

Chapter 4 Part A:

Fuel and exhaust systems - carburettor engines

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Degrees of difficulty

Easy , suitable for novice with little experience		Fairly easy , suitable for beginner with some experience		Fairly difficult , suitable for competent DIY mechanic		Difficult , suitable for experienced DIY mechanic		Very difficult , suitable for expert DIY or professional	
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Specifications

Fuel pump

Type. Mechanical, driven by eccentric on camshaft

Carburettor

Type:

1124 cc models. Solex 32 PBISA 16
1360 cc models. Solex 32-34 Z2

Designation:

1124 cc models. 32 PBISA 16-411
1360 cc models. 32-34 Z2 - 528

Choke type (both carburettors). Manual, cable-operated

Solex 32 PBISA carburettor data -1124 cc models

Venturi diameter.	25 mm
Main jet. . . . .	.127.5
Idle jet. . . . .	.48
Air correction jet. . . . .	.175
Emulsion tube. . . . .	.EM
Enrichment jet. . . . .	.50
Accelerator pump. . . . .	.40
Needle valve. . . . .	.15
Float height setting.	See text
Throttle valve fast idle setting. . . . .	.0.6 mm
Choke pull-down setting. . . . .	.2.8 mm
Idle speed. . . . .	.850 ± 50 rpm
Idle mixture CO content. . . . .	.0.8 to 1.2 %

Solex 32-34 Z2 carburettor data - 1360 CC models

	Primary	Secondary
Venturi diameter	24 mm	25 mm
Main jet . . . . .	.115	120
Idle jet	40	
Air correction jet/emulsion tube . . . . .	.155	160
Bypass jet	-	50
Economost jet	-	80
Accelerator pump . . . . .	.35	
Pneumatic enrichment device . . . . .	.45	
Needle valve . . . . .	.1.6	
Float height setting . . . . .	.35 mm	
Throttle valve fast idle setting . . . . .	.0.5 mm	
Choke pull-down setting	3.0 mm	
Idle speed . . . . .	.850 ± 50 rpm	
Idle mixture CO content	0.8 to 1.2 %	

Recommended fuel

Minimum octane rating	95 RON unleaded (UK unleaded premium) or 97 RON leaded (UK "4-star")
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Torque wrench settings

	Nm	ibf ft
Fuel pump retaining bolts16	12
Inlet manifold retaining nuts8	6
Exhaust manifold retaining nuts . . . . .	.16	12
Exhaust system fasteners:		
Front pipe-to-manifold nuts . . . . .	.30	22
Front pipe mounting bolt . . . . .	.35	26
Front pipe-to-intermediate pipe nuts . . . . .	.10	7
Clamping ring nuts . . . . .	.20	15

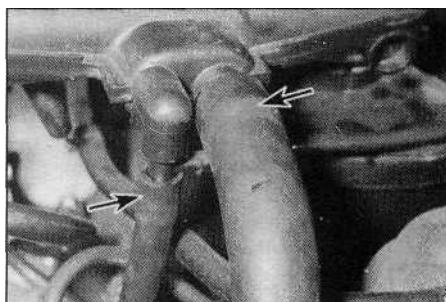


Warning: Many of the procedures in this Chapter require the removal of fuel lines and connections, which may result in some fuel spillage. Before carrying out any operation on the fuel system, refer to the precautions given in "Safety first!" at the beginning of this manual, and follow them implicitly. Petrol is a highly-dangerous and volatile liquid, and the precautions necessary when handling it cannot be overstressed.

2 Air cleaner assembly - removal and refitting

Removal

1 Slacken the retaining clips (where fitted), and disconnect the vacuum hose and



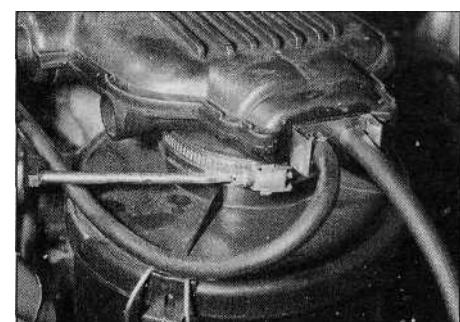
2.1 Disconnect the vacuum and breather hoses (arrowed) from the front of the duct...

breather hose from the front of the air cleaner housing-to-carburettor duct (**see illustration**). Where the crimped-type Citroen hose clips are fitted, cut the clips and discard them; use standard worm-drive hose clips on refitting.

2 Slacken the retaining clips, then lift the duct off the top of the carburettor and air cleaner housing. Disconnect the air temperature control valve hose from the end of the duct, and remove the duct from the engine compartment (**see illustrations**). Recover the rubber sealing ring(s) from the top of the carburettor and/or air cleaner housing (as applicable).

3 Disconnect the intake duct from the front of the air cleaner housing, and remove the air cleaner housing from the engine compartment.

4 To remove the intake duct assembly, undo the retaining nut(s) securing the duct to the left-hand wing valance, then release the



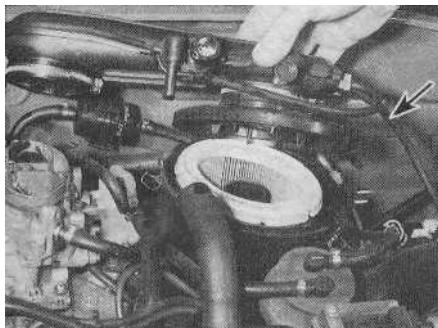
2.2a ... slacken the retaining clips ...

The fuel system consists of a fuel tank mounted under the rear of the car, a mechanical fuel pump, and a carburettor. The fuel pump is operated by an eccentric on the camshaft, and is mounted on the rear of the cylinder head. The air cleaner contains a disposable paper filter element, and incorporates a flap valve air temperature control system; this allows cold air from the outside of the car, and warm air from the exhaust manifold, to enter the air cleaner in the correct proportions.

The fuel pump lifts fuel from the fuel tank via a filter, which is mounted on the engine compartment bulkhead, and supplies it to the carburettor via an anti-percolation chamber. The anti-percolation chamber ensures that the supply of fuel to the carburettor is kept at a constant pressure, and is free of air bubbles. Excess fuel is returned from the anti-percolation chamber to the fuel tank.

On 1124 cc models, a Solex 32 PBISA single-choke carburettor is fitted; 1360 cc models have a Solex 32-34 Z2 twin-choke carburettor. On both carburettors, mixture enrichment for cold starting is by a cable-operated choke control.

The exhaust system consists of three sections; the front pipe, the intermediate pipe and silencer box, and the tailpipe and main silencer box. The system is suspended throughout its entire length by rubber mountings.



2.2b ... and remove the duct, disconnecting the air temperature control valve hose (arrowed)



2.4a Undo the intake duct front retaining nut (arrowed)...



2.4b ... then release the rear fastener and remove the duct and hose assembly

fastener securing the rear of the duct to the cylinder head (see illustrations). Disconnect the hot-air intake hose from the exhaust manifold shroud, and remove the duct and hose assembly from the engine compartment.

Refitting

5 Refitting is a reversal of the removal procedure, noting the following points:

- (a) Examine the rubber sealing ring(s) for signs of damage or deterioration, and if necessary renew. Note that, on some models, the carburettor seal is fitted with an O-ring; this should also be renewed if it is damaged.
- (b) Ensure the air cleaner housing locating peg is correctly engaged with its mounting on the top of the transmission (see illustration).
- (c) Prior to tightening the air cleaner-to-carburettor duct retaining clips, ensure the duct is correctly seated on both the air cleaner housing and carburettor flanges.

3 Air cleaner air temperature control system - general Information and component renewal



General information

1 The system is controlled by a heat-sensitive vacuum switch, mounted in the end of the air cleaner housing-to-carburettor duct. When the engine is started from cold, the switch is open, allowing inlet manifold depression to act on the air temperature control valve diaphragm in the intake duct. This vacuum causes the diaphragm to rise, drawing a flap valve across the cold-air intake, thus allowing only (warmed) air from the exhaust manifold to enter the air cleaner.

2 As the temperature of the exhaust-warmed air in the air cleaner-to-carburettor duct rises, the wax capsule in the vacuum switch deforms and closes the switch, cutting off the vacuum supply to the air temperature control valve assembly. As the vacuum supply is cut,

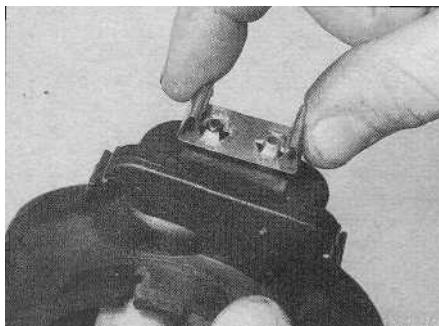
the flap is gradually lowered across the hot-air intake until, when the engine is fully warmed-up to normal operating temperature, only cold air from the front of the car is entering the air cleaner.

3 To check the system, allow the engine to cool down completely, then slacken the retaining clip and disconnect the intake duct from the front of the control valve assembly; the flap valve in the duct should be securely seated across the hot-air intake. Start the engine; the flap should immediately rise to close off the cold-air intake, and should then lower steadily as the engine warms up, until it is eventually seated across the hot-air intake again.

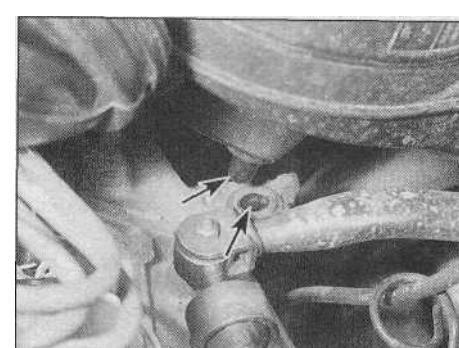
4 To check the vacuum switch, disconnect the vacuum pipe from the control valve when the engine is running, and place a finger over the pipe end. When the engine is cold, full inlet manifold vacuum should be present in the pipe, and when the engine is at normal operating temperature, there should be no vacuum in the pipe.

5 To check the air temperature control valve assembly, slacken the retaining clip and disconnect the intake duct from the front of the valve assembly; the flap valve should be securely seated across the hot-air intake. Disconnect the vacuum pipe, and suck hard at the control valve stub; the flap should rise to shut off the cold-air intake.

6 If either component is faulty, it must be renewed.



3.8a Remove the retaining clip ...



2.5 On refitting, ensure the air cleaner housing peg is correctly located in its mounting rubber (arrowed)

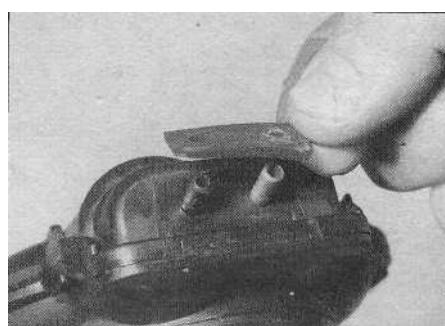
Vacuum switch - renewal

7 Remove the air cleaner housing-to-carburettor duct, as described in paragraphs 1 and 2 of Section 2.

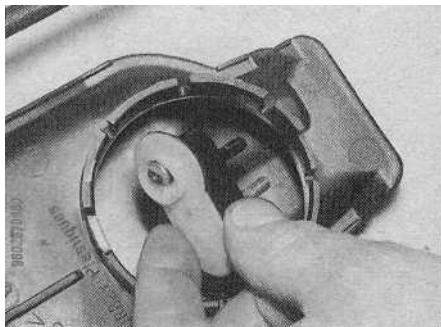
8 Bend up the tangs on the switch retaining clip, then remove the clip, along with its seal, and withdraw the switch from inside the duct (see illustrations). Examine the seal for signs of damage or deterioration, and renew if necessary.

9 On refitting, ensure the switch and duct mating surfaces are clean and dry, and position the switch inside of the duct.

10 Fit the seal over the switch unions, and refit the retaining clip. Ensure the switch is pressed firmly against the duct, and secure it



3.8b ... and seal...



3.8c ... then withdraw the vacuum switch from inside the duct

in position by bending down the retaining clip tangs.

11 Refit the duct as described in Section 2.

Air temperature control valve - renewal

12 Disconnect the vacuum pipe from the air temperature control valve, then slacken the retaining clips securing the intake ducts to the valve (see illustration).

13 Disconnect both intake ducts and the hot-air intake hose from the control valve assembly, and remove it from the vehicle.

14 Refitting is the reverse of the removal procedure, noting that the air temperature control valve assembly can only be renewed as a complete unit.



3.12 Air temperature control valve assembly

careful not to spill fuel onto hot engine components.

2 The pump can also be tested by removing it. With the pump outlet pipe disconnected but the inlet pipe still connected, hold a wad of rag by the outlet. Operate the pump lever by hand, moving it in and out; if the pump is in a satisfactory condition, the lever should move and return smoothly, and a strong jet of fuel should be ejected.

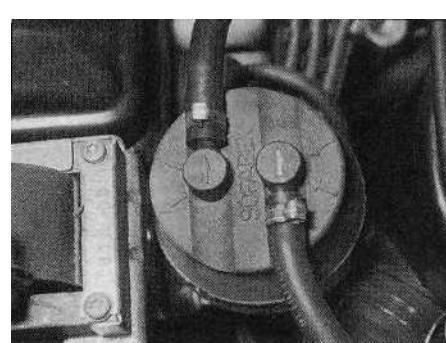
Removal

3 Identify the pump inlet and outlet hoses, and slacken both retaining clips (see illustration). Where the crimped-type Citroen hose clips are fitted, cut the clips and discard them; use standard worm-drive hose clips on refitting. Place wads of rag beneath the hose unions to catch any spilled fuel, then disconnect both hoses from the pump; plug the hose ends to minimise fuel loss.

4 Remove the insulating cover from the fuel pump, then slacken and remove the bolts securing the pump to the rear of the cylinder head. Remove the pump along with its insulating block. Discard the insulating block: a new one must be used on refitting.

Refitting

5 Ensure the pump and cylinder head mating surfaces are clean and dry, then offer up the new insulating block and refit the pump to the cylinder head. Tighten the pump retaining



4.3 Arrows on fuel pump unions indicate the direction of fuel flow

bolts to the specified torque, then refit the pump insulating cover.

6 Reconnect the inlet and outlet hoses to the relevant pump unions, and securely tighten their retaining clips.

5 Fuel gauge sender unit - removal and refitting

Note: Refer to the warning note in Section 1 before proceeding.

Removal

- 1 Disconnect the battery negative lead.
- 2 For access to the sender unit, tilt or remove the rear seats as described in Chapter 11.
- 3 Using a screwdriver, carefully prise the plastic access cover from the floor to expose the sender unit. It is located under the left-hand cover (see illustration).
- 4 Disconnect the wiring connector from the sender unit, and tape the connector to the vehicle body to prevent it disappearing behind the tank (see illustration).

5 Mark the hoses for identification purposes, then slacken the feed and return hose retaining clips. Where the crimped-type Citroen hose clips are fitted, cut the clips and discard them; use standard worm-drive hose clips on refitting. Disconnect both hoses from the top of the sender unit, and plug the hose ends.

6 Noting the alignment marks on the tank, sender unit and the locking ring, unscrew the ring and remove it from the tank. This is best

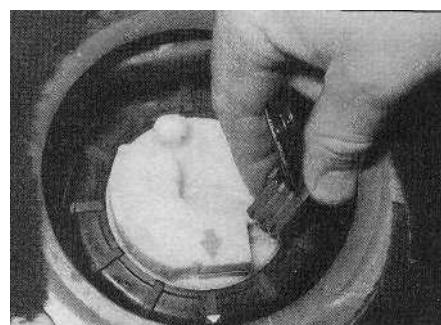
4 Fuel pump - testing, removal and refitting



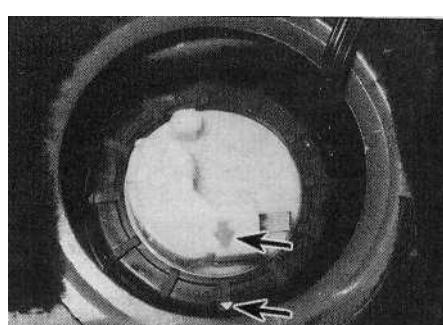
Note: Refer to the warning note in Section 1 before proceeding.

Testing

1 To test the fuel pump on the engine, disconnect the outlet pipe which leads to the carburettor. Hold a wad of rag by the pump outlet while an assistant spins the engine on the starter. Keep your hands away from the electric cooling fan. Regular spurts of fuel should be ejected as the engine turns. Be

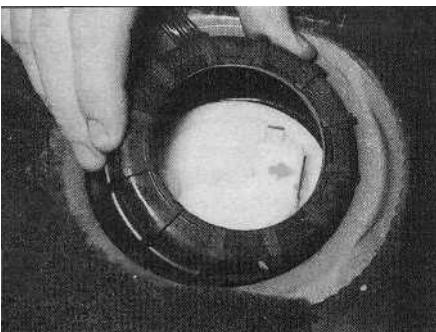


5.3 Remove the plastic access cover ...

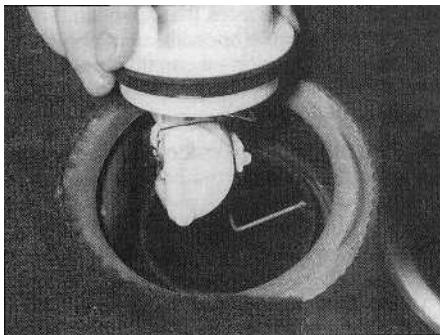


5.4 ... and disconnect the wiring connector from the fuel gauge sender unit (fuel-injected model shown)

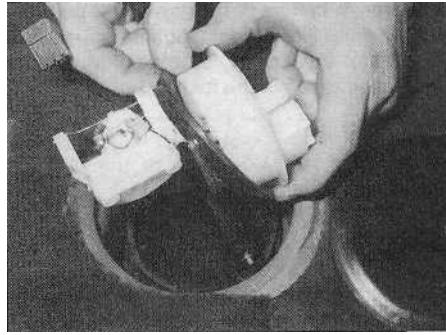
5.6a Note the position of the alignment marks (arrowed) on the sender unit and locking ring ...



5.6b ... then unscrew the locking ring



5.7a Withdraw the sender unit from the tank ...



5.7b ... and remove the rubber sealing ring

accomplished by using a screwdriver on the raised ribs of the locking ring, as follows. Carefully tap the screwdriver to turn the ring anti-clockwise until it can be unscrewed by hand (**see illustrations**).

7 Carefully lift the sender unit from the top of the fuel tank, taking great care not to bend the sender unit float arm, or to spill fuel onto the interior of the vehicle. Recover the rubber sealing ring and discard it - a new one must be used on refitting (**see illustrations**).

Refitting

Refitting is a reversal of the removal procedure, noting the following points:

- (a) *Prior to refitting, fit a new rubber sealing ring to the sender unit,*
- (b) *Refit the sender unit to the tank, aligning its arrow with the centre of the three alignment marks on the fuel tank. Secure the sender in position with the locking ring, and check that the locking ring, sender unit and fuel tank marks are all correctly aligned.*



6 Fuel tank - removal and refitting

Note: Refer to the warning note in Section 1 before proceeding.

Removal

1 Before removing the fuel tank, all fuel must be drained from the tank. Since a fuel tank

drain plug is not provided, it is therefore preferable to carry out the removal operation when the tank is nearly empty. Before proceeding, disconnect the battery negative lead, and syphon or hand-pump the remaining fuel from the tank.

2 Remove the exhaust system and relevant heat shield(s) as described in Section 17.

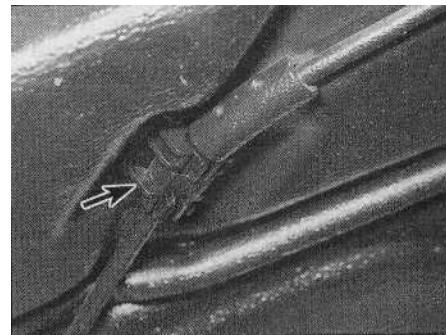
3 Disconnect the two handbrake cables from the handbrake lever, as described in Chapter 9.

4 From underneath the vehicle, remove the retaining clips, and release each handbrake cable from its guides on the underside of the fuel tank (**see illustration**). Position both cables clear of the tank, so that they will not hinder the removal procedure.

5 Disconnect the wiring connector from the fuel gauge sender unit, as described in Section 5.

6 Working at the right-hand side of the fuel tank, slacken the retaining clips, then disconnect the vent pipes from the base of the filler neck, and the main filler neck hose from the fuel tank. Where the original crimped-type Citroen hose clips are fitted, cut the clips and discard them; use standard worm-drive hose clips on refitting.

7 Trace the fuel feed and return hoses back from the right-hand side of the tank to their union with the fuel pipes. Slacken the retaining clips and disconnect both hoses from the fuel pipes, noting the point made above about the crimped-type hose clips.



6.4 Handbrake cable-to-fuel tank retaining clip (arrowed)

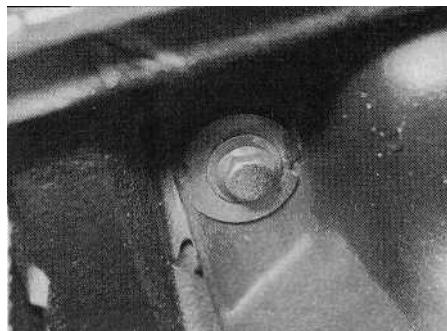
Plug the hose and pipe ends, to prevent the entry of dirt into the system.

8 Place a trolley jack with an interposed block of wood beneath the tank, then raise the jack until it is supporting the weight of the tank.

9 Slacken and remove the retaining nut and bolts, then remove the two support rods from the underside of the tank (**see illustrations**).

10 Slowly lower the fuel tank out of position, disconnecting any other relevant vent pipes as they become accessible (where necessary), and remove the tank from underneath the vehicle.

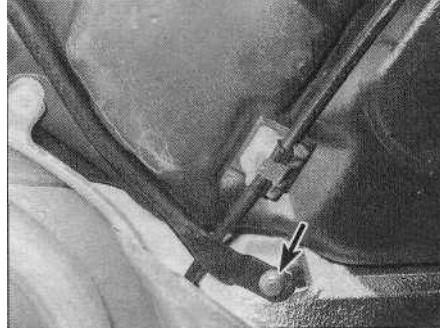
11 If the tank is contaminated with sediment or water, remove the sender unit (Section 5), and swirl the tank out with clean fuel. The tank is injection-moulded from a synthetic material - if seriously damaged, it should be renewed.



6.9a Fuel tank front left-hand retaining bolt



6.9b Fuel tank support rod retaining nut...



6.9c ... and retaining bolt

However, in certain cases, it may be possible to have small leaks or minor damage repaired. Seek the advice of a specialist before attempting to repair the fuel tank.

Refitting

12 Refitting is the reverse of the removal procedure, noting the following points:

- (a) *When lifting the tank back into position, take care to ensure that none of the hoses become trapped between the tank and vehicle body.*
- (b) *Ensure all pipes and hoses are correctly routed, and securely held in position with their retaining clips.*
- (c) *Reconnect the handbrake cables and adjust the handbrake as described in Chapter 9.*
- (d) *On completion, refill the tank with a small amount of fuel, and check for signs of leakage prior to taking the vehicle out on the road.*

7 Accelerator cable - removal, refitting and adjustment



Removal

1 Working in the engine compartment, free the accelerator inner cable from the carburettor throttle cam, then pull the outer cable out from its mounting bracket rubber grommet. Slide the flat washer off the end of the cable, and remove the spring clip.

2 Working back along the length of the cable, free it from any retaining clips or ties, noting its correct routing.

3 Working from inside the vehicle, release the fasteners by rotating them through a quarter of a turn anti-clockwise, and remove the driver's side lower facia panel.

4 Release the retaining clips, and remove the felt undercover from underneath the driver's side of the facia panel.

5 Release the retaining clip, and detach the inner cable from the top of the accelerator pedal.

6 Release the outer cable from its retainer on the pedal mounting bracket, then tie a length of string to the end of the cable.

7 Return to the engine compartment, and

withdraw the cable from the bulkhead. When the end of the cable appears, untie the string and leave it in position - it can then be used to draw the cable back into position on refitting.

Refitting

8 Tie the string to the end of the cable, then use the string to draw the cable into position through the bulkhead. Once the cable end is visible, untie the string, then clip the outer cable into its pedal bracket retainer, and clip the inner cable into position in the pedal end.

9 Check that the cable is securely retained, then refit the felt undercover and driver's side lower facia panel.

10 From within the engine compartment, ensure the outer cable is correctly seated in the bulkhead grommet, then work along the cable, securing it in position with the retaining clips and ties, and ensuring that the cable is correctly routed.

11 Slide the flat washer onto the cable end, and refit the spring clip.

12 Pass the outer cable through its carburettor mounting bracket grommet, and reconnect the inner cable to the throttle cam. Adjust the cable as described below.

Adjustment

13 Remove the spring clip from the accelerator outer cable. Ensuring that the throttle cam is fully against its stop, gently pull the cable out of its grommet until all free play is removed from the inner cable.

14 With the cable held in this position, refit the spring clip to the last exposed outer cable groove in front of the rubber grommet and washer. When the clip is refitted and the outer cable is released, there should be only a small amount of free play in the inner cable (**see illustration**).

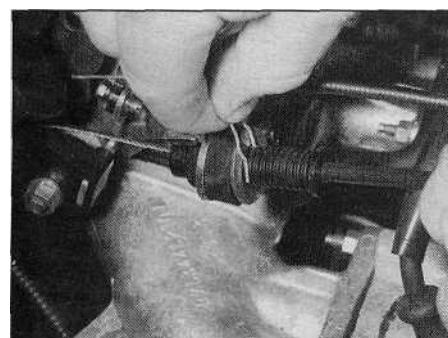
15 Have an assistant depress the accelerator pedal, and check that the throttle cam opens fully and returns smoothly to its stop.

8 Accelerator pedal - removal and refitting

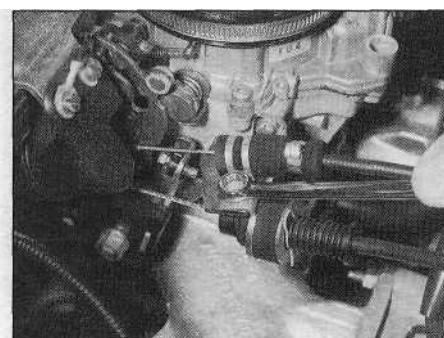


Removal

1 Disconnect the accelerator cable from the pedal as described in paragraphs 3 to 5 of Section 7.



7.14 Adjusting the accelerator cable



9.1 Undo the retaining bolt and remove the choke cable retaining clip

Right-hand drive models

2 Unscrew the nut from the end of the pedal pivot shaft, whilst retaining the pivot shaft with an open-ended spanner on the flats provided.

3 Pull the pedal and pivot shaft assembly from the support bracket.

4 Examine the pivot shaft for signs of wear or damage and, if necessary, renew it. The pivot shaft is a screw fit in the pedal.

Left-hand drive models

5 Slacken and remove the two nuts securing the pedal mounting bracket to the bulkhead. Slide off the outer part of the mounting clamp, then withdraw the pedal from behind the facia, and slide off the inner part of the clamp.

6 Examine the mounting bracket and pedal pivot points for signs of wear, and renew as necessary.

Refitting

7 Refitting is a reversal of the removal procedure, applying a little multi-purpose grease to the pedal pivot point. On completion, adjust the accelerator cable as described in Section 7.

9 Choke cable - removal, refitting and adjustment



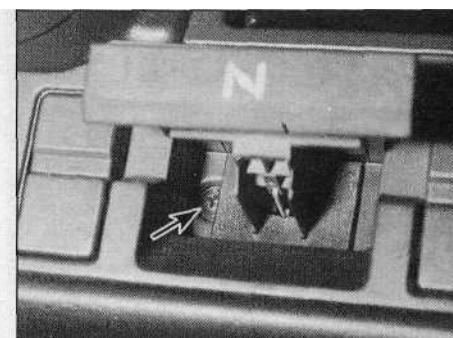
Removal

1 Working in the engine compartment, free the choke inner cable from the carburettor linkage, then slacken and remove the retaining bolt and remove the outer cable retaining clamp (**see illustration**).

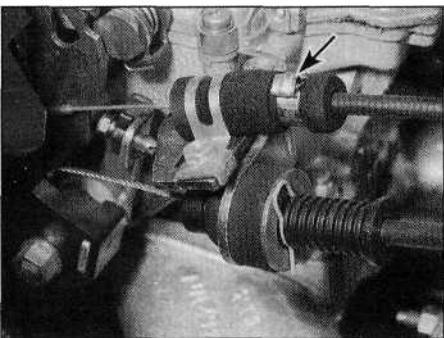
2 Slacken the retaining clip securing the rubber collar to the outer cable, and slide the collar off the cable. Where the original crimped-type Citroën hose clip is still fitted, cut the clip and discard it; use a standard worm-drive hose clip on refitting.

3 Working back along the length of the cable, free it from any retaining clips or ties, noting its correct routing. Tie a length of string to the end of the choke inner cable.

4 Working from inside the vehicle, pull the choke lever fully out, to gain access to the retaining screw (**see illustration**). Slacken and remove the retaining screw, then



9.4 Choke lever retaining screw (arrowed)



9.9 Choke cable-to-rubber collar retaining clip (arrowed)

withdraw the lever and cable assembly from the facia, disconnecting the wiring from the lever switch (where fitted) as it becomes accessible. Once the end of the cable appears through the lever aperture, untie the string and leave it in position in the vehicle - it can then be used to draw the cable back into position on refitting.

Refitting

5 Tie the string the end of the choke cable, then use the sting to draw the cable into position through the bulkhead into the engine compartment. Once the cable end is fully in position, untie the string.

6 Reconnect the wiring connector (where fitted), and locate the choke lever in its facia panel aperture. Refit the lever retaining screw, tightening it securely.

7 From within the engine compartment, ensure the outer cable is correctly seated in the bulkhead grommet. Work along the cable, securing it in position with all the relevant retaining clips and ties, and ensuring that the cable is correctly routed.

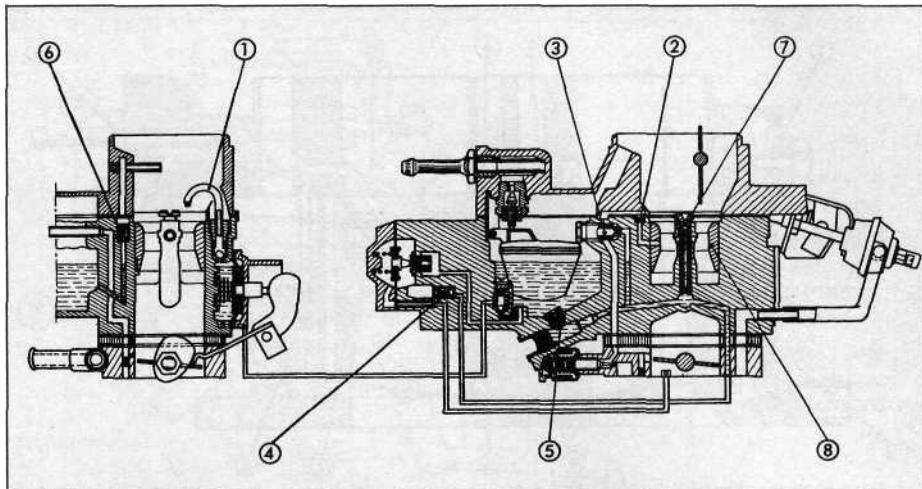
8 Slide the rubber collar and retaining clip onto the end of the cable, then engage the inner end of the cable with carburettor linkage. Align the rubber collar with the carburettor bracket, then refit the retaining clip and securely tighten its retaining bolt. Adjust the cable as described below.

Adjustment

9 If not already done, slacken the retaining clip securing the rubber collar to the outer cable. Where the crimped-type Citroen hose clip is still fitted, cut the clip and discard it; use a standard worm-drive hose clip on refitting (**see illustration**).

10 Ensuring that the choke lever is flush with the facia panel and the carburettor linkage is fully against its stop, move the outer cable in the rubber collar until the position is found where there is only a small amount of free play present in the inner cable. Hold the outer cable in this position, and securely tighten the clip securing the rubber collar to the outer cable.

11 Have an assistant operate the choke lever, and check that the choke linkage closes



11.1 Sectional view of the Solex 32 PBISA carburettor fitted to 1124 cc models

- | | |
|-------------------------|------------------|
| 1 Accelerator pump tube | 4 Enrichment jet |
| 2 Idle ventilator | 5 Main jet |
| 3 Idle jet | 6 Fuel econostat |

- | |
|----------------------|
| 7 Air correction jet |
| 8 Venturi |

fully and returns smoothly to its stop. If necessary, repeat the adjustment procedure.

10 Unleaded petrol - general information and usage

Note: The information given in this Chapter is correct at the time of writing. If updated information is thought to be required, check with a Citroen dealer. If travelling abroad, consult one of the motoring organisations (or a similar authority) for advice on the fuel available.

1 The fuel recommended by Citroen is given in the Specifications Section of this Chapter, followed by the equivalent petrol currently on sale in the UK.

2 All Citroen ZX carburettor models are designed to run on 95 octane petrol. Both leaded and unleaded petrol can be used without modification. Super leaded (97 octane, UK "4-star") and super unleaded (98 octane) petrol can also be used if wished, though there is no advantage in doing so.

11 Carburettor - general information

Solex 32 PBISA carburettor - 1124 cc models

1 The Solex PBISA carburettor is a downdraught single-venturi instrument, with a manually-controlled choke (**see illustration**). The carburettor consists of three main components - the upper body, the main body, and the throttle body (which contains the throttle valve assembly). An insulating block placed between the carburettor body and throttle body prevents excess heat transfer from the manifold to the main body.

2 The throttle body contains a drilling through which the engine coolant runs. The engine coolant warms the carburettor body quickly on cold starts, improving atomisation of the fuel/air mixture and preventing carburettor icing, during warm-up.

3 During slow running and at idle, fuel from the float chamber passes into the idle channel through a metered idle jet. Here it is mixed with a small amount of air from a calibrated air bleed. The resulting mixture is drawn through a channel, to be discharged from the idle orifice under the throttle valve. A tapered mixture screw is used to vary the outlet, and this ensures fine control of the idle mixture.

4 A progression slot provides extra enrichment as it is uncovered by the opening of the throttle valve during initial acceleration.

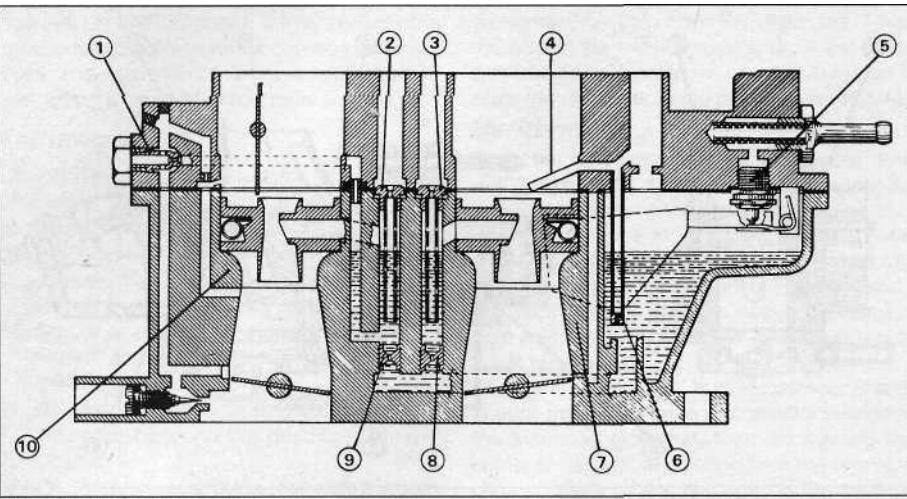
5 Under normal operating conditions, fuel is drawn through a calibrated main jet, into the base of the auxiliary venturi. An emulsion tube is placed in the auxiliary venturi, capped with an air correction jet. The fuel is mixed with air, drawn in through the holes in the emulsion tube. The resulting mixture is discharged into the main airstream via four orifices, spaced at 90° apart, in the upper part of the auxiliary venturi.

6 The carburettor also has an accelerator pump, to provide an initial spurt of extra fuel during sudden acceleration. The accelerator pump is controlled by a diaphragm, and is mechanically operated by a lever and rod which is connected to the throttle linkage.

7 The idle speed is set by an adjustable screw. The adjustable mixture screw is sealed during production with a tamperproof plug, to prevent unnecessary or inexpert adjustment.

Solex 32-34 Z2 carburettor - 1360 cc models

8 The Solex 32-34 Z2 carburettor is a downdraught progressive twin-venturi



11.8 Sectional view of the Solex 32-34 Z2 carburetor fitted to 1360 cc models

- | | | |
|--|----------------------|---------------------|
| 1 Idle jet | 4 Secondary fueljet | 9 Primary main jet |
| 2 Primary air correction jet/emulsion tube | 5 Needle valve | 10 Primary venturi |
| 3 Secondary air correction jet/emulsion tube | 6 Bypass jet | 7 Secondary venturi |
| | 8 Secondary main jet | |

instrument (see illustration). The throttle linkages are arranged so that the secondary throttle valve will not start to open until the primary valve is about two-thirds open, but at full throttle both valves are fully open. The choke control is manual.

9 An electrical heating element is fitted to the base of the throttle body. The heater warms the carburettor body quickly on cold starts, improving atomisation of the fuel/air mixture and preventing carburettor icing during warm-up. The heater is fed directly from the ignition switch, and functions on the PTC (Positive Temperature Coefficient) principle; ie. as the heater temperature rises, so does its resistance.

10 During slow running and at idle, fuel from the float chamber passes into the idle channel through a metered idle jet. Here it is mixed with a small amount of air from a calibrated air bleed. The resulting mixture is drawn through a channel, to be discharged from the idle orifice under the primary throttle plate. A tapered mixture screw is used to vary the

outlet, and this ensures fine control of the idle mixture.

11 On some models, an idle cut-off valve is used to prevent run-on when the engine is switched off. The valve uses a solenoid plunger to block the idle jet when the ignition is switched off.

12 A progression slot provides extra enrichment as it is uncovered by the opening of the throttle valve during initial acceleration.

13 Under normal operating conditions, the amount of fuel discharged into the airstream is controlled by a calibrated main jet. Fuel is drawn through the main jet, into the base of a vertical well which dips down into the fuel in the float chamber; an emulsion tube is placed in the well. The fuel is then mixed with air, drawn in through the air correction jet and through the holes in the emulsion tube. The resulting mixture is discharged from the main orifice through an auxiliary vent.

14 The carburettor also has an accelerator pump to provide an initial spurt of extra fuel during sudden acceleration. The accelerator

pump is mechanically operated by a lever and cam which is attached to the primary throttle linkage. During acceleration, fuel is pumped through a ball valve located in the pump injector, and is discharged into both the primary and secondary Venturis. The inlet ball valve is located in a channel from the float chamber; excess fuel/air mixture is returned to the float chamber through a separate channel.

15 The idle speed is set by an adjustable screw. The adjustable mixture screw is sealed during production with a tamperproof plug, to prevent unnecessary or inexpert adjustment.

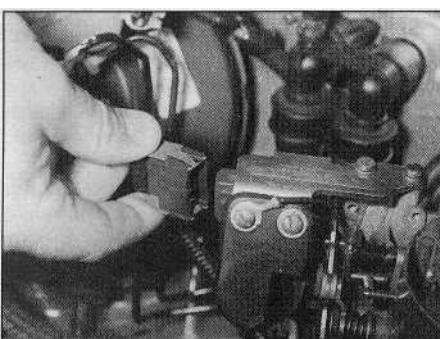
12 Carburettor - removal and refitting



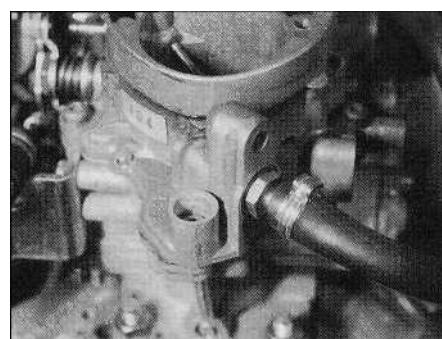
Note: Refer to the warning note in Section 1 before proceeding. Where original crimped-type Citroen hose clips are still fitted, the clips should be cut and discarded; obtain some standard worm-drive hose clips for refitting.

Removal

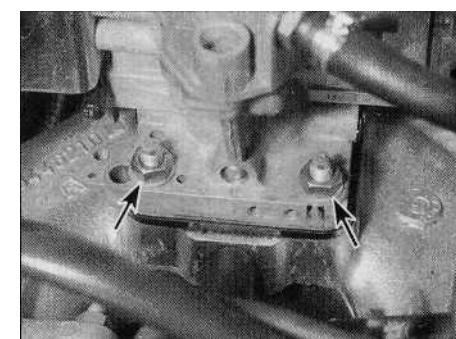
- 1 Disconnect the battery negative terminal.
- 2 Remove the air cleaner-to-carburettor duct as described in paragraphs 1 and 2 of Section 2.
- 3 Free the accelerator inner cable from the throttle cam, then pull the outer cable out from its mounting bracket rubber grommet, along with its flat washer and spring clip.
- 4 Disconnect the choke inner cable from the carburettor linkage, then undo the retaining bolt and remove the retaining clamp. Position the cable clear of the carburettor.
- 5 On 1124 cc models, slacken the retaining clips and disconnect the coolant hoses from the base of the carburettor. Plug the hose ends to minimise coolant loss, and mop up any spilt coolant immediately.
- 6 On 1360 cc models, disconnect the wiring connector from the carburettor heating element and, where fitted, from the idle cut-off solenoid (see illustration).
- 7 Slacken the retaining clip, and disconnect the fuel feed hose from the carburettor. Place wads of rag around the union to catch any spilled fuel, and plug the hose as soon as it is disconnected, to minimise fuel loss (see illustration).



12.6 Disconnecting the carburettor wiring connector -1360 cc models



12.7 Carburettor fuel hose union -1360 cc models



12.9 Carburettor retaining nuts (two of four arrowed) -1360 cc models

8 Make a note of the correct fitted positions of all the relevant vacuum pipes and breather hoses, to ensure they are correctly positioned on refitting, then release the retaining clips (where fitted) and disconnect them from the carburettor.

9 Unscrew the two (1124 cc models) or four (1360 cc models) nuts and washers securing the carburettor to the inlet manifold. Remove the carburettor assembly from the car (**see illustration**). Remove the insulating spacer and/or gasket(s). Discard the gasket(s); new ones must be used on refitting. Plug the inlet manifold port with a wad of clean cloth, to prevent the possible entry of foreign matter.

Refitting

10 Refitting is the reverse of the removal procedure, noting the following points:

- Ensure the carburettor and inlet manifold sealing faces are clean and flat. Fit a new gasket, and securely tighten the carburettor retaining nuts.
- Use the notes made on dismantling to ensure all hoses are refitted to their original positions and, where necessary, are securely held by their retaining clips.
- Where the original crimped-type Citroen hose clips were fitted, discard them; use standard worm-drive hose clips when refitting.
- Refit and adjust the choke and accelerator cables as described in Sections 7 and 9.
- Refit the air cleaner duct as described in Section 2.
- On completion, check and, if necessary, adjust the idle speed and mixture settings as described in Chapter 1.

13 Solex 32 PBISA carburettor (1124 cc models) - fault finding, overhaul and adjustments

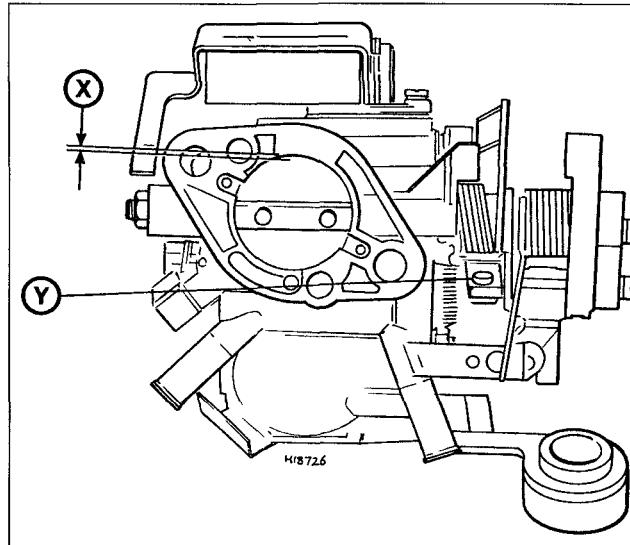


Fault finding

1 If a carburettor fault is suspected, always check first that the ignition timing is correctly set, that the spark plugs are in good condition and correctly gapped, that the accelerator and choke cables are correctly adjusted, and that the air cleaner filter element is clean; refer to the relevant Sections of Chapter 1, Chapter 5 or this Chapter. If the engine is running very roughly, first check the valve clearances as described in Chapter 1, then check the compression pressures as described in Chapter 2.

2 If careful checking of all the above produces no improvement, the carburettor must be removed for cleaning and overhaul.

3 Note that in the rare event of a complete carburettor overhaul being necessary, it may prove more economical to renew the carburettor as a complete unit. Check the price and availability of a new carburettor and



13.22 Throttle valve fast idle setting - Solex 32 PBISA carburettor

Adjust screw Y until clearance X is as given in the Specifications

of its component parts before starting work; note that most sealing washers, screws and gaskets are available in kits, as are some of the major sub-assemblies. In most cases, it will be sufficient to dismantle the carburettor and to clean the jets and passages.

Overhaul

Note: Refer to the warning note in Section 1 before proceeding.

4 Remove the carburettor from the vehicle as described in Section 12.

5 Disconnect the vacuum hose from the choke pull-down diaphragm.

6 Disconnect the choke spring (where necessary), then undo the six screws and lift off the carburettor upper body.

7 Tap out the float pivot pin, and remove the float assembly, needle valve, and float chamber gasket. Check that the needle valve anti-vibration ball is free in the valve end, then examine the needle valve tip and seat for wear or damage. Examine the float assembly and pivot pin for signs of wear and damage. The float assembly must be renewed if it appears to be leaking - shake the float to detect the presence of fuel inside.

8 Unscrew the fuel inlet union and inspect the fuel filter. Clean the filter housing of debris and dirt, and renew the filter if it is blocked.

9 Undo the four screws, detach the accelerator pump cover, and remove the pump diaphragm and spring, noting which way around they are fitted. Examine the diaphragm for signs of damage and deterioration, and renew if necessary.

10 Unscrew the idle jet from the main body.

11 Unscrew the main jet from the float chamber. Note that it may be necessary to remove a plug in the float chamber body, to expose an opening through which the main jet can be withdrawn.

12 Remove the combined air correction jet and emulsion tube from the auxiliary venturi.

13 Remove the two screws, separate the

carburettor main body and throttle body assemblies, and recover the insulating spacer. Examine the throttle valve spindle and throttle bore for signs of wear or damage and, if necessary, renew the throttle body assembly.

14 Remove the idle mixture adjustment screw tamperproof cap. Screw the screw in until it seats lightly, counting the exact number of turns required to do this, then unscrew it. On refitting, screw the screw in until it seats lightly, then back the screw off by the number of turns noted on removal, to return the screw to its original position.

15 Clean the jets, carburettor body assemblies, float chamber and internal drillings. An air line may be used to clear the internal passages once the carburettor is fully dismantled.



Warning: If high pressure air is directed into drillings and passages where a diaphragm is fitted, the diaphragm is likely to be damaged.

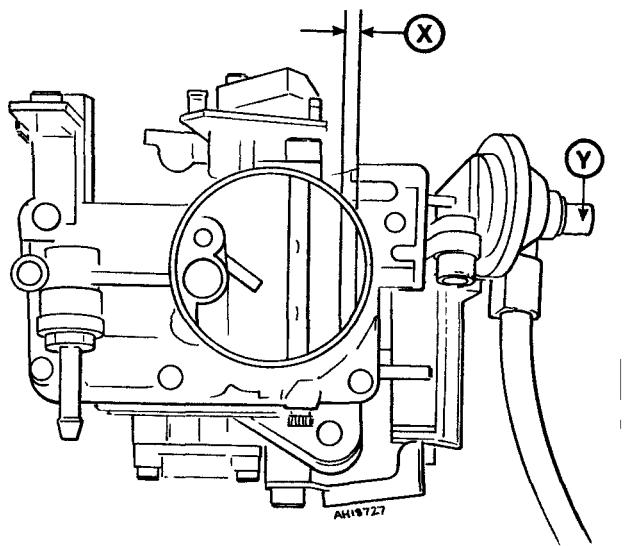
**HAYNES
Hint**

Aerosol cans of carburettor cleaner are widely available, and can prove very useful in helping to clear internal passages of stubborn obstructions.

16 Use a straight edge to check all carburettor body assembly mating surfaces for distortion.

17 On reassembly, renew any worn components, and fit a complete set of new gaskets and seals. A jet kit and a gasket and seal kit are available from your Citroen dealer.

18 Reassembly is a reversal of the dismantling procedure. Ensure that all jets are securely locked in position, but take great care not to overtighten them. Ensure all mating surfaces are clean and dry, and that all body sections are correctly assembled with



13.25 Choke pull-down setting - Solex 32 PBISA carburettor

Adjust screw Y until clearance X is as given in the Specifications

their fuel and air passages correctly aligned. Before refitting the carburettor to the vehicle, set the throttle valve fast idle and choke pull-down settings as described below.

Adjustments

Idle speed and mixture

19 Refer to Chapter 1.

Float height setting

20 To accurately check the float height setting, a special float height checking gauge is required. Therefore, this task must be entrusted to a Citroen dealer. As a guide, with the carburettor body inverted, so that the float is at the top and the needle valve is depressed, the distance between the upper edge of the float and the sealing face of the upper body (with its gasket fitted) should be approximately 38 mm. To adjust the float height setting, carefully bend the pivot arm.

Throttle valve fast idle setting

21 Invert the carburettor, and operate the carburettor choke linkage to fully close the choke valve. The fast idle screw will butt against the fast idle cam, and force the throttle valve open slightly.

22 Using the shank of a twist drill, measure the clearance between the edge of the throttle valve and bore, and compare this to the clearance given in the Specifications. If necessary, adjust by turning the fast idle adjustment screw in the appropriate direction until the specified clearance is obtained (see illustration).

Choke pull-down setting

23 Operate the carburettor choke linkage to fully close the choke valve, and hold the linkage in this position.

24 Attach a hand-held vacuum pump to the

choke pull-down diaphragm, and apply a vacuum to the diaphragm so that the diaphragm rod is pulled fully into the diaphragm body. In the absence of a vacuum pump, the rod can be pushed into the diaphragm using a small screwdriver.

25 With the rod fully retracted, use the shank of a twist drill to measure the clearance between the edge of the choke valve and bore, and compare this to the clearance given in the Specifications (see illustration). If necessary, remove the plug from the diaphragm cover, and adjust by turning the adjustment screw. Once the pull-down setting is correctly adjusted, refit the plug to the diaphragm cover, and remove the vacuum pump (where used).

14 Solex 32-34 22 carburettor (1360 cc models) - fault diagnosis, overhaul and adjustments

Fault finding

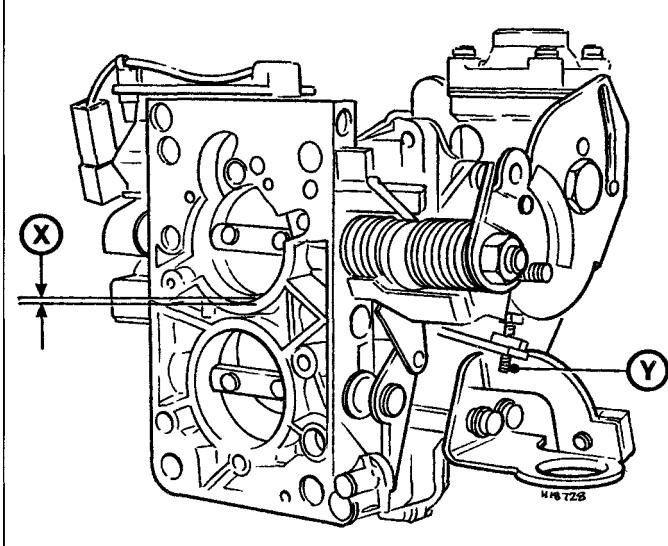
1 Refer to Section 13.

Overhaul

Note: Refer to the warning note in Section 1 before proceeding.

2 Remove the carburettor from the vehicle as described in Section 12.

3 Unscrew the idle cut-off solenoid (where fitted) from the carburettor body, and remove it along with its plunger and spring. To test the solenoid, connect a 12-volt battery to it (positive terminal to the solenoid terminal, negative terminal to the solenoid body), and check that the plunger is retracted fully into the body. Disconnect the battery, and check that the plunger is pushed out by spring pressure. If the valve does not perform as



14.19 Throttle valve fast idle setting - Solex 32-34 Z2 carburettor

Adjust screw Y until clearance X is as given in the Specifications

expected, and cleaning does not improve the situation, the solenoid valve must be renewed.

4 Remove the five screws, and lift off the carburettor upper body.

5 Tap out the float pivot pin, and remove the float assembly, needle valve, and float chamber gasket. Check that the needle valve anti-vibration ball is free in the valve end, then examine the needle valve tip and seat for wear or damage. Examine the float assembly and pivot pin for signs of wear and damage. The float assembly must be renewed if it appears to be leaking - shake the float to detect the presence of fuel inside.

6 Unscrew the fuel inlet union and inspect the fuel filter. Clean the filter housing of debris and dirt, and renew the filter if it is blocked.

7 Undo the four screws, detach the accelerator pump cover, and remove the pump diaphragm and spring, noting which way around they are fitted. Examine the diaphragm for signs of damage and deterioration, and renew if necessary. Remove the choke pull-down diaphragm and part-load enrichment diaphragms, and examine them in the same way.

8 Unscrew the idle jet from the upper body.

9 Unscrew both the primary and secondary combined air correction jets and emulsion tubes.

10 Using a long thin screwdriver, unscrew the main jets from the bottom of the emulsion tube drillings. Invert the carburettor, and catch the jets as they fall out of the drillings.

11 Remove the idle mixture adjustment screw tamperproof cap. Screw the screw in until it seats lightly, counting the exact number of turns required to do this, then unscrew it. On refitting, screw the screw in until it seats lightly, then back the screw off by the number of turns noted on removal, to return the screw to its original position.

12 Examine the carburettor components as described in paragraphs 15 to 17 of Section 13.

13 To test the carburettor heating element, connect a multimeter, set to the resistance function, between the heater wiring terminal and the carburettor body. A resistance reading of approximately 0.25 to 0.5 ohms should be obtained. If an open-circuit is present, or an extremely high resistance reading is obtained, it is likely that the heating element is faulty. Seek the advice of your Citroen dealer before condemning the heater. The dealer will also be able to advise whether or not the heating element is available separately.

14 Reassembly is a reversal of the dismantling procedure. Ensure that all jets are securely locked in position, but take great care not to overtighten them. Ensure all mating surfaces are clean and dry, and that all body sections are correctly assembled with their fuel and air passages correctly aligned. Prior to refitting the carburettor to the vehicle, set the float height, throttle valve fast idle and choke pull-down settings as described below.

Adjustments

Idle speed and mixture

15 Refer to Chapter 1.

Float height setting

16 Invert the carburettor body, so the float is at the top and the needle valve is depressed. Measure the distance between the upper edge of the float and the sealing face of the upper body (with its gasket fitted). This measurement should be as given in the Specifications at the start of this Chapter.

17 If necessary, the float height can be adjusted by carefully bending the small tang on the float arm which contacts the needle valve.

Throttle valve fast idle setting

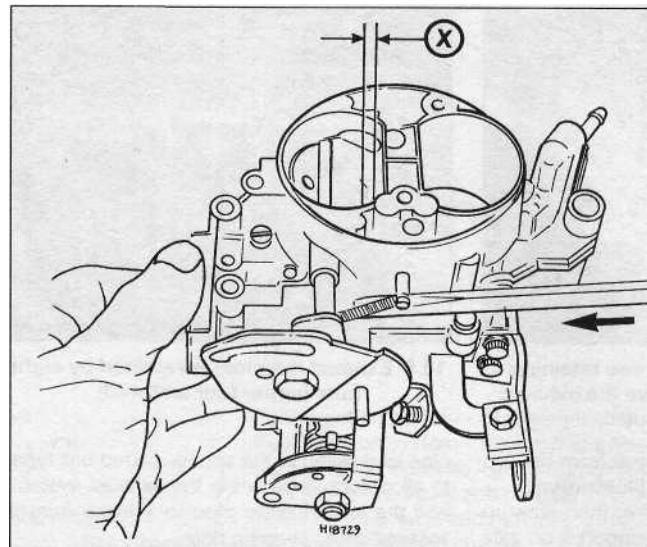
18 Invert the carburettor, and pull the carburettor choke linkage to fully close the choke valve. The fast idle screw will butt against the fast idle cam, and force the throttle valve open slightly.

19 Using the shank of a twist drill, measure the clearance between the edge of the throttle valve and bore, and compare this to the clearance given in the Specifications at the start of this Chapter. If necessary, adjust by turning the fast idle adjustment screw in the appropriate direction until the specified clearance is obtained (see illustration).

Choke pull-down setting

20 Pull the carburettor choke linkage to fully close the choke valve, and hold the linkage in this position.

21 Attach a hand-held vacuum pump to the choke pull-down diaphragm, and apply a vacuum to the diaphragm so that the diaphragm rod is pulled fully into the diaphragm body. In the absence of a vacuum



14.22 Choke pull-down setting (using a screwdriver to retract the diaphragm rod) - Solex 32-34 Z2 carburettor

Adjust as described in text until clearance X is as given in the Specifications

- Ensure that the manifold and cylinder head mating surfaces are clean and dry, and apply a thin coating of suitable sealing compound to the manifold mating surface. Install the manifold, and tighten its retaining nuts to the specified torque setting.
- Ensure all relevant hoses are reconnected to their original positions, and are securely held (where necessary) by their retaining clips.
- Refit the carburettor as described in Section 12.
- On completion, refill the cooling system as described in Chapter 1.

15 Inlet manifold - removal and refitting



Note: Refer to the warning note in Section 1 before proceeding.

Removal

1 Remove the carburettor as described in Section 12.

2 Drain the cooling system as described in Chapter 1.

3 Undo the bolt(s) securing the anti-percolation chamber mounting bracket to the manifold, and position the chamber clear of the manifold so that it does not hinder removal.

4 Slacken the retaining clips, then disconnect the vacuum servo unit hose from the left-hand side of the manifold, and the coolant hose from the base of the manifold.

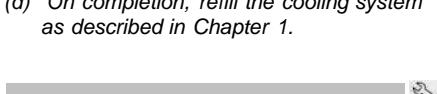
5 Make a final check that all the necessary vacuum/breather hoses have been disconnected from the manifold.

6 Unscrew the six retaining nuts, then manoeuvre the manifold away from the head and out of the engine compartment. Note that there is no manifold gasket.

Refitting

7 Refitting is the reverse of the removal procedure, noting the following points:

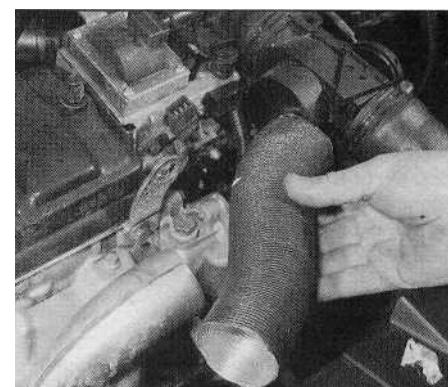
16 Exhaust manifold - removal and refitting



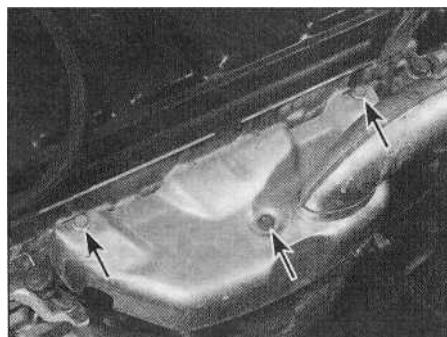
Removal

1 Disconnect the hot-air intake hose from the manifold shroud, and remove it from the vehicle (see illustration).

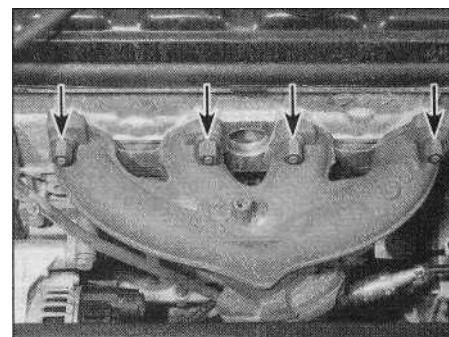
2 Slacken and remove the three retaining



16.1 Remove the hot-air intake hose...



16.2 ... then undo the three retaining bolts (arrowed) and remove the exhaust manifold shroud



16.5 Exhaust manifold is retained by eight nuts (upper four arrowed)

screws, and remove the shroud from the top of the exhaust manifold (see illustration).

3 Firmly apply the handbrake, then jack up the front of the vehicle and support it on axle stands.

4 Undo the nuts securing the exhaust front pipe to the manifold, then remove the bolt securing the front pipe to its mounting bracket. Disconnect the front pipe from the manifold, and recover the gasket.

5 Undo the eight retaining nuts securing the manifold to the head (see illustration). Manoeuvre the manifold out of the engine compartment, and discard the manifold gaskets.

Refitting

6 Refitting is the reverse of the removal procedure, noting the following points:

- (a) Examine all the exhaust manifold studs for signs of damage and corrosion; remove all traces of corrosion, and repair or renew any damaged studs.
- (b) Ensure that the manifold and cylinder head sealing faces are clean and flat, and fit the new manifold gaskets. Tighten the manifold retaining nuts to the specified torque.
- (c) Reconnect the front pipe to the manifold using the information given in Section 17.

17 Exhaust system - general information, removal and refitting



General information

1 The exhaust system consists of three sections; the front pipe, the intermediate pipe and silencer box, and the tailpipe and main silencer box. All exhaust sections are joined by flanged joints. The front pipe joints are secured by nuts and bolts, the intermediate

pipe joint being of the spring-loaded ball type, to allow for movement in the exhaust system, and the intermediate pipe-to-silencer joint is secured by a clamping ring.

2 The system is suspended throughout its entire length by rubber mountings.

Removal

3 Each exhaust section can be removed individually, or alternatively, the complete system can be removed as a unit. Even if only one part of the system needs attention, it is often easier to remove the whole system and separate the sections on the bench.

4 To remove the system or part of the system, first jack up the front or rear of the car, and support it on axle stands. Alternatively, position the car over an inspection pit, or on car ramps.

Front pipe

5 Undo the nuts securing the front pipe flange joint to the manifold, and the single bolt securing the front pipe to its mounting bracket. Separate the flange joint, and collect the gasket.

6 Slacken and remove the two nuts securing the front pipe flange joint to the intermediate pipe, and recover the spring cups and springs. Remove the bolts, then withdraw the front pipe from underneath the vehicle, and recover the wire-mesh gasket.

Intermediate pipe

7 Undo the two nuts securing the front pipe flange joint to the intermediate pipe. Recover the springs and spring cups, and withdraw the bolts.

8 Slacken the intermediate pipe-to-tailpipe clamping ring bolts, and disengage the clamp from the flange joint.

9 Free the intermediate pipe from its mounting rubbers, withdraw it from

underneath the vehicle, and recover the wire-mesh gasket from the front pipe joint.

Tailpipe

10 Slacken the intermediate pipe-to-tailpipe clamping ring bolts, and disengage the clamp from the flange joint.

11 Unhook the tailpipe from its mounting rubbers, and remove it from the vehicle.

Complete system

12 Undo the nuts securing the front pipe flange joint to the manifold, and the single bolt securing the front pipe to its mounting bracket. Separate the flange joint, and collect the gasket. Free the system from all its mounting rubbers, and lower it from under the vehicle.

Heat shield(s)

13 The heat shields are secured to the underside of the body by various nuts and bolts. Each shield can be removed once the relevant exhaust section has been removed. If a shield is being removed to gain access to a component located behind it, it may prove sufficient in some cases to remove the retaining nuts and/or bolts, and simply lower the shield, without disturbing the exhaust system.

Refitting

14 Each section is refitted by reversing the removal sequence, noting the following points:

- (a) Ensure that all traces of corrosion have been removed from the flanges, and renew all necessary gaskets.
- (b) Inspect the rubber mountings for signs of damage or deterioration, and renew as necessary.
- (c) Prior to assembling the front pipe-to-intermediate pipe joint, a smear of high-temperature grease should be applied to the joint mating surfaces. Citroen recommend the use of Gripcott AF G2 grease (available from your Citroen dealer).
- (d) In the case of the intermediate pipe-to-tailpipe joint, apply a smear of exhaust system jointing paste to the flange joint, to ensure a gas-tight seal. Tighten the clamping ring nuts evenly and progressively to the specified torque setting, so that the clearance between the clamp halves is equal on either side.
- (e) Prior to tightening the exhaust system fasteners, ensure that all rubber mountings are correctly located, and that there is adequate clearance between the exhaust system and vehicle underbody.