

## HITACHI DAH 328 2-BARREL

Datsun 510 Series (1972)  
 Datsun 521 Pickup (1972)  
 Datsun 620 Pickup (1972)

### DESCRIPTION

Carburetor is a two barrel downdraft design with primary and secondary circuits. Primary circuits consists of idle, main jet, power valve, accelerator pump and automatic choke. Secondary circuits consists of the secondary main jet, step fuel system and boost controlled deceleration device (B.C.D.D.). Both systems use a common float chamber with only one float. The carburetor is equipped with an electric choke, anti-dieseling valve and a vacuum diaphragm unit linked to the secondary throttle valve.

### OPERATION

#### PRIMARY MAIN SYSTEM

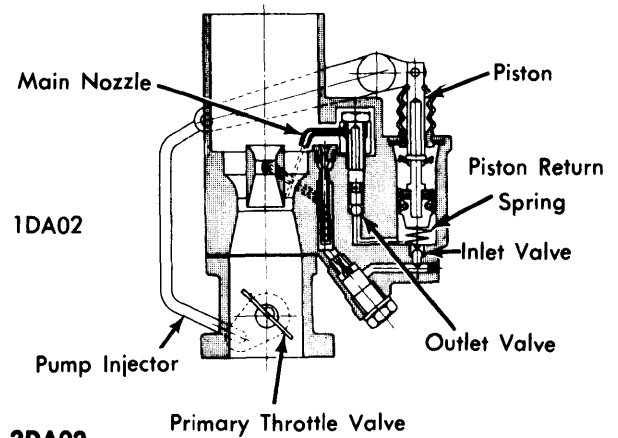
When fuel from the float bowl enters the main jet, it mixes with air from main air bleed and passes through the emulsion tube and then into the venturi through main nozzle.

#### IDLING & SLOW SYSTEM

When at idle or low speed, the throttle valve is open only a small amount. Vacuum below the throttle valve acts on the slow speed system. Fuel from the slow jet and air from the economizer bleed are mixed in the emulsion tube. Further mixing occurs when air comes through the slow economizer air bleed. The atomized mixture is supplied to engine by idle hole and by-pass hole.

### ACCELERATOR PUMP

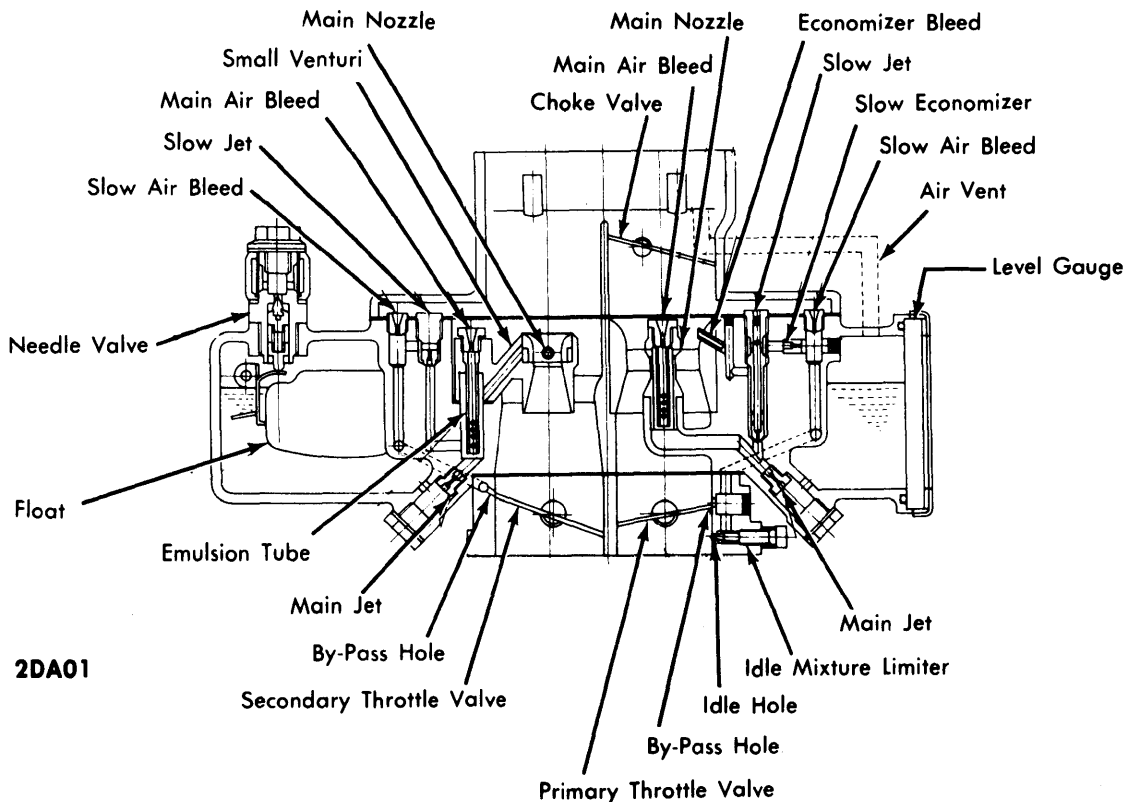
When the primary throttle is closed, the accelerating piston allows fuel to flow from the float bowl into the space under the piston. When the throttle is opened, the piston opens an outlet valve and forces the fuel out through the injector. This provides the richer mixture necessary for smooth, rapid acceleration.



### ACCELERATOR PUMP CIRCUIT

#### POWER VALVE

Power valve is controlled by vacuum below the primary throttle valve. When the throttle valve is slightly opened during light



### CARBURETOR SECTIONAL VIEW

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engine loads, vacuum is high enough to hold the vacuum piston upward against a spring, leaving the power valve closed. During acceleration or full load, vacuum is low and the power valve spring forces the valve open. Extra fuel flows to the primary throttle side until power valve closes again.

**BOOST CONTROLLED DECELERATION DEVICE**

Boost controlled deceleration device (B.C.D.D.), helps reduce excessive HC emissions from the engine during deceleration. When throttle valves are closed during coasting, only a small amount of air can enter the engine resulting in incomplete combustion. The B.C.D.D. operates when manifold vacuum exceeds a pre-determined value. Vacuum pull on diaphragm I (see illustration), opens the vacuum control valve introducing a vacuum pull on diaphragm II. Diaphragm II opens the mixture control valve allowing an additional mixture to flow below the secondary throttle valve.

**ELECTRIC AUTOMATIC CHOKE**

An electric heater is used to warm a bi-metal spring which controls the position of choke and throttle valves in accordance with engine temperature. The bi-metal spring operates the choke and linkage. Choke linkage controls the fast idle cam which holds primary throttle open. Choke and throttle operate together.

**SECONDARY MAIN SYSTEM**

Fuel from the main jet, and air from the main air bleed and emulsion tube, is pulled into the venturi, atomized and supplied to the engine.

**SECONDARY STEP SYSTEM**

Operation of this system is similar to the primary idle and slow system. Its purpose is to smoothly start the secondary throttle mixture operation. The step port is located near secondary throttle valve edge when valve is closed.

**SECONDARY THROTTLE OPENING**

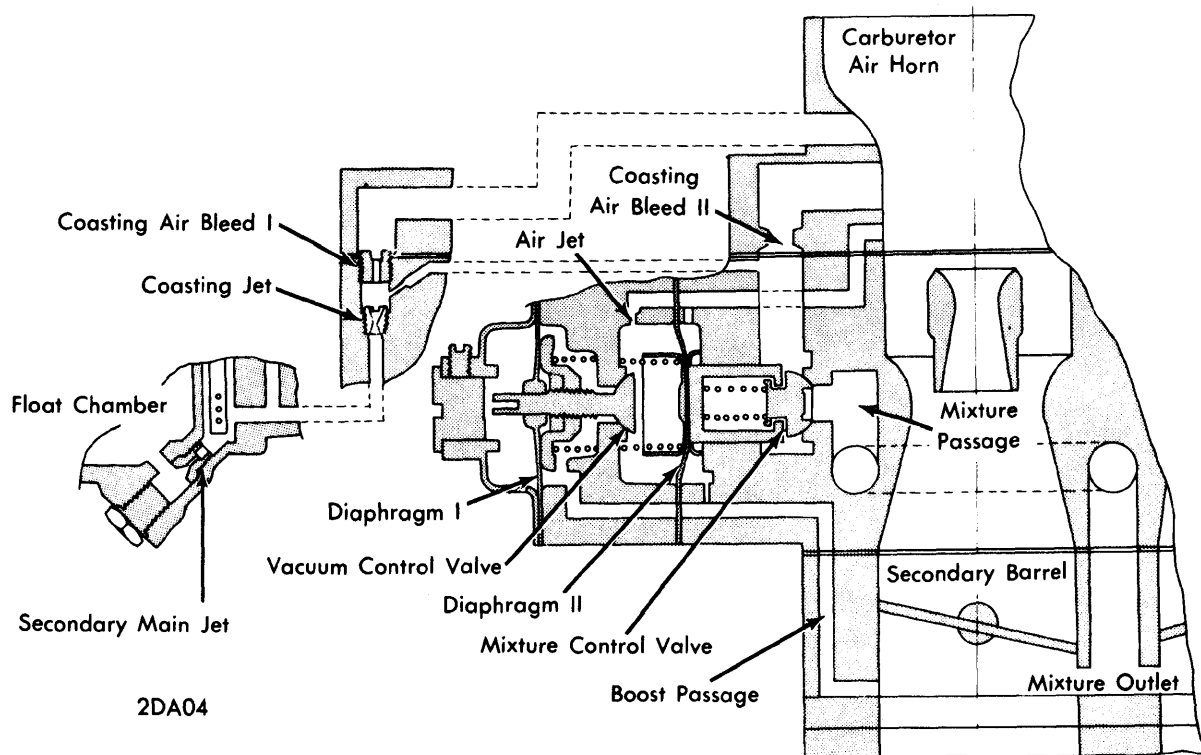
The secondary throttle is linked to a diaphragm activated by venturi vacuum. Vacuum jets, located at each of the venturis, provide enough combined vacuum to actuate the diaphragm. The diaphragm is pulled against spring force and causes the secondary throttle valve to open. Linkage between the primary and secondary throttles allows the secondary throttle to open at approximately 50° of primary throttle opening.

**FUEL RETURN SYSTEM**

System consists of a bi-metal valve, body and pipe. When high engine compartment temperatures are encountered, the bi-metal causes the valve to open. This returns most of the fuel to the fuel tank, helping to prevent vapor lock and percolation of fuel. *NOTE - Do not dismantle device unless necessary.*

**ADJUSTMENT****CHOKE**

- 1) If the engine is warm or adjustment is performed during mid-day, align the index mark on choke cover to the center mark on choke housing. If engine temperature and ambient air temperature is cold, proceed as follows:
- 2) Open throttle a small amount and close choke, then release throttle.

**BOOST CONTROLLED DECELERATION DEVICE**

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3) Loosen choke cover retaining screws and turn choke cover clockwise opening choke valve. Then turn choke cover back until the specified clearance is obtained between choke valve and air horn.

### CHOKE VACUUM BREAK

1) Open throttle a small amount and close choke. Release throttle and disconnect vacuum line from diaphragm unit.

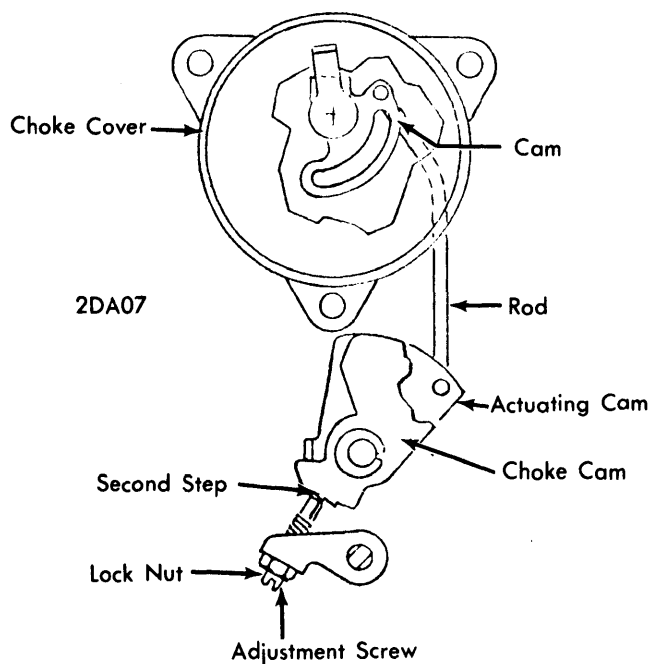
2) Apply vacuum to diaphragm and measure clearance between top edge of choke valve and air horn. If adjustment is necessary, bend the vacuum diaphragm bracket or link between choke linkage and vacuum break.

3) After setting the vacuum break, open throttle a small amount and listen for a click as the cam drops to second step. Close throttle and check cam. The fast idle adjustment screw should be on second step of cam. To adjust, bend connecting link between the cam and choke. Reconnect vacuum line to break diaphragm.

### FAST IDLE

1) Make adjustment with fast idle screw on second step of fast idle cam. Start engine, but do not disturb throttle.

2) Check engine RPM for proper setting, adjust with idle adjustment screw.



FAST IDLE ADJUSTMENT

### CHOKE ELECTRIC CIRCUIT CHECK

1) Turn ignition switch on and connect a test lamp to ground and blue lead on choke. There should be no current to choke, if current is present, replace relay.

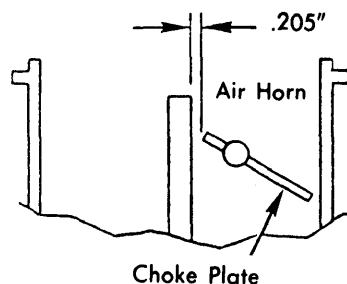
2) Start engine with test light connected to blue lead, current should be present. If test shows system operating correctly, no further tests are required.

3) Check fuse, located in fuse box, if fuse is good, check relay as follows: With key on, current to relay through white-blue striped wire should be present. Black wire should be grounded. With engine operating, current should flow to relay from yellow wire. The relay should operate closing switch to allow current through blue wire to choke.

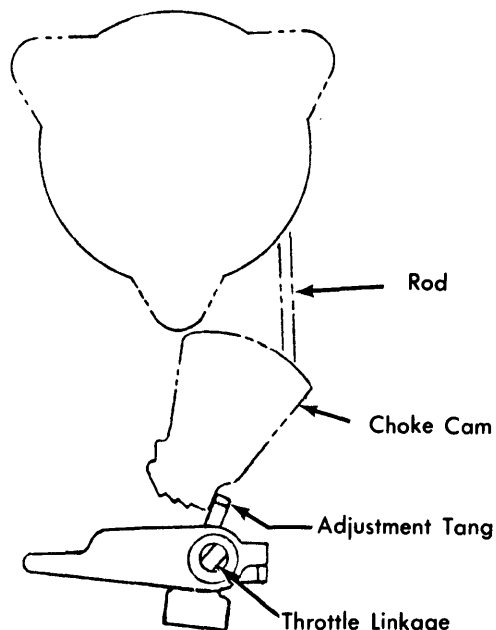
### CHOKE UNLOADER

1) With engine off, hold throttle wide open. If engine is warm, it will be necessary to close choke valve by hand while throttle is held open.

2) Check clearance between upper edge of choke valve and air horn wall. If adjustment is necessary, bend tang on lower throttle plate linkage. Bend toward fast idle cam to increase clearance and away from cam to decrease clearance.



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CHOKE UNLOADER ADJUSTMENT

### DASHPOT

(Vehicles With Auto. Trans. - 1) Start engine and adjust idle to 2400 RPM. Dashpot plunger tip should just contact the stop on linkage.

2) To adjust, loosen dashpot lock nut and adjust dashpot position. Tighten lock nut and check operation.

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### IDLE RPM & MIXTURE

1) Adjust idle when normal engine operating temperature is reached. Set idle speed and mixture screws to obtain the following and continue to step two.

Man. Trans. .... 725 RPM  
 Auto. Trans. (In Neutral) ..... 700 RPM

2) Adjust fuel mixture to obtain two percent CO and recheck idle RPM for following settings:

Man. Trans. .... 700 RPM  
 Auto. Trans. (In Drive) ..... 600 RPM

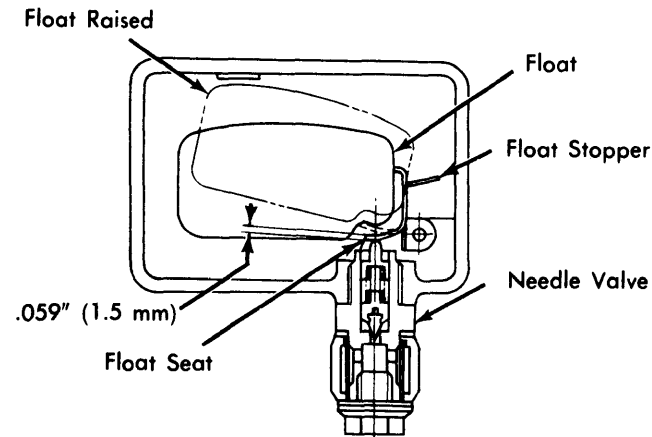
**NOTE** — If equipped with air conditioning, turn air conditioner on for five minutes and readjust idle RPM to specification, but do not readjust mixture screw.

### B.C.D.D. ADJUSTMENT

- 1) With idle RPM and mixture correctly set, remove protection cap covering valve adjustment screw. Connect a vacuum gauge to intake manifold.
- 2) Raise engine RPM to 3000 and hold for approximately four seconds. Release throttle, note time required and vacuum reading from 3000 RPM to 1000 RPM.
- 3) Check for specified setting, if adjustment is necessary, turn screw clockwise to increase time and decrease vacuum. Turn screw counterclockwise to decrease time and increase vacuum.

### FUEL LEVEL

Check that fuel level matches line on level gauge of carburetor. If fuel level is not correct, remove float chamber cover. Bend float seat to provide specified clearance between valve stem and float seat with float lifted up (see illustration).

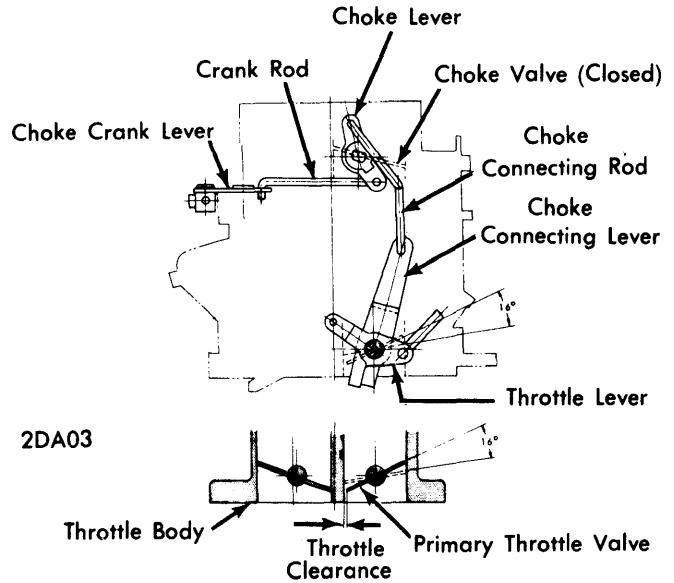


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### FLOAT/NEEDLE VALVE CLEARANCE

### FAST IDLE THROTTLE CLEARANCE

Place fast idle arm on first step of fast idle cam. Then adjust fast idle adjusting screw to obtain specified throttle valve clearance.

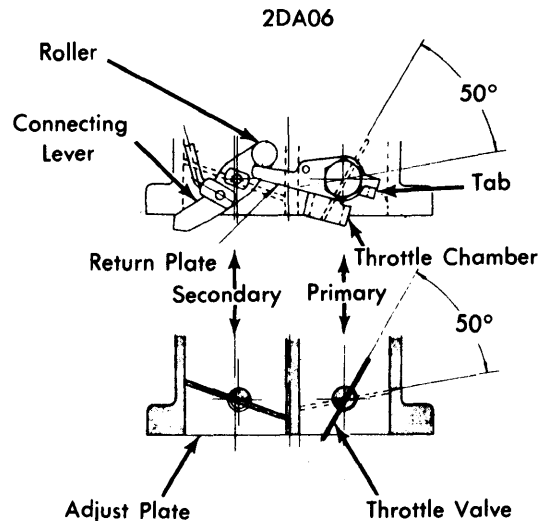


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### BENCH FAST IDLE ADJUSTMENT

### PRIMARY/SECONDARY THROTTLE LINKAGE

With secondary throttle valve closed, the primary throttle valve-to-bore clearance should be as specified. Adjust by bending tab at primary side of throttle linkage (see illustration).



### INTERLOCK OPENING ADJUSTMENT

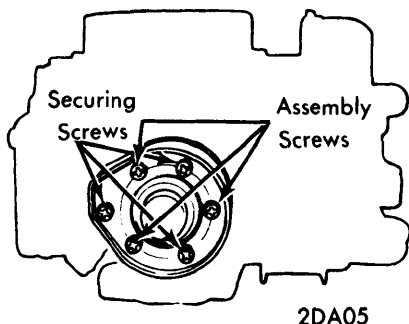
### OVERHAUL

#### REMOVAL & INSTALLATION

- 1) Remove air cleaner and throttle lever. Disconnect fuel line, vacuum line and electric choke wire.
- 2) Remove carburetor nuts, lift off carburetor and discard flange gasket. To install, reverse removal procedure.

## HITACHI DAH 328 2-BARREL (Cont.)

**B.C.D.D.** – Remove unit by removing securing screws (see illustration). Do not remove assembly screws. Reverse removal procedure to install unit, check and tighten all six screws to 17-35 INCH lbs.



**B.C.D.D. SECURING SCREWS**

### DISASSEMBLY

**Carburetor** – 1) Remove main jets, idle jets, and needle valve of both primary and secondary systems. These are accessible from outside the carburetor.

2) Remove choke chamber by detaching connecting rod, pump connecting rod, return spring, stop pin and four set screws.

3) Remove main air bleeds of primary and secondary systems, and check emulsion tubes. Remove accelerator pump piston, being careful not to lose the return spring and inlet valve at the lower part of the piston.

4) Remove throttle chamber by detaching rod linking diaphragm with secondary throttle valve. Four set screws must be removed.

**Secondary Diaphragm** – Remove three set screws that hold diaphragm chamber, remove three set screws that attach the diaphragm chamber cover.

### CLEANING & INSPECTION

Clean all parts in a suitable cleaner and blow all passages and castings dry with compressed air.

### REASSEMBLY

**Carburetor** – To reassemble, reverse disassembly procedure replacing gaskets as necessary. Check all links for smooth operation and adjust as required.

**Secondary Diaphragm** – To reassemble, reverse procedure taking care that edge of diaphragm does not turn up.

### CARBURETOR SPECIFICATIONS

Application	Specification
Choke Setting .....	.025"
Choke Vacuum Break .....	.087"
Fast Idle RPM	
Cold (First 3 Minutes) .....	2100-2400
Hot .....	2300-2800
Choke Unloader .....	.205"
B.C.D.D. Adjustment	
Time (Seconds) .....	4
Vacuum During	
Valve Operation .....	21.5-22.5 in. Hg.
Throttle Valve Clearance (Fast Idle)	
Man. Trans. ....	.047"
Auto. Trans. ....	.055"
Primary/Secondary Throttle Linkage	
Primary Throttle Clearance .....	.274-.331"