

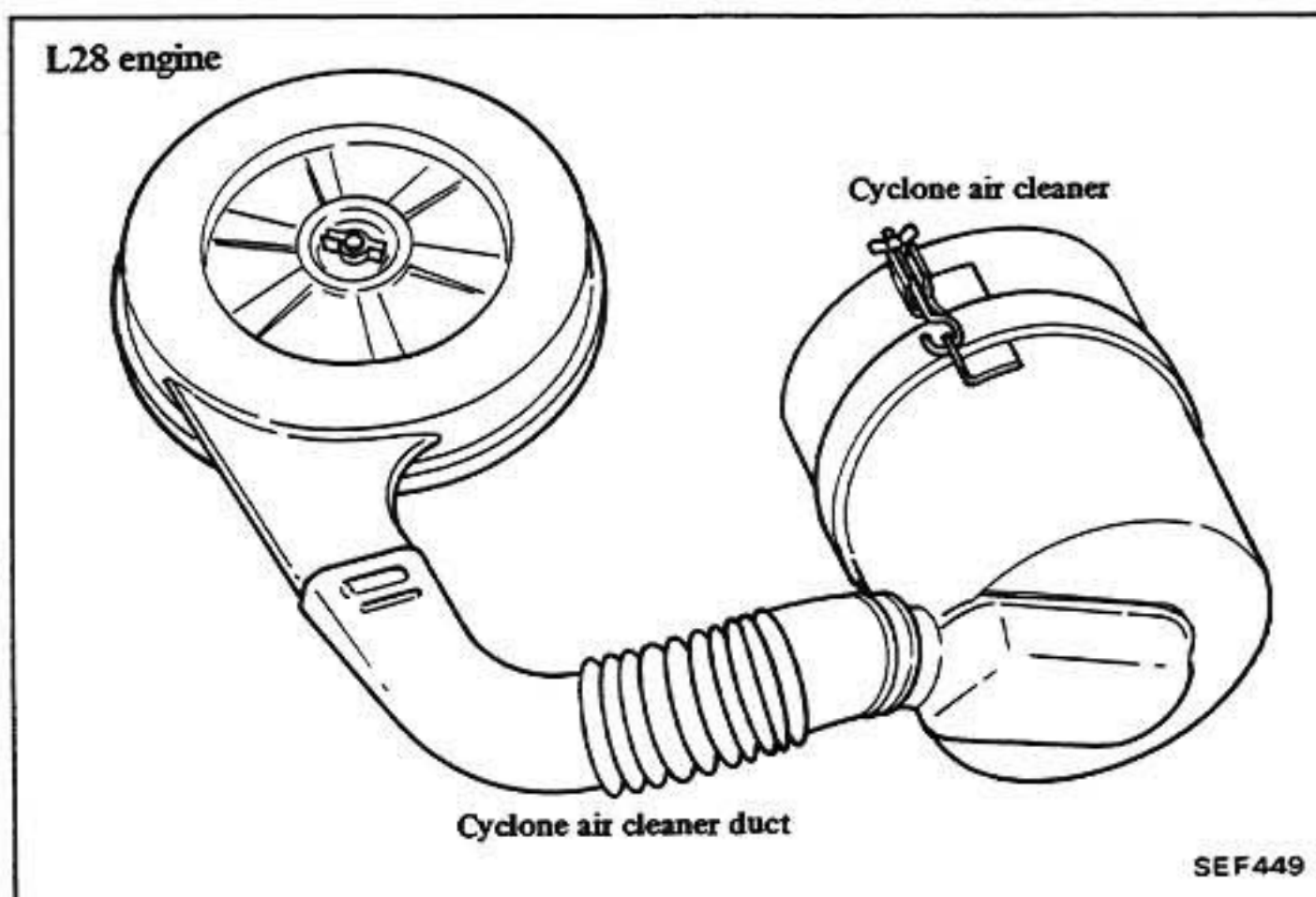
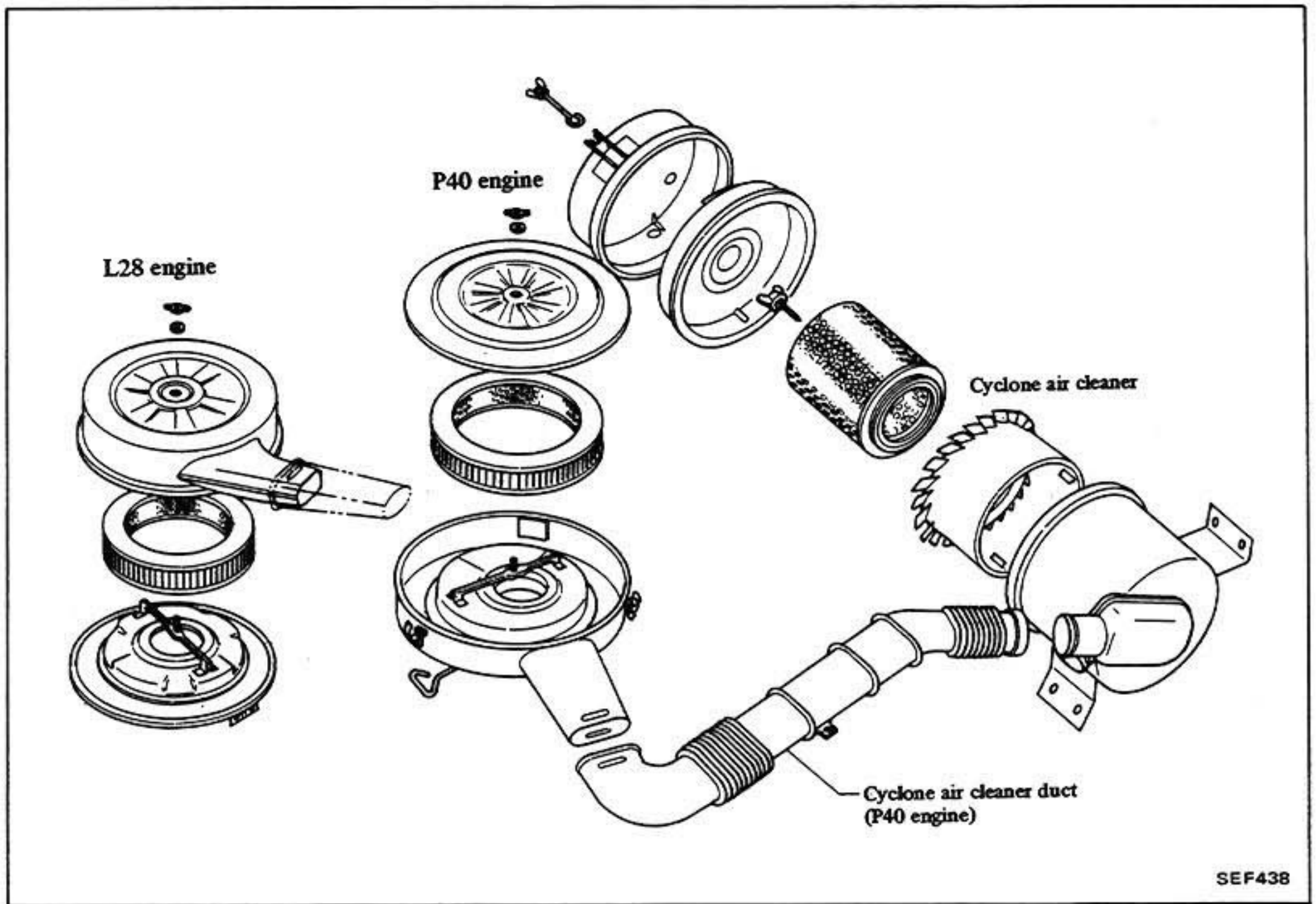
# ENGINE FUEL

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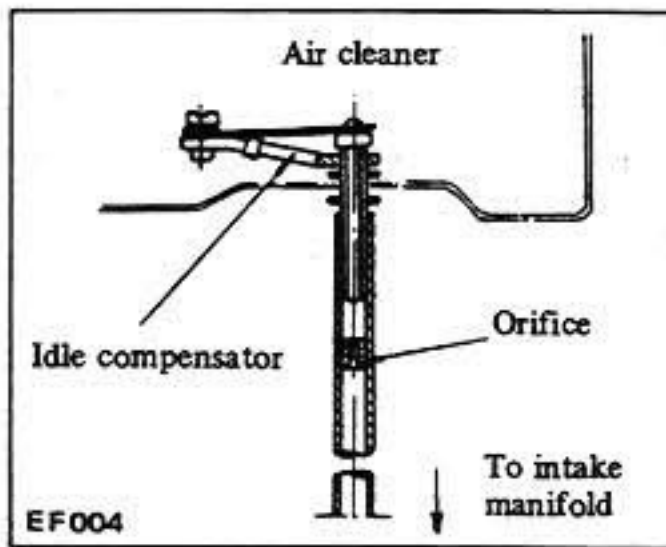
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# AIR CLEANER



## IDLE COMPENSATOR



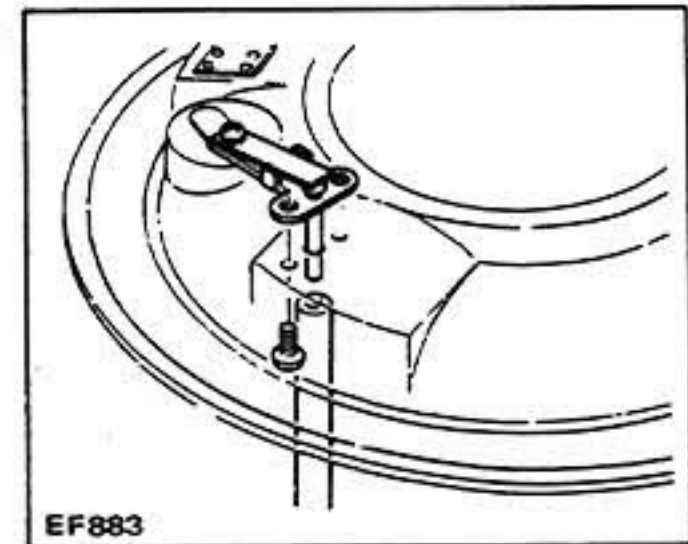
Intake air temperature	Bimetal function
Below 60°C (140°F)	Fully closed
60 to 70°C (140 to 158°F)	Closed or open
Above 70°C (158°F)	Fully open

When idle compensator is opened, "hissing" sound is heard.

### REMOVAL AND INSTALLATION

1. Remove air cleaner.
2. Disconnect hose from idle compensator.
3. Remove two setscrews from back of air cleaner lower cover.

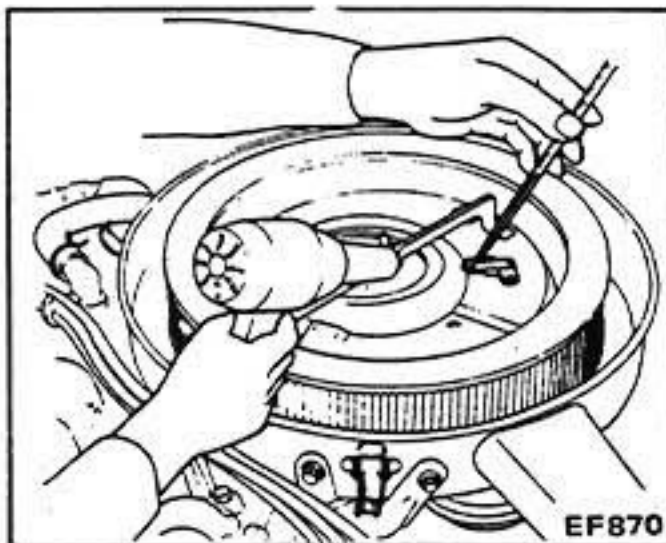
Idle compensator can then be taken out easily.



### INSPECTION

1. Warm up engine completely.
2. Open engine hood and remove air cleaner cover.
3. Direct warm air to idle compensator with a heat gun.

And measure operating temperature of idle compensator.



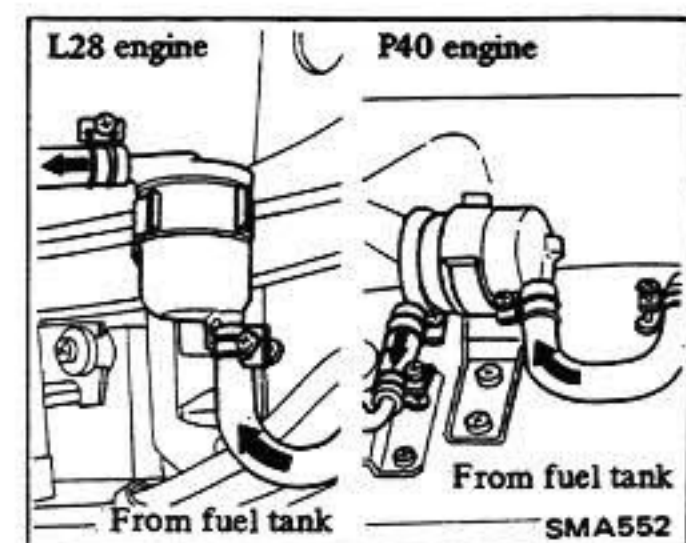
- a. Engine operation is not stabilized due to warm air flow before idle compensator reaches 60 to 70°C (140 to 158°F). As idle compensator reaches its operating temperature, secondary air is introduced into intake manifold and engine operation becomes stabilized.
- b. Locate stick temperature gauge as close to sensor as possible so that warm air from dryer is directed to these parts evenly.

4. To install, reverse the removal procedure.

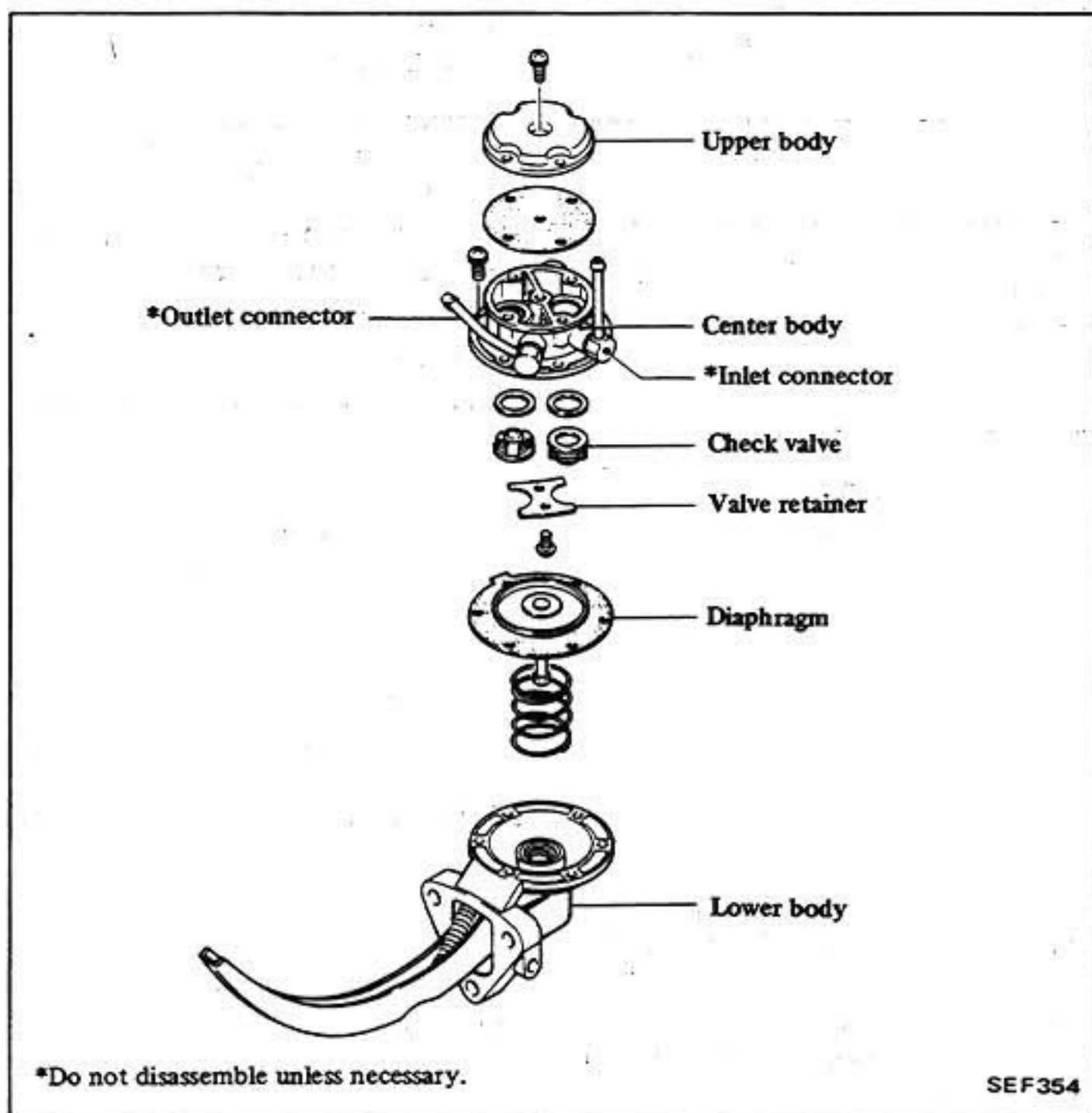
## FUEL FILTER

The fuel filter is a cartridge type, and should be replaced periodically as an assembly.

When disconnecting fuel hoses, use a container to receive the fuel remaining in fuel hoses.



## MECHANICAL FUEL PUMP



### CAPACITY TEST

The capacity test is conducted only when static pressure is within the specification.

1. Install a suitable container.
2. Check fuel pump capacity with engine running at 1,000 rpm.

Fuel pump capacity:

**L28**

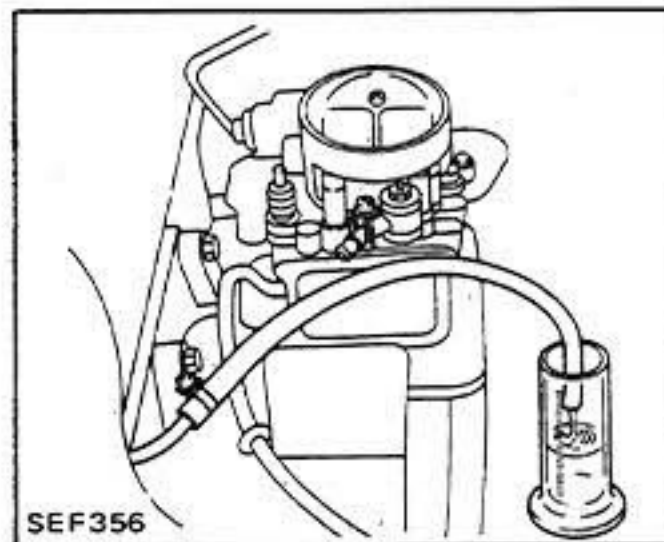
1,300 ml  
(45.8 Imp. fl oz)/min.

**P40**

2,500 ml  
(88.0 Imp. fl oz)/min.

**Canvas Top**

2,400 ml (84.5 Imp. fl oz)/min.



### OPERATING TEST

When disconnecting fuel hoses, use a container to receive fuel remaining in fuel hoses.

**P40**

**160 Series**

21.2 - 28.0 kPa  
(212 - 280 mbar,  
159 - 210 mmHg,  
6.26 - 8.27 inHg)

**61 Series**

16.7 - 23.6 kPa  
(167 - 236 mbar,  
125 - 177 mmHg,  
4.92 - 6.97 inHg)

If fuel in the carburetor float chamber has run out and engine has stopped, remove clip and pour fuel into carburetor. Fasten clip securely and repeat static pressure test.

If little or no fuel flows from open end of pipe, it is an indication that fuel line is clogged or pump is malfunctioning.

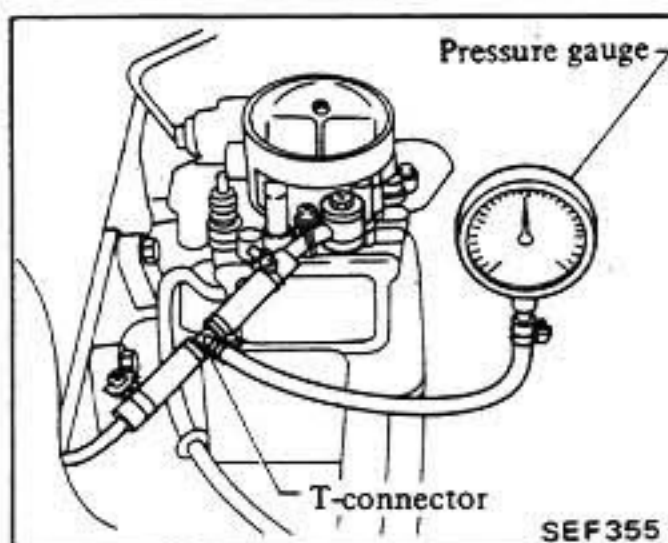
### STATIC PRESSURE TEST

1. Connect a T-connector and a suitable pressure gauge.
2. Check static fuel pressure with engine running at various speeds.

Fuel pump static pressure:

**L28**

22.7 - 29.3 kPa  
(227 - 293 mbar,  
170 - 220 mmHg,  
6.69 - 8.66 inHg)



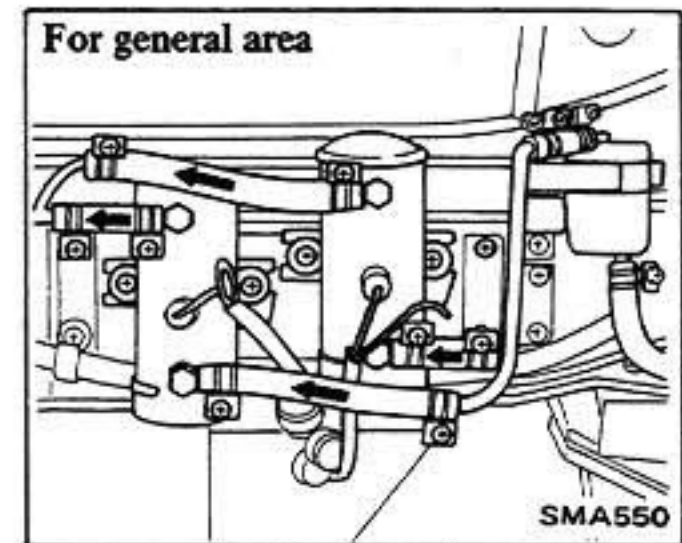
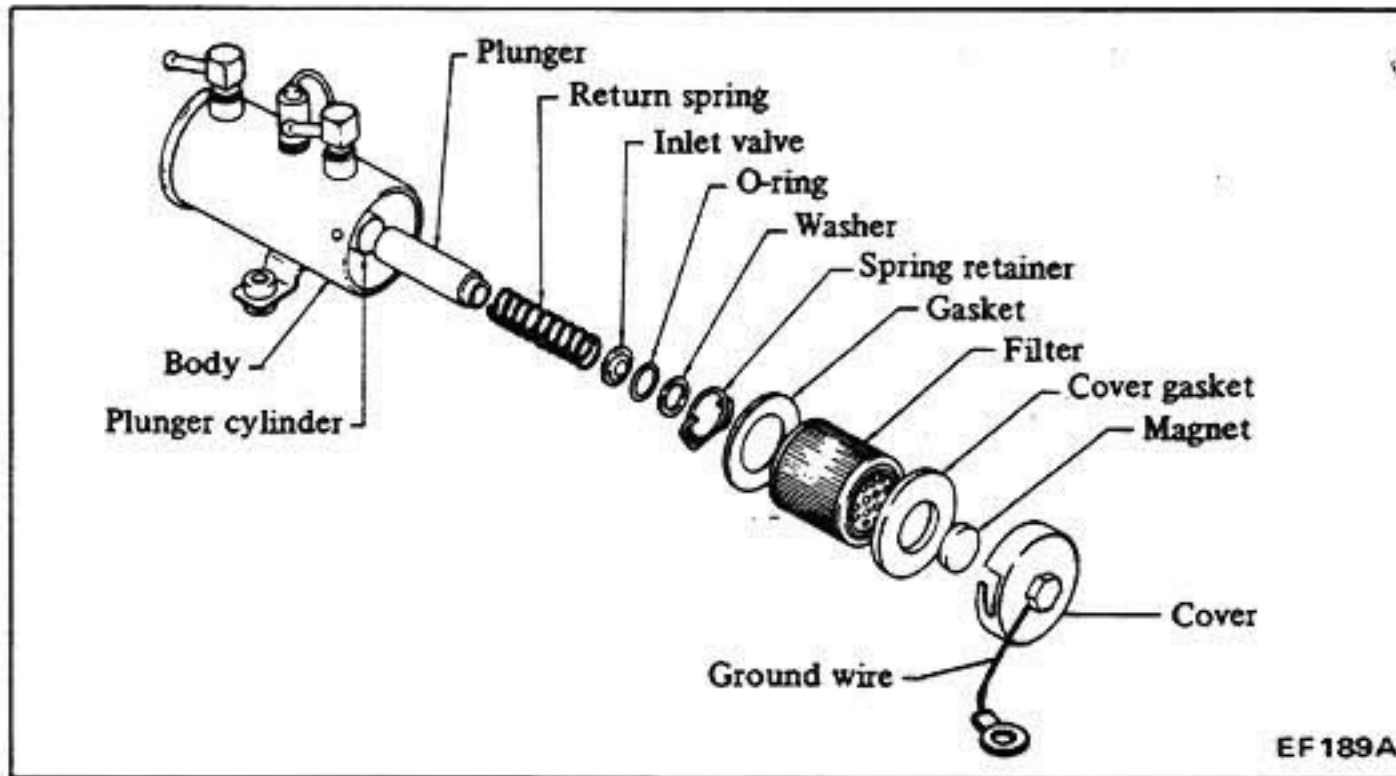
If out of specification, replace fuel pump.

### INSPECTION

After assembly, test the function as follows:

1. Position fuel pump assembly about 1.0 meter (3.3 ft) above fuel level of fuel filter and connect a pipe from filter to fuel pump.
2. Operate rocker arm by hand. If fuel is drawn up soon after rocker arm is released, fuel pump is functioning properly.

## ELECTRIC FUEL PUMP



The electric fuel pump is located on the right side frame near the fuel tank.

Before removing fuel pump, disconnect battery ground cable.

1. Disconnect inlet and outlet hoses from fuel pump and disconnect harness at connector and ground wire.

After disconnecting each hose, plug blind plug so that fuel will not leak out.

2. Remove bolts securing fuel pump to body.

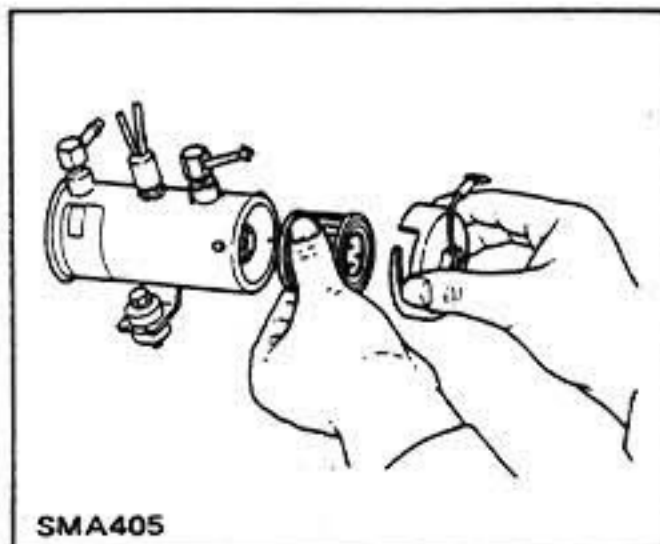
### CAUTION:

Do not let fall pump, as it may damage electric components.

### INSPECTION OF FUEL PUMP FILTER

Be careful not to allow dirt to enter fuel pump during inspection.

Remove cover and check fuel filter.



If no gasoline, or only a little flows from open end of pipe with pump operated, or if pump does not work, perform the following diagnosis.

### CAUTION:

- a. Do not connect battery in reverse polarity. If this is done and left for a long time, circuits will sustain damage, the fuel pump will be disabled.
- b. Do not apply overvoltage (max. 18V). Overvoltage starting by quick charge or overvoltage running would deteriorate or damage electric components.
- c. Do not operate engine under no-load conditions for an extended period of time. This can overheat fuel pump, resulting in premature wear of working parts.

### OPERATING TEST

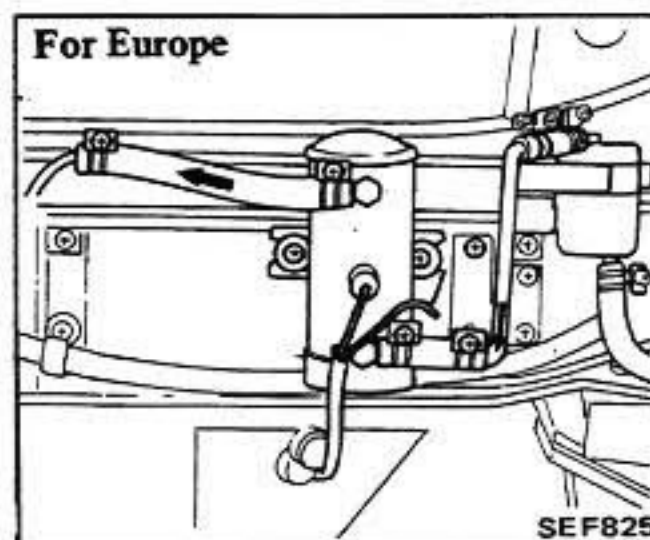
Before disconnecting fuel hose, place a container below hose connection to catch excess fuel.

1. Disconnect fuel hose at pump outlet.
2. Connect a suitable hose [approximately 6 mm (0.24 in) inner diameter] to pump outlet.

If diameter is too small, the following proper delivery capacity cannot be obtained even if pump functions properly.

3. With hose outlet in a higher position than pump, operate pump and check delivery capacity for more than 15 seconds.

### REMOVAL AND INSTALLATION



### DISASSEMBLY

1. Remove cover with wrench and take out cover gasket, magnet, and filter from pump body.
2. Take out spring retainer from plunger cylinder.
3. Take out washer, O-ring, inlet valve, return spring and plunger from cylinder.

Do not disassemble electric components. If necessary, replace with new ones as electric fuel pump assembly.

### INSPECTION

Check all components for any abnormalities and, if necessary, replace with new ones as electric fuel pump assembly.

### ASSEMBLY

1. Before assembly, clean all parts with gasoline and compressed air completely.

Take care not to deform plunger cylinder.

2. Insert plunger assembly into body and apply electric current to it.

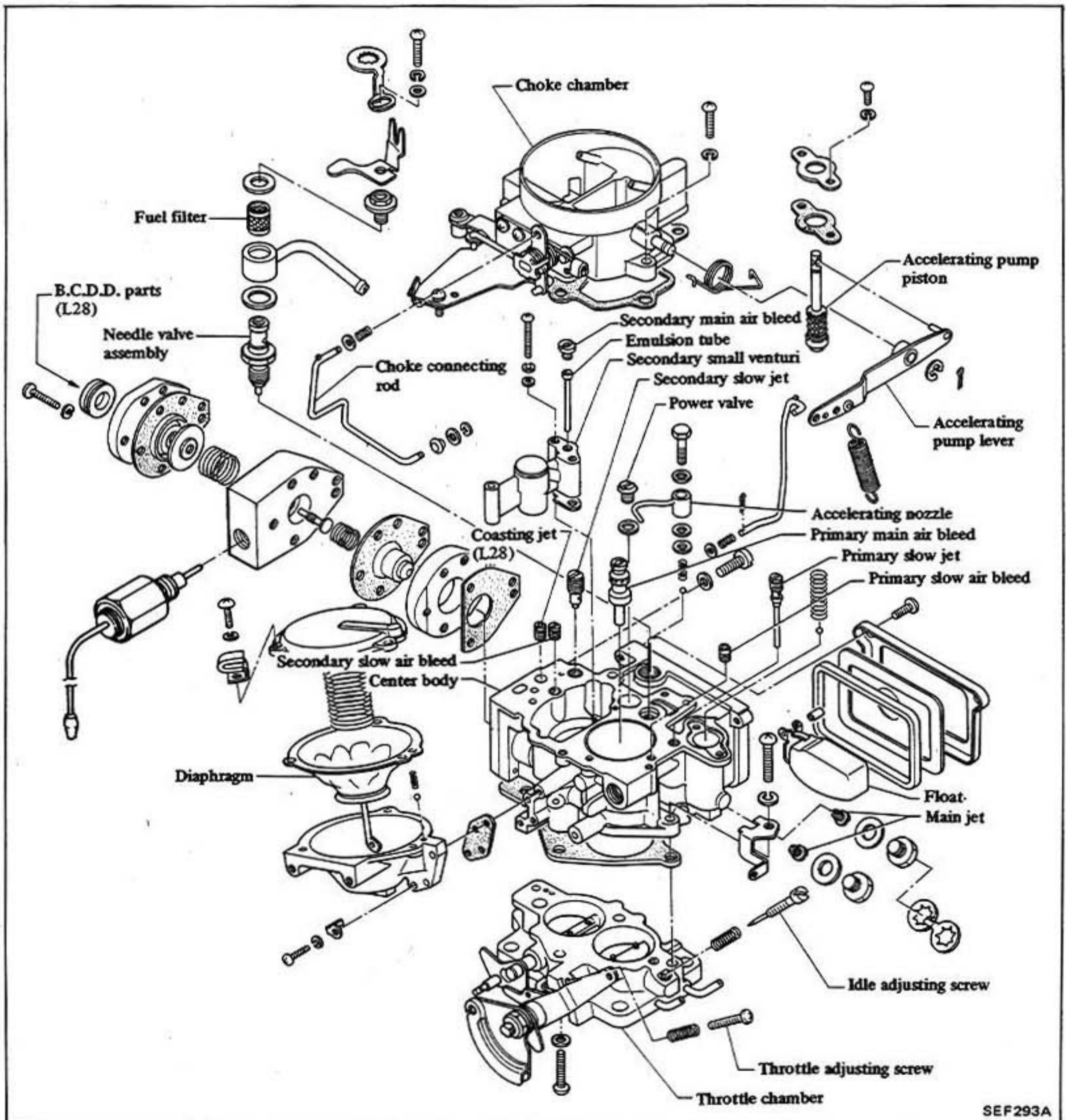
Move the assembly up and down.

If the assembly does not move, it shows that the electric unit is faulty, and it must be replaced as fuel pump assembly.

3. Assembly is in the reverse order of disassembly.

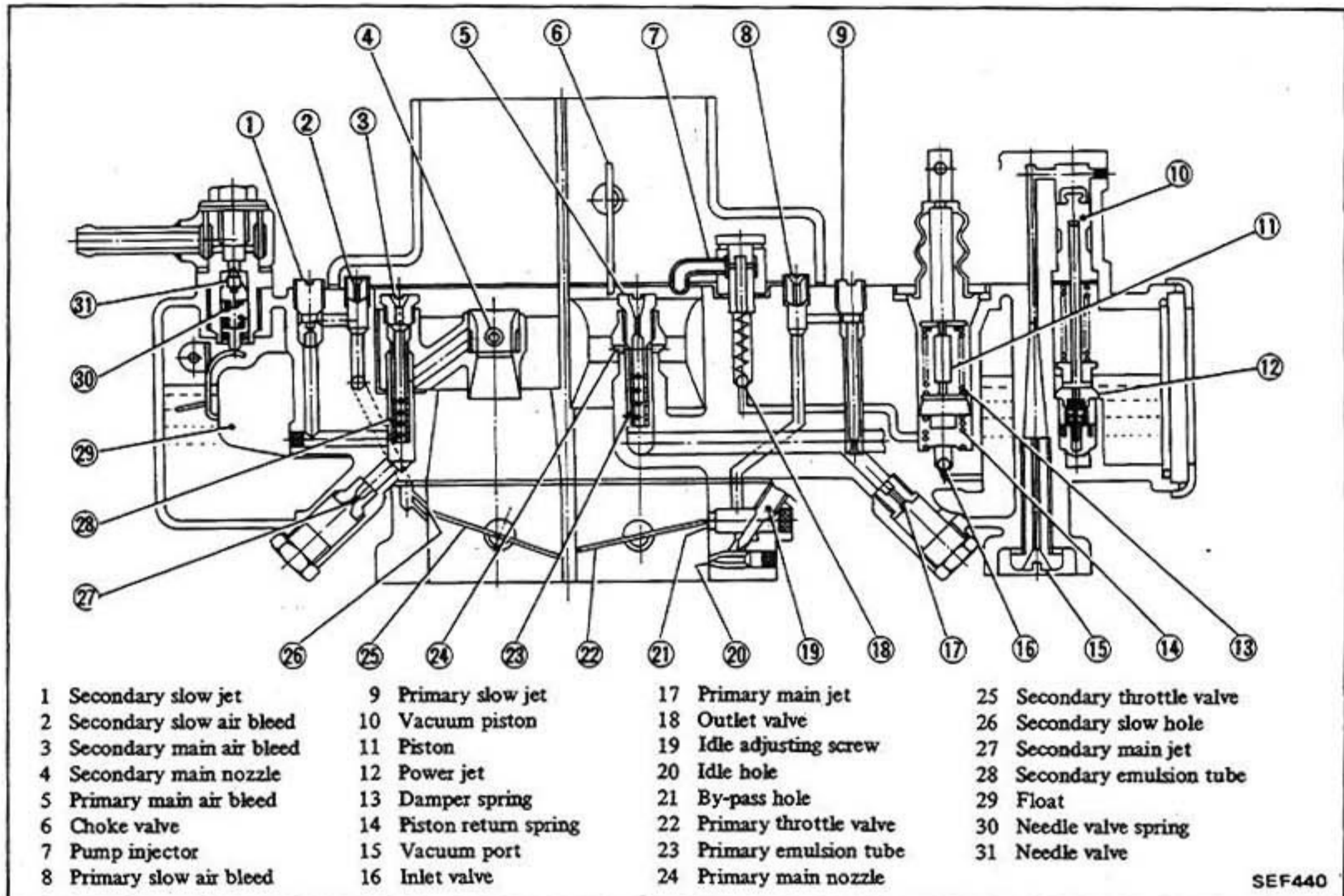
Be careful not to allow dirt to enter fuel pump during assembly.

## CARBURETOR



SEF293A

## STRUCTURE AND OPERATION



Carburetors basically consist of a primary system for normal running, a secondary system for high speed, heavy load running and a float system.

A starting mechanism, an accelerating mechanism, a power valve mechanism, a secondary switchover mechanism, etc. are also attached.

### PRIMARY SYSTEM

#### Primary main system

The primary main system is of Solex type. Fuel flows through the main jet, mixing with air which comes in from the main air bleed and passes through the emulsion tube, and is pulled out into the venturi through the main nozzle.

#### Idling and slow system

During low engine speed, fuel flows through the slow jet, mixing with air coming from the air bleed, and then is pulled out into the engine through the idle hole and by-pass hole.

#### Accelerating mechanism

When the primary throttle valve is opened; the piston goes down, opening the outlet valve, and the fuel which is stored in the piston chamber is forced out through the pump injector. When the throttle valve is closed, the piston goes up, and the fuel flows from the float chamber through the inlet valve into the piston chamber and is stored again.

#### Power valve mechanism

When the throttle valve is slightly opened during light load running, a

high vacuum is created in the intake manifold. This vacuum pulls the vacuum piston upward against the spring, leaving the power valve closed. When the vacuum below the throttle valve is lowered during heavy load running, the spring pushes the vacuum piston downward, opening the power valve to furnish fuel.

#### Starting mechanism

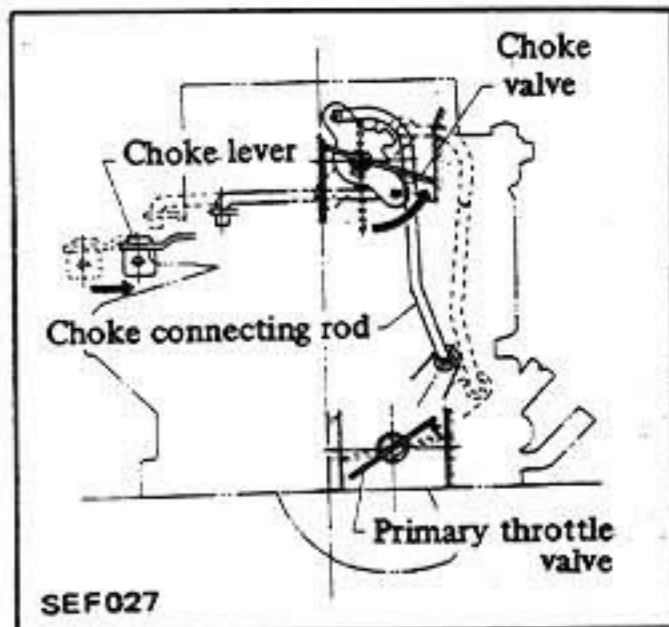
This mechanism consists of:

##### 1. Choke valve

When the choke knob is pulled out, the choke valve linked to it is closed, developing a fairly high vacuum in the primary nozzle. This vacuum causes the primary nozzle to deliver a heavy stream of fuel, sufficient to produce the rich mixture necessary for starting the engine.

2. Fast idle mechanism

The fast idle mechanism linked to the choke valve determines the opening of the primary throttle valve so as to obtain the proper amount of mixture for starting and warming-up.



**SECONDARY SYSTEM**

**Secondary main system**

Fuel-air mixture produced by the functions of the main jet, main air bleed and emulsion tube, in the same manner as in the primary system, is pulled out through the main nozzle into the small venturi.

**Secondary slow system**

This system functions to fill the gap properly when the fuel supply is transferred from the primary system to the

secondary system. The construction of this system may correspond to the idling and slow system of the primary system.

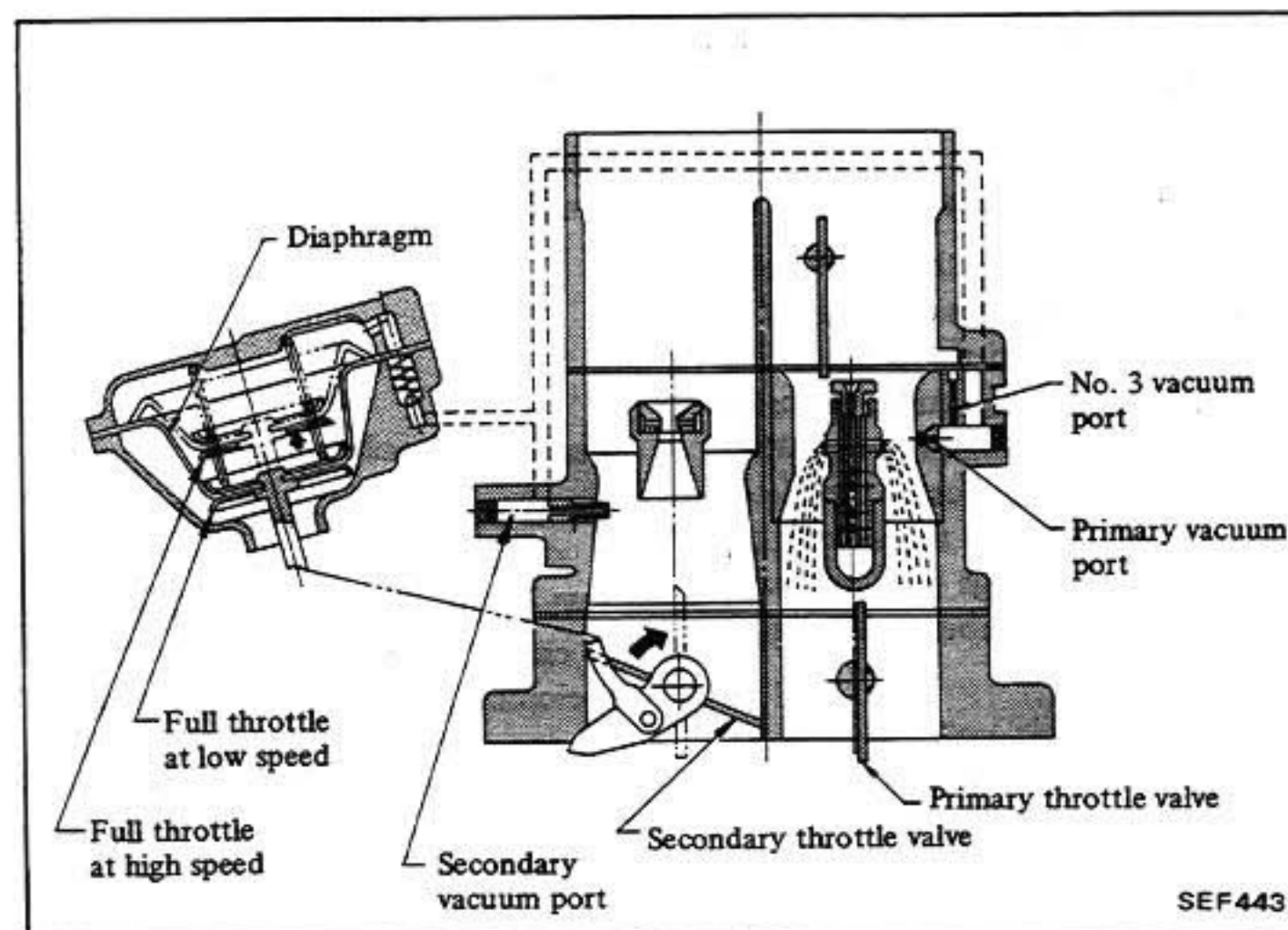
**Secondary switchover mechanism**

The secondary throttle valve is linked to the diaphragm which is actuated by the vacuum created in the venturi. A vacuum jet is provided at each of the primary and secondary venturis, and the composite vacuum of these jets actuates the diaphragm.

During high speed, heavy load running, as the vacuum at the venturi is increased, the diaphragm is pulled against the diaphragm spring force, and then secondary throttle valve is opened.

The other side, during low speed running (as the primary throttle valve opening does not reach the predetermined value), the secondary throttle valve is locked to close completely by the locking arm which is interlocked with primary throttle arm by linkage.

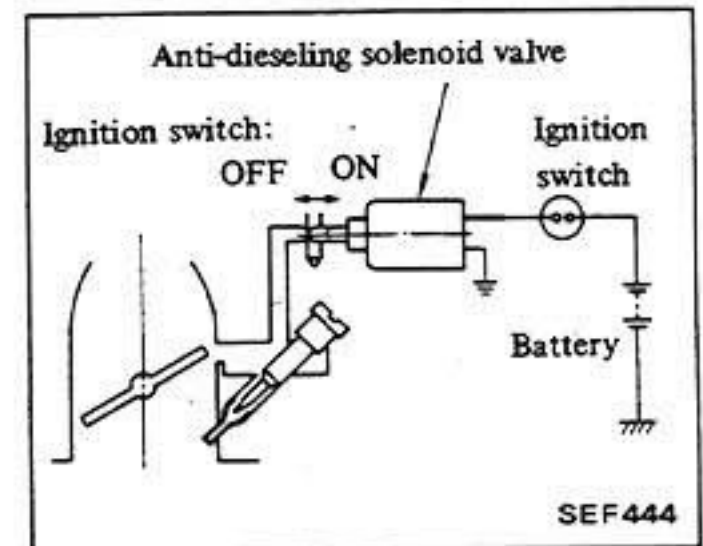
When the primary throttle valve opening reaches position wider than the predetermined value, the secondary throttle valve is ready to open, because the locking arm rotates and leaves from the secondary throttle arm.



**ANTI-DIESELING SYSTEM (Europe)**

The carburetor destined for Europe is equipped with an anti-dieseling solenoid.

As the ignition switch is turned off, the valve is brought into operation, shutting off the supply of fuel to the slow circuit.



**INSPECTION AND ADJUSTMENT**

**IDLE RPM AND MIXTURE RATIO**

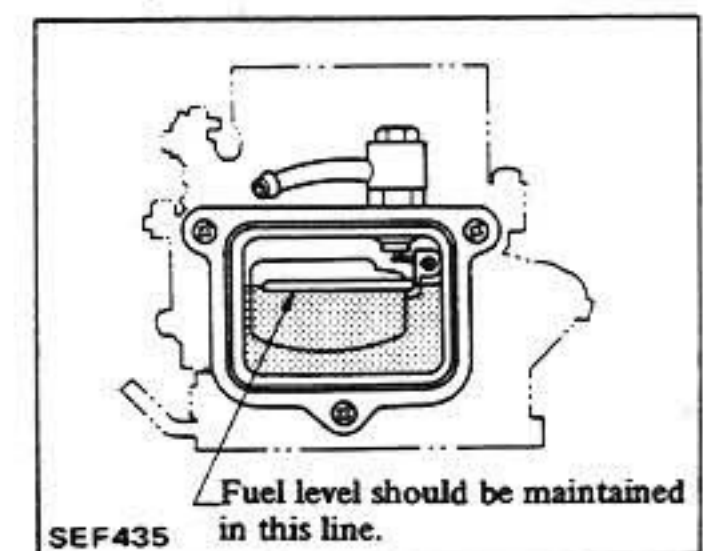
Refer to Section MA for Inspection and Adjustment of idle rpm and mixture ratio.

**Idle limiter cap**

Refer to Idle Limiter Cap (Section MA) for checking and adjustment.

**FUEL LEVEL**

1. With engine idle, check fuel level.

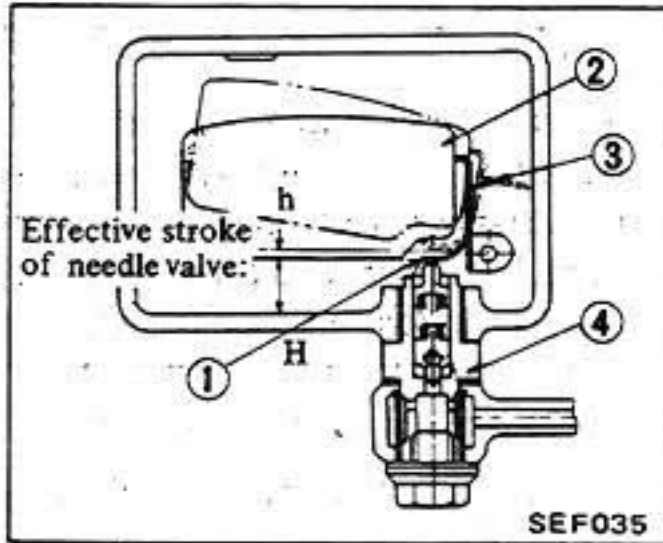


To adjust fuel level, proceed as follows:

1. Remove carburetor from engine and remove level gauge cover.
2. Turn down carburetor and check float position "H".



Top float position "H":  
8.5 mm (0.335 in)



- 1 Float seat
- 2 Float
- 3 Float stopper
- 4 Needle valve

If out of specification, adjust it by bending float seat.

3. Check clearance "h" (bottom float position between float seat and needle valve stem).

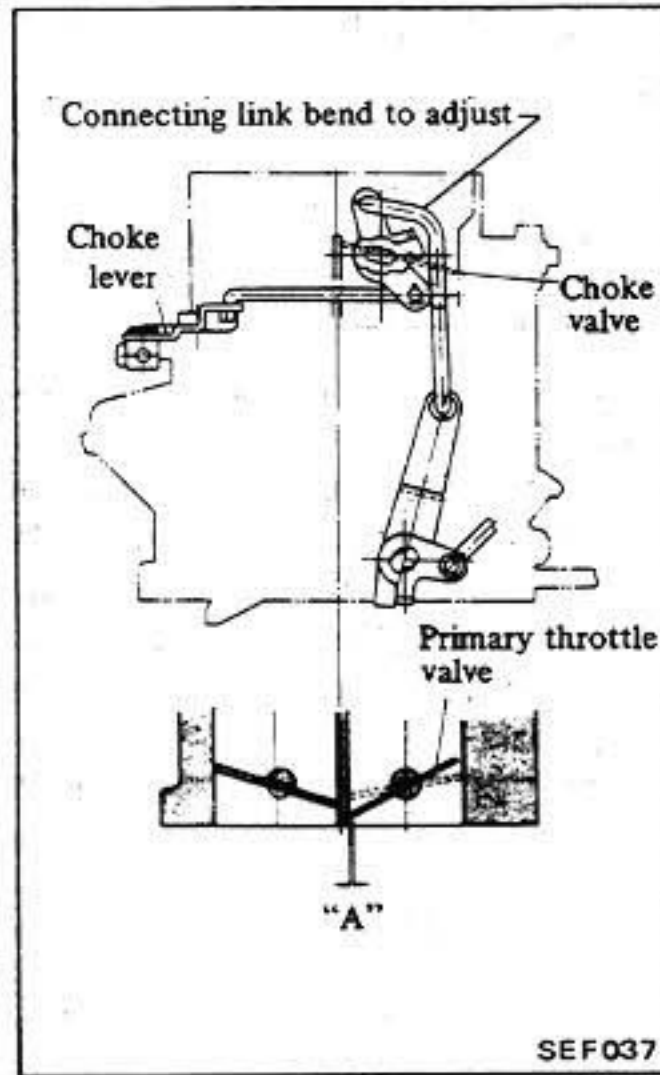
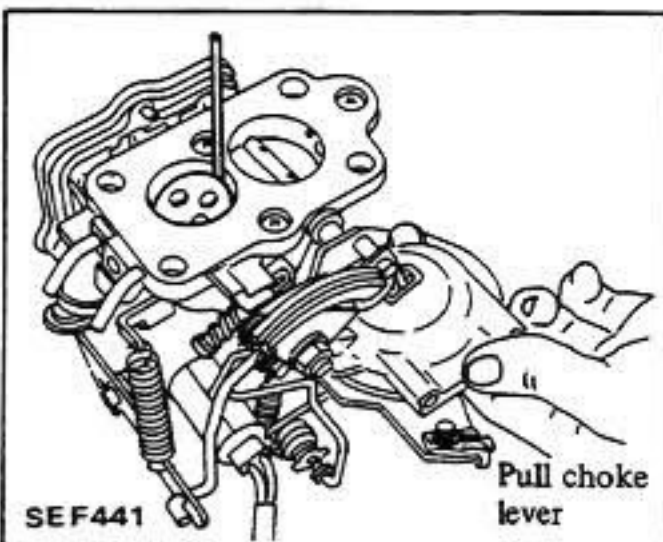
Clearance "h":  
1.3 - 1.7 mm (0.051 - 0.067 in)

If out of specification, adjust it by bending float stopper.

### FAST IDLE

Pull choke lever and close choke valve completely and then check clearance "A" between primary throttle valve and inner wall.

Clearance "A":  
L28  
1.80 - 1.94 mm  
(0.0709 - 0.0764 in)  
P40  
Except for Australia  
2.08 - 2.22 mm  
(0.0819 - 0.0874 in)  
For Australia  
1.13 - 1.36 mm  
(0.0445 - 0.0535 in)

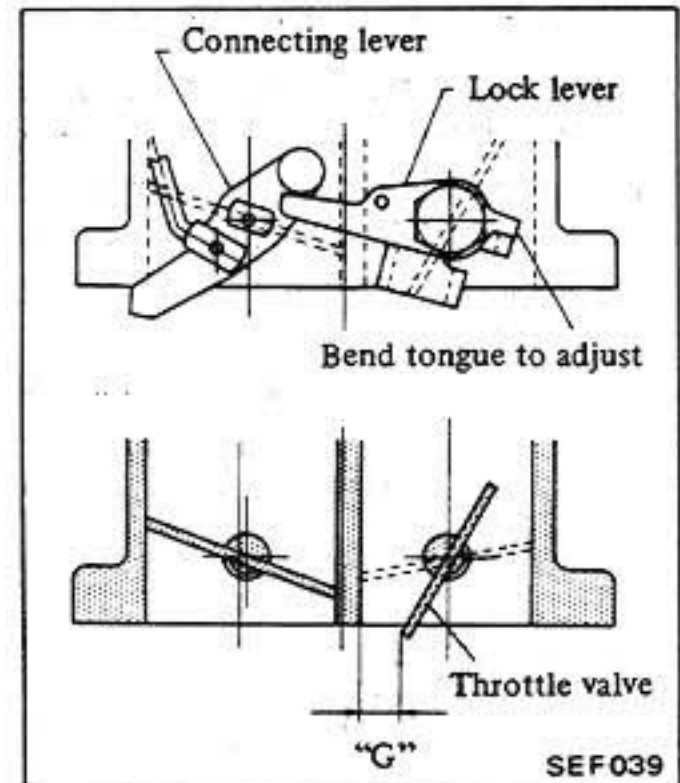
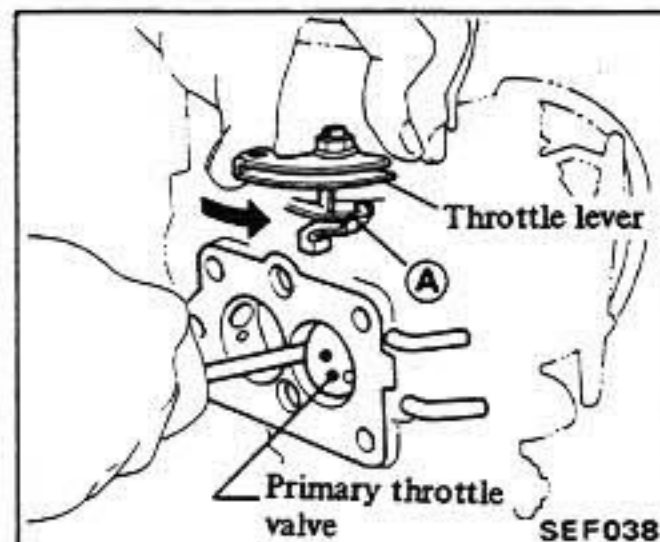


### INTERLOCK OPENING OF PRIMARY AND SECONDARY THROTTLE VALVES

When adjusting plate comes in contact with lock lever at point A by turning throttle lever, check clearance "G" between primary throttle valve and inner wall.

Clearance "G":

	Unit: mm (in)	
	Except for Australia	For Australia
L28	7.2 - 8.2 (0.283 - 0.323)	6.94 - 7.94 (0.2732 - 0.3126)
P40	8.2 - 9.2 (0.323 - 0.362)	10.8 - 11.8 (0.4252 - 0.4646)



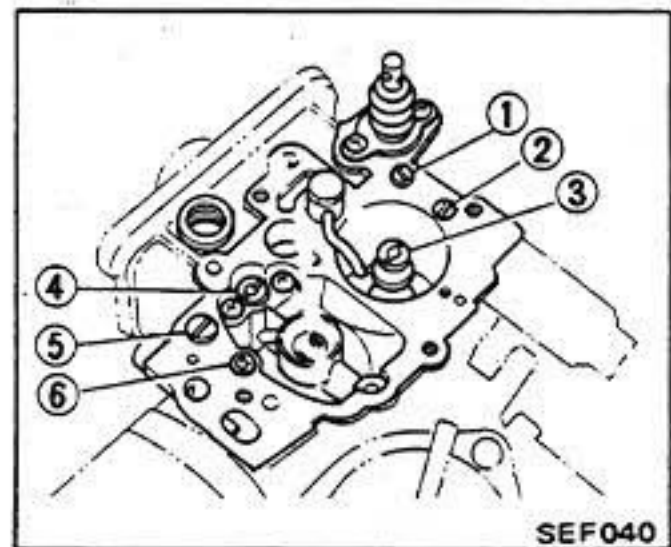
### JET AND AIR BLEED

#### CAUTION:

- a. Be sure to use a screwdriver of proper size.
- b. Be careful not to scratch or nick jet and air bleed.
- c. To clean jet and air bleed, use solvent and compressed air.

1. Remove upper body of carburetor and check jets and air bleeds for stamped number, looseness and clogging.

If any abnormality is found, correct.



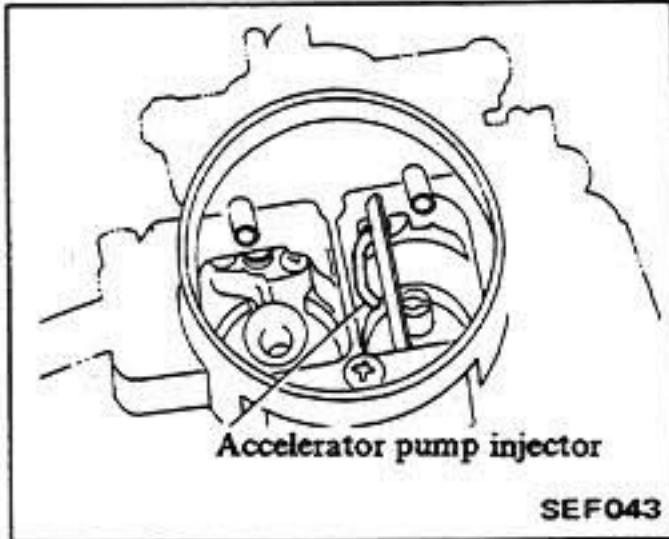
- 1 Primary slow jet
- 2 Primary slow air bleed
- 3 Primary main air bleed
- 4 Secondary main air bleed
- 5 Secondary slow jet
- 6 Secondary slow air bleed

2. Check power valve for looseness and clogging.

3. Remove main jet cap from lower portion of float chamber and check main jet.

### ACCELERATOR PUMP

When accelerator pump is operated by opening throttle lever by hand with engine stopped, remove air cleaner and check pump injector located at primary port if it injects fuel smoothly without delay.

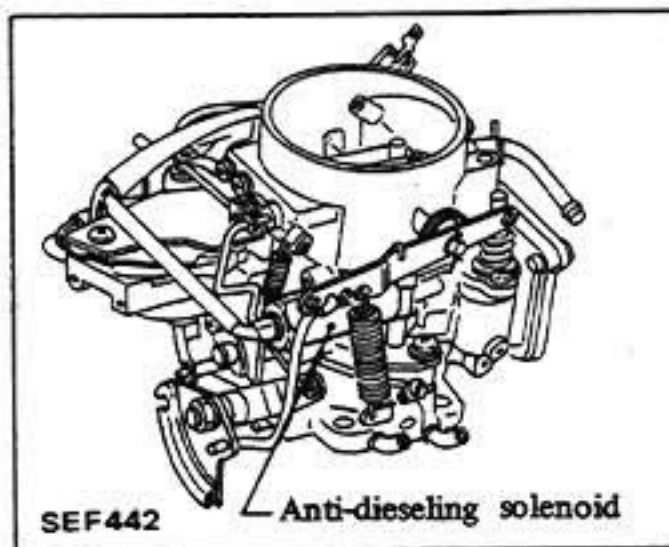


### ANTI-DIESELING SOLENOID VALVE (Europe)

1. If engine does not stop when solenoid connector is disconnected, replace solenoid valve.
2. If click sound is not heard from solenoid valve when ignition switch is turned on-off, replace it.

Ⓣ : Solenoid valve  
 18 - 34 N·m  
 (1.8 - 3.5 kg·m,  
 13 - 25 ft·lb)

After replacement, start engine and check to be sure that fuel is not leaking, and that anti-dieseling solenoid is in good condition.



### DISASSEMBLY

**WARNING:**  
 Before disassembly, be sure to drain fuel from carburetor to eliminate possibility of fire.

- CAUTION:**
- a. Properly use wrenches and screwdrivers to remove nozzles and jets as well as screws and nuts, exercising care not to damage any part.
  - b. Be careful not to bend or scratch any part.

- Clean carburetor thoroughly before disassembly.
- Be careful not to lose any parts. Some carburetor parts can be removed without detaching the choke chamber or throttle chamber, while other parts cannot. Prior to removing any parts, carefully read and follow the instructions and removal procedures so as to save time and labor.

### DISASSEMBLY FROM OUTSIDE

Parts which can be removed without removing the throttle chamber of choke chamber are as follows:

- Main jets
- Slow jets
- Float chamber parts
- Fuel nipple
- Needle valve parts
- Accelerating mechanism parts
- Diaphragm chamber parts
- Adjusting screws
- Throttle and choke linkage parts

### INSPECTION AND CLEANING

**CAUTION:**  
 Use only carburetor solvent and compressed air to clean all passages and discharge holes. Never use wire or pointed instruments to clean these, or carburetor calibration will be affected.

- Be careful not to lose any parts.
1. Clean and check parts for clogged passages. Remove any obstacles from passages.
  2. Check all parts for scratches or deformation. If necessary, replace them.
  3. Check gaskets, diaphragm and sealing rubber parts for scratches or breakage. If necessary, replace.

### ASSEMBLY

- CAUTION:**
- a. Properly use wrenches and screwdrivers to install nozzles and jets as well as screws and nuts, exercising care not to damage any part.
  - b. Be careful not to bend or scratch any part.

- Be sure to install each part correctly.
1. Assemble in the reverse order of removal.
  2. After assembling, check each rotating portion or sliding portion for smooth operation.

## SERVICE DATA AND SPECIFICATIONS

### CARBURETOR

Except for Australia

\*1: Includes Hong Kong

\*2: For Canvas Top

Engine		L28		P40		
		Except Europe	Europe *1	Except Europe	Europe *1	
Carburetor model		DAF342 -44	DAF342 -45	DAF342 -52 -51 *2	DAF342 -56	
Outer dia.	mm (in)	P.	32 (1.26)			
		S.	34 (1.34)			
Large venturi dia.	mm (in)	P.	26 (1.02)			
		S.	32 (1.26)			
Main jet		P.	#132	#134	#130	
		S.	#200	#210		
Main air bleed		P.	#240	#230		
		S.	#50			
Slow jet		P.	#50	#46	#52	
		S.	#100			
Slow air bleed		P.	#230	#210		
		S.	#50			
Power jet		#80				
Fast idle opening Clearance "A"	mm (in)	1.80 - 1.94 (0.0709 - 0.0764)		2.08 - 2.22 (0.0819 - 0.0874)		
Interlock opening of primary and secondary throttle valve Clearance "G"	mm (in)	7.2 - 8.2 (0.283 - 0.323)		8.2 - 9.2 (0.323 - 0.362)		
Fuel level adjustment Gap between float and carburetor body "H"		8.5 (0.335)				
Gap between valve stem and float seat "h"		1.3 - 1.7 (0.051 - 0.067)				
Main jet variation for altitude	1,000 m (3,300 ft)	P.	#128	—	#130	—
		S.	#195	—	#204	—
	2,000 m (6,600 ft)	P.	#125	—	#127	—
		S.	#190	—	#198	—
	3,000 m (9,900 ft)	P.	#121	—	#123	—
		S.	#185	—	#192	—
	4,000 m (13,000 ft)	P.	#117	—	#119	—
		S.	#180	—	#186	—

## Trouble Diagnoses and Corrections – ENGINE FUEL

For Australia

\*: For Canvas Top

Engine		L28	P40
Carburetor model		DAF342-42	DAF342-54* DAF342-55
Outlet inner dia. mm (in)	P.	32 (1.26)	
	S.	34 (1.34)	
Large venturi dia. mm (in)	P.	26 (1.02)	
	S.	32 (1.26)	
Main jet	P.	#132	#130
	S.	#200	#210
Main air bleed	P.	#240	#230
	S.	#50	
Slow jet	P.	#50	#46
	S.	#100	

Engine		L28	P40
Slow air bleed	P.	#230	#210
	S.	#50	
Power jet		#80	#55
Fast idle opening Clearance "A" mm (in)		1.80 - 1.94 (0.0709 - 0.0764)	1.13 - 1.36 (0.0445 - 0.0535)
Interlock opening of primary and secondary throttle valves Clearance "G" mm (in)		6.94 - 7.94 (0.273 - 0.313)	10.8 - 11.8 (0.425 - 0.465)
Fuel level adjustment Gap between float and carburetor body "H" mm (in)		8.5 (0.335)	
Gap between valve stem and float seat "h" mm (in)		1.3 - 1.7 (0.051 - 0.067)	

## FUEL PUMP

Engine	L28	P40
Mechanical fuel pump Fuel pump pressure kPa (mbar, mmHg, inHg)	22.7 - 29.3 (227 - 293, 170 - 220 6.69 - 8.66)	21.2 - 28.0 (212 - 280, 159 - 210, 6.26 - 8.27) 16.7 - 23.6 (167 - 236) 125 - 177, 4.92 - 6.97)*
Fuel pump capacity mℓ (Imp. fl oz)/minute at 1,000 rpm	More than 1,300 (45.8)	More than 2,500 (88.0) 2,400 (84.5)*
Electric fuel pump Fuel pump capacity mℓ (Imp. fl oz)/minute at 1,000 rpm	More than 1,600 (56.3)	—

\*Canvas Top

## TROUBLE DIAGNOSES AND CORRECTIONS

In the following table, the symptoms and causes of carburetor problems and remedies for them are listed to facilitate quick repairs.

There are various causes of engine

malfunctions. It sometimes happens that a carburetor which has no fault seems apparently to have some problems, when in fact the electrical system is faulty. Therefore, whenever the

engine has problems, electrical system must be checked first before making carburetor adjustment.

Condition	Probable cause	Corrective action
Overflow	Float damaged. Dirt accumulated on needle valve. Fuel pump pressure too high. Needle valve seat improper.	Replace. Clean needle valve. Repair pump. Repair or replace.

**ENGINE FUEL – Trouble Diagnoses and Corrections**

Condition	Probable cause	Corrective action
Excessive fuel consumption	Fuel level improper. Main jet or slow jet size too large. Main air bleed or slow air bleed clogged. Main jet or slow jet damaged. Choke valve does not fully open. Outlet valve seat of accelerator pump improper. Linked opening of secondary throttle valve too early. Idle adjustment incorrect.	Adjust, or repair float system parts. Replace with the specified one. Clean. Replace. Adjust. Lap. Adjust. Adjust.
Power shortage	Main jet clogged or damaged. Each throttle valve does not open fully. Fuel filter clogged. Air cleaner filter clogged. Vacuum jet or passage clogged. Secondary diaphragm damaged. Power valve operating improperly. Malfunctioning fuel pump.	Clean or replace. Adjust. Replace. Replace. Clean. Replace. Adjust. Repair or replace.
Improper idling	Idle adjustment incorrect. Slow jet or slow air bleed clogged. Throttle valve does not close. Secondary throttle valve operated improperly. Throttle valve shaft worn. Manifold/carburetor tightening improper. Packing between manifold/carburetor faulty. Fuel overflow.	Adjust. Clean. Adjust. Overhaul and clean. Replace. Correct. Replace gasket. See above item.
Engine hesitation	Main jet or slow jet clogged. By-pass hole, idle passage clogged. Emulsion tube clogged. Idling adjustment incorrect. Accelerating mechanism does not operate properly.	Clean. Clean tube. Clean. Correct adjustment. Repair.
Engine does not start.	Fuel overflow. No fuel fed to engine. Idle adjustment incorrect. Fast idle adjustment incorrect.	See above item. Check pump, fuel pipe and needle valve. Adjust. Adjust.