

INSTALLATION INSTRUCTIONS



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READ & UNDERSTAND ALL STEPS OF THESE INSTRUCTIONS BEFORE BEGINNING THIS INSTALLATION.

VOLKSWAGEN **ALL TYPE 1 DUAL-PORT ENGINE** **FOR KIT NOS. K1315, K1316** **Using (1)Weber IDF CARBURETOR**

TOOLS AND EQUIPMENT NEEDED:

Combination, box or open end wrenches (metric)
Socket set metric
Screwdriver (regular and Phillips)
Pliers
Gasket Scraper
Rags
Knife
Gasket Sealer

$\frac{3}{8}$ " Drive Ratchet
 $\frac{3}{8}$ " Drive Swivel
 $\frac{3}{8}$ " Drive Extension (10-12")
 $\frac{3}{8}$ " Open-End Wrench
Wire Cutters

PARTS SUPPLIED WITH INSTALLATION KIT

1 - Hardware Kit
1 - Throttle Linkage Kit
1 - Intake Manifold
1 - Weber IDF Carburetor
1 - Air Filter Assembly

NOTE: It is recommended to obtain a new fuel filter and install it when installing this kit.

The following instructions are based on an engine in stock condition. If you have made modifications to your engine, some of the following steps may not apply to your application.

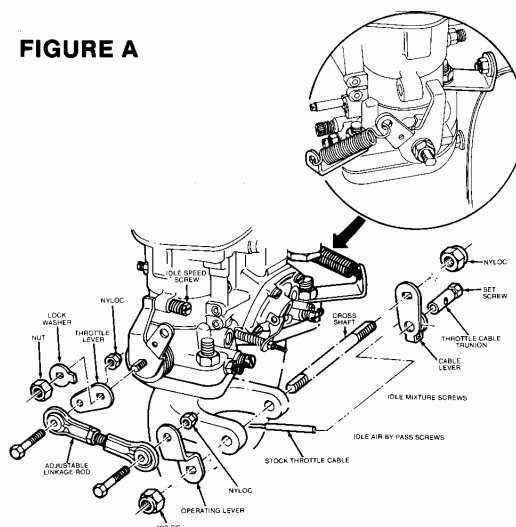
DISASSEMBLY

1. Remove the vehicle's gas cap.
2. Disconnect the battery.
3. Remove the stock air filter and attached components.
4. Identify the ignition wires for correct reassembly. Remove distributor cap and wires.
5. Remove the fan belt, pulley nut and pulley from the generator.
6. Remove the fuel line from the fuel pump to the carburetor. Plug the outlet of the pump to prevent leakage.
7. Disconnect the throttle cable and electric choke/idle cut-off solenoid wire from the carburetor. **(Insulate the wire connectors to prevent any shorts. These wires will not be reused.)**
8. Unbolt the stock heat riser tubes.
9. Unbolt the fan shroud from the cylinder head tin.
10. Remove the clamps securing the rubber intake manifold boots. Unbolt and remove the end castings from the heads. Insert a clean rag in the intake ports to prevent dirt and debris from entering the engine. Thoroughly clean the mounting surfaces with a gasket scraper.
11. Remove the manifold center section securing nut and washer from the stud. Retain for use later.
12. Disconnect the wires from the generator. Identify the wires for correct reassembly. Remove the fan and generator.

Legal in California **ONLY** for racing vehicles which may **NEVER** be used upon a highway, (except 1967-earlier).

13. Remove the stock intake manifold and carburetor as a complete unit.
14. Remove the rags from the intake ports and install the right side (passenger's side) end casting using gasket provided in the kit.
15. Position the new intake manifold on the center section stud and line up the manifold tube with the end casting. Determine the amount of material to be removed from the tube so that it will come short of touching the end casting by 1/8". Mark this location on the tube and remove the intake manifold. Cut the tube at the location marked.
16. Install the left side (driver's side) end casting. Repeat the procedure used in Step #15 to cut the manifold tube for the left side.
17. Deburr the rough edges, once both tubes have been measured and cut. **NOTE:** Clean the intake of any metal shavings and debris.)

FIGURE A

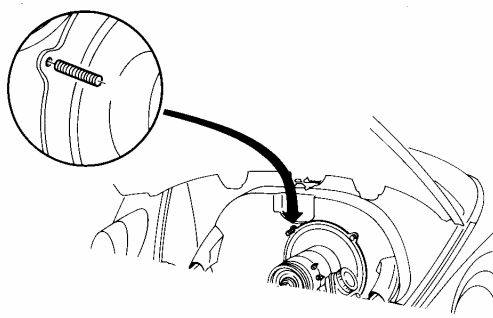


21. Remove the air horns from the new carburetor and install the air filter supplied in the kit. Use the nuts and lock washers provided to secure the filter base in place.
22. Remove the left top fan shroud screw and install the carburetor support bracket stud in its place. (FIG. B)

BENCH ASSEMBLY

18. Install the four (4) carburetor mounting studs into the threaded intake manifold holes, using the locking compound provided in the kit. **NOTE:** If the correct stud tool is not available, the "double-nut" method can be used. Lock two nuts approximately 1/3 way down the stud. Using a suitable wrench on the top nut, tighten the stud into the manifold.
19. Install the flange gaskets and carburetor on the intake manifold. Slide the carburetor support bracket over the left-rear carburetor stud and the throttle return spring bracket over the right-front carburetor stud. Install the carburetor flange nuts from the kit and hand-tighten them in place. (Fig. A)
- (C) Install the carburetor throttle linkage components as shown in (FIG. A). **CHECK THROTTLE OPERATION FOR FREE MOVEMENT. IF THERE IS ANY INDICATION OF BINDING OR STICKING, CORRECT AS NECESSARY BEFORE PROCEEDING.**

FIGURE B



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23. Install the rubber hoses and clamps on the new intake manifold tubes. Do not tighten clamps at this time.

FINAL INSTALLATION

24. Install a new set of spark plugs, if needed, before any further assembly is done.
25. Install the carburetor and intake manifold assembly as one unit. Locate the manifold so that the center section stud passes through the boss on the intake manifold. Reinstall the original lockwasher and nut. *(Do not tighten nut at this time.)*
26. Replace the fan, shroud, and generator in their original position. Replace the generator pulley, nut and fan belt. Adjust the fan belt tension.
27. Reinstall the distributor cap and ignition wires.
22. Align the carburetor support bracket with the stud on the fan shroud. Using the lockwasher and nut provided, secure the support bracket to the stud. Tighten the carburetor flange nut and support bracket nut when alignment is correct. Tighten the center-section nut to secure manifold in place.

29. Complete installation of rubber hoses (*boots*) to each end casting tube and tighten clamps to secure hoses in place.
30. Remove the plug from the fuel pump outlet and install the fuel line and clamps provided.
31. Install the throttle cable extender and adjust it to allow the stock cable to be inserted through the center and held in place by the set screw. Tighten extender set screw when adjustment is correct.
32. **CHECK THROTTLE OPERATION FOR FREE MOVEMENT. IF THERE IS ANY INDICATION OF BINDING OR STICKING, CORRECT AS NECESSARY BEFORE PROCEEDING.**
33. Replace the gas cap and re-connect the battery.
34. Before starting engine be sure the carburetor linkage moves freely and ignition plug wires have been replaced in the correct firing order.
35. Start engine and check for fuel and vacuum leaks. Correct as necessary **before** proceeding.
36. Set idle speed and idle mixture per the separate instructions provided in this kit.
37. **CHECK FOR ADEQUATE HOOD CLEARANCE BEFORE CLOSING THE HOOD.**

WEBER IDF Carburetors

Low Speed Circuit Tuning



It is most important to verify all linkage and levers are installed without binding and the linkage opens to full throttle and is allowed to close to the Idle Speed Screw. **This is the number one and two reasons for tuning errors, improper linkage installations and over tightened linkage nut, causing binding in the linkage assembly.**

The Individual Runner carbs, IDF, have individual Idle jets and mixture screws for each barrel. They also have an additional air bleed screws and lock nuts. This is not used for idle adjustment or idle quality. **The settings for these screws should be closed.**

Standard IDF Settings:

Speed screw: $\frac{1}{2}$ turn in after contact with lever **Absolute MAXIMUM.**

Mixture Screw: $1\frac{1}{4}$ - $1\frac{3}{4}$ turns out from lightly seated.

Float Height: 14mm gasket to top of float, (do not depress ball & spring in the needle valve).

Float Drop: 2mm of "NEEDLE" travel.

"Lean Best Idle" Procedures

After confirming the linkage allows the throttle lever to seat against the Idle Speed Screw. Back off the Idle Speed Screw, then turn the screw in until it contacts the throttle lever and **turn it in $\frac{1}{2}$ turn MAXIMUM.** Turn in the Mixture Screw in until it "**LIGHTLY**" seats, then back it out $1\frac{1}{2}$ full turns. Loosen the 8mm wrench size nuts on the "air bleed" screws, turn in the air screws until it seats then retighten the nut.

- Start the engine, it will run slow and like a tractor. As long as it will stay running, the idle speed is not important at this point.
- First, turn in the mixture screw until the engine runs worse, then back out the screw $\frac{1}{4}$ turn at a time. The engine should start to smooth out. Continue to back the screw out $\frac{1}{4}$ turn at a time until the screw does nothing or runs worse. Then turn it back in to the point where it ran best. You want to tune the engine by sound. Adjust each mixture screw to the best, fastest and smoothest running point. Do this procedure with each mixture screw.
- Now you may adjust the Idle Speed Screw. It should be sensitive and only require $\frac{1}{4}$ turn in or out to achieve the idle speed you like.
- These carbs are most commonly used in pairs, this makes the synchronization important, be sure to bring the high flowing carb down to the low flow carb. Then bring them both up to "proper" Idle speed. **The Idle Speed Screws are not opened more than $\frac{1}{2}$ turn in MAXIMUM.**
- After synchronizing multiple carbs, reconfirm steps b. c. & d.

"Simple Rules for Calibration"

If your mixture screw is out more than 2 turns then your idle jet is too lean, go up one half size on the Idle jet.

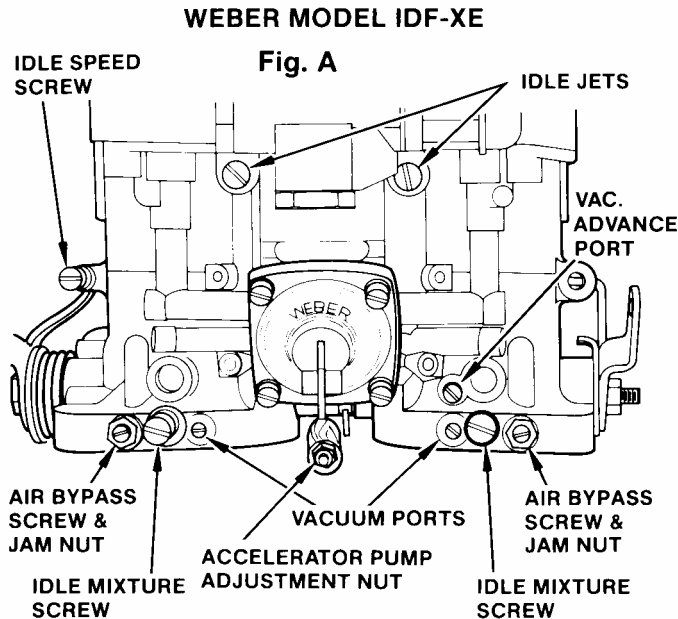
If your mixture screw found lean best idle at less than $1\frac{1}{4}$ turns from lightly seated, then your Idle jet is too rich, go down one half size on the idle jet.

This is all based on the "**important fact**" that your Idle Speed Screws are "**not open more than $\frac{1}{2}$ turn in**", if they are then that is also an indication that you have a lean Idle circuit. You are cheating by opening the throttle plates and exposing additional progression holes in the transition.

Pump By-pass Valve:

The pump by-pass valve is designed to allow fuel into the pump circuit and when depressed, by-pass a percentage (hole on the side of the valve) of the fuel delivered to the accelerator pump nozzle/jets. A "zero" pump by-pass valve will deliver all of the available fuel to the engine and not "by-pass" fuel back to the fuel bowl. This will increase the duration and volume of the pump shot with the original pump jets. To decrease the duration and increase the fuel volume use the larger 55 pump nozzle/jets. This is for maximum fuel delivery from the accelerator pump circuit. The accelerator pump by-pass valve is located in the bottom of the fuel bowl, one is required per carburetor.

IDF Adjustment controls



More Tuning & Adjustment

1. **Most Critical!** Be sure for initial carburetor set up all air by-pass screws should be in closed position. These are not commonly used in standard carburetor adjustment.
2. Set the idle speed screw at $\frac{1}{4}$ to $\frac{1}{2}$ turn in after contact with throttle lever. When doing multiple carburetors all linkage should be disconnected. All carbs should be bench adjusted to same setting.
3. Set the idle mixture screw to 1 $\frac{1}{4}$ turns out from lightly seated. **When checking the seated position to make only light contact with seat, aggressive seating will damage needle and seat of carburetor,**

Adjustment if possible should be to find smoothest idle with each mixture screw on all carburetors. Some prefer to do one barrel of each carburetor then come back and do the second barrel

4. **Start engine** as long as engine starts and runs **do not turn up idle speed first.**
5. After preliminary lean best setting of idle. Check carburetors for synchronization. Commonly done by checking lead or front barrel of each carburetor.
6. You will always want to bring high flow carburetor down to match the low flow carburetor. If this cannot be done you will need to recheck bench assembly for binding throttle in high flow carb. Once you have matched both carburetors you will need to set the idle to the desired idle speed setting. This will be done by adjusting both carbs up or down the same amount and rechecking for synchronization.
7. Make one last check of lean best (smoothest running position) idle on all mixture screws one last time.
8. Best idle should end up with the mixture screws at or near 1 $\frac{1}{2}$ turn off the seated position. Check rule of thumb for idle jet selection on the other side of this page.

Progression Hole's Throttle Plate Adjustment Diagram



SPECIAL NOTE:

The following describes the importance of having the Throttle Plate(s) below the fuel enrichening progression holes that are drilled in the throat of the carburetor.

Synchronized Carburetors: IDF, IDA, DCOE, etc.

Shown in Figure "A", the idle speed screw **IS NOT** turned in more than the $\frac{1}{2}$ **turn MAXIMUM**. The throttle plate (F) is below the progression holes (2), the carburetor would be at "curb" idle.

Shown in Figure "B", the idle speed screw **IS** more than a $\frac{1}{2}$ **turn in MAXIMUM**. The throttle plate **IS** exposing the enrichening progression holes. The extra fuel at curb idle, from the exposed enrichening holes, is 95% of the tuning problems we experience. The Idle Speed Screw **CAN NOT** be turned in more than $\frac{1}{2}$ **turn MAXIMUM**, or, you will experience rich idle condition, a stumble off idle and at around 1800 RPM.

Shown in Figure "C", This air by pass valve is shown in the open position inducing a vacuum leak. These valves are not normally used for tuning or for idle control. The correct setting is closed. Loosen jam nut (1), turn screw (2) clockwise until seated, then retighten jam nut (1).

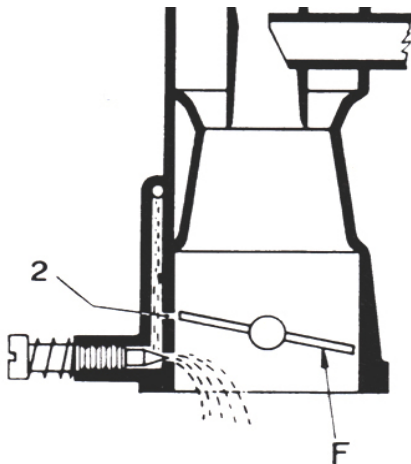


Figure A
Correct Throttle Position

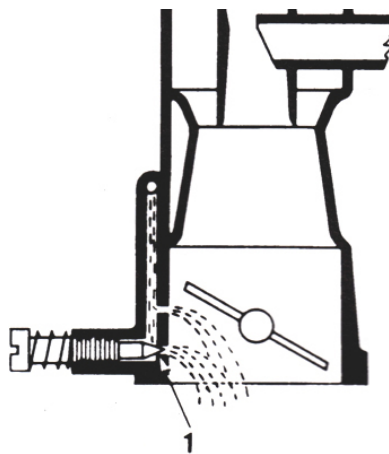


Figure B
Enrichening Holes Exposed

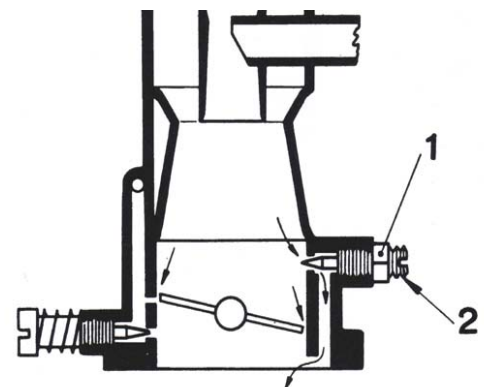


Figure C
Air By-pass Valve