Revision: Engines 111.940/960 modified

Installation instructions

Tempomat/cruise control 54.2

Model 124.0/2 with automatic transmission, left-hand steering

Tempomat/cruise control makes it possible to hold any speed above approx. 40 km/h by actuating the operating switch.

The installation instructions are subdivided into the following sections:

A. Installation of switch, control module and harness
B. Installation of actuator on engine 102.922 with Stromberg carburetor
C. Installation of actuator on engine 102.922 with 2 E-E carburetor
D. Installation of actuator on engine 102.963/982
E. Installation of actuator on engine 103/104 with CFI injection system
F. Installation of actuator on engine 111
G. Wiring diagrams
H. Parts ordering note

A. Installation of switch, control module and harness

1 Disconnect ground wire on battery and remove air cleaner.

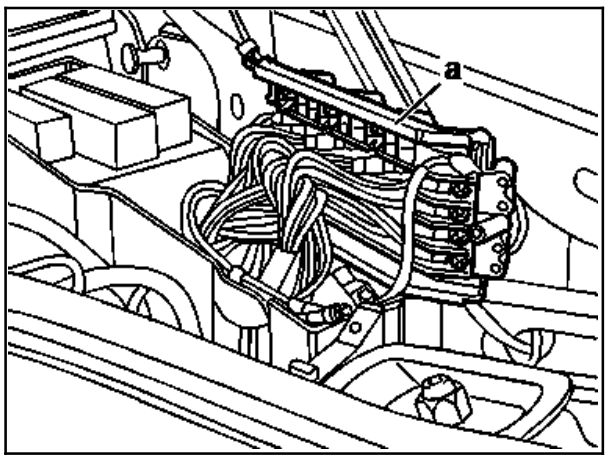
2 Remove both covers from fuse/relay box. Then remove fuse carrier (a) and put aside.

3 Remove floor mat at front left.

4 Remove steering wheel (46-0610).

Note

In the case of airbag, observe safety instructions.

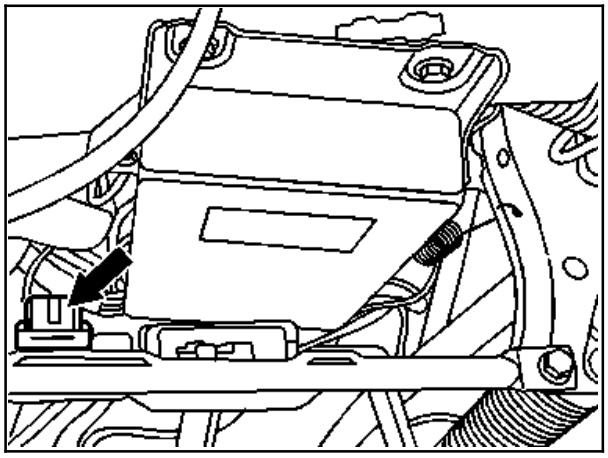


P30.30-0218-13

5 Remove both left-hand covers under instrument panel.

6 Remove instrument cluster.

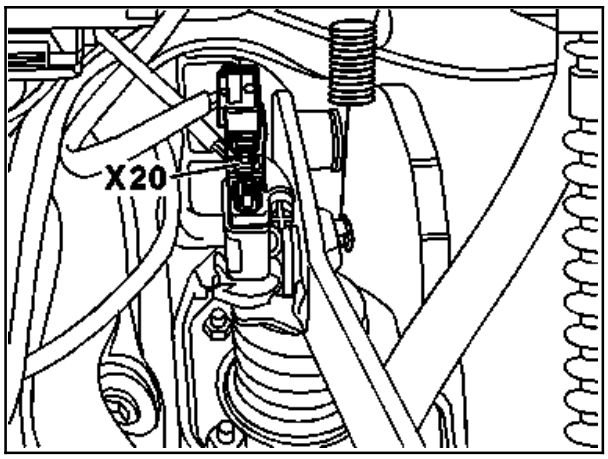
7 Engage 6-pin connector (arrow) of Tempomat/cruise control harness at the strut.



P30.30-0221-13

8 Mount 2-pin intermediate plug of Tempomat/ cruise control harness between harness and stop lamp switch or, on vehicles where the stop lamp switch already has an intermediate contact, disconnect harnesses and install new harness from stop lamp switch to fuse/relay box instead and fasten laterally with clips. Then connect all harnesses to multipoint connector for stop lamp switch.

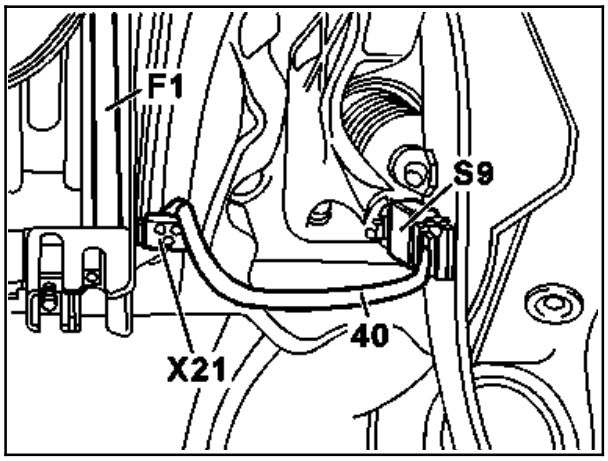
X20 Stop lamp switch intermediate connector (2-pin)



P30.30-0210-13

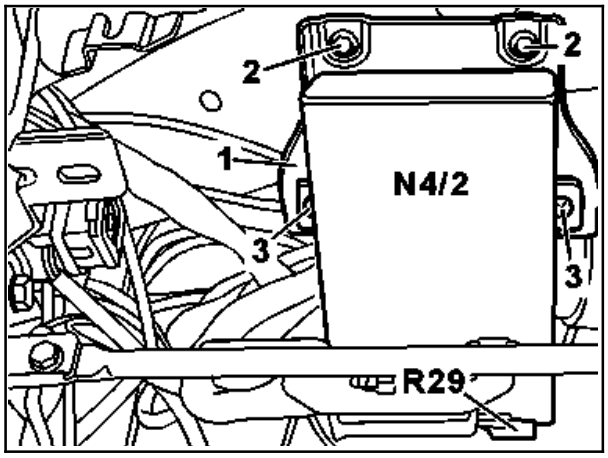
9 Install ground wire and green/yellow wire with 1-pin connector toward cutout for instrument cluster.

40 Harness
F1 Fuse/relay box
S9 Stop lamp switch
X21 Stop lamp switch multipoint connector



P30.30-0211-13

10 Screw control module to holder and plug reference resistor to control module. Screw holder with control module to underside of instrument panel and plug 14-pin connector of Tempomat/cruise control harness to control module.
11 Install 8-pin connector of Tempomat/cruise control harness from inside through fuse/relay box into engine compartment.



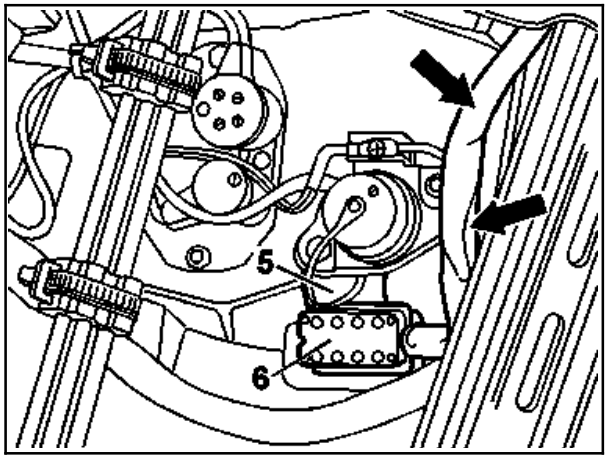
P30.30-0212-13

1 Holder
2 Screw B4.8×13
3 Screw B4.8×13
N4/2 CC control module (with reference resistor)
R29 CC reference resistor

12 Mount holder under diagnosis socket and engage connector on holder.

Location, model 124.0/2 up to approx. 09/92

5 Holder
6 Tempomat/cruise control harness



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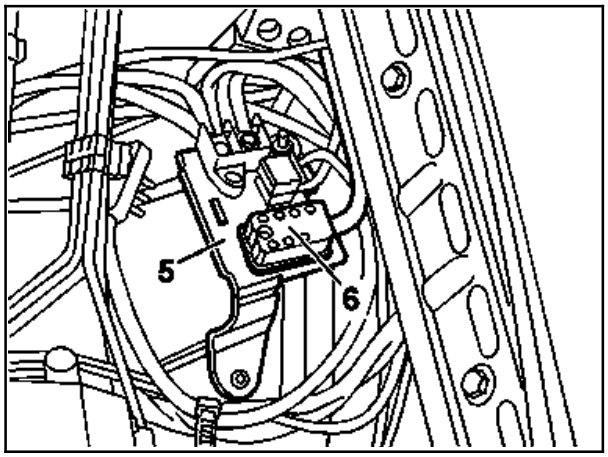
13 Engage connector on holder.

Location, model 124.0/2 up to approx. 10/92

5 Holder
6 Tempomat/cruise control harness



P30.30-0214-13

Note

The wire mentioned in item 14 should not be connected on the following engines; it should be insulated and tied back.

1. On engine 102.922/963.

2. As of approx. 09/88 on engine 102.982 with CFI control module 006 545 79 32/
   008 545 09 22.

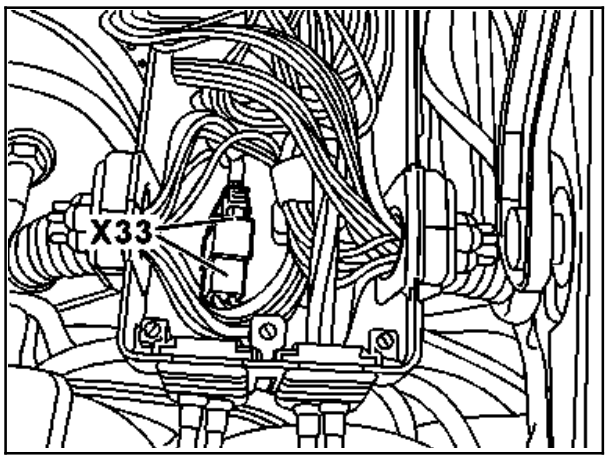
3. As of approx. 08/87 on engine 103 with CFI control module 006 545 14 32/
   007 545 14 32/007 545 15 32.

4. On engine 104 with CFI control module.

5. On engine 111.940

14 On vehicles with engine 102.982 or 103 up to approx. 08/85, connect white wire with 1-pin plug in fuse/relay box with 1-pin connector for white wire from engine harness. The plug is fastened with insulating tape to the engine harness in the fuse/relay box. As of approx. 09/85 to approx. 09/87 (engine 103), 09/88 (engine 102.982), insert white wire from Tempomat/cruise control harness into connector X26 chamber 11; socket must be present.

On vehicles with engine 111.960 insert white wire from cruise control wiring harness into connector (X26) chamber 11, socket must be present.



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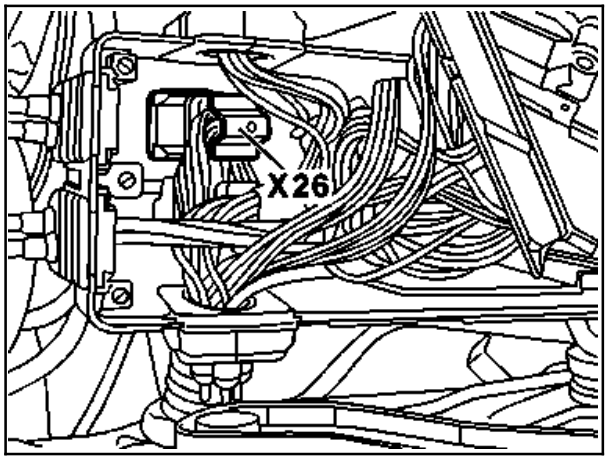
X33 CFI/CC connector (1-pin) up to approx. 08/85



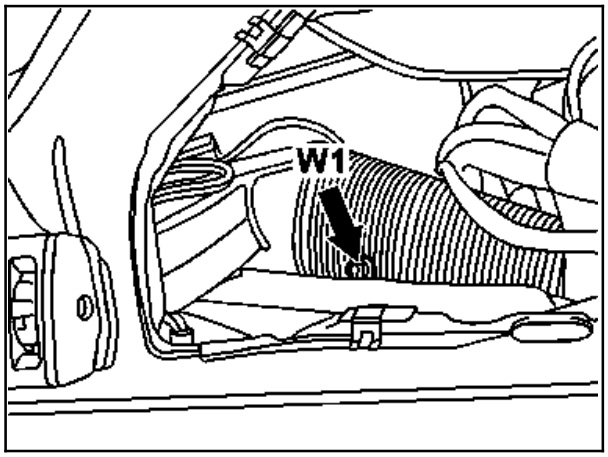
P30.30-0216-13

X26 Interior/engine connector
as of approx. 09/85 up to approx. 09/88 on engine 102.982,
as of approx. 09/85 up to approx. 08/87 on engine 103
(deleted on model 124.050)
on model 111.960

Perform items 15 to 19 on vehicles without Hall-effect speed sensor

15 Install harness for Hall-effect speed sensor from cutout of instrument cluster to grounding point (W1, arrow) and connect ground wire together with ground wire of Tempomat/cruise control harness.

W1 Main ground (behind instrument cluster)



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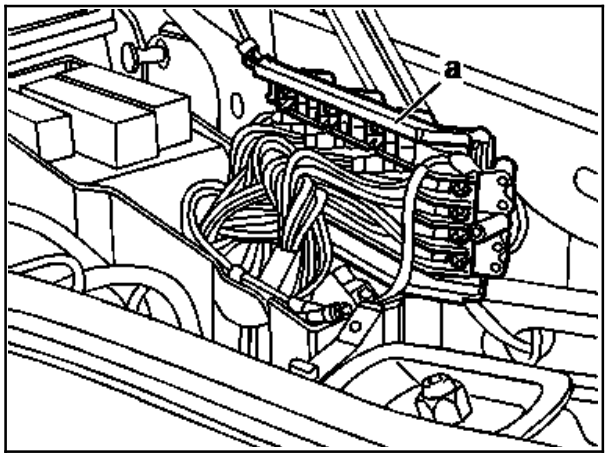
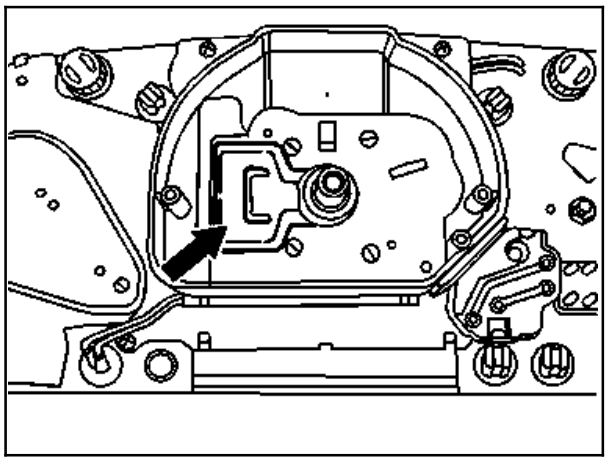
16 Route black/red-purple wire from harness for Hall-effect speed sensor to fuse carrier (a) and connect to outlet of fuse 5.

17 Re-install fuse carrier and cover for fuse/ relay box.



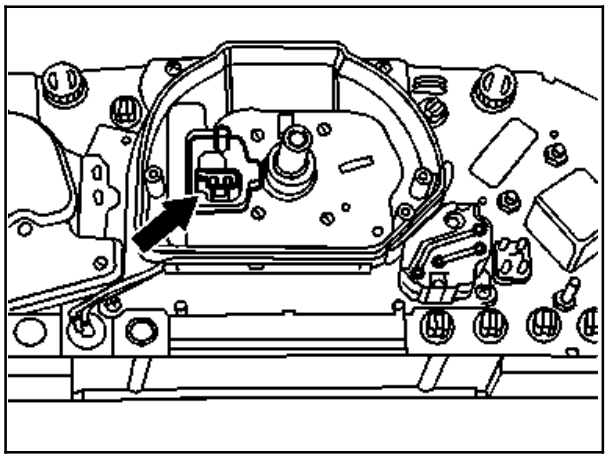
P30.30-0218-13

18 Break cutout for Hall-effect speed sensor on instrument cluster.



P30.30-0219-13

19 Screw Hall-effect speed sensor into instrument cluster.



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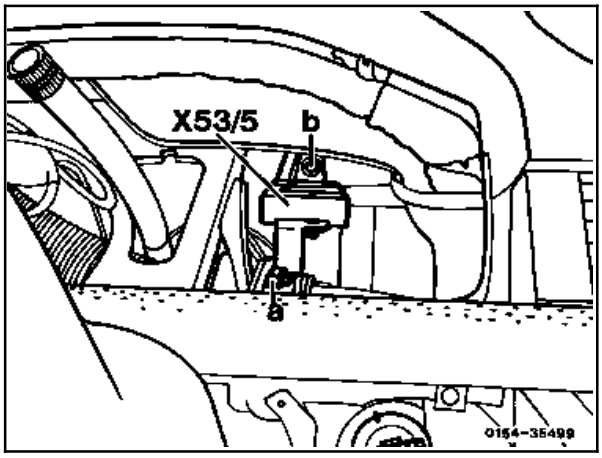
Note
On vehicles with Hall-effect speed sensor, install multipoint connector, Hall-effect speed sensor with holder.
Connect all road speed signal leads to multipoint connector, Hall-effect speed sensor.

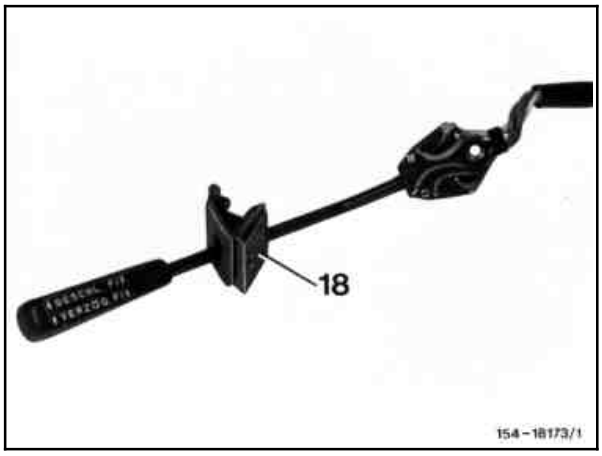
20 Install instrument cluster, while also connecting auxiliary harnesses for Tempomat/ cruise control and Hall-effect speed sensor or multipoint connector to Hall-effect speed sensor.



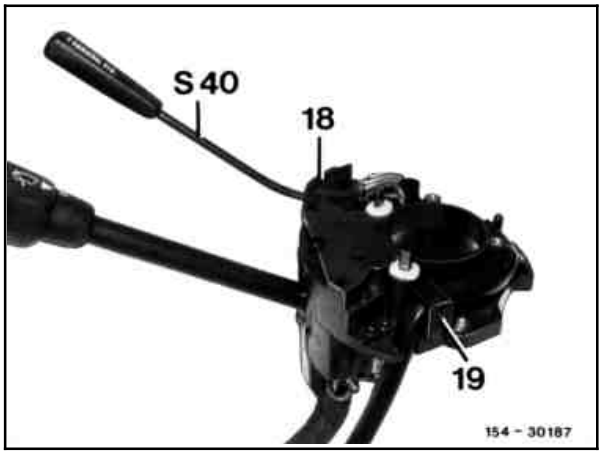
X53/5 Hall-effect speed sensor, multipoint connector
a Nut M10 (steering column console)
b Nut M6 (heater box)

21 Remove combination switch.
22 Remove lining for jacket tube and install new lining.
23 Slip rubber grommet over switch.

18 Rubber grommet

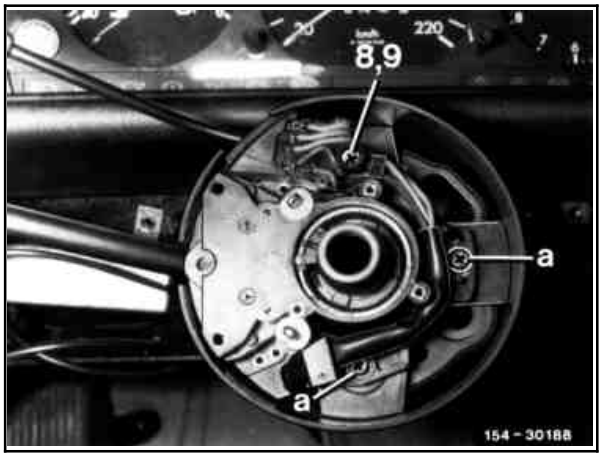


24 Slip Tempomat/cruise control switch on fastening plate of combination switch and mount line holder.



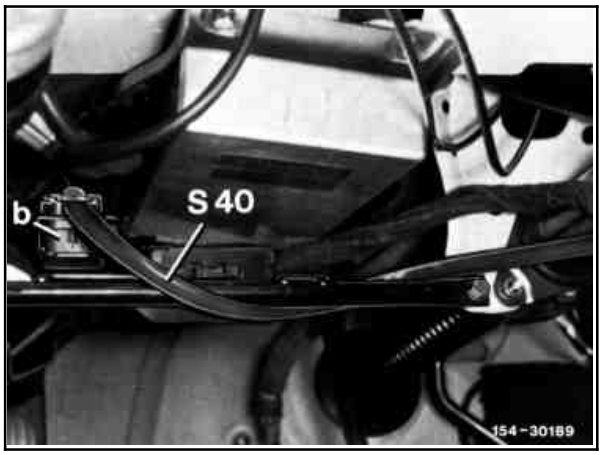
18 Rubber grommet
19 Line holder
S40 Tempomat/cruise control switch

25 Install both switches, using new screw (9).
26 Push plug of combination switch again on connector.



8 Snap ring A4
9 Screws AM 4 x 30
a Existing screws

27 Install harness of Tempomat/cruise control switch toward connector of Tempomat/cruise control harness and press on.



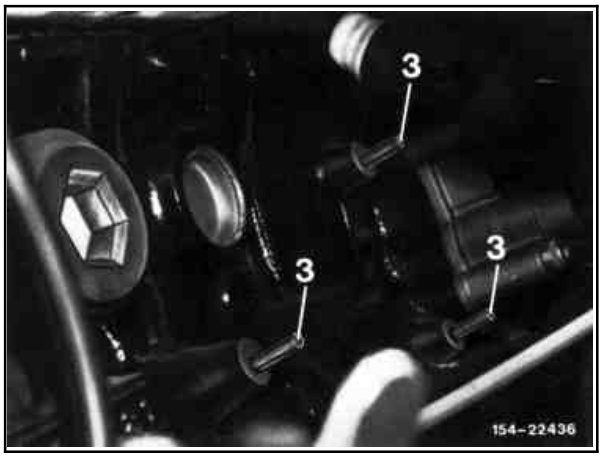
S40 Tempomat/cruise control switch
b Tempomat/cruise control harness

28 Install covers under instrument panel.
29 Install steering wheel (46-0610).
30 Put in floor mat.

B. Installation of actuator on engine 102.922 with Stromberg carburetor

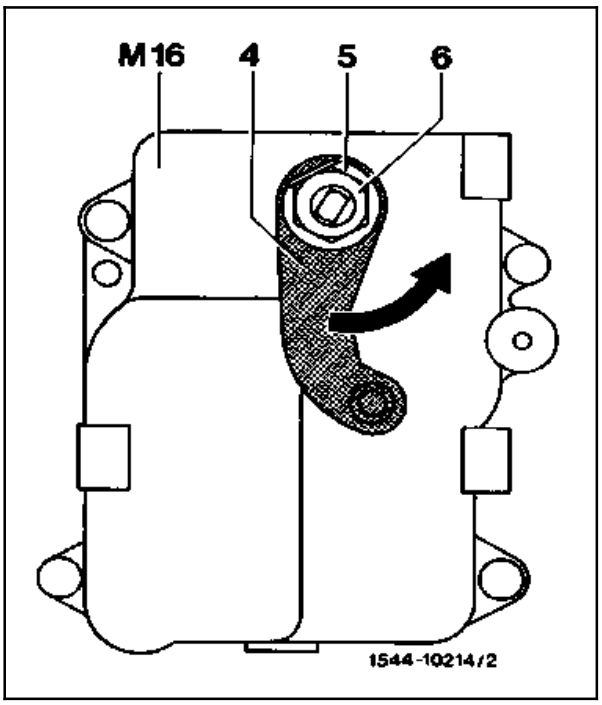
1 Screw short threaded end of stud into engine block.

3 Stud M6×20

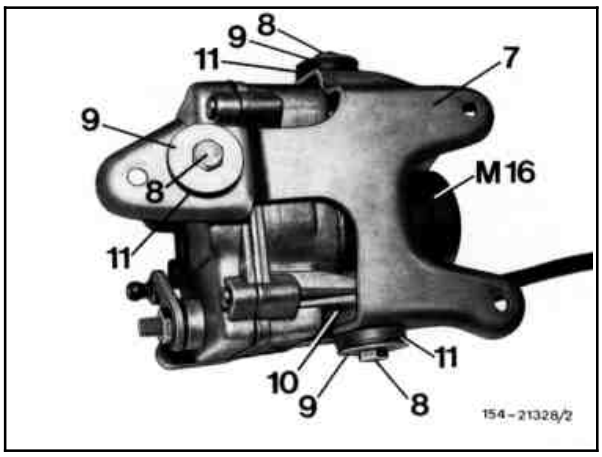


2 Turn actuator drive shaft opposite to direction of arrow against stop. Screw on lever and lock.

4 Lever
5 Lock washer
6 Nut M8 x 1
M16 Actuator



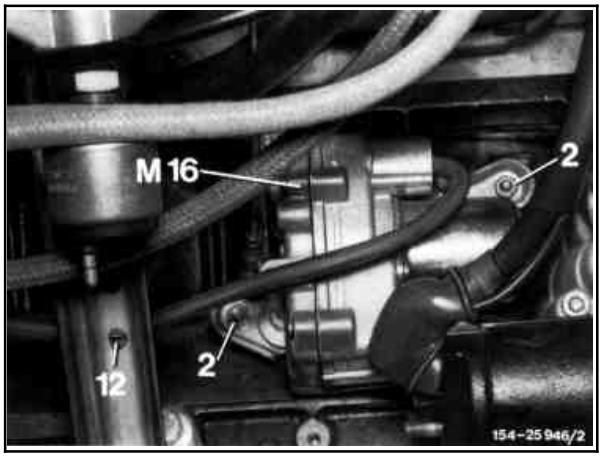
3 Mount rubber grommets to holder of actuator and insert spacers from inside toward outside.
4 Introduce actuator into holder and fasten with screws and washers.



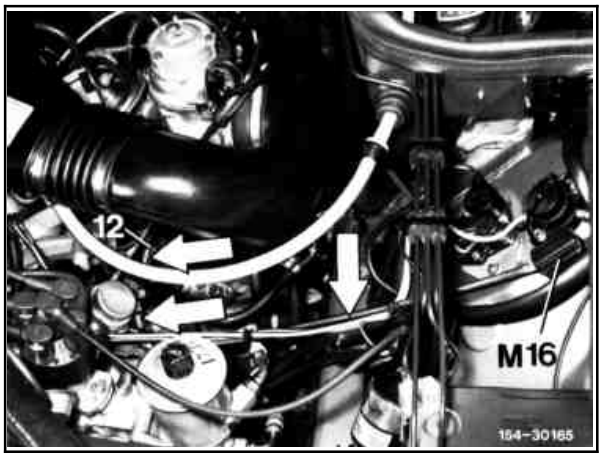
7 Holder
8 Screws M6 x 28
9 Washer
10 Spacer
11 Rubber grommet
M16 Actuator

5 Introduce holder with actuator between intake manifold and starter. Then screw to engine block.
6 Install line of actuator to holder on diagnosis socket and fasten. Then push plug on to 8-pin connector of auxiliary harness.

2 Nut
12 Clip
M16 Actuator

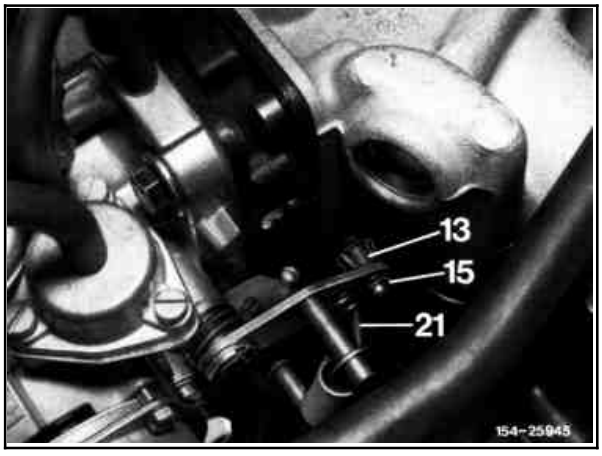


12 Clip
M16 Plug of actuator harness



7 Slip spacing sleeve on connecting rod.
8 Engage connecting rod on carburetor and lock with locking ring.

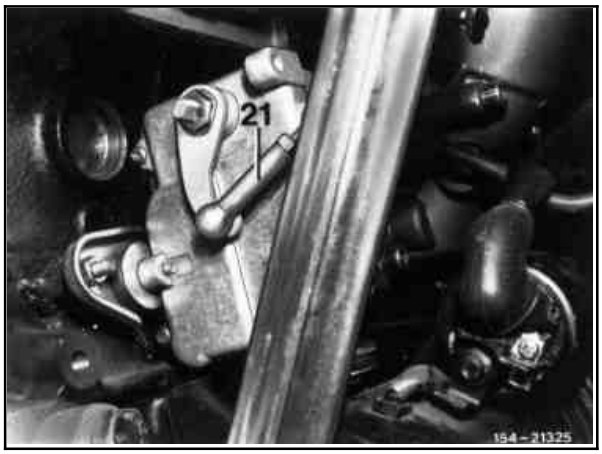
13 Spacing sleeve
15 Lock
21 Connecting rod



9 Push lever of actuator toward engine into idle position.

10 Adjust connecting rod in such a manner that it is approx. 1 mm shorter than the actual distance.

21 Connecting rod



11 Connect battery.

12 Run engine to operating temperature and let run at idle.

13 Disengage connecting rod on actuator.

Check adjustment once again, should be approx. 1 mm shorter than the actual distance.

14 Re-engage connecting rod and counter-lock ball socket.

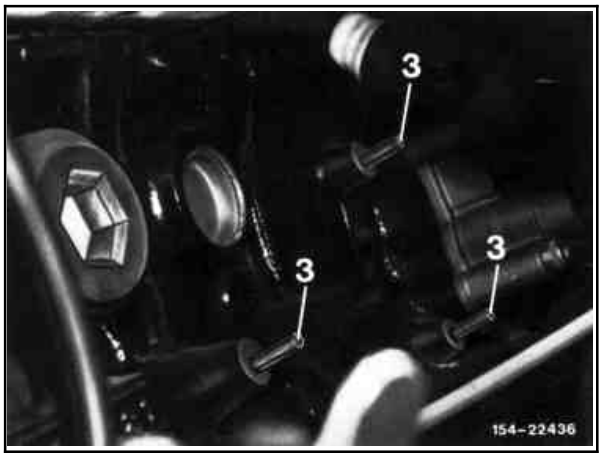
15 Mount air cleaner.

16 Perform function test on road.

C. Installation of actuator on engine 102.922 with 2 E-E carburetor

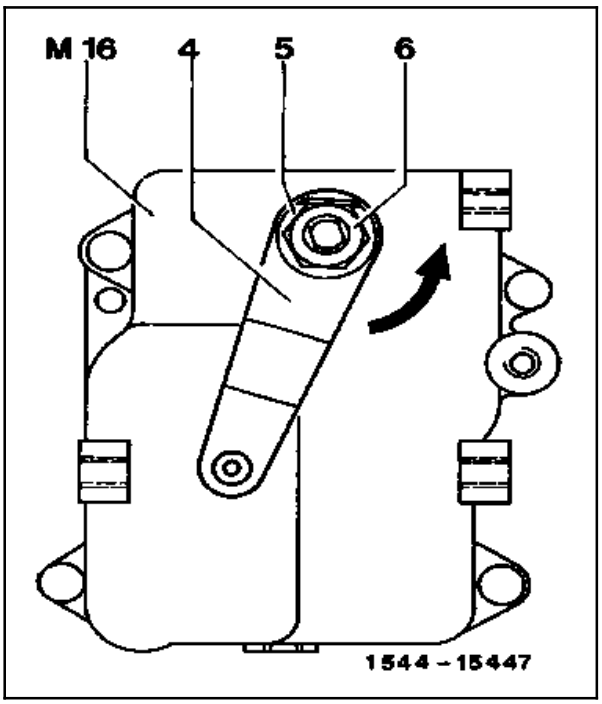
1 Screw short threaded end of stud bolt into engine block

3 Stud M6 x 20



2 Turn actuator drive shaft opposite to direction of arrow against stop, screw on lever and lock.

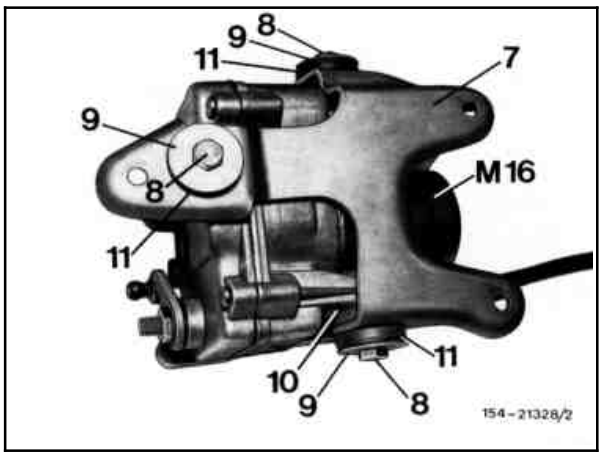
4 Lever
5 Lock washer
6 Nut M8 x 1
M16 Actuator



3 Mount rubber grommets on holder of actuator and insert spacers from inside toward outside.

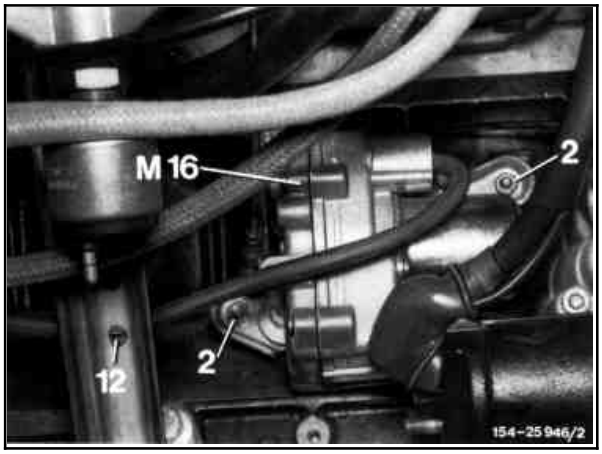
4 Introduce actuator into holder and fasten with screws and washers.

5 Introduce holder with actuator between intake manifold and starter. Then screw holder on to engine block.



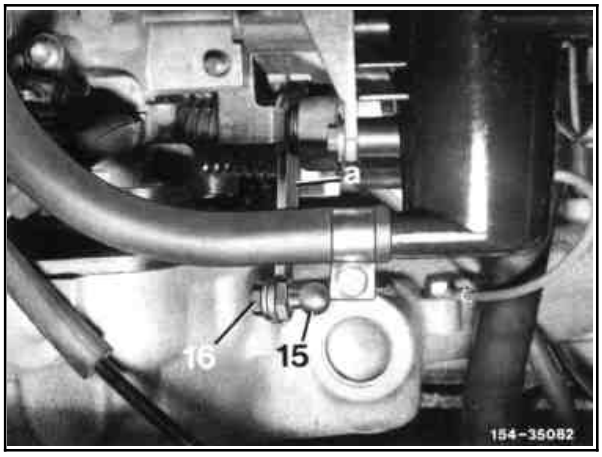
7 Holder
8 Screws M6 x 28
9 Washer
10 Spacer
11 Rubber grommet
M16 Actuator

6 Install wire for actuator up to 8-pin connector for auxiliary harness and fasten. Then push plug on to 8-pin connector of auxiliary harness.



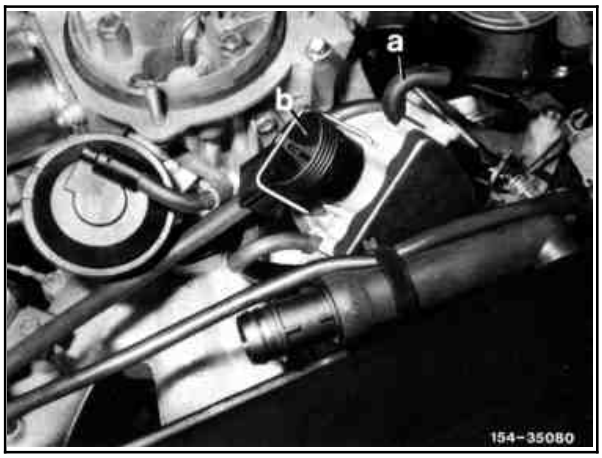
2 Nut
12 Clip
M16 Actuator

7 Screw ball head on to carburetor lever.

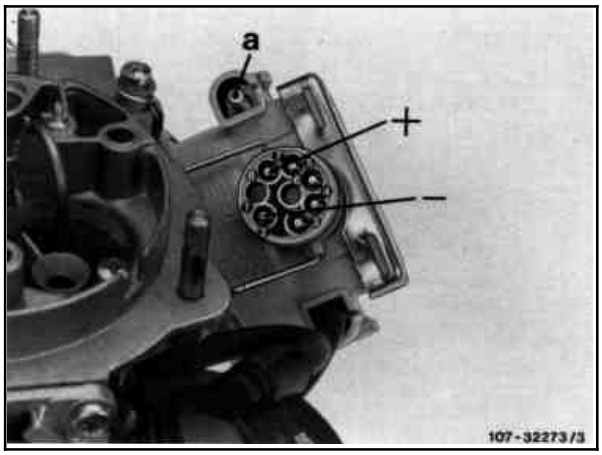


15 Ball head
16 Nut
a Carburetor lever

8 Disconnect vacuum line (a) and connector (b) on throttle valve control.

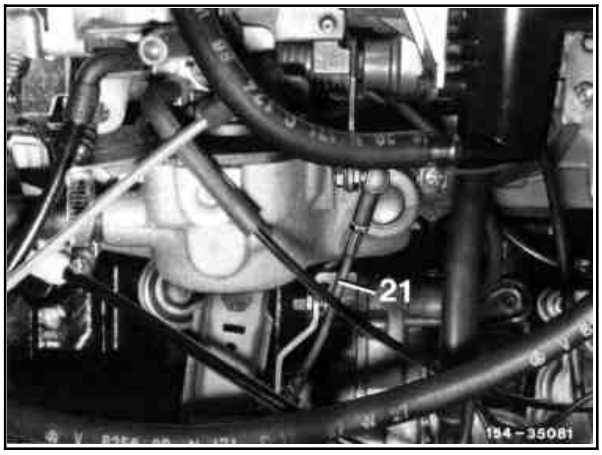


9 Connect terminal 8 of throttle valve control to battery positive and terminal 2 to ground.
10 Connect vacuum pump 001 589 73 21 00 to terminal (a) and actuate until push rod is completely retracted, then disconnect electric cables from battery; the valve coils for the throttle valve control are not designed for continuous current.

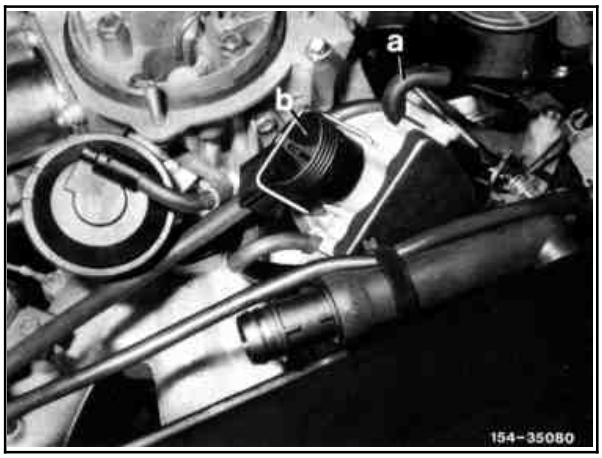


11 Hook connecting rod on to actuator.
12 Press actuator lever toward engine into idle position.
13 Adjust connecting rod in such a manner that it is approx. 1 mm shorter than the actual distance.
14 Hook connecting rod on to carburetor and counter-lock ball socket.

21 Connecting rod



15 Reconnect vacuum line (a) and connector (b).



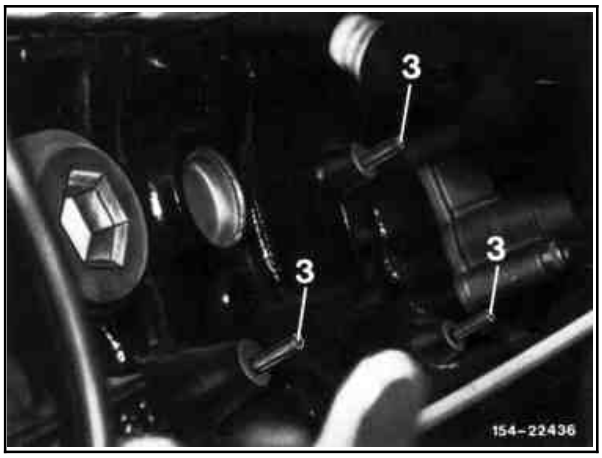
16 Connect grounding wire to battery.
17 Mount air cleaner.
18 Perform function test on road.

D. Installation of actuator on engine 102.963/982

1 Remove lower engine compartment panelling.
2 Remove intake manifold support and starter.

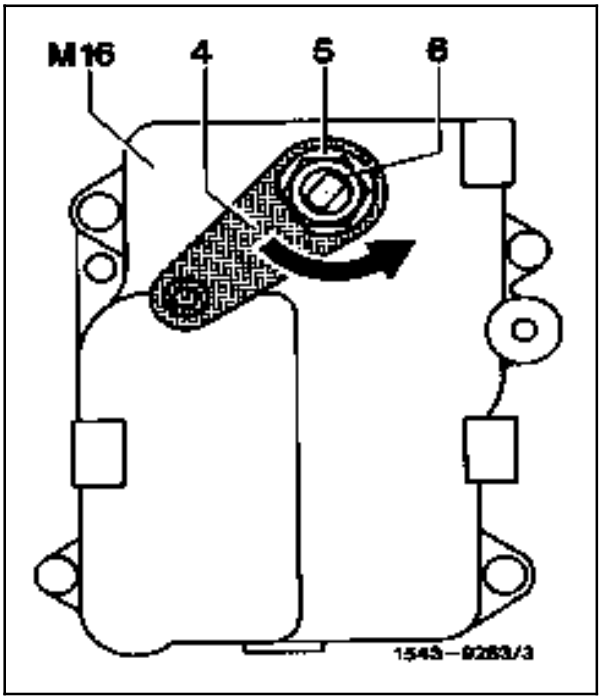
3 Screw short threaded end of stud into engine block.

3 Stud M6 x 20

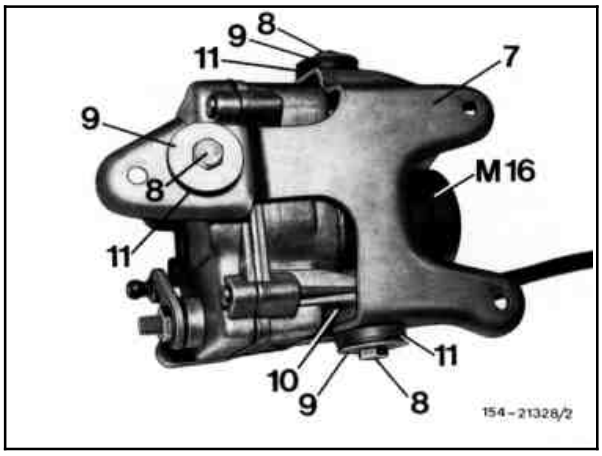


4 Turn drive shaft of actuator opposite to direction of arrow against stop, screw on lever and lock.

4 Lever
5 Lock washer
6 Nut M8 x 1
M16 Actuator

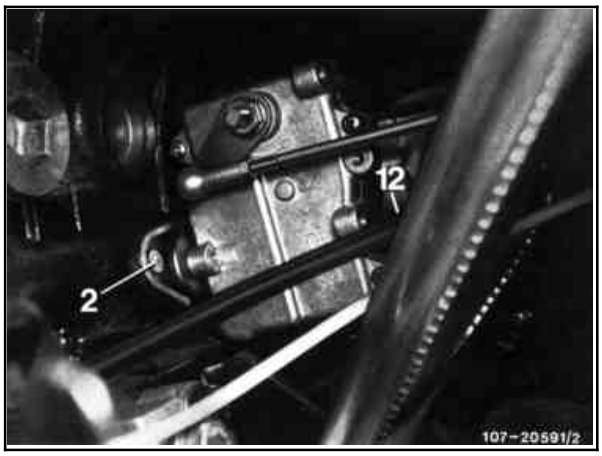


5 Mount rubber grommets on holder of actuator and insert spacers from inside toward outside.
6 Introduce actuator into holder and fasten with screws and washers.

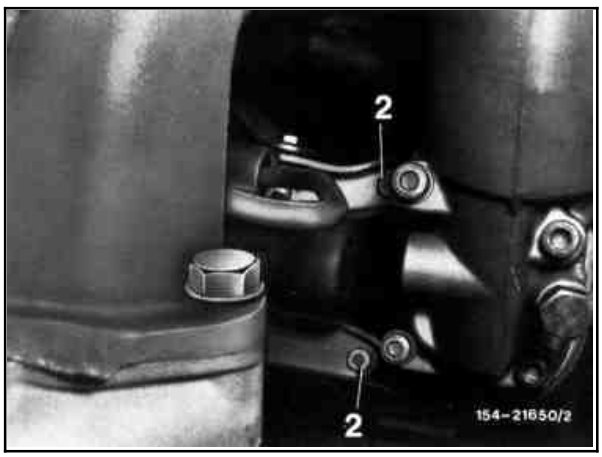


7 Holder
8 Screws M6 x 28
9 Washer
10 Spacer
11 Rubber grommet
M16 Actuator

7 Introduce holder with actuator from below and screw on to engine.
8 Install starter and intake manifold support. Then fasten harness of actuator with clip to intake manifold support.



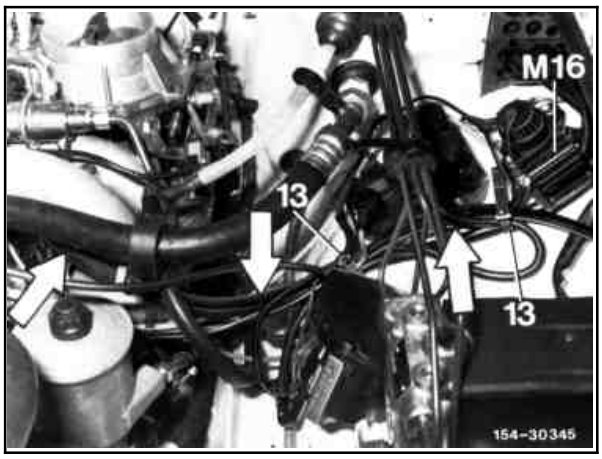
2 Nut M6
12 Clip



2 Nut M6

9 Install line of actuator up to holder on diagnosis socket and fasten. Then push plug on to 8-pin connector of harness.

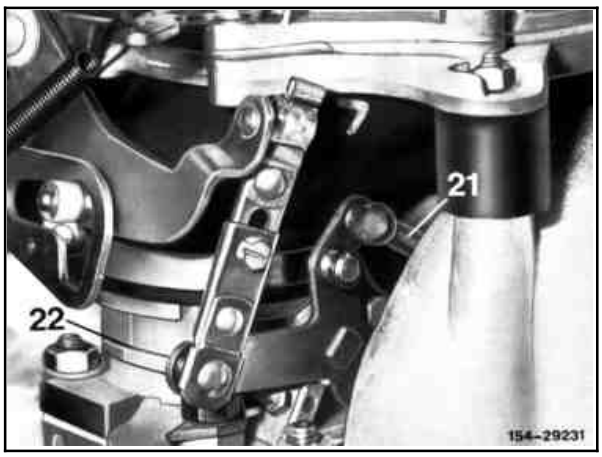
13 Cable strap
M16 Plug of actuator harness



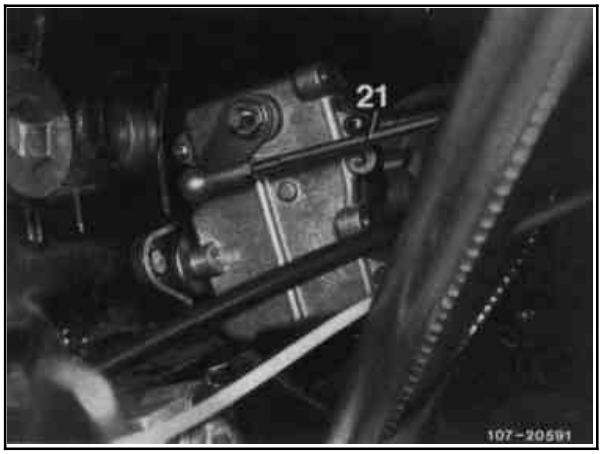
10 Loosen throttle control on intake manifold and put aside.

11 Exchange throttle valve housing for new throttle valve housing (not required on retrofitted and TWC vehicles). Then engage connecting rod on throttle valve housing.
12 Move throttle linkage to idle.
13 Push lever of actuator toward engine into idle position.

21 Connecting rod
22 Throttle valve housing



14 Adjust connecting rod in such a manner that it is approx. 1 mm shorter than the actual distance.
15 Engage connecting rod and counter-lock ball socket.
16 Screw throttle control on to intake manifold.



21 Connecting rod

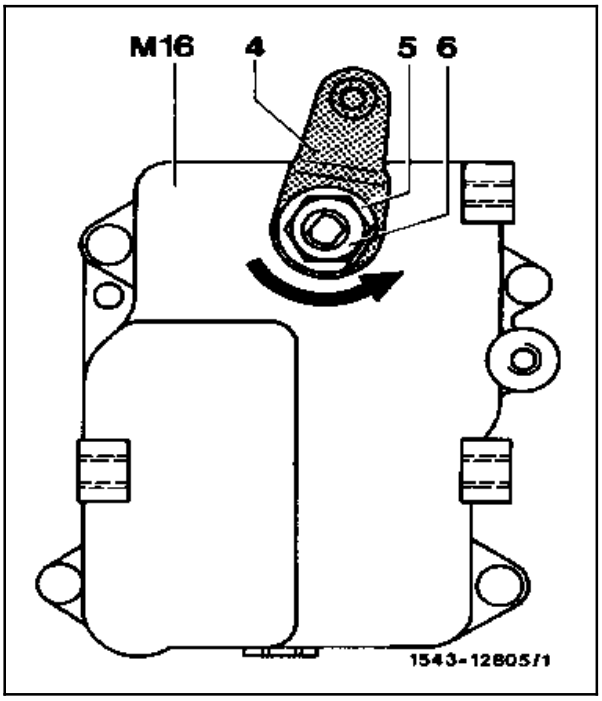
17 Mount air cleaner.
18 Connect ground wire to battery

19 Install lower engine compartment panelling.
20 Perform function test on road.

E. Installation of actuator on engine 103/104 with CFI injection system

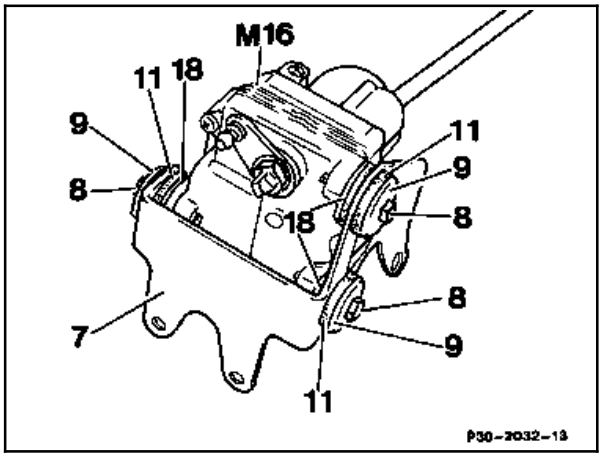
1 Push actuator drive shaft opposite to direction of arrow against stop. Screw on lever and lock.

4 Lever
5 Lock washer
6 Nut M8 x 1
M16 Actuator

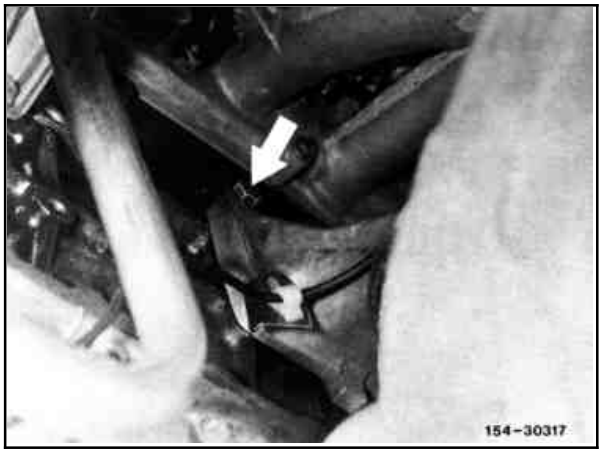


2 Mount rubber grommets on holder of actuator and insert spacers from inside toward outside.
3 Introduce actuator into holder and fasten with screws and washers.

7 Holder
8 Screws M6 x 28
9 Washer
11 Rubber grommet
18 Spacer
M16 Actuator

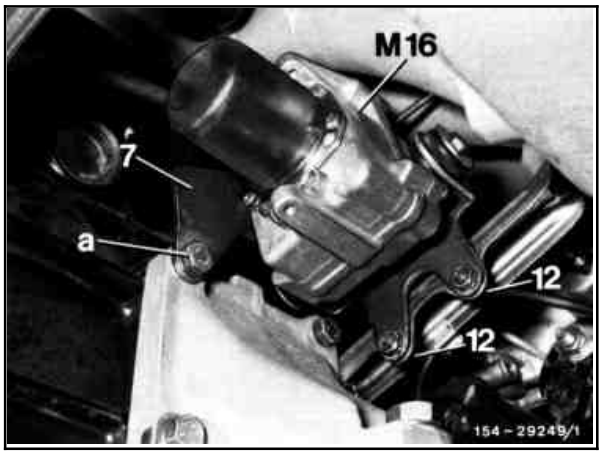


4 Remove lower engine compartment panelling.
5 Unscrew upper front screw (arrow) from left-hand engine mounting bracket.
6 On engine 103 with A/C compressor, disconnect both lower engine mounts and raise engine.



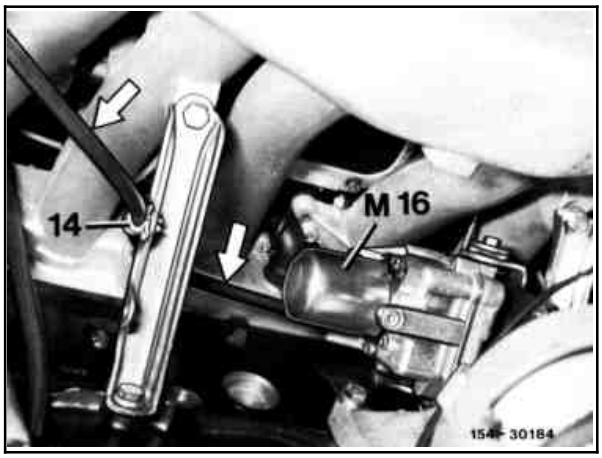
7 On left-hand engine side, introduce actuator with holder from below and screw on.
8 On engine 103 with A/C compressor, lower engine and fasten engine mounts.

7 Holder
12 Screws M6 x 12
M16 Actuator
a Existing screw

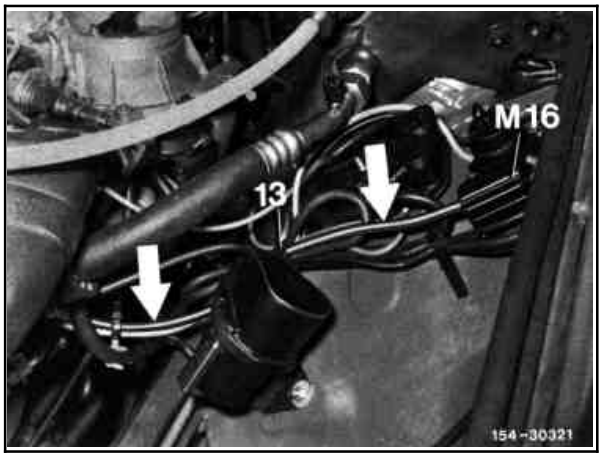


9 Install line of actuator up to holder on diagnosis socket and fasten. Then push plug on to 8-pin connector of harness.

14 Clip
M16 Actuator



13 Cable strap
M16 Plug of actuator harness

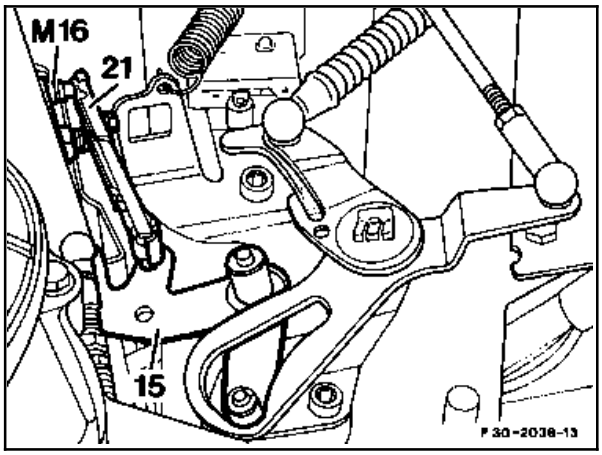


Engine 103

10 Exchange control lever for new control lever and move throttle control into idle position.

11 Engage connecting rod, 175 mm long, (basic dimension from center of ball socket) on actuator, push toward engine and adjust in such a manner that it is approx. 1 mm shorter than the actual distance.

12 Engage connecting rod on control lever.

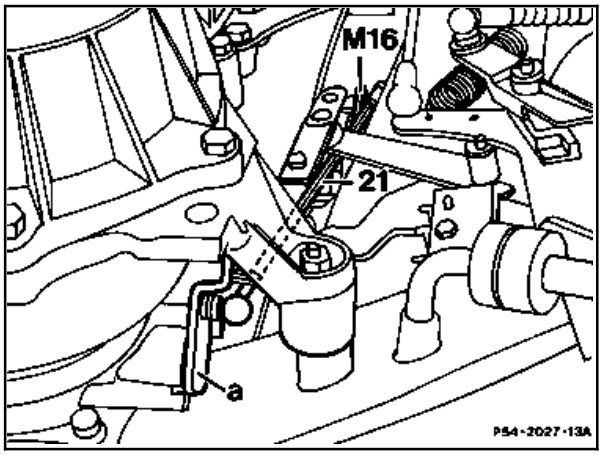


15 Control lever
21 Connecting rod
M16 Actuator

Engine 104

13 Move throttle control into idle position.

14 Engage connecting rod on actuator, push toward engine and adjust in such a manner that it is approx. 1 mm shorter than the actual distance.



21 Connecting rod
M16 Actuator
a Throttle valve lever

15 Counter-lock ball socket and engage connecting rod on throttle valve lever.

All

16 Mount air cleaner.

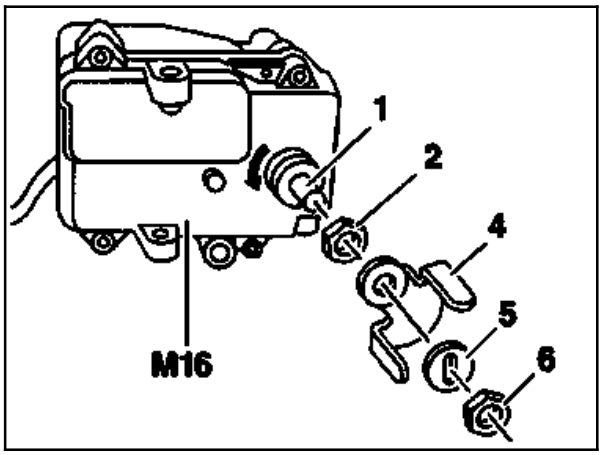
17 Connect ground wire to battery.

18 Install lower engine compartment panelling.

19 Perform function test on road.

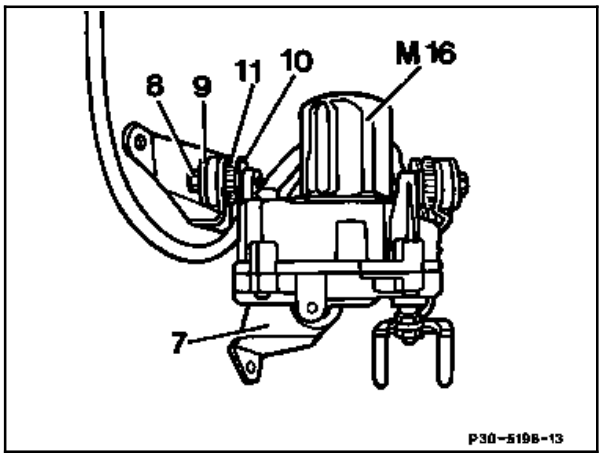
F. Installation of actuator on engine 111

1 Remove lower engine compartment panelling.
2 Install the nut (2) on the driveshaft (1) from the actuator (M16). Screw the nut on until about 8.5 mm protrudes at the end of the driveshaft (1).
3 Install and secure lever (4), lock washer (5) and nut (6).



1 Driveshaft
2 Nut M8x1
4 Lever
5 Lock washer
6 Nut M8×1
M16 Tempomat cruise control actuator (TPM)

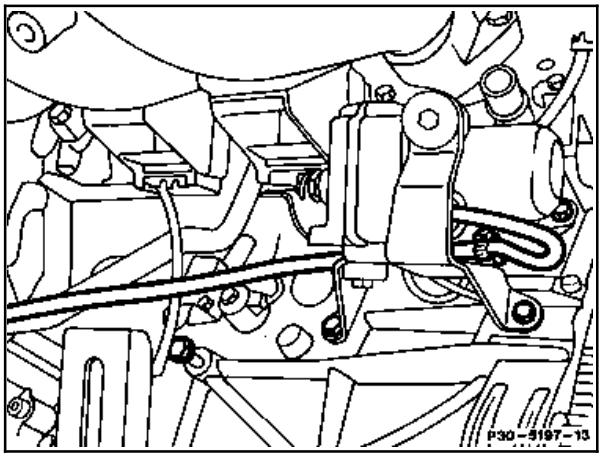
4 Install the rubber grommets on the actuator bracket and insert the spacers from the inside.
5 Guide the actuator into the bracket and mount with bolts and washers. Then use cable strap to attach the actuator cable to the bracket.

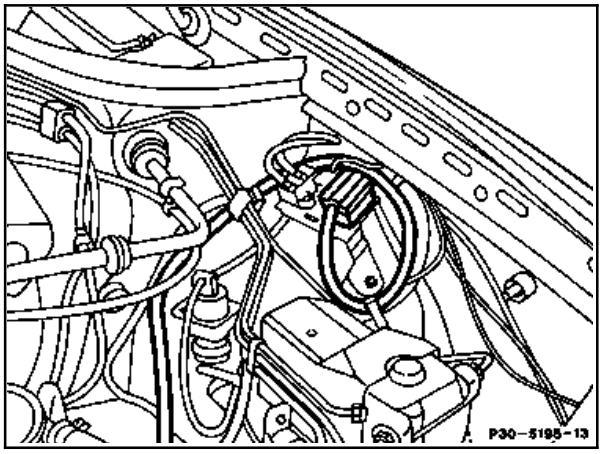


7 Bracket
8 Bolts M6 x 28
9 Washer
10 Spacer
11 Rubber grommet
M16 Tempomat cruise control actuator (TPM)

6 Guide the bracket with actuator into position from below. Bolt the assembly to the engine block.

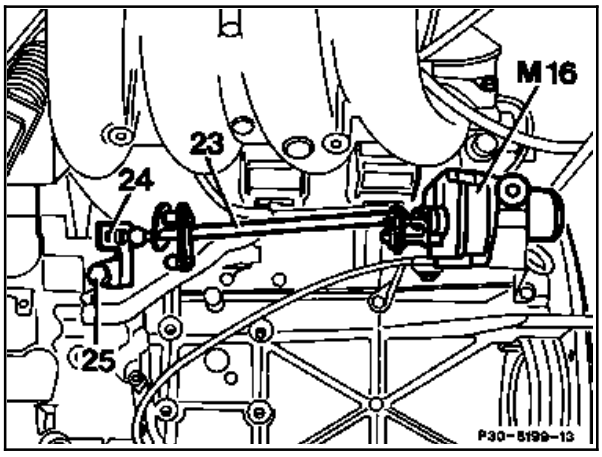
7 Route the wiring from the actuator to the bracket and attach it there. Then press the plug into the 8-pin connector socket in the wiring harness.



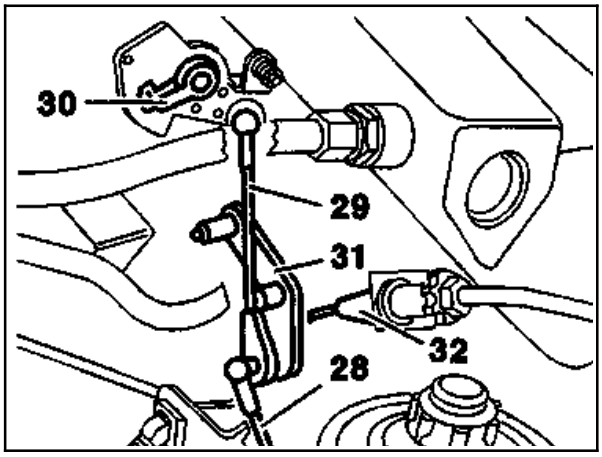


8 Guide the linkage rod (23) with bracket (24) onto the actuator, then bolt down the bracket.

23 Linkage rod
24 Bracket
25 Bolt
M16 Tempomat cruise control actuator (TPM)



9 Remove the linkage rod (29) between the control lever (30) and transfer lever (31).
10 Release the throttle cable (32) from the transfer lever at the intake manifold and place it to one side.
11 Remove the transfer lever (31) and replace with a new transfer lever (31) and linkage rod (29).



28 Linkage rod
29 Linkage rod
30 Control lever
31 Transfer lever
32 Throttle cable

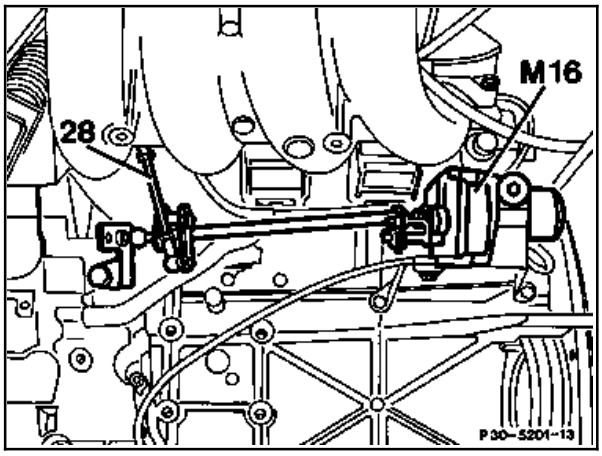
Note
The linkage rod (29) connects the transfer lever (31) with the control lever (30). When installing the transfer lever ensure that the linkage rod assumes the correct position. The reference length (center of ball joint/center of ball socket) for the linkage rod (29) is roughly 139 mm.

12 Install the linkage rod (29) on the control lever (30); screw the ball socket up or down to adjust the linkage rod to the correct length. At idle (no linkage motion) it should be possible to install the ball socket on the control-lever ball fitting (30) with no movement (tension) in the linkage.

13 Connect the linkage rod (28) to the transfer lever (31)
Note

The reference length (center of lower/upper ball socket) for the linkage rod (28) is roughly 120 mm.

14 Press the lever of the actuator toward engine and into idle position.
15 Adjust the linkage rod (28) to about 1 mm less than the actual distance.
16 Connect the linkage rod (28) and lock down the ball socket.



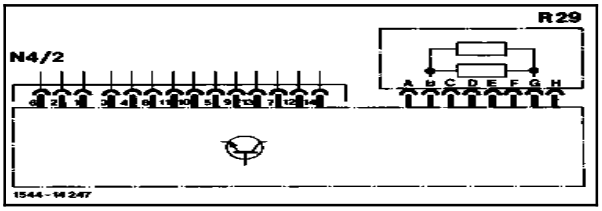
17 Reconnect the battery ground cable.
18 Install lower engine-compartment sound encapsulation.
19 Carry out road test.

G. Wiring diagrams

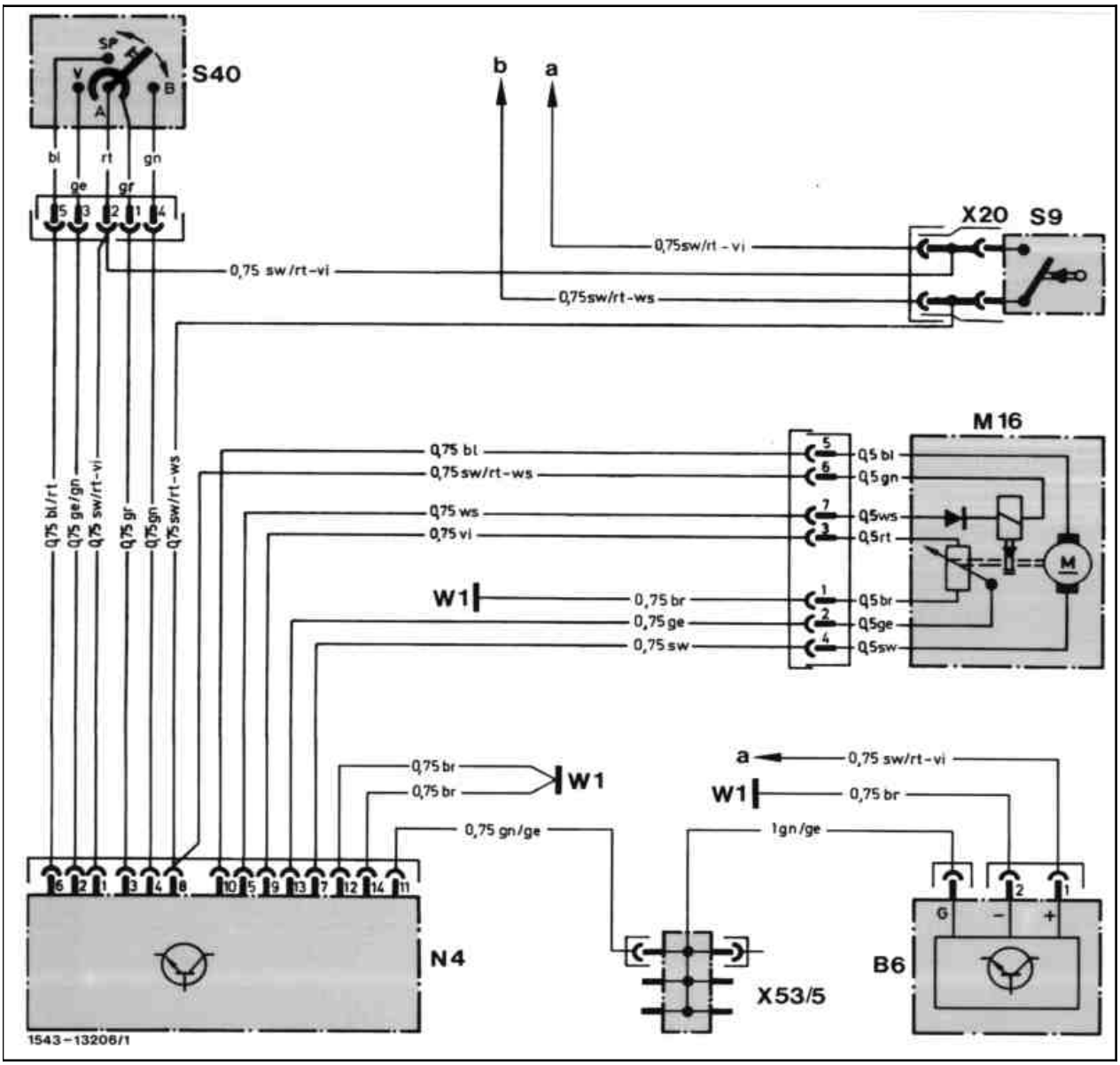
⚠
A new control module with reference resistor is being phased in; it has no influence either on the wiring or wiring diagrams.

Note

For wiring diagrams as of 10/92, refer to volume
"Electric Wiring Diagrams".

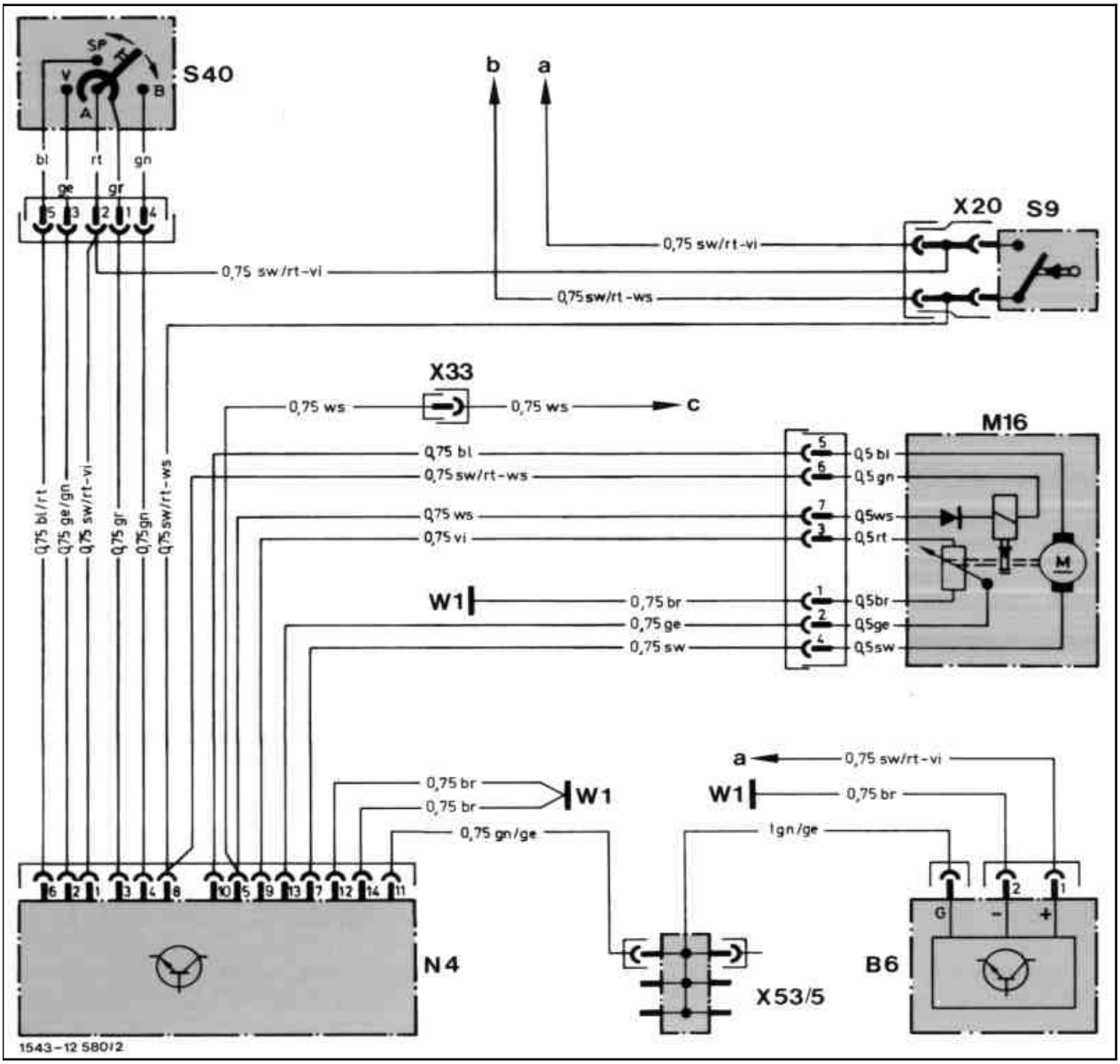


N4/2 CC control module (with reference resistor)
R29 CC reference resistor



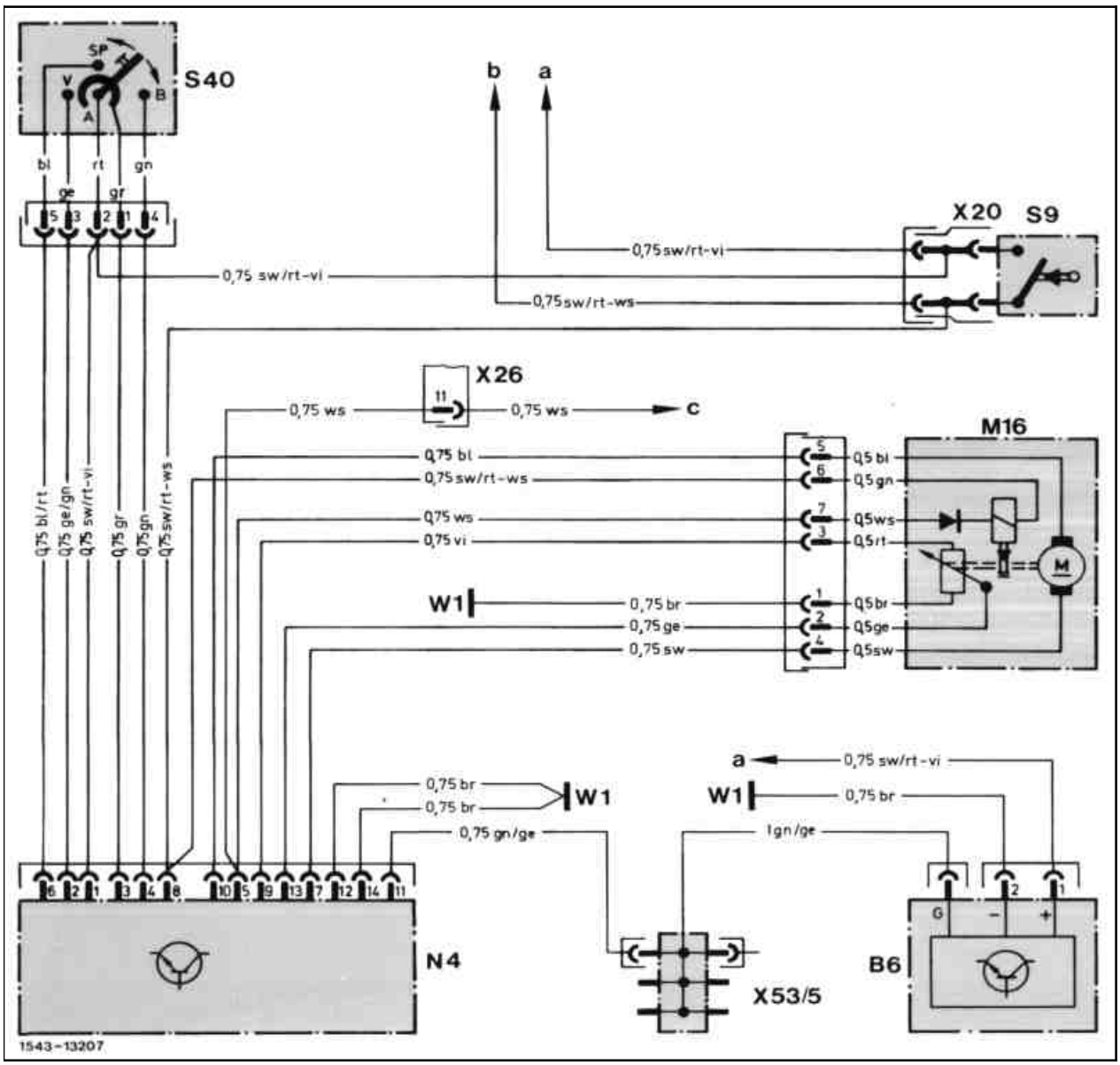
Wiring diagram Tempomat/cruise control, models 124.020/080 up to approx. end of 09/92

B6	Hall-effect speed sensor	W1	Main ground (behind instrument cluster)
M16	Tempomat/cruise control actuator	X20	Stop lamp switch intermediate connector (2-pin)
N4	Tempomat/cruise control module	X53/5	Hall-effect sensor multipoint connector (only if speed signal is required for several options)
S9	Stop lamp switch		
S40	Tempomat/cruise control switch		
	A Off	a	On fuse 5 terminal 15
	B Accelerate/set	b	On N7 exterior lamp failure monitoring unit, assignment 15
	Sp Resume		
	V Decelerate/set		



Wiring diagram Tempomat/cruise control, models 124.023/026/03 up to approx. end of 08/85

B6	Hall-effect speed sensor
M16	Tempomat/cruise control actuator
N4	Tempomat/cruise control module
S9	Stop lamp switch
S40	Tempomat/cruise control switch
	A Off
	B Accelerate/set
	Sp Resume
	V Decelerate/set
W1	Main ground (behind instrument cluster)
X20	Stop lamp switch intermediate connector (2-pin)
X33	CFI/CC connector (1-pin)
X53/5	Hall-effect sensor multipoint connector (only if speed signal is required for several options)
a	On fuse 5 terminal 15
b	On N7 exterior lamp failure monitoring unit, assignment 15
c	On N3 injection system control module, assignment 6

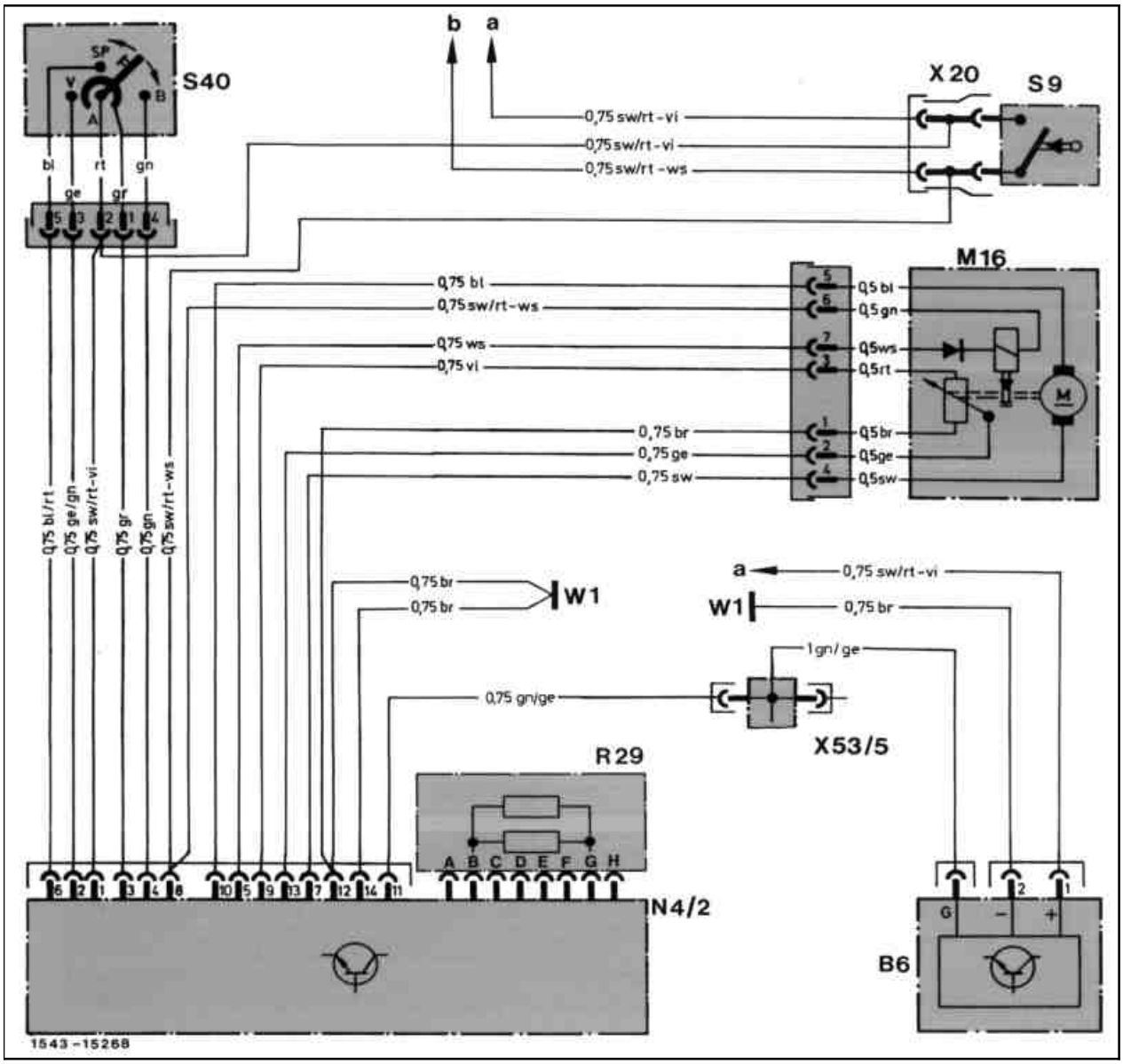


Wiring diagram Tempomat/cruise control, models

124.023/043/083 as of approx. 09/85 up to approx. 08/88

124.026/030/090/226/230/290 as of approx. 09/85 up to approx. 08/87.

B6	Hall-effect speed sensor
M16	Tempomat/cruise control actuator
N4	Tempomat/cruise control module
S9	Stop lamp switch
S40	Tempomat/cruise control switch
	A Off
	B Accelerate/set
	Sp Resume
	V Decelerate/set
W1	Main ground (behind instrument cluster)
X20	Stop lamp switch intermediate connector (2-pin)
X26	Interior/engine connector
X53/5	Hall-effect sensor multipoint connector (only if speed signal is required for several options)
a	On fuse 5 terminal 15
b	On N7 exterior lamp failure monitoring unit, assignment 15
c	On N3 CFI control module, assignment 6



Wiring diagram 124.031/051/091 up to approx. end of 09/92
Tempomat/cruise 124.021/023/043/081/083 as of approx. 09/88 to approx. end of 09/92
control, models 124.026/030/050/090/226/230/290 as of approx. 09/87 to approx. end of 09/92

B6	Hall-effect speed sensor
M16	Tempomat/cruise control actuator
N4/2	CC control module (with reference resistor)
R29	CC reference resistor
S9	Stop lamp switch
S40	Tempomat/cruise control switch
	A Off
	B Accelerate/set
	Sp Resume
	V Decelerate/set
W1	Main ground (behind instrument cluster)
X20	Stop lamp switch intermediate connector (2-pin)
X53/5	Hall-effect sensor multipoint connector (only if speed signal is required for several options)
a	On fuse 5 terminal 15
b	On N7 exterior lamp failure monitoring unit, assignment 15

H. Parts ordering note

Take parts required for installation from the following spare parts data:

Parts included	Group 99
Throttle valve housing for 124.023/083 without catalytic converter retrofit version or TWC only	Group 99