

## Ignition/Fuel system

### Carburettor

#### – E10S, E13S, W16S and GA engines

#### Components

##### Float level

Check the float level using the sight glass in the float chamber. With the engine at idle speed the level must be half way up the sight glass. If necessary, set the float level, measured to the mating face without gasket, as follows:

Remove the carburettor top cover and hold it upside down so that the float rests on the seat. Tilt the float up and allow it to gently rest on the seat. Check the float level L1, see the illustration:

E10S and E13S engines:	14,5 - 15,5 mm
E16S engine:	16,5 - 17,5 mm
GA engine:	8,5 - 9,5 mm

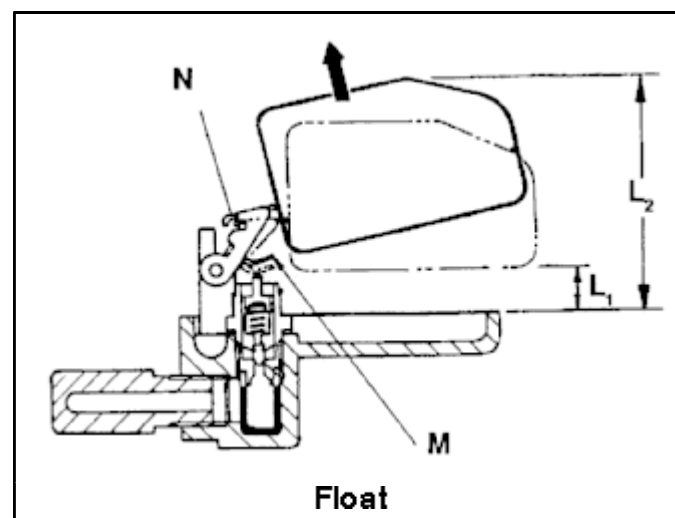
If necessary, bend the seat lip M.

Tilt the float up so that the float rim touches the carburettor top cover wall. Measure float level L2, see the illustration:

E10S and E13S engines:	44,5 - 45,5 mm
E16S engine:	46,5 - 47,5 mm
GA engine:	46,5 - 47,5 mm

If necessary, bend the float rim N.

**Note:** Always fit a new gasket.

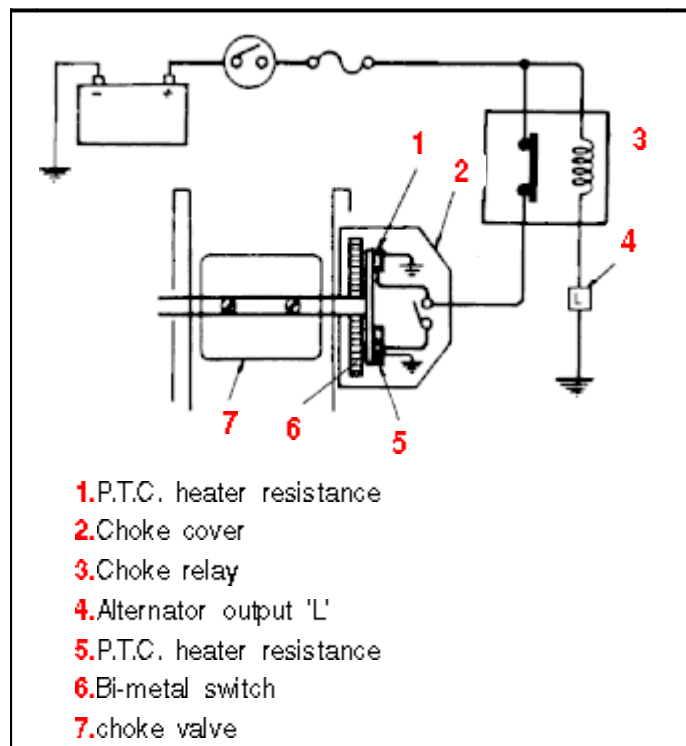


#### Checking the automatic choke

The choke valve is operated through a bi-metal switch, controlled by P.T.C. resistances, see choke control wiring diagram. With engine cold, check if the choke valve closes when the throttle valve is opened fully.

The markings (grooves) on the choke cover flange and the choke housing must align. Start the engine. Bring to operating temperature. The choke valve must now be fully open. If necessary, check the components shown in the illustration.

The choke relay is located in the centre of the relay block in the engine compartment in front of the RH suspension strut tower.

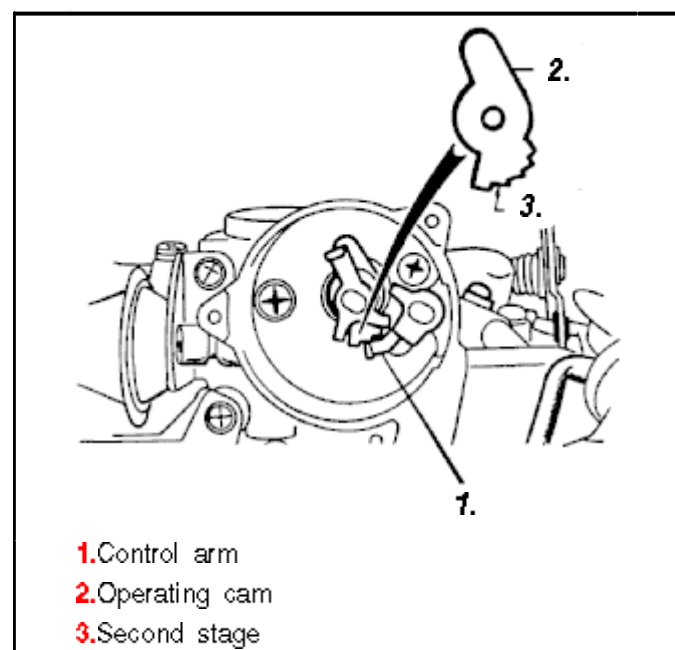


### Setting fast idle speed

Bring the engine to operating temperature. Remove the choke cover. All basic engine settings must be correct. Place the control arm on the second step of the control cam, see the illustration.

Check the engine speed:

E 10S:	2200±200/min
E 13S:	2400±200/min (manual gearbox) 2600±200/min (automatic transmission)
E 16S:	2400±200/min (manual gearbox) 2800±200/min (automatic transmission)
GA 14S:	2700±200/min (manual gearbox) 3400±200/min (automatic transmission)
GA 16S:	2700±200/min (manual gearbox) 3100±200/min (automatic transmission)



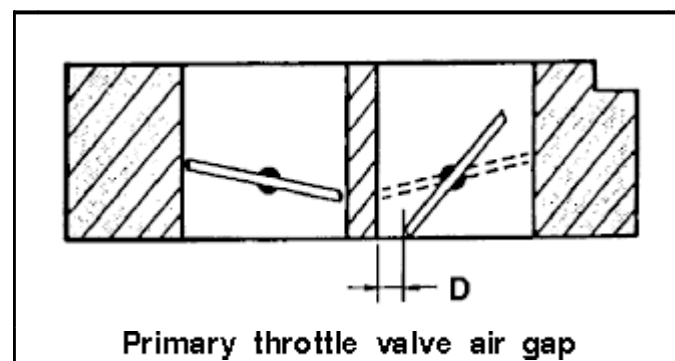
If necessary, set the fast idle speed as follows:

Remove carburettor. With the control arm placed on the second step of the operating cam the primary throttle valve air gap D opposite the inner wall must be set with the fast idle speed screw.

Air gap D, see the illustration, is:

E 10S:	0,47±0,07 mm
E 13S:	0,62±0,07 mm (manual gearbox) 0,69±0,07 mm (automatic transmission)
E 16S:	0,68±0,10 mm (manual gearbox) 0,86±0,10 mm (automatic transmission)
GA 14S:	0,75±0,07 mm (manual gearbox) 0,93±0,07 mm (automatic transmission)
GA 16S:	0,71±0,07 mm (manual gearbox) 0,89±0,07 mm (automatic transmission)

Fit the carburettor. Check the fast idle speed again.



### Choke damper mechanism

With the engine cold, check that the choke valve is fully closed. Apply a vacuum of 400 mmHg to the diaphragm housing that is located to the left of the choke housing at the side of the secondary venturi.

Method for E engines:

Carefully withdraw the actuating rod from the diaphragm housing until a resistance can be felt. Measure the choke valve air gap B, see the illustration:

E 10S and E 13S:	1,31 ± 0,14 mm
E 16S:	1,40 ± 0,20 mm

Push the actuating rod carefully into the diaphragm housing until a resistance can be felt. Again measure the choke valve air gap B, see the illustration:

E 10S and E 13S:	$1,84 \pm 0,32$ mm
E 16S:	$2,19 \pm 0,20$ mm

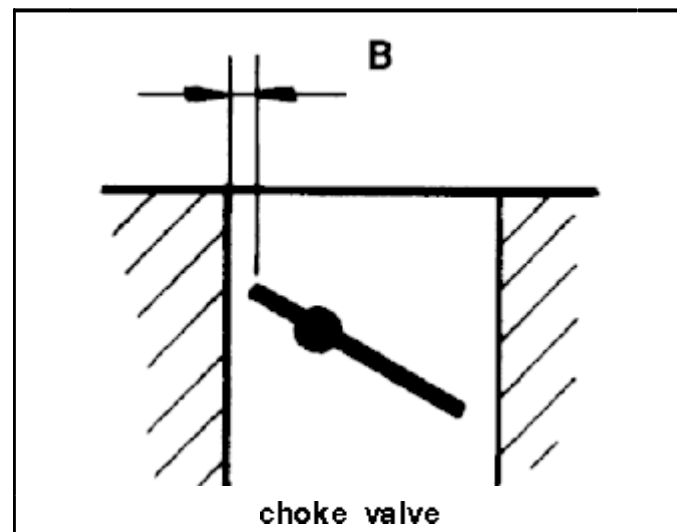
If necessary, bend the choke lever flange to reset gap B.

Method for GA engines:

Measure the choke valve air gap B at two different temperatures, see illustration:

	below 5 °C	above 16,5 °C
GA 14S, For The Netherlands with manual gearbox	$1,37 \pm 0,14$ mm	$2,50 \pm 0,15$ mm
GA 14S, For The Netherlands with automatic transmission and for Belgium	$1,37 \pm 0,14$ mm	$2,18 \pm 0,32$ mm
GA 16S	$1,37 \pm 0,14$ mm	$2,18 \pm 0,32$ mm

If necessary, bend the choke lever flange to reset gap B.

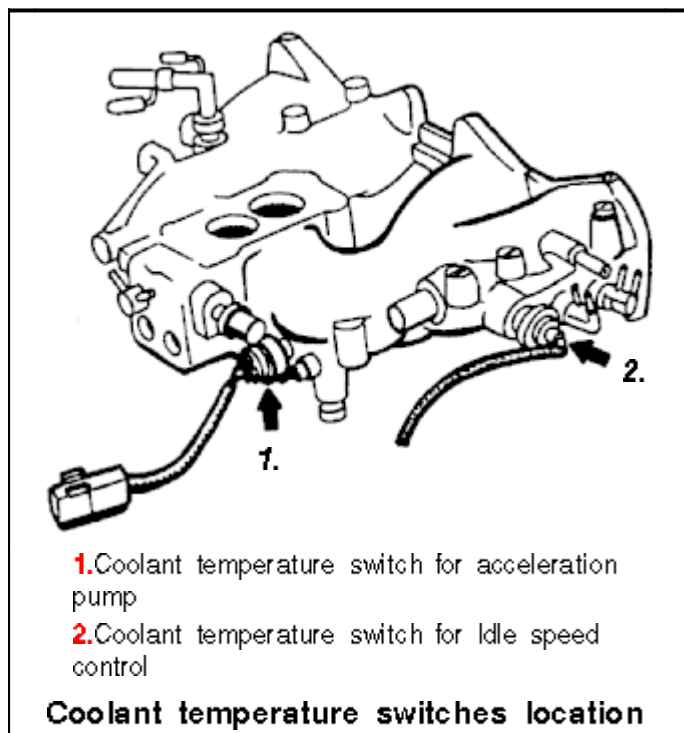


#### Temperature controlled acceleration pump

##### – GA engines

The quantity of fuel injected depends upon the coolant temperature. The solenoid valve which determines the fuel quantity, is located below the acceleration pump lever pivot. At a coolant temperature less than 70 °C the solenoid valve must

be activated and the quantity of fuel injected must be high. See the illustration for the location of the coolant temperature switch.



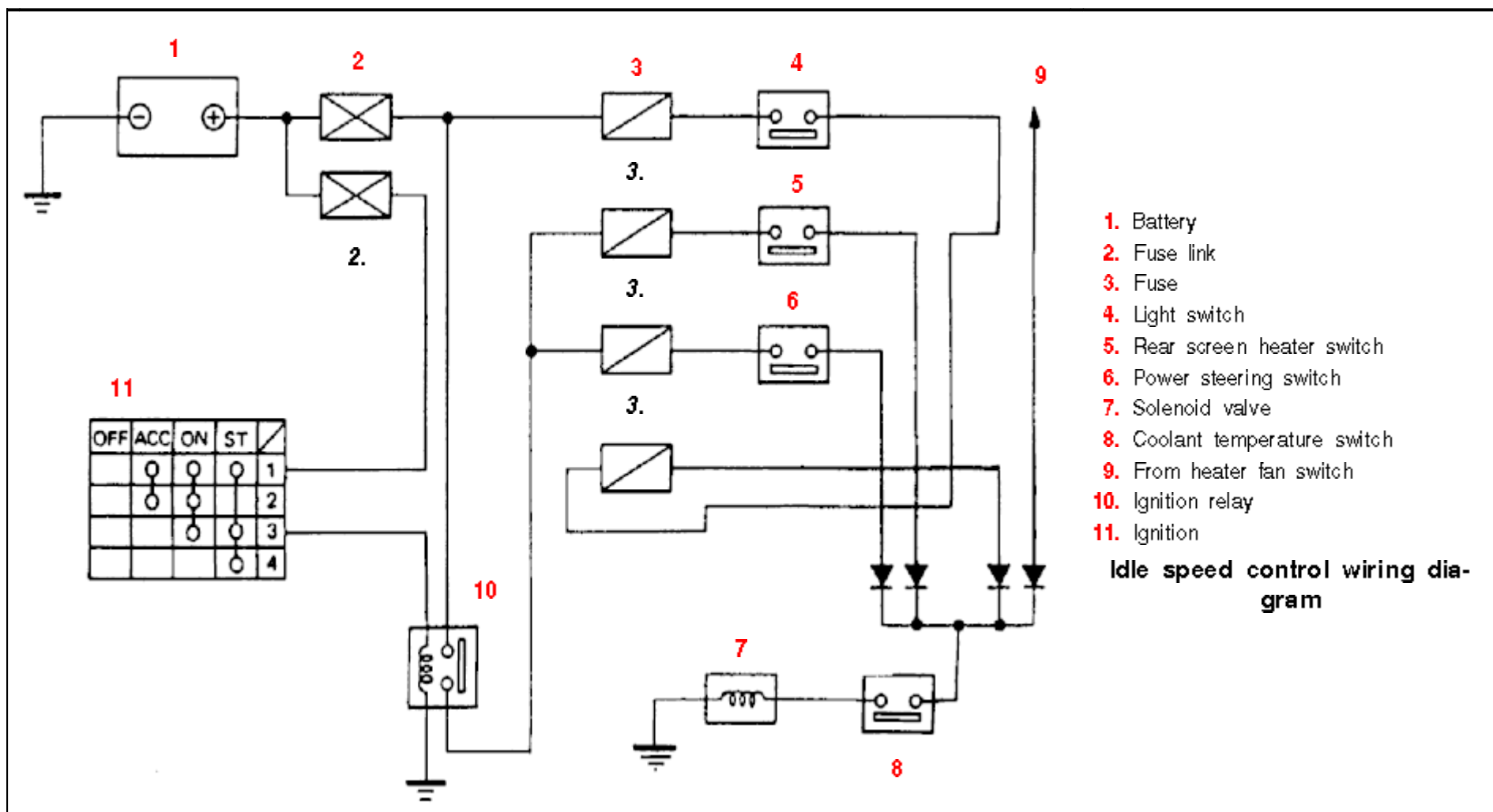
### Idle speed control

#### – GA engines

This system raises the idle speed with engine warm, when one or more of the following consumers is switched on, see the wiring diagram:

- Headlamps
- Rear screen heater
- Heater fan motor
- Power steering pump

A solenoid valve located at the height of the secondary throttle valve provides richer mixture with a coolant temperature exceeding 42 °C. See the illustration for the coolant temperature switch location.



**Dashpot****- E engine**

Bring the engine up to operating temperature. Run at idle speed. Idle speed and CO must be correctly set.

Turn the throttle lever by hand. Check that the dashpot rod does just touches the throttle lever at:

1900±200/min	on E 10S and E 13S engines
2000±200/min	on E 16S engines

If not according to specification, the air gap can be set between the primary throttle valve and the carburettor wall, see illustration under setting fast idle speed, by turning the dashpot; the carburettor must be removed. At the moment that the dashpot rod just touches the throttle lever the air gap must be as follows:

0,47±0,1 mm	on E 10S and E 13S engines
0,56±0,1 mm	on E 16S engines

**- GA engines**

The dashpot is located at an angle below the sight glass. Bring the engine to operating temperature. Run at idle speed. Idle speed and CO must be set correctly. Turn the throttle lever by hand. Check that the dashpot rod does just

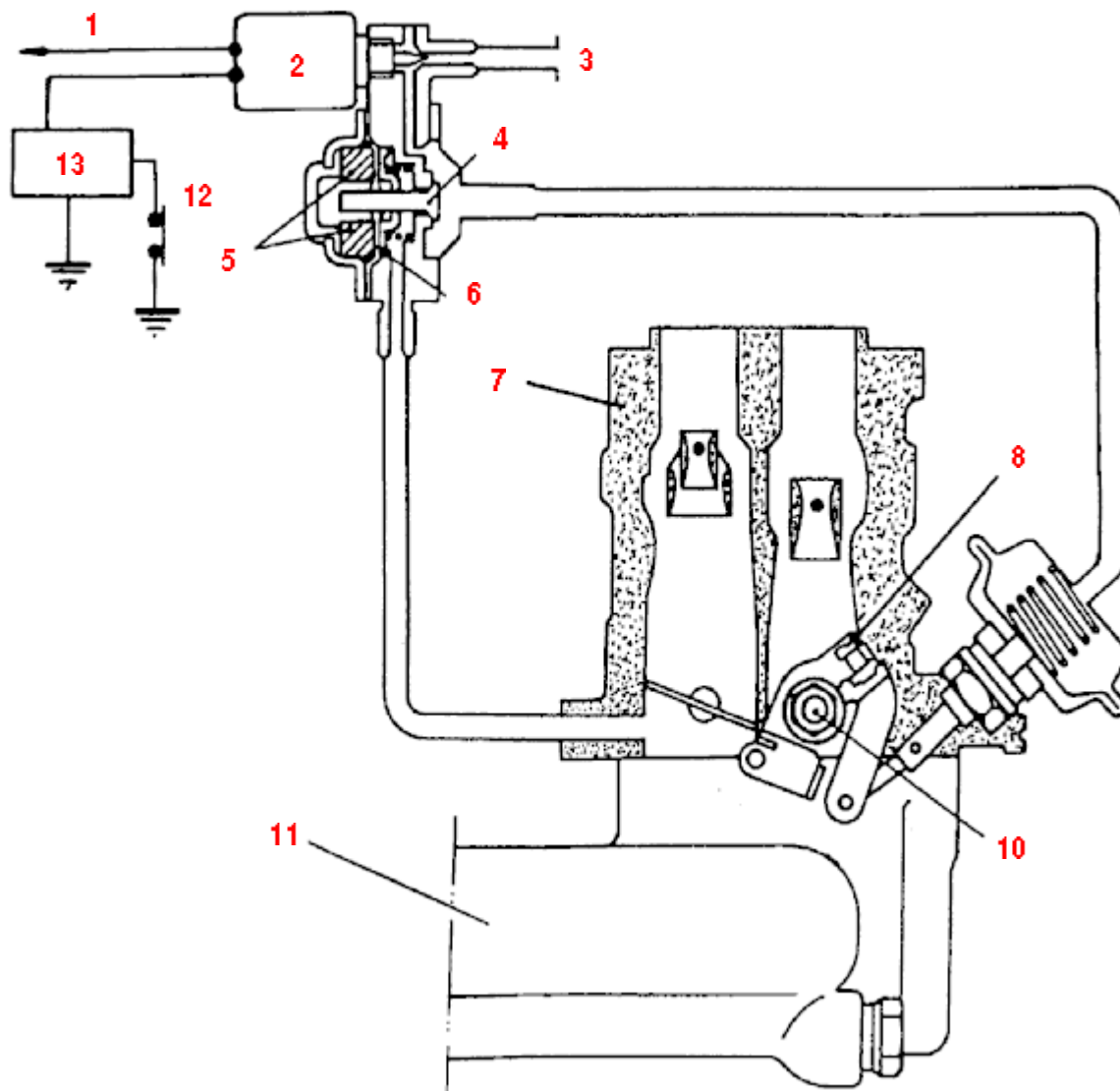
touches the lever at 2800±200/min. If necessary, turn the adjustment bolt on the lever and then check if the engine speed drops evenly in approx. 3 seconds from 2000 to 1000/min.

**Throttle valve opener**

This is only fitted on versions for The Netherlands with a GA 14S engines and manual gearbox.

The throttle valve opener arranges that the throttle valve is just open during deceleration, so that better combustion occurs and less unburned HC is emitted. See the working diagram. Check the throttle valve opener as follows: Start the engine. Bring to operating temperature. Connect a vacuum gauge to a T piece between intake manifold and control valve. Disconnect the solenoid valve connector. Run the engine at zero load with approx. 3000/min. Abruptly release the throttle; the inlet vacuum must now be 600 mmHg or higher and then drop evenly. The throttle valve opener must operate at 560±10 mmHg; the inlet vacuum must remain constant briefly and then drop to a constant value at idle speed. If necessary, adjust using the adjustment screw behind the rubber cap on the control valve.

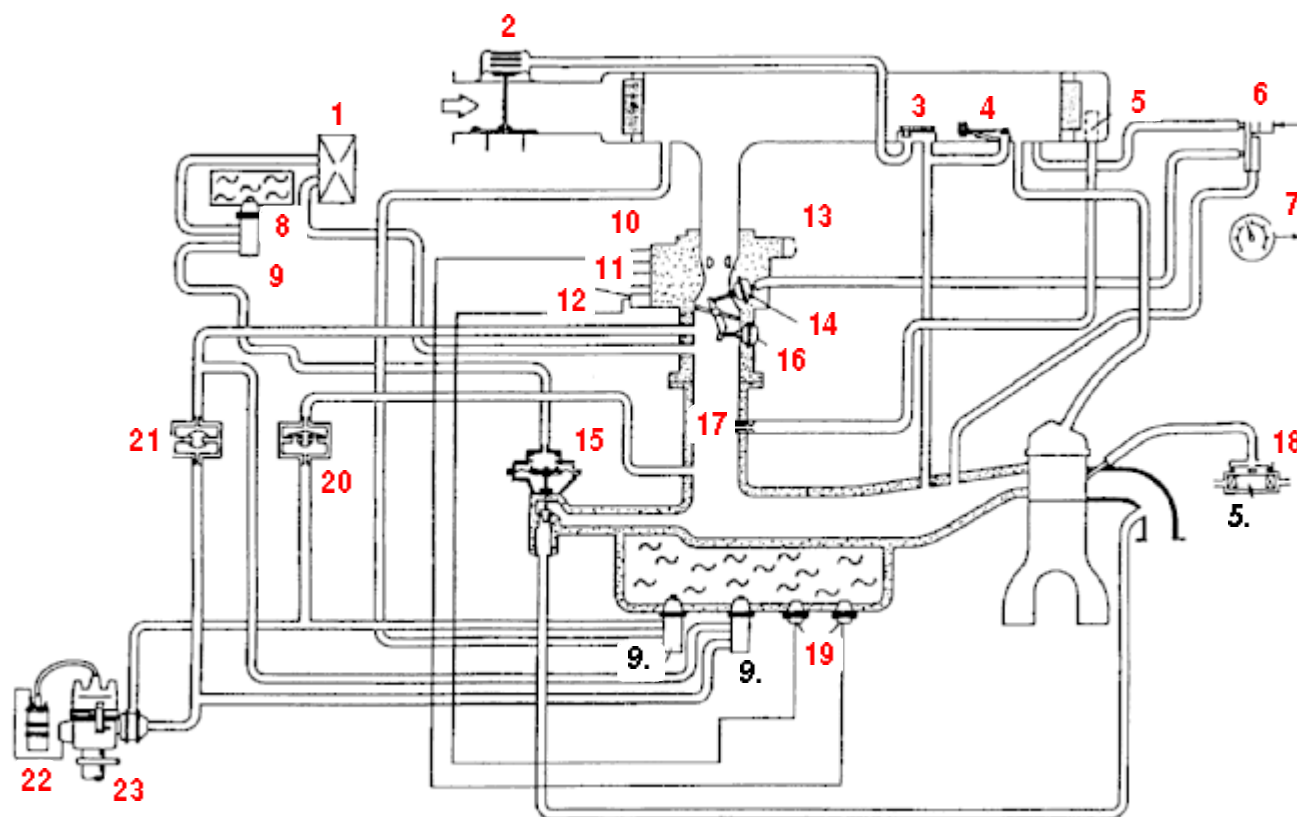
Check the diaphragm housing by connecting it directly to the inlet manifold. The idle speed with engine warm must be 1700 - 1900/min. If necessary, set with the adjustment screw on the lever.



- 1. To battery
- 2. Solenoid valve
- 3. To air filter
- 4. Control valve
- 5. Filter
- 6. Diaphragm
- 7. Carburettor
- 8. Adjustment screw
- 9. Diaphragm housing
- 10. Primary throttle shaft
- 11. Inlet manifold
- 12. Vehicle speed detection switch:  
On: below 10 km/h  
Off: above 10 km/h
- 13. Vehicle speed detection switch amplifier

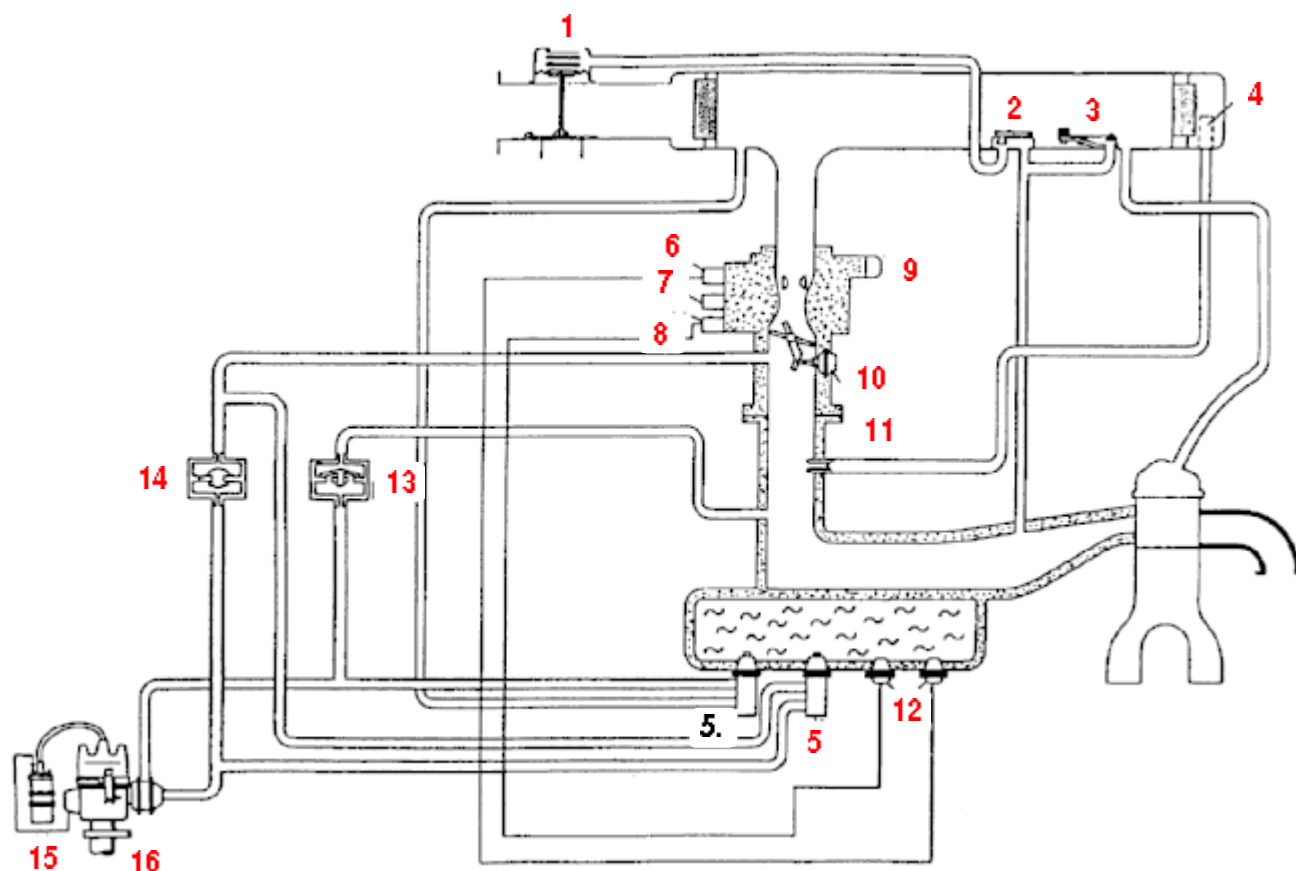
**Throttle valve opener working diagram**





1. Fuel vapour cut-off valve
2. Automatic intake air temperature control
3. Temperature sensor
4. Idle speed compensation valve
5. Air filter
6. Throttle valve opener control valve
7. Vehicle speed detection switch
8. Coolant overflow opening
9. Temperature controlled vacuum valve
10. Acceleration pump control solenoid valve
11. Fuel cut-off solenoid valve
12. Idle speed control solenoid valve
13. Automatic choke
14. Throttle valve opener diaphragm housing
15. EGR control valve (exhaust gas recirculation)
16. Dashpot
17. PCV valve
18. Pulse air system air induction valve
19. Coolant temperature switch
20. Check valve
21. Vacuum delay valve
22. Ignition coil
23. Distributor

**Vacuum system: GA 14S engine  
with manual gearbox**



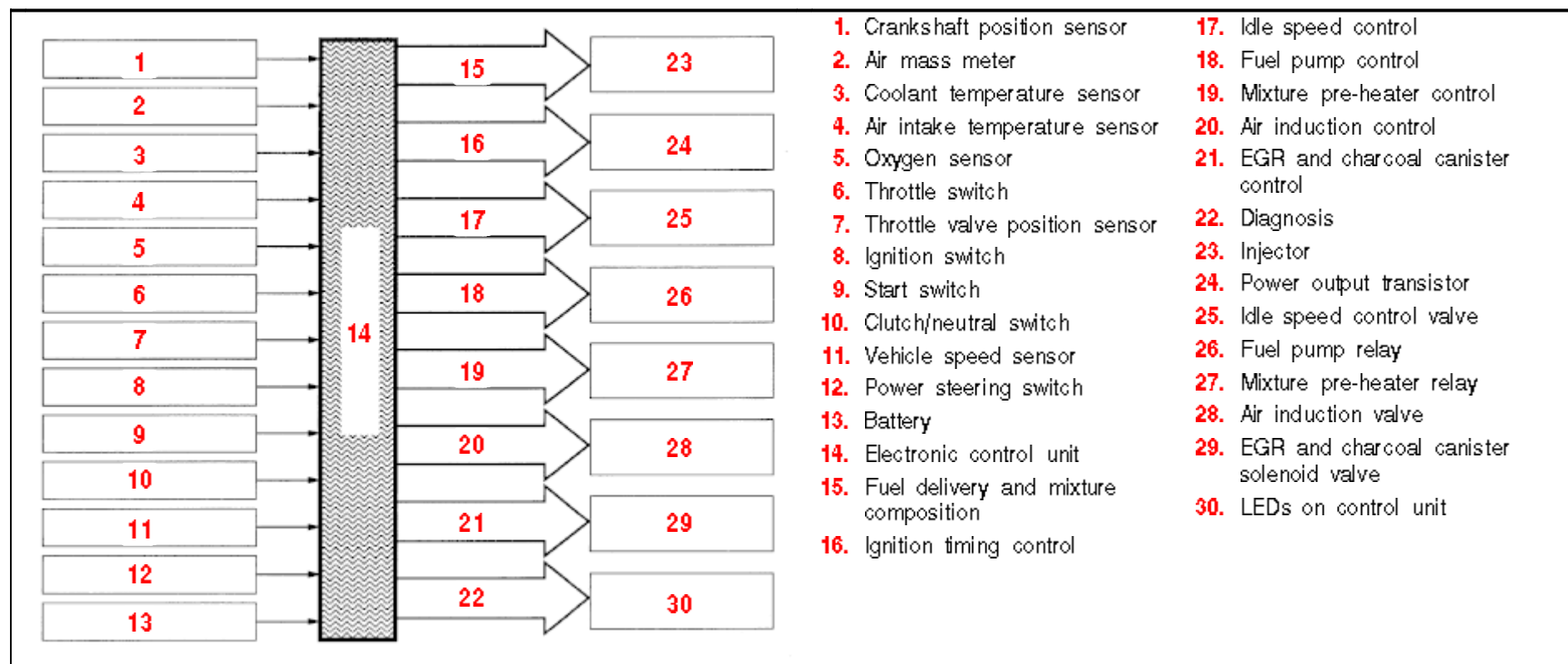
1. Intake air automatic temperature control
2. Temperature sensor
3. Idle speed compensation valve
4. Air filter
5. Temperature controlled vacuum valve
6. Acceleration pump control solenoid valve
7. Fuel cut-off solenoid valve
8. Idle speed control solenoid valve
9. Automatic choke
10. Dashpot
11. PCV valve
12. Coolant temperature switch
13. Check valve
14. Vacuum delay valve
15. Ignition coil
16. Distributor

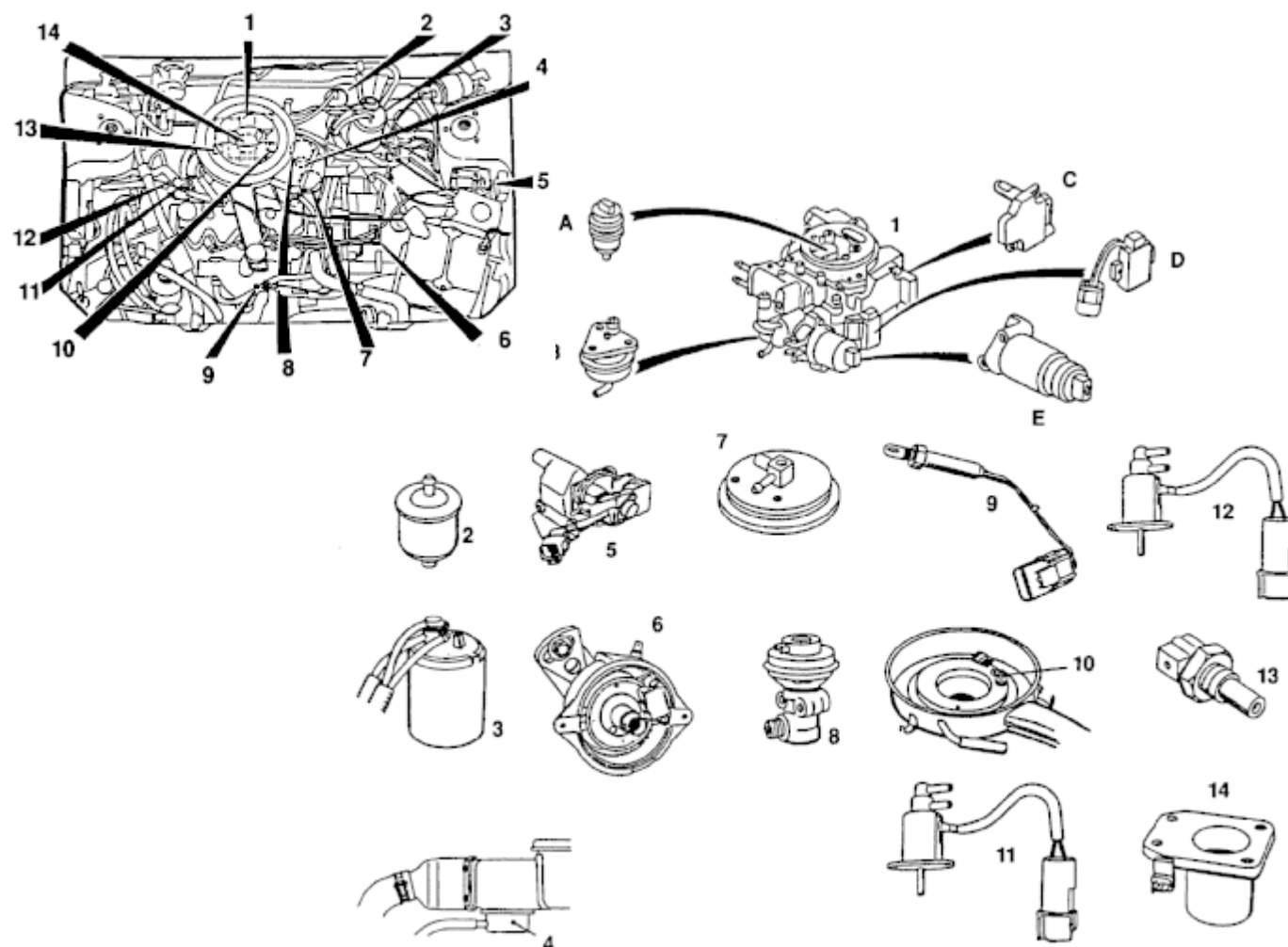
**Vacuum system: GA 14S and GA 16S engines, except GA 14S engine with manual gearbox**

## Engine management

### – E16i engine

Both the fuel injection and ignition are controlled by a micro-computer via various sensors and actuators, see the wiring diagram. The electronic control unit is located beneath the RH front seat.





1. Injection unit
    - 1A Injector
    - 1B Pressure regulator
    - 1C Air mass meter
    - 1D Throttle switch and sensor
    - 1E Idle speed control valve
  2. Fuel filter
  3. Charcoal canister
  4. Air induction control valve
  5. Ignition coil with power transistor
  6. Crankshaft position sensor
  7. Flap valve
  8. EGR control valve\*
  9. Oxygen sensor
  10. Air intake temperature sensor
  11. EGR and charcoal canister solenoid valve\*
  12. Air induction solenoid valve
  13. Coolant temperature sensor
  14. Mixture pre-heater
- \*EGR= Exhaust gas recirculation

E 16i engine management system component location