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, K1301, K1311 & K1412 by REDLINE

All Type-3, Squareback & Fastback, 1972-later Type-2 Buses w/air cooled engines

Using 2 Weber 34-ICT's

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
Wire cutters

Parts Supplied with Installation Kit

2 Weber 34 ICT's
2 Intake manifolds
1 Throttle Linkage and levers
2 Air Filter's
1 Hardware kit

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

INSTRUCTION / JETTING NOTES:
The following "instructions" are based on an 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 1835cc, modified cylinder heads, camshafts and exhaust may require a jetting change. Use the REDLINE jet kit 701-ICT if re-jetting your engine is necessary.

RECOMMENDED ADDITIONAL PARTS

1. It is recommended to use a new fuel filter and use Loctite thread locking on all studs and nuts.
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 9mm 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.

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)

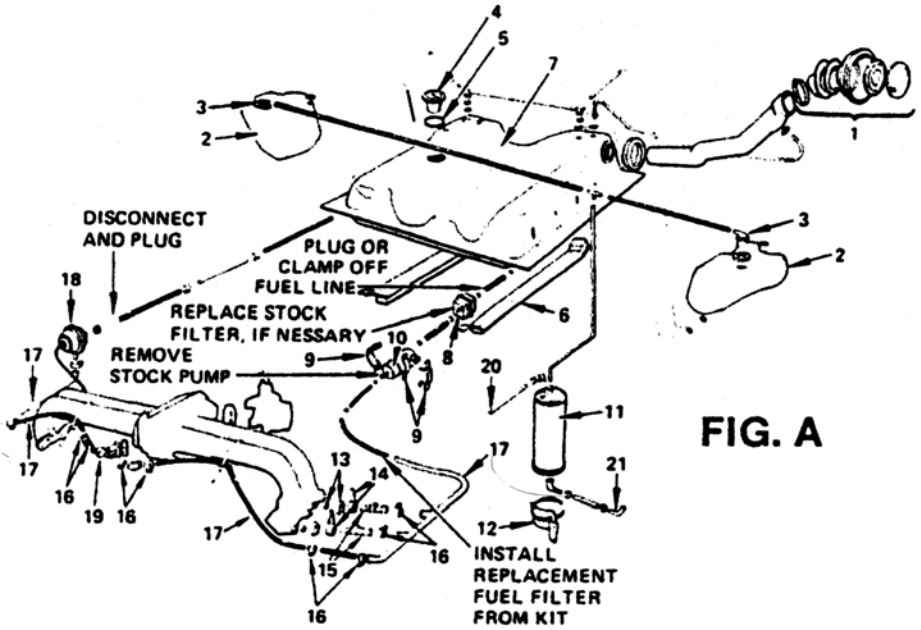


FIG. A

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

DISASSEMBLY / ASSEMBLY

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)

WEBER CARBURETOR INSTALLATION, BENCH ASSEMBLY

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 FIGURE B)

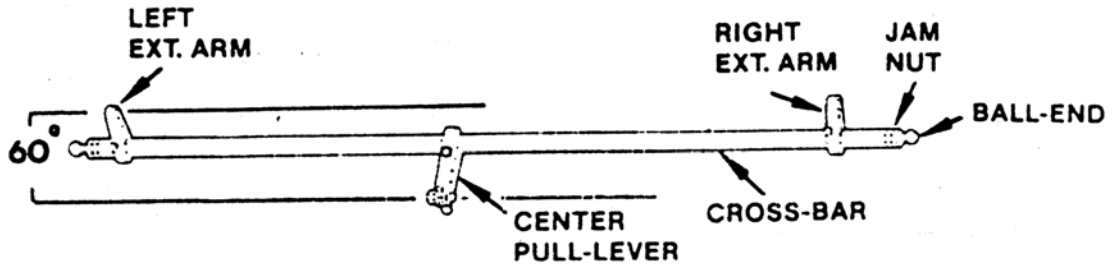


FIG. B

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 cross bar bracket on the right side (Passenger side) carburetor, using the lock washer and bolts provided. FIGURE C. **DO NOT INSTALL THE LEFT SIDE BRACKET AT THIS TIME. DUE TO THE LENGTH REQUIRED FOR THE CROSSBAR TO SEAT PROPERLY IN THE BRACKET, THE RIGHT AND LEFT SIDE ASSEMBLY OF PARTS CANNOT BE DONE SIMULTANEOUSLY.**

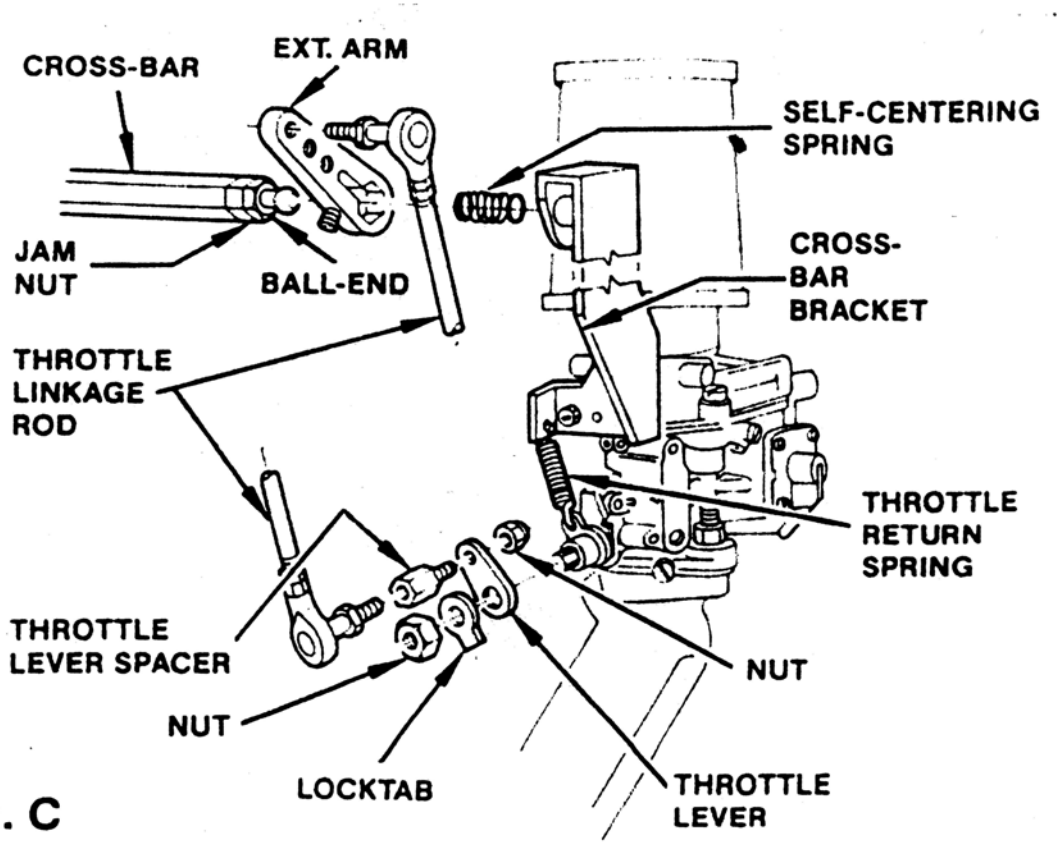


FIG. C

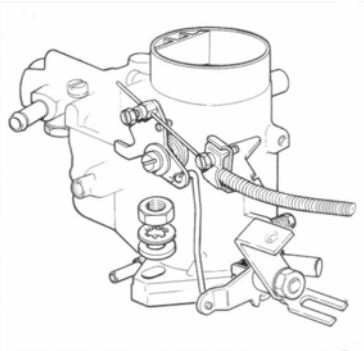
CARBURETOR SET UP AND LEAN BEST IDLE ADJUSTMENT

34 ICT

Baseline Settings

Speed Screw: 1 3/4 turns in

Mixture Screw: 2 turns out



It is most important to verify all linkage and levers are installed without binding and the linkage opens to full throttle position 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.

CALIBRATIONS MAY VARY DUE TO REGIONAL FUELS AND STATE OF ENGINE TUNE AND PERFORMANCE. POOR RUNNING QUALITY DOES NOT MEAN YOU HAVE A CARBURATION PROBLEM. THE ADVANTAGE OF THE WEBER CARBURETOR IS ITS EASE OF ADJUSTMENT AND TUNING.

"LEAN BEST IDLE" Procedures

After confirming the linkage allows the throttle to seat against the Idle Speed Screw. Back off the Idle Speed Screw until it doesn't touch the throttle lever. Turn the Speed Screw in until it contacts the throttle lever and turn it in 1 3/4 turns. Repeat this with the other carburetor. Turn the Mixture Screw in until it "LIGHTLY" seats, then back out the screw 2 full turns.

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 each 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 each screw 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" ½ turn out to lower the idle speed. The Speed Screw should never be in more than 1 3/4 turns in.
d. These carbs are 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 never opened more than 1 3/4 turn in maximum.
e. After synchronizing multiple carbs, reconfirm steps b. c. & d.

Simple Rules for low speed calibration

If your mixture screw is out more than 2 1/2 turns then the Idle jet is too lean (too small). When the mixture screw is out less than 11/2 then the Idle jet is too rich (too large). These assumptions are based on the fact that the idle speed screw setting is not opened more than 1 3/4 turns. If the speed screw has to be opened 1 3/4 or more turns then this is also an indication of a lean condition or a vacuum leak and usually requiring greater change. At times it may appear to be showing signs of richness or flooding it is really a lean condition. Please understand the need to keep throttle plate as near to closed as possible so as not to prematurely expose the transition holes. This is what causes the visible rich condition, and confirms the need to increase the jet size.

Pump By-pass Valve:

The pump by-pass valve is designed to by-pass a percentage of the fuel delivered to the accelerator pump nozzle/jets. We include the zero by-pass valve in our jet kit, which can deliver all of the available fuel to the engine and NOT allow any fuel to by-pass back into the fuel bowl. This will increase the duration and volume of the pump shot with the original pump nozzle/jets. The accelerator pump by-pass valve is located in the bottom of the fuel bowl. One is required per carburetor.

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.

Carburetors: 34-ICT & 34-ICH

Shown in Figure "A", the idle speed screw **isn't** turned in more than 1 3/4turns. The throttle plate (F) is below the enrichening progression holes (2), the carburetor would be at "curb" idle.
Also, there would be zero vacuum at the distributor "ported" vacuum source.

Shown in Figure "B", the idle speed screw **IS** more than 1 3/4 turns in. The throttle plate **IS** exposing the enrichening progression holes. Also, you would have vacuum at the distributor "ported" vacuum source. 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 1 3/4 turns MAXIMUM or, you will experience a rich idle condition, a stumble off idle, "flooded" hard starting, "dieseling" or run on.

Synchronized Carburetors: 38-DGES, 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 not a distributor "ported" vacuum source with these carburetors. (EXCEPT FOR THE 38-DGES which does have ported vacuum).

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.

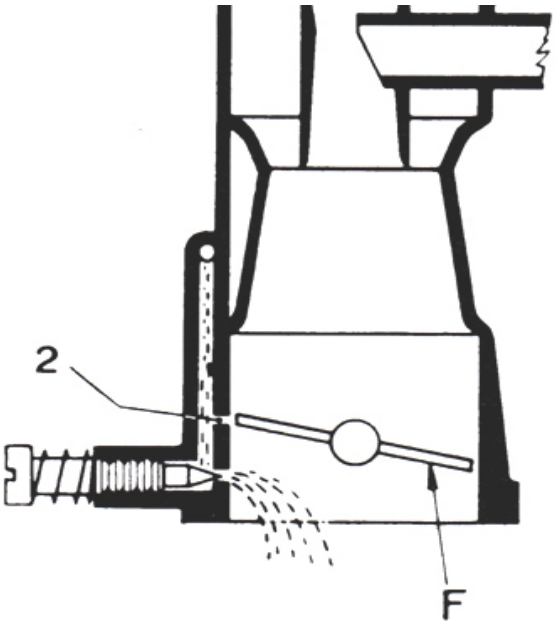


Figure A
Correct Throttle Position

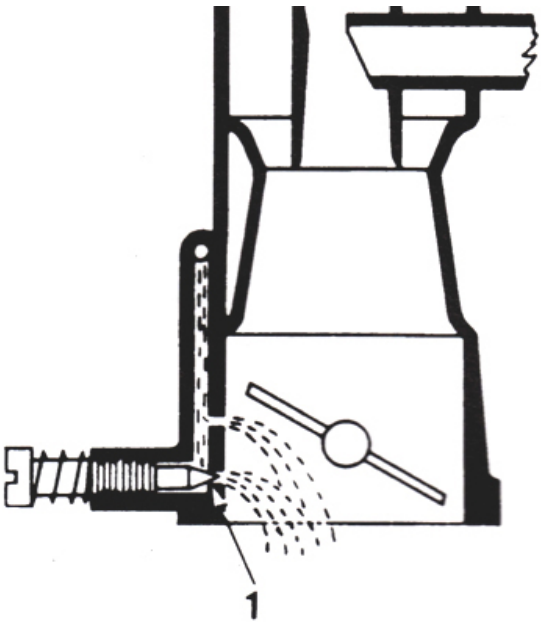


Figure B
Enrichening Holes **Exposed**

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 dual 34-ICT
PRO BUG HEX LINKAGE, by REDLINE
VW TYPE-I, III, IV,

LINKAGE KITS:

VW Type-I:
99007.411

VW Type-III:
99007.311

VW Type-IV:
99007.412

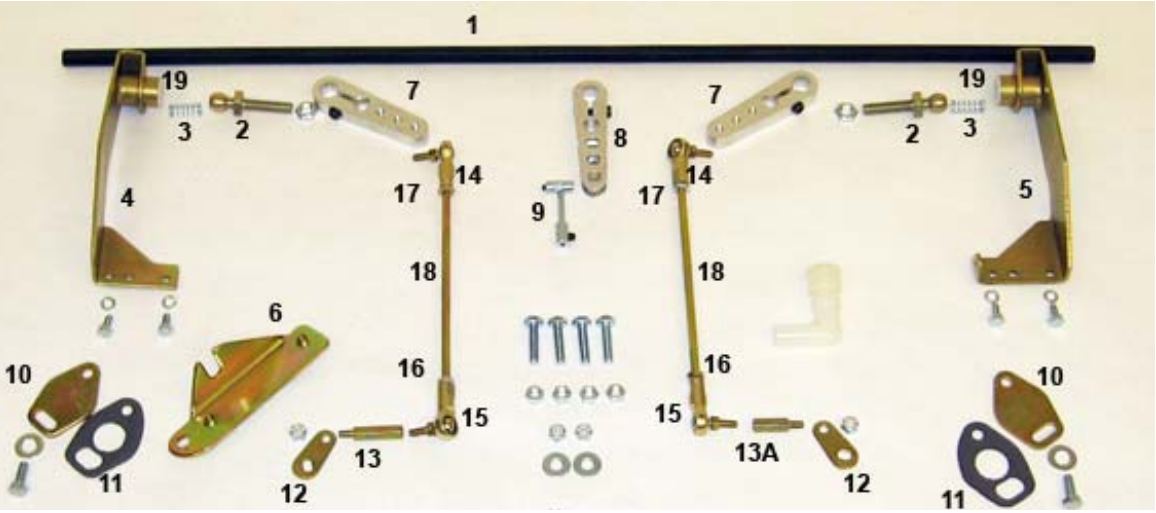


Illustration #	Part Number	Description
1	444.411.02	Hex Cross Bar Type-I (26.25”)
1	444.411.02	Hex Cross Bar Type-IV (26.25”)
1	444.311.02	Hex Cross Bar Type-III (27.75”)
2	99024.125	½” Ball End
3	444.311.11	Ball End, Spring Tensioner
4	444.411.03B	Cross Bar Bracket, Left Hand Type-I (long)
4	444.311.03B	Cross Bar Bracket Left Hand Type-III, IV (short)
5	444.411.04B	Cross Bar Bracket Right Hand Type-I (long)
5	444.311.04B	Cross Bar Bracket Right Hand Type-III, IV (short)
6	444.411.11	Coil Bracket
7	444.311.07B	Hex Rod Lever, Common
8	444.311.08	Hex Rod Lever, Acc. Cable
9	444.411.09	Acc. Cable Shortner
10	99024.414	Heat Tube, Block Off Plates Type-I
11	99024.415	Heat Tube, Block Off Gaskets Type-I
12	444.311.05	Throttle Levers
13	444.411.12	Rod End Spacer, Left Hand (long)
13A	444.311.10	Rod End Spacer, Right Hand (short)
14	99024.129	Rod End Right Hand (Silver)
15	99024.128	Rod End Left Hand (Gold)
16	444.8456.11	10-32 Jam Nut Right Hand (Silver)
17	99024.304	10-32 Jam Nut Left Hand (Gold)
18	99024.107	Hex Rod 6 ½” Type-I
18	99024.102	Hex Rod 1 ½” Type-III
18	99024.104	Hex Rod 3 ½” Type-IV
19	444.311.09	Nylon Bushing

REDLINE SYNCHROMETER

Calibrated synchronizing instrument

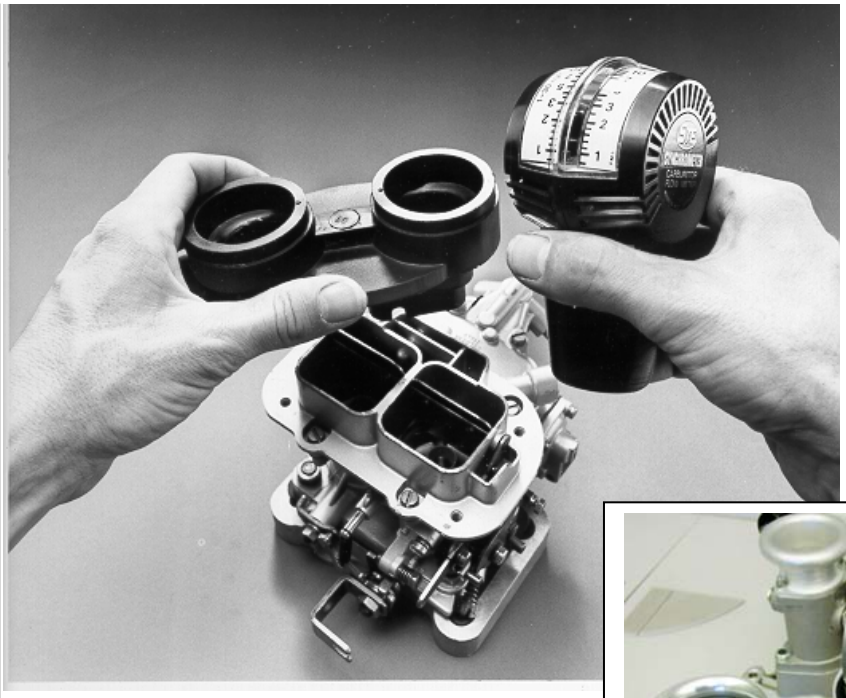
No restriction full flow carburetor balancing tool !

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.

SYNCHROMETER'S
STE SK & STE BK

REDLINE FUEL MANAGEMENT

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

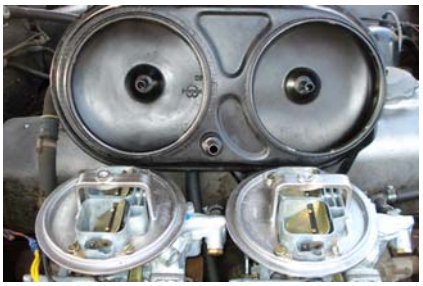
O.D. 1 1/8"
O.D. 2 ¼"
Use with BK & SK
or STE 8, DCO

STE 10

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

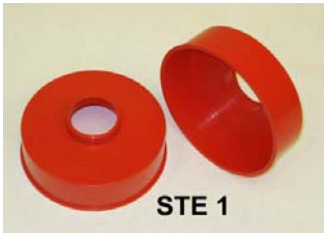
"HAT" Family of adapters, Synchronizing multiple 2 barrel and 4 barrel carburetors.

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

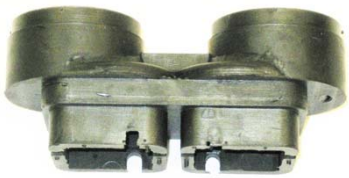
Smaller opening:
Perfectly fits into 40-DCOE inlets, 1 9/16" Alpha, Solex, Weber

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 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

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

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