Typical Install Instructions

Read & understand all steps of these instructions before beginning this installation.

Kit is for off-road use, not for use on the highways, or in California.

WEBER Conversion Kit, K1295, K1296, K1347 by REDLINE

VW T-4 Bus, Vanagon, Porsche 914-4 (except Models 411, 412)

(to-1983 Type-4 pancake engine with 3 or 4 bolt)
Using 2 Weber 40-IDF K1347, 1.7 & 1.8
44-IDF K1295, 1.8, 2.0
48-IDF K1296, High Performance or Racing 2.0 & up
These instructions are intended as a general guide for installation.
Certain steps may vary slightly for different vehicles.

Jetting Specifications

Jetting specifications of carburetors supplied in kits may vary slightly, but will always be correct for the intended application.

Tools Needed

Combination, box or open-end wrenches (metric)
Socket set with 12mm socket
Screwdrivers (regular and Phillips)
Pliers
Gasket Scraper, Knife
Wiping rags, Cleaning solvent
Gasket sealer

Parts Supplied with Installation Kit

2 Weber 40-IDF or 44-IDF
2 Intake manifolds
1 Throttle Linkage and levers
2 Air Filter's

Note:
Fuel Injected conversions **MUST** use a low pressure fuel pump and a new distributor.

INSTRUCTION / JETTING NOTES:
The following "instructions" are based on a vehicle and engine in stock condition. If you have modified your vehicle and/or engine, some of the following steps may not apply to your application.
The jetting in this conversion kit will accommodate engines up-to 2000cc, modified cylinder heads, camshafts and exhaust may require a jetting change. Use the REDLINE jet kit #701-IDF-2 (low speed) & main/air kit 40-IDF use #737-240 or 44-IDF #737-244 if re-jetting your engine is necessary.

RECOMMENDED ADDITIONAL PARTS: (specifically fuel injection conversions)

1. Use a **new fuel filter #99901.525** and a lower pressure **new fuel pump # 99009.131**.
2. Many late model fuel injected vehicles use a high-pressure fuel delivery system. The WEBER carburetor only requires **3 lbs Maximum**. For aggressive driving or off road use, **REDLINE** recommends the **float height of 14mm** from the gasket to top of brass float, DO NOT depress the ball and spring in the needle valve, then, set the float drop to 2mm "needle" travel. Use a fuel **pressure regulator #31800.063**, adjusted to 2 lbs. for more stable fuel and float control.

DISASSEMBLY

1. Disconnect battery and remove the gasoline cap.
2. Remove factory vacuum lines from carburetor.
3. Remove the distributor cap and ignition wires. Identify the wires to cylinders for correct reassembly.
4. Disconnect the throttle cable.

DISASSEMBLY FOR FUEL INJECTED ENGINES: (For Carbureted engines skip ahead to pg 3, step 12)

The 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 the fuel hose is in good condition. Use REDLINE pump # 99009.131 and pressure regulator # 31800.063.

5. Disconnect the electrical lead to the stock fuel pump. Remove the fuel pump bracket and pump assembly. (FIGURE A) Replace the stock fuel filter at this time.
6. Install the replacement fuel pump, per the pump manufactures recommendations. Remove the fuel line clamp once the pump is installed. Check for fuel leaks.
7. Disconnect the metal fuel line to the injectors at the point illustrated in **FIGURE A**. Install a **new** universal **fuel filter** at this time, if necessary. **DO NOT RECONNECT FUEL LINE.** (yet)

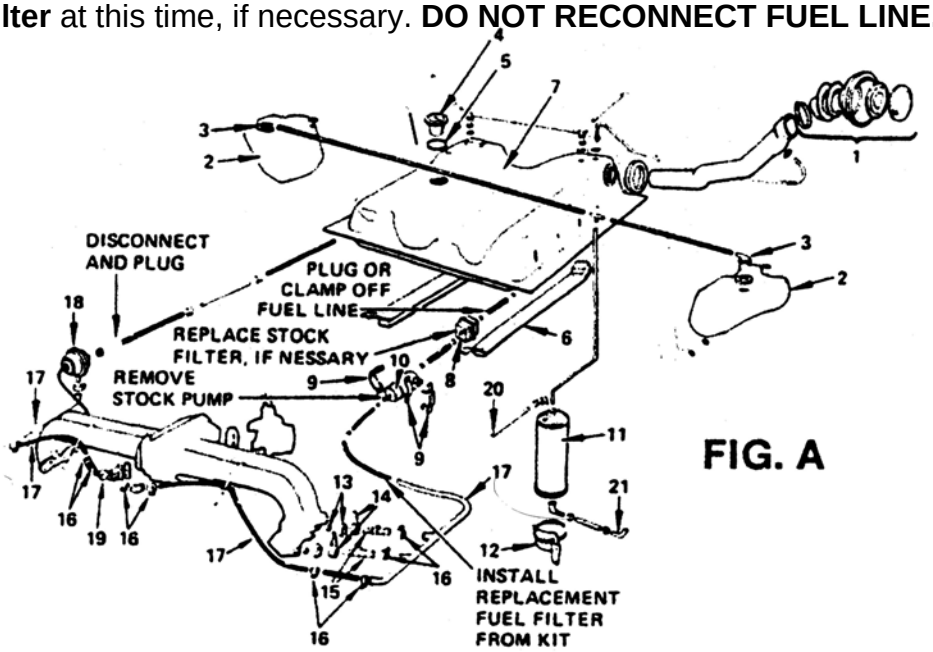


FIG. A

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

* PARTS TO BE REMOVED OR PLUGGED OFF

8. Disconnect the fuel pressure regulator and plug it off with the cap provided in the kit.
9. 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.
10. 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 and solvent.
11. **STOCK FUEL INJECTION DISTRIBUTOR ASSEMBLY *MUST* BE REPLACED.** Disconnect and remove the stock distributor. Install the replacement distributor per the manufacture's recommendations. **PROCEED TO WEBER CARBURETOR INSTALLATION SECTION.**

DISASSEMBLY FOR CARBURETED ENGINES

12. Remove the stock fuel lines from the original carburetors.
13. Disconnect the electric choke/idle cutoff solenoid wire. Insulate the wire connectors to prevent any shorts. These wires will not be reused.
14. Unbolt the stock intake manifolds and remove carburetors and intakes as one assembly.
15. 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.** (next)
16. Use Loctite thread locking compound to install the carburetor mounting studs into the flanges of the new intake manifolds. (**NOTE:** The "double-nut" method of stud installation can be used. Lock two nuts approx. ½ the way down the stud. Using a suitable wrench on the top nut, tighten the stud into the manifold flange.)
17. Install the throttle lever spacers and lock nuts on each carburetor.
18. Install the flange gaskets and carburetors on the manifolds. Secure then in place using the lockwashers and nuts from the kit. The maximum torque should not exceed 10 ft/lbs.
19. Slide the center pull-lever and the left and right extension arms onto the cross-bar so there is 60 degrees 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. Shown below in **FIGURE B** (See step #37) Throttle cable, inserts into the throttle cable shortner, this shortner slides into the throttle cable trunion, both locked by the set screws. (Shown below in **FIGURE G**)

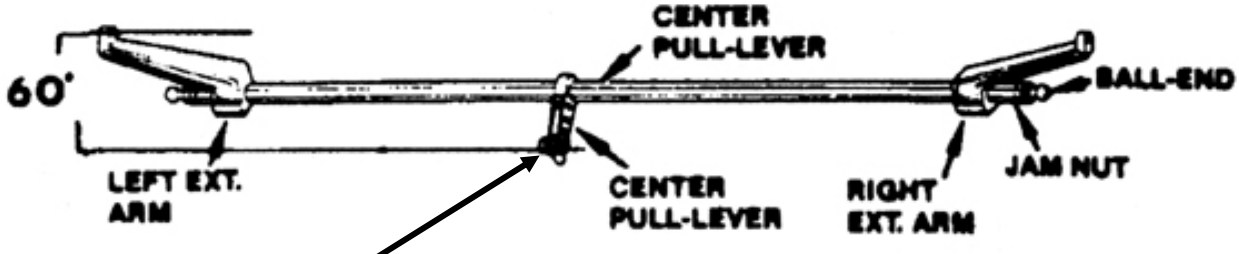


FIG. B

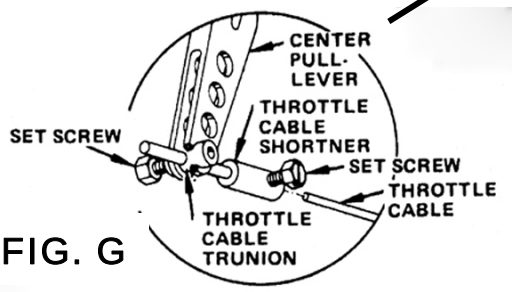


FIG. G

FINAL INSTALLATION

20. If your **spark plugs** are used, now is the easiest time to install new ones.
21. Remove the rags from the intake ports and install the manifold gaskets from the kit. Install the left-side (Drivers 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 (Passengers side) manifold and carburetor in the same manner.
22. Replace the distributor cap and ignition wires.
23. Install the carburetor air horn assembly as shown in **FIGURE C** on the left-side (Drivers side) carburetor, using the lock washers 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.**

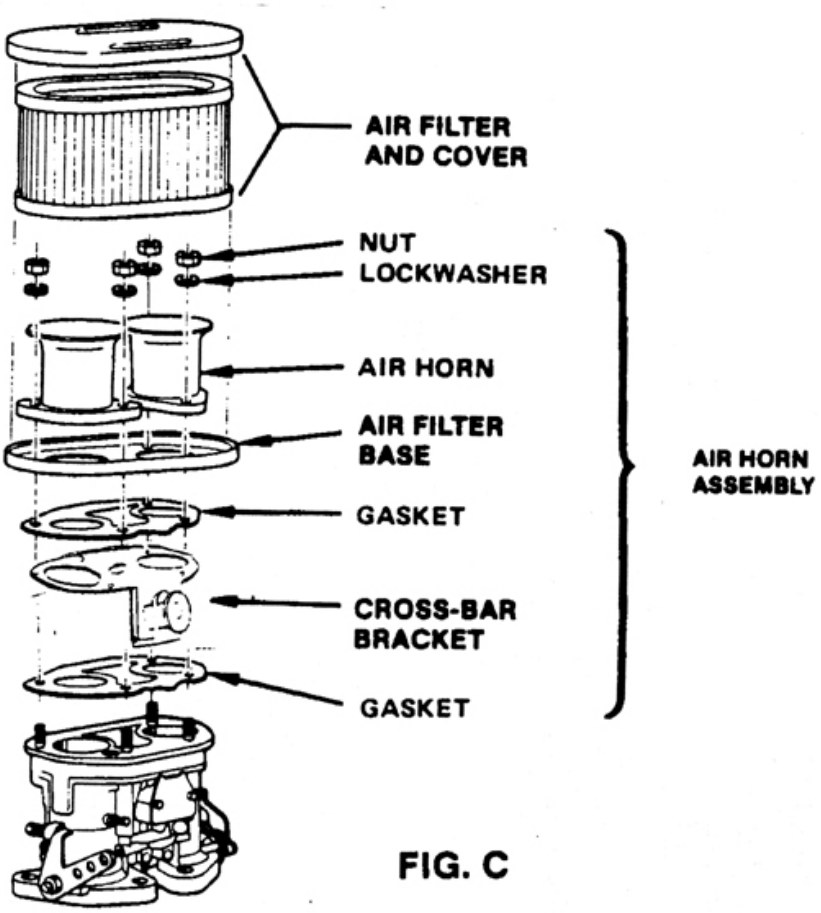


FIG. C

24. Install the cross-bar self-centering spring inside the left bracket bushing.
25. Insert the left-hand ball-end into the left bracket bushing and spring. Temporarily brace the cross-bar up.
26. Install the carburetor air horn assembly components on the right side carburetor. **DO NOT BOLT DOWN THESE 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 crossbar to seat in bushing.) Once the cross-bar has seated, secure the air horn assembly using the lock washer and nuts provided.
27. Adjust the cross-bar ball-ends to achieve a 1/32" clearance between the bushing flange and ball flange. **(FIGURE D)** Once the ball-ends are adjusted correctly, lock the jam nuts on the ball ends in place.

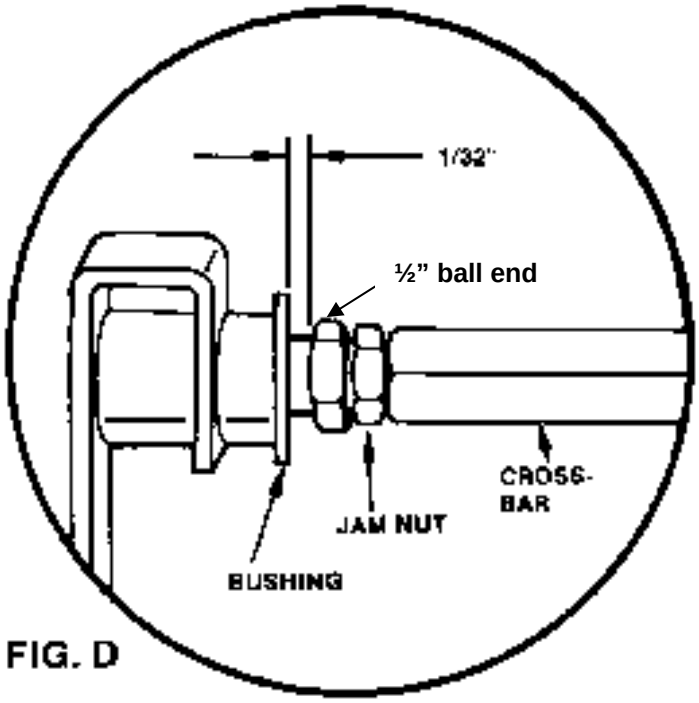


FIG. D

28. Install the carburetor linkage rods on each of the extension arms as shown in **FIGURE E.** (Step 37) Throttle cable, inserts into the throttle cable shortner, this shortner slides into the throttle cable trunion, both locked by the set screws. (Shown below in **FIGURE G**)

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

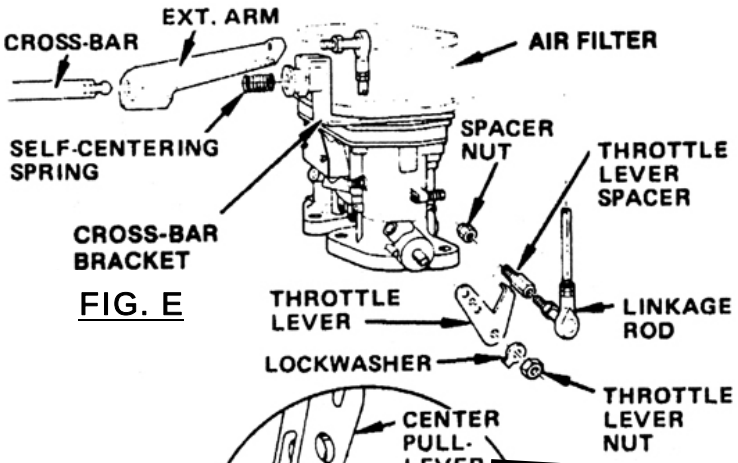


FIG. E

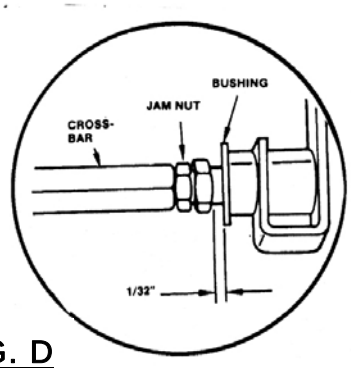


FIG. D

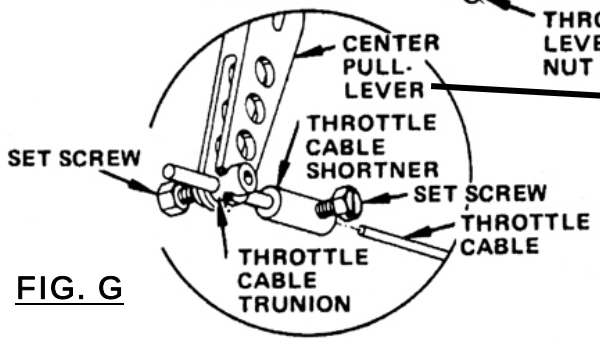


FIG. G

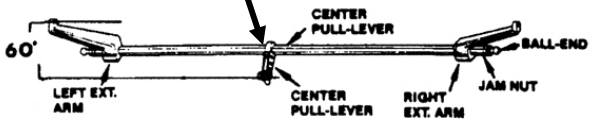


FIG. B

29. Remove 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.

30. Remove the hex nuts and lock washers from the case-half studs. Slide the throttle cable bracket over the studs and re-install the lock-washer 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.

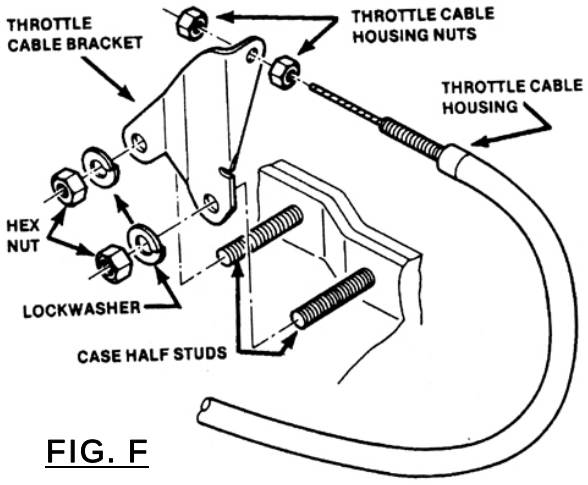


FIG. F

31. 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.**
32. Replace the gas cap and reconnect the battery.
33. Start the engine and check for possible fuel and vacuum leaks. Correct if necessary before proceeding.
34. Synchronize the carburetors, bringing the high flowing carburetor down to match the lower flowing carburetor. Find the “Lean Best” Idle with the mixture screws following the TUNING INSTRUCTIONS.
35. After synchronizing the carburetors and following the tuning procedures, turn the engine off and proceed with the throttle cable installation. **FIGURE F** page 6
36. Install the throttle cable trunion and shorten as shown in **FIGURE F** page 6. Align the center pull-lever on the cross-bar with throttle cable and tube. Secure it in place by tightening the set-screw.
37. Position the stock throttle cable next to the shortner and measure the excess cable to be removed. See above **FIGURE G** on page 6.

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 SECURLY IN PLACE.

38. 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.
39. Check for any nuts, bolts, clamps that may not have been tightened. Then install the air filters.
40. **CHECK FOR ADEQUATE CLEARANCE BEFORE CLOSING HOOD. ALSO, CHECK FOR ANYTHING THAT MAY OBSTRUCT THE PROPER CLOSING OF THE HOOD.**

We offer free **technical support service** for the first 90 days after your purchase of this conversion kit. **Provide us with the kit part number, and the production code on “our” label on the outside of the box.**

Additional assistance for special performance tuning AND **non-warranty service** is available **for a fee,** based on each problem resolution and the service charge will be confirmed at the time of the call, if applicable.

All Warranty and technical assistance is provided through the manufacture, REDLINE. **No part will be credited or exchanged through the retailer.**

ALL technical support and warranty issues will be handled through the manufacture. REDLINE @ 1-800-733-2277 ext 7457.

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: **½ turn in** after contact with lever **ABSOLUTE MAXIMUM.**
Mixture Screw: 1 ¼ - 1 ¾ turns out from lightly seated.
Float Height: 14mm gasket to top of float, (do not depress ball & spring in the needle valve).
Float Drop: 2.0mm 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 ½ turn MAXIMUM**. Turn in the Mixture Screw in until it "**LIGHTLY**" seats, then back it out 1 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. All air by-pass valves are closed and not commonly used for carburetor adjustments.

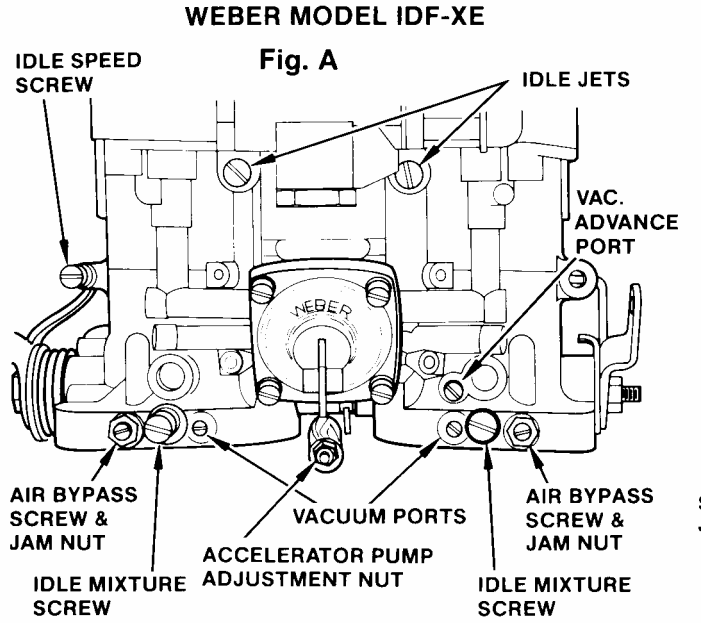
a. Start the engine, it will run slow and like a tractor. As long as it will stay running, the idle speed is not important at this point.
b. First, turn in the mixture screw until the engine runs worse, then back out the screw ¼ turn at a time. The engine should start to smooth out. Continue to back the screw out ¼ 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.
c. Now you may adjust the Idle Speed Screw. It should be sensitive and only require ¼ turn in or out to achieve the idle speed you like.
d. 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 ½ turn in MAXIMUM.**
e. 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 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 ½ 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 a MAXIMUM** of ¼ to **½ 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 1/2 turns out form 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.
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 re checking 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 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

REDLINE FUEL MANAGEMENT

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, DCNF etc.
Shown in Figure "A", the idle speed screw **isn't** turned in more than a ½ turn. The throttle plate (F) is below the progression holes (2), the carburetor would be at "curb" idle. There is no distributor "ported" vacuum source with these carburetors.

Shown in Figure "B", the idle speed screw **IS** more than a ½ turn in. 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 ½ 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).

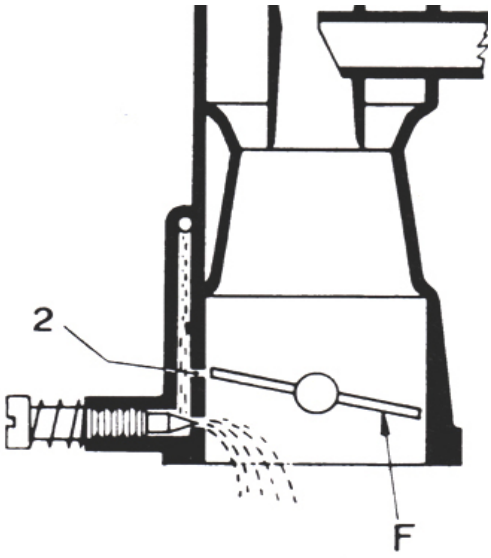


Figure A
Correct Throttle Position

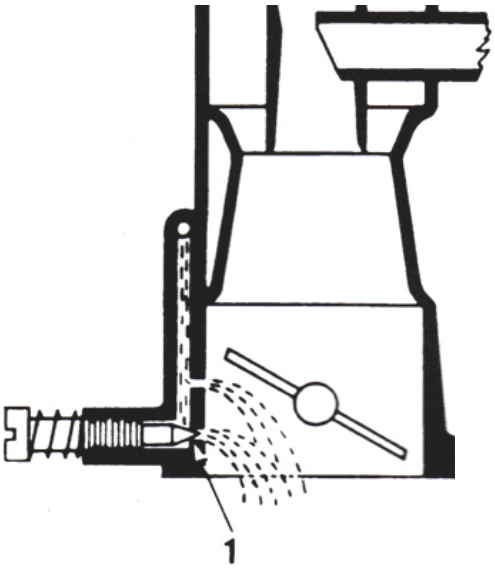


Figure B
Enrichening Holes **Exposed**

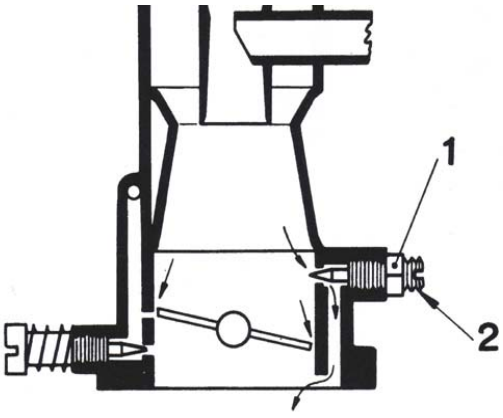
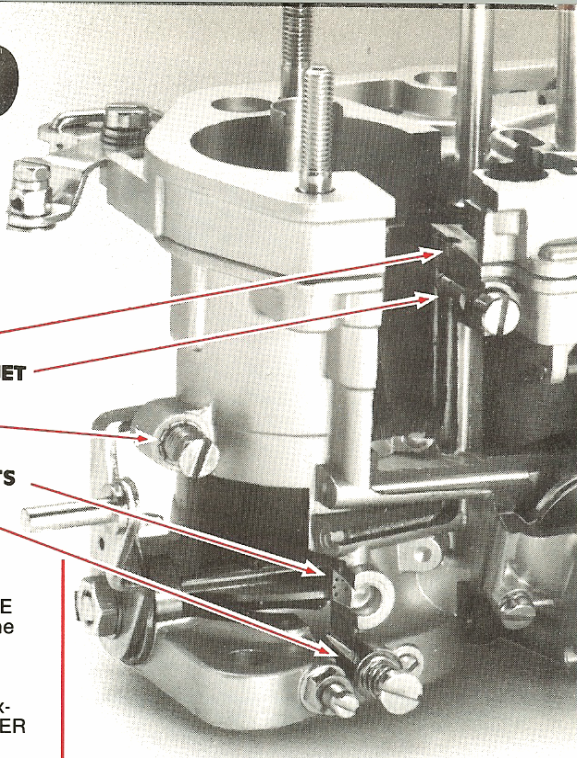


Figure C
Air By-pass Valve

WEBER 2 TECH SERIES

LOW SPEED CIRCUIT

"Where Performance Begins"



WEBER Carburetors are smart. Unlike any other in the world. A WEBER can be fine tuned to perform almost any way you want. Try tuning a WEBER like other carburetors—it generally won't react the way you expect. So in order to gain the most performance, power and overall efficiency—understanding the difference is vital.

55 MPH CRUISE AT IDLE!

WEBERs are really two carburetors in one. Each independently covers their part of the operating range. Even though the first is naturally called the "IDLE CIRCUIT"—in a WEBER it is actually the LOW SPEED CIRCUIT and controls a very broad range of performance. It's also the most important difference. Other carburetors are designed to rush into the high speed circuit. WEBER thinks this approach wastes fuel and is less manageable. WEBERs are designed to efficiently operate in the LOW SPEED CIRCUIT until the engine really needs high volumes of fuel. It is this precise management of fuel and air, at critical RPMs, that promotes the exceptional throttle response and fuel economy associated with a properly tuned WEBER carburetor.

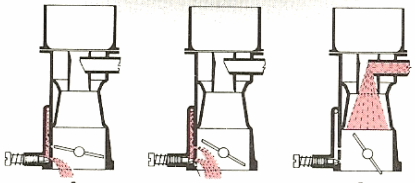
WHEN IS A MIXTURE SCREW NOT A MIXTURE SCREW?

Until they're WEBER-WISE most mechanics will swear our IDLE VOLUME ADJUSTING SCREW is the same as the familiar air bleed/mixture screw found on other types of carburetors. It's a natural misunderstanding. They almost look the same. Our IDLE SPEED FUEL JET is also mistaken for a simple air bleed. It is in fact the heart of the WEBER LOW SPEED CIRCUIT—a changeable mini jet, air bleed and emulsion tube that precisely premixes fuel and air. The IDLE VOLUME SCREW actually distributes the premixed fuel/air mixture to the engine. Other carburetors rely totally on coarse threaded adjuster screws that open the butterflies to control idle speed and mixture. Only the tapered edge of the WEBER IDLE VOLUME SCREW gives your customers virnier-like management of complete mixture and engine speed.

Idle Speed Fuel Jet

TRANSITION: SLOTS AND BIG HOLES—GREAT PERFORMANCE DO NOT MAKE!

Instead of a slot or indiscriminately placed progression holes, WEBER chooses closely defined TRANSITION PORTS positioned in the lower part of the throttle bore to ensure smooth engine operation during throttle opening stages. Most manufacturers that mass-produce carburetors today use slots or several large holes because they can be easily cast into the carburetor. It seems they are willing to let your customers pay the price of reduced performance for their convenience. We're not. Our TRANSITION PORTS are precisely located and individually positioned in a fully machined bore. Port location is critical. The ports must correspond to the exact position of throttle plate's beveled edge. There is absolutely no room for sloppy manfacturing of the WEBER carburetor. The construction process often requires extra steps—but we believe the results are incredibly important to those that demand uncompromised performance.



A Idle Circuit operation

B Transition Stage

C Priming of the main circuit/idle circuit cut-off

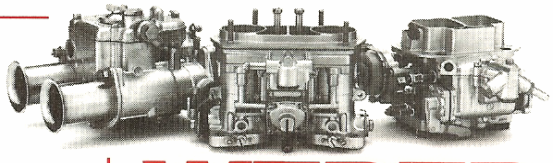
COPIES DON'T WORK AS WELL AS THE ORIGINALS!

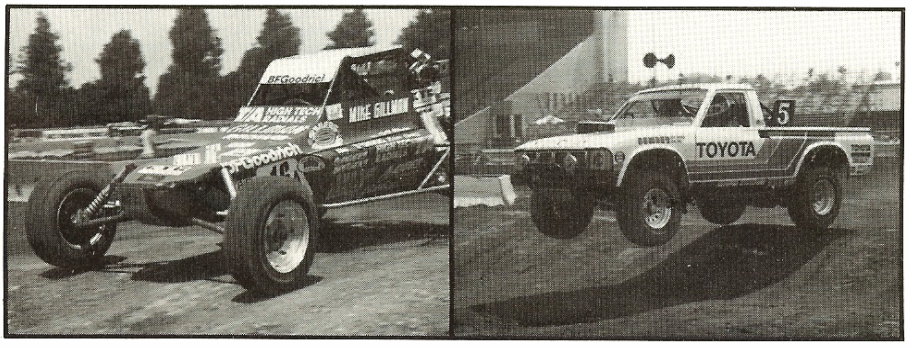
It's been more than 70 years since WEBER developed the criteria for many of the now popular carburetor styles. In some cases with our blessing, a number of companies make their own version of the original design. Either because of mass production techniques or difference in basic philosophy—the WEBER carburetor is the clear performance choice in open racing competition and specific street applications.

Legal in California for racing vehicles which may never be used upon the highway.

WEBERS ARE FOR WINNERS!

You can bet WEBER-WISE Champions like "Mike Gillman, Ivan Stewart and the TOYOTA RACING TEAM" understand and rely on the WEBER attention to detail and subtlety of design. WEBER...the overwhelming performance choice of winning racing teams—worldwide!





WEBER

Carburetor & Fuel Injection Specialists

90-days Tech Support
800-733-2277 ext 7457
or
redline@redlineweber.com

Trouble shooting guide

This guide in intended for diagnostic purpose only. Specific procedures and adjustments should be obtained from factory service manuals or the carburetor specification sheet.

Every REDLINE Conversion kit is thoroughly tested at the factory and meets high quality and performance standards.

Since other engine components problems affect the performance of the carburetor it is strongly recommended to perform the general engine checks 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 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)
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 conditions will help you analyze your plugs condition.

OIL DEPOSITES – WET FOULING
1. Worn piston rings, bearings, seals
2. Excessive cylinder wear
3. Leaking- damaged head gasket

BLACK CARBON BUILD-UP, DRY FOULING
1. Fuel mixture to 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)
9. Spark plug heat range to cold

BLISTERED, BURNED ELECTRODES
1. Spark plug range to hot
2. Timing improperly adjusted
3. Engine overheating
4. Incorrect spark plug gap
5. Burned engine valves
6. Wrong type of fuel

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

PLUG GAP BRIDGED
1. Lead deposits fused to electrode
2. Engine overheating
3. Spark plug heat range to hot

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

Carburetor troubleshooting guide

This is a guide for diagnostic purposes only

.

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 to low

ENGINE HARD TO START WHEN COLD

STARTS & STALLS

1. Incorrect choke operation (worn coil, electrical connection faulty)
2. Fast idle speed to 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 settings)
8. Improper choke pull off diaphragm operation
9. Improper vacuum hose connection
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
17. Faulty idle solenoid operation
18. Restricted carburetor jets or air bleeds
19. Restricted air, breather filters
20. Incorrect spark plug gap

ENGINE KNOCKS, PINGING

1. Timing improperly adjusted
2. Incorrect vacuum hose connections
3. Distributor malfunctions
4. Carburetor jets to lean, restricted
5. Low carburetor float level
6. Poor quality fuel
7. Faulty EGR valve operation
8. Faulty feedback system operation

ENGINE KNOCKS, PINGING (Cont.)

9. PCV system malfunction
10. Loose fan belts
11. Faulty vacuum delay valve (switch)

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 or damages spark plugs
8. Incorrect accelerator pump operation
9. Incorrect fuel pump pressure (1.5 – 3.5)
10. Restricted or 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 or arcing
6. Restricted idle jets or 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, or breather filters
7. Incorrect fuel pump pressure (1.5 – 3.5)
8. Worn distributor shaft
9. Incorrect carburetor float valve
10. Incorrect carburetor float level
11. Restricted or kinked fuel lines
12. Restricted fuel filter

WEBER IDF CARBURETOR
REDLINE PRO BUG HEX LINKAGE
VW TYPE-IV #99004.295

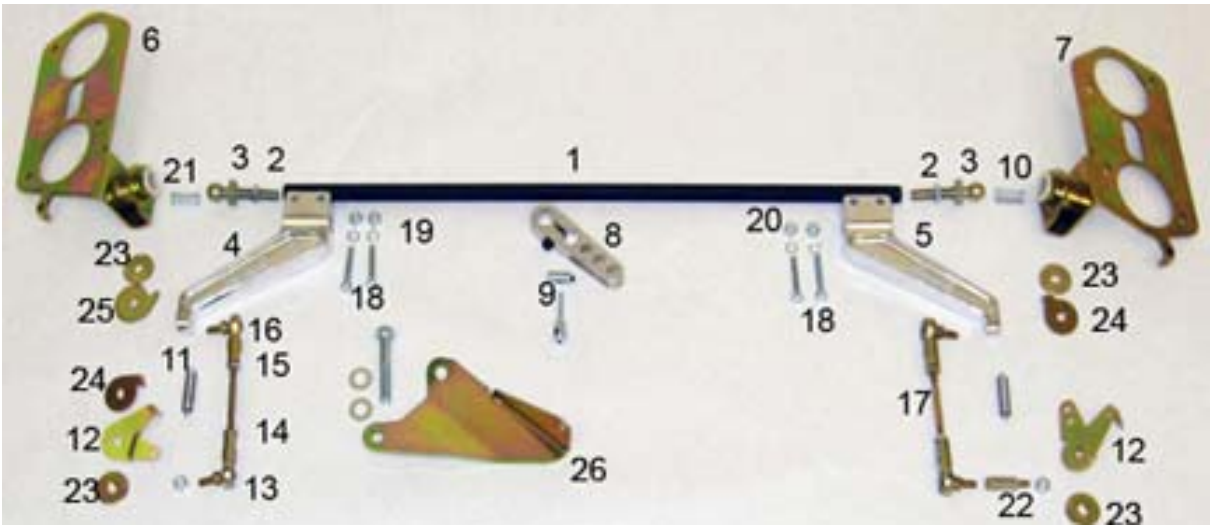


Illustration #	Part Number	Description
1	444.295-02	Hex Cross Bar Type IV (17 ¾")
2	444.311-06	8mm Jam Nut for Ball Ends
3	99024.125	½" Ball End
4 & 5	444.317-07	Cross Bar Clamp-On Lever
6	444.295-05	Cross Bar Bracket Left Hand Type-IV
7	444.295-04	Cross Bar Bracket Right Hand Type-IV
8	444.311-08	Cable Bracket Clamp-On Lever
9	444.411-09	Accelerator Cable Extender Assembly
10	444.311-11	Ball End Pre-Load Spring
11	99024.440	Throttle Return Spring
12	444.317-08	Throttle Lever Right Side
	444.317-09	Throttle Lever Left Side
13	99024.128	Rod End Left Hand (Gold)
14	99024.304	10-32 Jam Nut Left Hand (Gold)
15	444.8456-11	10-32 Jam Nut
16	99024.129	Rod End Right Hand
17	99024.103	2 ½" Hex Rod Type-IV
18	444.317-06	10-32 x 1.25 Bolts
19	444.8456-08	3/16" Washer
20	444.8456-10	10-32 Nyloc Washer
21	444.311-09	Nylon Insert Bushing
22	444.311-10	Rod End Spacer Right Hand (Short)
	444.411-12	Rod End Spacer Left Hand (Long)
23	99024.258	"D" Washer
24	444.317-99	Throttle Stop
25	55555.038	Return Spring Washer
26	444.295-06	Coil Mounting Bracket

REDLINE SYNCHROMETER

Calibrated synchronizing instrument

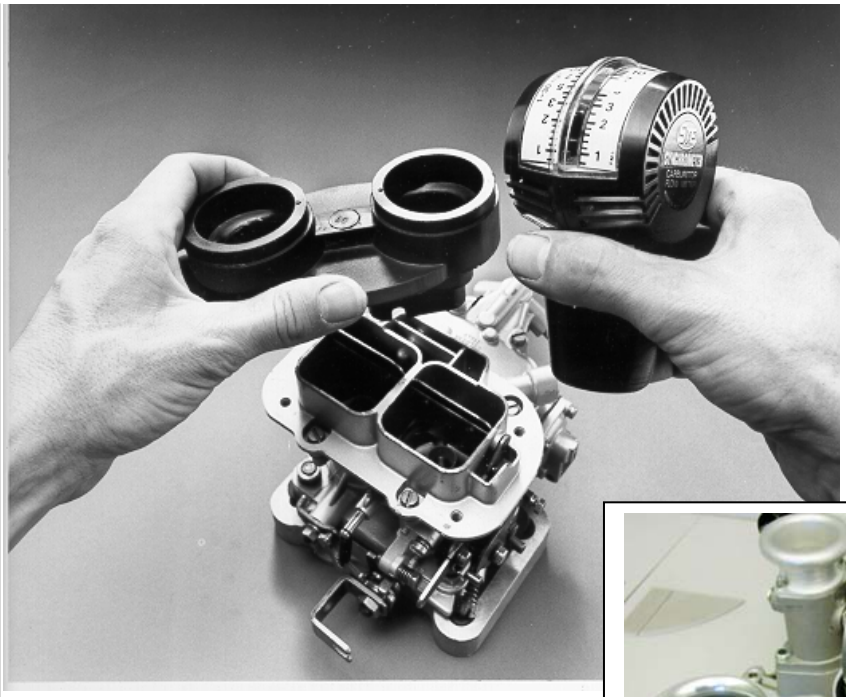
No restriction full flow carburetor balancing tool !

Available in two sizes'
For standard and high volume performance engines

Standard**:**
STE SK

High Volume**:**
STE BK
BK will require additional adapter for smaller inlets.

Additional adapters and adapter kits are available for performance and street tuning.



REDLINE stocks a complete range of special adapters for almost every carburetor application.

All special adapters are designed to fit tightly into the carburetor intakes. This allows for both hands free for tuning and simple adjustments with engine running.

444.457. label Assembled in the U.S.A. http://www.redlineweber.com

SYNCHROMETER'S

STE SK & STE BK

STANDARD: **STE SK**

The **STE SK** will fit intakes of 1 5/8" to 2 1/8". This SK will measure air flow from 1 to 30 kg/h. With this "lower" calibration scale it is easier to read the variations in air flow between carburetors at idle RPM's only. The SK also has extended calibration at 1 to 3 kg/h also making it useful to check secondary throttle adjustment at idle.

HIGH VOLUME: **STE BK**

The **STE BK** will fit intakes of approx. 2" to about 2 5/8". The BK features a rubber sleeve that can be rotated to open a by-pass allowing a higher air flow up to 50 kg/h; by-pass closed 1 to 35 kg/h.

Using an additional adapter **STE 118** will allow the BK to fit intakes as small as 1 ½" similar to the STE SK and allow for higher RPM air flow and synchronization. (Most universal combination)

PRO Tuner set

STE BK used with V8 injection
And Weber 48-IDA's

SYNCHROMETER ADAPTER'S

REDLINE FUEL MANAGEMENT

"HOLD ON" Family of adapters, The Synchrometer must be held to the carburetor intake.

Used in combination with STE SK or STE BK and with the elbow adapters.
For improved fit and contact area, consider REDLINE'S Street Tuner and PRO Tuner sets.

STE 118

Taper 1 7/16"
O.D. 1 ½"
O.D. 2 ¼"
Use with STE BK

STE 18

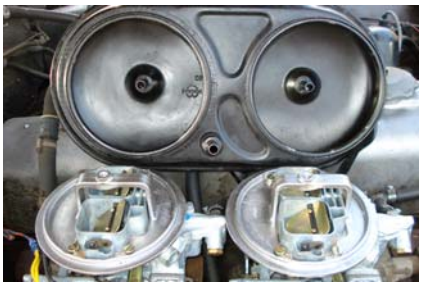
O.D. 1 1/8"
O.D. 2 ¼"
Use with BK & SK
or STE 8, DCO

STE 10

O.D. 2 7/8"
I.D. 1 ½"
Use with BK & SK

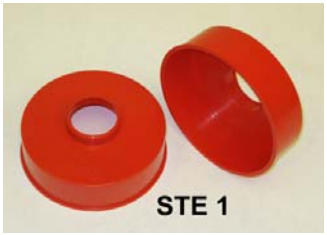
"HAT" Family of adapters, Synchronizing multiple 2 barrel and 4 barrel carburetors.

For use with Weber 32/36 & 38 DGES on BMW, Mercedes as well as Holley 2300 2bl & 4bl Dominators, ZENITH 35/40 INAT on BMW & Mercedes, most round top carburetors.



STE 31/01

Inside Diameter: 5"
Inside Height: 3"
Use with BK & SK



STE 1

Inside Diameter: 5 3/8"
Inside Height: 1 9/16"
Use with BK & SK
Zenith 35 40 INAT

STE 32

Inside Diameter: 7 1/8"
Inside Height: 2 ¾"
Use with BK & SK

"SNORKEL" Family of adapters
Used with "HOLD ON" adapters

These "snorkels" are typically used as a right angle adapters used for Weber DCOE synchronization with little working room. These snorkels are included in REDLINE'S Pro Tuner kit.

STE 6

Large opening:
Use with STE BK and STE SK

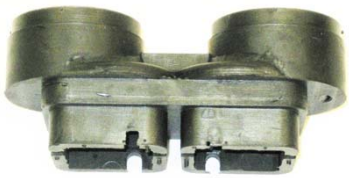
Smaller opening:
Perfectly fits into 40-DCOE inlets, 1 9/16" Alpha, Solex, Weber

STE 8

Large opening:
Use with STE BK and STE SK

Smaller opening:
Use adapter STE 18 for multiple inlets, 40 -55 DCOE 2 ¼" max.

Weber "DG & DF" Family of adapters, Jaguar, Nissan 240Z, Triumph TR6 & TR7



STE 40

32/36 DGEV
38 DGES

STE 49

32/36 DFEV

Miscellaneous "ANGLE & OFFSET" Family of adapters,

STE 25

Male to Inlet w/taper1 7/8"
44-IDF, 45-DCOE
Use with STE BK and STE SK

STE 28

Male to Inlet 2"
48-IDF, 48-IDA, 48-DCOE
Use with STE BK and STE SK

STE 13

Top:
O.D. 2" I.D. 1 9/16"
Bottom:
O.D. 1 ¾" I.D. 1 7/16"
Use with STE BK and STE SK
Height 1 ¾"

STE 54

Top:
O.D. 2" I.D. 1 9/16"
Bottom:
O.D. 1 3/16" I.D. 1 7/8"
Use with STE BK and STE SK

STE 11

Top:
O.D. 2" I.D. 1 5/8"
Bottom:
Inlet O.D. 2 3/8" I.D. 1 ¾"
Use with STE BK and STE SK

SYNCHROMETER TUNER SET, OPTIONS

REDLINE FUEL MANAGEMENT

PRO-TUNER SET

GENERAL REFERENCE OPTIONS

DUAL IDF's

V8 48-IDA's

DUAL 34-ICT's Volkswagen