



WEBER CARBURETOR TROUBLESHOOTING GUIDE

This guide is designed to find problems by diagnosing engine symptoms associated with specific vehicle operating conditions.

For successful troubleshooting, complete these steps:

1. Do all steps in a given box and those which may follow in the guide.
2. Do all these steps in order; they are listed in order of common occurrence, and will help eliminate secondary problems.
3. Fully replace, adjust, or clean as directed by the diagnosis.
4. Do only those procedures and adjustments when given as a part of the steps shown in the guide.

Weber carburetors are manufactured under stringent quality controls and are thoroughly factory tested. Experience has shown that most apparent carburetor problems are actually due to trouble with other components.

VEHICLE OPERATING CONDITIONS (By Engine Temperature)

ENGINE SYMPTOMS	STARTING		IDLING		RUNNING		ACCELERATION	
	Cold	Hot	Cold	Hot	Cold	Hot	Cold	Hot
Stalls/Dies	5C 5D	4A	5C	6G	3B	2A 2H	1E 2F	1E 2F
Rough/Poor Running		4A 5I	1A 5D	4A	4A	4A 6E	6A 6D	1A 2A
Slow/Low Running		1A 3B	4A 5C	4A 5B		3A		6E
Floods/Smokes		2G 5D	5D	2G 5D	5D	5E 5J		5E 5J
Races	5C	5A	5C	5A			6F	6F
Runs On				5B 5G 5F				
Does Not Start/Idle	1A 1I 2A	6H	5C 5D	5B 5G				



FOR YOUR SAFETY

ALWAYS:

- Use clamps on fuel hoses.
- Replace cracked fuel, vacuum and coolant hoses.
- Label all hoses and wires before disconnecting.
- Clean engine before beginning installation.
- Use Loctite on hardware inside air cleaner and bottom of manifold studs.
- Use an insulated connector or wire tap for wiring.
- Use new gaskets - sealer generally not needed.

NEVER:

- Allow dirt in carburetor.
- Run engine without a fuel filter.
- Run engine without an air filter.
- Allow fuel to leak or spill.
- Dent or cut the aluminum gasket surfaces of the carburetor or manifold.
- Over-tighten jets or levers.

1. ELECTRICAL

To verify ignition system is functioning correctly, perform steps 1A through 1G with the ignition on.

Note: These tests require a fully charged battery with clean terminals.

- A.** Test spark at plug wire:
If spark is blue-white, ignition is ok - go to 1B. If spark is orange - go to 1C.
If there is no spark - go to 1D.
- B.** Test spark at all plug electrodes:
If spark is blue-white - plugs are ok - go to 1H. If spark is weak or intermittent - go to 6A.
- C.** Test spark at coil:
If spark is blue-white - replace cap, rotor and/or wires. If spark is orange - replace points, condenser, and/or coil. If there is no spark - go to 1D.
- D.** Test spark at points: If spark is weak or orange - go to 1E. If there is no spark - go to 1F.
- E.** Test ground at condenser: if ground is loose or corroded - clean and tighten connections.
- F.** Test voltage at ignition side of ballast resistor:
If 12 Volts (and no spark at points) - check ballast resistor, distributor primary wire (small diameter - 16 gauge wire), wire terminals and replace points and condenser. If ignition is solid state - do test for pick-up and spark unit. Refer to car's shop manual. If no voltage - go to 1G.
- F.** Test voltage at fuse for ignition/charging circuit:
- G.** If 12 volts is not at both sides of fuse, replace fuse.
- H.** Check static ignition timing:
(also check distributor shaft for excessive free play) If it is ok - go to 1I.
- I.** Check if distributor is 180° out of time: check by comparing to cam timing or by reversing opposing pairs of plug wires at the distributor cap.



2. FUEL DELIVERY

To verify that the supply and quality of fuel to the carburetor is correct, perform steps 2A through 2I.
Experience has shown that fuel contaminated by water, dirt or rust is a primary cause of carburetor problems.
Note: On many cars electric fuel pumps are not powered unless engine is running or starter is engaged.

- A. Test flow at carburetor fuel supply pipe by disconnecting fuel hose and watching a small sample of fuel flow into a clean, dry can when the cars fuel pump is activated.

****Do not allow any chance of a spark - disconnect the primary wire(s) (small diameter - 16 gauge wire) that connects the ground side terminal of the coil to the distributor (or spark box, if solid state ignition).**

If flow is adequate - go to 2E.

If flow is not adequate - go to 2B.

- B. Test flow at fuel filter and then at fuel pump:

If flow is not adequate - go to 2C.

- C. Check if fuel tank is empty or lines are blocked by dirt, ice or other foreign matter:

If fuel is in the tank and lines are not blocked - go to 2D.

- D. If car has electric fuel pump, apply 12 volts and connect a ground to the pump.

If the fuel pump is mechanical, engage the starter and turn engine over.

If the flow is not adequate - replace the pump.

- E. Check if fuel is bad or old:

If fuel doesn't smell right:

Try some known good fuel a few drops at a time in carburetor inlet.

**** Avoid fuel contact with skin.**

- F. Check if fuel is contaminated with rust or water. Check if fuel is contaminated with rust or water:

Remove and empty out fuel filter (from inlet side) into clean, dry can or take a sample from fuel tank by removing the drain plug over a clean, dry can. Water does not mix with fuel.

- G. Check fuel pressure or install pressure regulator. Fuel pressure **must not** exceed 24kPa (3.5psi).

Fuel pressure must not exceed 24kPa (3.5 psi).

- H. Check if fuel supply and return lines are reversed: To identify the fuel fittings on a Weber Carburetor, look directly into the fitting - there is a restriction inside the return pipe, and none in the supply pipe.

If lines are not reversed - go to 2I.

- I. Inspect fuel lines and hoses for crimps or kinks.

3. ENGINE

To verify that the engine has the mechanical ability to run correctly, perform steps 3A through 3C.

- A. Test compression of all cylinders.

Compression should be over 125 psi and even within 10%.

- B. Check if inlet manifold bolts are missing or loose.



- C. If the inlet manifold normally is heated, it must be connected to the intended heat source (usually a water hose).

4. VACUUM SYSTEM

To verify that there are no vacuum leaks, check all vacuum devices and connections to the inlet manifold. Use the methods below to perform these tests.

Note: Vacuum devices are controls and valves that require sealed vacuum connections to operate correctly.

- A. The VACUUM PUMP METHOD OF TESTING is helpful in diagnosing leaking hoses and devices in vacuum systems away from carburetor (vacuum pump testers have a built-in gauge to measure vacuum). Starting from the carburetor and working toward the engine, disconnect vacuum hoses one at a time. Do not mix up the hoses.
Plug the exposed vacuum source and connect the vacuum pump to the hose to test the circuit for leaks or malfunction.
To Test:
Distributor advance - watch change in timing.
Distributor retard - with a strobe light.
EGR Valve - stalling is normal when testing.
Decel Valve - engine fast idles when tested.
Canister Purge - if engine speed changes with hose disconnected, canister is full of fuel; possible overfilled tank or tank vent problem.
Go to 4B.
- B. The HOSE PINCH METHOD OF TESTING is helpful for finding leaking air cleaner hoses and other devices that are leaking.
Connect air inlet duct or air cleaner.
Run engine at idle.
Pinch the vacuum hoses with pliers one at a time and listen for changes in idle. Double check suspected problems using vacuum pump.

To Test:
Hoses
Choke stove air door (thermostatic air cleaner)
Power brake booster
Heater controls; all positions
Cruise control
Air conditioning fast idle; ignition on, a/c on
Headlight doors
Vacuum reservoirs and amplifiers
PCV valve (Idle should drop 50 rpm)
Go to 4C
- C. The CARBURETOR CLEANER METHOD OF TESTING is helpful for finding defective gaskets and hidden leaks.
**** Avoid spraying yourself; read labels; wash after using cleaner.**
Remove air inlet duct or air cleaner and plug any disconnected vacuum sources.
With engine idling, spray carburetor cleaner into air inlet of carburetor to determine the effect on running.
Allow engine to return to previous idle.
Now spray cleaner on outside of carburetor and manifold.
Vacuum leaks are pinpointed when idle changes.



To Test-

Carburetor - some vacuum leakage at the throttle shafts is normal.

Inlet manifold

Gaskets and seals

Fittings and plugs

5. CARBURETOR

To avoid wasting time and introducing secondary problems, do these steps only after 1A, 2A, 3A, and 4A. Experience has shown that most apparent carburetor problems are actually due to trouble with other components.

- A.** Test choke and throttle linkage:
Check for full free movement at carburetor while someone else operates controls. Experience has shown that many carburetor problems result from over-tightened throttle levers.
- B.** Test idle speed adjustment:
With engine warm, adjust to manufacturers specifications: turn idle speed adjustment screw in (clockwise) to raise, and out (counter-clockwise) to lower.
- C.** Test fast idle adjustment:
With engine cold, press accelerator to floor once and release completely - start engine; engine speed should be 1000 to 2500 rpm after 10 seconds; switch off engine. To adjust - turn fast idle adjustment screw one half turn without disturbing carburetor linkage; turn in (clockwise) to increase rpm, turn out (counter-clockwise) to decrease rpm; do not touch accelerator pedal; restart engine. Check idle speed again. Re-adjust if necessary.
- D.** Test automatic choke adjustment:
The choke is preset at the factory but sometimes it is necessary to make periodic adjustments. The choke assembly must be cool (below 20°C/68°F) before attempting adjustment. First, fully turn the throttle lever and release; check for smooth operation; the choke plates should be fully closed. Make a reference mark on the electric choke and carburetor where their faces' meet before loosening the three 7mm hex head screws. Loosen the three 7mm hex head screws one full turn. While holding the throttle about 1/3 open, adjust the closing tension on the choke plates just fully close; then slightly increase the bimetal spring tension by continuing to rotate the thermostat 3 mm (1/8 ") - measured on the outer diameter of the thermostat. Tighten the three 7mm hex head screws without distorting the retainer ring; fast idle speed may need readjustment. If choke plates do not open completely after running engine for three minutes - go to 5E.
- E.** Test thermostat choke assembly:
Electric choke terminal must have 12 volts with engine running. Carburetor body must be grounded by a metal to metal connection to engine. If the car was originally equipped with an electric choke and/or an idle cutoff solenoid, use those wires. If there is no available wire, splice into the wire leading from the ignition switch to the coil or ballast resistor.
Water chokes must have a free flow of coolant.
- F.** Test idle cutoff solenoid (if equipped):
With the solenoid on the carburetor, ignition on and engine off, disconnect the solenoid wire and listen for a click; then, with engine idling, disconnect the solenoid wire. Engine should stop. If idle does not change - go to 5G.

- G.** Test idle mixture adjustment:

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Adjust with engine at or below idle rpm; turn idle mixture adjustment screw in (clockwise) by quarter turns until idle speed drops; turn out (counter-clockwise) while counting quarter turns until idle rises and again drops noticeably; turn in again to the middle setting.

If rpm does not change - go to 5H.

- H.** Clean idle circuit:
Locate and remove idle circuit jet holder from the carburetor. Remove jet holder, holdup to light and look for roundness of cavity. Remove idle mixture adjustment screw from carburetor, blow clean compressed air through the two open passages, and replace the jet in the jet holder and the mixture adjustment screw into the carburetor. Do not over-tighten. Basic mixture adjustment screw setting is two and a half to three turns out.
- I.** Confirm the correct connection of vacuum hoses to all vacuum signal sources.
Install a vacuum pump with a gauge. Start engine and operate throttle.
If the vacuum is present at idle it is manifold vacuum source.
If vacuum is present only as throttle begins to open it is a ported vacuum source.
If vacuum is present only at steady open throttle (higher rpm) it is a venture vacuum source, refer to the cars shop manual or the label on the underside of hood for original correct connections.
- J.** Set the fuel float level.
Refer to the Weber shop manual (float level problems are rare on new Weber carburetors).

6. PERSISTENT PROBLEMS

These are not listed above because they are unique, difficult to diagnose, or they are beyond the scope of this guide. However, extensive experience has brought some of them to light and they are listed below:

- A.** Replace spark plugs; use only new plugs of correct type.
- B.** Check the ground strap on the engine or transmission. It is vitally important that the engine is grounded to the chassis (and battery).
- C.** Recheck or have rechecked any work coincidental to the problem, such as body work or engine repairs, a tune-up, installation of an alarm or stereo or an emissions inspection.
- D.** Check for a damaged exhaust system or internally collapsed muffler.
- E.** Do a spark plug reading; rejet as necessary.
- F.** Check for clutch or automatic transmission slippage.
- G.** Check for a plugged fuel tank vent hose at canister.
- H.** Some late model cars, including Nissan (Datsun), have two wires to the electric choke; one is a ground and need not be connected to the Weber carburetor.
- I.** Some original equipment fuel pumps, including Luv, have excessive output pressure.
- J.** On water-cooled Volkswagens, vibration due to worn out motor mounts may cause fracture of the carburetor top.

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- K.** Whenever the throttle return spring is located on the same side of the carburetor as the throttle lever (DFAV, DFEV), check for the first spring coil becoming trapped between the lever and the carburetor binding, causing binding.
- L.** Incorrect installation of throttle levers can cause both throttle plates to open simultaneously. Progressive carburetors do not function properly unless the primary plate opens well before the secondary.
- M.** Multiple carburetor applications require synchronization of both carburetors.
- N.** Intermittent problems must be diagnosed during period of malfunction. Plan ahead, carry the necessary tools.
- O.** Review troubleshooting guide to see if any steps were overlooked or not understood.

If you encounter any installation or operational problems please contact the firm where the unit was purchased. **You must call while the unit is on the vehicle.** If they are unable to help you, they will provide you with a phone number for technical assistance.

For further information concerning the operation, repair and tuning of Weber Carburetors the following publications can be helpful:

<u>Title</u>	<u>Part #</u>
H.P. on Weber Carburetors	HP-774
DFV, DGV Series Manual	95.0014.35
DCOE Series Manual	95.0022.35