passes to 3H when vehicle speed < 75mph only as from 4M.
Line pressure	Yes	Yes	3H	N R.P.	Passes to 3H when vehicle speed < 75mph only as from 4M
Potentiometer	Yes	Yes	3H	N R.P.	Passes to 3H when vehicle speed < 75mph only as from 4M
Engine speed	Yes	No	3H	N.R.P.	Passes to 3H when vehicle speed < 75mph only as from 4M
Modulating solenoid valve (5)	Yes	Yes	3H	N.R.P.	Passes to 3H when vehicle speed < 75mph only as from 4M
Reverse gear blocking	Yes	No	All	N.P.	Warning light goes out and reverse will engage when engine speed and/or vehicle speed less than defect thresholds and selection lever in N or P (see General section, "Operation").

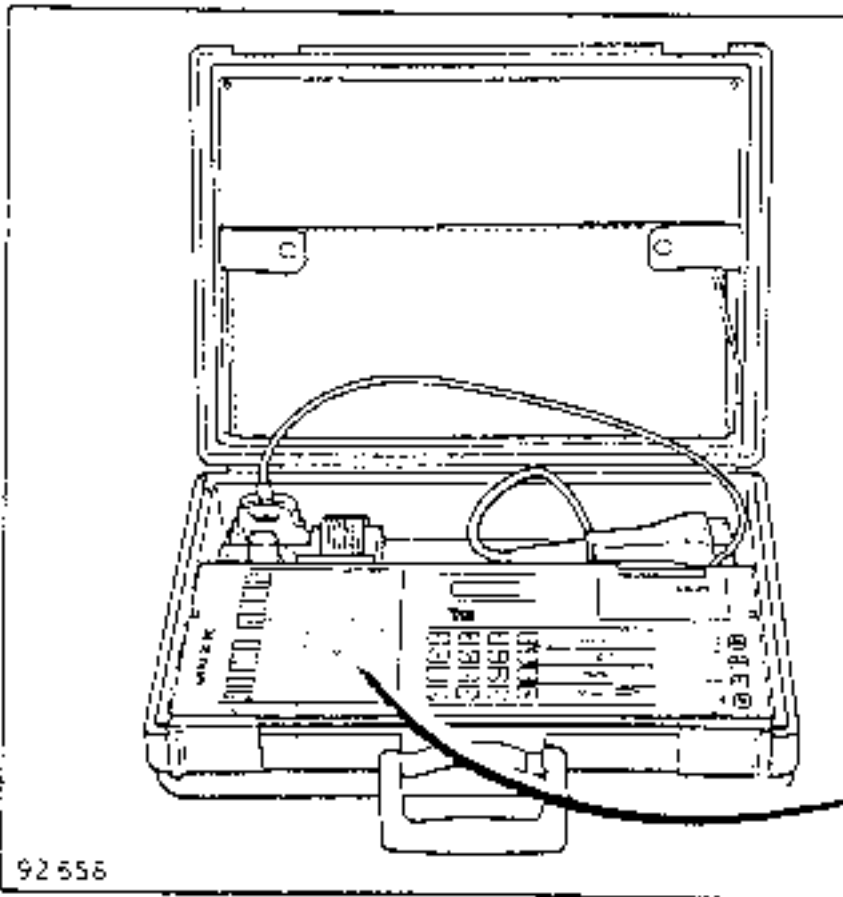
**H = Hydraulic      M = Mechanical**

**Note :** The line pressure is determined by all parameters entering the computer and therefore must never be taken into account for fault-finding purposes.

The XR25 is essential for all automatic transmission incidents irrespective of their cause.

It has a microprocessor and provides access to all data supplied by the various sensors and enables the fault-finding message supplied by the computer to be read.

It also enables the computer's permanent memory to be erased each time an operation has been performed on the automatic transmission



CARD T.A.A	
1	<input checked="" type="checkbox"/> ILLUMINATES : CODE PRESENT
2	<input checked="" type="checkbox"/> ILLUMINATES : ACCELERATOR PEDAL DEPRESSED
3	<input type="checkbox"/> EXTINGUISHES WHEN BRAKE PEDAL DEPRESSED
4	<input checked="" type="checkbox"/> ILLUMINATES IN P/N (STARTER AUTHORIZATION)
5	<input checked="" type="checkbox"/> OPERATE REG. CONTROL : ILLUMINATION CHANGES SIDES
6	<input checked="" type="checkbox"/> ILLUMINATES : PF VALIDATION
7	<input checked="" type="checkbox"/> ILLUMINATES : MULTI-FUNCTION SWITCH DEFECT
8	<input checked="" type="checkbox"/> ILLUMINATES : OIL PRESSURES DEFECT (hydraulic or electric)
9	<input checked="" type="checkbox"/> ILLUMINATES : OIL TEMPERATURE DEFECT
10	<input checked="" type="checkbox"/> ILLUMINATES : POTENTIOMETER DEFECT
<b>AUTOMATIC TRANSMISSION CODE : D04 (S4) ERASE MEMORY : GO**</b>	
11	<input checked="" type="checkbox"/> ENGINE SPEED DEFECT
12	<input checked="" type="checkbox"/> VEHICLE SPEED DEFECT
14	<input checked="" type="checkbox"/> EV1
15	<input checked="" type="checkbox"/> EV2
16	<input checked="" type="checkbox"/> EV3
17	<input checked="" type="checkbox"/> EV4
19	<input checked="" type="checkbox"/> EVM
20	<input checked="" type="checkbox"/> XR 25 MEMORY FUNCTION
<b>SOLENOID VALVE CIRCUIT (ENGINE RUNNING)</b> <input checked="" type="checkbox"/> INCORRECT <input type="checkbox"/> CORRECT	
<b>ADDITIONAL CHECKS</b> 01 GEAR ENGAGED 02 LOAD POT 03 PRESSURE 04 OIL TEMPERATURE 06 VEHICLE SPEED (rpm) 08 ENGINE SPEED (rpm) 09 PRESSURE ORDER 12 LOAD POT (load converted) 22 KICK-DOWN SWITCH	

**USE WITH CASSETTE N° 10**

- Connect the test box to the diagnostic socket.
- Move the selector switch to S4.
- Switch on the ignition
- Enter the special automatic transmission code D 0 4

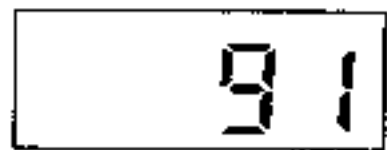
Then press # followed by 2 figures to access the different data from the computer.

- # 0 1 **Gear engaged** : :Reading on central display when transmission is incident free

Selector lever position	Ignition on engine stopped	Ignition on engine running	Vehicle moving	Observations
P	o. P	o. P		
R	r. r	r. r	r. r	o. r if gear cannot engage
N	o. P	o. P	o. P **	
D	3 H. d	l. d	l. d 2. d (*) 3. d (*) 4. d	} if brakes applied the gear can change to 3H.d. if permitted by the computer
3	3 H. 3	l. 3	l. 3 2.3 (*) 3. 3	(*) if quick release of the accelerator the gear engaged will be locked in 3b. d or 2b. d
2	3 H. 2	l. 2	l. 2 2. 2	} If position 1 selected above permitted speed the reading will be 2.1 then lF.1 as soon as gear engaged
1	3 H. 1	l F. 1	l F. 1	

\*\* Take care when performing this manoeuvre - only for automatic transmission diagnosis.

- # 0 2 **load potentiometer**. Value given in % with accelerator pedal in rest position



Value between 89,7 and 92,1 accelerator pedal not depressed (P-L) under test conditions

# 0 3 Line pressure. (bars)

8.8

The maximum reading is 11 bars though the line pressure can reach approximately 20 bars. The difference between this reading and the required pressure (from computer) (# 09) must not exceed  $\pm 1,5$  bars.

# 0 4 Oil temperature. (Degrees celcius)

98

For temperatures below  $- 25^{\circ}$  C and above  $+ 145^{\circ}$  C the warning light will flash (once per second).

# 0 5 Vehicle speed (rpm)

4 153

Varies between 0 and 8500 according to gear engaged and version.

# 0 6 Engine speed (rpm)

3 201

Varies between 0 and 6 000 approximately (according to version)

# 0 9 Reference pressure. (bars)

8.8

This is the pressure required by the computer to ensure correct operation of the transmission.

# 1 1 Pressure sensor info (%)

28.6

The output voltage from the pressure sensor in %

# 1 2 Load potentiometer (transformed load).  
Given in%, accelerator control depressed (P-F).

5

Value less than 6%, accelerator pedal depressed completely (for kickdown)

# 2 2 Kickdown switch (according to equipment level).

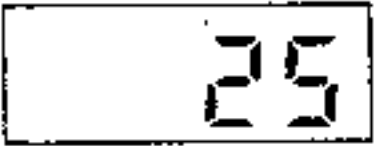


1 read on display in P-L (Accelerator pedal not depressed).



0 read on display in P-F (Accelerator pedal depressed).

# 9 4 Computer identification























**NOTE :**

All information displayed other than described here should not be used for diagnosing the "A" transmission.

**DISPLAY AND SIGNIFICANCE OF EACH OF THE BAR GRAPHS**

**IMPORTANT :** The following information only applies to the computers specified in the table at the beginning of this section.

None	1		1	Communication established between XR25 and computer
Present in full load position "PF" (Info from load potentiometer) (all versions)	2		2	Present in full load position "PF" (Info from load potentiometer) (depending on version)
None	3		3	Brake not activated, bar graph should extinguish when pedal pressed
None	4		4	Present in position "N" and "P", starter may be activated
Operate ECO/PERF switch : Illuminated side changes	5		5	Operate ECO/PERF switch : Illuminated side changes
Bar graph will not illuminate for computers listed on front page	6		6	Present: validation "PF" to be carried out
None	7		7	Present : Multifunction switch fault
Bar graph will not illuminate for computers listed on front page	8		8	Present : Oil pressure circuit fault
None	9		9	Present : Temperature sensor fault
None	10		10	Present : Load potentiometer fault
None	11		11	If present when engine running : Engine speed sensor fault
None	12		12	Present : Vehicle speed sensor fault
Ditto bar graph 13 right	13		13	Bar graph will not illuminate for computers listed on front page
Ditto bar graph 14 right	14		14	Present : Solenoid valve n° 1 electrical fault (see note)
Ditto bar graph 15 right	15		15	Present : Solenoid valve n° 2 electrical fault (see note)
Ditto bar graph 16 right	16		16	Present : Solenoid valve n° 3 electrical fault (see note)
Ditto bar graph 17 right	17		17	Present : Solenoid valve n° 4 electrical fault (see note)
None	18		18	None
Ditto bar graph 19 right	19		19	Present : Modulating solenoid valve electrical fault (see note)
Bar graph will not illuminate for computers listed on front page	20		20	Present if XR25 memory being used.

**NOTE :** Bar graphs 14 to 19 illuminate on the left and right hand sides at the same time if there is a fault.



**IDENTIFICATION OF COMPUTER WITH XR 25**

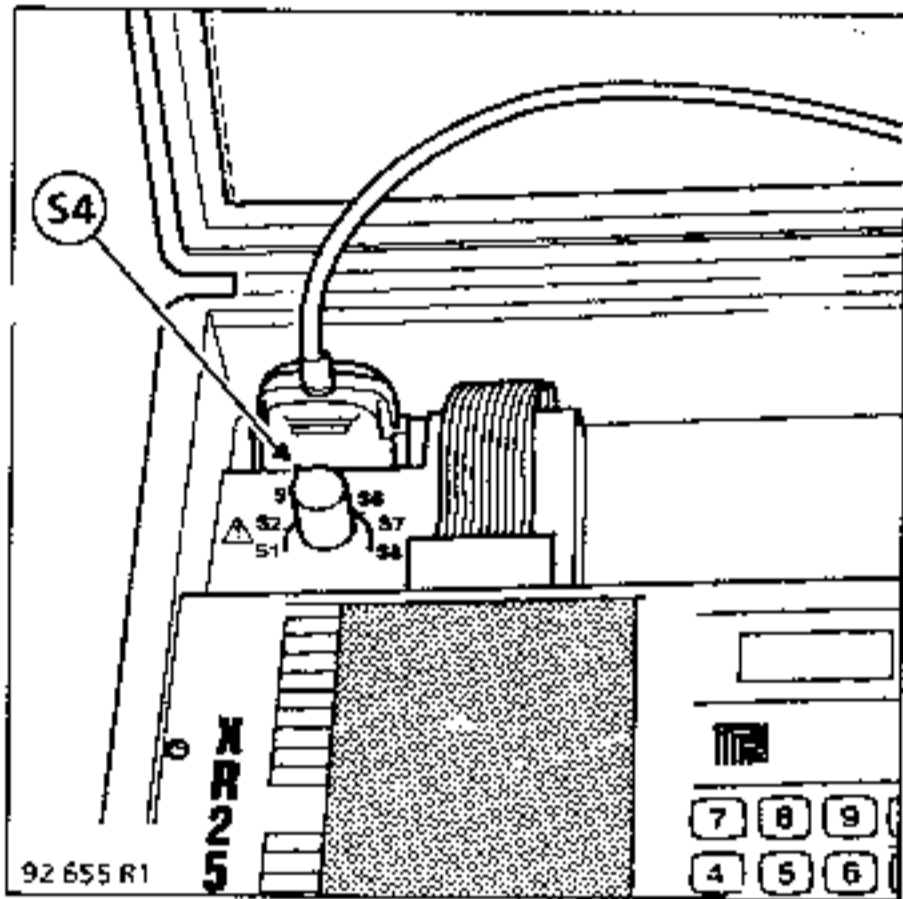
**Using cassette N° 10**

- Connect XR 25 to the vehicle diagnostic socket.
- Put the ISO selector switch on S4.

**XR 25 memory function**

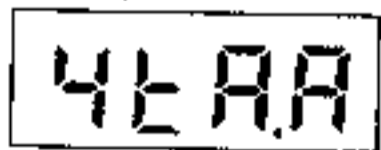
The XR25 memory function allows the values of different parameters to be "frozen" and stored in the memory, so that they may be read one after the other to check the coherence between them.

Once XR 25 → computer communication has been established to use this function enter 0 at the required moment.



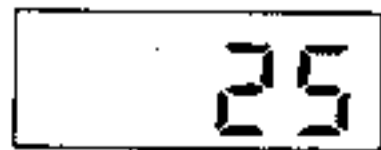
- Switch on the ignition without starting the engine
- Enter the "A" transmission code on the keyboard D 0 4

- The central display shows



- Then enter # 94
- The computer identification number then appears on the display

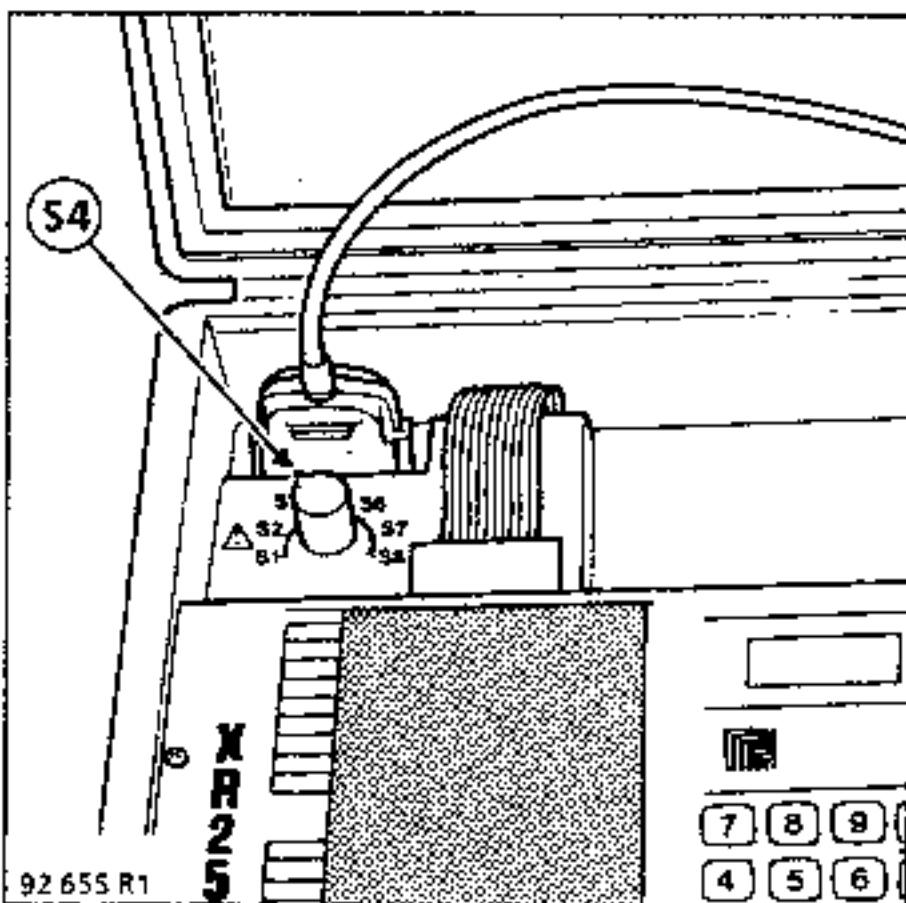
Example :



**ERASING THE MEMORY AND VALIDATING FULL LOAD WITH CASSETTE N° 10**

Connect the XR25 to the vehicle's diagnostic socket.

- Put the ISO selector switch on S4



- Switch the ignition on but do not start the engine

- Enter the code for transmission A :

**D 0 4**

The display shows :

**4EAA**

Enter

**G 0 \***

The central display shows :

**4EFF**

- Validate the request for erasing the memory with **\***

The display then shows :

**LES**

**ATTENTION :** The memory may only be erased if the "fault" bar graphs on the XR25 are extinguished or flash after the ignition has been turned off then on again.

The memory has been erased

Enter again

**D 0 4**

Only bar graphs 1 - 3 - 4 - 5 - 6 - 11 are illuminated.

**VERY IMPORTANT :** AFTER ERASING THE MEMORY, DO NOT FORGET TO VALIDATE FULL LOAD.

**Aim:** Reprogramme the load potentiometer curve.

Validate the full load position by pressing the accelerator pedal for 5 seconds.

Bar graph 2 illuminates  
Bar graph 6 extinguishes

Only bar graphs 1 - 2 - 3 - 4 - 5 - 11 should remain illuminated.

Release the accelerator pedal.

**SWITCH THE IGNITION OFF**

To check the validation has been made, switch the ignition on again and enter the transmission A code

**D 0 4**

enter # 12 ; you should read approx. 5 % at full load with bar graph 2 illuminated on the right hand side.

Switch the ignition off.  
Disconnect the XR25

**ATTENTION :** An incorrectly validated full load position could :

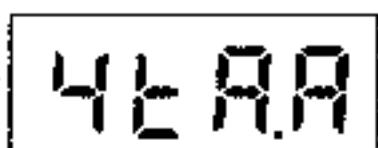
- illuminate the warning light permanently,
- cause gear changing anomalies,
- cause poor gear changing thresholds,
- cause kickdown problems,
- affect driving comfort.

**ADJUSTING THE LOAD POTENTIOMETER USING CASSETTE N° 10 (Explanation of operation in General Section)**

**INJECTION ENGINE (All types, except X57B and X57T)**

- Connect XR 25 to the vehicle diagnostic socket..
- Switch the ignition on but do not start the engine (engine hot).
- Enter the code for transmission A : D 0 4

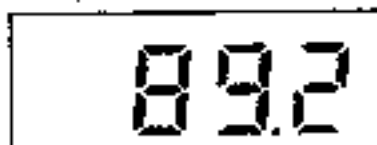
The central display shows



- Enter # 0 2

The display shows the load potentiometer adjustment in %

Example :



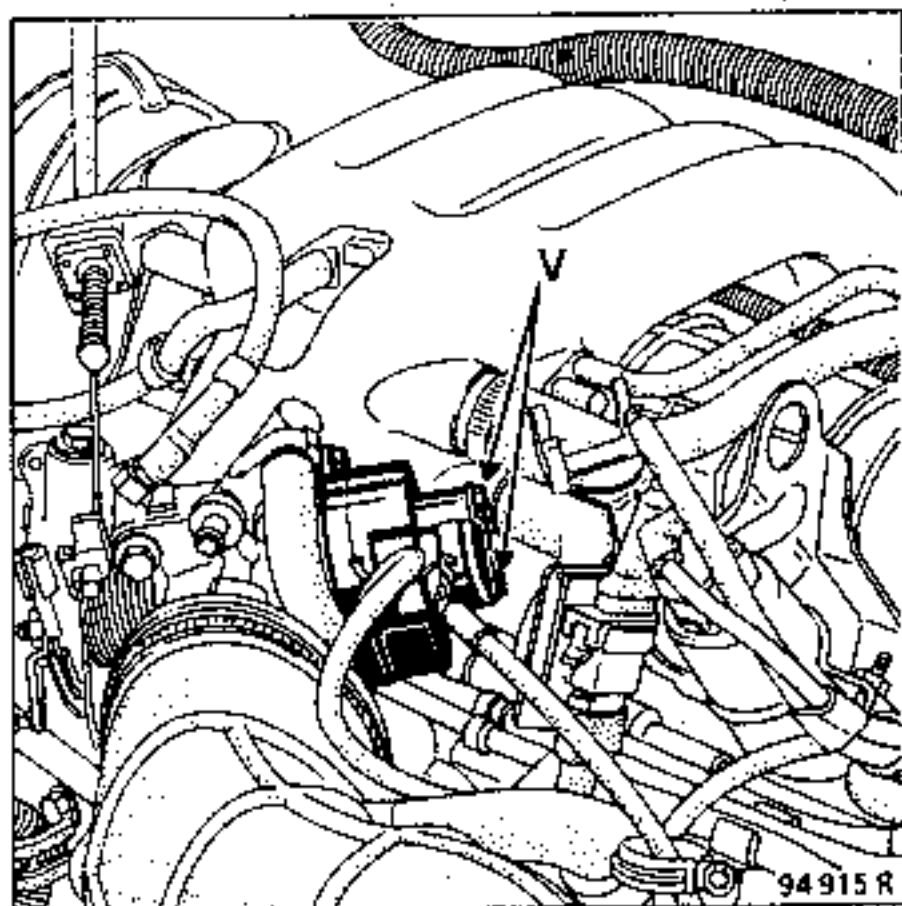
Undo the potentiometer mounting bolts (V)

With the accelerator control in the rest position, turn the potentiometer body until the value on the display is between 89,7 and 92,1%

Retighten the mounting bolts (V) (if adjustment is not possible, check the drive).

**VERY IMPORTANT : NOW ERASE THE MEMORY AND VALIDATE THE FULL LOAD POSITION (see page 23-10).**

Then check, when in the full load position (on accelerator pedal), using # 12, that the display value is less than 6%



**CHECKING THE LOAD POTENTIOMETER USING CASSETTE N° 10 (Explanation of operation in General Section)****INJECTION ENGINE X57B and X57T**

The potentiometer is of a "double track" type (one track for the injection, the other for the automatic transmission).

The potentiometer is integral with the throttle body and cannot be adjusted or ordered separately from the parts department. The throttle body must be replaced if necessary (see technical note N° 1660).

**Checking:**

The test is carried out in the "full load" position

Connect the XR25 to the vehicle's diagnostic socket

- Enter the code for transmission A :

The display shows

42.88

- Enter    and fully depress the accelerator pedal.

The load in % is shown on the display. This value must be less than 6%.

If the value is greater than 6 %, the memory must be erased and the full load position must be validated.

If the fault persists, ensure the accelerator is opening fully at "full load" and replace the throttle body if necessary.

### ADJUSTING THE LOAD POTENTIOMETER USING CASSETTE N° 10 (Explanation of operation in General Section)

#### F2N ENGINE (Carburettor)

THE LOAD POTENTIOMETER IS SPECIFIC TO THIS ENGINE SINCE IT HAS A LONGER TRACK. IT CANNOT THEREFORE BE REPLACED WITH A POTENTIOMETER OF ANOTHER TYPE.

The method described below must be used for adjusting the potentiometer.

- Connect the XR25 to the vehicle's diagnostic socket
- Switch the ignition on but do not start the engine
- Enter the code for transmission A : D 0 4
- Enter:

# 0 2

The display shows the % value for the potentiometer adjustment.

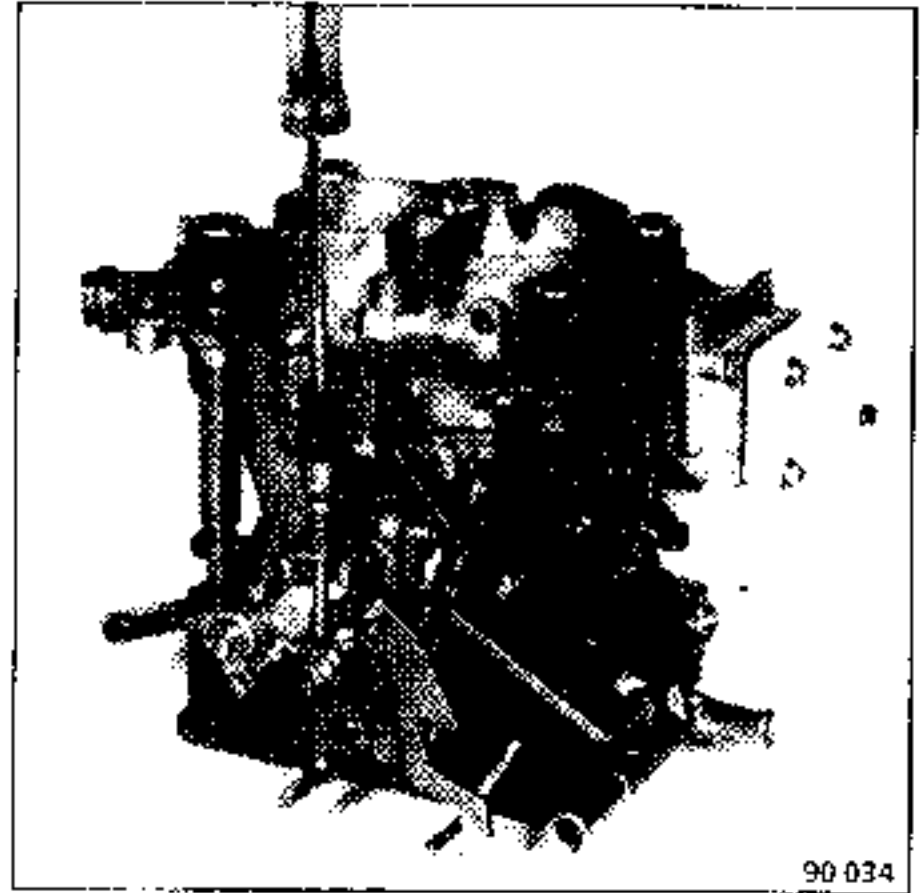
Example :

86.2

This value should be between 89,7 and 92,1%

### ADJUSTMENT

Undo the idle screw completely until the butterfly closes completely.



- Undo the potentiometer mounting bolts.
- Turn the potentiometer body until the value on the display is between 89.7 and 92.1 %.
- Retighten the potentiometer mounting bolts (if adjustment is impossible, check the drive).
- Then in the full load position (at accelerator pedal), using # 12, check that the value displayed is below 6 %
- Adjust the idle speed to  $800 \pm 25$  rpm, with the gear selector lever in position "N" (Neutral). (XR25 #06).
- Now erase the memory and validate the "full load" position (see page 23- 10).

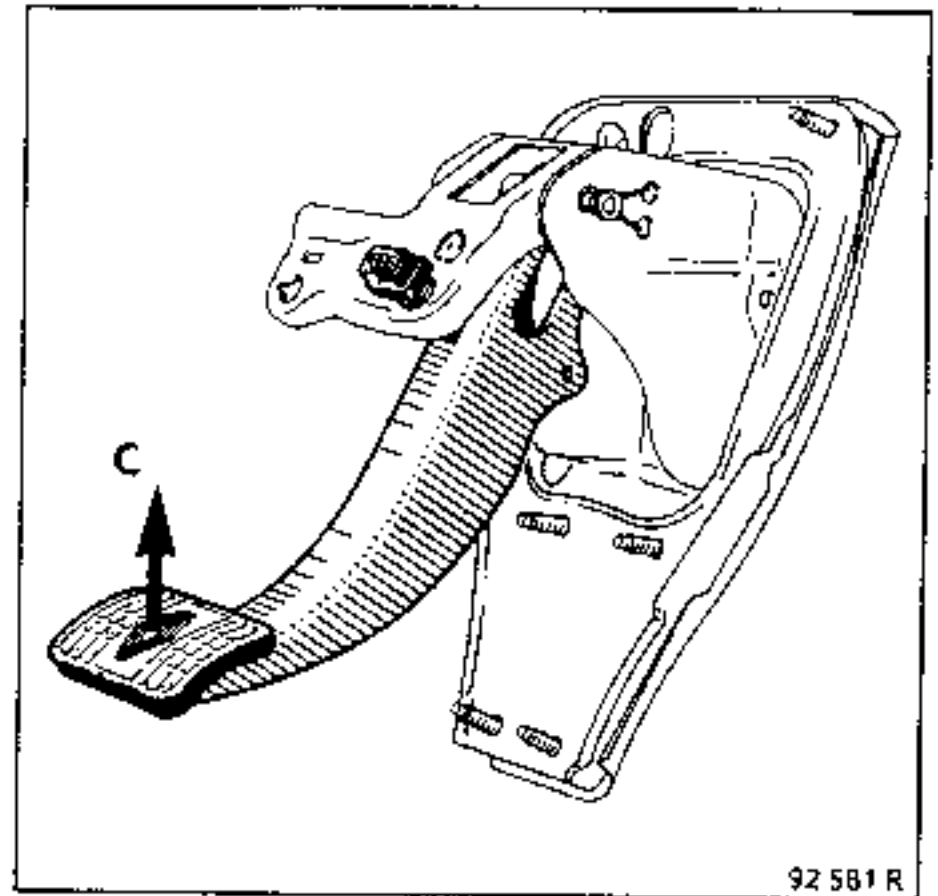
**ADJUSTING THE BRAKE SWITCH** (Explanation of operation in General Section)

**Connection:**

- Tracks 1 - + after ignition
- 2 - to AT computer
- 3 - to stop lights

**Switch adjustment**

- 1 - Depress the brake pedal.
- 2 - Bring the switch to a stop against the pedal support.
- 3 - Let the brake pedal return to the raised position.



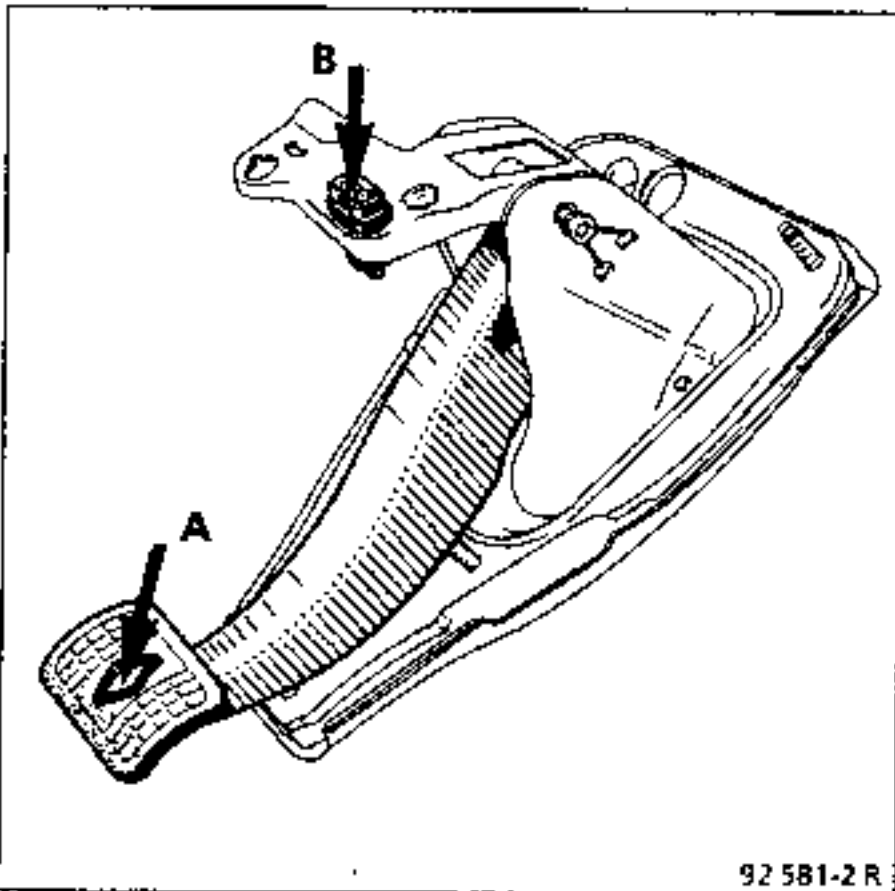
92 581 R

**Testing:**

- Connect XR 25 to the vehicle diagnosis socket.
- Position the selector switch to S4.
- Switch on the ignition.
- Enter the specific AT code 

D	0	4
---	---	---
- Bar graph 3 illuminates when the brake pedal is in the raised position.
- Bar graph 3 extinguishes when the brake pedal is depressed.
- Switch the ignition off and disconnect XR 25.

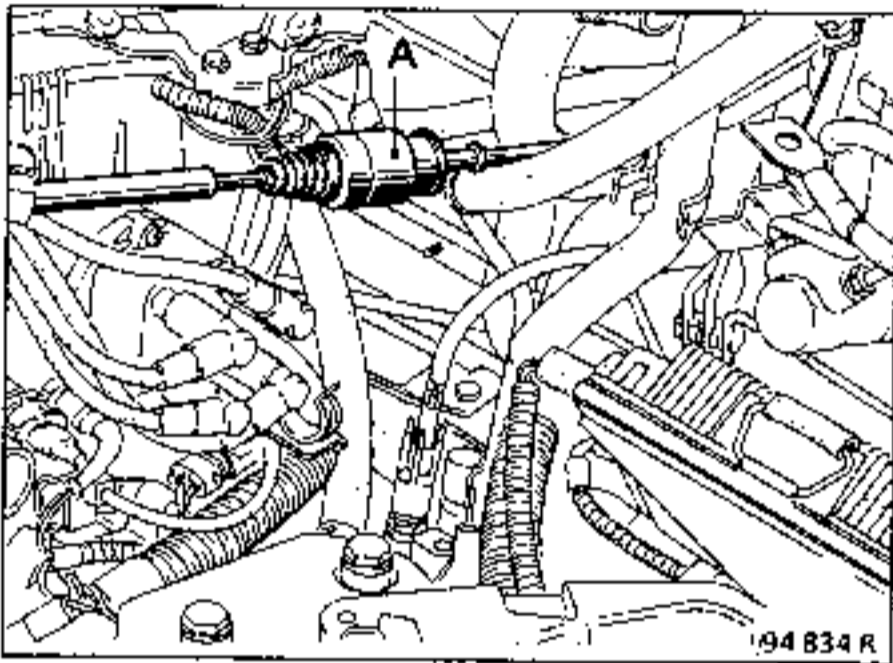
**NOTE :** Passing too quickly from the brake pedal to the accelerator pedal may give an unwanted "braking effect" for a short moment. Disregard this.



92 581-2 R

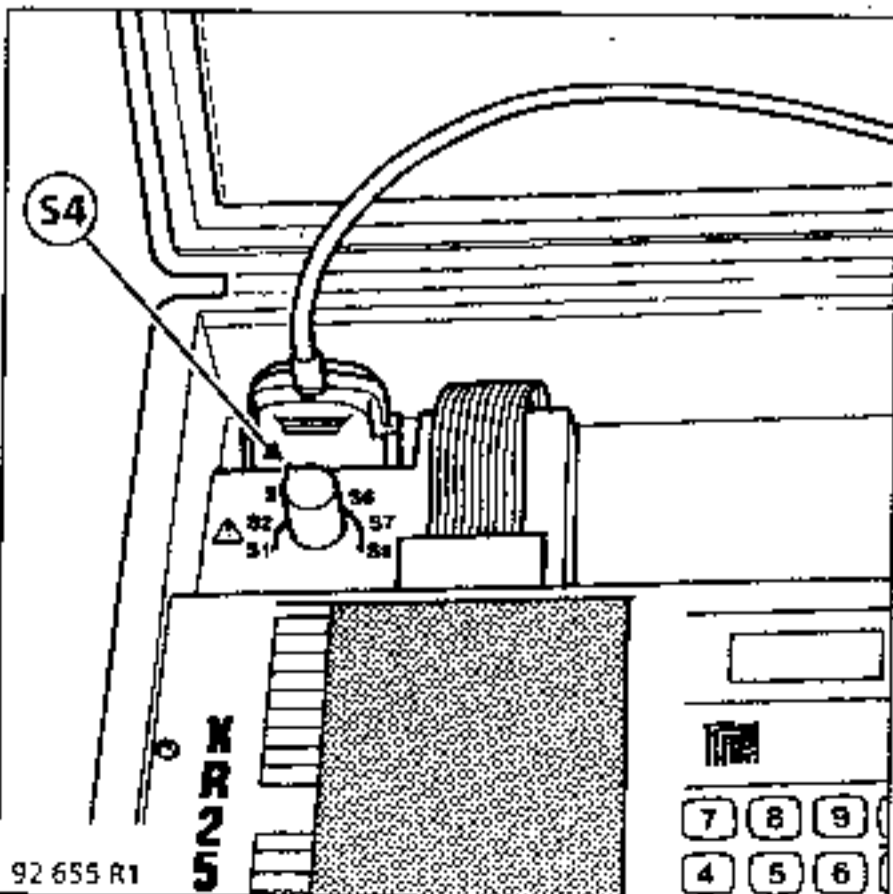
**ADJUSTING THE ACCELERATOR CABLE (Using cassette N° 10).**  
Only for vehicles fitted with a kickdown switch (A). (see "General" section)

The accelerator cable should be adjusted to use the pedal excess travel so that the kickdown switch (A) can be compressed to transmit full load information to the automatic transmission computer which authorises kickdown.



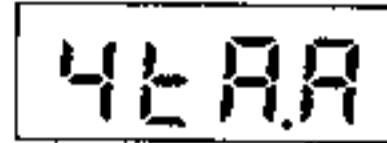
To do this:

- Connect the XR25 to the vehicle's diagnostic socket
- Position the selector on S4.



- Switch on the ignition without starting the engine
- Enter the specific AT code. D 0 4

The display shows :




Checking the adjustment :

In the no load position (PL) bar graph 2 right hand side is extinguished.

Depress the accelerator pedal to the full load position (PF) and bar graph 2 right hand side should illuminate.

**Note:** If bar graph 2 right hand side does not illuminate, check the cable adjustment or refer to page 23-18.

**CHECKING THE CONNECTION BETWEEN THE AT COMPUTER AND INJECTION FOR ENGINE TORQUE REDUCTION ( see General section for explanation of operation ).**

Condition	Selection on XR 25	Display on XR 25	Notes
ECO/PERF switch on : <b>R25</b> PERF EXC <b>R21 phase I</b> EXC <b>R21 phase II</b> Light E extinguished <b>R19</b> EXC <b>CLIO</b> Gear change switch on "S"  Gear lever in 3H, change from 2 → 3 with accelerator pedal not depressed.	Enter D03 # 51		Brief change to zero on test case display

VEHICLE TYPE	AT TYPE	with reduct ion	without reduct ion
B29 E	AR4 008 AR4 012		X
B292	AR4 011 AR4 014	X	
B29 H	AR4 013 AR4 015		X
B29 B	AR4 012 AR4 016	X	
B293	AR4 002	X	
B29 F	AR4 002	X	
X483	AR4 000 AR4 020		X
X483	AR4 021	X	
X48 K	AR4 000 AR4 018		X
X48 K	AR4 025	X	
X48 C	AR4 025	X	
X48 C	AR4 018	X	
X48 Y	AR4 024	X	

VEHICLE TYPE	AT TYPE	with reduct ion	without reduct ion
X482	AD4		X
X48 E	AD4	X	
X533	AD4		X
X53 C	AD4	X	
X57 B X57 T	AD4	X	



**FAULT CHART**

**ONE OF THE BAR GRAPHS SHOWS A FAULT**

— Bar graph 1 remains extinguished	23 - 19
... Bar graph 2 right illuminates for PI	23 - 20
— Bar graph 2 extinguished for PF	23 - 20
— Bar graph 2 left extinguished for PF	23 - 21
... Bar graph 3 permanently extinguished	23 - 22
— Bar graph 4 extinguished on right in P/N	23 - 23
— No alternate right/left illumination for bar graph 5	23 - 24
— Bar graph 6 right illuminated	23 - 25
— Bar graph 7 illuminated	23 - 26
... Bar graph 8 right illuminated	23 - 27
— Bar graph 9 right illuminated	23 - 28
— Bar graph 10 right illuminated (All types except X57 B and T)	23 - 29
— Bar graph 10 right illuminated ( X57 B and T)	23 - 30
... Bar graph 11 right illuminated engine running	23 - 31
— Bar graph 12 right illuminated after ignition switched off and on again	23 - 32
— Bar graphs 14 to 19 illuminated on right and left	23 - 33

**ABNORMAL OPERATION OF FAULT WARNING LIGHT WHEN STARTING**

... The fault warning light does not remain illuminated for 3 seconds after engine started	23 - 34
... Fault warning light permanently illuminated while driving, persists after engine started again	
— without AT fault	23 - 35
— with AT fault	23 - 36
... Permanent or intermittent illumination of the fault warning light after engine has been started again.	23 - 37

**PROBLEMS WHEN STARTING**

... Starting problems	
— the starter does not engage in positions P and/or N	23 - 38
— the starter engages, the engine does not turn, warning lights on instrument panel dim, lever in P	23 - 39
— the starter engages in positions other than P or N	23 - 39
— Slipping when driving away	23 - 44
— No drive, warning light does not illuminate, engine speed limited to stalling point (2200 rpm)	23 - 42
... No drive in forward or reverse gears, warning light does not illuminate, engine racing	23 - 41
— Delay in engaging gear, engine racing then jerk when driving away.	23 - 43
— Vehicle moves forwards or backwards in position N, other than surging when cold (+ 60 <sup>o</sup> C)	23 - 40

**FAULT CHART (cont)**

**GEAR CHANGING PROBLEMS**

—	<b>GEARS DO NOT CHANGE</b>	
—	Vehicle stuck in 1 gear, warning light illuminated	23 - 47
—	Vehicle stuck in 1 gear, warning light extinguished	23 - 48
—	<b>ONE OR MORE GEARS NOT AVAILABLE</b>	
—	No reverse gear, forward gears correct and warning light illuminated	23 - 58
—	No reverse gear, forward gears correct and warning light extinguished	23 - 57
—	One or more gears not available, warning light extinguished	23 - 56
—	<b>ABNORMAL GEAR CHANGING</b>	
—	Gears change incorrectly, warning light extinguished	23 - 49
—	Gears change incorrectly, warning light illuminated permanently or intermittently	23 - 50
—	Gear changing thresholds delayed (except AR4 021 and 025)	23 - 45
—	Gear changing thresholds delayed only when engine cold or only when engine hot, warning light extinguished (AR4 021 and 025 and AD4 all types)	23 - 46
—	<b>JERKY OPERATION, SLIPPING OR ENGINE RACING DURING GEAR CHANGING</b>	
—	Warning light illuminated permanently	23 - 53
—	Warning light not illuminated and not flashing	23 - 54
—	<b>ENGINE RACING WHEN CHANGING 4 → 3 WITHOUT WARNING LIGHT ILLUMINATION</b>	23 - 55
—	<b>PRESENCE OF CHANGING UP OF GEARS WHICH ARE NOT AUTHORISED BY THE GEAR LEVER POSITION, WARNING LIGHT EXTINGUISHED</b>	23 - 59
—	<b>NO KICKDOWN IN PF OR ABNORMAL KICKDOWN THRESHOLDS IN PF</b>	23 - 51

**OTHER PROBLEMS**

—	Oil under the vehicle	23 - 60
—	Metallic noise at idle speed from the torque converter housing	23 - 60

**BAR GRAPH 1 : Communication established**

Bar graph 1 illuminates when the XR25 has been connected and the ignition is turned on

**Fault: Bar graph 1 remains extinguished**

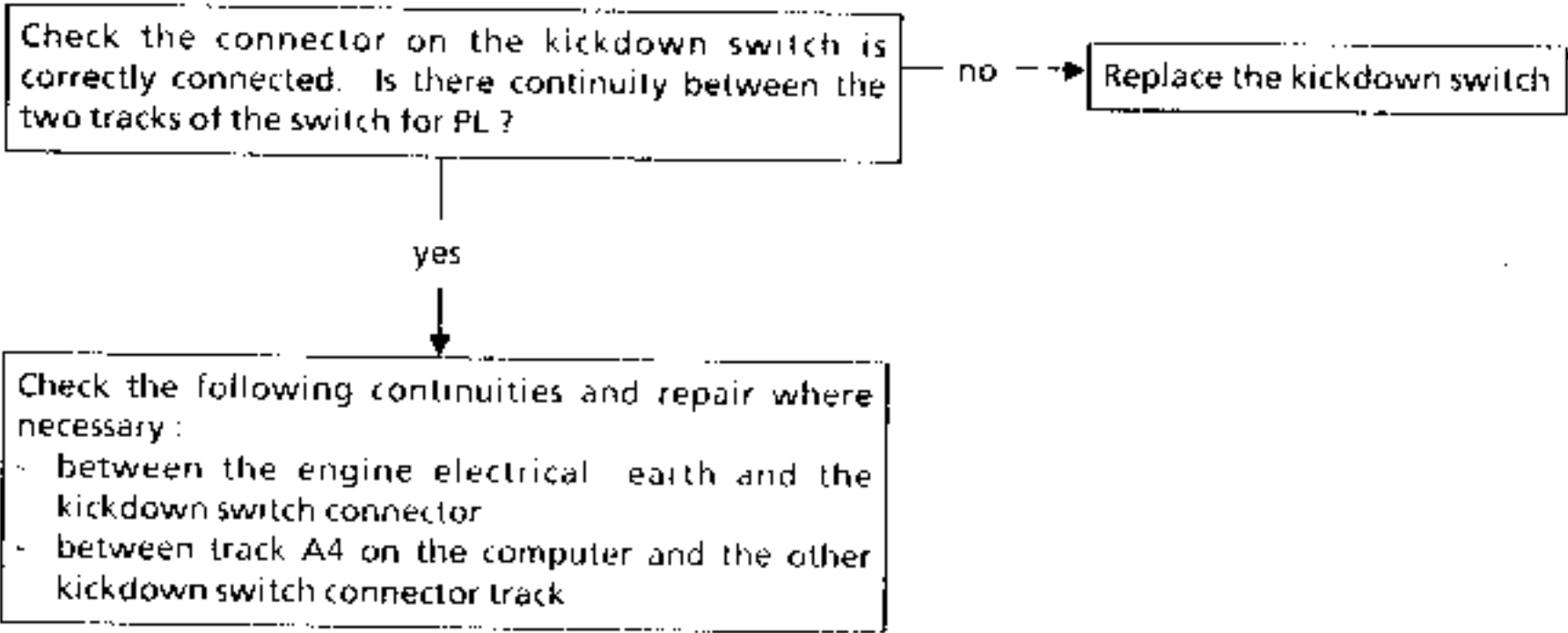
Check the battery voltage > 10,5 volts.  
Check the At fuse has not blown.  
Check the computer is correct for the vehicle type (Refer to identification tables in the "General" section)  
check continuity between the computer and diagnostic socket.  
Check that track 2 on the diagnostic socket is earth and track 6 is + battery.  
Check the correct computer feed :  
- Earth on track C1 of 6 track connector on multifunction switch.  
- + APC on tracks C1 and C2 of 18 tracks.  
Replace the computer if the fault persists after testing continuity on the 18 track and 6 track multifunction switch connectors (see page 23-68)  
If the computer has been replaced, erase the memory and validate the full load position. (see page 23-10)

**IMPORTANT : DO NOT FORGET TO ERASE THE MEMORY AND VALIDATE THE FULL LOAD POSITION  
(see P. 23-10)**

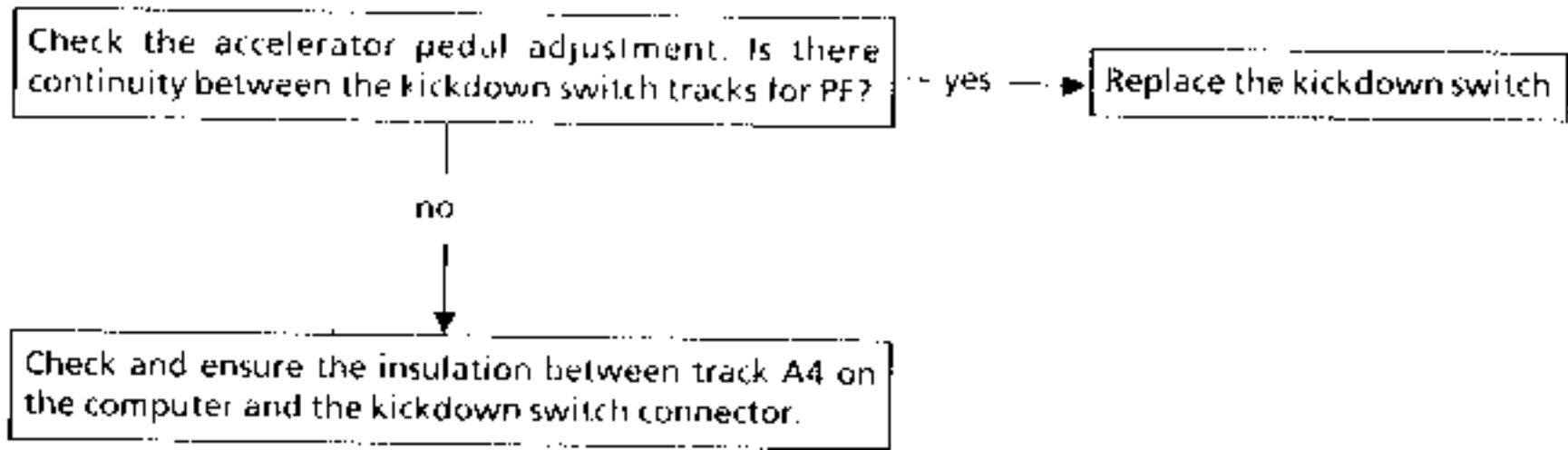
**BAR GRAPH 2 RIGHT** : Full load information for kickdown switch (only for AT AD4 all types and AR4 021, 025)

Illuminates for full load on the accelerator pedal

**Fault: Bar graph 2 right illuminates for no load**  
No earth on track A4 of computer.



**Bar graph 2 right extinguished for PF**  
Earth on track A4 of computer .



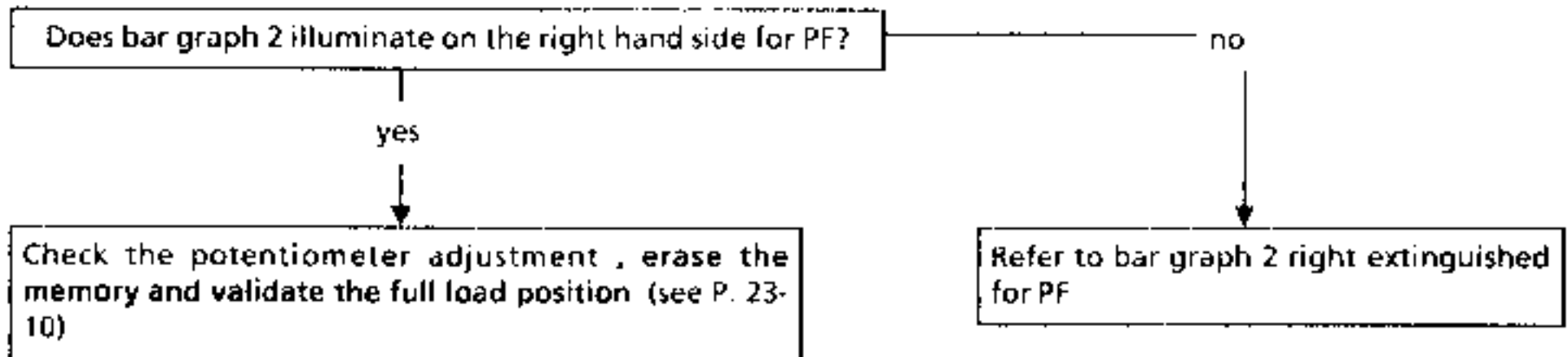
**BAR GRAPH 2 LEFT: Full load information for load potentiometer**

Illuminates for full load on the accelerator pedal

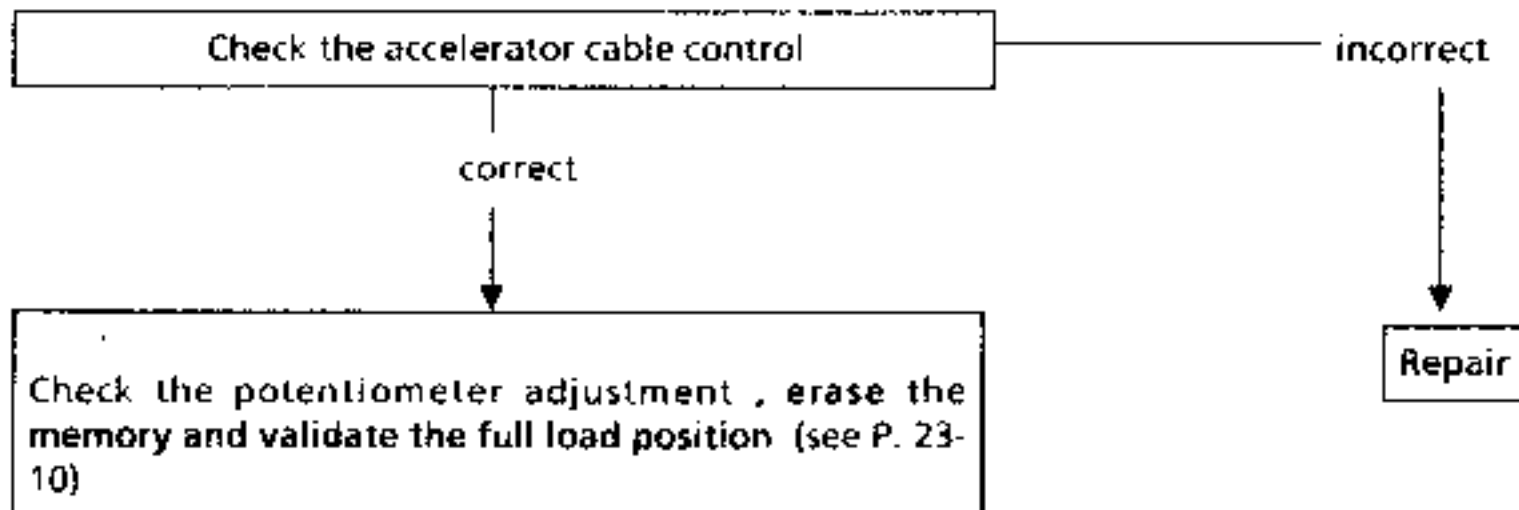
**Fault : Bar graph 2 left extinguished for full load**

If bar graph 10 is also illuminated, rectify bar graph 10 first

For AT AR4 021 - 025 and AD4 all types



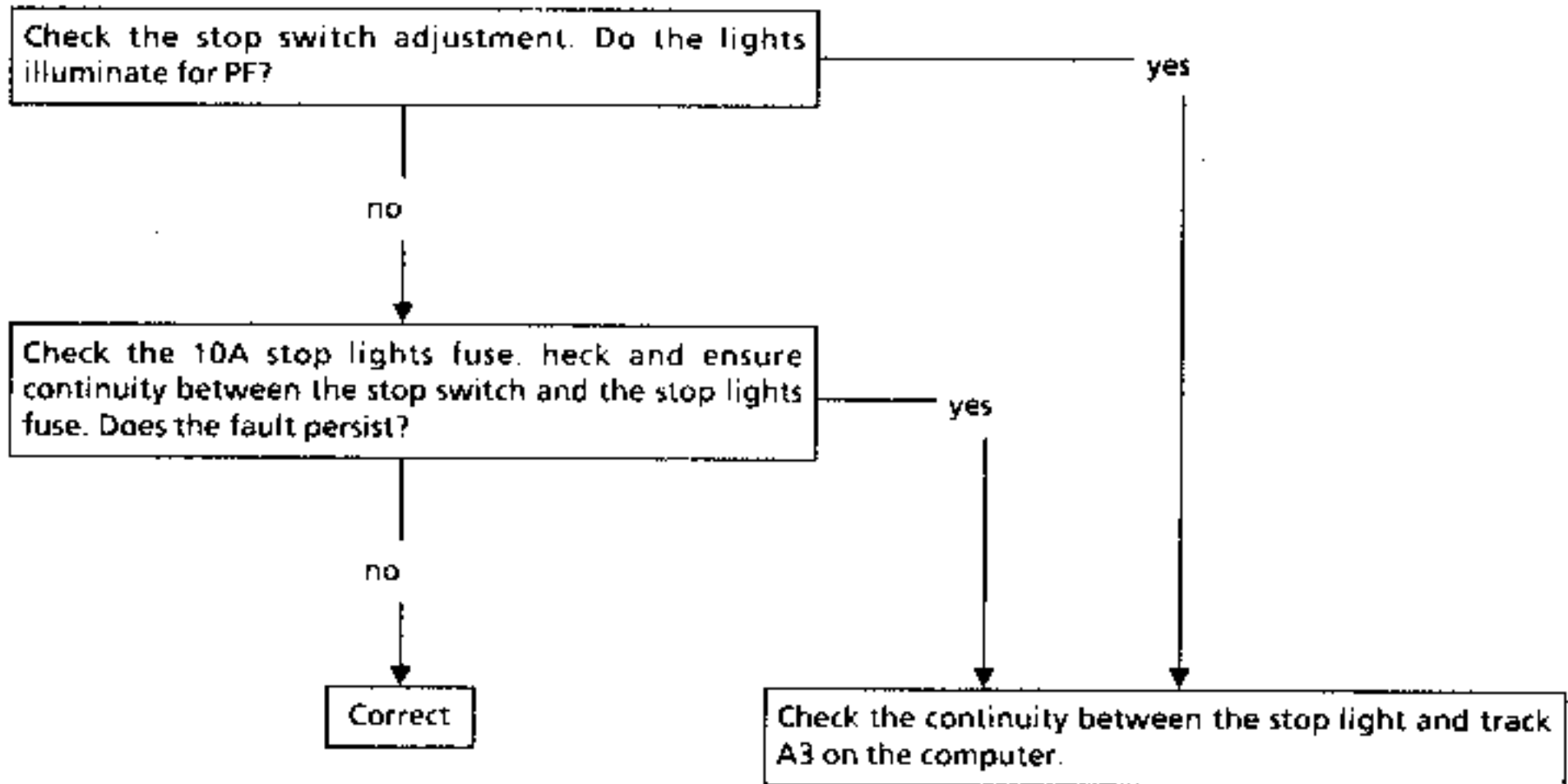
For AT AR4 other than AR4 021 - 025 :



**IMPORTANT : DO NOT FORGET TO ERASE THE MEMORY AND VALIDATE THE FULL LOAD POSITION  
(see P. 23-10)**

**BAR GRAPH 3 RIGHT: Extinguishes when brake pedal pressed**

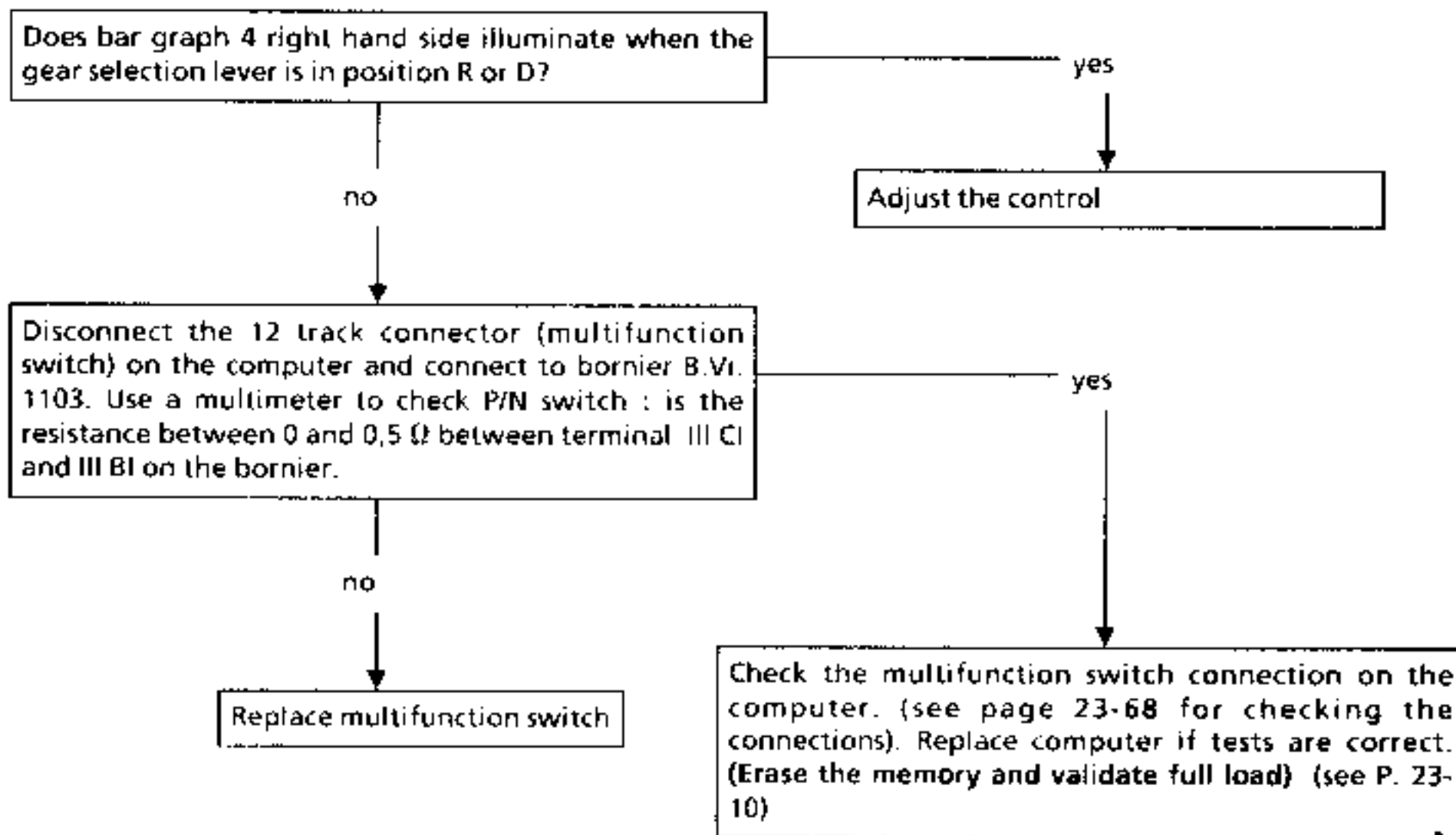
**Fault: Bar graph 3 permanently extinguished**



**BAR GRAPH 4 RIGHT** : Illuminated in "Park" or "Neutral".

Illuminates when the gear selection lever is in "Park" or "Neutral", showing that the starter may be operated.

**Fault** : Bar graph 4 extinguished on right in P/N.



**IMPORTANT** : DO NOT FORGET TO ERASE THE MEMORY AND VALIDATE THE FULL LOAD POSITION  
(see P. 23-10)

**BAR GRAPH 5** : Illuminates alternately on left /right hand sides depending on ECO/PERF switch selection.

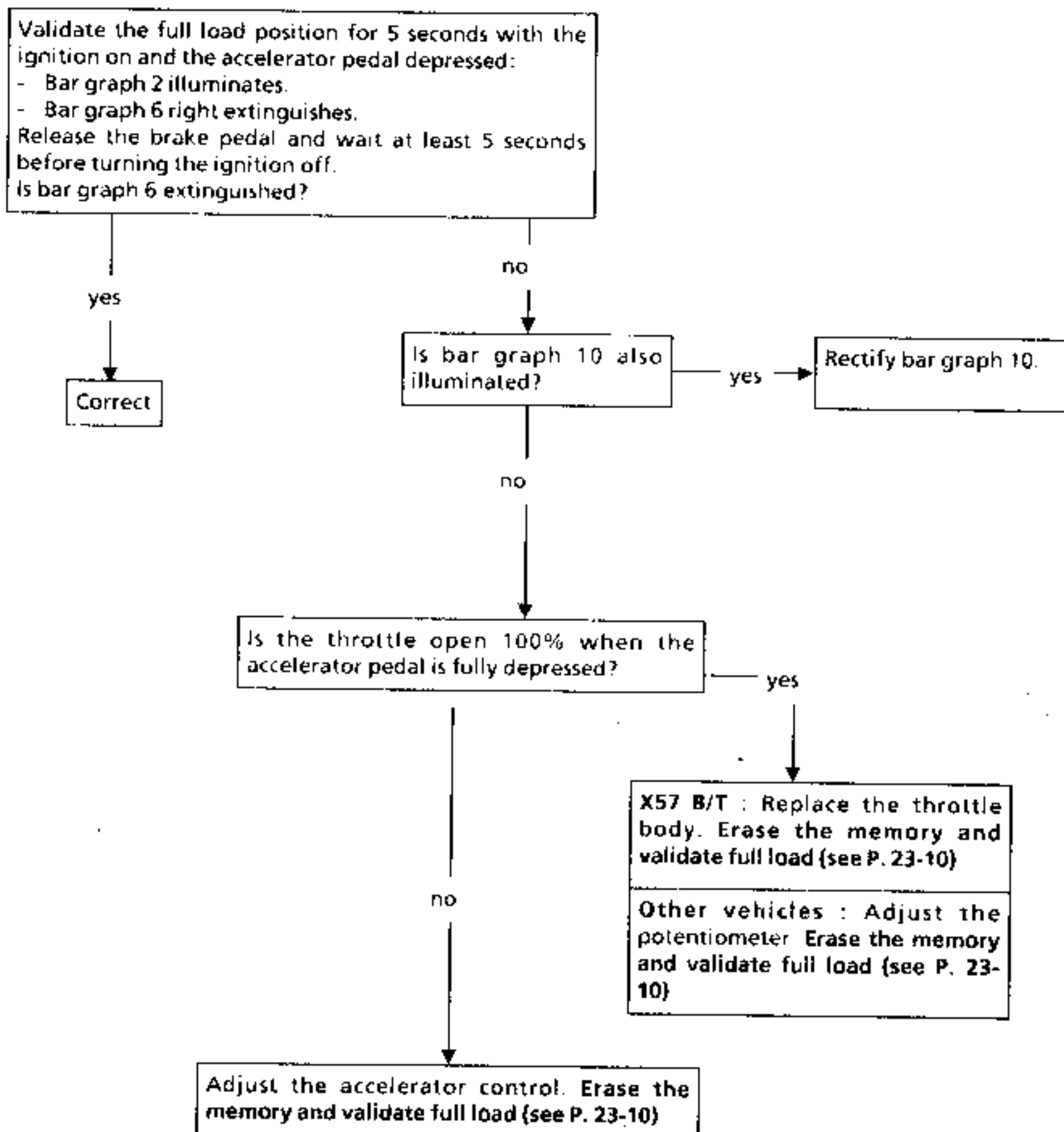
**Fault:** No alternate right/left illumination

Check connection of connector on ECO/PERF switch. Check the condition and operation of the switch. using a wiring diagram for the vehicle in question, check the feed and earth for the switch, as well as the continuity between the switch and the computer



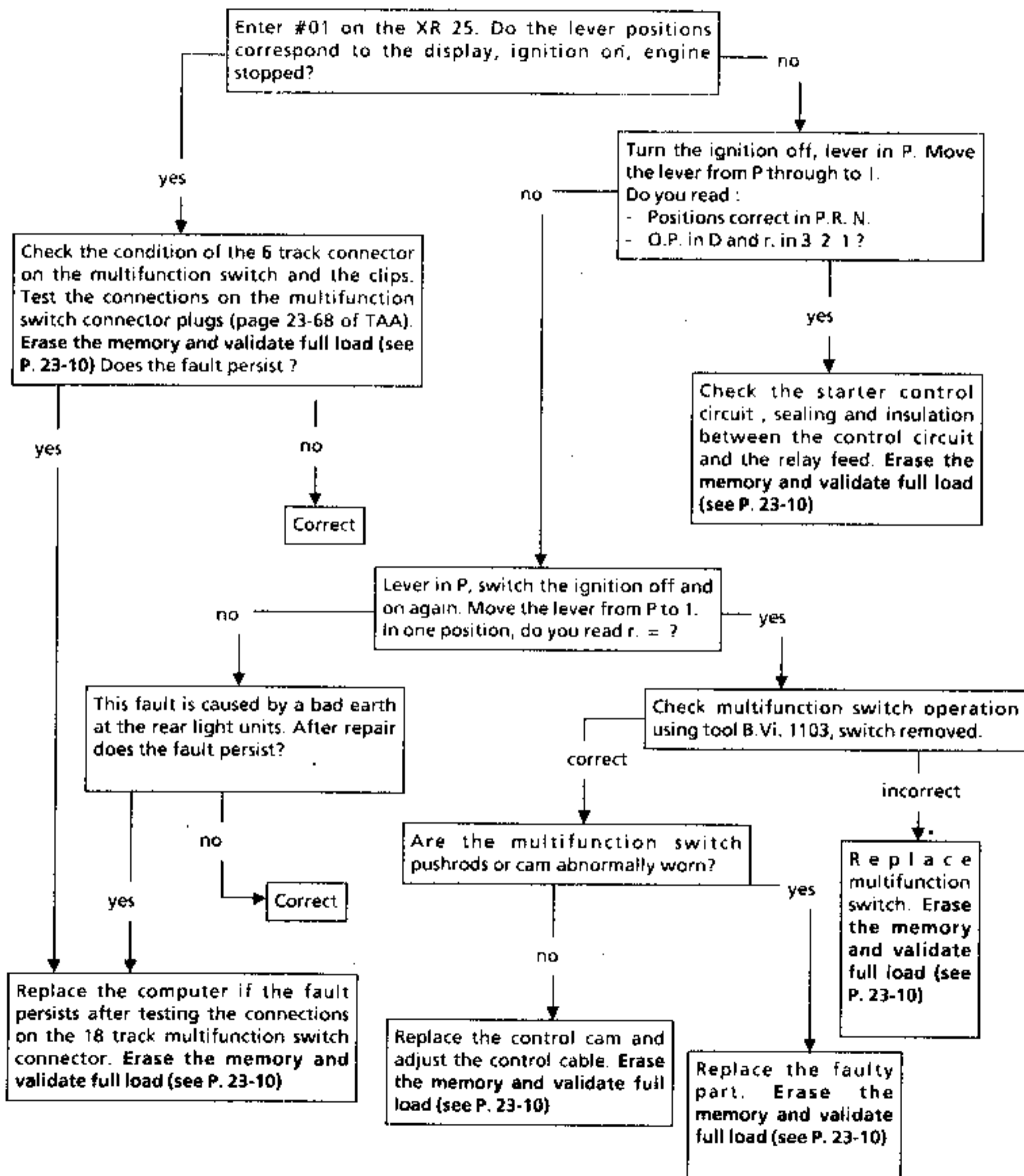
**BAR GRAPH 6 RIGHT: PF validation to be carried out**

**Fault : Bar graph 6 right illuminated.**



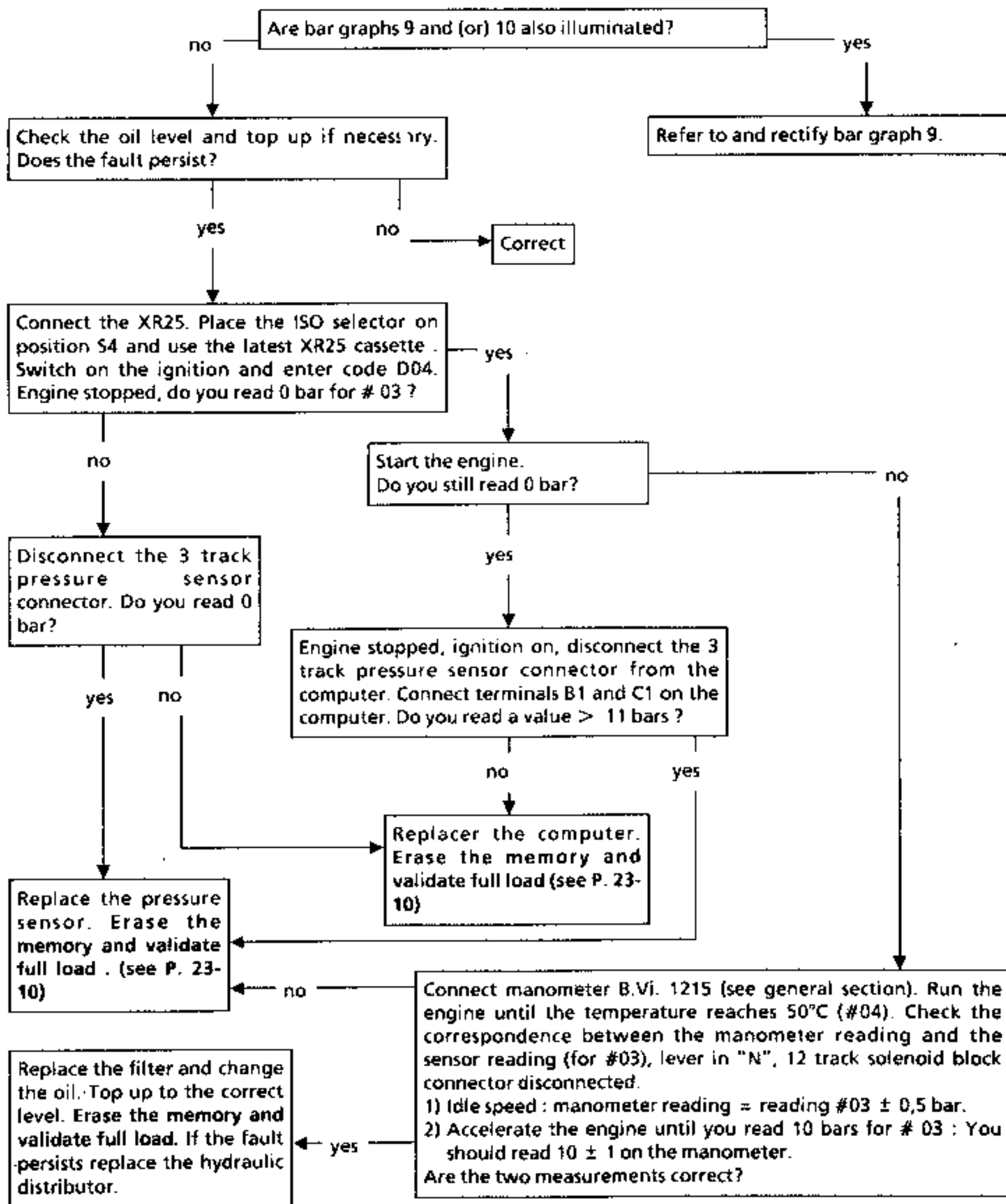
**IMPORTANT : DO NOT FORGET TO ERASE THE MEMORY AND VALIDATE THE FULL LOAD POSITION (see P. 23-10)**

**FAULT: BAR GRAPH 7 ILLUMINATED. (Fault on multifunction switch)**



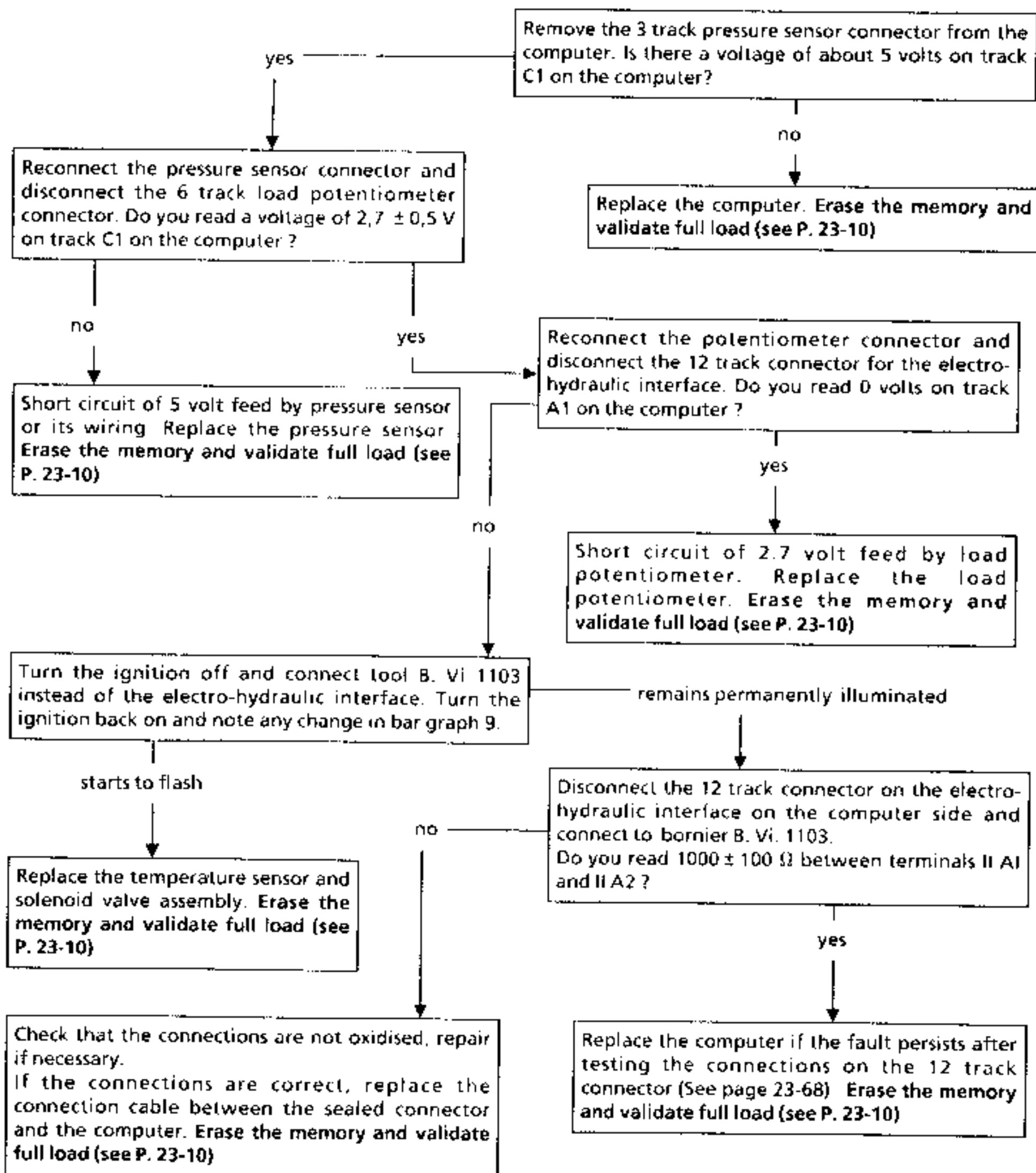
**IMPORTANT : DO NOT FORGET TO ERASE THE MEMORY AND VALIDATE THE FULL LOAD POSITION (see P. 23-10)**

**FAULT: BAR GRAPH 8 RIGHT ILLUMINATED. (Oil pressure circuit fault).**



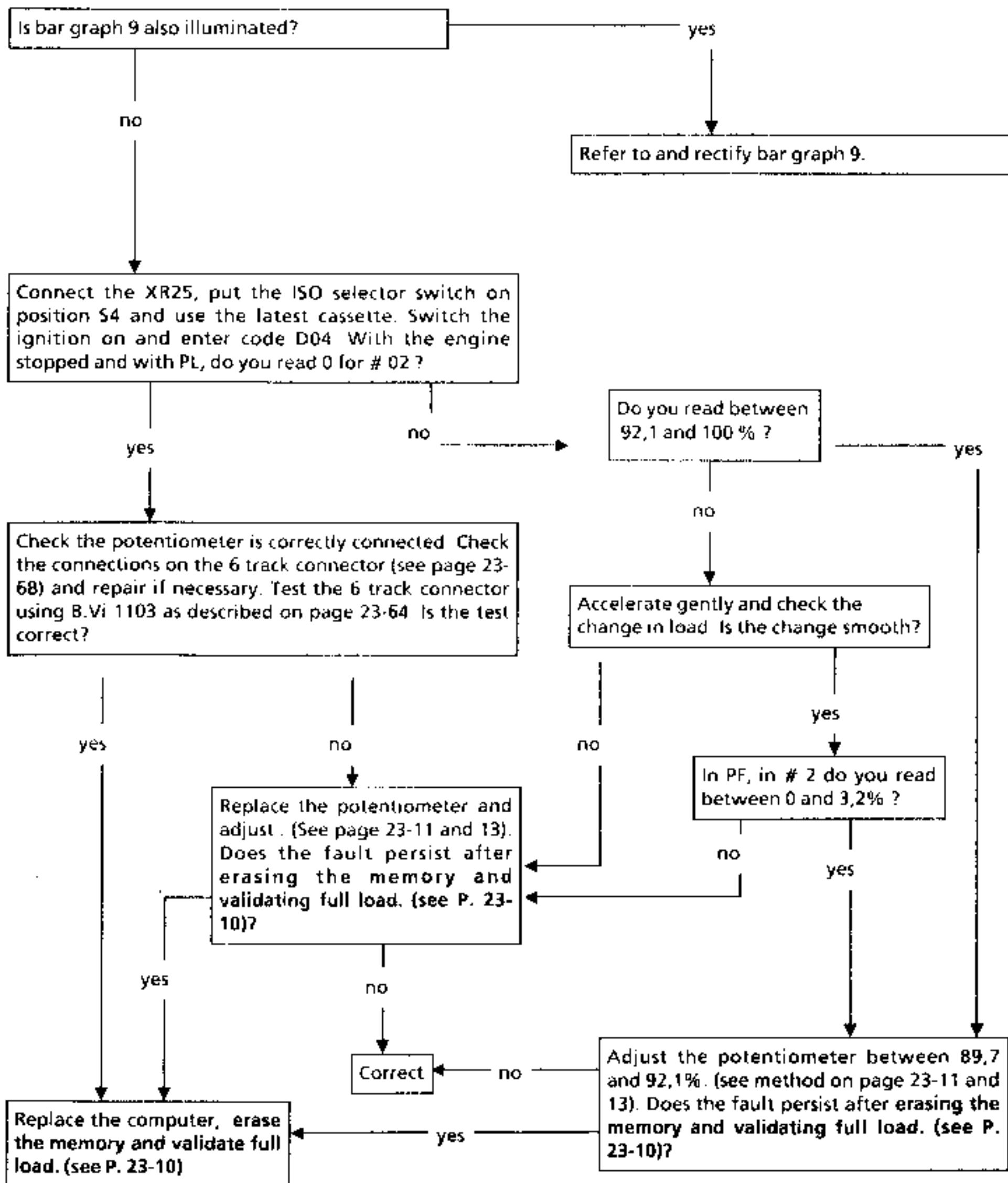
**IMPORTANT : DO NOT FORGET TO ERASE THE MEMORY AND VALIDATE THE FULL LOAD POSITION (see P. 23-10)**

- BAR GRAPH 9 ILLUMINATED PERMANENTLY ON RIGHT ONLY OR
- BAR GRAPH 9 ILLUMINATED PERMANENTLY PLUS BAR GRAPHS 8 AND (OR) 10 ILLUMINATED PERMANENTLY OR FLASHING

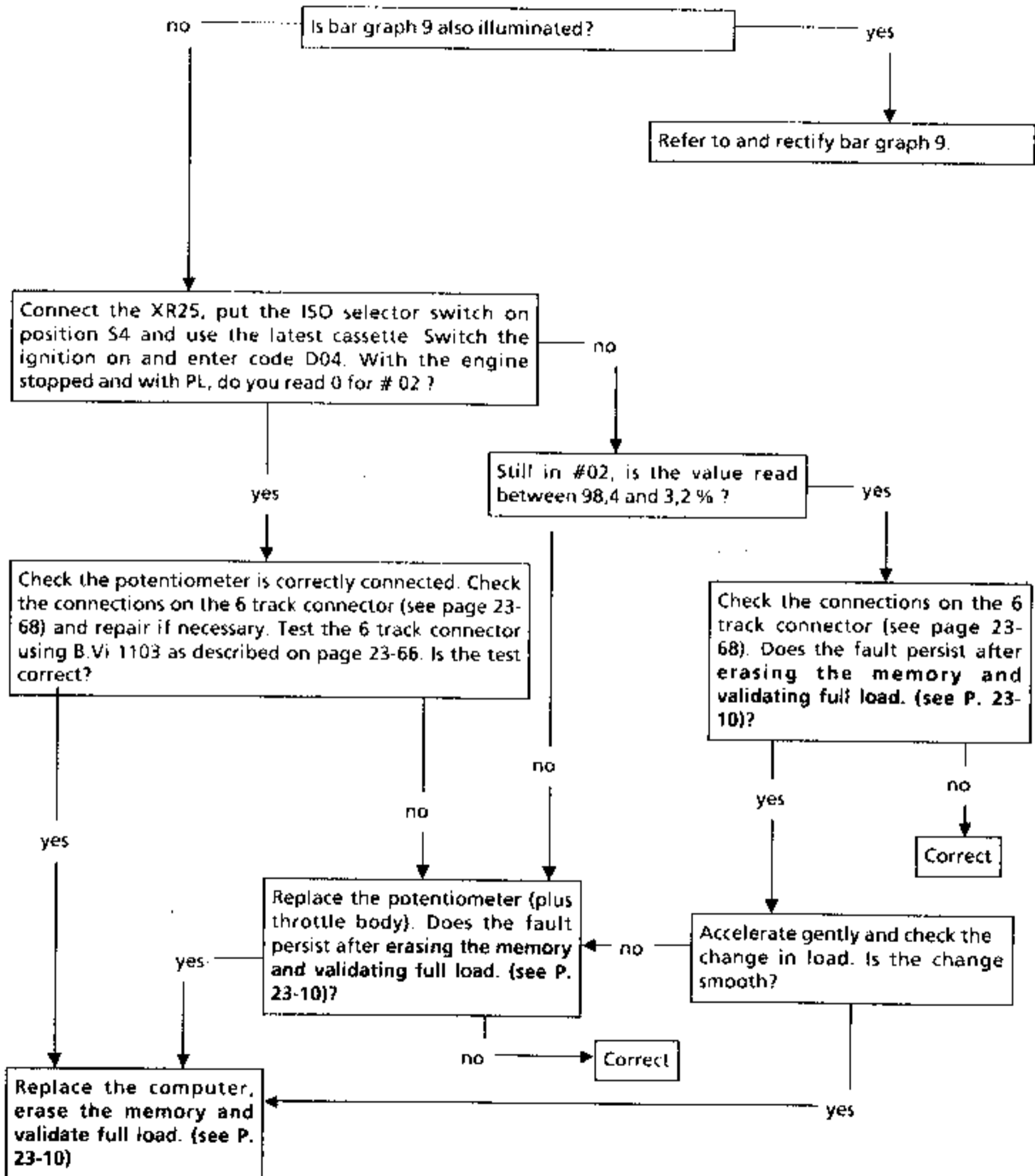


**IMPORTANT : DO NOT FORGET TO ERASE THE MEMORY AND VALIDATE THE FULL LOAD POSITION (see P. 23-10)**

**BAR GRAPH 10 RIGHT ILLUMINATED (Load potentiometer circuit fault)**



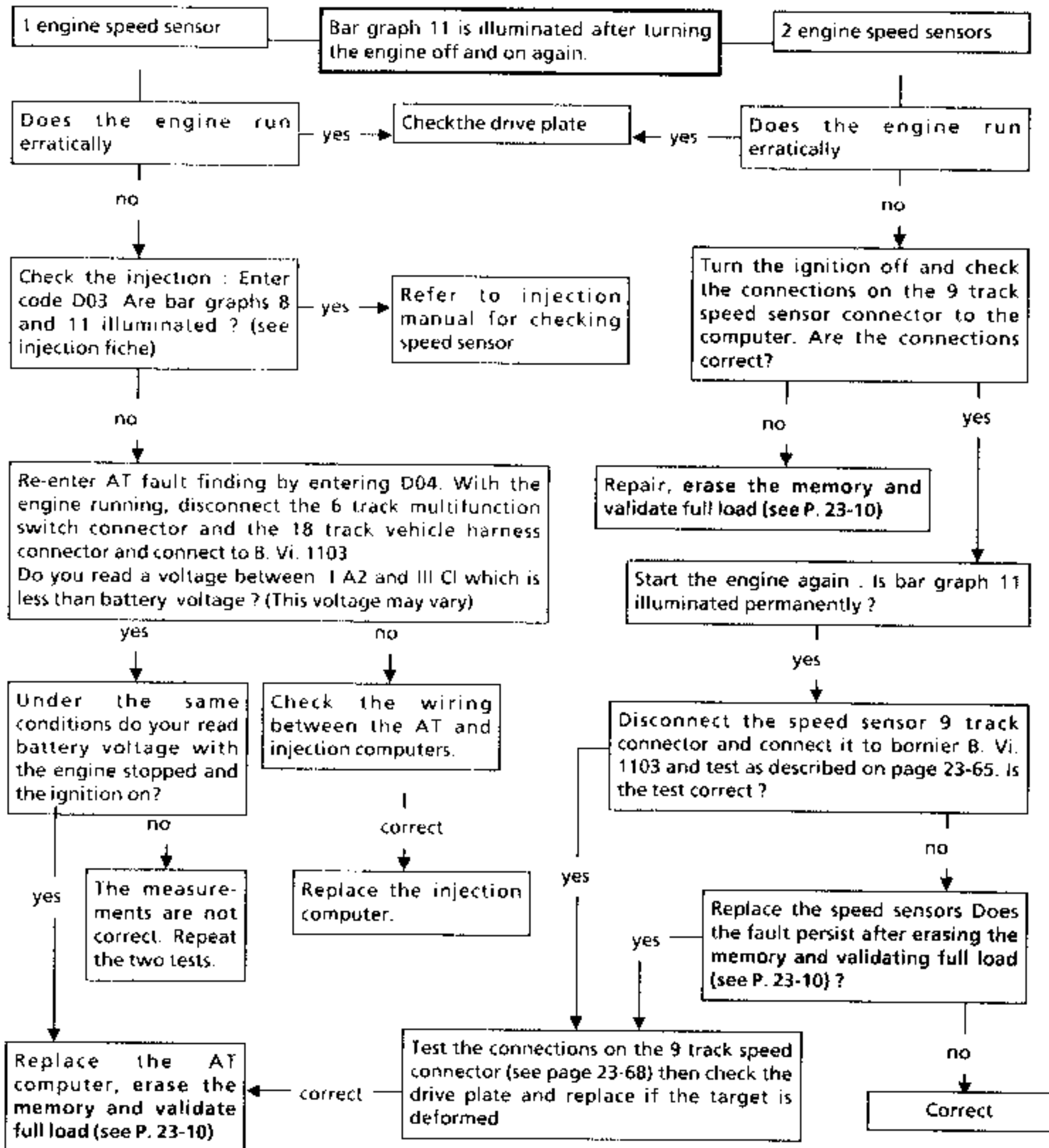
**IMPORTANT : DO NOT FORGET TO ERASE THE MEMORY AND VALIDATE THE FULL LOAD POSITION (see P. 23-10)**

**FAULT : BAR GRAPH 10 RIGHT ILLUMINATED (Load potentiometer circuit fault)**

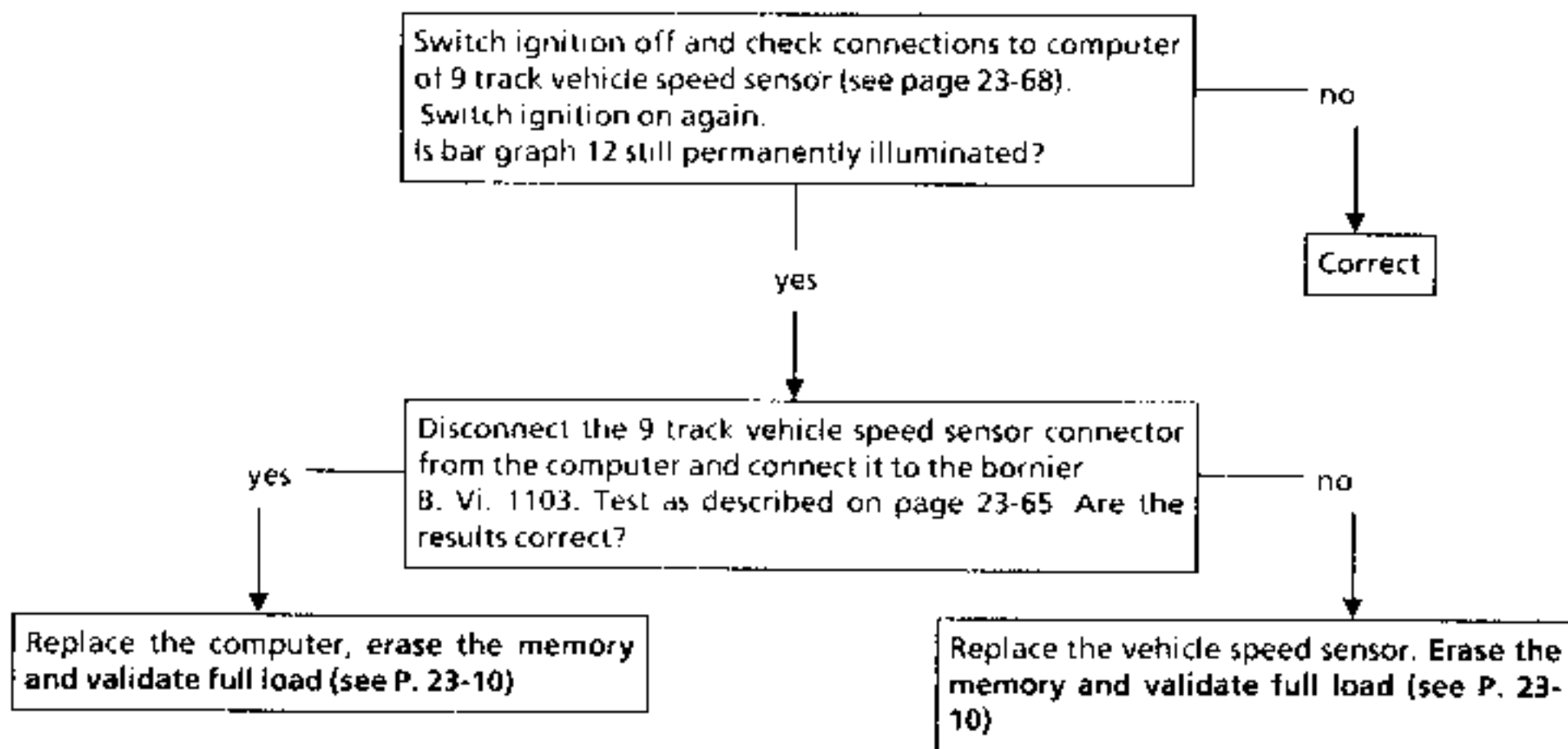
**IMPORTANT : DO NOT FORGET TO ERASE THE MEMORY AND VALIDATE THE FULL LOAD POSITION (see P. 23-10)**

**FAULT: BAR GRAPH 11 RIGHT ILLUMINATED ENGINE RUNNING (engine speed fault)**

On vehicles fitted with F2N engines and AT AD4, diode relays must be used for controlling the opening solenoid valves for the throttle opening. If conventional relays have been used, replace them (see Technical Note 1703)



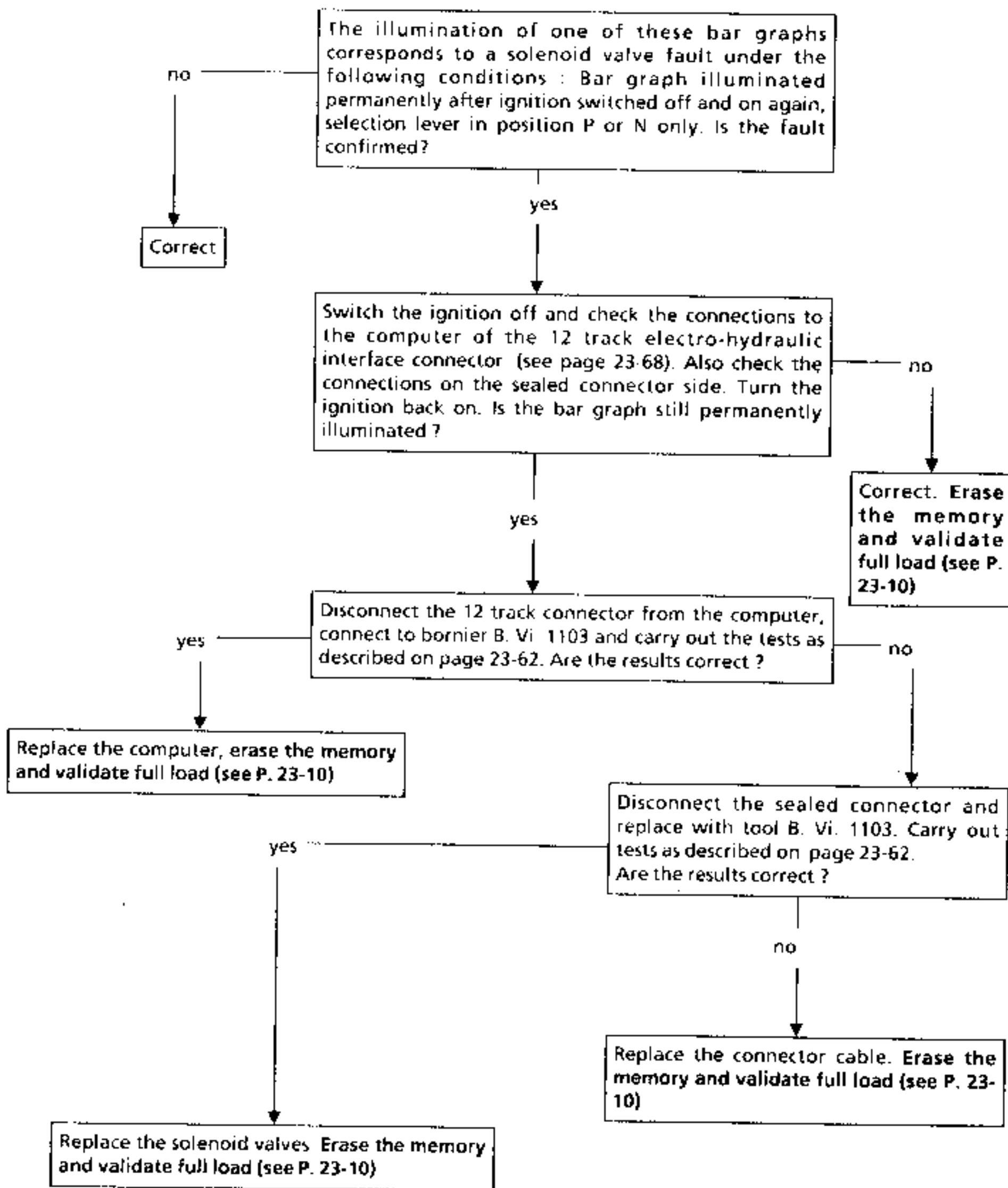
**FAULT: BAR GRAPH 12 RIGHT ILLUMINATED AFTER IGNITION SWITCHED OFF AND ON AGAIN (vehicle speed fault)**



**IMPORTANT : DO NOT FORGET TO ERASE THE MEMORY AND VALIDATE THE FULL LOAD POSITION (see P. 23-10)**

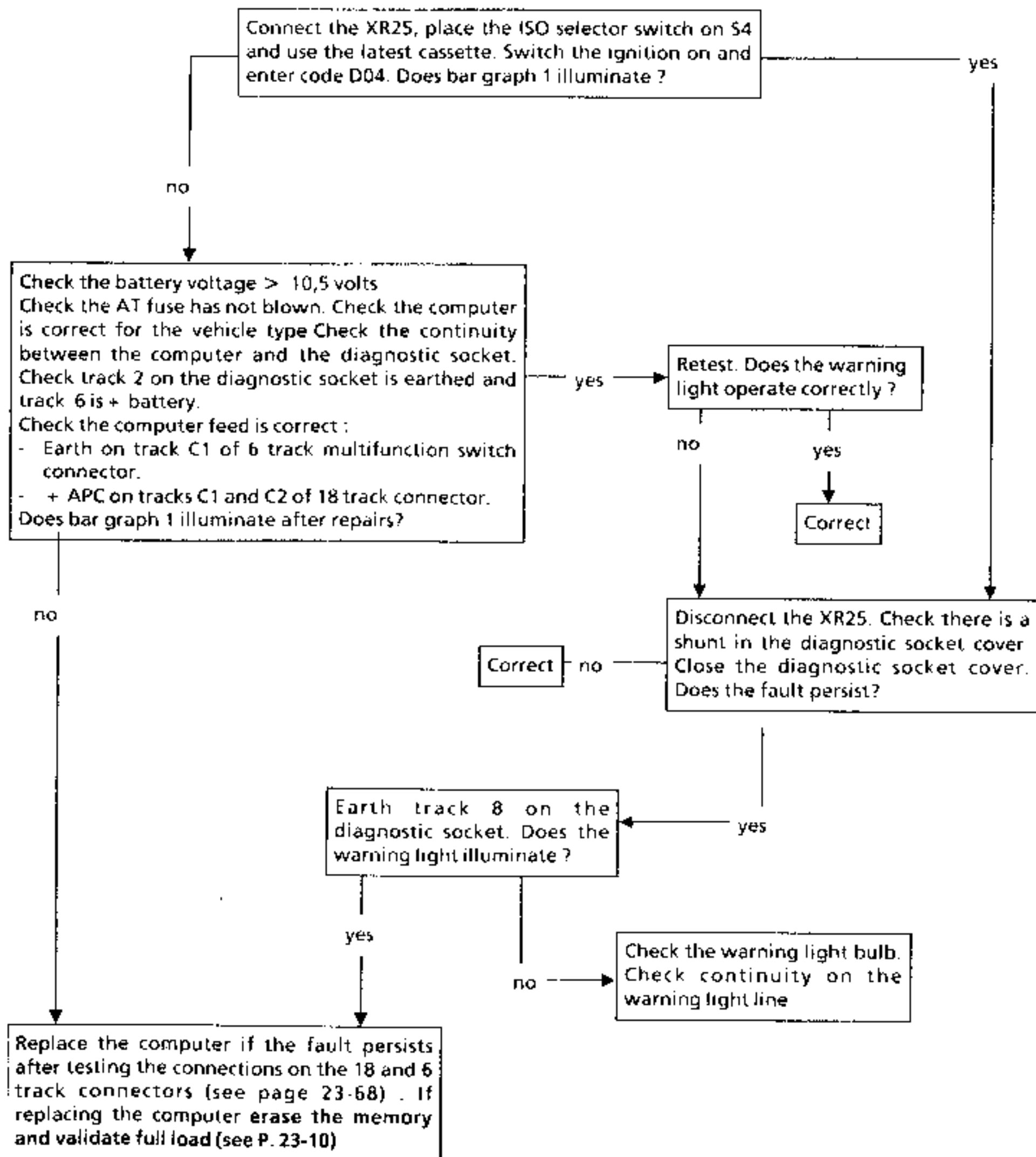


**FAULT: BAR GRAPHS 14 TO 19 ILLUMINATED ON RIGHT AND LEFT AFTER IGNITION SWITCHED OFF AND ON AGAIN (solenoid valve fault)**



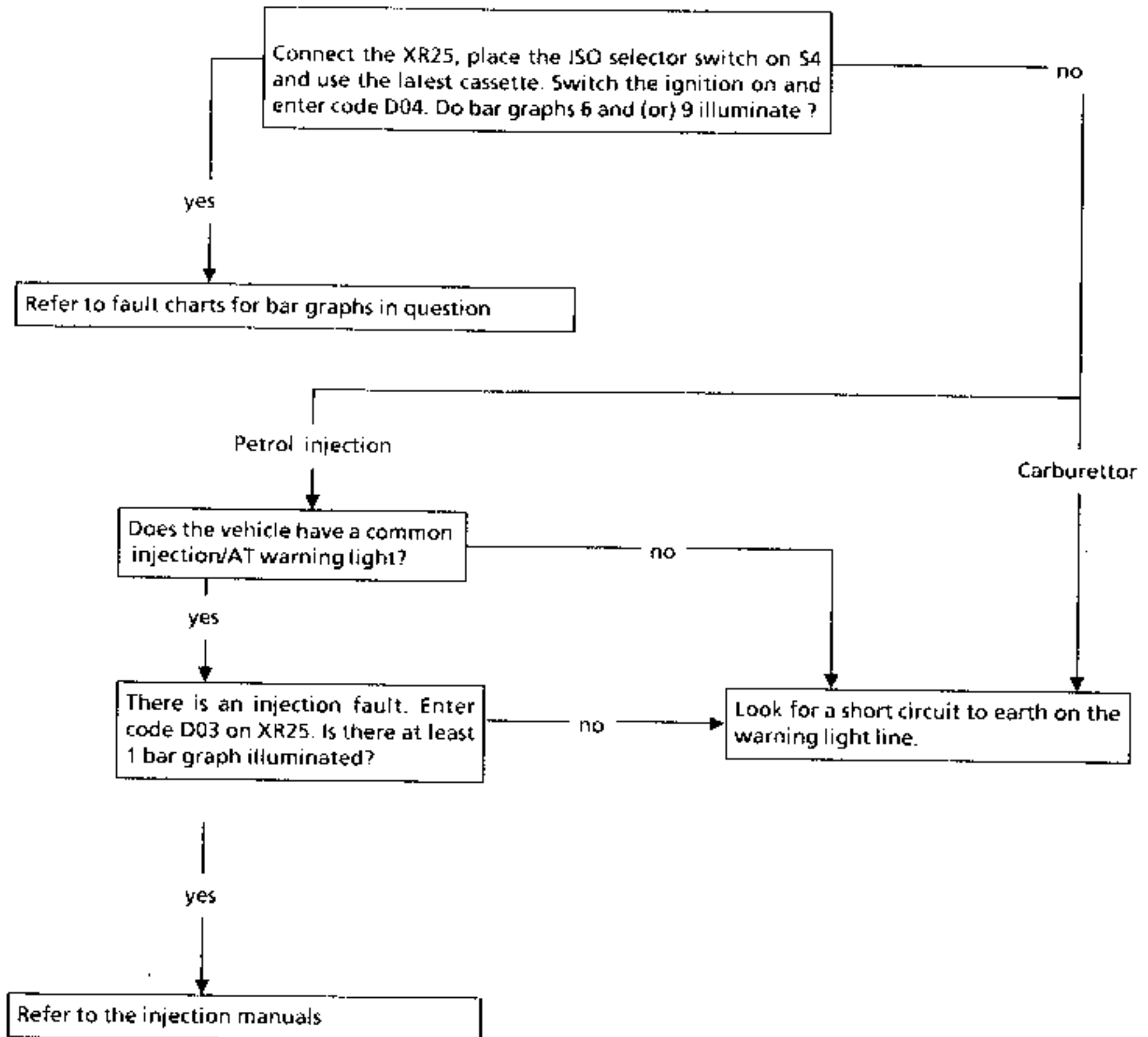
**IMPORTANT : DO NOT FORGET TO ERASE THE MEMORY AND VALIDATE THE FULL LOAD POSITION (see P. 23-10)**

**FAULT : THE WARNING LIGHT DOES NOT REMAIN ILLUMINATED FOR 3 SECONDS AFTER THE ENGINE HAS BEEN STARTED**



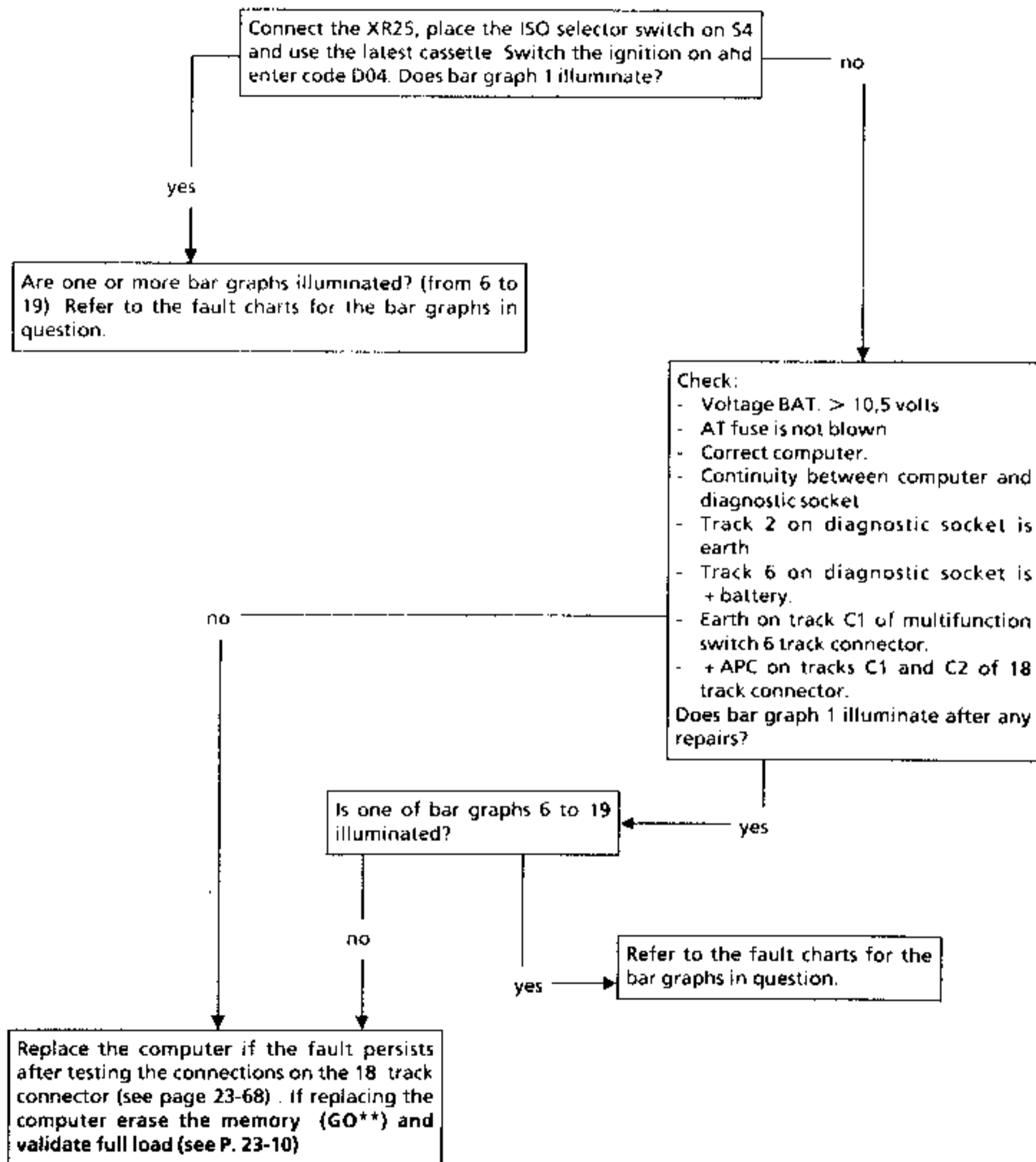
**IMPORTANT : DO NOT FORGET TO ERASE THE MEMORY AND VALIDATE THE FULL LOAD POSITION (see P. 23-10)**

**FAULT: FAULT WARNING LIGHT PERMANENTLY ILLUMINATED WHILE DRIVING, PERSISTS AFTER ENGINE STARTED AGAIN, WITHOUT AT FAULT.**



**IMPORTANT : DO NOT FORGET TO ERASE THE MEMORY AND VALIDATE THE FULL LOAD POSITION (see P. 23-10)**

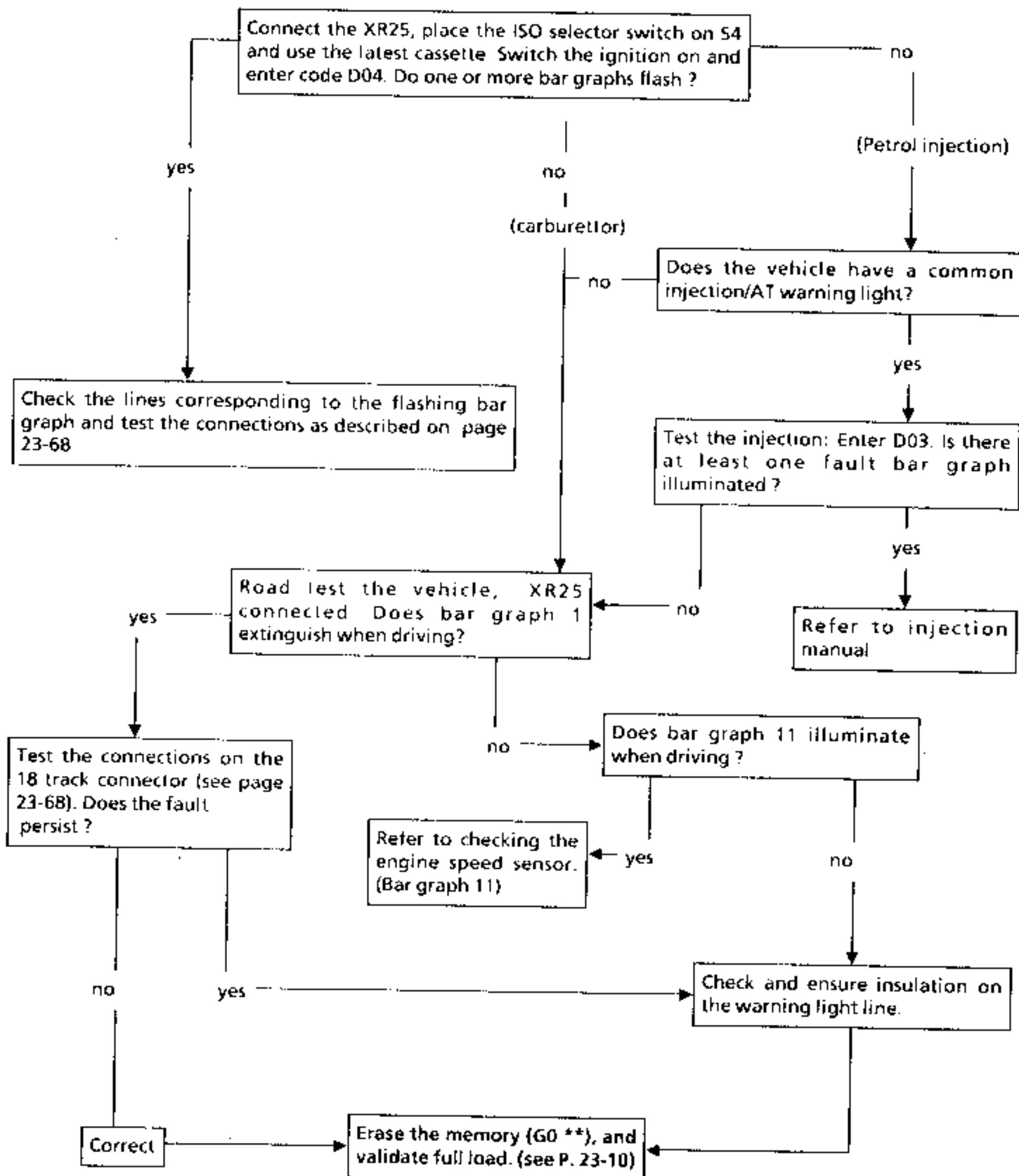
**FAULT: FAULT WARNING LIGHT PERMANENTLY ILLUMINATED WHILE DRIVING, PERSISTS AFTER ENGINE STARTED AGAIN, WITH AT FAULT.**



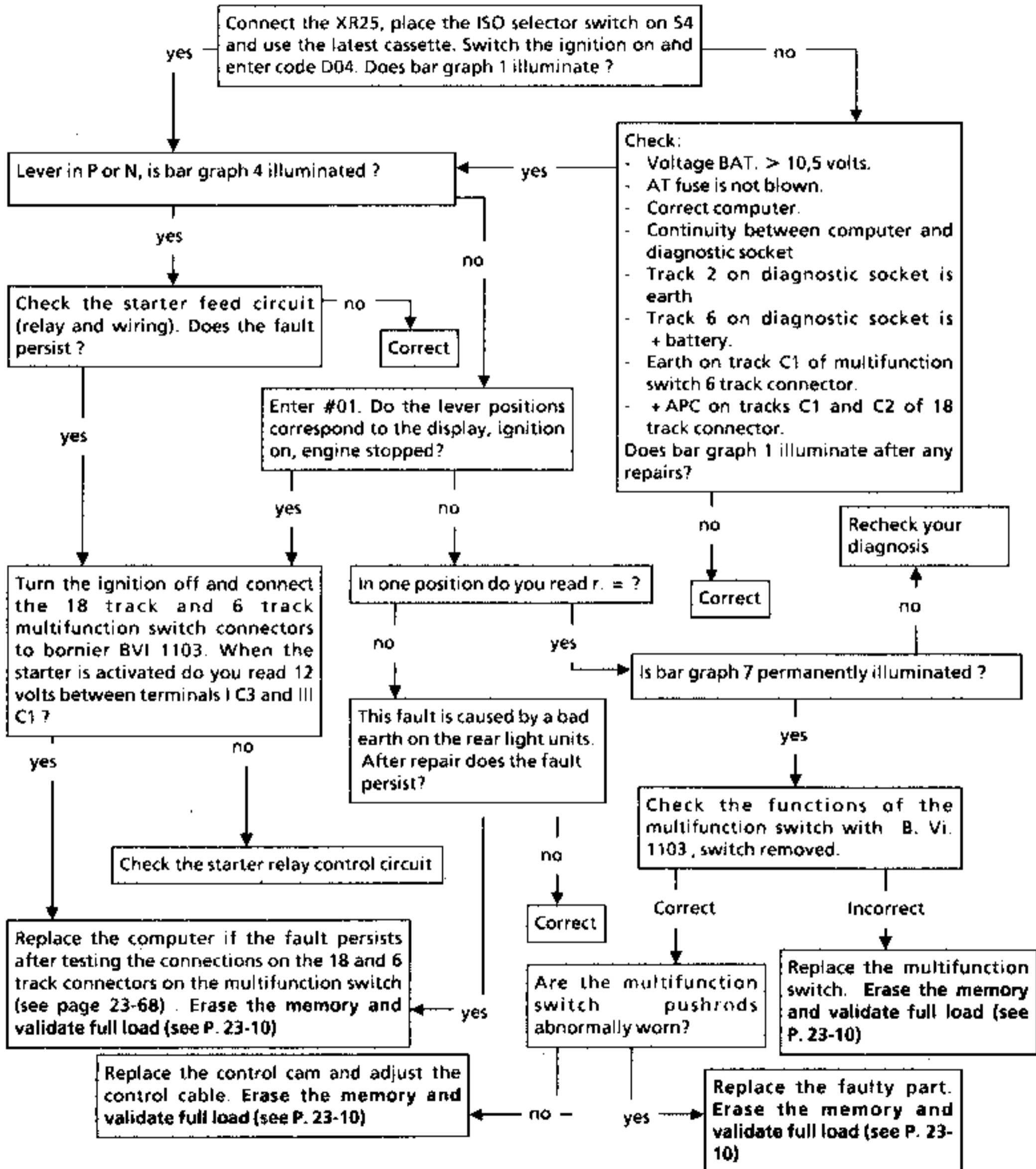
**IMPORTANT : DO NOT FORGET TO ERASE THE MEMORY AND VALIDATE THE FULL LOAD POSITION (see P. 23-10)**

**FAULT : WARNING LIGHT ILLUMINATES PERMANENTLY OR INTERMITTENTLY WHILE DRIVING, DISAPPEARS AFTER ENGINE STARTED AGAIN.**

**IMPORTANT :** Before any action, check under the bonnet that the HT wires and AT wiring is clean.

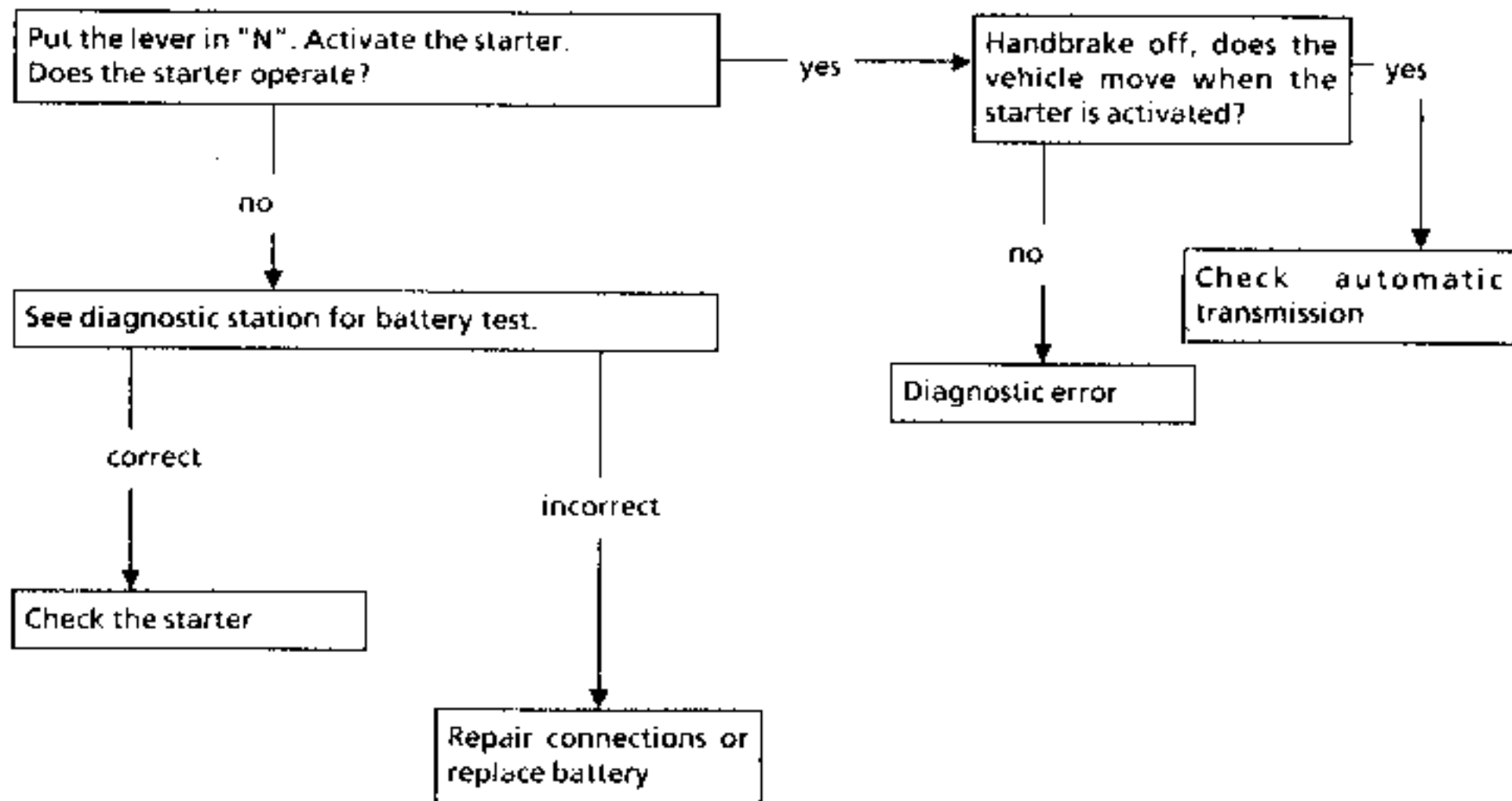


**IMPORTANT :** DO NOT FORGET TO ERASE THE MEMORY AND VALIDATE THE FULL LOAD POSITION (see P. 23-10)

**FAULT: THE STARTER DOES NOT ENGAGE IN POSITIONS P AND (OR) N.**

**IMPORTANT : DO NOT FORGET TO ERASE THE MEMORY AND VALIDATE THE FULL LOAD POSITION (see P. 23-10)**

**FAULT: THE STARTER ENGAGES THE ENGINE DOES NOT TURN, WARNING LIGHTS ON INSTRUMENT PANEL DIM, LEVER IN "P".**

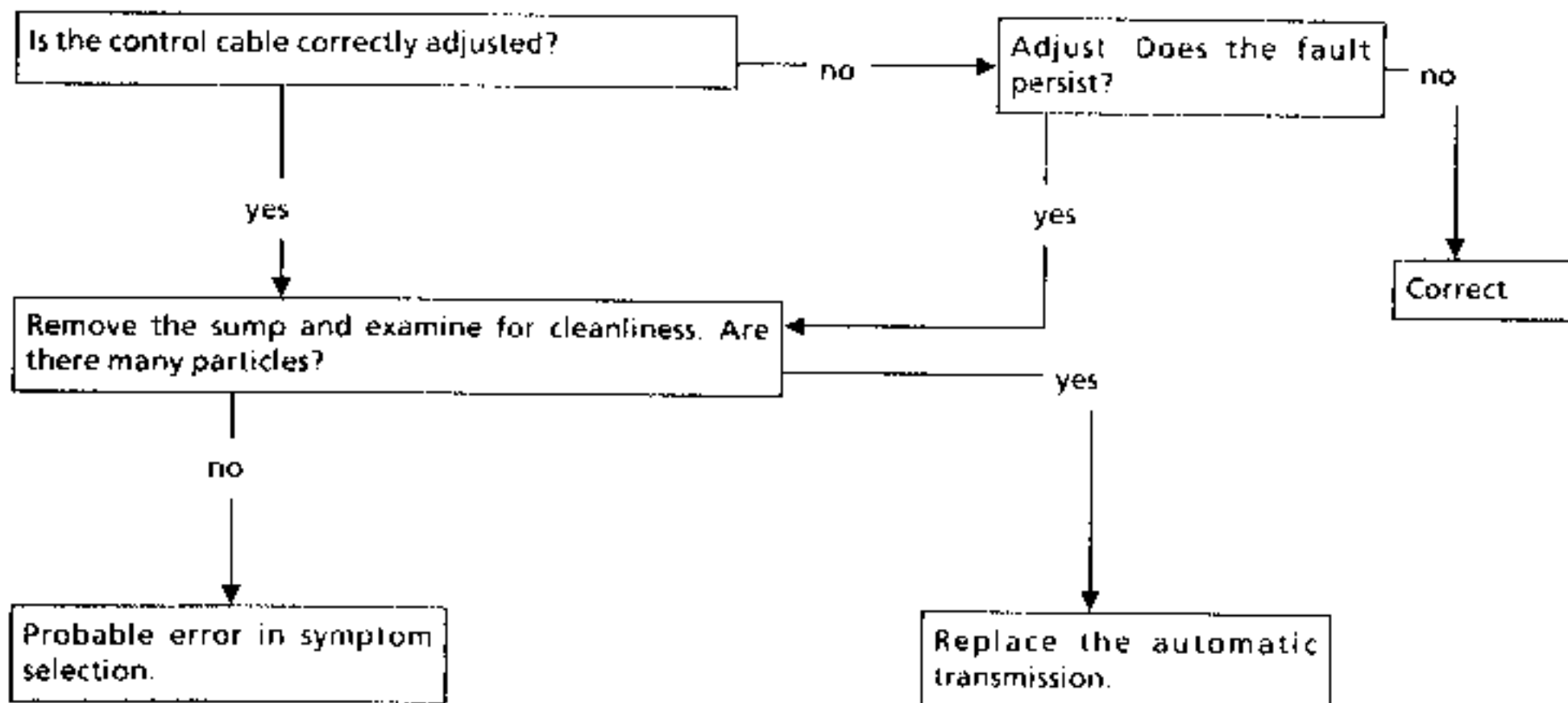


**IMPORTANT : DO NOT FORGET TO ERASE THE MEMORY AND VALIDATE THE FULL LOAD POSITION  
(see P. 23-10)**

**Fault: The starter engages in positions other than "P" and "N" :**

Identical fault finding to bar graph 7 page 23-26.

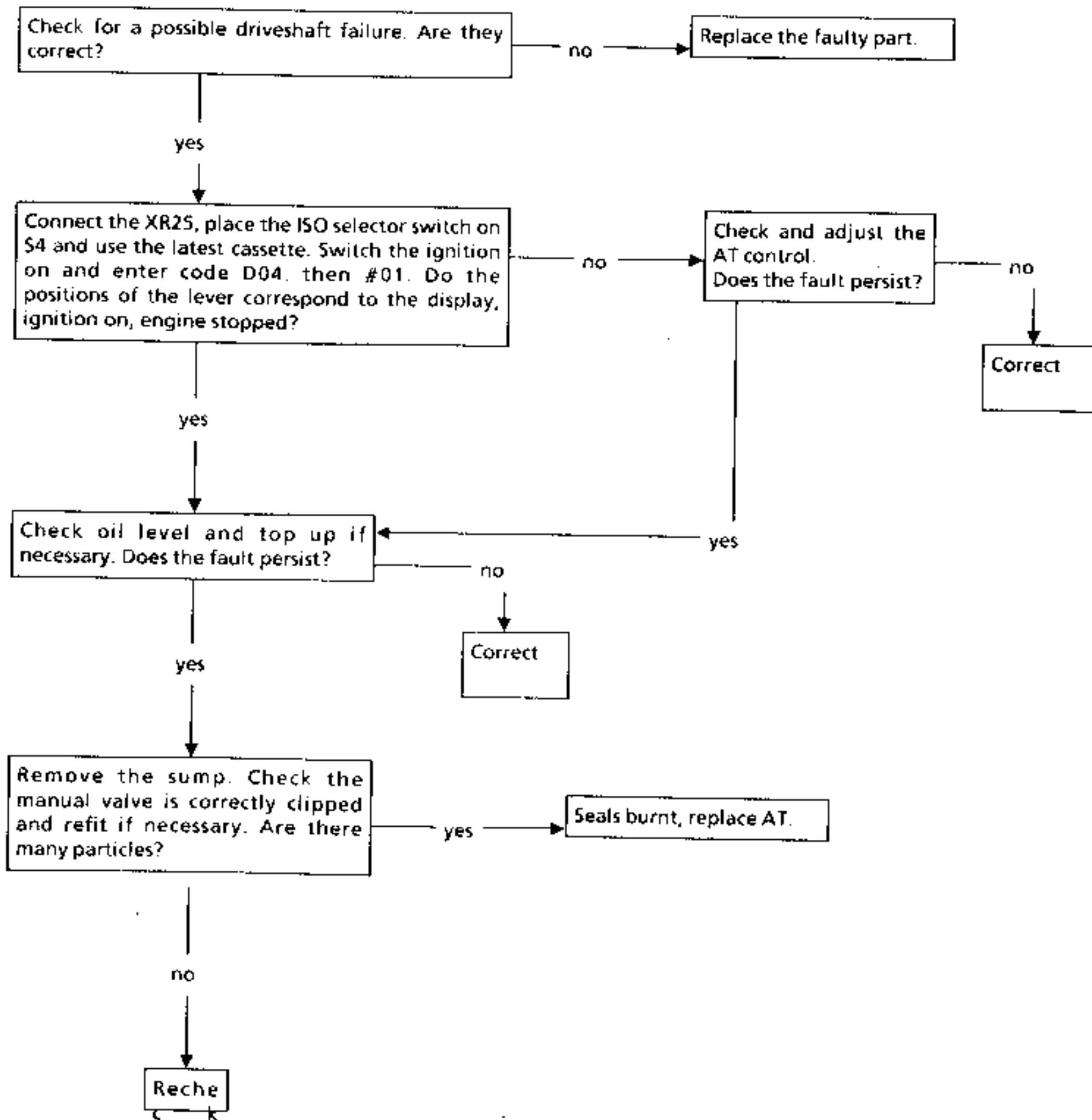
**FAULT: VEHICLE MOVES FORWARDS OR BACKWARDS IN POSITION "N" OTHER THAN SURGING WHEN COLD (+ 60°C)**



**IMPORTANT : DO NOT FORGET TO ERASE THE MEMORY AND VALIDATE THE FULL LOAD POSITION**  
(see P. 23-10)

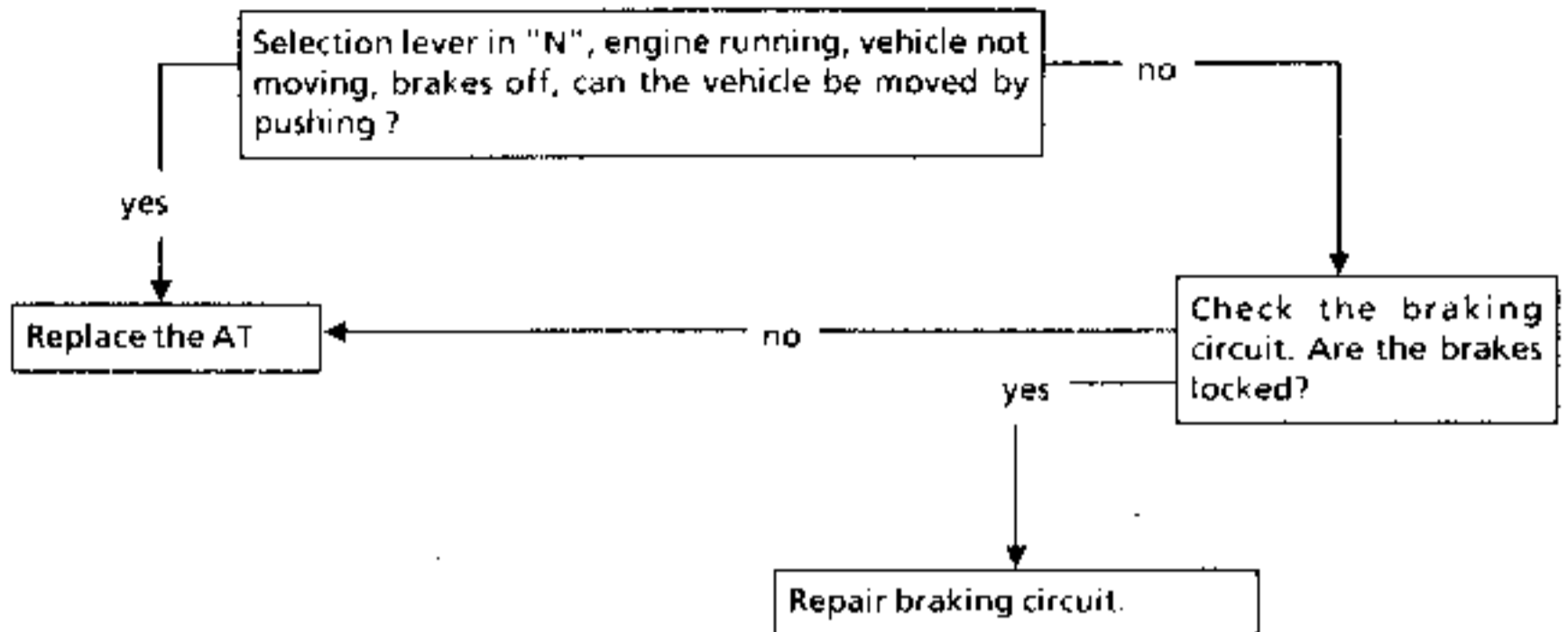


**FAULT : NO DRIVE IN FORWARD OR REVERSE GEARS, WARNING LIGHT DOES NOT ILLUMINATE, ENGINE RACING**



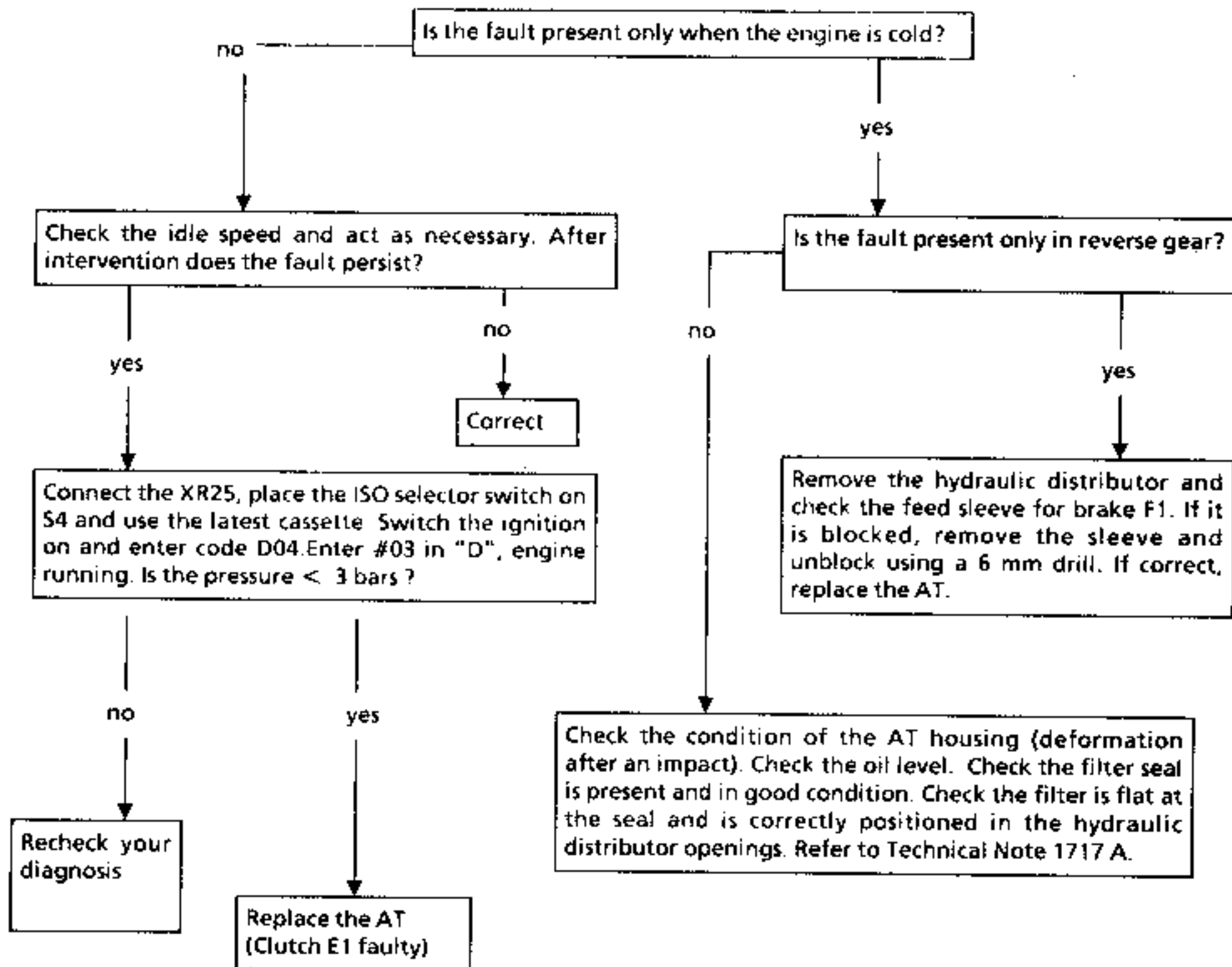
**IMPORTANT : DO NOT FORGET TO ERASE THE MEMORY AND VALIDATE THE FULL LOAD POSITION (see P. 23-10)**

**FAULT : NO DRIVE, WARNING LIGHT DOES NOT ILLUMINATE, ENGINE SPEED LIMITED TO STALLING POINT (APPROX. 2200 rpm)**



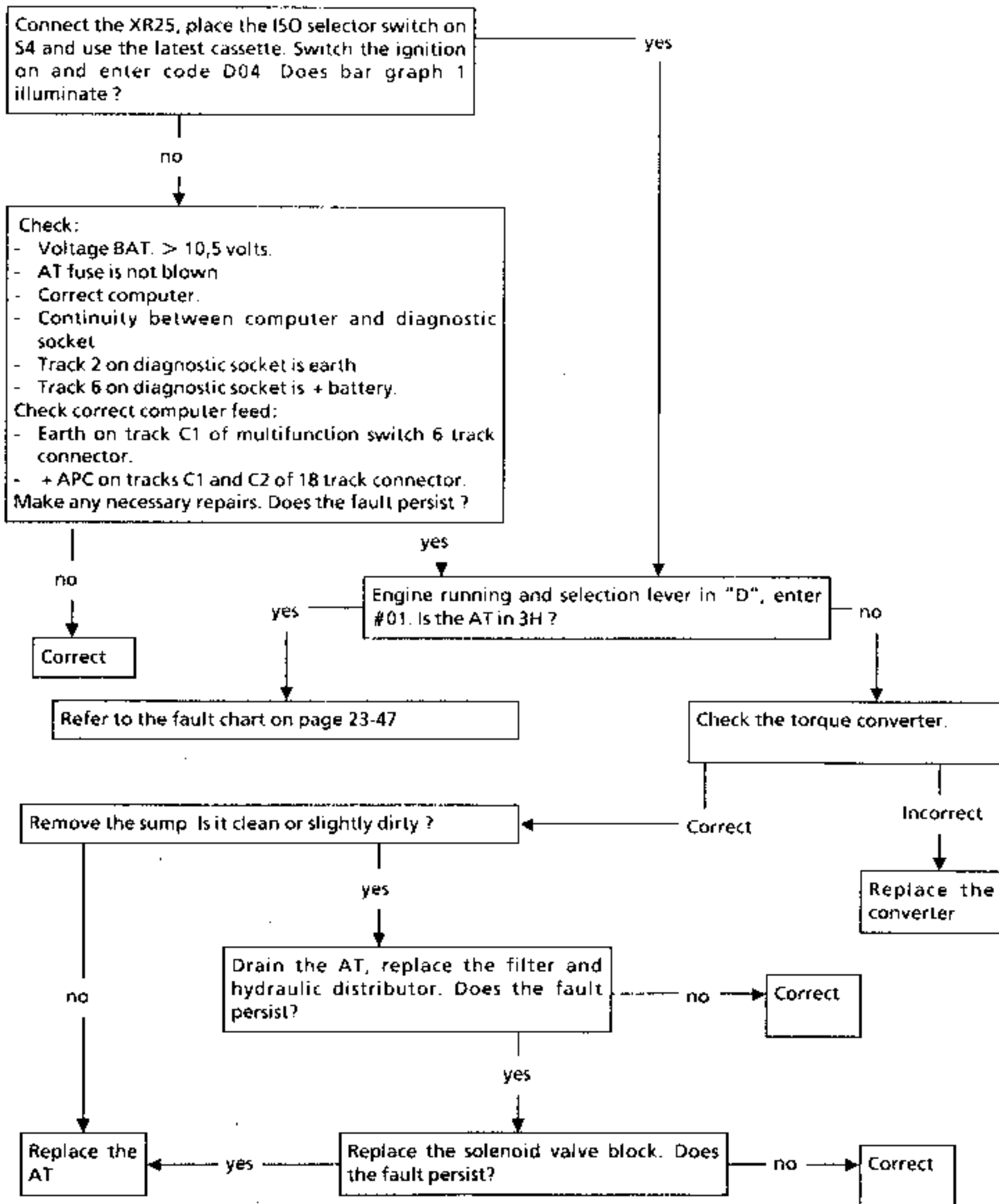
**IMPORTANT : DO NOT FORGET TO ERASE THE MEMORY AND VALIDATE THE FULL LOAD POSITION (see P. 23-10)**

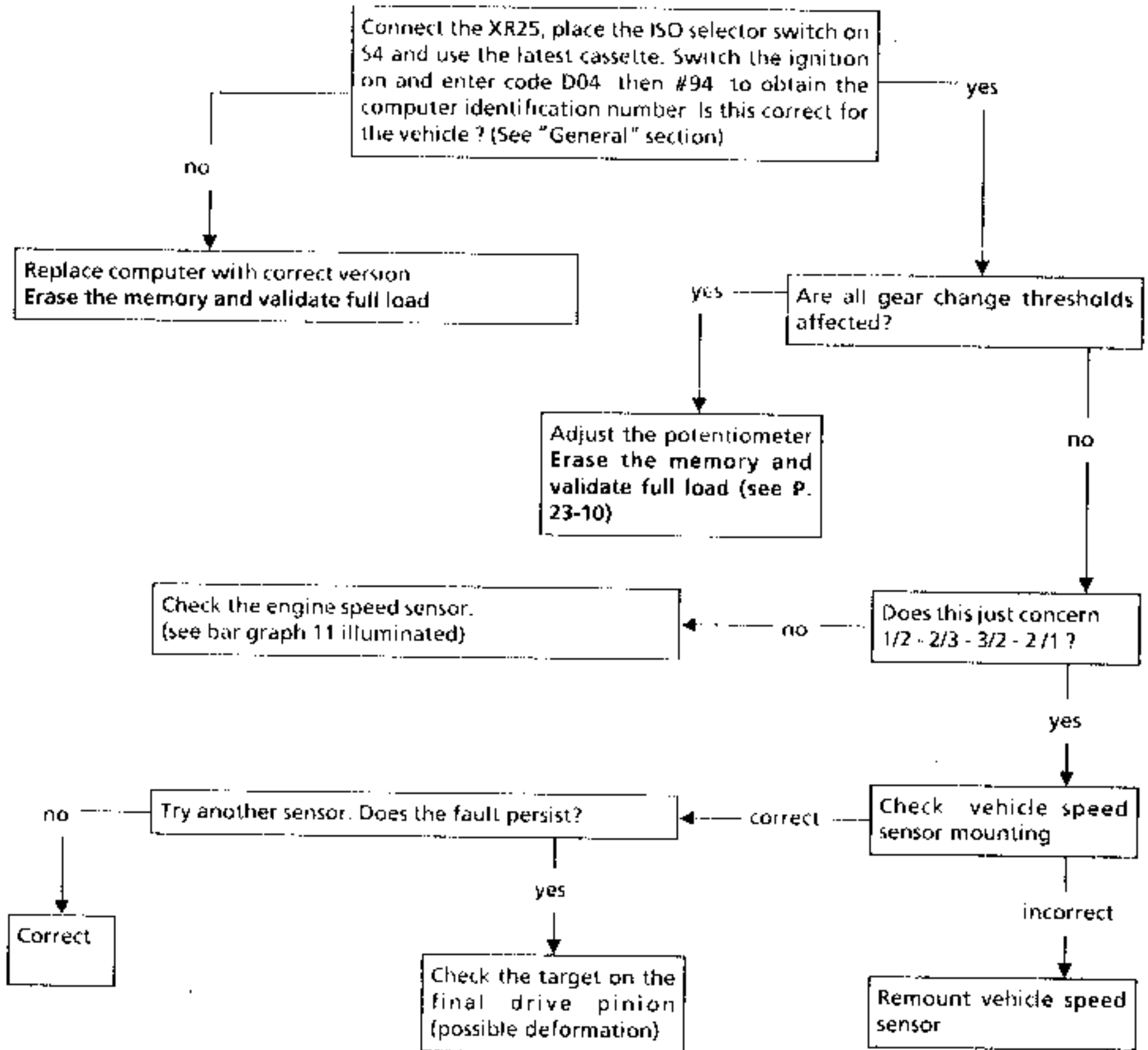
**FAULT: DELAY IN ENGAGING GEAR, ENGINE RACING THEN JERK WHEN DRIVING AWAY.**



**IMPORTANT : DO NOT FORGET TO ERASE THE MEMORY AND VALIDATE THE FULL LOAD POSITION (see P. 23-10)**

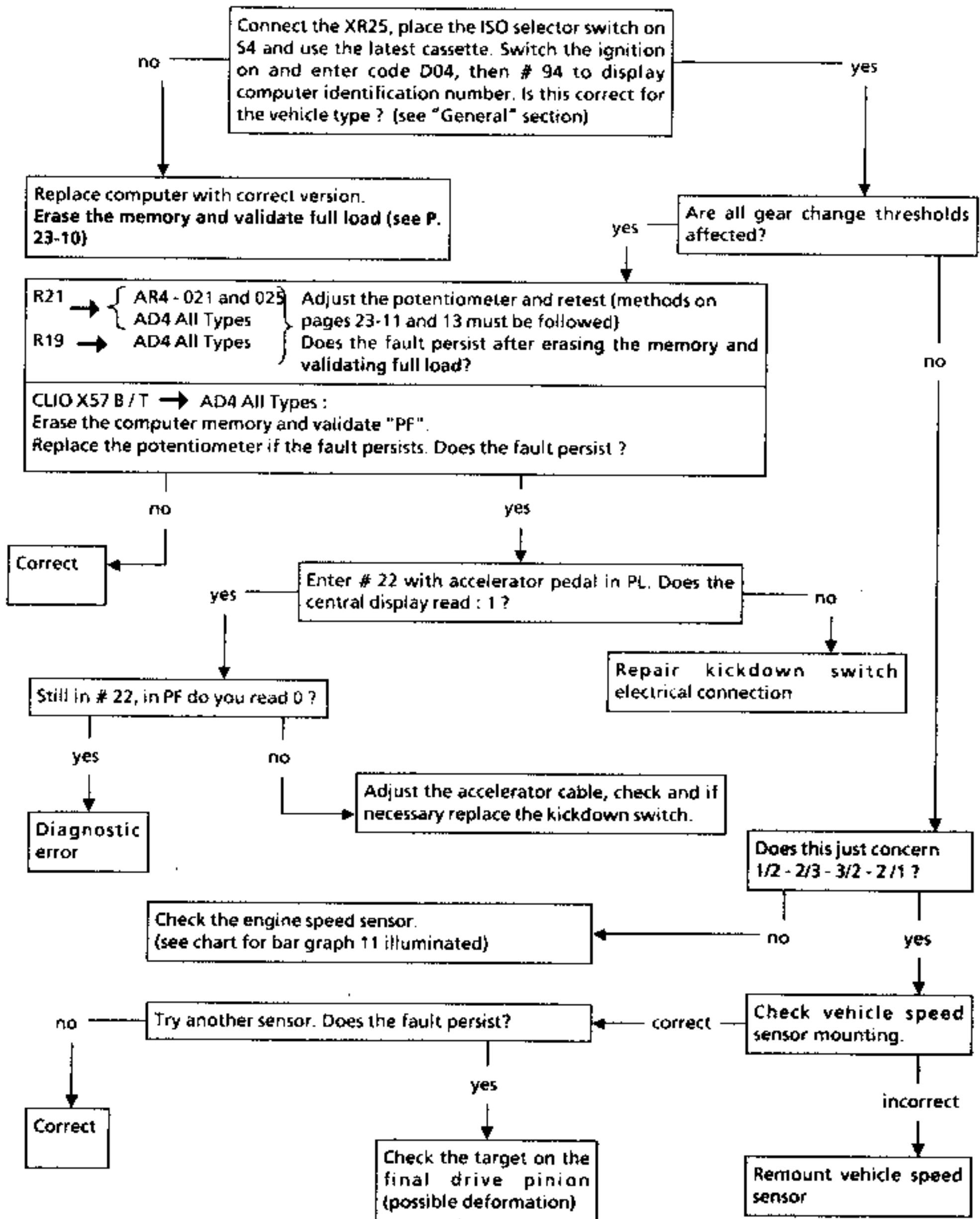
**FAULT: SLIPPING WHEN DRIVING AWAY (VEHICLE MOVES FORWARD SLOWLY AND ENGINE SPEED INCREASES)**



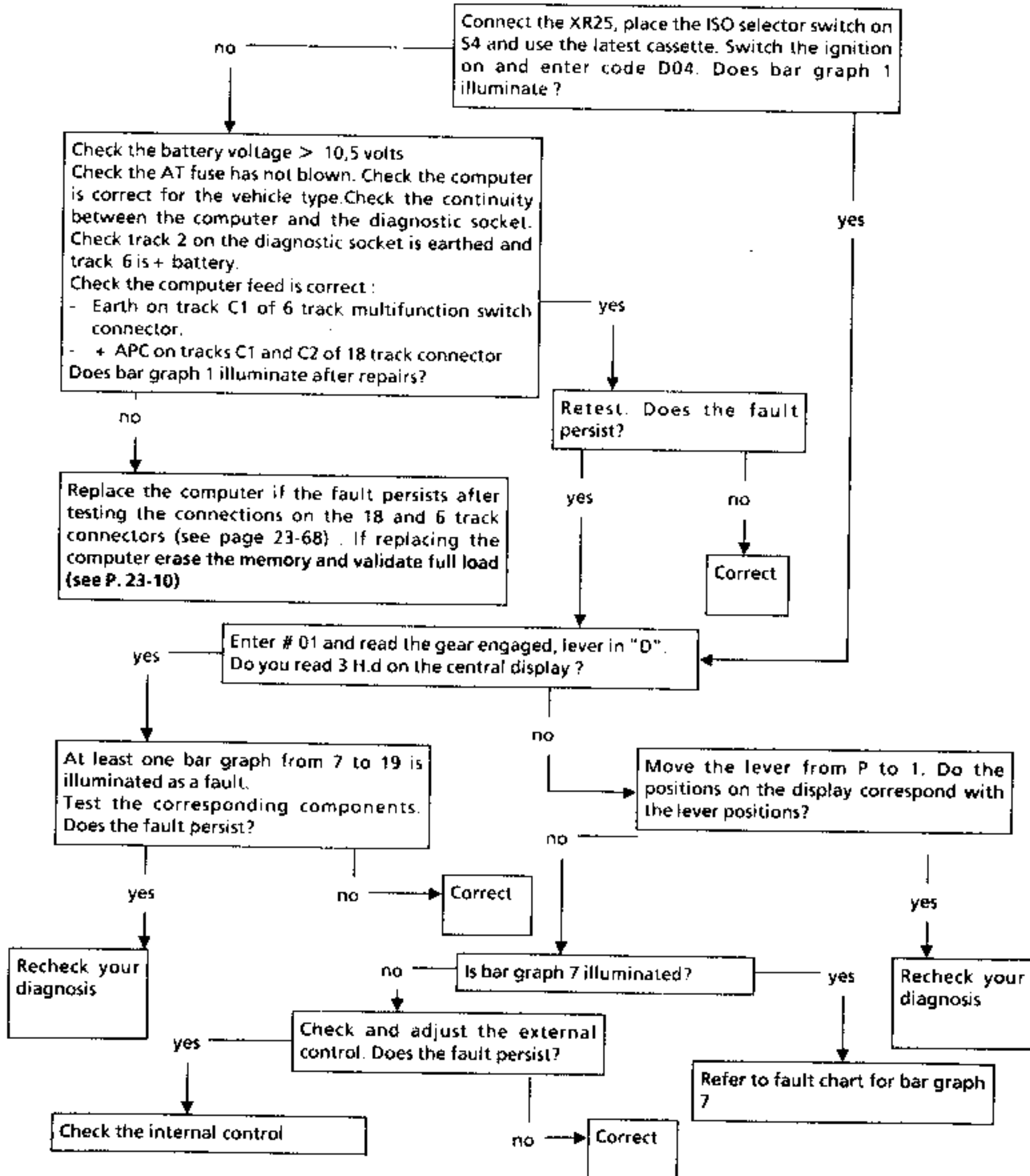
**FAULT: GEAR CHANGE THRESHOLDS DELAYED (AT AR4 EXCEPT AR4 021 AND 025)**

**IMPORTANT : DO NOT FORGET TO ERASE THE MEMORY AND VALIDATE THE FULL LOAD POSITION**  
(see P. 23-10)

**FAULT: GEAR CHANGE THRESHOLDS DELAYED (AT AR4 AR4 021 AND 025 AND AD 4 ALL TYPES)**

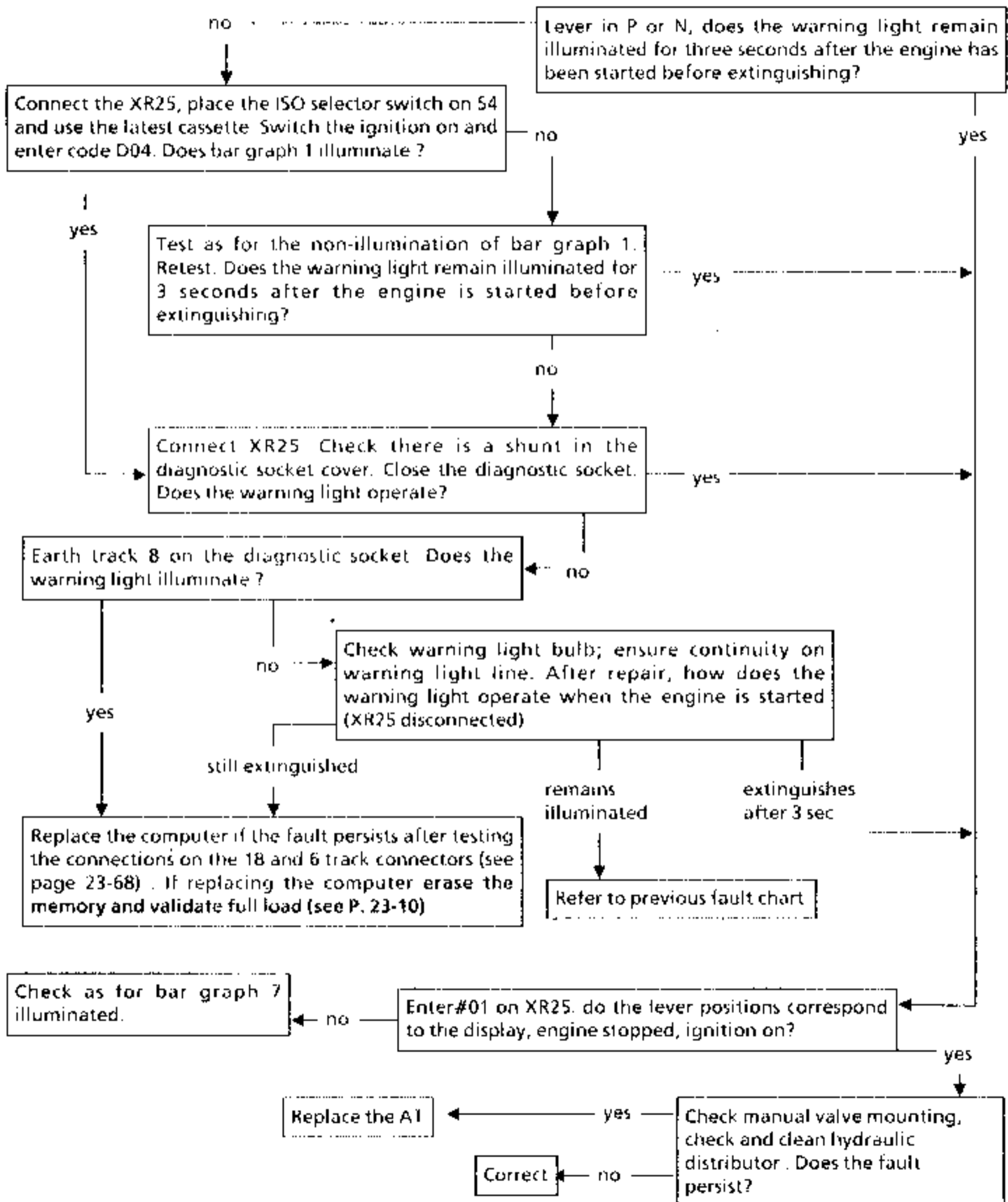


**IMPORTANT : DO NOT FORGET TO ERASE THE MEMORY AND VALIDATE THE FULL LOAD POSITION (see P. 23-10)**

**FAULT: GEARS DO NOT CHANGE, "AT" LOCKED IN ONE GEAR, WARNING LIGHT ILLUMINATED****IMPORTANT : DO NOT FORGET TO ERASE THE MEMORY AND VALIDATE THE FULL LOAD POSITION (see P. 23-10)**

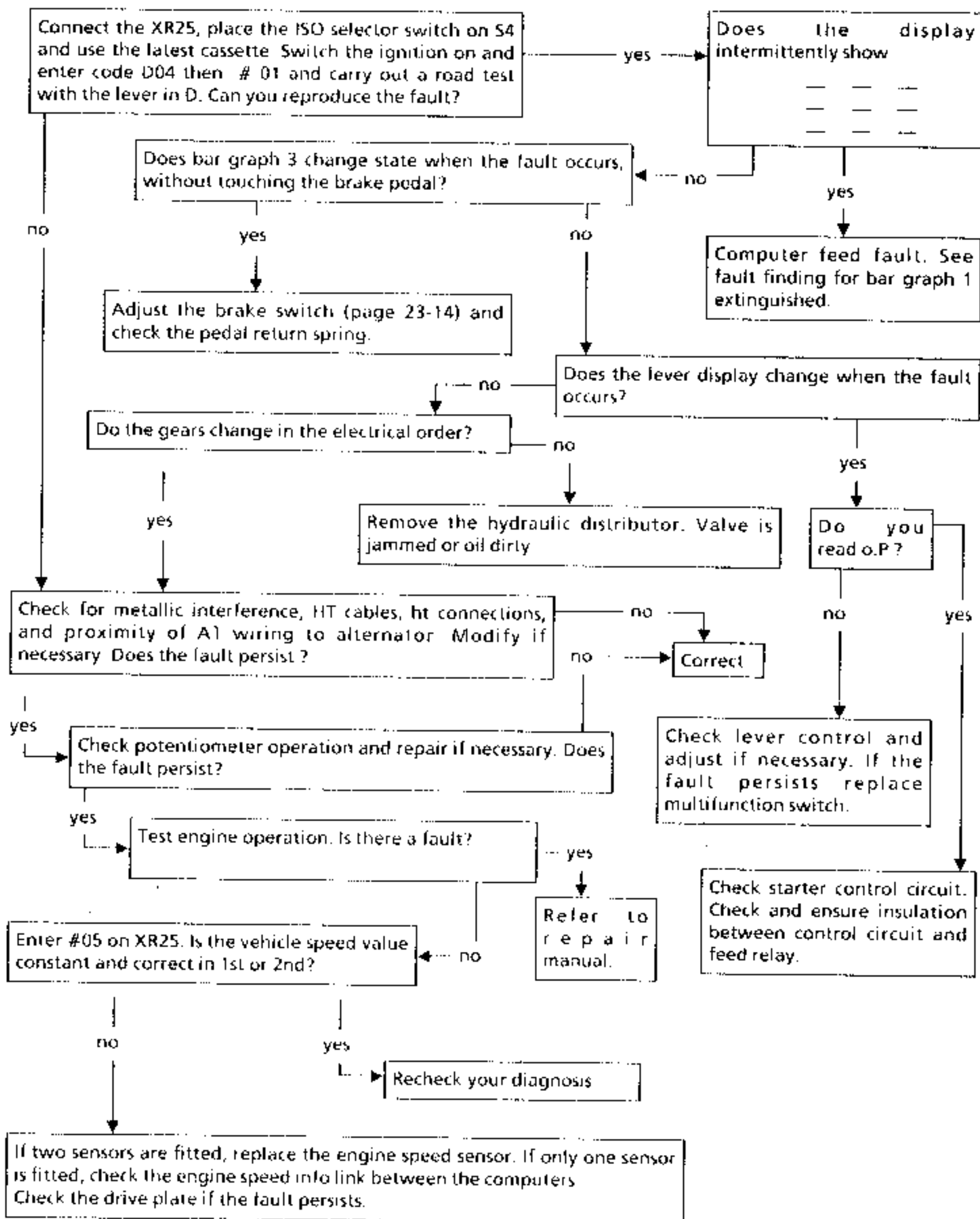
**FAULT : GEARS DO NOT CHANGE, "AT" LOCKED IN ONE GEAR, WARNING LIGHT EXTINGUISHED**

(ATTENTION : For AT AR4 021 - 025 and AD4 T1, if 2nd gear is engaged at a VERY HIGH engine speed , refer to fault chart on P. 23-44)

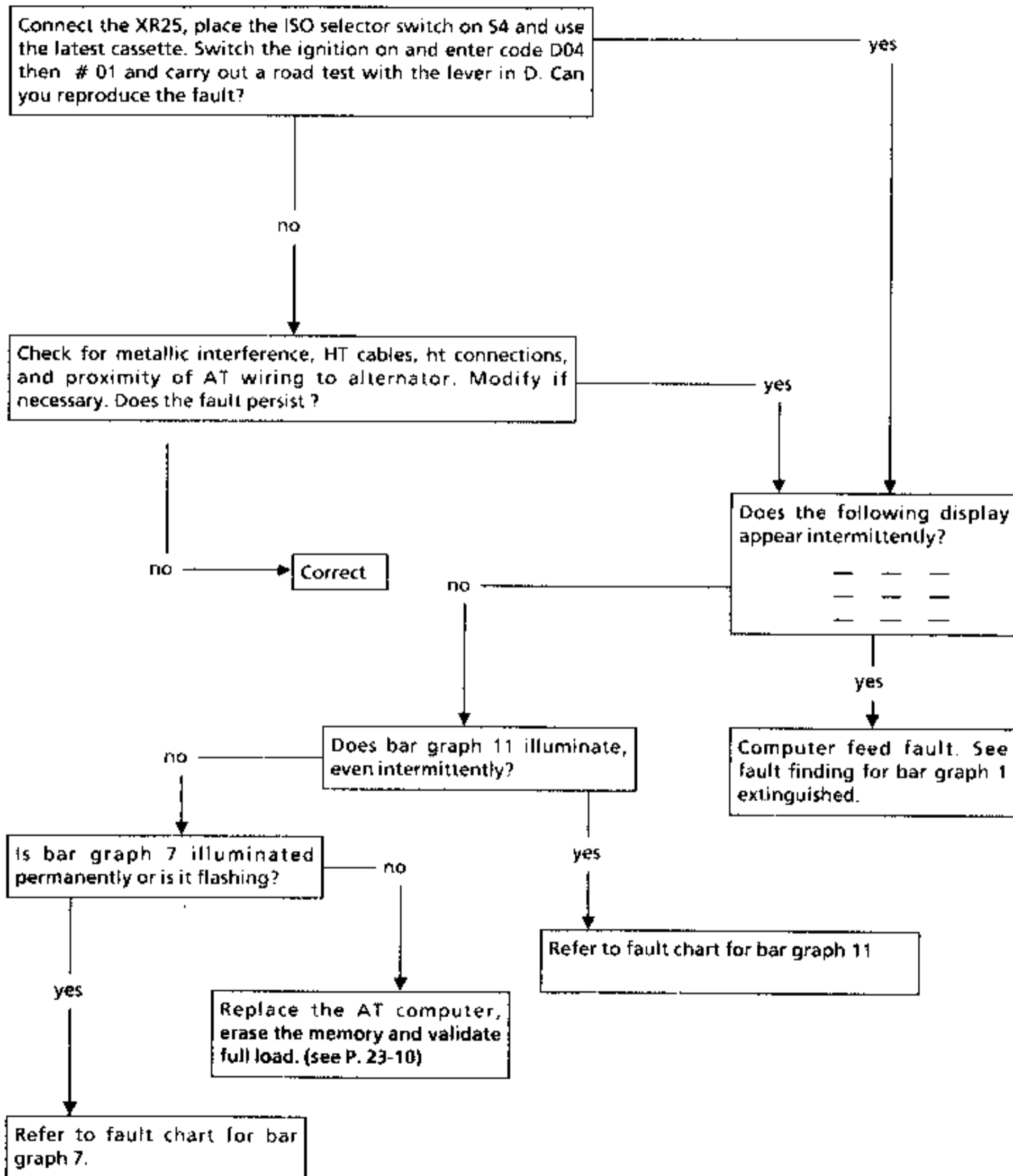


**IMPORTANT : DO NOT FORGET TO ERASE THE MEMORY AND VALIDATE THE FULL LOAD POSITION (see P. 23-10)**

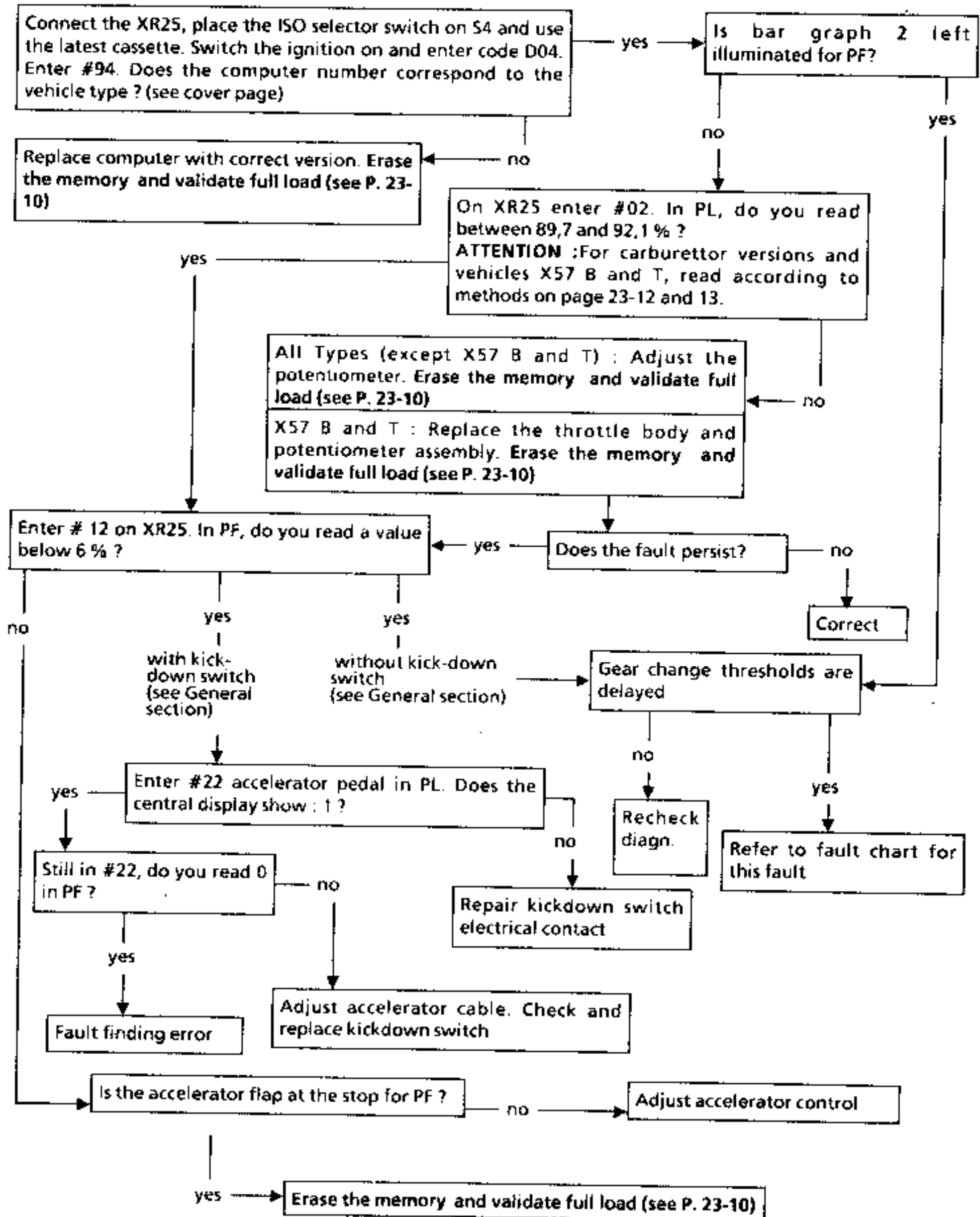


**FAULT : GEARS CHANGE INCORRECTLY, WARNING LIGHT EXTINGUISHED.**

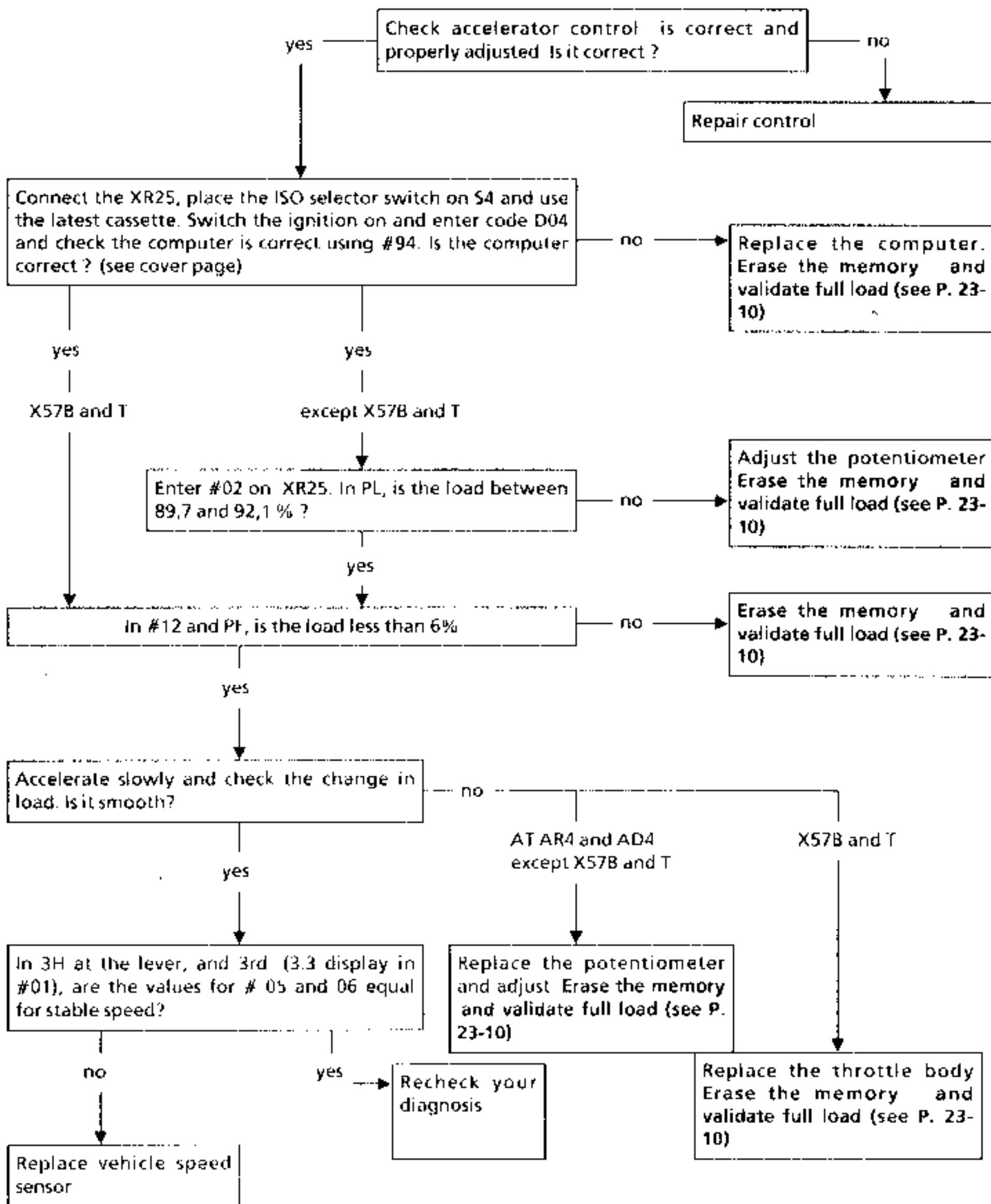
**FAULT : GEARS CHANGE INCORRECTLY, WARNING LIGHT ILLUMINATED PERMANENTLY OR INTERMITTENTLY.**



**IMPORTANT : DO NOT FORGET TO ERASE THE MEMORY AND VALIDATE THE FULL LOAD POSITION (see P. 23-10)**

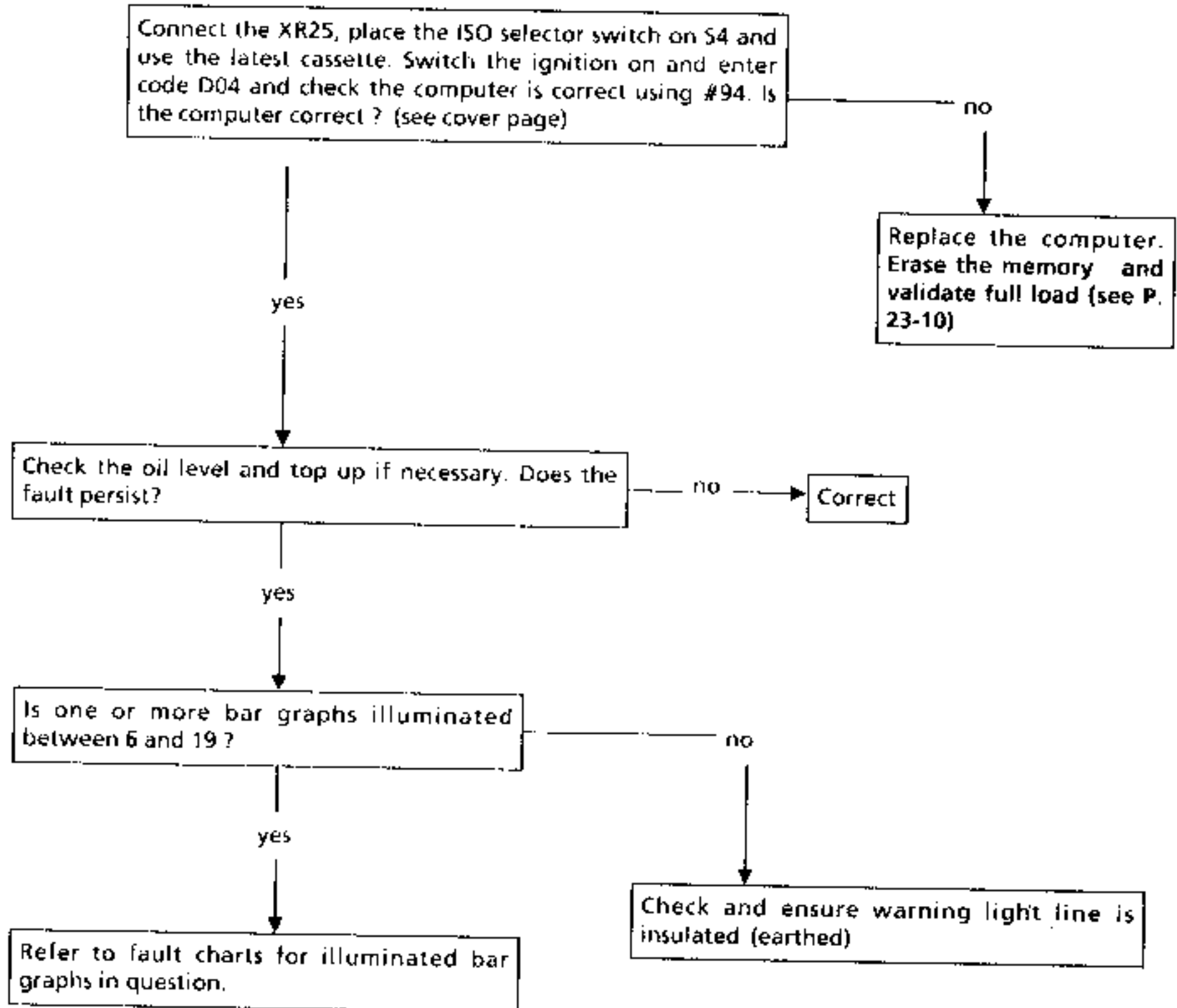
**FAULT: NO KICKDOWN IN "PF" OR ABNORMAL KICKDOWN THRESHOLDS IN "PF".****IMPORTANT : DO NOT FORGET TO ERASE THE MEMORY AND VALIDATE THE FULL LOAD POSITION (see P. 23-10)**

**FAULT : GEAR CHANGE THRESHOLDS DELAYED WHEN ENGINE HOT ONLY OR WHEN ENGINE COLD ONLY, WARNING LIGHT EXTINGUISHED.**



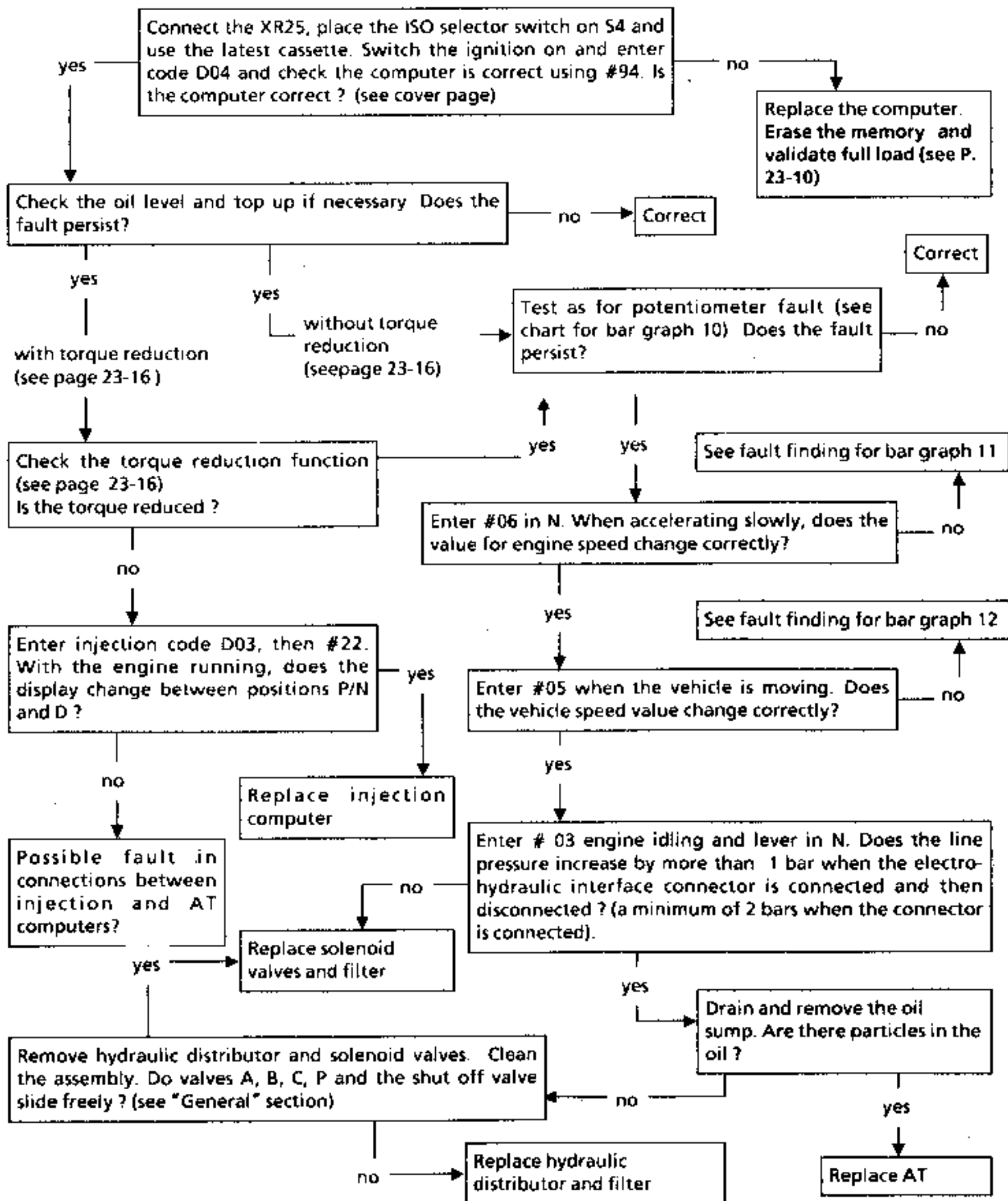
**IMPORTANT : DO NOT FORGET TO ERASE THE MEMORY AND VALIDATE THE FULL LOAD POSITION (see P. 23-10)**

**FAULT : JERKY OPERATION, SLIPPING OR ENGINE RACING DURING GEAR CHANGE, WARNING LIGHT ILLUMINATED PERMANENTLY**

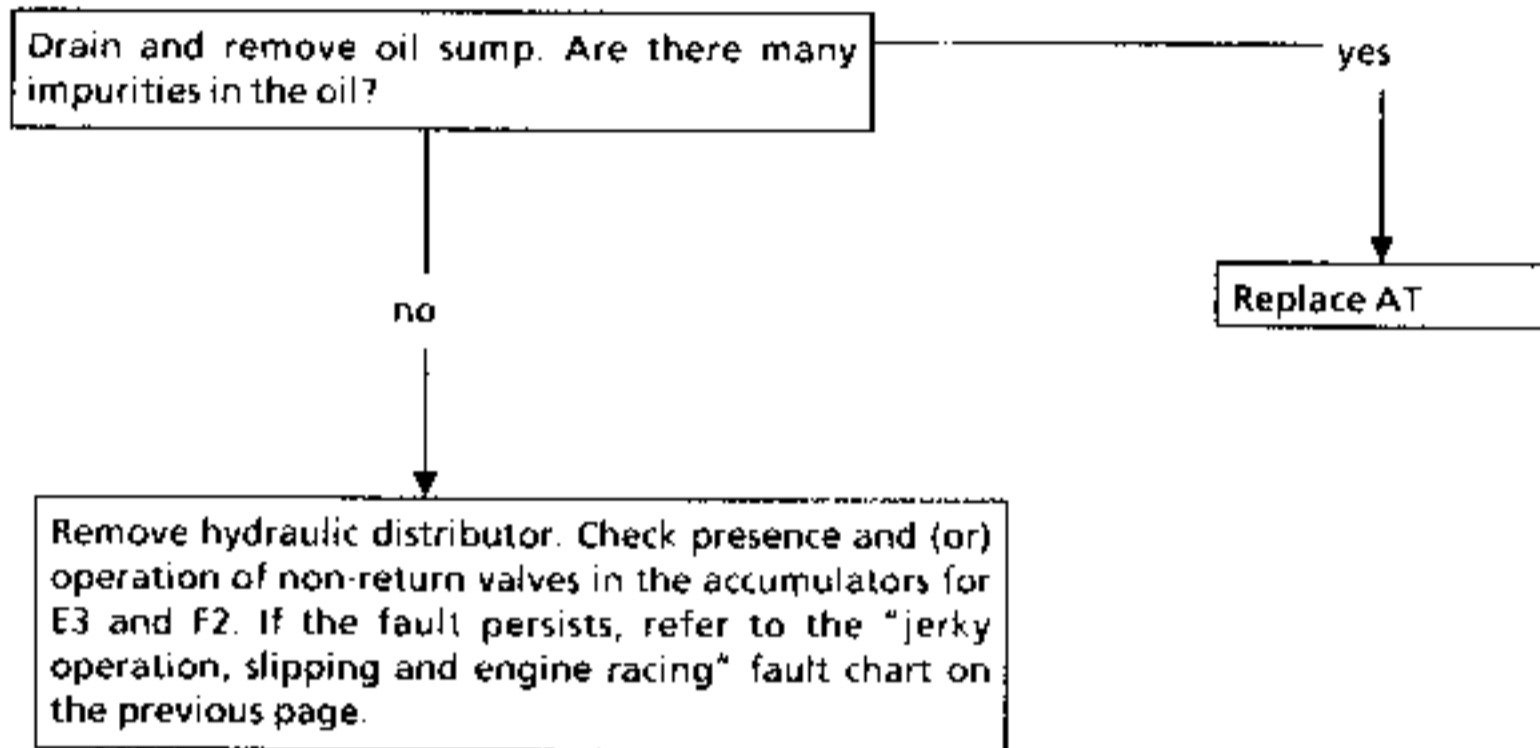


**IMPORTANT : DO NOT FORGET TO ERASE THE MEMORY AND VALIDATE THE FULL LOAD POSITION (see P. 23-10)**

**FAULT: JERKY OPERATION, SLIPPING OR ENGINE RACING DURING GEAR CHANGE, WARNING LIGHT EXTINGUISHED**

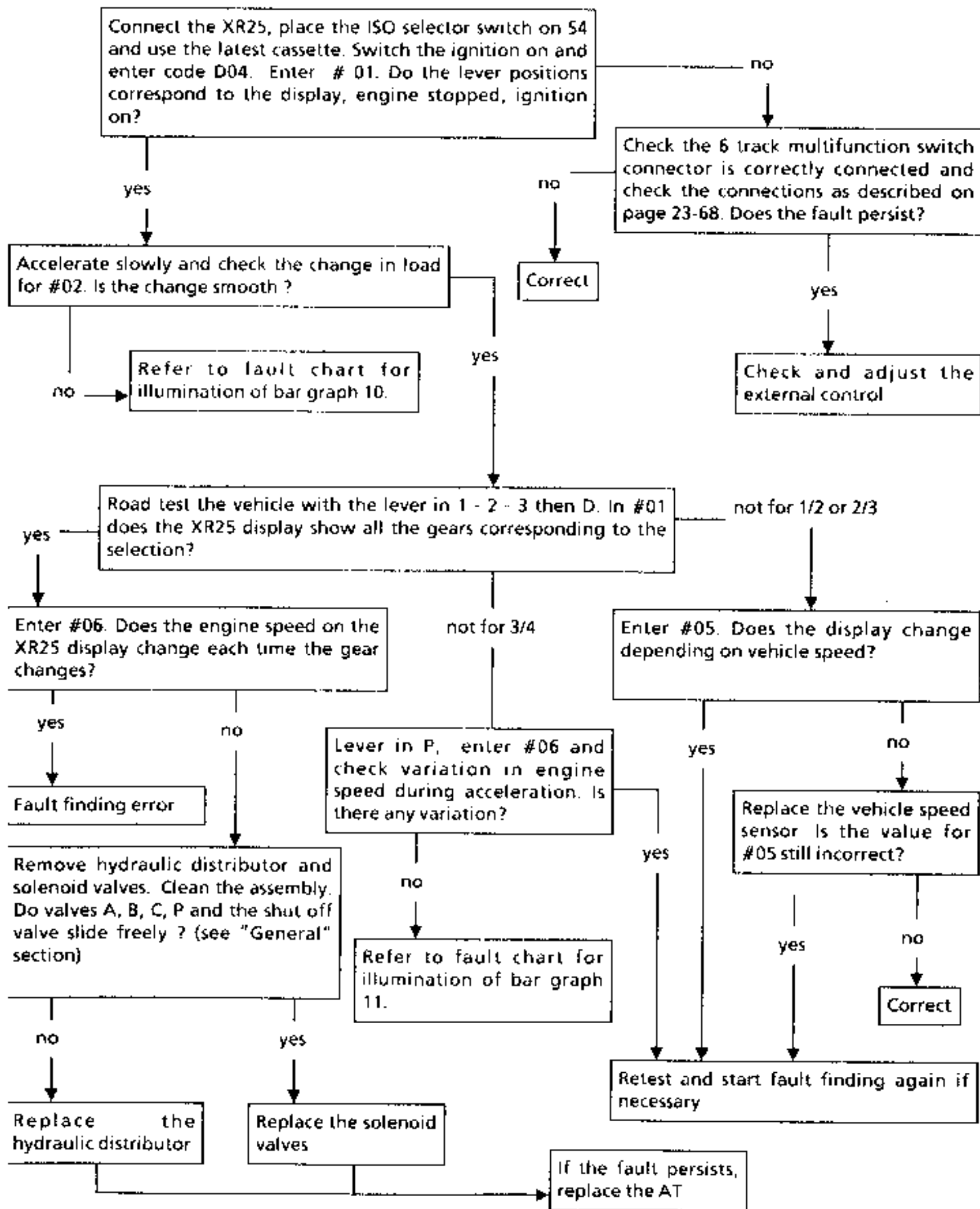


**IMPORTANT : DO NOT FORGET TO ERASE THE MEMORY AND VALIDATE THE FULL LOAD POSITION (see P. 23-10)**

**FAULT: ENGINE RACING WHEN CHANGING 4/3 WITHOUT WARNING LIGHT ILLUMINATION**

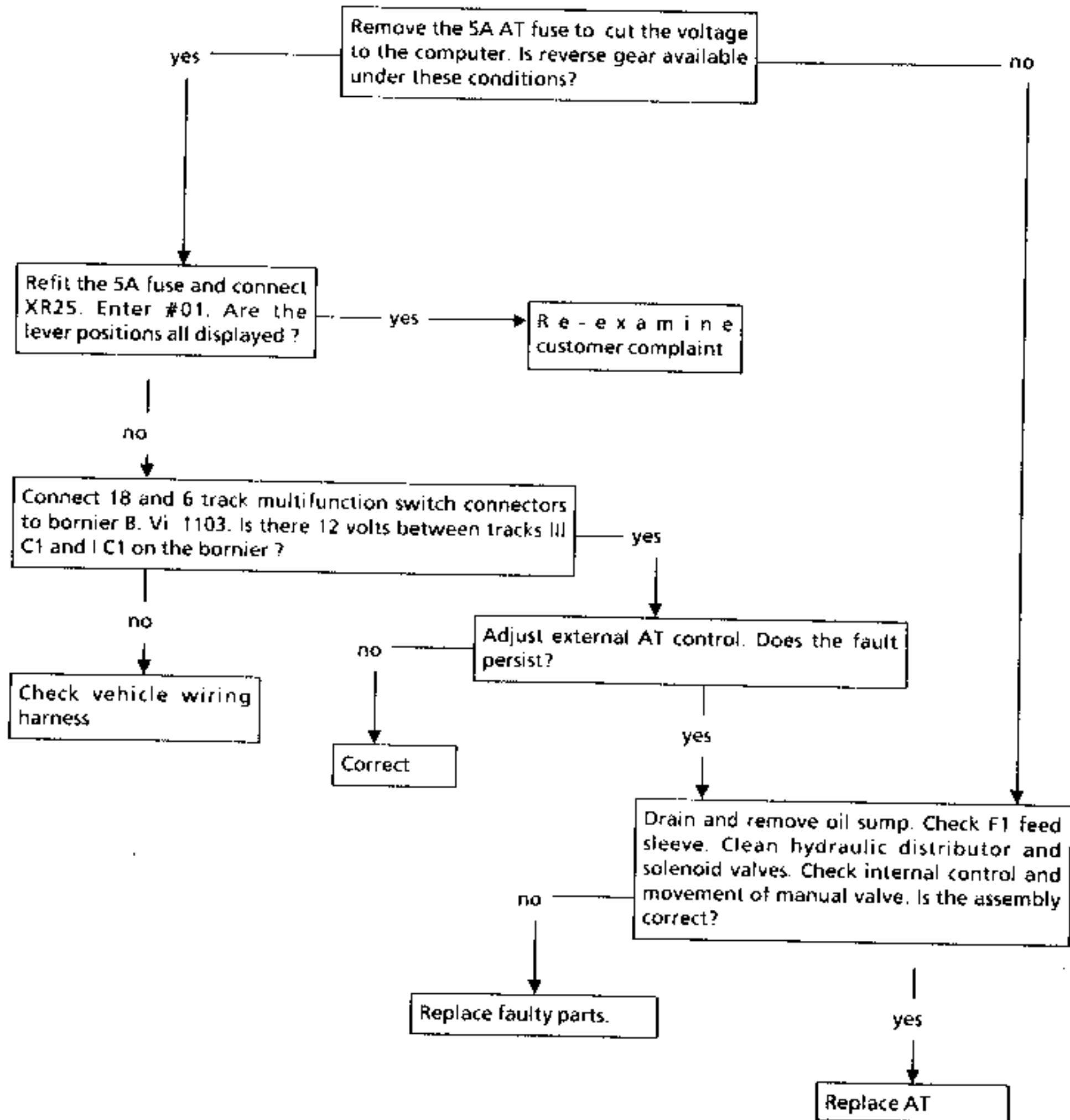
**IMPORTANT : DO NOT FORGET TO ERASE THE MEMORY AND VALIDATE THE FULL LOAD POSITION  
(see P. 23-10)**

## FAULT: ONE OR MORE GEARS NOT AVAILABLE, WARNING LIGHT EXTINGUISHED

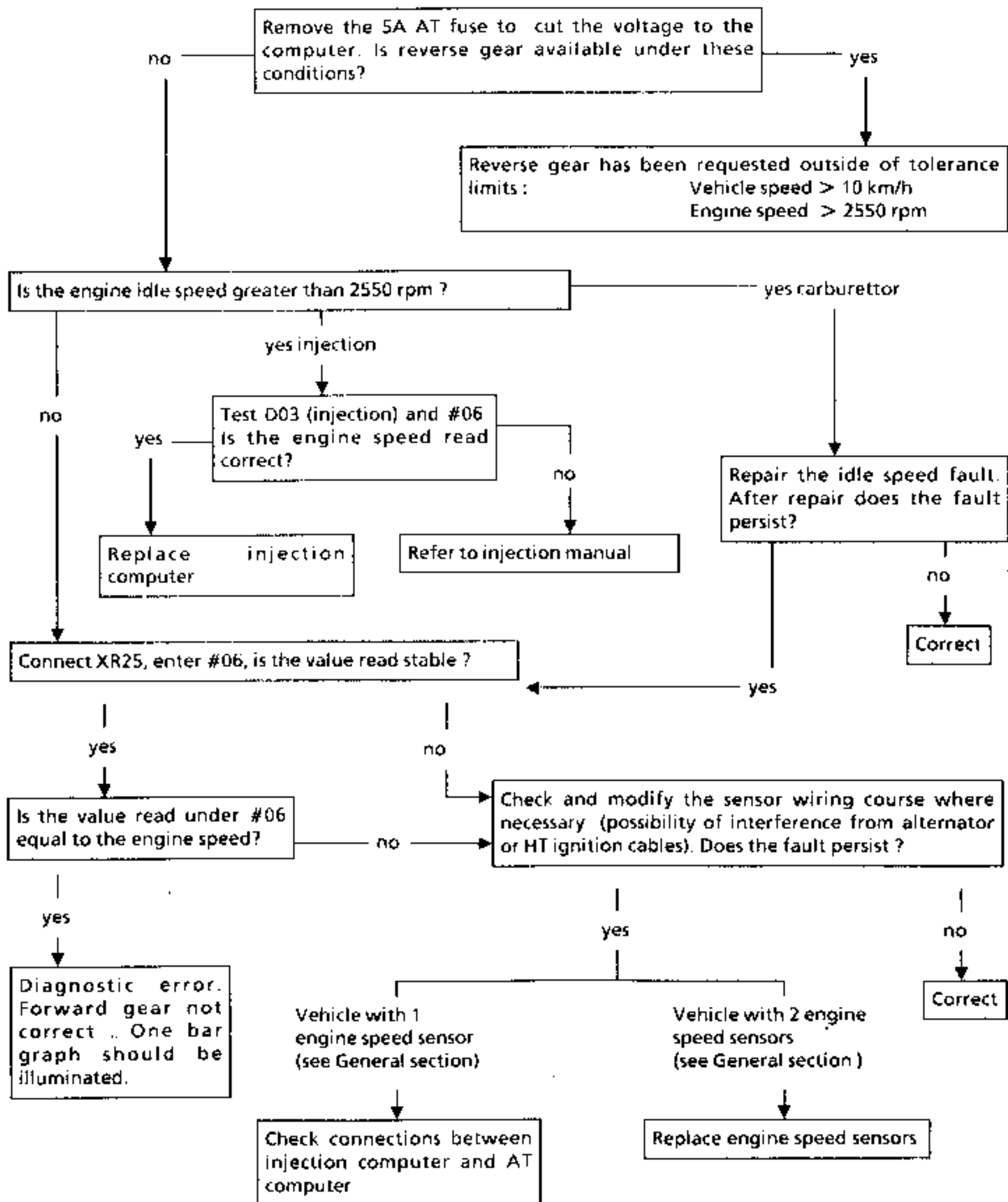




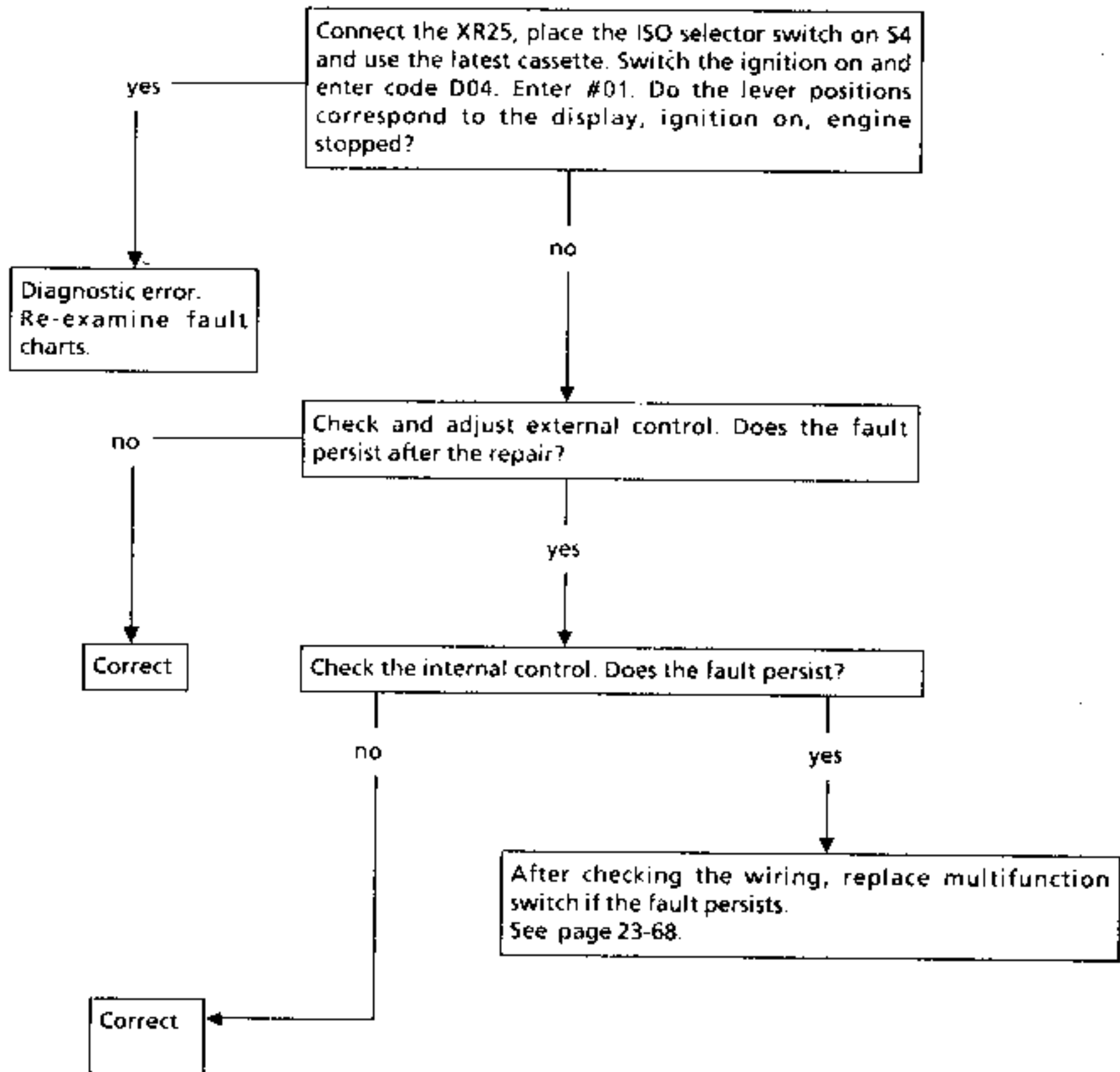
**FAULT : NO REVERSE GEAR, FORWARD GEARS CORRECT, WARNING LIGHT EXTINGUISHED**



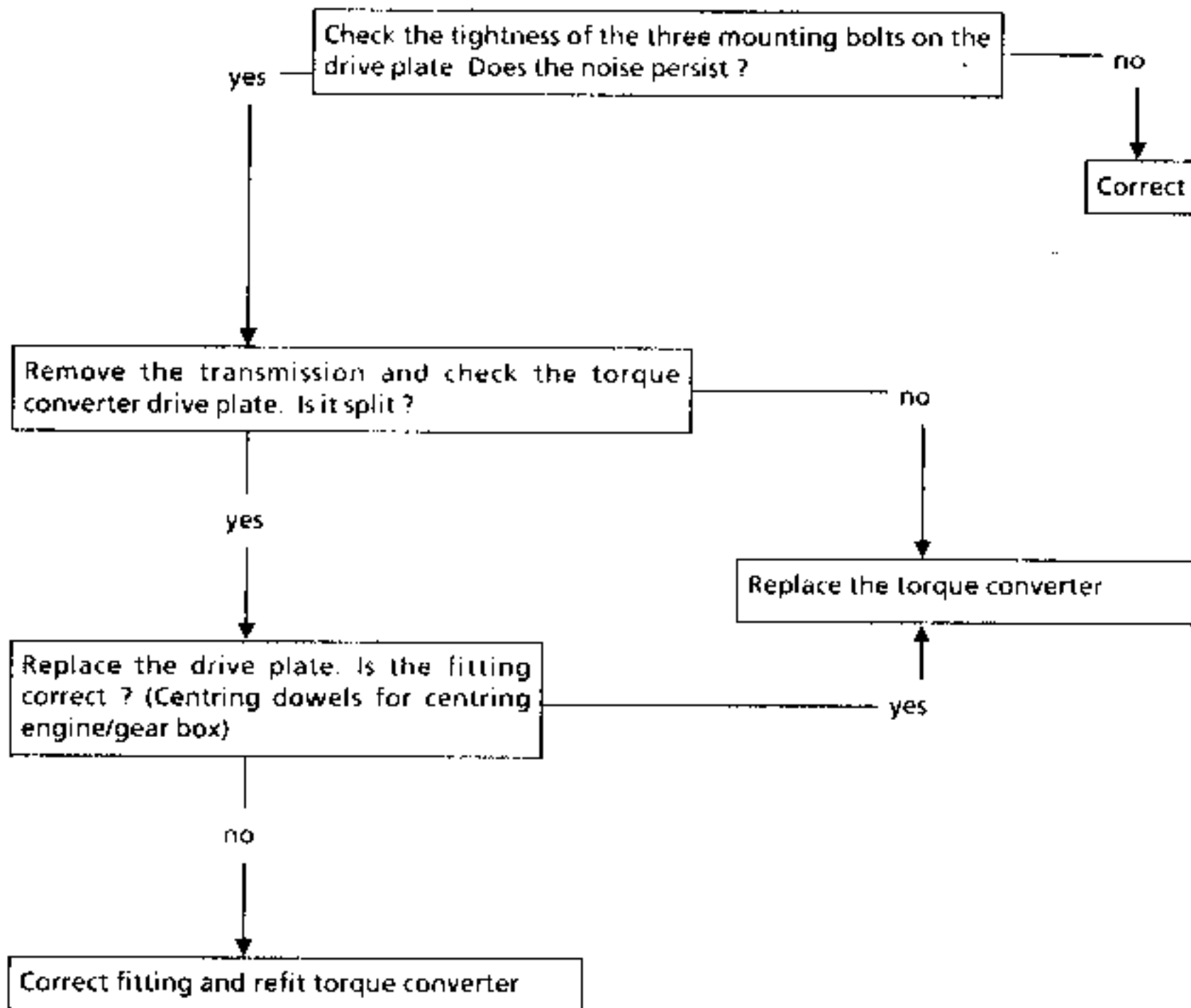
**IMPORTANT : DO NOT FORGET TO ERASE THE MEMORY AND VALIDATE THE FULL LOAD POSITION**  
(see P. 23-10)

**FAULT : NO REVERSE GEAR, FORWARD GEARS CORRECT, WARNING LIGHT EXTINGUISHED**

**FAULT : PRESENCE OF CHANGING UP OF GEARS WHICH ARE NOT AUTHORISED BY THE GEAR LEVER POSITION, WARNING LIGHT EXTINGUISHED.**



**IMPORTANT : DO NOT FORGET TO ERASE THE MEMORY AND VALIDATE THE FULL LOAD POSITION (see P. 23-10)**

**FAULT : METALLIC NOISE AT IDLE SPEED FROM THE TORQUE CONVERTER HOUSING****FAULT: OIL UNDER THE VEHICLE**

Wash the gearbox, top up the oil level, talc and determine the source of the leak.

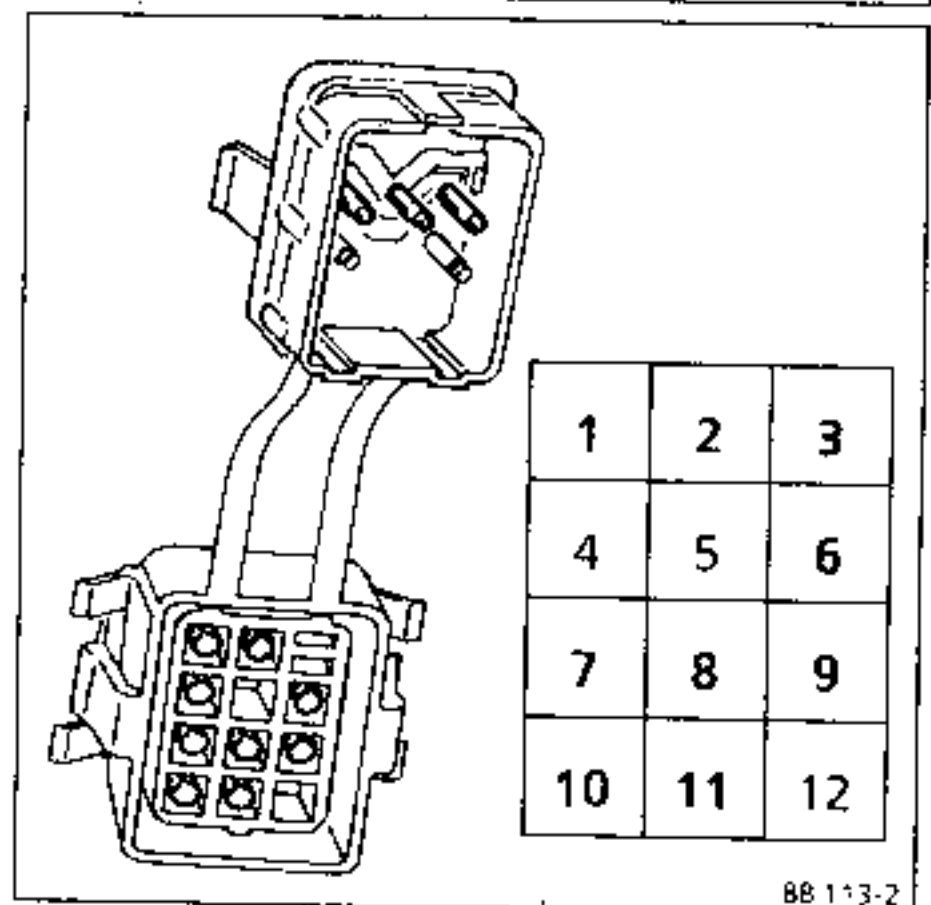
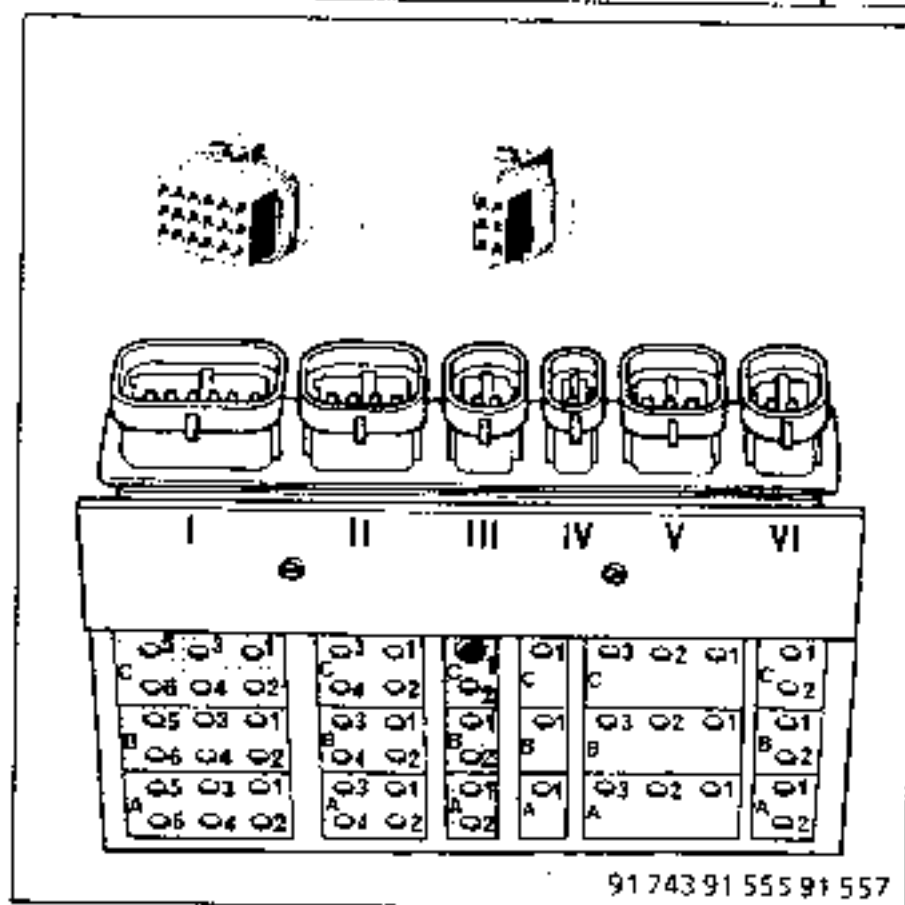
Repair the cause of the leak and replace any faulty parts.

Check the level of the faulty section (final drive or mechanism).

**CHECKING CONNECTOR I (Using B.Vi. 1103)**

Disconnect connectors I and III from the computer and connect them to bornier B. Vi. 1103. Test using a multimeter

Measuring conditions	Components tested	Measuring points	Values	Operations to be carried out if values are incorrect
Ignition off	Computer earth	III C1 and vehicle earth	0 to 0,5 $\Omega$	Check engine and transmission earth connections
	Reversing lights	I B1 and III C1	1 to 7 $\Omega$ For vehicles without reverse gear relay	Check fuse reversing lights bulb wiring
			50 to 100 $\Omega$ For vehicles with reverse gear relay	Check fuse reversing lights bulb and relay wiring
	Diag socket feed	I B6 and I Diag socket	0 to 0,5 $\Omega$	Check vehicle wiring harness
	Instrument panel warning light feed	I C6 and I Diag socket	0 to 0,5 $\Omega$	Check vehicle wiring harness
Ignition on	Stop feed	I A3 and III C1	10 to 14 V	Check fuse Stop switch wiring
	Reversing lights feed	I C1 and III C1	10 to 14 V	Check wiring
	Computer feed	I C2 and III C1	10 to 14 V	Check fuse and wiring
Engine running (1)	Engine speed signal (1 engine speed sensor)	I A2 and III C1	Voltage $\neq$ battery voltage	Check wiring or injection computer
	Engine speed signal (2 engine speed sensors)	I A2 and III C1	0 V or battery voltage	None
Starter	Starter authorisation feed	I C3 and III C1	10 to 14 V when activated 0 to 7 V key released	Check wiring and starter relay



(1) Reconnect connectors I and III to start the engine and then carry out this test.

**CHECKING CONNECTOR II (using B.Vi. 1103)**

Disconnect connectors II and III from the computer and connect them to bornier B. Vi. 1103. Use a multimeter, ignition off.

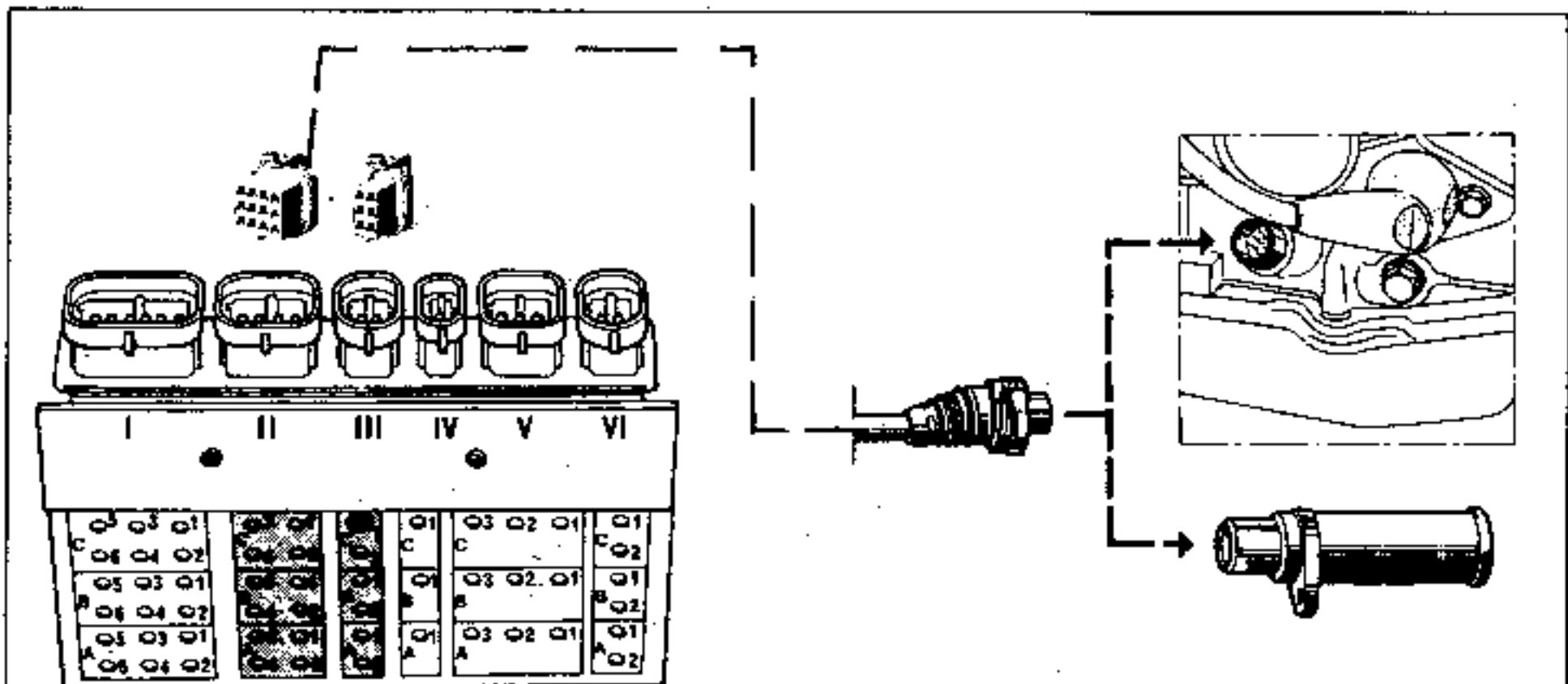
The electro-hydraulic interface wiring is taken as being free of faults by replacing the solenoid valve assembly and the temperature sensor with tool B. Vi. 1103. In this case, the values are those in the column headed values with tool B. Vi. 1103.

Measuring points	Values (1)	If values (1) are incorrect	Values with tool B. Vi. 1103
II C4 - II C3	1,1 to 1,3 $\Omega$	EVM or wiring faulty	900 to 1 100 $\Omega$
II C2 - II B1	26 to 35 $\Omega$	EL4 or wiring faulty	900 to 1 100 $\Omega$
II C2 - II B2	26 to 35 $\Omega$	EL3 or wiring faulty	900 to 1 100 $\Omega$
II C2 - II B3	26 to 35 $\Omega$	EL2 or wiring faulty	900 to 1 100 $\Omega$
II C2 - II B4	26 to 35 $\Omega$	EL1 or wiring faulty	900 to 1 100 $\Omega$
II A1 - II A2	8600 $\Omega$ (2) to 167 $\Omega$ (3)	Temperature sensor or wiring faulty	900 to 1 100 $\Omega$
All terminals Zone II - III C1	> 50 000 $\Omega$	Check solenoid valve wiring insulation	> 50 000 $\Omega$

(1) Values measured with sealed connector connected

(2) Values for oil at 0° C =

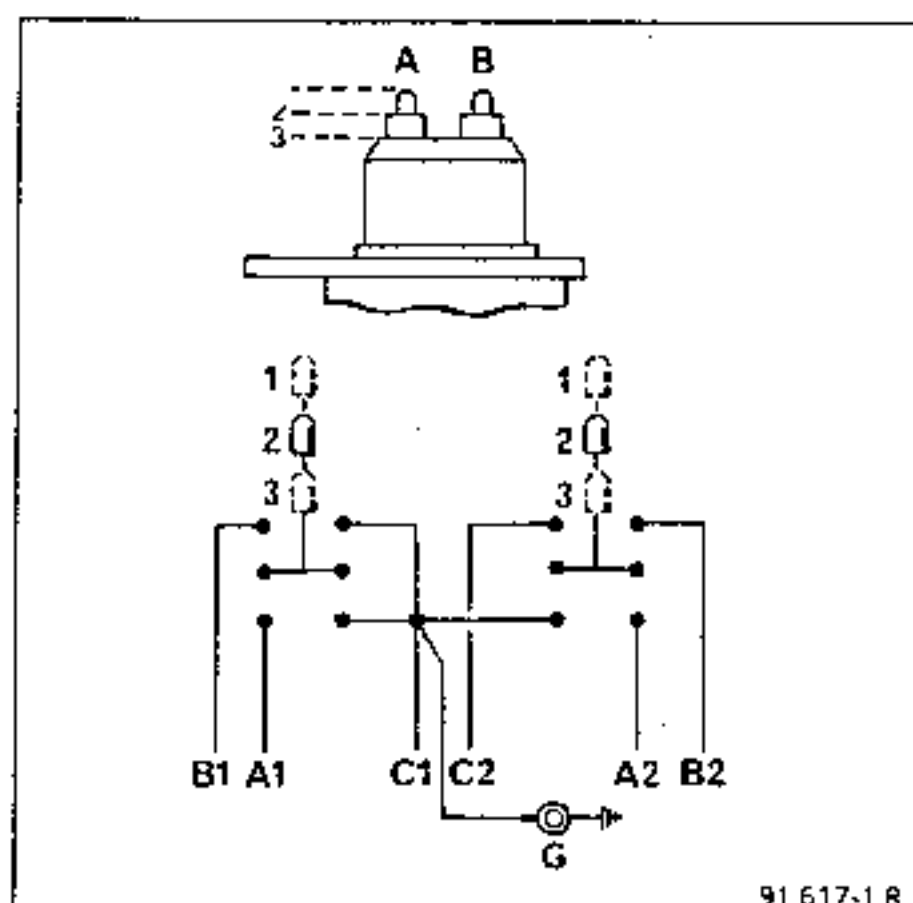
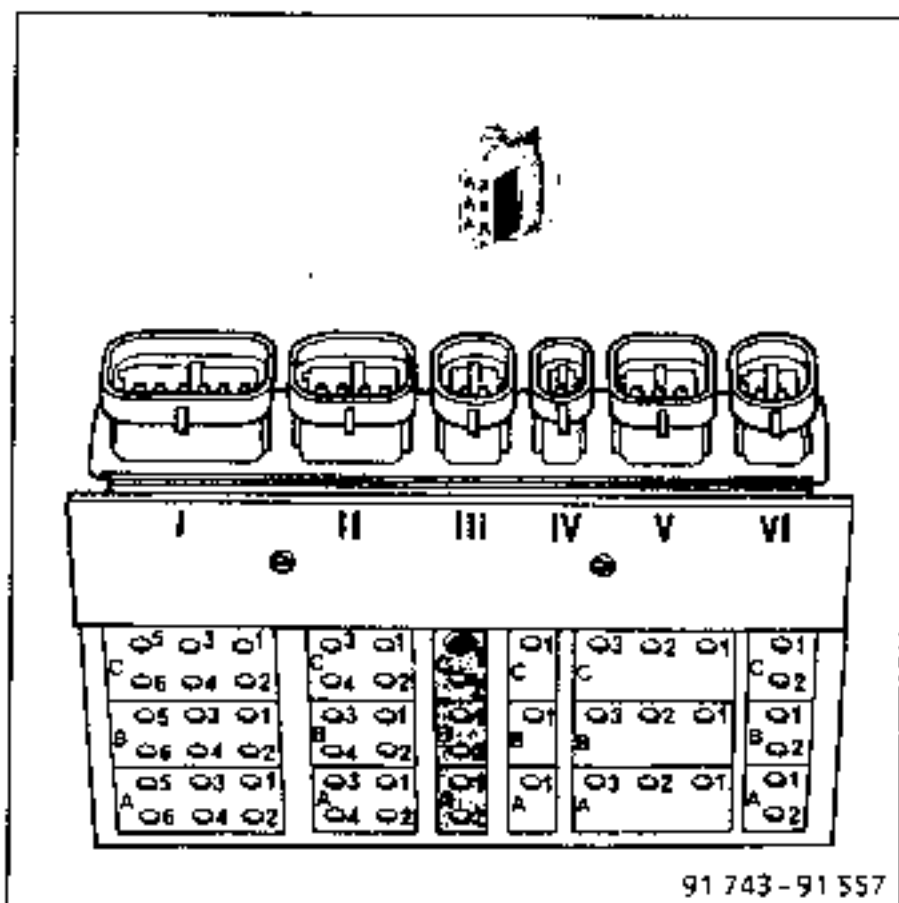
(3) Values for oil at 100° C =



**CHECKING CONNECTOR III (using B.Vi. 1103)**

Disconnect connector III from the computer and connect to bornier B. Vi. 1103. Test using a multimeter, ignition off, after checking the adjustment of the control lever cable (see chapter "Adjusting the control").

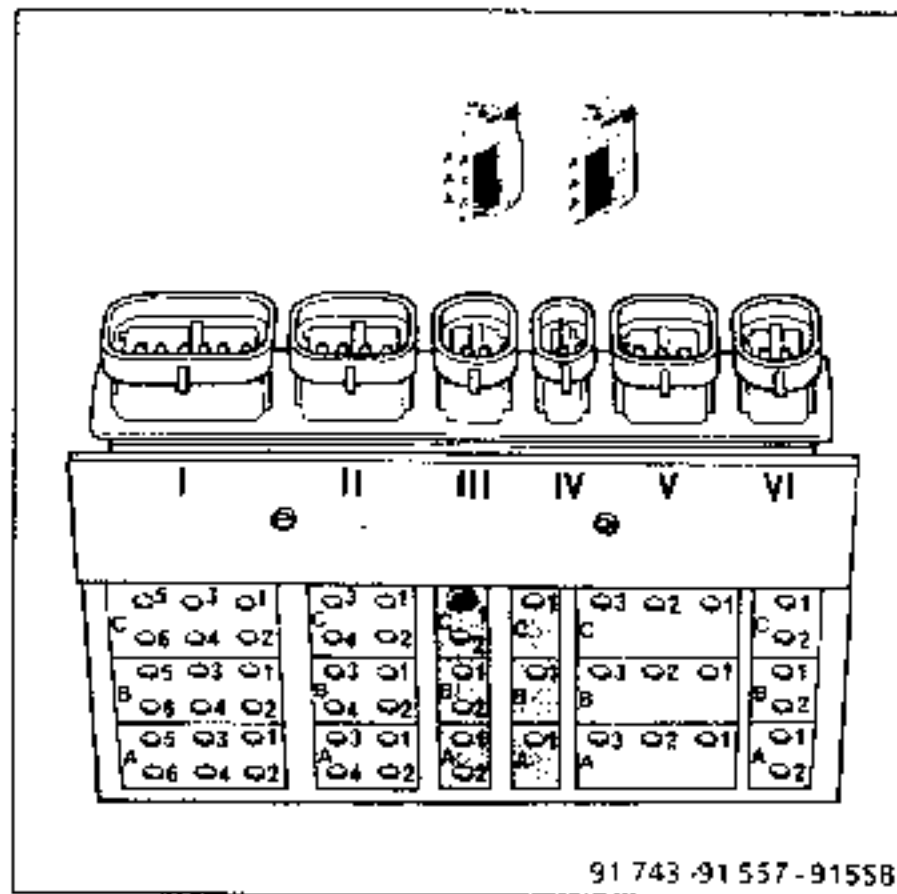
Measuring points	Lever positions	Pushrod positions		Correct values	If values are incorrect
		A	B		
III C1 vehicle earth	Any	Any		0 to 0,5 $\Omega$	Check AT earth mounting. (terminal G)
III C1 - III B1	P - N	1	2	0 to 0,5 $\Omega$	Replace the multifunction switch
III B2 - III C2	R	2	1	0 to 0,5 $\Omega$	
All terminals in zone III with each other	A or D	2	2	> 50 000 $\Omega$	
III A2 - III C1	3	2	3	0 to 0,5 $\Omega$	
III A2 - III C1					
III A2 - III A1	2	3	3	0 to 0,5 $\Omega$	
III A1 - III C1					
III C1 - III A1	1	3	2	0 to 0,5 $\Omega$	



**CHECKING CONNECTOR IV (using B. Vi. 1103)**

Disconnect connectors III and IV from the computer and connect to bornier B. Vi. 1103. Test using a multimeter, ignition off.

Measuring points	Values	If values are incorrect
IV A1 } IV B1 } III C1 IV C1 }	> 50 000 Ω	Replace line pressure sensor

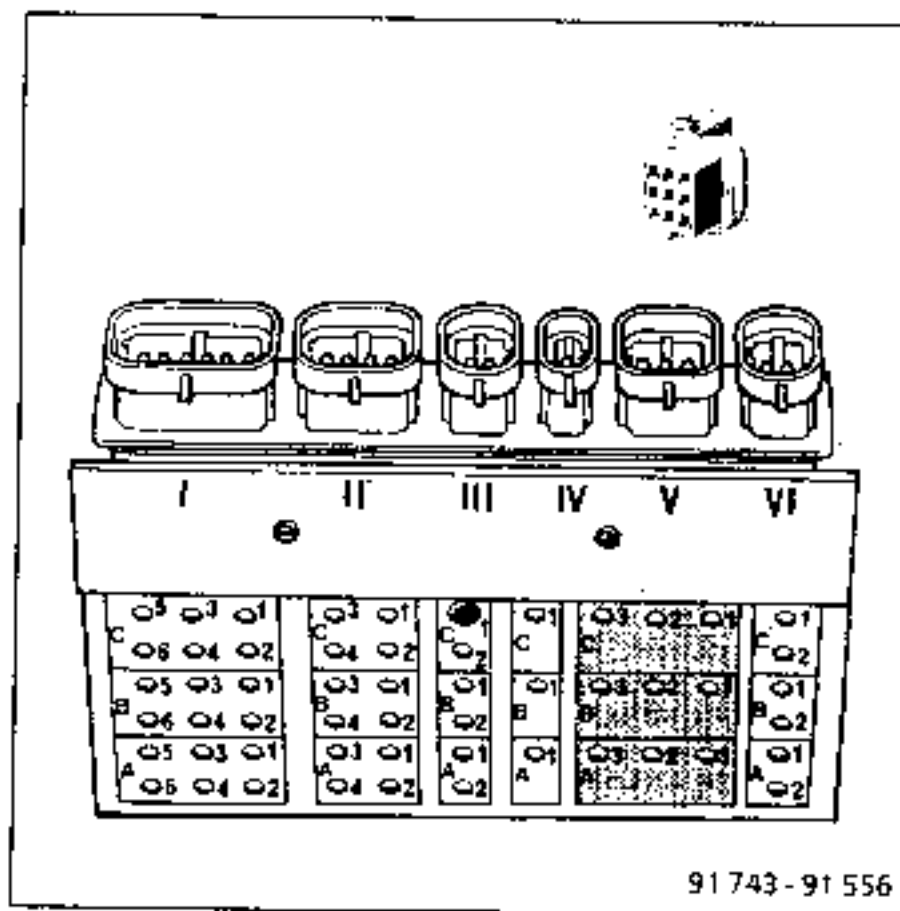




**CHECKING CONNECTOR V (using B. Vi. 1103)**

Disconnect connector V from the computer and connect to bornier B. Vi. 1103. Test using a multimeter , ignition off.

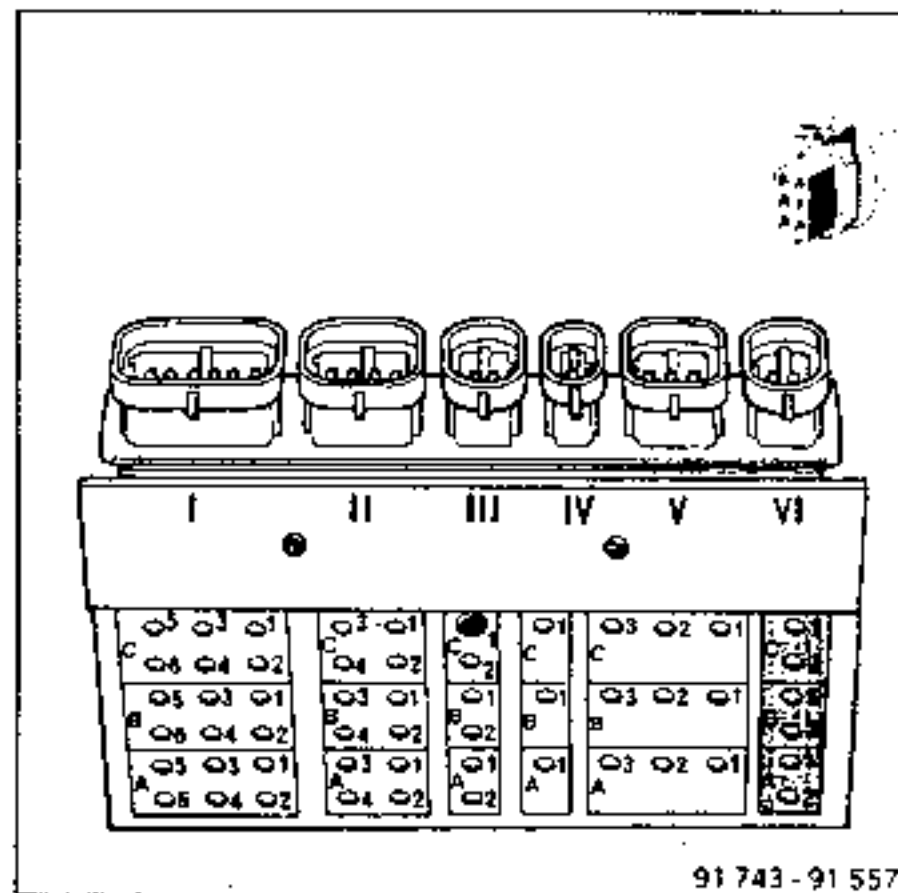
	Measuring points	Values	If values are incorrect
Engine speed sensor (vehicles with 2 engine speed sensors)	V B2 - V C2	140 to 230 $\Omega$	Replace engine speed sensor
	V A2 - V B2	> 50 000 $\Omega$	
	V A2 - V C2	> 50 000 $\Omega$	
Vehicle speed sensor	V B1 - V C1	200 to 240 $\Omega$	Replace vehicle speed sensor
	V A1 - V B1	> 50 000 $\Omega$	
	V A1 - V C1	> 50 000 $\Omega$	



**CHECKING CONNECTOR VI (using B. Vi. 1103)**

Disconnect connector VI from the computer and connect to bornier B. Vi. 1103. Test using a multimeter, ignition off, potentiometer in place with no load.

Measuring points	Values	If values are incorrect
VIA1 - VIB1	4 930 to 6 680 $\Omega$	Replace load potentiometer
VIA1 - VIC1	3 500 to 4 700 $\Omega$	
VIA1 } VIB1 } VIA2 VIC1 }	> 50 000 $\Omega$	



**REPLACING A SENSOR**

Before replacing a sensor, ensure the connections are correct (see following page).

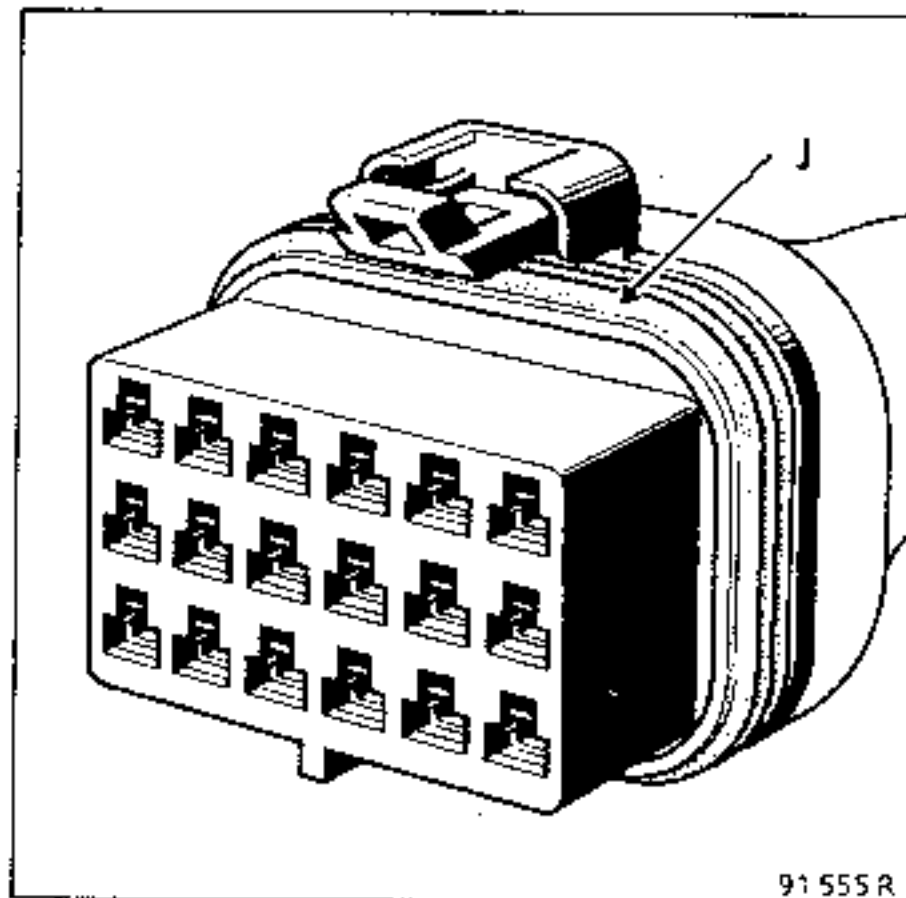
Each sensor is connected to the computer with a multitrack socket.

Each can be replaced individually, except the speed sensors, which, depending on case, are connected to the same connector (engine, vehicle speed).

These should be replaced as follows :

- Run the engine for about two minutes (only for AR4 transmission multifunction switch)
- Remove the cable connecting the sensor to the computer (take care not to damage the mountings on mechanical elements)
- Disconnect the faulty sensor from the computer
- Retain the protective sleeve/s.
- Refit the new sensor in the place of the faulty one
- Ensure the seals (T) on the sensor side are correctly fitted.

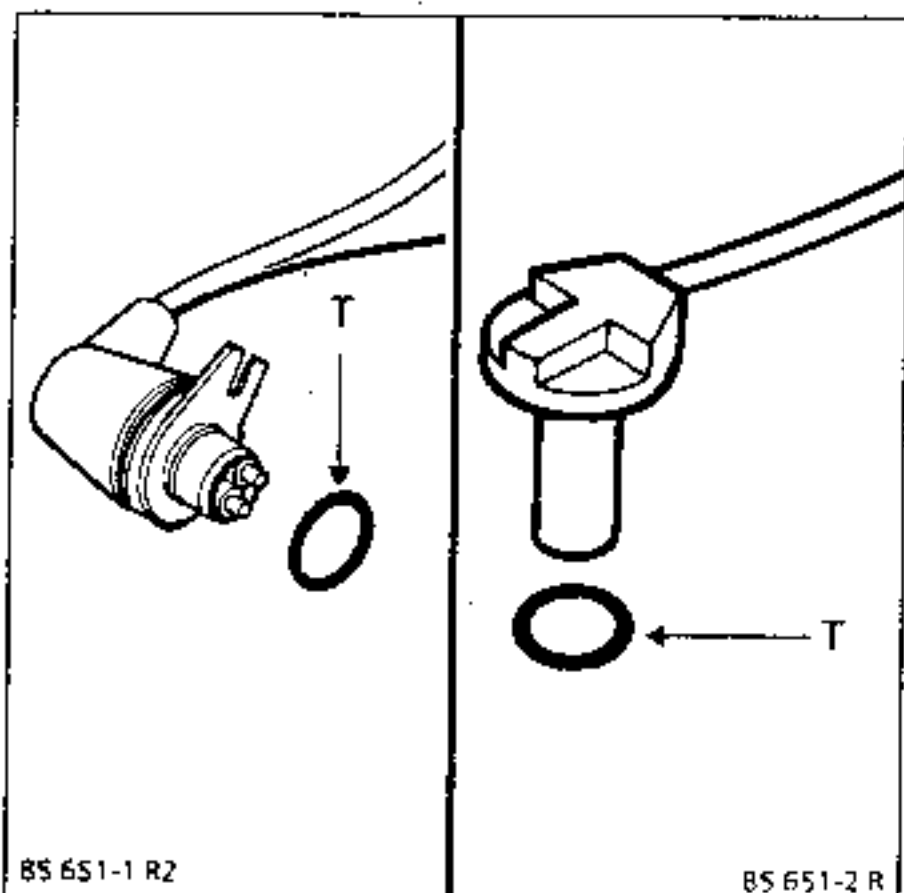
and the connector seal also (J).



- Refit the wiring assembly on to the mechanical elements using all mountings which were removed.

Take care to avoid hot or moving parts (exhaust).

Erase the memory (see pages 23-10).

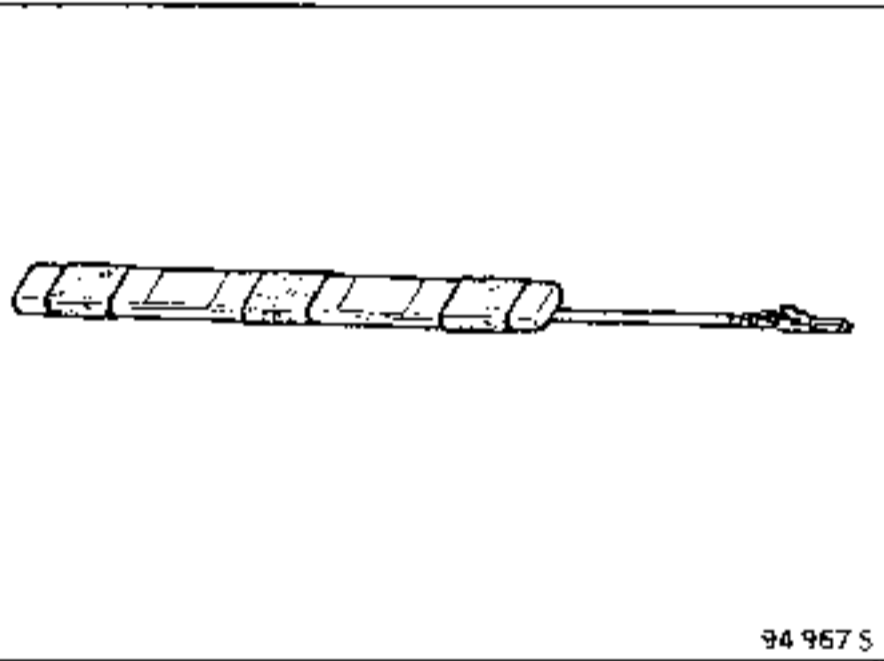


### METHOD FOR CHECKING THE CONNECTIONS

Before replacing an electrical component, first check its electrical connections using a tool made in the workshop.

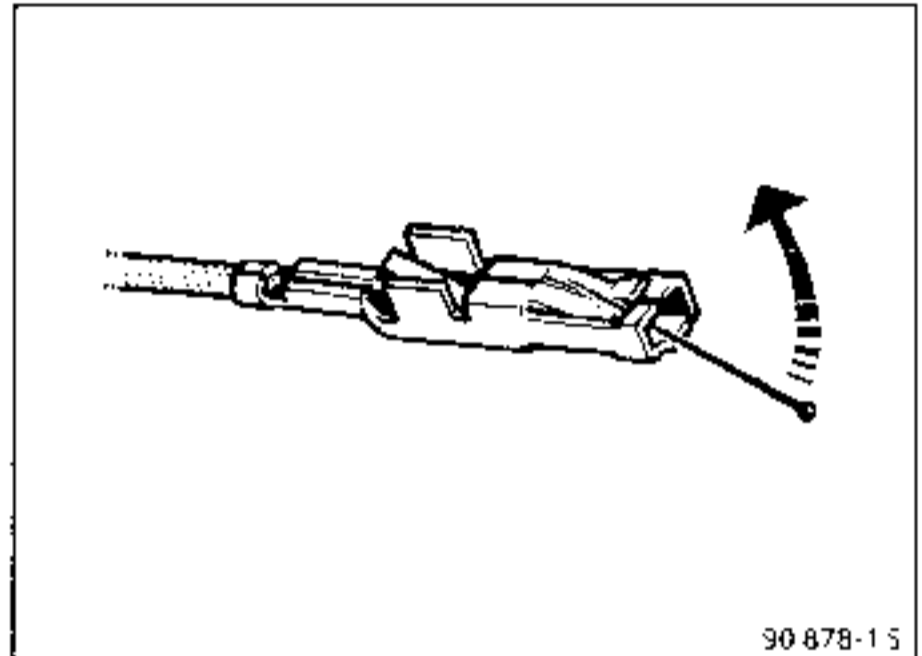
#### Making the tool

- Use a connector plug part number. : 77 01 997 033.
- Insert 15 cm of electrical wire.
- Attach 80 g of lead (wheel balance weight for example) to this wire.



#### Testing

Insert the tool vertically into each connector socket to be tested and invert it.



If the tool falls out, the connection is faulty. Carefully retighten the connector using a needle or paper clip. Do not shake the connector.

If the tool cannot be retained in the connector, replace the faulty wiring.