

# INSTALLATION INSTRUCTIONS



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

## V.W. BUS, VANAGON, PORSCHE 914 ALL TYPE IV CARBURETED & INJECTED ENGINES (Except Models 411, 412)

For Kit Nos. K1347, K1348, K1349  
Using (2) Weber IDF CARBURETORS

### TOOLS AND EQUIPMENT NEEDED:

Combination, box or open end wrenches (metric)  
Socket set with 12 mm socket  
Screwdriver (regular and Phillips)  
Pliers  $\frac{3}{8}$ " Drive Ratchet  
Gasket Scraper  $\frac{3}{8}$ " Drive Extension (10-12")  
Rags  $\frac{3}{8}$ " Drive Swivel  
Cleaning Solvent  $\frac{3}{8}$ " Open-End Wrench  
Knife  
Gasket Sealer

### PARTS SUPPLIED WITH INSTALLATION KIT

1 - Hardware Kit  
1 - Throttle Linkage Kit  
2 - Weber IDF Carburetors  
2 - Intake Manifolds  
2 - Air Filter Assemblies  
1 - Fuel Filter

**NOTE:** Fuel injected applications must purchase a low pressure fuel pump and a new distributor.

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.

### PRELIMINARY DISASSEMBLY FOR FUEL INJECTED AND CARBURETED ENGINES.

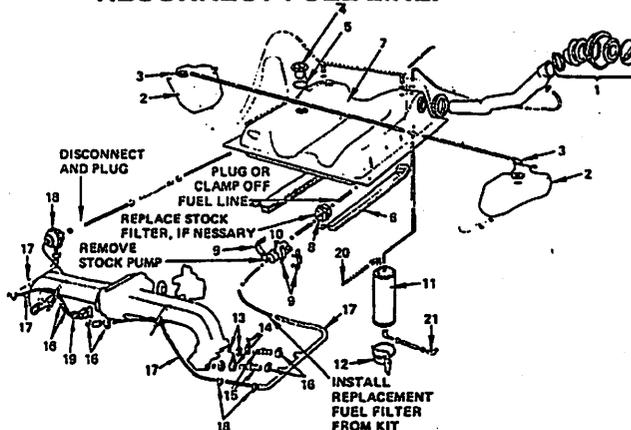
1. Remove the vehicle's gas cap.
2. Disconnect the battery.
3. Remove the stock air filter and attached components.
4. Remove the distributor cap and ignition wires. Identify the wires for correct reassembly.
5. Disconnect the throttle cable.

### DISASSEMBLY FOR FUEL INJECTED ENGINES (CARBURETED ENGINES GO TO STEP #13)

Stock fuel injection fuel pump **MUST** be replaced. Before attempting removal of the fuel pump; either drain the fuel tank, or clamp off the fuel line **BEFORE** the fuel filter. Clamping is only recommended if hose is in good condition.

6. Disconnect the electrical lead to the stock fuel pump. Remove the fuel pump bracket and pump assembly. (FIG. A) Replace the stock fuel filter, if necessary.

7. Install the replacement fuel pump, per the manufacturer's recommendations. Remove the fuel line clamp once the pump is installed. Check for fuel leaks.
8. Disconnect the metal fuel line to the injectors at the point illustrated in FIG. A. Install the new filter supplied in the kit. **DO NOT RECONNECT FUEL LINE.**



- |                                |                                   |
|--------------------------------|-----------------------------------|
| 1. FILLER CAP ASSEMBLY         | 11. CHARCOAL FILTER BRACKET       |
| 2. EXPANSION TANKS             | 12. CHARCOAL FILTER BRACKET       |
| 3. GRAVITY VENT VALVES         | *13. INJECTOR SEALS               |
| 4. FUEL GAUGE SENDING UNIT     | *14. INJECTOR RETAINERS           |
| 5. RUBBER GASKET               | *15. FUEL INJECTORS               |
| 6. FUEL TANK SECURING STRAPS   | *16. HOSE CLAMPS                  |
| 7. FUEL TANK                   | *17. MAIN FUEL RIG                |
| 8. FUEL FILTER                 | *18. FUEL PRESSURE REGULATOR      |
| *9. FUEL PUMP BRACKET ASSEMBLY | *19. COLD START VALVE             |
| *10. FUEL PUMP                 | 20. TO AIR FILTER                 |
|                                | 21. FROM RIGHT COOLING AIR SHROUD |

\* PARTS TO BE REMOVED OR PLUGGED OFF

Legal in California **ONLY** for racing vehicles which may **NEVER** be used upon a highway.

**WEBER U.S.**

9. Disconnect the fuel pressure regulator and plug it off with the cap provided in the kit.
10. Disconnect all electrical components for the stock fuel injection system. Either tape the wires, or use tie-wraps to position them in a safe area. Tape all connectors to prevent any shorts.
11. Remove the mounting nuts and any other hardware retaining the intake and fuel injection system. Remove the manifolds and injection housing as one assembly. Insert a clean rag in the intake ports and clean the mounting surface with a gasket scraper.

12. **STOCK FUEL INJECTION DISTRIBUTOR ASSEMBLY MUST BE REPLACED.** Disconnect and remove the stock distributor. Install the replacement distributor per the manufacturer's recommendations. **PROCEED TO WEBER CARBURETOR INSTALLATION SECTION.**

### DISASSEMBLY FOR CARBURETED ENGINES

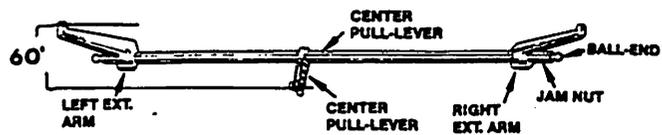
13. Remove the stock fuel lines from the original carburetors.
14. Disconnect the electric choke/idle cutoff solenoid wire. (*Insulate the wire connectors to prevent any shorts. These wires will not be used.*)
15. Unbolt the stock intake manifolds and remove carburetors and intakes as one assembly.
16. Insert a clean rag in the intake ports and thoroughly clean the mounting surface with a gasket scraper. **PROCEED TO THE WEBER CARBURETOR INSTALLATION SECTION.**

### WEBER CARBURETOR INSTALLATION

#### BENCH ASSEMBLY

17. Use the thread locking compound supplied to install the carburetor mounting studs into the flanges of the new intake manifolds. (**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 flange.*)
18. Insert the throttle lever spacers and lock nuts on each carburetor lever. (**FIG. E**)
19. Install the flange gaskets and carburetors on the manifolds. Secure them in place using the lockwashers and nuts from the kit. **DO NOT OVER-TIGHTEN THE CARBURETOR HOLD DOWN NUTS. MAXIMUM TORQUE SHOULD NOT EXCEED 10 FT/LBS.**

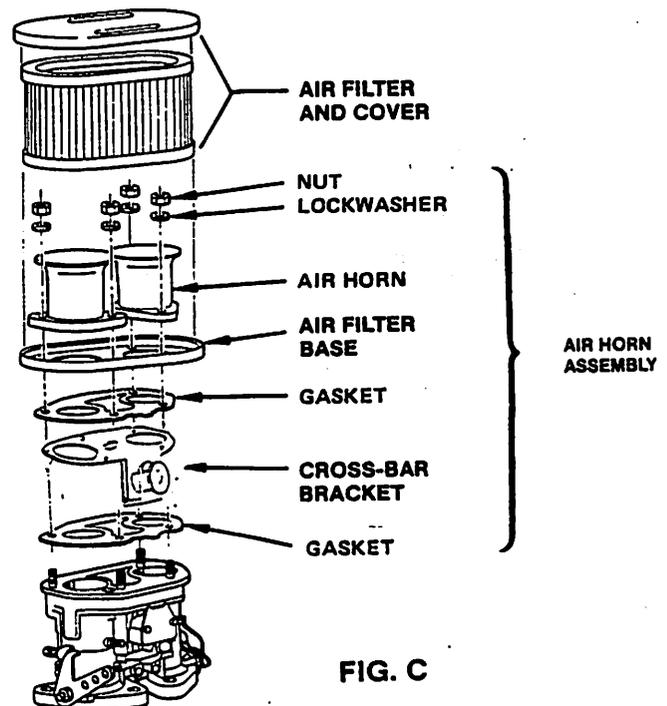
20. Install the center pull-lever and the left and right extension arms onto the cross-bar so there is 60° between the centerline of these parts. Install the jam nuts onto the ball-ends and thread the ball-ends into each end of the cross-bar. (**FIG. B.**)



**FIG. B**

### FINAL INSTALLATION

21. If spark plugs need to be replaced, install new ones at this time.
22. Remove the rags from the intake ports and install the manifold gaskets from the kit. Install the left-side (*Driver's Side*) manifold and carburetor first. Installation will be easier using a 3/8" drive ratchet with a 10-12" extension and swivel. Secure the manifold in place using the nuts from the kit. Install right side (*Passenger's Side*) manifold and carburetor in the same manner.
23. Replace the distributor cap and ignition wires.
24. Install the carburetor air horn assembly as shown in **FIG. C** on the left-side (*Driver's Side*) carburetor, using the lockwashers and nuts provided. **DO NOT INSTALL THE RIGHT SIDE COMPONENTS AT THIS TIME. DUE TO THE LENGTH REQUIRED FOR THE CROSS-BAR TO SEAT PROPERLY IN THE BRACKETS, THE RIGHT AND LEFT SIDE ASSEMBLY OF PARTS CANNOT BE DONE SIMULTANEOUSLY.**



**FIG. C**

25. Install the cross-bar self-centering spring inside the left bracket bushing.
26. Insert the left-hand ball-end into the left bracket bushing and spring. Temporarily brace the cross-bar up to perform step #7.
27. Install the carburetor air horn assembly components on the right side carburetor. **DO NOT BOLT DOWN COMPONENTS.** Install the self-centering spring in the bushing. Unbrace the cross-bar and insert the ball-end into the right bracket and bushing. (*NOTE: Some repositioning of the bracket may be necessary to get cross-bar to seat in bushing.*) Once the cross-bar has seated, secure the air horn assembly using the lockwasher and nuts provided.
28. Adjust the cross-bar ball-ends to achieve a  $1/32''$  clearance between the bushing flange and ball flange. (**FIG. D**) Once the ball-ends are adjusted correctly, lock the jam nuts in place.

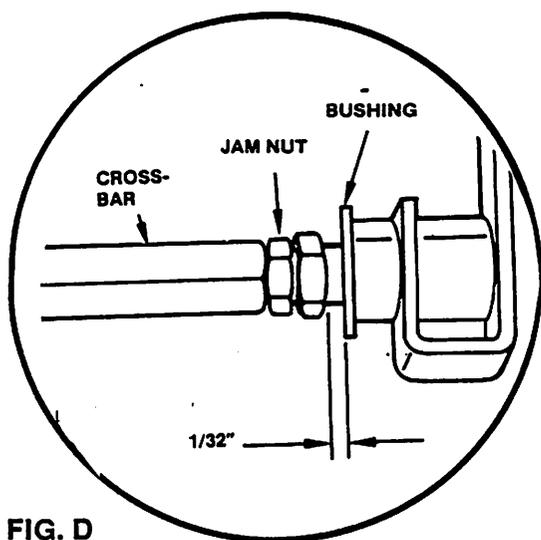


FIG. D

29. Install the carburetor linkage rods on each of the extension arms as shown in **FIG. E**

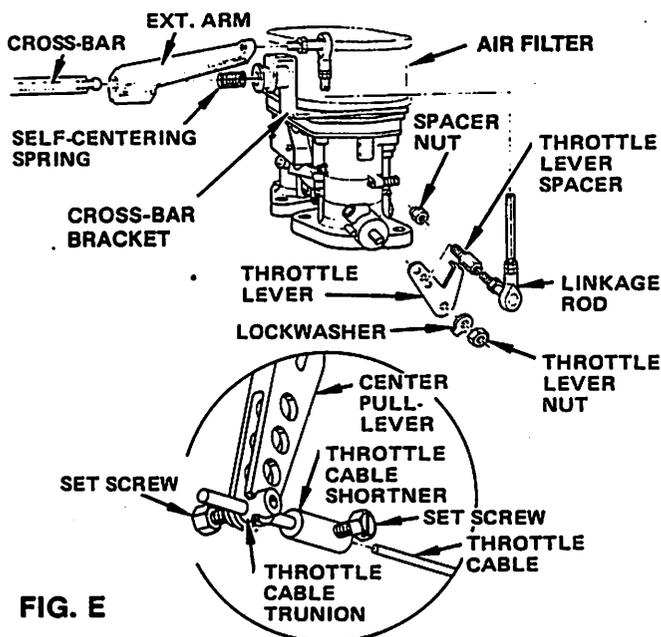


FIG. E

**NOTE: CHECK THROTTLE OPERATION FOR FREE MOVEMENT. IF THERE IS ANY INDICATION OF STICKING OR BINDING, CORRECT AS NECESSARY BEFORE PROCEEDING.**

30. Remove the plug from the fuel line. Install the new fuel hose from the outlet of the new filter to both carburetors using the tee-fitting and clamps provided.
31. **PORSCHE 914 VEHICLES ONLY:** Remove the hex nuts and lock washers from the case-half studs. Slide the throttle cable bracket over the studs and re-install the lockwashers and hex nuts. Install the cable housing in the threaded hole. Adjust the cable to the correct tension and lock the cable housing nuts in place.

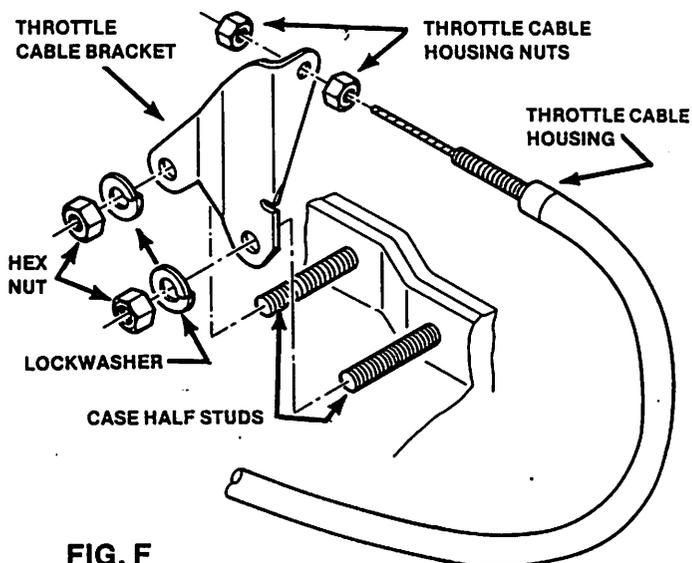


FIG. F

32. Connect the carburetor return springs. **BEFORE STARTING THE ENGINE TO SYNCHRONIZE THE CARBURETORS, BE SURE CARBURETOR LINKAGE MOVES FREELY AND IGNITION WIRES HAVE BEEN REPLACED IN THE CORRECT FIRING ORDER.**
33. Replace the gas cap and reconnect the battery.
34. Start the engine and check for fuel and vacuum leaks. Correct if necessary before proceeding.
35. Synchronize and set idle mixture per the special instructions included with the kit.
36. After carburetor synchronizing is completed, turn the engine off and proceed with throttle cable installation.
37. Install the throttle cable trunion and shortener as shown in **FIG. F** Align the center pull-lever on the cross-bar with throttle cable and tube. Secure it in place by tightening the set screw.

38. Position the stock throttle cable next to the shortner and measure the excess cable to be removed. **NOTE: BEFORE CUTTING THE THROTTLE CABLE, BE SURE YOU HAVE ALLOWED ENOUGH CABLE TO FIT THROUGH THE SHORTNER AND HAVE THE LOCK SCREW HOLD IT SECURELY IN PLACE.**

39. Once the cable is measured, cut the excess (*if any*). Insert the new cable end into the shortner. Lock the cable in place by tightening down the set screw.

40. Install the air filter assemblies.

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41. **CHECK FOR ADEQUATE CLEARANCE BEFORE CLOSING HOOD.**

If you should have any questions after reading these instructions please contact the Weber Technical Service Department during normal business hours.



# WEBER CARBURETOR SYNCHRONIZING & IDLE MIXTURE ADJUSTMENT

## CARBURETOR SYNCHRONIZATION PROCEDURE

1. Remove the air filter assemblies
2. Disconnect the throttle linkage rods on **ALL** carburetors.
3. Turn "out" (*counter clock-wise*) the idle speed screw, (**Fig. A**) on each carburetor, until the tip of the screw is flush with the casting. Check for binding or sticking of the throttle plates. With the idle speed screw in this position, the throttle plates should be completely closed in the bores. Correct any misalignment or binding **BEFORE** proceeding.
4. Turn "in" (*clockwise*) the idle speed screw, on each carburetor, until the tip of the screw just touches the carburetor lever. From this "contact" position, turn each idle speed screw exactly one (1) full turn "in". This is your preliminary set point.

WEBER MODEL IDF-XE

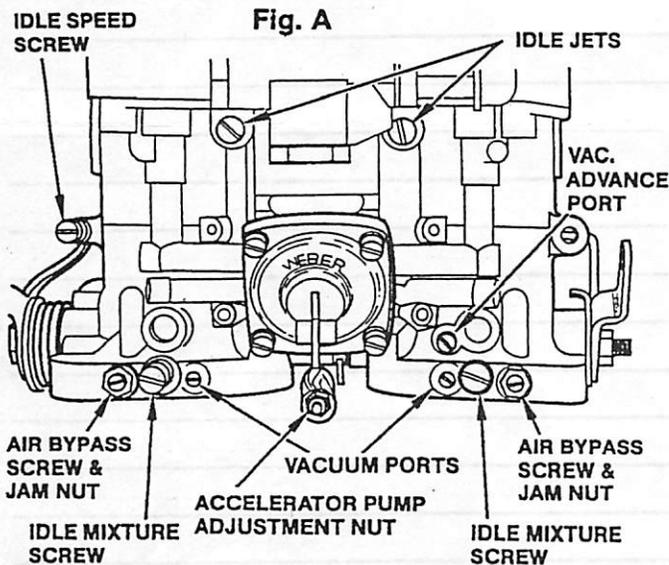


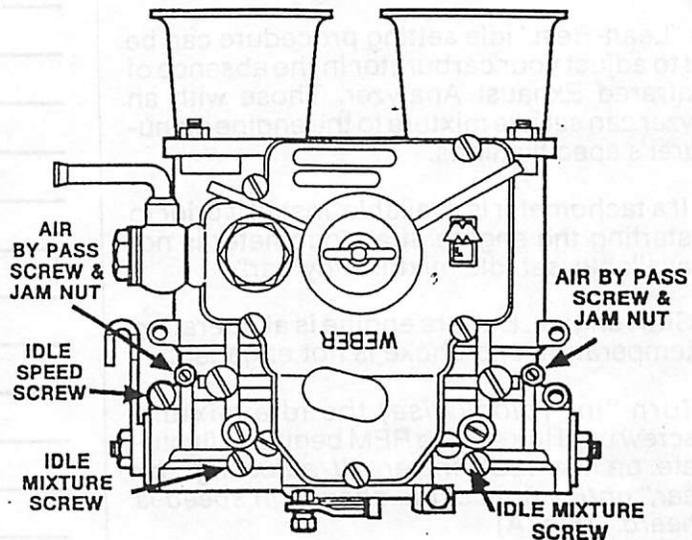
Fig. A

THE ABOVE VIEW TYPIFIES THE GENERAL LOCATION OF THE IDLE SPEED, IDLE MIXTURE AND AIR BYPASS SCREWS. THE EXACT LOCATION ON YOUR WEBER CARBURETOR MAY DIFFER SLIGHTLY.

5. Install a Redline Syncrometer, or other reliable synchronizing tool, according to the manufacturer's directions.
6. Start the engine. **CAUTION:** Be sure the loose throttle-rods are not interfering with other linkage components.

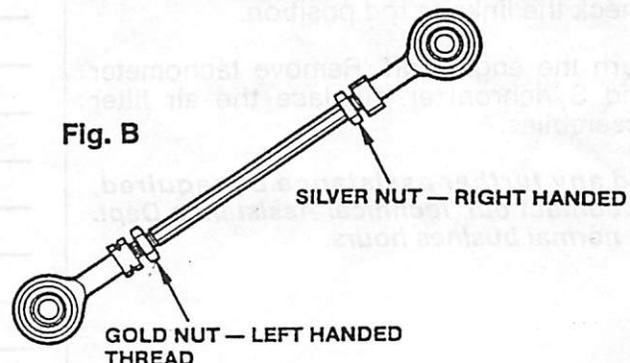
WEBER MODEL DCOE

Fig. B



7. To synchronize the carburetors, adjust each idle speed screw (**Fig. A**) until a balanced airflow reading is obtained on the Syncrometer.
8. After the carburetors are synchronized, reinstall the linkage rods. If the linkage rod length is not correct the throttle lever position will be affected. To adjust linkage rod length loosen the right and left handed nuts and turn the rod shaft to shorten or lengthen the rod as necessary. (**Fig. B**) **NOTE:** When linkage rods are properly adjusted the Syncrometer reading will remain as originally set in Step #8. When rods are adjusted, lock the rod nuts in place.

Fig. B





# WEBER CARBURETOR TROUBLESHOOTING GUIDE

This guide is intended for diagnostic purposes only. Specific procedures and adjustments should be obtained from factory service manuals or carburetor specifications sheet.

Every Weber carburetor is thoroughly tested at the factory and meets high quality and performance standards.

Since other engine component problems affect the performance of the carburetor, it is strongly recommended to perform the General Engine Checks section of this guide **BEFORE** making any carburetor adjustments.

## GENERAL ENGINE CHECKS

### IGNITION SYSTEM:

1. Cracked, broken wires
2. Incorrect ignition wire location (firing order)
3. Timing improperly adjusted
4. Distributor cap cracked, arcing
5. Low coil output
6. Corroded plug terminals
7. Incorrect vacuum advance hose connection
8. Points corroded, wrong gap
9. Incorrect spark plug gap

### EMISSION SYSTEM:

1. Cracked, loose vacuum hoses
2. Improper vacuum hose connections
3. Faulty EGR valve operation
4. Air pump diverter valve, anti-backfire valve faulty
5. Faulty PCV valve operation
6. Dirty breather filters
  - Charcoal canister
  - Valve cover breather
  - PCV filter (inside air filter assembly)
7. Faulty feedback system operation
8. Vacuum delay valves (switches) faulty

### FUEL SUPPLY SYSTEM

1. Dirty fuel filter
2. Incorrect fuel pump pressure (1.5–3.5 psi)
3. Restricted, kinked fuel lines
4. Fuel lines in contact with hot surface
5. Contaminated fuel

## SPARK PLUG ANALYSIS

Normal spark plug condition is a sandy brown deposit on the insulator surface with no signs of electrode damage. The following information will help you analyze your plugs' condition.

### OIL DEPOSITS — WET FOULING

1. Worn piston rings, bearings, seals
1. Excessive cylinder wear
2. Leaking — damaged head gasket

### BLACK CARBON BUILD-UP, DRY FOULING

1. Fuel mixture too rich
2. Dirty air filter
3. Engine over heating
4. Defective ignition wires
5. Sticking valves, worn seals
6. High carburetor float level
7. Damaged, sticking needle and seat assembly
8. Incorrect fuel pump pressure (1.5–3.5 psi)
9. Spark plug heat range too cold

### BLISTERED, BURNED ELECTRODES

1. Spark plug heat range too hot
2. Timing improperly adjusted
3. Engine over heating
4. Incorrect spark plug gap
5. Burned engine valves
6. Wrong type of fuel

### INSULATORS CHIPPED

1. Incorrect spark plug gap
2. Improper spark plug installation
3. Severe detonation

### PLUG GAP BRIDGED

1. Lead deposits fused to electrodes
2. Engine over-heating
3. Spark plug heat range too hot

### GASOLINE FOULING

1. Distributor cap cracked, arcing
2. Loose, broken ignition wires
3. Low ignition coil output

**ONCE THE ABOVE CHECKS HAVE BEEN PERFORMED, THE FOLLOWING SPECIFIC PROBLEMS CAN BE ANALYZED.**

# WEBER CARBURETOR TROUBLESHOOTING GUIDE

## ENGINE WILL NOT START

Over 90% of Engine Failure To Start Conditions are Ignition System Related

1. Open circuit between starter and solenoid, or between ignition switch and solenoid
2. Starter motor faulty
3. Battery charge too low
4. Low ignition coil output

## ENGINE HARD TO START WHEN COLD — STARTS & STALLS

1. Incorrect choke operation (worn coil, electrical connection faulty)
2. Fast idle speed too low
3. Improper choke pull-off operation
4. Low carburetor float level
5. Timing improperly adjusted
6. Damaged, sticking needle and seat
7. Engine flooded

## ROUGH IDLE, SURGING, MISSING, STALLING

1. Incorrect idle speed and idle mixture adjustment
2. Timing improperly adjusted
3. Vacuum leak
4. Incorrect vacuum advance hose connection
5. Faulty EGR valve operation
6. Faulty PCV valve operation
7. Incorrect choke operation (coil setting)
8. Improper choke pull-off diaphragm operation
9. Improper vacuum hose connections
10. Low carburetor float level
11. Restricted, kinked fuel lines
12. Restricted fuel filter
13. Distributor cap cracked, arcing
14. Loose, corroded, or broken ignition wires
15. Damaged idle mixture adjusting screw
16. Distributor shaft worn (loose)
17. Faulty idle solenoid operation
18. Restricted carburetor jets or airbleeds
19. Restricted air, breather filters
20. Worn valves and seals
21. Incorrect spark plug gap

## ENGINE KNOCKS, PINGING

1. Timing improperly adjusted
2. Incorrect vacuum hose connections
3. Distributor malfunction
4. Carburetor jets too lean, restricted
5. Low carburetor float level
6. Poor quality fuel

## ENGINE KNOCKS, PINGING (Cont.)

7. Faulty EGR valve operation
8. Faulty feedback system operation
9. PCV system malfunction
10. Loose fan belts
11. Faulty vacuum delay valve (switch) faulty

## DIESELING, ENGINE RUN-ON

1. Faulty idle solenoid operation
2. Carburetor linkage binding
3. Incorrect idle speed and idle mixture adjustment
4. Timing improperly adjusted

## HESITATION, POOR ACCELERATION FLAT SPOT

1. Vacuum leaks
2. Improper vacuum hose connections
3. Timing improperly adjusted
4. Low carburetor float level
5. Loose, corroded or broken ignition wires
6. Low ignition coil output
7. Fouled, damaged spark plugs
8. Incorrect accelerator pump operation
9. Incorrect fuel pump pressure (1.5-3.5 psi)
10. Restricted, kinked fuel lines
11. Restricted fuel filter
12. Carburetor power enrichment system malfunction

## POOR LOW SPEED OPERATION

1. Indirect idle speed and idle mixture adjustment
2. Dirty air filter
3. Timing improperly adjusted
4. Loose, corroded, or broken ignition wires
5. Distributor cap cracked, arcing
6. Restricted idle jets, air bleeds
7. Incorrect carburetor float level

## POOR HIGH SPEED OPERATION

1. Incorrect vacuum advance hose connection
2. Incorrect distributor centrifugal advance
3. Incorrect spark plug gap
4. Incorrect carburetor main jets, air correctors
5. Incorrect vacuum hose connections
6. Dirty air and, or breather filters
7. Incorrect fuel pump pressure (1.5-3.5 psi)
8. Worn distributor shaft
9. Worn distributor shaft
10. Incorrect carburetor float level
11. Restricted, kinked fuel lines
12. Restricted fuel filter

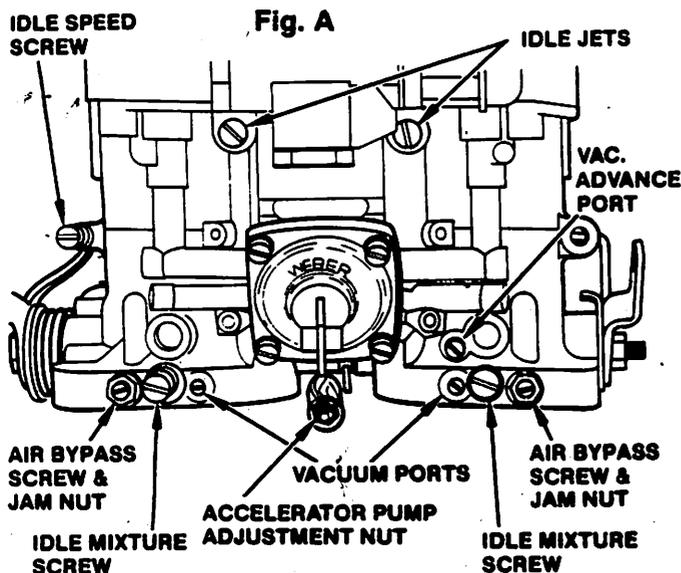


# WEBER CARBURETOR SYNCHRONIZING & IDLE MIXTURE ADJUSTMENT

## CARBURETOR SYNCHRONIZATION PROCEDURE

1. Remove the air filter assemblies
2. Disconnect the throttle linkage rods on **ALL** carburetors.
3. Turn "out" (*counter clock-wise*) the idle speed screw, (**Fig. A**), on each carburetor, until the tip of the screw is flush with the casting. Check for binding or sticking of the throttle plates. With the idle speed screw in this position, the throttle plates should be completely closed in the bores. Correct any misalignment or binding **BEFORE** proceeding.
4. Turn "in" (*clockwise*) the idle speed screw, on each carburetor, until the tip of the screw just touches the carburetor lever. From this "contact" position, turn each idle speed screw exactly one (1) full turn "in". This is your preliminary set point.

WEBER MODEL IDF-XE



THE ABOVE VIEW TYPIFIES THE GENERAL LOCATION OF THE IDLE SPEED, IDLE MIXTURE AND AIR BYPASS SCREWS. THE EXACT LOCATION ON YOUR WEBER CARBURETOR MAY DIFFER SLIGHTLY.

5. Install a Redline Syncrometer, or other reliable synchronizing tool, according to the manufacturer's directions.
6. Start the engine. **CAUTION:** Be sure the loose throttle-rods are not interfering with other linkage components.

(If the barrels of the same carburetor have an equal reading, go to step 3)

7. **This step is for Weber Carburetors with Air Bypass Screws ONLY, for all other Weber Carburetors proceed to Step #8.**

(A) Loosen the jam nuts and close the air bypass screws on each carburetor (**Fig. A**)

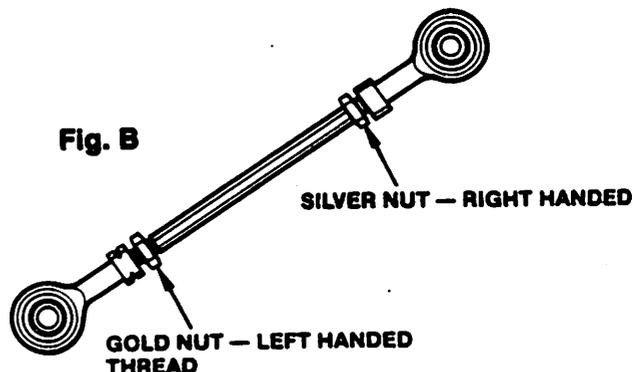
(B) **Each carburetor should be adjusted separately.** Use the Syncrometer to determine which carburetor barrel produces the lower reading.

(C) Adjust the air bypass screw corresponding with the low reading barrel until the Syncrometer reading matches the higher barrel. Once both barrels of the carburetor show the same reading, lock down the jam nuts. (**NOTE:** On Weber 3 Barrel Carburetors this process must be expanded to adjust the air bypass screws on the 2 lowest reading barrels).

(D) Repeat Steps B and C for each carburetor.

8. To synchronize the carburetors, adjust each idle speed screw (**Fig. A**) until a balanced airflow reading is obtained on the Syncrometer.

9. After the carburetors are synchronized, reinstall the linkage rods. If the linkage rod length is not correct the throttle lever position will be affected. To adjust linkage rod length loosen the right and left handed nuts and turn the rod shaft to shorten or lengthen the rod as necessary. (**Fig. B**) **NOTE:** When linkage rods are properly adjusted the Syncrometer reading will remain as originally set in Step #8. When rods are adjusted, lock the rod nuts in place.



## CARBURETOR SYNCHRONIZATION PROCEDURE (Cont)

10. If idle mixture and idle speed adjustments are not required, turn engine off and remove Syncrometer. Replace air filter assemblies and this procedure is complete.

### IDLE MIXTURE & IDLE SPEED ADJUSTMENT

This "Lean-Best" idle setting procedure can be used to adjust your carburetor in the absence of an Infrared Exhaust Analyzer. Those with an analyzer can set idle mixture to the engine manufacturer's specifications.

11. If a tachometer is available, install it prior to starting the engine. If a tachometer is not available, set idle mixture "by ear."
12. Start engine. Be sure engine is at operating temperature and choke is not engaged.
13. Turn "in" (*clockwise*) the idle mixture screw until the engine RPM begins to fluctuate on the tachometer. (If adjusting "by ear," until a noticeable change in speed is heard.) (Fig. A)
14. Turn "out" (*counter-clockwise*) the idle mixture screw slowly, until the engine idle speed becomes steady. Try to obtain the leanest setting without affecting the idle speed. If necessary repeat Steps 13 and 14 until the best setting is achieved. Repeat this procedure for each carburetor. Try to maintain a balanced setting between all carburetors. **EXAMPLE: Each carburetor idle mixture screw should be within 1/4 turn of each other.**
16. Once the idle mixture has been set, fine tune the idle speed if necessary, to meet the engine manufacturer's specification using the idle speed screw. (Fig. A) **Try to keep the adjustment equal on all carburetors.**
17. Recheck the carburetor synchronization if any idle speed adjustment is made and check the linkage rod position.
18. Turn the engine off. **Remove tachometer and Synchronizer. Replace the air filter assemblies.**

## CARBURETOR SYNCHROMETER

An extraordinary—new calibration instrument that even works on multi-barrel, progressive carburetors.

### EASY TO READ

A large, easy to read face, numerically calibrated in kilograms-per-hour delivers fast, precision air flow measurement for all types of carburetors, regardless of position.

### SECRET'S IN THE SLEEVE

The secret to the success of Syncrometer is a rubber sleeve that fits directly into the carburetor air horn. You get a positive airtight seal. All incoming air must pass through the Syncrometer. Best of all, special adapters let you service irregular and multiple venturi carburetors.



# DUAL WEBER CARB KIT INSTRUCTIONS

1. Mount carbs on intake manifolds with the threaded studs, nuts and gaskets supplied. Be careful that carbs are mounted so that the operating arm is facing the back of the car on both sides. Now mount the manifolds on the engine using the gaskets supplied. Use Part number 4505-11, Manifold Nut Set, for easier installation of all manifolds. Be sure that the manifolds do not interfere with the fan housing or any part of the body. This will not allow the manifolds to seal properly. Any leak can cause poor or uneven idle.
2. Attach the fuel hose and "TEE" fitting supplied. The use of a fuel pressure regulator set to 1 1/2 to 2 lbs is recommended. Note: The regulator must be Mounted before the "TEE".
4. Mount the throttle linkage per instructions supplied with the linkage kit used. A "TayCo" Cross Bar linkage kit for your carb kit is recommended for optimum performance.
4. Each engine must be jetted individually to meet its own characteristics. Before starting any rejetting, the valves must be properly adjusted and the timing set correctly. Incorrect timing and valve adjustment is the major cause of poor performance, and is impossible to get an engine jetted properly.