

FUEL SYSTEM

*For later models
refer to supplement.*

SPECIFICATIONS

CARBURETTOR

Make	Hitachi
Type	Twin throat, downdraught
Models:	
1600 cc engine	DCJ 306-22
1800 cc OHV engine	DCP 306-51A, DCJ 306-22, DCM 306-3, DCM 306-8, DCX 328-501, DCX 328-502, DCX 328-503, DCX 328-504, DCX 328-505, DCX 328-506, DCX 328-507, DCX 328-508
1800 cc OHC engine	DCX 328-551, DCX 328-552, DCZ 328-551, DCZ 328-552 DCZ 328-561, DCZ 328-562
Choke operation:	
1600 cc engine models	Automatic
1800 cc OHV engine models	—
DCJ 306-22, DCP 306-51A	Automatic
All other carburettor models	Manual
1800 cc OHC engine models	—
DCX 328-551, DCX 328-552	Manual
DCZ 328-551, DCZ 328-552	—
DCZ 328-561, DCZ 328-562	Automatic
Secondary throttle operation:	
1600 cc engine	Counter weight
1800 cc OHV engine	—
DCJ 306-22	Counter weight
All other carburettor models	Vacuum diaphragm
1800 cc OHC engine	Vacuum diaphragm
*Float level:	
DCJ 306-22, DCP 306-51A	—
DCM 306-3, DCM 306-8	10.5 mm
DCZ 328-561, DCZ 328-562	12.3–13.3 mm
All other carburettor models	11.5–12.5 mm
*Needle valve clearance:	
DCJ 306-22, DCP 306-51A	—
DCM 306-3, DCM 306-8	1.3–1.7 mm
All other carburettor models	1.5–1.9 mm
Float drop DCX 328-551,	—
DCX 328-552, DCZ 328-551,	—
DCZ 328-552, DCZ 328-561,	—
DCZ 328-562 models only	46–48 mm
*Throttle interlock adjustment clearance:	
DCJ 306-22, DCP 306-51A,	—
DCM 306-3, DCM 306-8	6.0 mm
DCZ 328-551, DCZ 328-552,	—
DCZ 328-561, DCZ 328-562	6.89 mm
All other carburettor models	6.4 mm
*Fast idle clearance:	
1979–1982 models	—
DCJ 306-22, DCP 306-51A	1.05 mm
DCM 306-3, DCM 306-8	1.42 mm
1983 model	—
DCX 328-501, DCX 328-502,	—

DCX 328-503, DCX 328-504,	—
DCX 328-505, DCX 328-506	1.54 mm
1984 and later Utility models	—
DCX 328-502, DCX 328-503,	—
DCX 328-504, DCX 328-506,	—
DCX 328-507, DZX 328-508	1.65 mm
1985 Sedan and	—
Station Wagon models	—
DCX 328-551, DCX 328-552	1.65 mm
1986 Sedan and	—
Station Wagon models	—
DCZ 328-551	1.34 mm
DCZ 328-552	1.45 mm
1987 Sedan and	—
Station Wagon models	—
DCZ 328-561	1.45 mm
DCZ 328-562	1.34 mm

*Choke unloader clearance:

DCJ 306-22, DCP 306-51A	1.7 mm
DCX 328-551, DCX 328-552	2.0 mm
DCZ 328-551, DCZ 328-552	—

DCZ 328-561, DCZ 328-562	2.27 mm
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*Refer to the heading **Adjustments** in the text for more information on these components.

FUEL PUMP

Type:	
1979–1983 models	Electromagnetic diaphragm type
1984–1987 models	Electromagnetic plunger type

Delivery pressure:

1979–1982 models	12.4–17.9 kPa
1983–1984 models	—
Utility	9.0–13.8 kPa
All other	12.4–17.9 kPa

1985–1987 models	17.9–22.8 kPa
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*Delivery volume:

1979–1984 models	25 l/hour
1985–1987 models	38 l/hour

*The fuel pump must be removed from the vehicle for this test.

FUEL FILTER

Type	Disposable, inline
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1. FUEL SYSTEM TROUBLE SHOOTING

ENGINE WILL NOT START

(1) Lack of fuel in float chamber: Check for fuel pump delivery, sticking needle valve or blocked fuel filter.

(2) Engine flooded with fuel when cold, by excessive use of throttle pedal: Hold throttle pedal flat until engine starts and revise starting procedure.

(3) Engine flooded when hot as in (2) above:



Check for fuel flow at the carburetor supply line.

Hold throttle pedal flat until engine starts. Also check that the automatic choke, if fitted, is fully open.

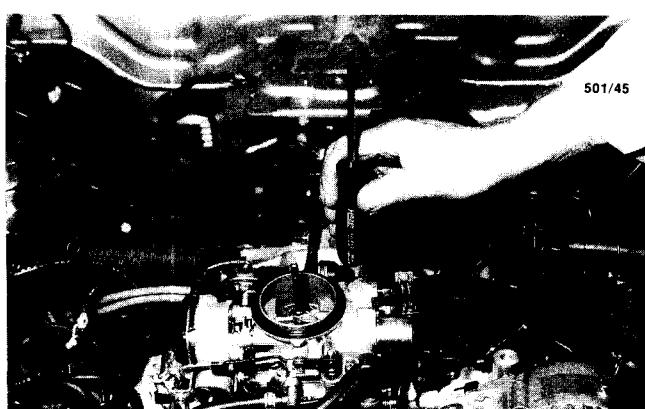
(4) Bowl vent valve, if fitted, malfunctioning: Test bowl vent valve as described later in this section and renew if necessary.

NOTE: On 1979-1984 models, check for a lack of fuel in the float chamber by removing the air cleaner assembly and inspecting the sight glass. A sticking needle valve may sometimes be freed by tapping lightly around the vicinity of the needle valve with a screwdriver handle or similar tool. Check for faulty fuel delivery by disconnecting the fuel supply line at the carburettor and cranking the engine. Engine flooding is indicated by a heavy petrol smell and fuel leaks at the throttle shaft.

ENGINE STALLS AT IDLE SPEED

(1) Choke system faulty: Refer to the heading Adjustments and check the choke operation and fast idle adjustment, if applicable.

(2) Incorrect idle speed or mixture control screw adjustment: Check and adjust control screws.



Float bowl flooding can sometimes be rectified by tapping in the vicinity of the needle valve and seat.



Check for discharge of fuel at the accelerator pump discharge nozzle.

(3) Carburettor float chamber flooding: Check for sticking needle valve or faulty float. Clean and blow out carburettor.

(4) Carburettor starved of fuel: Check for fuel delivery at needle valve. Clean and blow out carburettor. Check fuel pump and fuel filter.

(5) Blocked slow jet or air bleed: Clean and blow out the carburettor.

(6) Carburettor to inlet manifold nuts loose: Tighten the nuts and check for air leaks.

(7) Leaking carburettor or inlet manifold gaskets: Check and renew faulty gaskets.

(8) Inoperative idle cut solenoid: Check solenoid, electrical connections, and fuses.

NOTE: Check this condition by a process of elimination in the fault order given. Only remove and dismantle the carburettor as a last resort. Air leaks at the manifold can be checked by running engine oil around the suspect joints whilst the engine is running.

FLAT SPOT ON ACCELERATION

(1) Blocked accelerator pump discharge nozzle or sticking check valve: Clean and blow out carburettor as described under the appropriate heading.

(2) Faulty accelerator pump linkage: Check and repair pump linkage.

NOTE: Check the pump circuit by removing the air cleaner and actuating the throttle linkage by hand. A squirt of fuel should be seen in the carburettor throttle bore. On unleaded petrol models do not squirt excessive amounts of fuel into the inlet manifold because raw fuel can damage the catalytic convertor.

ENGINE MISFIRES OR CUTS OUT AT HIGH SPEED

(1) Obstruction in main power jets: Dismantle carburettor and blow out jets.

(2) Low fuel level in float chamber or float chamber starved of fuel: Check float level settings, check fuel pump suction and delivery hoses.

(3) Failure of fuel pump to deliver sufficient fuel: Renew the fuel pump.

(4) Blockage or restrictions in fuel lines: Disconnect and blow out fuel lines: Visually check for kinking of rubber hoses. Renew parts as necessary.

(5) Evaporative control system malfunctioning: Blow out the lines and check the charcoal canister as described in the Emission Control section.

(6) Restrictions in the inline or needle valve fuel filters: Renew the inline filter or clean the needle valve filter.

(7) Air leak between fuel pump and tank: Rectify air leak.

(8) Air leak between carburettor main body assemblies: Check and renew gaskets and tighten securing screws.

(9) Water in carburettor: Drain and clean fuel system.

NOTE: Check possible faults by process of elimination in fault order given. Check the fuel pump delivery pressure as outlined under the heading Fuel Pump. Check for water in the float chamber and low float level by removing the top cover. Carburettor removal and dismantling procedure is fully outlined in this section.

EXCESSIVE FUEL CONSUMPTION

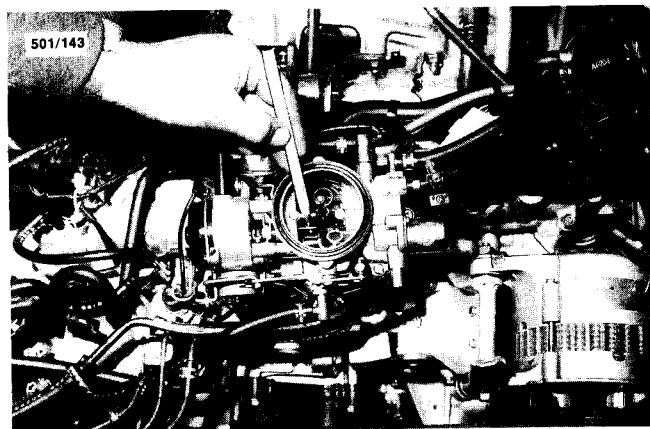
(1) Fuel level too high: Check and adjust fuel level.

(2) Choke valve partially closed: Check and rectify choke operation.

(3) Air cleaner element dirty or damaged: Renew the air cleaner element.

(4) Leaks between fuel pump and carburettor: Check and rectify leaks.

(5) Worn or damaged main jets: Check and renew faulty components.



When the engine is at operating temperature, the choke valve should be fully open.

(6) Excessive use of accelerator pump: Revise driving habits.

(7) Automatic choke incorrectly set, if applicable: Check and adjust operation of automatic choke if necessary.

NOTE: Most common causes for excessive fuel consumption are a blocked air cleaner element, which can be removed and checked visually, and external fuel leakage from system components which can also be checked visually. Choke setting and operation of the choke should also be held suspect as a likely trouble source.

2. AIR CLEANER

DESCRIPTION

The air cleaner assemblies for all models are basically of the same design. The air cleaner assembly consists of a main body, a top cover, a paper type element and, on 1985-1987 Sedan and Station Wagon models, a snorkle assembly.

On 1979-1985 models, hot air to the air cleaner is controlled by a manual control valve. On 1986-1987 models, hot air to the air cleaner is controlled by a vacuum motor and thermostatic valve. Some models are equipped with hot idle compensators to reduce emissions and improve performance when engine compartment temperatures are high. 1986-1987 models are equipped with a small flapper valve at one end of the air cleaner for the positive crankcase ventilation (PCV) circuit.

TO REMOVE AND INSTAL

(1) Remove the bolts retaining the air cleaner body to the air cleaner brackets.

(2) Disconnect the snorkle from the air cleaner main body, if applicable.

(3) Remove the centre wing nut retaining the top cover to the main body.

(4) Disconnect all hoses to the air cleaner.

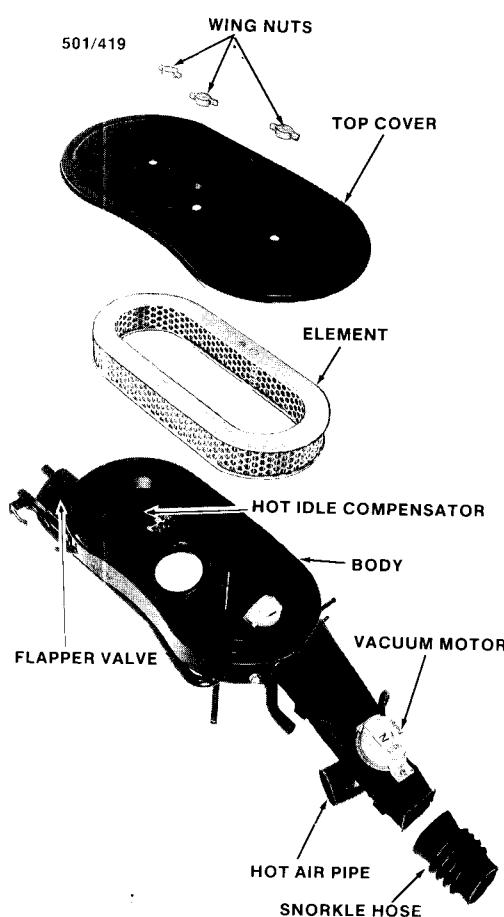
NOTE: Suitably mark the location of all hoses installed to the air cleaner to aid assembly.

(5) Disconnect the hot air pipe and lift the air cleaner assembly from the carburettor.

Installation is a reversal of the removal procedure with attention to the following points:

(1) Ensure that the sealing gasket on the carburettor is in good condition. Renew the gasket if necessary.

(2) Ensure that all hoses are connected to the air cleaner correctly. If doubt exists to the correct installed position of a hose refer to the schematic hose layouts in the Emission Control section.



Dismantled view of the air cleaner assembly, 1986 model shown.

3. CARBURETTOR

DESCRIPTION

The carburettors fitted to Subaru vehicles covered in this manual are all of similar construction. Various changes have been made to the basic carburettor design to adapt to changing needs of the engine and emission control regulations.

The carburettors are split up into two separate types for easy identification purposes, these being models with a sight glass, fitted to overhead valve (OHV) engines and models without a sight glass, fitted to overhead camshaft (OHC) engines.

Carburettors fitted to both OHV and OHC engines may have either an automatic or a manual choke system.

Each carburettor has a model number stamped on the float bowl portion of the main body. These numbers have been listed along with their various engine designations in Specifications and they should be quoted when ordering gasket and overhaul kits.

As it is not practical to show illustrations of every carburettor variant available, two typical types only have been shown, that is a model fitted to OHV engines and a model fitted to OHC engines. When overhauling or adjusting a Subaru Carburettor always check the relevant Specifications to ensure that the correct procedure is being used.

All carburettors are of the twin throat down-draught type, so constructed that only the primary system is operating when the engine is running under a light load.

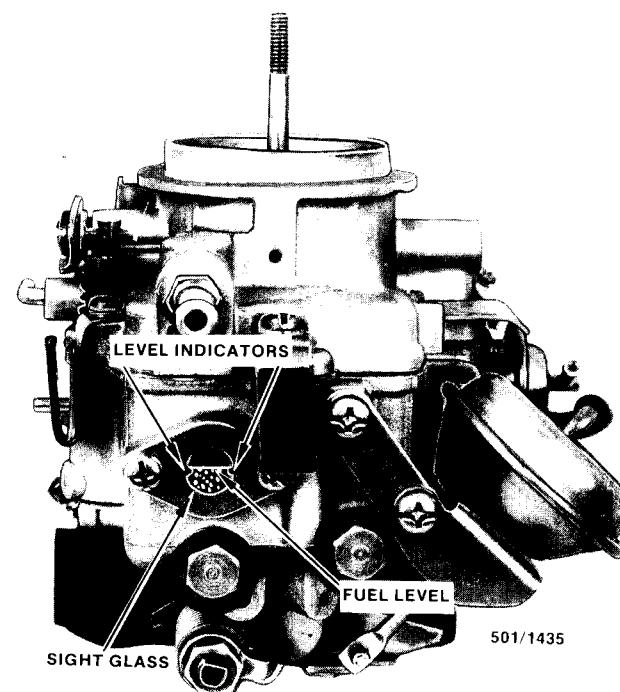
The primary system also provides an adequate mixture for starting when the choke is closed, and is directly activated by the throttle cable.

The secondary system is mostly operated by a vacuum diaphragm however, some early model carburettors use a counterweight.

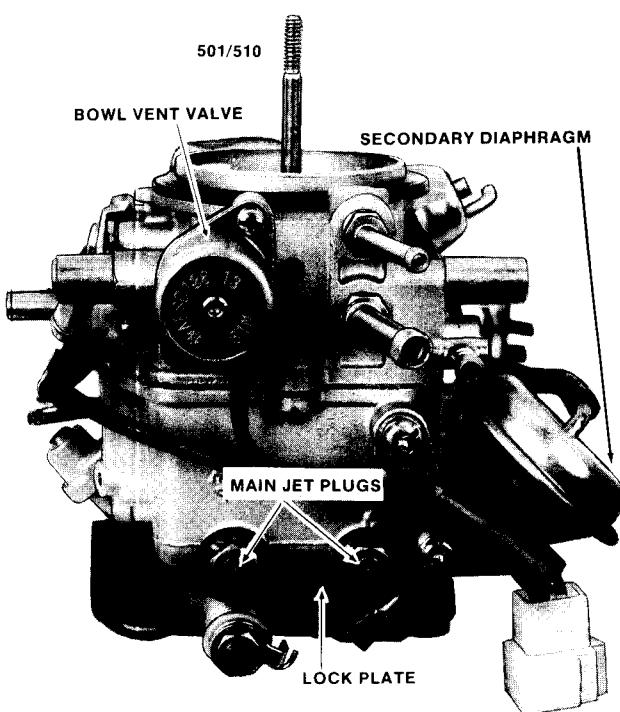
The secondary throttle valve is kept shut by an interlock mechanism until the primary throttle valve opens 47-50 degrees, depending on model, thereby unlocking the mechanism permitting either venturi vacuum or the counterweight to open the secondary throttle.

An idle cut-off solenoid valve, operated by the ignition switch, provides an instant fuel cut-off when the engine is switched off to prevent the engine 'running on'.

A mechanically operated accelerator pump provides extra fuel during acceleration by means of a plunger, to prevent flat spots during acceleration.



Side view of the OHV engine carburettor showing the sight glass and fuel level indicators. DCX 328 501 carburettor shown.



Side view of the OHC engine type carburettor, DCZ 328 551 carburettor shown.

A bowl vent valve has been included in all carburetors from 1984 to reduce the amount of petrol vapours evaporating to the atmosphere when the vehicle is parked.

The automatic choke system utilises an electrically heated bi-metal coil which can be adjusted to suit conditions.

The manual choke system on some models has a semi-automatic facility built into the choke cable which holds the choke cable where it is set until the engine reaches a predetermined temperature.

TO REMOVE AND INSTALL

Due to the different vehicle types and equipment fitted it is not practicable to describe every step when disconnecting various items such as emission control hoses or electrical wiring, therefore it may be necessary to suitably tag any items during removal which may cause confusion during the installation process. Further information regarding the particular components can be obtained by referring to the appropriate sections of the manual.

- (1) Disconnect the negative battery terminal.
- (2) Remove the air cleaner. Refer to the heading Air Cleaner, if necessary.
- (3) Drain the cooling system to a level below the inlet manifold so that coolant will not spill when the carburetor is removed. Refer to the Cooling System section, if necessary.
- (4) Loosen the throttle cable adjusting nuts sufficiently so that the cable can be manoeuvred from

its mounting bracket and disconnected from the carburettor throttle linkage.

(5) On models with a manual choke, loosen the choke cable retaining screw and disconnect the choke cable from the carburettor.

(6) Mark the fuel hose(s) with suitable quick drying paint and disconnect the fuel supply and, if fitted, the fuel return hoses from the carburettor.

(7) Disconnect the carburettor wiring connector.

(8) Suitably mark and disconnect the carburettor vacuum hoses.

(9) Remove the carburettor mounting nuts and lift the carburettor from the inlet manifold. Discard the gaskets either side of the spacer block.

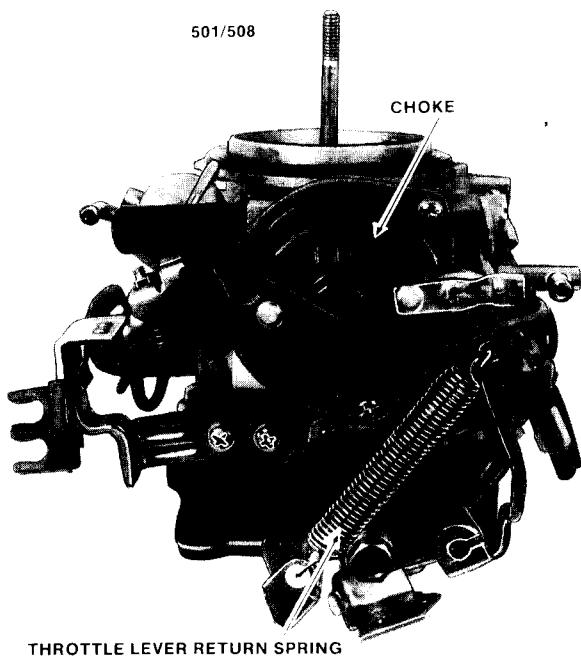
NOTE: It is always good practice to lay a piece of lint free cloth over the inlet manifold induction orifice. Extensive engine damage may be sustained if objects are accidentally dropped into the inlet manifold.

Installation is a reversal of the removal procedure with attention to the following points:

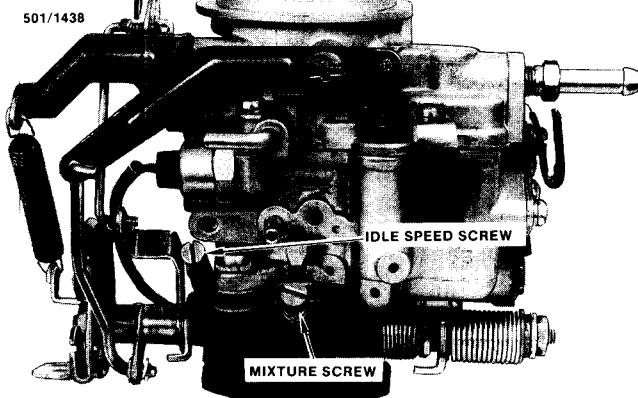
(1) Use new gaskets either side of the carburettor spacer block. If necessary carefully scrape the gasket surfaces clean, making sure that no foreign matter is dropped into the inlet manifold.

(2) Refill the cooling system as necessary.

(3) Adjust the throttle cable when the carburettor is installed ensuring that when the throttle pedal is pressed fully that the primary throttle valve is fully open. When the throttle pedal is released there should be a small amount of cable freeplay. Adjust as necessary.



Automatic choke side view of OHC engine carburetor, DCZ 328 551 carburetor shown.



Side view of the OHC engine carburettor showing idle speed screw and mixture screw, DCX 328 501 carburettor shown.

(4) On models with a manual choke ensure that when the choke knob is pulled completely out, the choke valve is fully closed and that when the choke knob is pushed completely in, the choke valve is fully open. Adjust as necessary.

(5) Check the carburettor for water, fuel and vacuum leaks and adjust the idling speed to the specified rpm after warm up. Refer to the Engine Tune-up section, if necessary.

TO SERVICE

When overhauling the carburettor several items of importance should be observed to ensure a thorough job.

(1) All components should be carefully cleaned although not all components may be cleaned with solvent, these include the diaphragm and solenoid assemblies.

(2) Use air pressure only to clean the various orifices and channels.

(3) Renew faulty components.

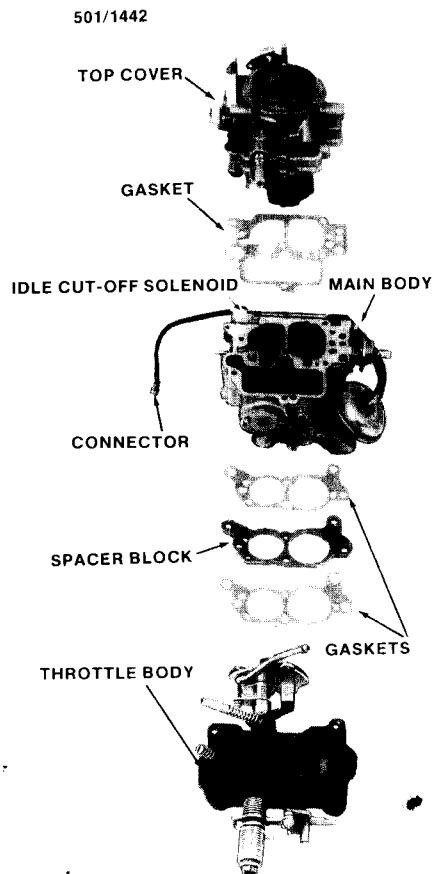
When checking components removed from the carburettor it is at times difficult to be sure whether they are satisfactory for further service. It is therefore recommended that in such cases new components be installed.

(4) Always use a new gasket kit when overhauling the carburettor.

(5) Always use the correct size screwdrivers and spanners to prevent damage to the jets and screw heads.

TO DISMANTLE

(1) Remove the carburettor from the vehicle as previously described.



Dismantled view of OHV engine carburettor, DCX 328 501 carburettor shown.

NOTE: Keep each section of the carburettor separate and as far as possible in the order of removal. This will assist in assembly.

(2) Disconnect the throttle return spring.

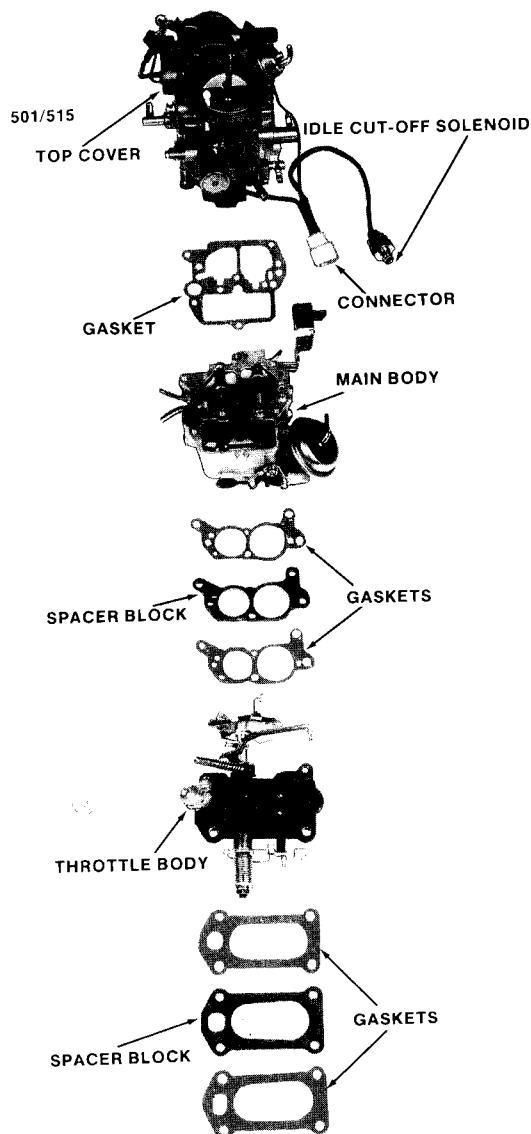
(3) Remove the accelerator pump actuating lever screw and washer. Note the installed position of the return spring, if fitted. Disconnect the actuating lever from the connecting rod. On some models a spring clip may have to be removed first.

(4) Remove the fast idle connecting rod split pin and washer and disconnect the connecting rod from the choke lever. Be careful not to lose the small spring that is fitted to some models. If necessary, the connecting rod can be disconnected from the throttle lever on some models.

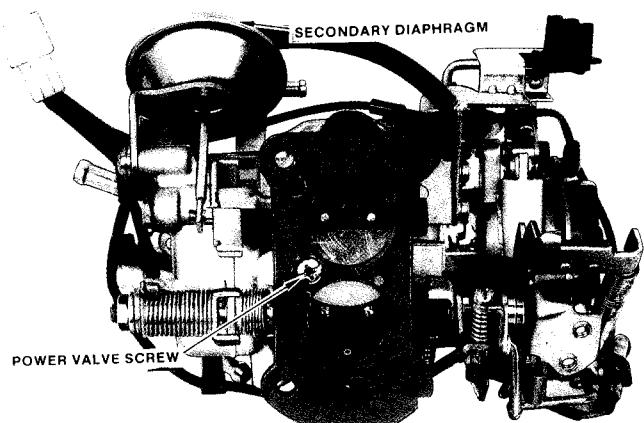
(5) Remove the top cover to main body retaining screws, noting the positions of the wiring brackets as an aid to assembly. Remove the choke cable bracket, if fitted.

NOTE: If necessary carefully use an impact screw driver to loosen the top cover retaining screws.

(6) Lift the top cover from the main body and discard the gasket.



Dismantled view of OHC engine carburettor, DCZ 328 551 carburettor shown.



Underside view of OHC engine carburettor showing the power valve screw, DCZ 328 551 carburettor shown.

(7) Remove the accelerator pump check ball, spring and weight from the main body.

(8) If necessary remove the idle cut-off solenoid from the main body. Some models do not have a separate connector for the idle cut-off solenoid so it will be necessary to loosen the solenoid gradually while turning the top cover to prevent the wiring becoming excessively twisted. Remove the idle cut-off solenoid plunger and spring from the main body.

(9) Disconnect the vacuum hose from the secondary throttle vacuum unit.

(10) If applicable, remove the snap ring and disconnect the secondary throttle vacuum unit link from the secondary throttle lever.

(11) Turn the carburettor upside down, note the position and remove the power valve screw and washer from the throttle body. Do not damage the vacuum passage in this screw.

(12) With the carburettor the right way up, remove the screws retaining the main body to the throttle body.

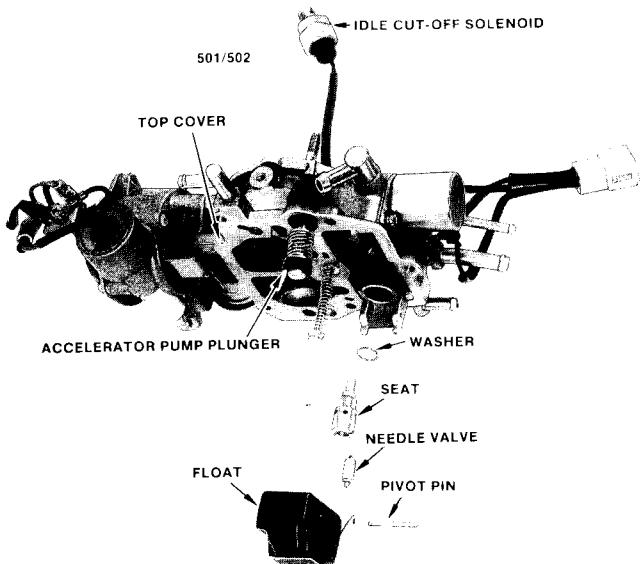
(13) Separate the main body from the throttle body. Discard the gaskets either side of the spacer block.

(14) The carburettor is now dismantled into its three major sub assemblies, these being the top cover, the main body and the throttle body.

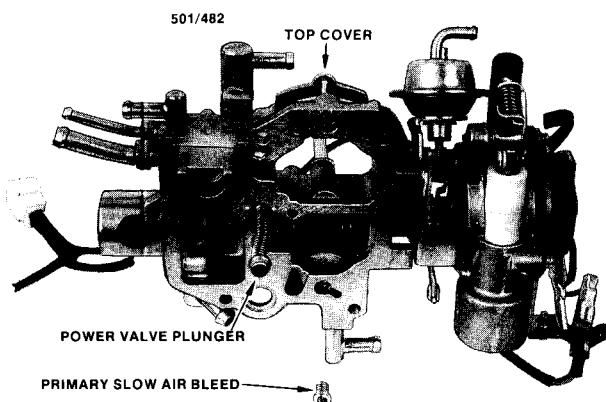
Proceed as necessary in dismantling by referring to the individual following service procedures.

TO SERVICE TOP COVER

(1) Remove the accelerator pump plunger and the dust boot from the top cover. Inspect the plunger for wear and damage and renew the plunger assembly where necessary.



View of the float and the needle and seat removed from the OHC engine top cover, DCZ 328 551 carburettor shown.



Primary slow air bleed removed from OHC engine top cover, DCZ 328 551 carburettor shown.

(2) Remove the float pivot pin, and withdraw the float and needle valve.

(3) Remove the needle valve seat assembly using a screwdriver and clean out the filter with compressed air. Be careful not to lose the washer.

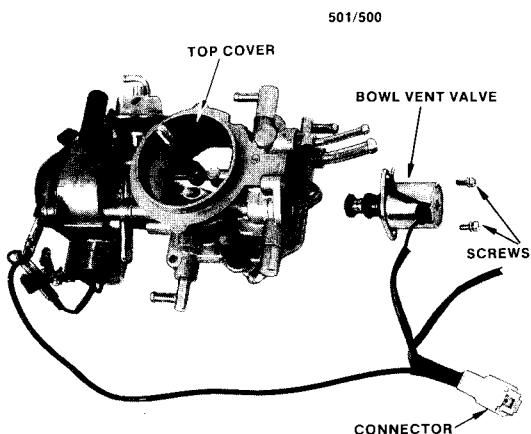
(4) Remove the spring clip retaining the needle to the float and inspect the sealing surface of the needle and seat for any signs of wear, scoring or pitting. Renew the needle and seat as an assembly if necessary.

(5) Check the float for signs of obvious damage. Renew the float, where necessary.

(6) Using a suitable screwdriver remove the primary slow air bleed.

(7) If applicable remove the bowl vent valve retaining screws and remove the bowl vent valve. Discard the 'O' rings.

NOTE: The bowl vent valve can be tested using jumper leads by connecting the power wire of the valve to the positive terminal of a 12 volt battery and the negative wire of the valve to the negative terminal of the same battery. The plunger should move freely. Replace the bowl vent valve, if necessary.



Bowl vent valve removed from OHC engine top cover, DCZ 328 551 carburettor shown.

(8) Thoroughly clean the top cover in a suitable solvent.

(9) Instal the needle valve seat using a new seat washer. Clip the needle valve and clip assembly onto the float.

(10) Instal the float and needle valve assembly to the top cover and insert the float pivot pin. Check and if necessary adjust the float level as described later in this section.

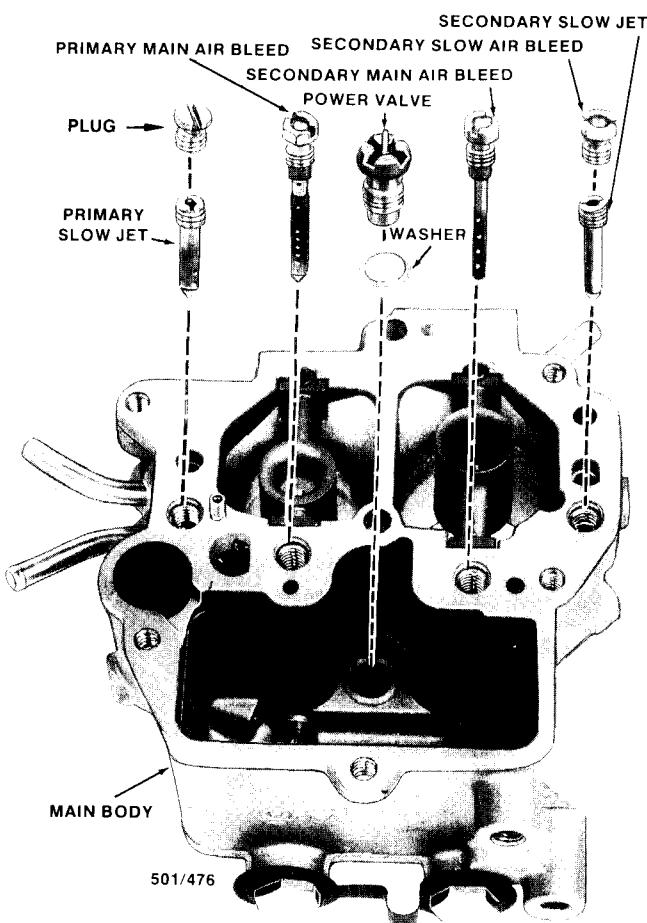
(11) Instal the accelerator pump plunger and the dust boot to the top cover.

NOTE: Do not remove the power valve piston or the choke valve from the top cover. If they are excessively worn or damaged, the top cover assembly should be renewed. Any binding or sticking linkages should be freed to ensure correct operation.

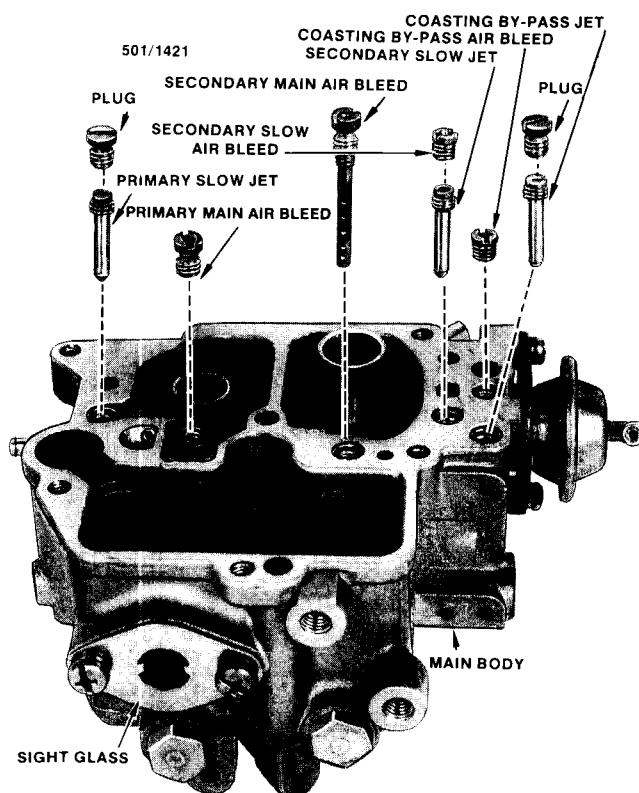
TO SERVICE MAIN BODY

(1) Using suitable screwdrivers, remove the primary and secondary main air bleeds from the main body.

(2) Remove the plug and the primary slow jet from the installed position beside the primary barrel.



View of the jets removed from OHC engine main body, DCZ 328 551 carburettor shown.

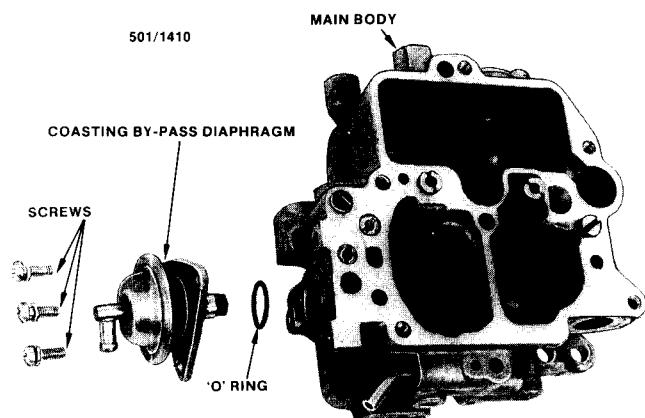


View of the jets removed from OHV engine main body, DCX 328 501 carburetor shown.

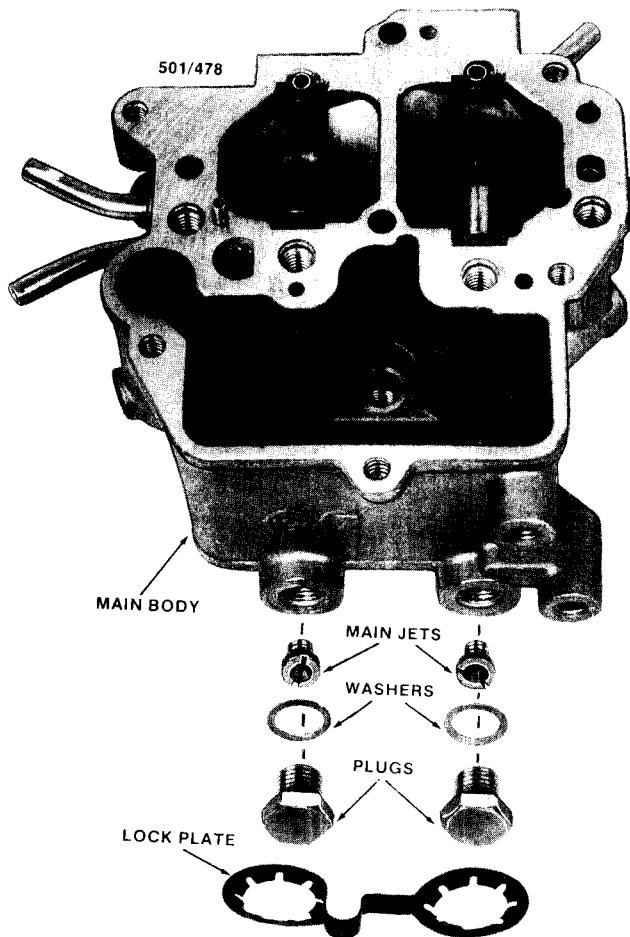
(3) Remove the secondary slow jet air bleed and jet from the installed position beside the secondary barrel.

(4) If applicable, remove the coasting by-pass plug, jet and air bleed from their installed positions adjacent to the coasting by-pass diaphragm. Remove the screws and remove the coasting by pass diaphragm. Discard the 'O' ring.

(5) Prise off the lock plate, if applicable and remove the primary and secondary main jet plugs and washers. Remove the main jets.



View of the coasting by-pass diaphragm removed from the OHV engine main body, DCX 328 501 carburetor shown.



Main jets removed from OHC engine main body, DCZ 328 551 carburetor shown.

NOTE: The jets in the primary and secondary circuits must not be interchanged or poor performance and/or economy will result.

(6) Remove the power valve and sealing washer from the float chamber.

(7) Remove the secondary throttle diaphragm assembly.

(8) If not previously removed, remove the idle cut-off solenoid and sealing washer from the main body.

(9) Using a 12 volt battery check the operation of the idle cut off solenoid by holding the body of the solenoid to the negative (−) battery post and connecting the wire to the positive (+) post. The plunger should now be pulled in. If necessary, renew the solenoid.

(10) Clean each jet thoroughly in a suitable solvent and blow out with compressed air. Do not clean out any jet with wire or a drill bit as damage could result.

(11) Thoroughly clean the main body in a suitable solvent and blow dry with compressed air.

(12) Using a hand vacuum pump or similar equipment, test the secondary throttle diaphragm assembly, if fitted, to ensure that it is not seized or damaged. Renew the secondary throttle diaphragm if necessary.

(13) Using feeler gauges and a straight edge check the top and the bottom surfaces of the main body for distortion. Where distortion is excessive the main body should be renewed.

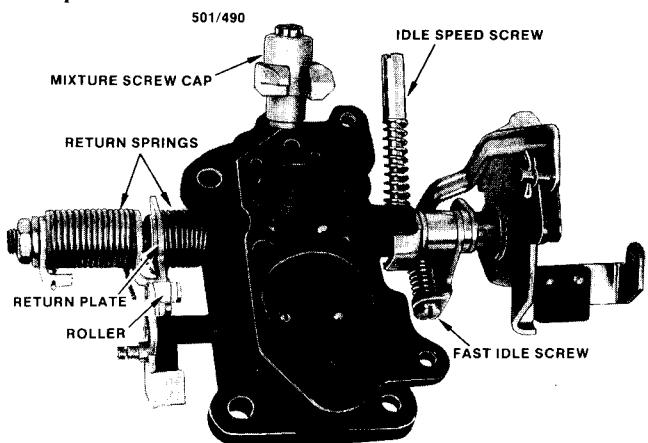
(14) Renew any jet which is obviously worn and instal the jets to their respective positions using new gaskets where necessary.

Assembly is a reversal of the dismantling procedure.

TO SERVICE THROTTLE BODY

Due to the close tolerance used by the manufacturer it would be impossible to reproduce the fit of the valve shafts in the throttle body. For this reason if any damage or wear is apparent in the throttle valves or shafts the complete throttle body should be renewed.

Servicing of the throttle body consists of cleaning the body in a suitable solvent and blowing dry with compressed air.



View of the OHC engine throttle body, DCZ 328-551 carburettor shown.

The primary and secondary throttle return springs should be checked to ensure that they are not damaged or broken. Renew the springs if necessary.

The mixture screw should not be removed or adjusted as this will disturb the idle mixture which is set to comply with the emission control regulations. The external levers and linkages should be checked for ease of movement and any sticking of the linkage should be rectified.

TO ASSEMBLE

Assembly is a reversal of the dismantling procedure with attention to the following points:

(1) Using new gaskets either side of the spacer block, assemble the throttle body to the main body

and securely tighten the retaining screws. Ensure that the hollow power valve screw is installed in its original position as noted on dismantling.

(2) Ensure that the accelerator pump weight, ball and spring are correctly installed and instal a new top cover gasket.

NOTE: The accelerator pump spring has a close wound end which must push on the accelerator pump ball.

(3) Instal the idle cut-off plunger, spring and solenoid using a new sealing washer. Ensure that the idle cut-off solenoid wire is not twisted.

(4) Assemble the top cover to the main body, correctly position the brackets, instal and securely tighten the retaining screws.

(5) Instal the accelerator pump actuating lever screw and washers and if applicable, the return spring and the spring clip.

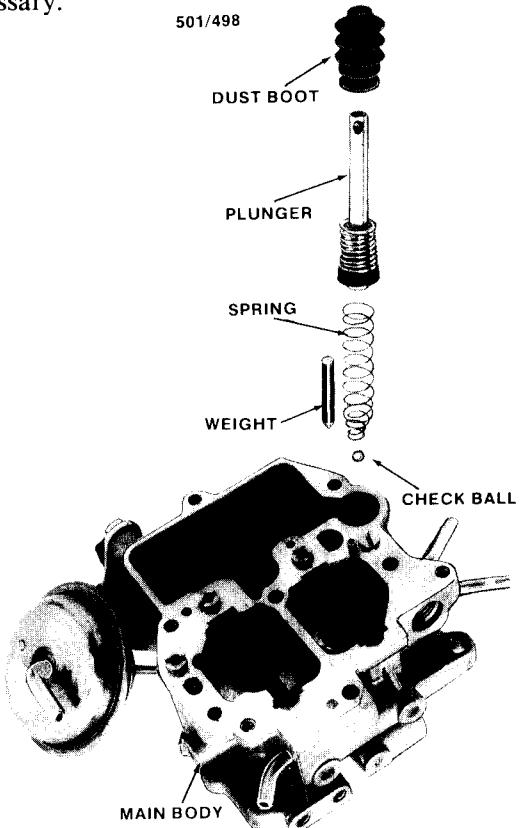
(6) Instal the washer and a new split pin in the fast idle connecting rod to retain it to the choke lever.

(7) Connect the throttle return spring.

(8) Check the operation of all linkages and adjust if necessary before installing the carburettor.

(9) Instal the carburettor to the engine, as previously described.

(10) Start the engine and check the choke operation. Check for any fuel leaks. Rectify leaks as necessary.



Dismantled view of OHC engine accelerator pump components, DCZ 328 551 carburettor shown.

ADJUSTMENTS

Refer to the Engine Tune-up section for the correct procedure to adjust the idle speed and mixture settings.

TO ADJUST FLOAT LEVEL

(1) With the top cover removed from the carburettor, invert the top cover and allow the float seat tab to just rest against the needle valve stem by holding it lightly with a finger.

NOTE: Do not allow the weight of the float to compress the spring loaded needle valve stem or false float level will be obtained.

(2) Ensuring that the top cover gasket is removed measure the distance from the upper edge of the float to the carburettor top cover gasket face and compare this figure with Specifications. If adjustment is required, bend the float seat tab gently with a pair of long nosed pliers until the desired measurement is obtained.

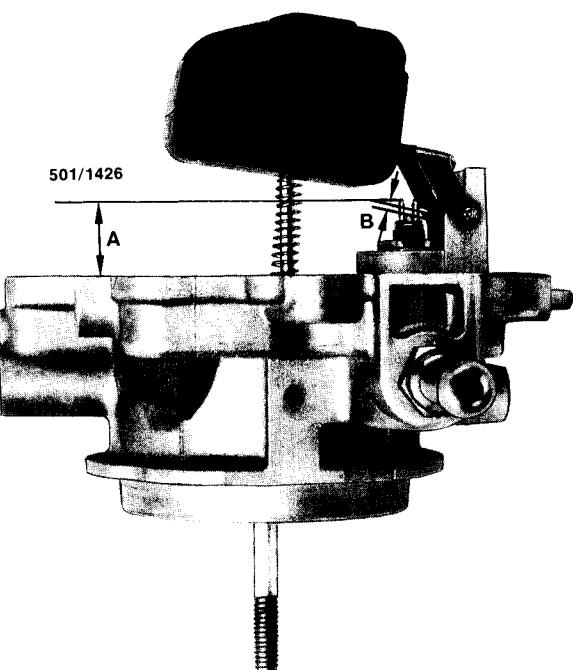
(3) Remove the spring clip retaining the needle valve stem to the float.

(4) With the top cover still inverted raise the float with the fingers until the float stopper tab contacts its stop.

(5) Measure the distance between the needle valve stem and the float seat tab, refer to Specifications for the correct needle valve clearance.

If adjustment is required, gently bend the float stopper tab with a pair of long nosed pliers until the desired measurement is obtained.

(6) Instal the spring clip retaining the needle valve stem to the float.



Dimensions for checking OHV engine float level (A) and needle valve clearance (B), DCX 328 501 carburettor shown.

(7) Measure the float drop clearance, if required, using the following procedure:

(a) With the top cover still inverted raise the float with the fingers again until the float stopper contacts its stop.

(b) Measure the distance from the lower edge of the float to the carburettor top cover gasket face and compare this figure with Specifications.

(c) If adjustment is required gently bend the float stopper tab with a pair of long nosed pliers until the desired measurement is obtained.

NOTE: Only a small adjustment, if any, in step (c) should be needed. If a large adjustment is required the float lever is bent. Straighten the lever and start at step (1) again.

To Adjust Throttle Interlock

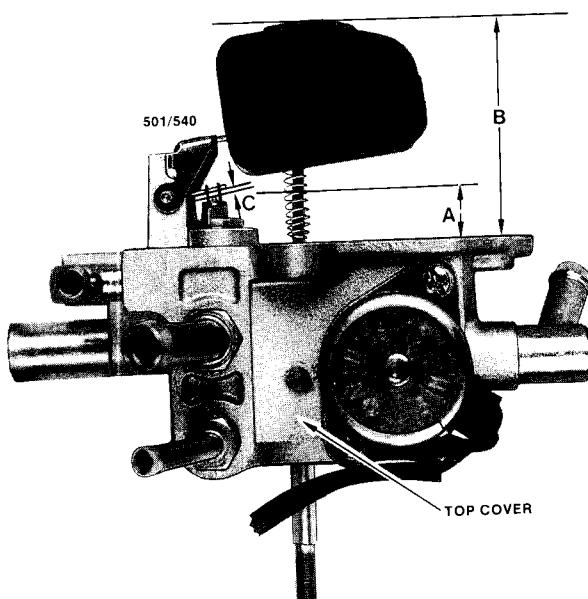
(1) With the carburettor removed from the vehicle hold the secondary throttle valve in the fully closed position.

(2) Slowly open the primary throttle valve until the return plate is just about to move away from the secondary throttle lever roller.

(3) At this point the specified clearance should exist between the edge of the throttle valve and the inner wall of the primary throttle bore. This is easily measured by using a drill or gap gauge.

(4) To adjust bend the lug on the lever that operates the return plate.

(5) Instal the carburettor as previously described.



Dimensions for checking OHC engine float level (A), float drop (B) and needle clearance (C), DCZ 328 551 carburettor shown.

To Adjust Fast Idle Speed

(1) With the carburettor removed from the vehicle hold the choke valve closed. Open the throttle lever fully and allow it to close. The throttle valve will lock just before it closes fully.

(2) At this point the specified clearance should exist between the edge of the throttle valve and the inner wall of the primary throttle bore. This is easily measured by using a drill or gap gauge.

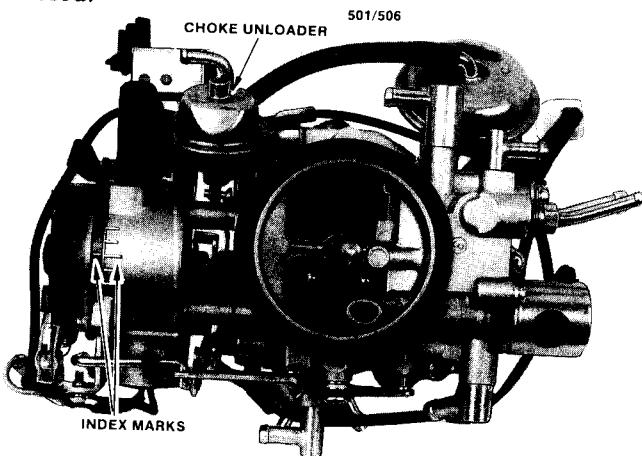
(3) To adjust turn the fast idle screw in the required direction.

(4) Instal the carburettor as previously described.

To Adjust Choke Unloader Clearance, Automatic Choke Models

(1) Remove the air cleaner as described previously and ensure the engine is cool.

(2) Close the choke valve and open and close the throttle lever. Ensure that the choke valve remains closed.



Top view of OHC engine carburettor showing the automatic choke index marks, DCZ 328 551 carburettor shown.

(3) Connect a suitable hand vacuum pump to the choke unloader diaphragm. Continue to apply vacuum pressure until the choke unloader link is drawn as far as it will go towards the diaphragm.

(4) Measure the clearance between the edge of the choke valve and the inner wall of the primary bore while holding the choke valve lightly against the unloader with a finger. This is easily measured by using a drill or gap gauge.

(5) Compare the clearance with Specifications and adjust by bending the pawl at the tip of the choke breaker link if necessary.

TO CHECK AUTOMATIC CHOKE OPERATION

(1) Allow the car to stand for a period of time so that the engine is cold.

(2) Remove the air cleaner as described previously, fully open the throttle and check that the choke valve is fully closed.

NOTE: If the choke valve does not close check the choke valve shaft for binding or seizure.

(3) Instal the air cleaner assembly, start and run the engine until it reaches normal operating temperature. Remove the air cleaner assembly and check that the choke valve is fully open.

(4) If the choke valve is not fully open, connect a voltmeter or test lamp between the choke power supply, at the partially exposed soldered connection on the automatic choke cover and suitable earth.

(5) With the ignition on and the engine stopped, there should be no voltage at the power supply. With the engine running a reading of 12 volts should be indicated on the voltmeter or the test lamp should light. If no current is evident there is a fault in the engine revolution switch, on 1986-1987 models only or the electrical harness. Check these possibilities referring to the Fuel Pump heading that follows for more information on the engine revolution switch. Renew the engine revolution switch if necessary.

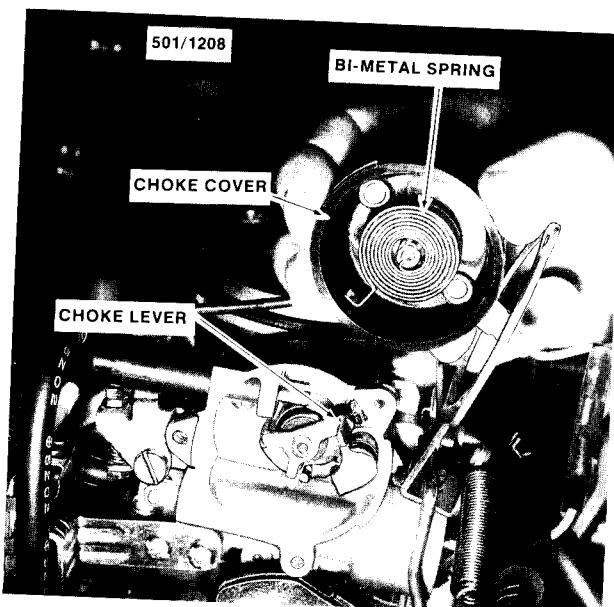
TO RENEW AUTOMATIC CHOKE COVER

(1) Remove the air cleaner assembly as described previously.

(2) Disconnect the carburettor wiring connector and using a suitable tool manoeuvre the choke wire from the connector. Disconnect the other choke cover wire from the wax element wire connector.

(3) Note the relationship of the choke cover to the choke housing index marks.

(4) Remove the screws and retaining ring attaching the choke cover and remove the choke cover from the carburettor.



Side view of OHC engine carburettor with the automatic choke cover removed, DCZ 328 551 carburettor shown.

(5) Instal a new choke cover ensuring that the bimetal spring engages with the choke lever. Reconnect the wiring connectors.

(6) Rotate the cover until the marks noted previously are aligned. The choke valve, with the engine cold, should now be closed.

(7) Instal the air cleaner assembly and road test the vehicle under cold, warm and hot engine temperatures. If necessary adjust the operation of the choke by turning the cover one way or the other.

4. ELECTROMAGNETIC PLUNGER FUEL PUMP

Special Equipment Required:

To Test Pump — Pressure gauge, suitable graduated cylinder

To Test Pump Circuit — Multimeter

DESCRIPTION

The electromagnetic plunger type fuel pump is located under the rear floor on the drivers side of 1984 to 1987 vehicles. The fuel pump is rubber mounted to a support bracket to reduce noise and vibration. The support bracket also incorporates a mounting for the fuel filter.

On 1986-1987 models the fuel pump will only run when the engine is cranking or running. This function is controlled by the engine revolution sensor mounted in the drivers side kickpanel. The engine revolution sensor also controls the power to the automatic choke. A damper is placed in the discharge line from the fuel pump on some models to reduce pulsations within the system.

The fuel pump is non adjustable and non repairable and must be renewed as a unit when found to be defective.

TO TEST PUMP

If the fuel pump is thought to be defective because of insufficient fuel supply to the carburettor, carry out the following tests before removing the fuel pump from the vehicle:

(1) Check the fuel filter and fuel lines for blockage. Ensure that there is fuel in the fuel tank.

(2) Remove the air cleaner as previously described and disconnect the fuel supply hose from the carburettor float chamber connection.

NOTE: Have an old piece of rag ready to soak up any petrol that may spill from the carburettor.

(3) Connect a suitable pressure gauge to the fuel supply hose.

(4) Start the engine and check the reading on the gauge ensuring that the system is clear of trapped air. Compare the reading on the gauge with Specifications.

NOTE: The engine will only run for a short time on the fuel that is in the float chamber.

(5) If the pressure reading is correct, stop the engine, remove the gauge and reconnect the fuel supply hose to the carburettor.

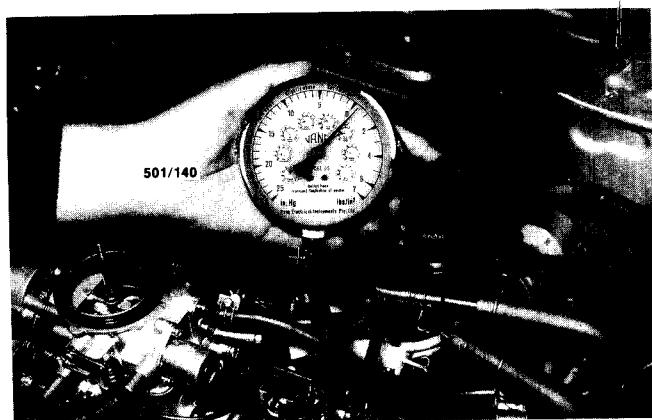
(6) If the pressure is low or the fuel pump is not working at all, test the voltage available at the fuel pump as follows:

(a) Raise the rear of the vehicle and support it on chassis stands.

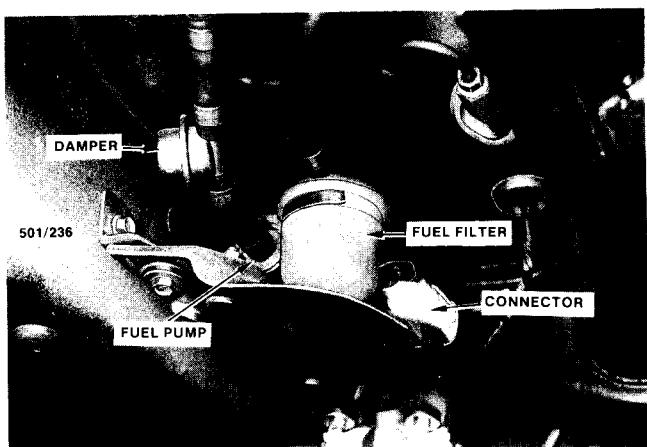
(b) Disconnect the fuel pump wiring connector from the fuel pump.

(c) Connect the leads of a suitable multimeter to the disconnected fuel pump wiring connector. Connect the negative probe of the multimeter to the terminal connected to the plain black wire and the positive probe of the multimeter to the terminal connected to the blue wire or the black wire with a white trace, depending on model.

(d) Have an assistant start the engine. The multimeter should indicate battery cranking voltage while the engine is cranking. When the engine starts, the multimeter should indicate battery voltage.



Testing fuel pump delivery pressure using a suitable gauge.



Underbody view of fuel pump and fuel filter, 1986 model shown.

NOTE: The engine will only run for a short time on the fuel that is in the float chamber.

(e) If the correct voltage is available at the fuel pump test the fuel pump delivery volume using the procedure described in step (7).

(f) If no voltage or a low voltage is present check the fuel pump wiring and retest. On 1986-1987 models check the engine revolution sensor by substituting a known serviceable unit and retest. Repair or renew the components as necessary.

(7) Test the fuel pump delivery volume using the following procedure:

(a) Remove the fuel pump from the vehicle as described under the heading To Remove and Instal.

(b) Disconnect the short hose between the fuel filter and the suction pipe of the fuel pump and connect a length of suitable hose to the suction pipe. Place the other end of this hose in a drum containing at least five litres of fuel.

NOTE: When conducting tests on the fuel pump take particular care not to ignite the fuel with sparks or hot components. Always have a suitable fire extinguisher nearby in case of a fire.

(c) Connect another length of hose to the discharge pipe of the fuel pump and place the end of this hose in a graduated cylinder of not less than 5 litre capacity.

(d) Using jumper leads connected to a 12 volt battery, connect the positive jumper lead to the terminal of the fuel pump that was previously connected to the blue wire, or the black wire with the white trace, when the pump was installed on the vehicle. Connect the negative jumper lead to the other fuel pump terminal.

(e) Allow the pump to run for exactly five minutes then disconnect the negative jumper lead from the battery.

(f) Check the amount of fuel in the graduated cylinder at the completion of this test. There should be 3.17 litres in the graduated cylinder if the fuel pump is operating correctly.

Renew the fuel pump if necessary.

TO REMOVE AND INSTAL

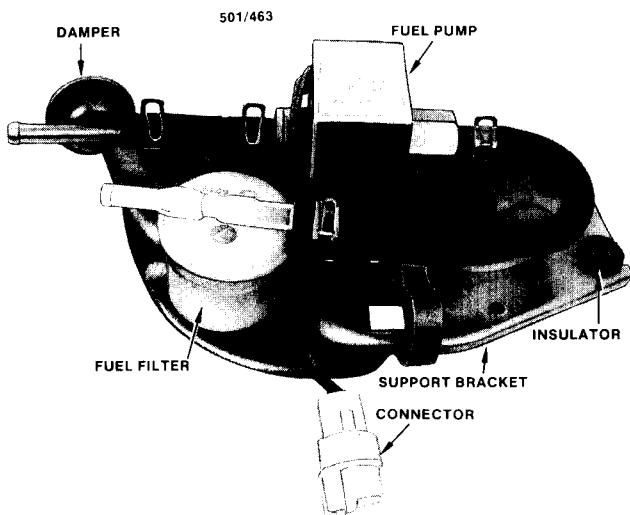
(1) Disconnect the negative battery terminal.

(2) Raise the rear of the vehicle and support it on chassis stands.

(3) Remove the bolts retaining the fuel pump support bracket to the vehicle chassis.

(4) Disconnect the fuel pump wiring connector from the fuel pump.

(5) Suitably mark and disconnect the suction hose to the fuel filter and the discharge hose from the fuel pump. Block the fuel hoses to prevent the loss of fuel and the entry of dirt.



View of the electromagnetic plunger type fuel pump and associated components.

(6) Withdraw the fuel pump and support bracket assembly from the vehicle.

(7) If necessary remove the nuts, washers and insulators securing the fuel pump to the support plate, disconnect the fuel hoses and withdraw the pump assembly.

Installation is a reversal of the removal procedure with attention to the following points:

(1) If the fuel pump was removed from its support plate ensure that the rubber insulators are in good condition before tightening the retaining nuts securely. Renew the insulators if necessary.

(2) When connecting the fuel hoses ensure that they are correctly connected. If the hoses are kinked fuel flow will be restricted.

(3) Ensure that the rubber insulators between the support plate and the chassis are in good condition before securely tightening the retaining bolts. Renew the insulators if necessary.

5. ELECTROMAGNETIC DIAPHRAGM FUEL PUMP

Special Equipment Required:

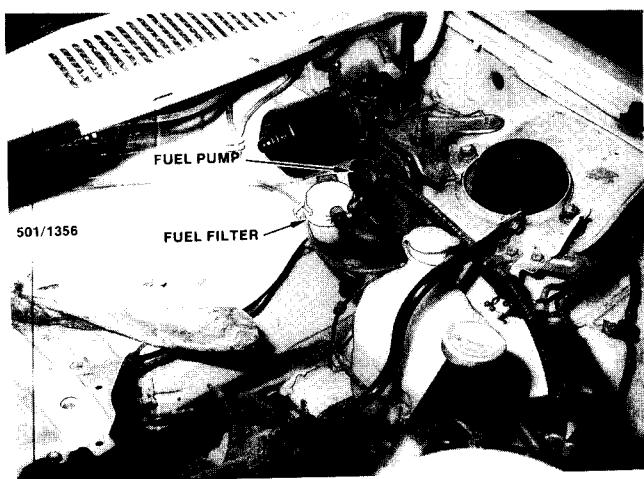
To Test Pump — Pressure gauge, suitable graduated cylinder

To Test Pump Circuit — Multimeter

DESCRIPTION

The electromagnetic diaphragm fuel pump is located in the engine compartment adjacent to the left hand suspension tower on 1979 to 1983 vehicles. The pump is rubber mounted to a support bracket to reduce noise and vibration. The fuel pump is electrically connected to the ignition switch so that it only operates when the ignition is switched on.

The fuel pump is non adjustable and non repairable and must be renewed as a unit when found to be defective.



Installed view of the diaphragm fuel pump and filter.

TO TEST PUMP

If the fuel pump is thought to be defective because of insufficient fuel supply to the carburettor, carry out the following tests before removing the fuel pump from the vehicle:

- (1) Check the fuel filter and fuel lines for blockage. Ensure that there is fuel in the fuel tank.
- (2) Remove the air cleaner as previously described and disconnect the fuel supply hose from the carburettor float chamber connection.

NOTE: Have an old piece of rag ready to soak up any petrol that may spill from the carburettor.

- (3) Connect a suitable pressure gauge to the fuel supply hose.

(4) Switch the ignition on and check the reading on the gauge ensuring that the system is clear of trapped air. Compare the reading on the gauge with Specifications.

(5) If the pressure reading is correct, switch the ignition off, remove the gauge and reconnect the fuel supply hose to the carburettor.

(6) If the pressure reading is low or the fuel pump is not working at all, test the voltage available at the fuel pump as follows:

(a) Disconnect the fuel pump wiring connector from the fuel pump.

(b) Connect the leads of a suitable multimeter to the disconnected fuel pump wiring connector. Connect the negative probe of the multimeter to the terminal connected to the plain black wire. Connect the positive probe of the multimeter to the terminal connected to the black wire with the white trace.

(c) Switch the ignition on and note the reading on the multimeter. If the multimeter indicates approximately battery voltage, test the fuel pump delivery volume using the procedure described in step (7).

(d) If the multimeter indicates less than battery voltage check the wiring to the fuel pump, the ignition

switch and all connectors. Renew or repair any components as necessary.

(7) Test the fuel pump delivery volume using the following procedure:

(a) Disconnect the fuel suction hose from the fuel pump and connect a length of suitable hose to the suction pipe. Place the other end of this hose in a drum containing at least five litres of fuel.

NOTE: The drum should be as close to the fuel pump as possible.

(b) Connect another length of hose to the discharge pipe of the fuel pump and place the end of this hose in a graduated cylinder of not less than 5 litre capacity.

NOTE: When conducting tests on the fuel pump take particular care not to ignite the fuel with sparks or hot components. Always have a suitable fire extinguisher nearby in case of a fire.

(c) Switch the ignition switch on and allow the fuel pump to run for exactly five minutes.

(d) Switch the ignition switch off and check the amount of fuel in the graduated cylinder. There should be 2.08 litres of fuel in the graduated cylinder if the fuel pump is operating correctly.

Renew the fuel pump if necessary.

TO REMOVE AND INSTAL

(1) Disconnect the negative battery terminal.

(2) Suitably mark and disconnect the suction and delivery hoses from the fuel pump. Plug the hoses to prevent the entry of dirt and the loss of fuel.

(3) Disconnect the fuel pump wiring connector from the fuel pump.

(4) Remove the bolts retaining the fuel pump support bracket to the left hand suspension tower and withdraw the fuel pump and support bracket from the engine compartment.

(5) If necessary, remove the nuts retaining the fuel pump to the support bracket and separate the fuel pump from the support bracket.

Installation is a reversal of the removal procedure with attention to the following points:

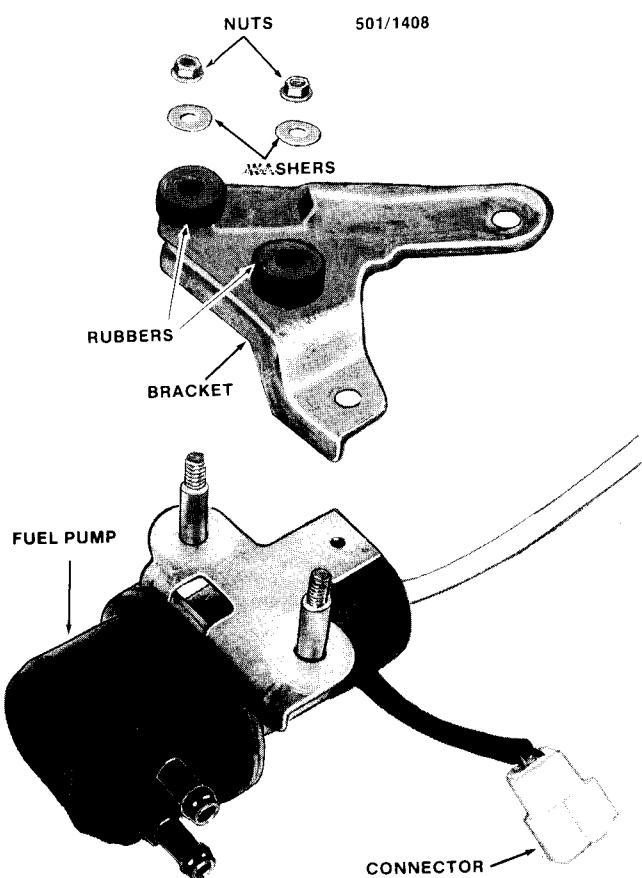
(1) If necessary, renew the fuel pump mounting rubbers and cushion rubber before installing the support bracket to the vehicle.

NOTE: If it is difficult to instal new rubbers, wet the rubbers with a solution of soap and water.

(2) Ensure that the breather tube on the fuel pump enters the body aperture.

(3) Instal the fuel pump suction and delivery hoses to the positions marked on removal.

(4) Ensure that the earth lead from the body is installed under one of the support bracket mounting bolts.



View of the diaphragm fuel pump and support bracket removed from the vehicle.

6. FUEL FILTER

The fuel filter is an inline paper element type and is installed between the fuel tank and the carburettor in the fuel delivery line. The filter is situated under the rear of the vehicle on either the left or right hand side or in the engine compartment, depending on the vehicle model. The filter should be periodically renewed as described in the Engine Tune-up section.

7. FUEL TANK

TO REMOVE AND INSTAL

- (1) Disconnect the negative battery terminal.
- (2) Raise the rear of the vehicle and support it on chassis stands. To gain access, remove the right hand side rear wheel.
- (3) Remove the fuel filler cap.
- (4) Remove the fuel tank drain plug and drain the fuel tank contents into a suitably sized container. If the vehicle is not fitted with a drain plug, siphon the contents via the fuel filler neck.

NOTE: When the fuel tank has drained instal and securely tighten the drain plug.

(5) Disconnect the fuel sender unit wiring at the connector on 1979-1984 and all Utility models.

(6) Remove the rear differential on four wheel drive models as described in the Rear Axle section.

(7) Remove the nuts and bolts retaining the fuel pipe protector to the chassis and withdraw the protector from the vehicle.

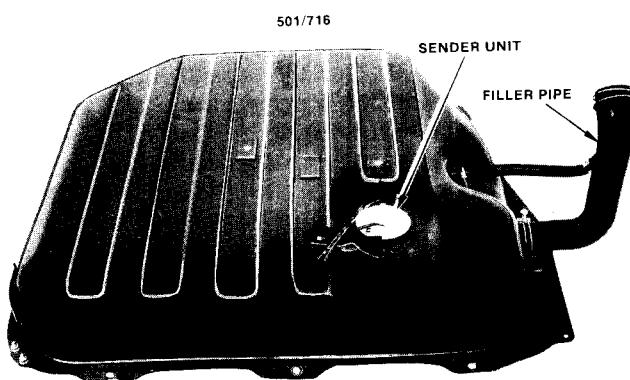
(8) Loosen the clamp and disconnect the fuel filler hose from the fuel filler pipe.

(9) Loosen the clamp and disconnect the air vent hose from either the fuel filler pipe or the air vent pipe depending on the model.

(10) Suitably mark and disconnect all accessible hoses from the fuel tank.

(11) With the aid of an assistant to support the fuel tank, remove the fuel tank mounting bolts.

(12) On 1979-1984 and all Utility models, carefully manoeuvre the fuel tank from underneath the vehicle.



Fuel tank removed from the vehicle, 1986 Station Wagon model shown.

(13) On 1985-1987 Sedan and Station Wagon models, lower the rear of the fuel tank approximately 10 cm and disconnect the fuel sender unit wiring at the connector. Suitably mark and disconnect the two evaporation hoses from the fuel tank, if applicable, and manoeuvre the fuel tank from the vehicle.

(14) If necessary, remove the nuts retaining the fuel sender unit to the fuel tank. Withdraw the fuel sender unit being careful not to bend the float rod. Discard the gasket.

Installation is a reversal of the removal procedure with attention to the following points:

(1) If the fuel sender unit was removed from the fuel tank, instal the fuel sender unit using a new gasket and tighten the retaining nuts progressively in a diagonal sequence.

(2) Instal all hoses to the fuel tank ensuring that they are correctly positioned and retained with hose clamp.

(3) Before finally tightening the fuel tank mounting bolts ensure that no hoses or electrical wires are caught between the fuel tank and the vehicle body.

8. THROTTLE CABLE

TO REMOVE AND INSTAL

(1) Working in the engine compartment, remove the air cleaner assembly as previously described.

(2) Loosen the throttle cable adjusting nuts and disconnect the outer cable from the cable support bracket.

(3) Turn the carburettor throttle lever and release the inner cable end from its slot.

(4) Working inside the passenger compartment release the inner cable from the throttle pedal using the following procedure:

(a) On 1979-1984 and all Utility models, pull the inner cable until slack exists then turn the cable end around until it can be slid from the slot in the end of the throttle pedal arm.

(b) On 1985-1987 Sedan and Station Wagon models, pull the inner cable until slack exists then prise the plastic grommet out of the hole in the end of the throttle pedal arm. Pull the cable through the now exposed slot in the throttle pedal arm.

(5) Working in the engine compartment carefully prise the outer throttle cable grommet through the bulkhead and withdraw the throttle cable from the bulkhead.

Installation is a reversal of the removal procedure with attention to the following point:

Ensure that the grommets and cable ends are correctly seated prior to adjusting the throttle cable as described later in this section.

TO ADJUST

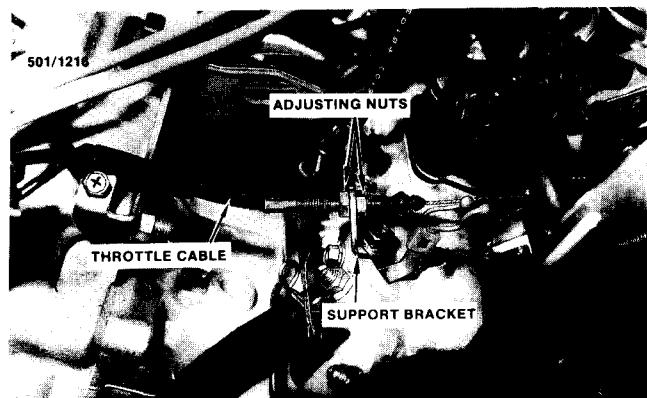
(1) Remove the air cleaner assembly from the vehicle as previously described.

(2) With the aid of an assistant, depress the throttle pedal fully and check that the primary throttle valve is opening fully.

NOTE: The secondary throttle valve may not open in this test because it is operated by either a counter weight or a vacuum diaphragm.

(3) If necessary adjust the outer cable using the adjusting nuts provided.

(4) Release the throttle pedal. When correctly adjusted there should be some free play at the throttle pedal.



View showing the throttle cable adjusting nuts, 1986 model shown.