HITACHI S.U. TYPE 1-BARREL

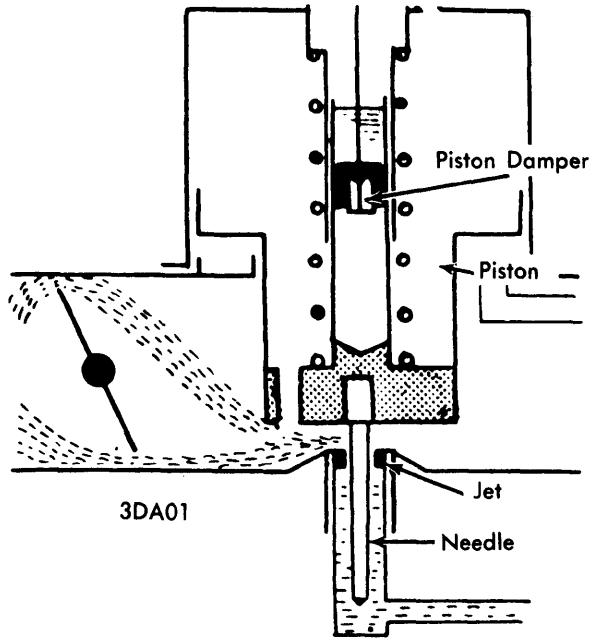
Datsun 240Z (1973)

Hitachi Carburetor No.

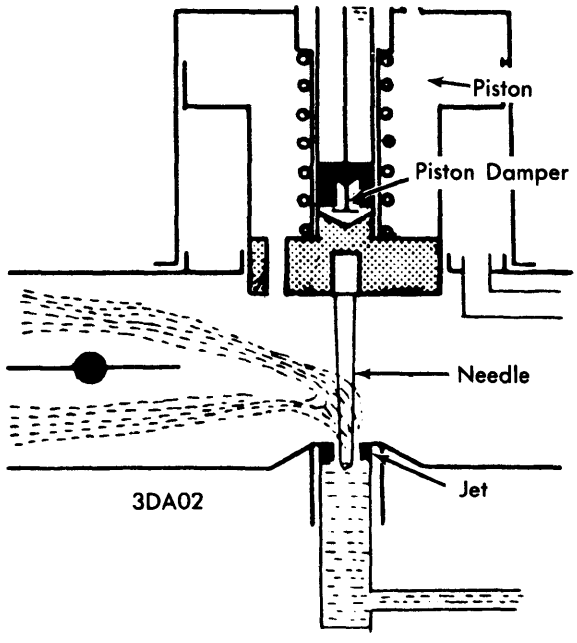
Application	Carb. No.
Datsun 240Z	HMB46W

DESCRIPTION

Hitachi S.U. type is a single barrel, sidedraft carburetor. Venturi area is automatically changed according to engine air intake. Amount of fuel passing through main jet is governed by a tapered needle. A power valve is provided to improve performance during acceleration from medium speed. A choke valve and auxiliary nozzle is used for cold starting. Main components of carburetor consist of: A float chamber, suction chamber, suction piston, piston damper, metering needle and jet, throttle valve body, power valve, choke valve and auxiliary nozzle.



THROTTLE AT IDLE



THROTTLE FULLY OPEN

OPERATION

FLOAT CHAMBER

Fuel passes through float needle valve and enters float chamber. Fuel level is controlled by position of float and needle valve.

SUCTION PISTON

Suction piston is carried in suction chamber of carburetor. An oil damper fitted to top of piston controls quick movements of piston during acceleration. Fitted to bottom of piston is a fuel metering needle. As a result, both air and fuel flow is regulated by piston. When throttle valve is opened, vacuum across venturi area is raised due to increased air flow, causing piston to rise, enlarging venturi area and opening fuel metering needle. The oil damper retards quick piston movement, resulting in a richer mixture at this moment due to increased venturi vacuum. As a result, damper takes over the function of an accelerator pump in a conventional carburetor.

CHOKE SYSTEM

As choke knob inside vehicle is pulled out, choke valve is closed and excess fuel is drawn from auxiliary nozzle at intake side of each carburetor. As a result an enriched air/fuel mixture is supplied by carburetor.

ADJUSTMENT

IDLE SPEED & MIXTURE ADJUSTMENT

1) This adjustment is made with engine at normal operating temperature and air cleaners removed. Remove oil damper cap and raise piston with a suitable tool to ensure that piston operates smoothly.

2) Check damper oil level in carburetors and fill to correct position as necessary using a suitable oil (MS No. 20 or 10W-30). Loosen balance adjusting screw and throttle opener adjusting screw completely.

3) Connect a tachometer and timing light to engine. Set manual transmission models to 750 RPM. On automatic transmission models, adjust idle to 750 RPM with transmission in "N", then position shift lever to "D" with parking brake on and both front and rear wheels blocked. With transmission in "D", idle should drop to 650 RPM. Adjust ignition timing to correct specifications.

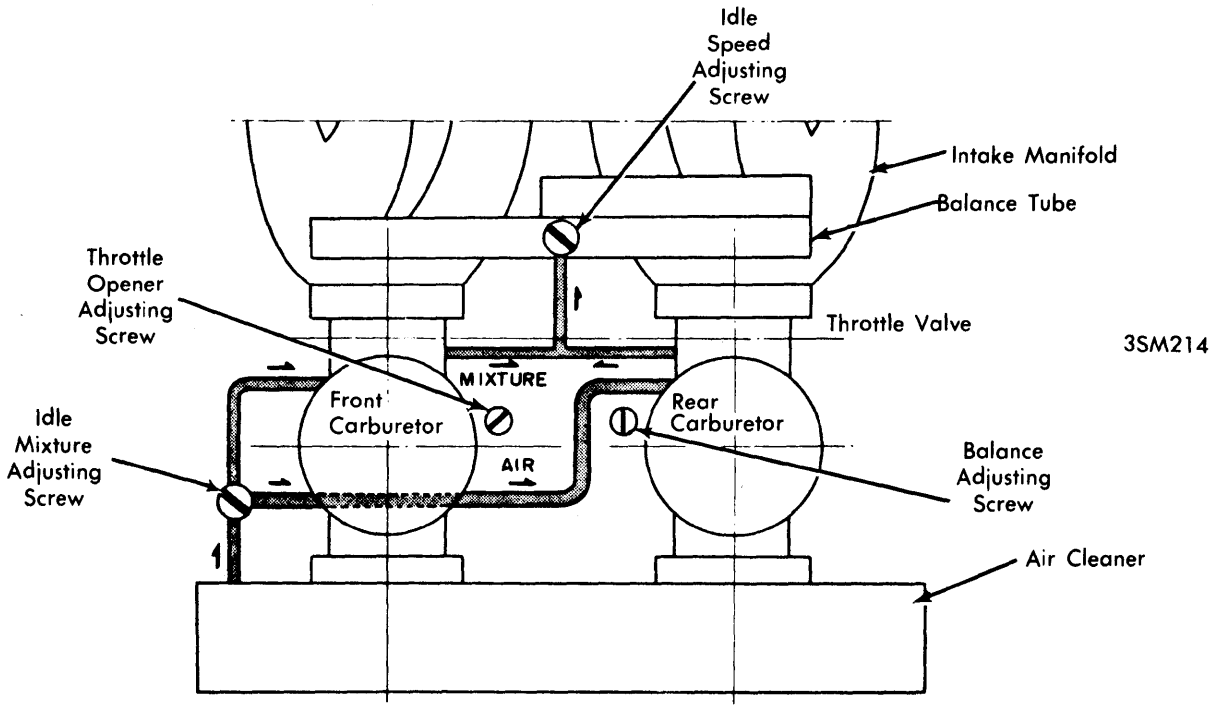
Ignition Timing Specifications

Application	Ignition Timing
Man. Trans.	7° BTDC
Auto. Trans. (In "D")	5° BTDC (Retard)
Auto. Trans. (In "D")	15° BTDC (Advance)

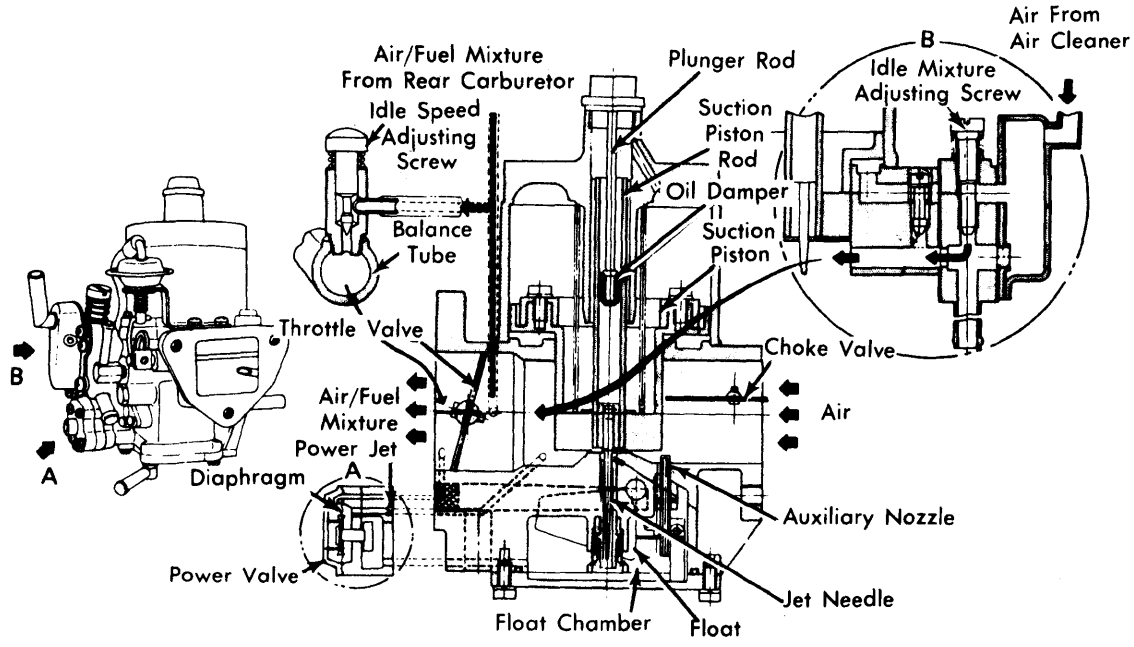
NOTE — If idle RPM changes after timing is set, repeat step 3).

4) Disconnect vacuum lines to vacuum control valve from servo diaphragm and intake manifold. Connect a line from servo diaphragm directly to intake manifold, by-passing vacuum control valve. Adjust throttle opener adjusting screw until engine is idling approximately 1400 RPM.

HITACHI S.U. TYPE 1-BARREL (Cont.)



CARBURETOR ADJUSTMENT



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HITACHI S.U. TYPE CARBURETOR (SECTIONAL VIEW)

HITACHI S.U. TYPE 1-BARREL (Cont.)

5) Using a suitable flow meter, balance both front and rear carburetors by turning adjusting balance screw. Install air cleaner cover. Check idle RPM and if necessary adjust to 1400 RPM again.

6) Disconnect and plug check valve inlet hose. Connect a suitable CO meter to engine. Adjust idle mixture screw until correct CO percentages are obtained.

CO Percentage Specifications

Application	CO Percentage
Man. Trans.	1.0 to 1.6%
Auto. Trans.	0.6 to 1.2%

NOTE – When checking CO percentage, place automatic transmission in "N".

7) Disconnect servo diaphragm line for two or three seconds and then reconnect. Idle speed should increase to 1400 RPM when line is reconnected. If idle speed does not increase to 1400 RPM, repeat steps 4), 5) and 6). Reconnect all vacuum lines in original positions and check CO percentage again. Percentage should be below 3%.

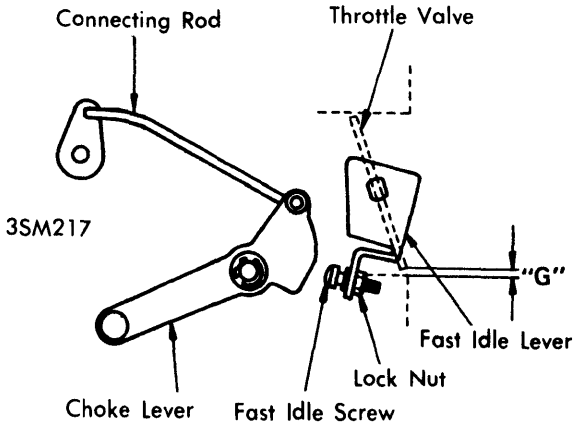
PISTON DAMPER

Oil level in piston damper should be checked every 3000 miles. Oil level is correct if oil level is not below second groove on plunger rod. Use 20W motor oil or 10W-30 motor oil.

FAST IDLE ADJUSTMENT

1) Place upper side of fast idle adjusting screw on first step of fast idle cam. Adjust fast idle screw so that distance between throttle valve and throttle chamber is .023" to .025" (see dimension A in illustration).

2) If distance is not as specified, correct by adjusting fast idle screw. If it is necessary, adjust choke valve opening by bending connecting rod link between choke valve and fast idle cam.



FAST IDLE ADJUSTMENT

POWER VALVE

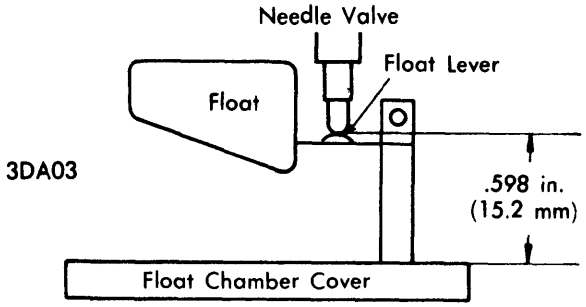
If the CO level was found extremely rich and the cause can not be found in carburetor adjustment, the power valve might be defective. Remove and disassemble power valve. Inspect diaphragm for damage and replace as necessary.

FLOAT LEVEL ADJUSTMENT

1) Float level can be checked through a small window located behind carburetor. A small mirror is required to check float level. Normal level is .2362" below center line of window.

2) If float level is not as specified, remove and invert float chamber cover. Check distance between float chamber cover and contact point of float lever. Distance should be .598". Adjust to correct clearance by bending float lever.

3) Install float chamber cover. Crank engine over and check float level.



FLOAT LEVEL ADJUSTMENT

OVERHAUL

NOTE – Manufacturer recommends only overhaul of float and needle valve parts. If any other components are determined defective, carburetor must be replaced.

TROUBLE SHOOTING

CARBURETOR FLOODING

1) Float leaking or defective, replace.
2) Dirty needle valve seat, clean or replace.
3) Needle valve loose or defective, tighten or replace.
4) Excessive fuel pump pressure, adjust.
5) Fuel pump defective and drawing in air, replace.

EXCESSIVE FUEL CONSUMPTION

1) Carburetor flooding (see Carburetor Flooding).
2) Faulty suction piston operation, repair or replace.
3) Power valve leakage, replace.
4) Improper idle adjustment, adjust.

LACK OF POWER

1) Throttle valves do not open fully, adjust.
2) Faulty suction piston operation, repair or replace.
3) Defective fuel pump, replace.

POOR IDLE

1) Faulty suction piston operation, repair or replace.
2) Improper idle adjustment, readjust.
3) Worn throttle valve shaft, replace carburetor.
4) Air leakage between carburetor and manifold, replace gasket.

POOR ENGINE OPERATION

1) Faulty suction piston operation, repair or replace.
2) Insufficient or improper damper oil, replenish or replace.
3) Improper idle adjustment, adjust.

ENGINE DOES NOT START

1) Carburetor flooding (see Carburetor Flooding).
2) No fuel feed to engine, check fuel pump, fuel line and needle valve.
3) Improper idle adjustment, adjust.
4) Defective suction piston, repair or replace.

FAULTY SUCTION PISTON OPERATION

1) Piston sticks due to dirt or other foreign matter, clean.
2) Piston sticks due to deformation of piston or chamber, replace carburetor.
3) Bent jet needle, replace carburetor.
4) Bent plunger rod, replace.

CARBURETOR SPECIFICATIONS

Application	Specification
Suction Piston Lift	1.339"
Nozzle Jet Diameter	.100"
Fast Idle Throttle Valve Opening	.023-.025"
Oil Damper Plunger Diameter	.349"
Suction Spring	#50
Power Jet	#40