

CO adjustment

Section	Group
2	25

CO adjustment
B21F and B28F
(sealed)
1981–

B21F and B28F (sealed)
1981–

VOLVO

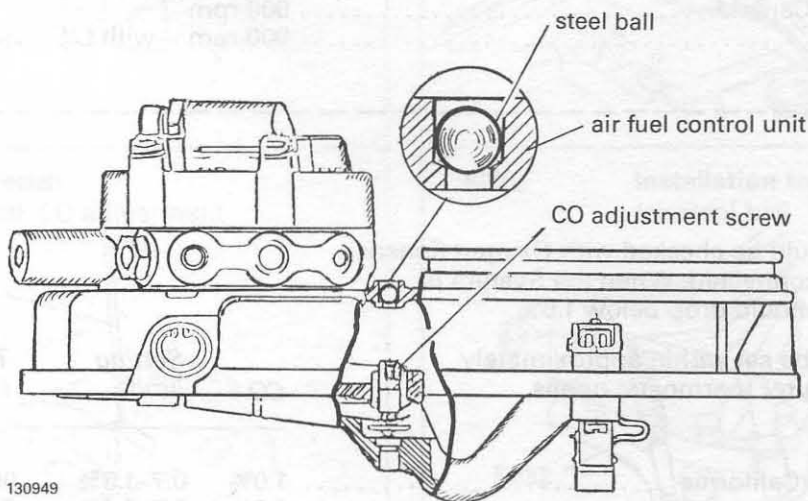
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Technical information

Sealed CO adjustment.

Initial CO setting is made at the factory and should not need be changed. The access hole for CO adjustment is sealed with a steel ball. If the CO values are outside limits, and all other causes for incorrect CO readings have been checked, the procedures in this manual should be used when adjusting the CO setting.



The steel ball, sealing the access hole, must be removed. This must be done by removing the air-fuel control unit and punching out the steel ball from the underside.

Specifications

1981

Engine idle speed

On models with Constant Idle Speed System = CIS system, idle speed cannot be adjusted. Controls are sealed.

Idle
speed
(tolerance ± 50 rpm)

B21F, Federal	900 rpm	
B21F, California	900 rpm	with CIS System
B21F-MPG	750 rpm	with CIS System
B21F-Turbo	900 rpm	with CIS System
B28F, Federal and Canada	900 rpm	
B28F, California	900 rpm	with CIS System

CO (hot engine)

The following should be checked with Oxygen Sensor (Lamba sond) disconnected. When the System is reconnected, CO should drop below 1.0%.

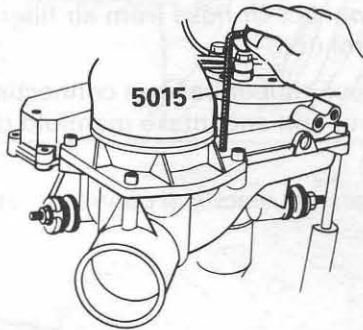
Note: CO should be set within approximately 8 minutes after thermostat opens.

	CO	Setting limits	To be set at (± 50 rpm)
B21F, USA Federal/California	1.0%	0.7-1.3%	900 rpm
B21F-MPG	1.0%	0.7-1.3%	750 rpm
B21F-Turbo	1.0%	0.7-1.3%	900 rpm
B28F, Canada and USA Federal/California	1.0%	0.7-1.3%	900 rpm

Special Tools

5015

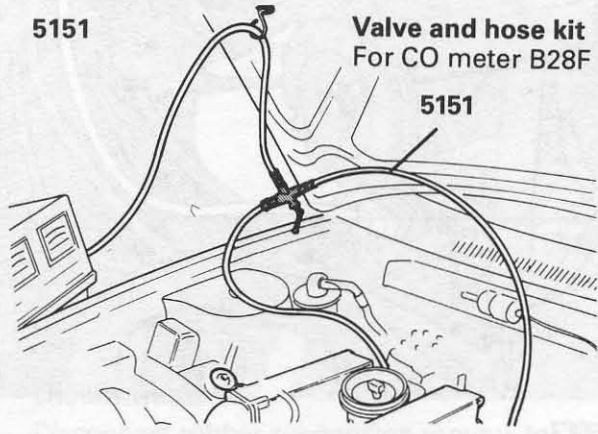
Wrench
B21F



5151

Valve and hose kit
For CO meter B28F

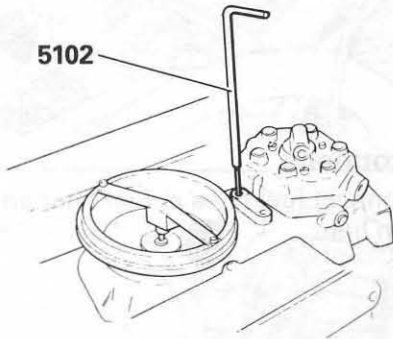
5151



5102

Wrench
B28F CO adjustment

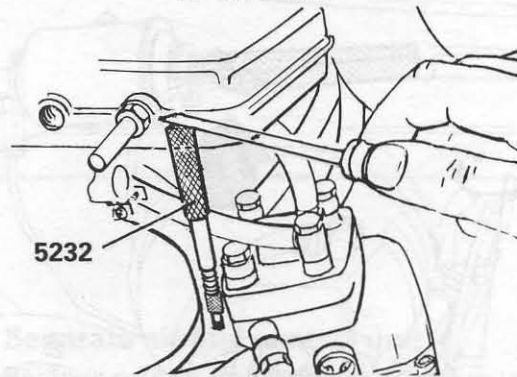
5102



5232

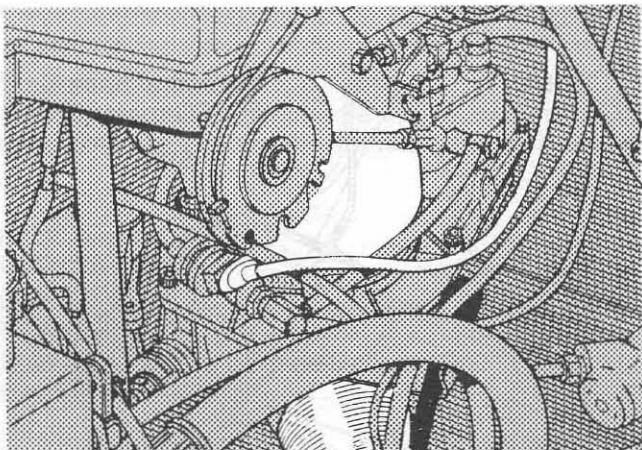
Installation tool
for steel ball

5232



CO adjustment B21F

A1



130973

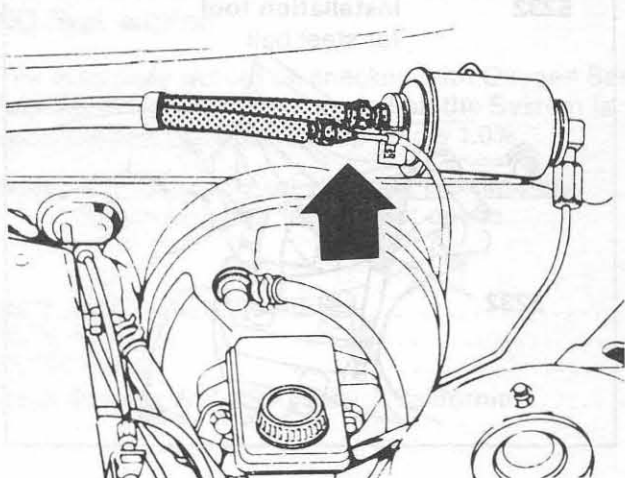
Remove.

Disconnect air hose from air filter at air-fuel control unit.

Remove rubber bellows connecting air-fuel control unit and intake manifold (throttle unit).

Disconnect electrical connector at frequency valve.

A2

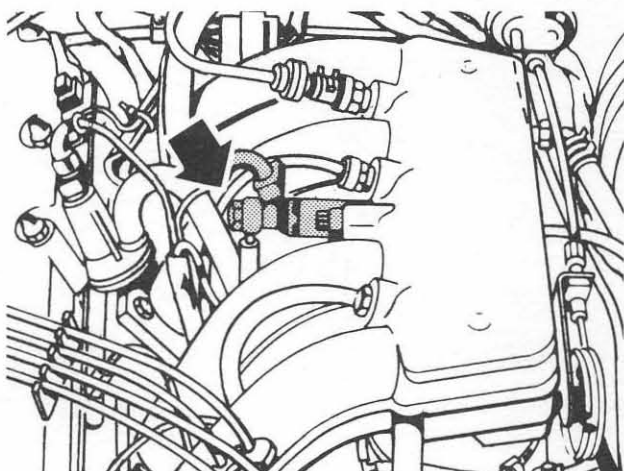


130971

Disconnect.

Disconnect fuel lines at fuel filter and fuel return line.

A3

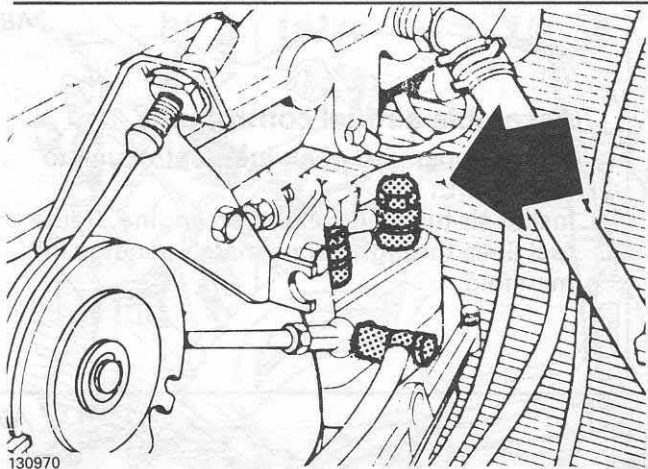


130972

Disconnect.

Disconnect fuel line at cold start injector.

A4



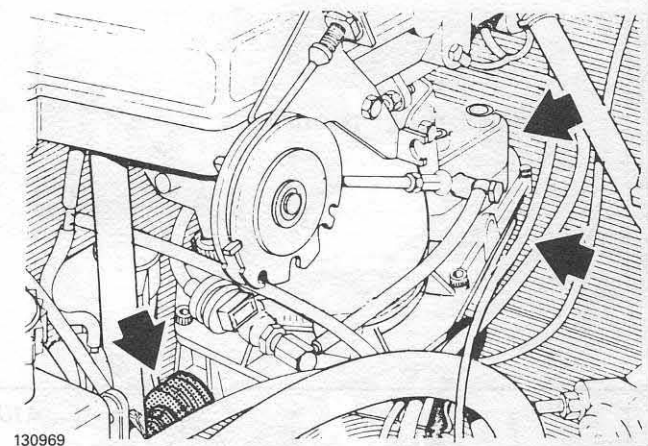
Disconnect.

Disconnect fuel lines for

- injectors
- control pressure regulator
- frequency valve

at air-fuel control unit.

A5

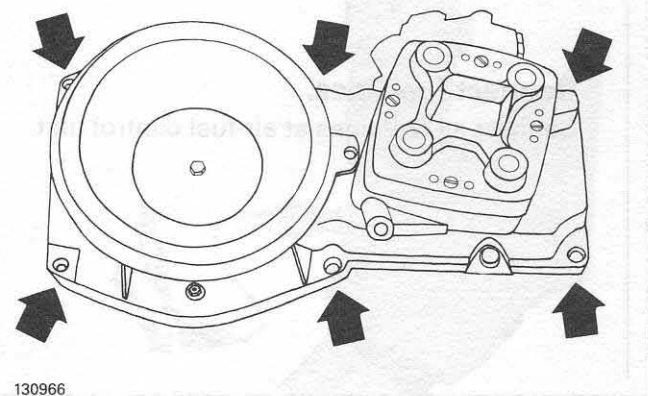


Disconnect.

Disconnect rubber suspension mounts for air-fuel control unit.

Remove air-fuel control unit.

A6

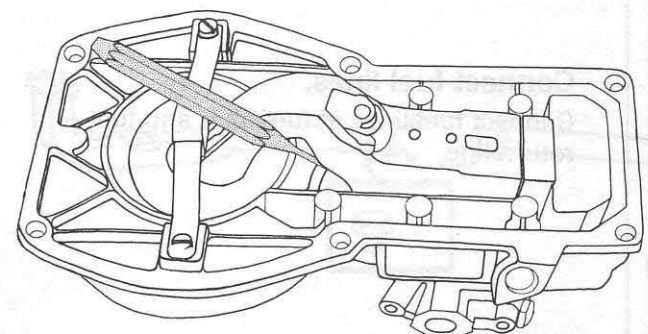


Separate air-fuel control unit.

Remove screws retaining upper part to lower part.

Remove upper part.

A7

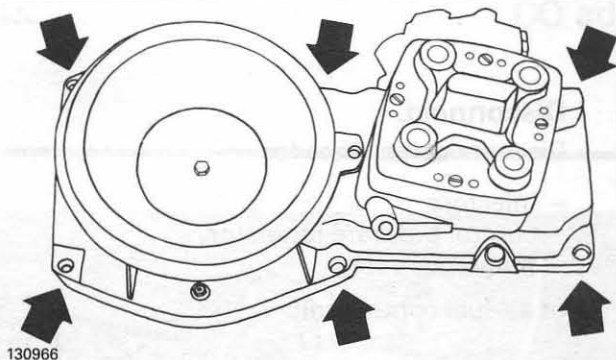


Remove steel ball.

Put upper part upside down. No further disassembly is required.

Use a **3 mm** punch, possibly bent slightly, to punch out steel ball.

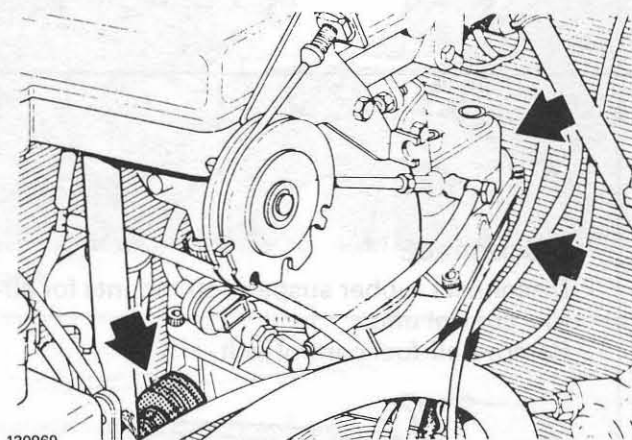
A8



Assemble air-fuel control unit.

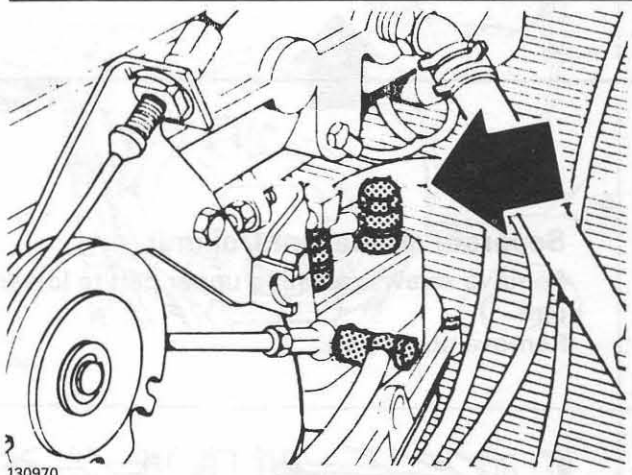
Attach upper part of air-fuel control unit to lower part.
Install air-fuel control unit on engine. Route fuel lines through appropriate openings in manifold.

A9



Attach rubber mounts.

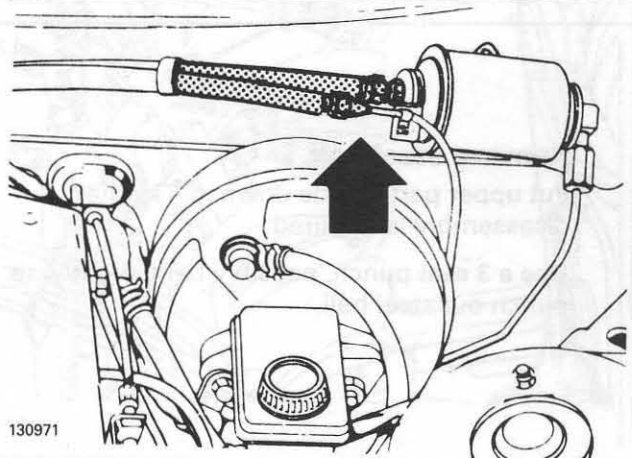
A10



Connect fuel lines.

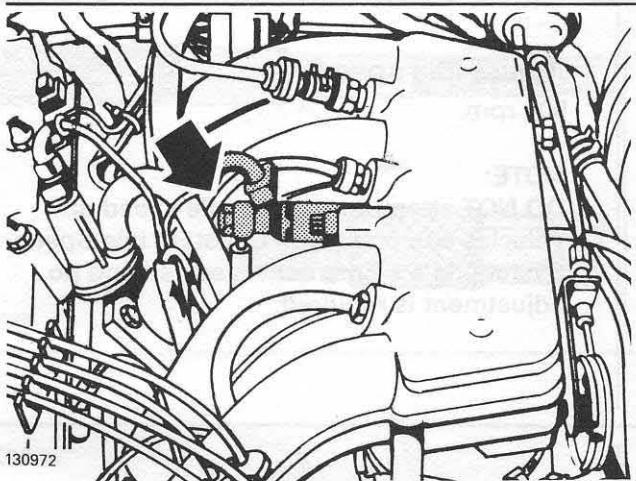
Connect all fuel lines at air-fuel control unit.

A11



Connect fuel lines.

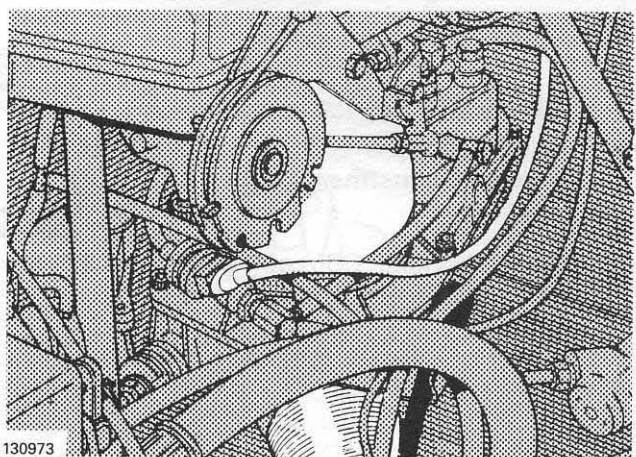
Connect fuel lines at fuel filter and fuel return line.



A12

Connect fuel line.

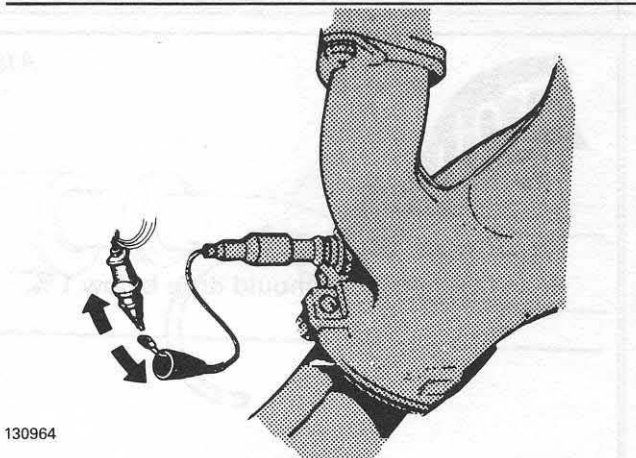
Connect fuel line at cold start injector.



A13

Install.

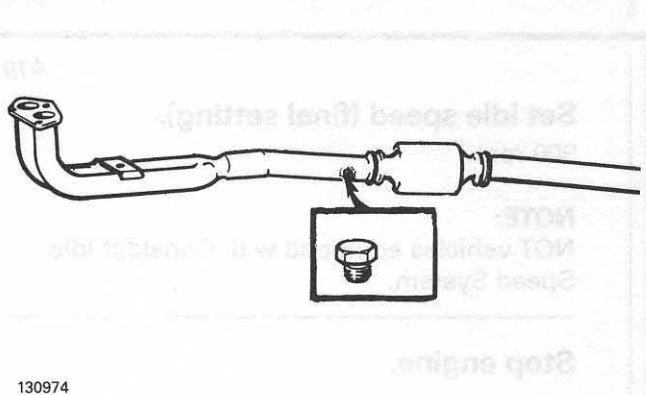
Install rubber bellows. Connect hose from air filter. Connect connector at frequency valve.



A14

Disconnect oxygen sensor.

Disconnect wire.



A15

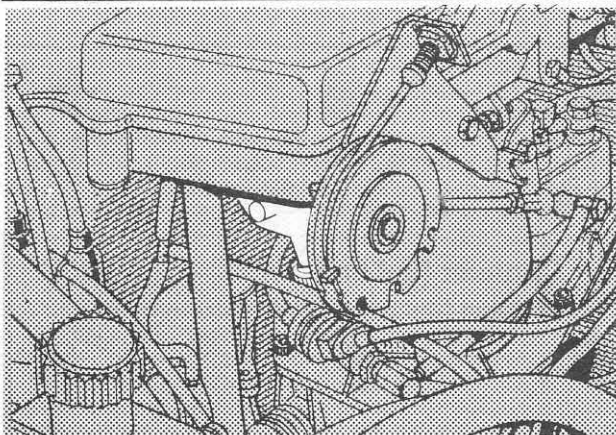
Connect CO-tester.

Remove plug on exhaust pipe, upstream catalytic converter.

Connect tachometer.

Run engine until at normal operating temperature.

A16



130976

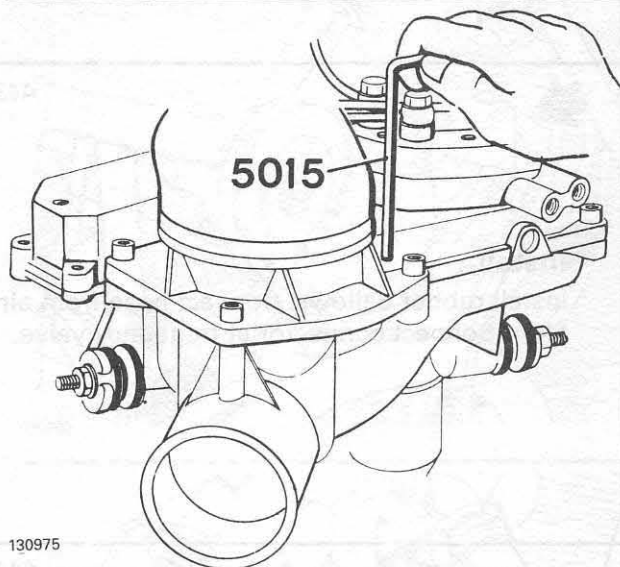
Adjust idle speed.

900 rpm.

NOTE:

DO NOT attempt to adjust idle speed on vehicles equipped with Constant Idle Speed System. Idle adjustment is sealed and no adjustment is required.

A17



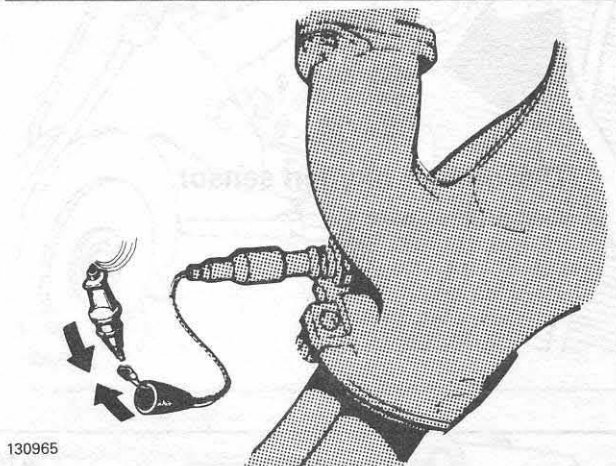
130975

Check CO, adjust as necessary.

Use adjusting wrench 5015. **Cover hole between adjustments, when taking CO readings.**

When checking, CO readings of **0.7–1.3 %** are permitted. When setting, set to **1.0 %**.

A18

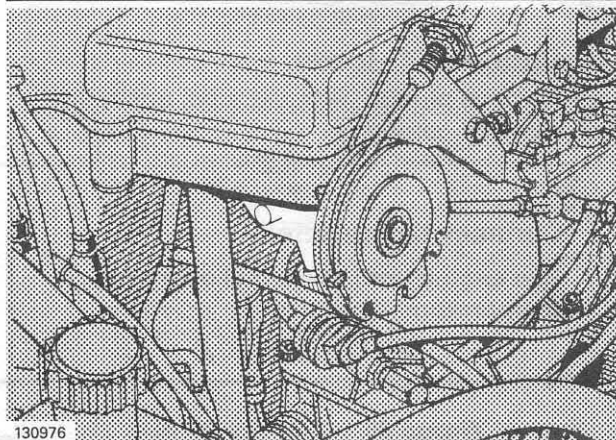


130965

Reconnect oxygen sensor.

Read CO-meter. CO should drop below **1 %**.

A19



130976

Set idle speed (final setting).

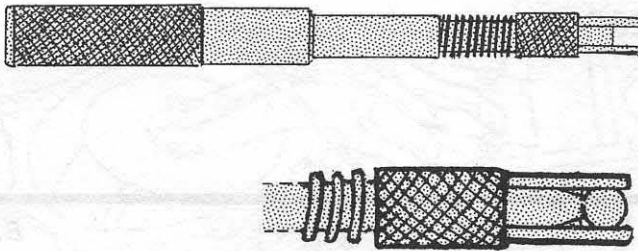
900 rpm.

NOTE:

NOT vehicles equipped with Constant Idle Speed System.

Stop engine.

A20

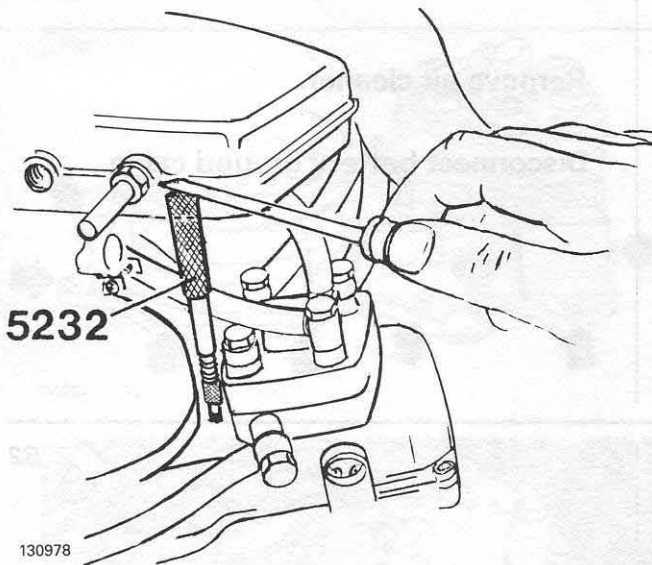


130958

Install steel ball in tool.

Install steel ball in tool 5232.

A21

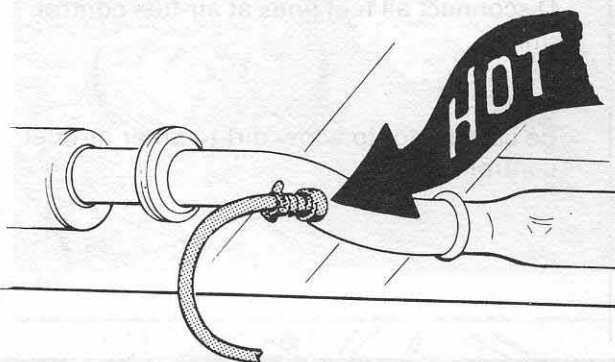


130978

Install steel ball in air-fuel control unit.

Tool 5232 barely fits under manifold. Use screwdriver to lever tool and steel ball into hole.

A22



130977

Remove instruments.

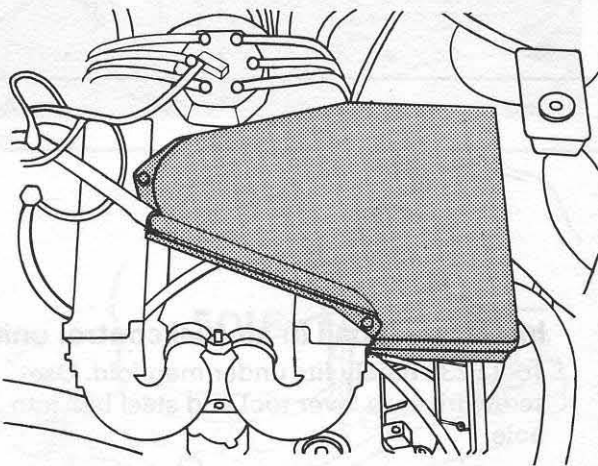
CAUTION:

Connection nipples for CO are **VERY HOT**.

Reinstall exhaust pipe plugs.

CO adjustment B28F

B1

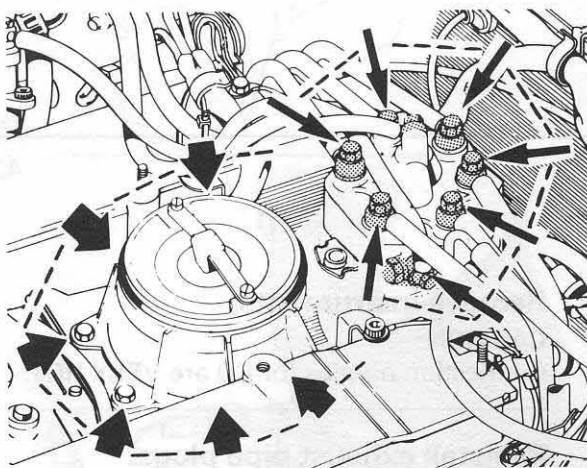


130954

Remove air cleaner.

Disconnect battery ground cable.

B2



130950

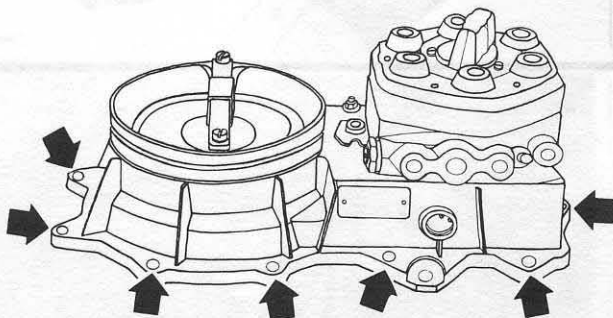
Disconnect fuel lines.

Disconnect all fuel lines at air-fuel control unit.

NOTE:

Be careful not to allow dirt to enter air-fuel control unit.

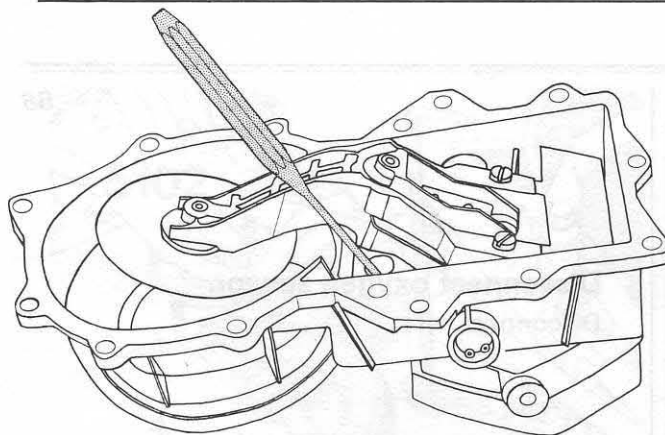
B3



130952

Remove air-fuel control unit.

B4



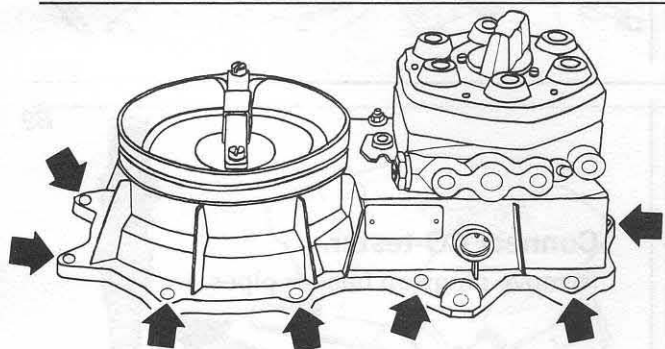
130951

Remove steel ball.

Put air-fuel control unit upside down. No further disassembly is required.

Use a **3 mm** punch, possibly bent slightly, to punch out steel ball.

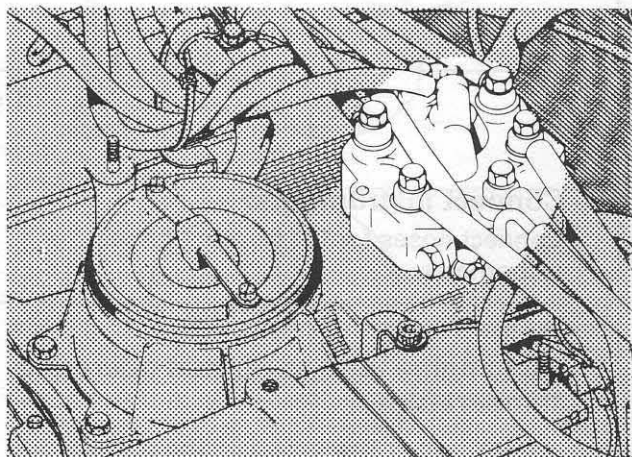
B5



130952

Install air-fuel control unit.

B6

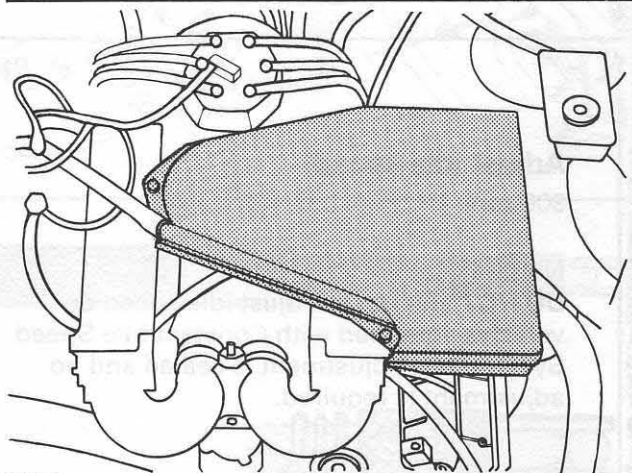


130935

Connect fuel lines.

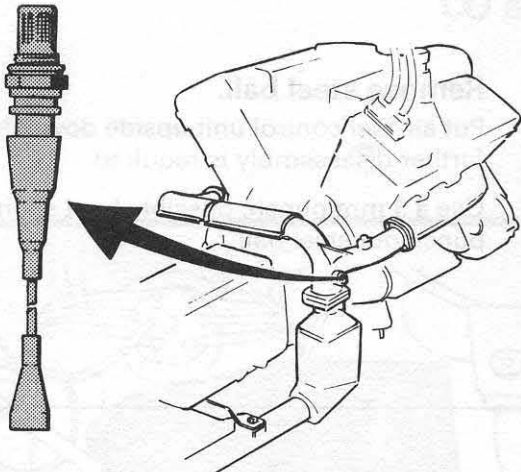
NOTE: copper washers for banjo type connections.

B7



130954

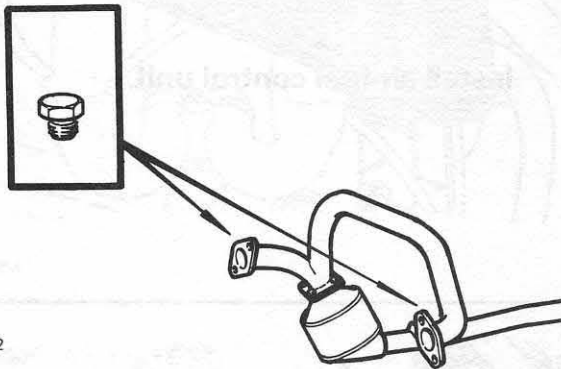
Install air cleaner.



B8

Disconnect oxygen sensor.

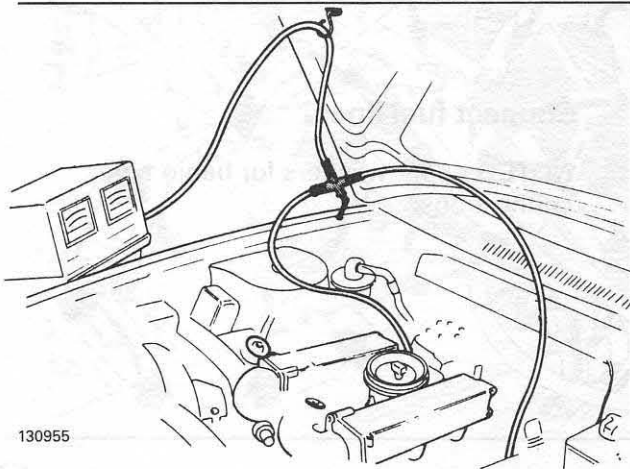
Disconnect wire.



B9

Connect CO-tester.

Remove plugs on header pipes.

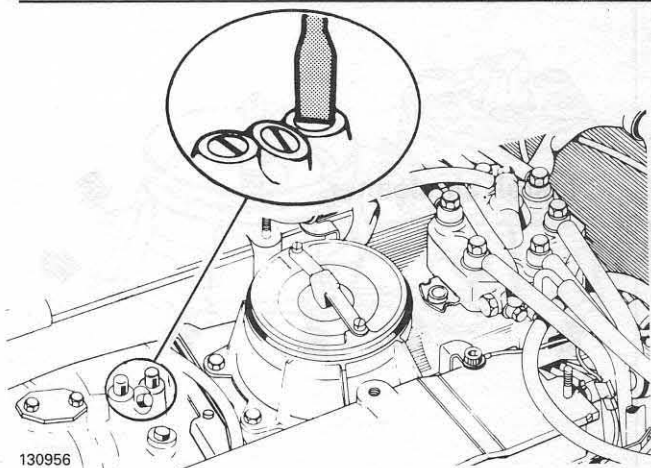


B10

Connect instruments.

Connect hoses for CO gauge. Connect tachometer.

Run engine until at normal operating temperature.



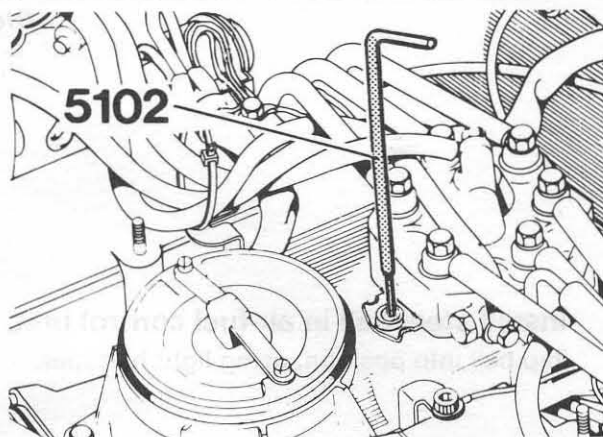
B11

Adjust idle speed.

900 rpm

NOTE:

DO NOT attempt to adjust idle speed on vehicles equipped with Constant Idle Speed System. Idle adjustment is sealed and no adjustment is required.

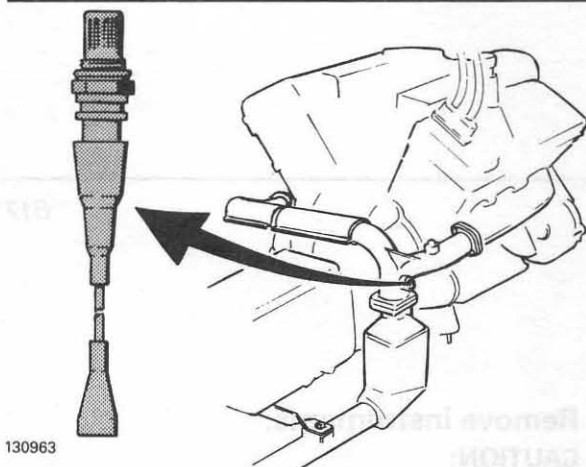


B12

Check CO, adjust as necessary.

Use adjusting wrench 5102. Cover hole between adjustments, when taking CO readings.

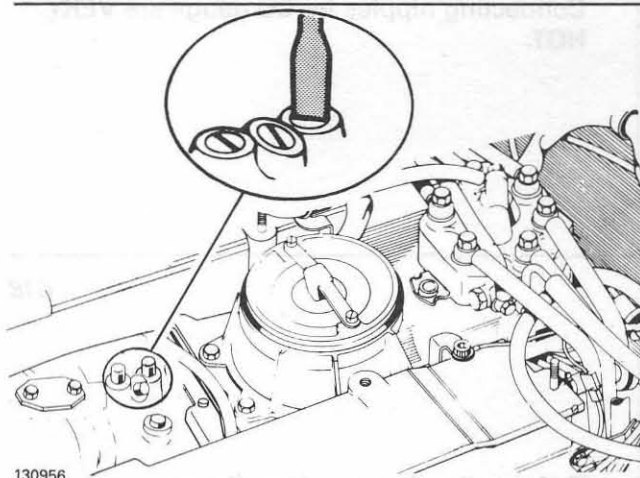
When checking, CO readings **0.7–1.3 %** are permitted. When setting, set to **1.0 %**.



B13

Reconnect oxygen sensor.

Read CO-meter. CO should drop below 1 %.



B14

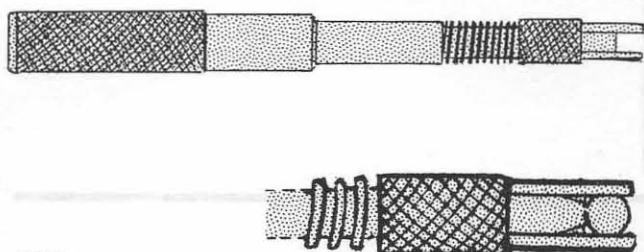
Set idle speed (final setting).

900 rpm.

NOTE:

NOT on engines equipped with Constant Idle Speed System.

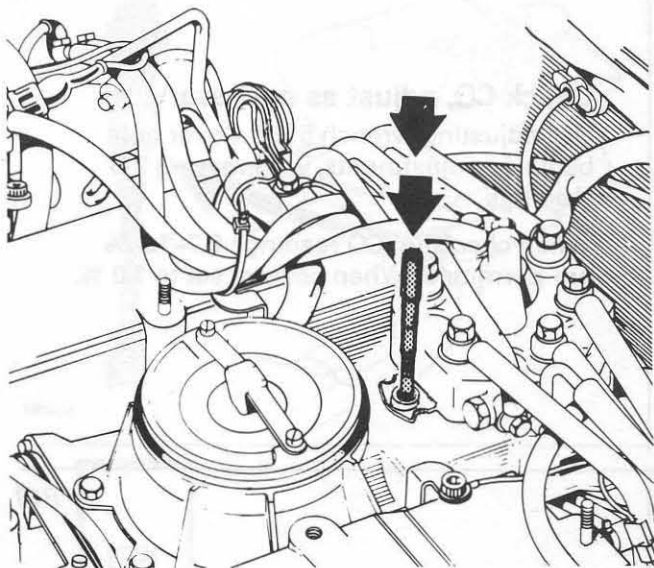
Stop engine.



B15

Install steel ball in tool.

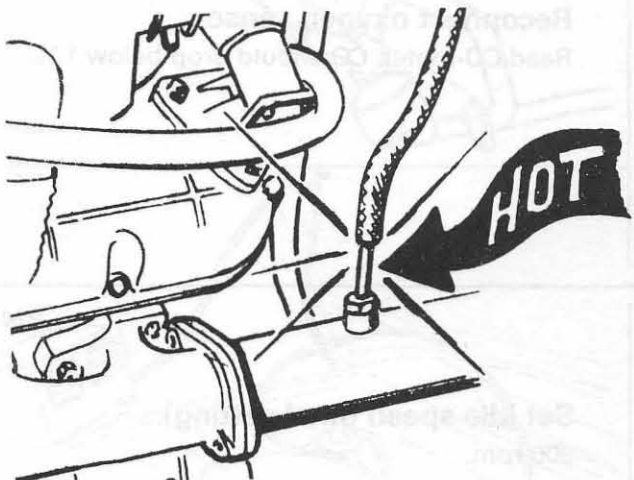
Use tool 5232.



130959

B16

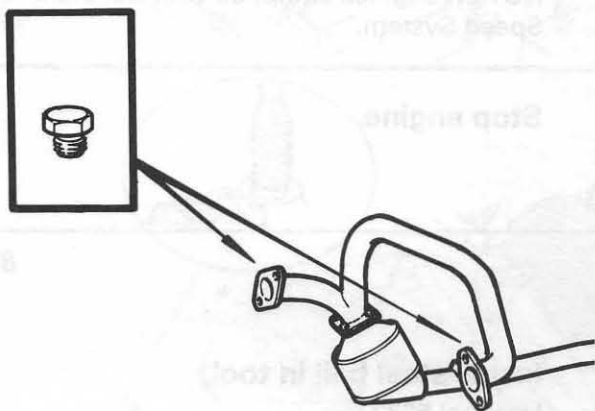
Install steel ball in air-fuel control unit.
Tap ball into position, using light hammer.



130961

B17

Remove instruments.
CAUTION:
Connecting nipples for CO gauge are **VERY HOT.**



130962

B18

Reinstall exhaust pipe plugs.



**VOLVO SUPPORTS VOLUNTARY
MECHANIC CERTIFICATION
BY THE N.I.A.S.E.**

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VOLVO

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