

# Typical Install Instructions



Distributed by

**REDLINE**

America's premier distributor of Genuine WEBER Carburetors for over 30 years

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, K156, K156-38, K157, K157-38 by REDLINE**

**K156 = TRIUMPH TR6, K157 = TRIUMPH TR7**

**Using Weber 2x32/36 DGV or 2x38-DGES**

**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  
Socket set  
Screwdrivers (regular and Phillips)  
Pliers  
6mm allen wrench  
Gasket Scraper, Knife  
Wiping rags, Cleaning solvent  
Gasket sealer

### **Parts Supplied with Installation Kit**

Weber 32/36 DGV or 38 DGES  
Adapter installed on carburetor  
Linkage Rods and levers  
Air Filter Adaptor

### **TUNE – UP SPECIFICATIONS**

All engine tune-up specifications for the Weber Carburetor remain the same as those specified by the factory for the original unit. A suitable qualified dealer or independent garage, using infrared gas analyzing equipment, should carry out emission tune-up.

**NOTE:** Late model vehicles fitted with Emission Control Systems have many vacuum lines and electrical connections in their fuel systems. It is essential when dismantling, that **disconnected lines be identified with a number tag or label system.** Establish function of any device reconnected or disconnected.

### **RECOMMENDED ADDITIONAL PARTS**

1. It is recommended to obtain a new fuel filter and install it when installing this kit.
2. Many late model vehicles use a high-pressure fuel system. The WEBER only requires **3 lbs Maximum**. For aggressive driving or off road use, we recommend the float height of 18mm from the gasket to top of plastic 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.

# Universal Disassembly

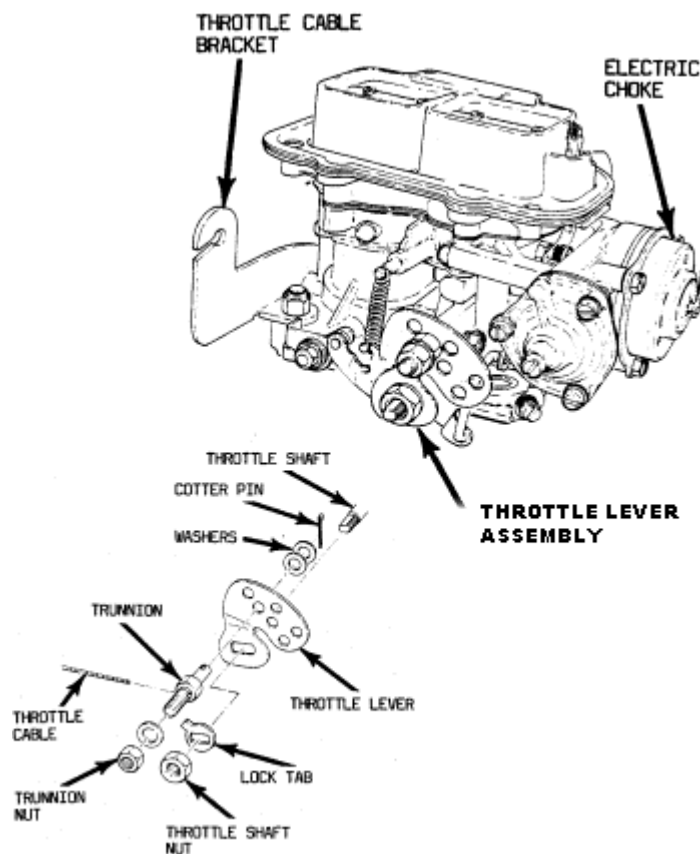


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1. Disconnect battery cable.
2. Remove the gas cap.
3. Drain approximately 1 quart of water from the cooling system, **CAUTION:** Hot water may be present. Electric choke vehicles, disconnect wire from choke assembly.
4. Remove factory air filter assembly and all attaching hardware and hoses. Use a tag and numbering system to identify hoses for reinstallation.
5. Remove factory vacuum lines from carburetor. Use a tag and number system to identify hoses for reinstallation.
6. Disconnect the throttle cable and remove the cable bracket from the manifold if used.
7. Remove the carburetors and interconnecting linkage together with fuel lines and return springs.
8. Remove plastic spacer blocks, gaskets and studs from inlet manifold flanges. Clean these mounting surfaces.
9. Install Adaptor Manifolds using the studs and gaskets supplied.
10. Remove the rectangular throttle levers from the DGV carburetors and fit the levers supplied as shown in Illustration #1. Note **Bench Assembly** to the right for throttle lever torque.
11. Check for throttle operation from idle to wide open throttle. If any sticking or binding occurs, repeat the **Bench Assembly** procedure. Correct ANY binding or sticking BEFORE installing this carburetor.
12. With linkage toward the rear of the vehicle, install the Weber carburetor and tighten the new securing nuts.
13. Connect the fuel inlets to the original fuel lines with hose clamps.



## Bench assembly

Install the new REDLINE lever on the carburetor.

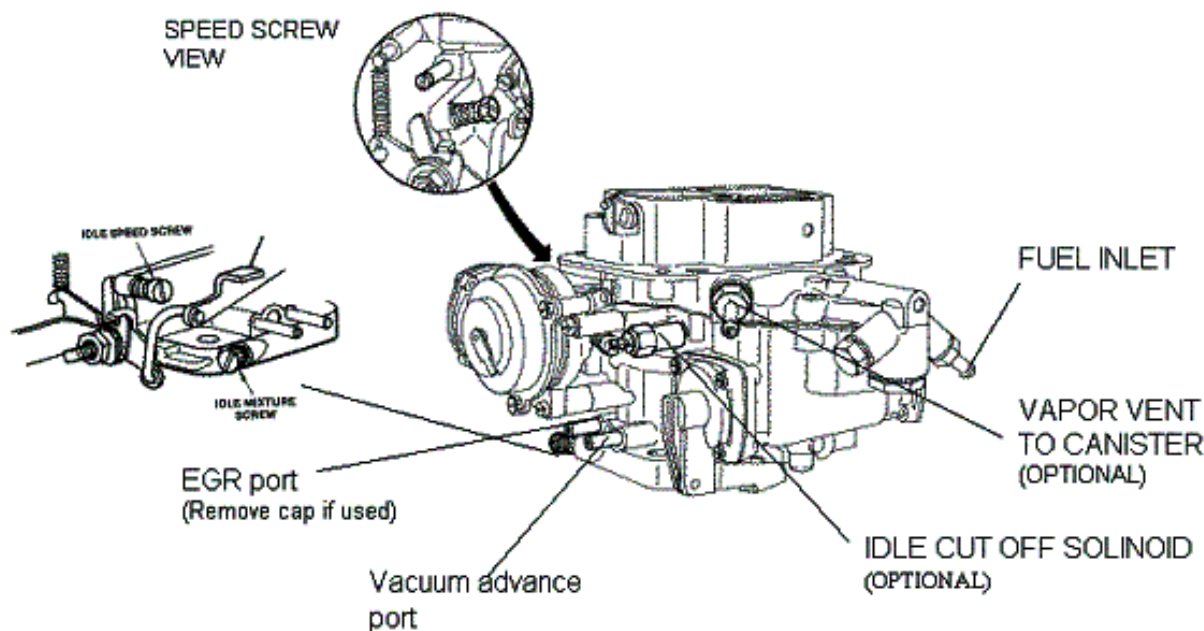
**CAUTION: Do not over tighten throttle shaft nut.**

Proper tightness can be achieved by installing nut just slightly more than finger-tight (finger tight then one more flat of the nut) and bend lock tab. After tightening, open choke and check for full throttle operation from idle stop to wide-open throttle. If any sticking or binding occurs, loosen nut and re-tighten with reduced torque. If excessive torque has been applied, re-centralization of the throttle plate may be necessary. This may require loosening nut and rapping on the end of the shaft with a small plastic mallet or a screwdriver handle (We are not driving nails here firm, but not abusive).

# Universal Reassembly

14. Connect the distributor vacuum advance hose to the port on the front of the carburetor. Cap the vacuum port on the rear carburetor with the cap provided.
15. Using the tee pieces and ½" hose supplied, connect the adaptor water jackets to the cooling systems, as shown in illustration #2.
16. Reconnect choke hoses (if water choke) or "keyed" 12 volt wire (if electric) or choke cable (if manual choke). Replace the water/coolant in the cooling system.
17. Reconnect battery and replace gas cap.
18. START ENGINE
  - a. Check for vacuum leaks around the carburetor-mounting base and correct as necessary.
  - b. Disconnect throttle cables at carburetor and synchronize carburetors using a Synchrometer. Adjust Idle Speed Screw noting page 12, adjust the mixture screw for "Lean Best Idle" on page 11, following these tuning procedures.
  - c. If engine has poor idle, or will not idle at all, shut engine off and re-set idle by setting the **Idle Speed Screw to ½ turns in maximum** after contact with the throttle lever. The Mixture Screw after lightly seating it comes out 1 1/4 turns.
  - d. **See tuning procedure provided, page 11.**
19. STOP ENGINE
  - a. To install air filter assembly remove the four studs in the carburetor flange. Install the gasket and use the appropriate bolts or nuts (supplied with air filter) to secure to the carburetor. Connect new valve cover vent line using hose and clamps.
20. **Check for adequate hood clearance before closing hood.**

Figure 2



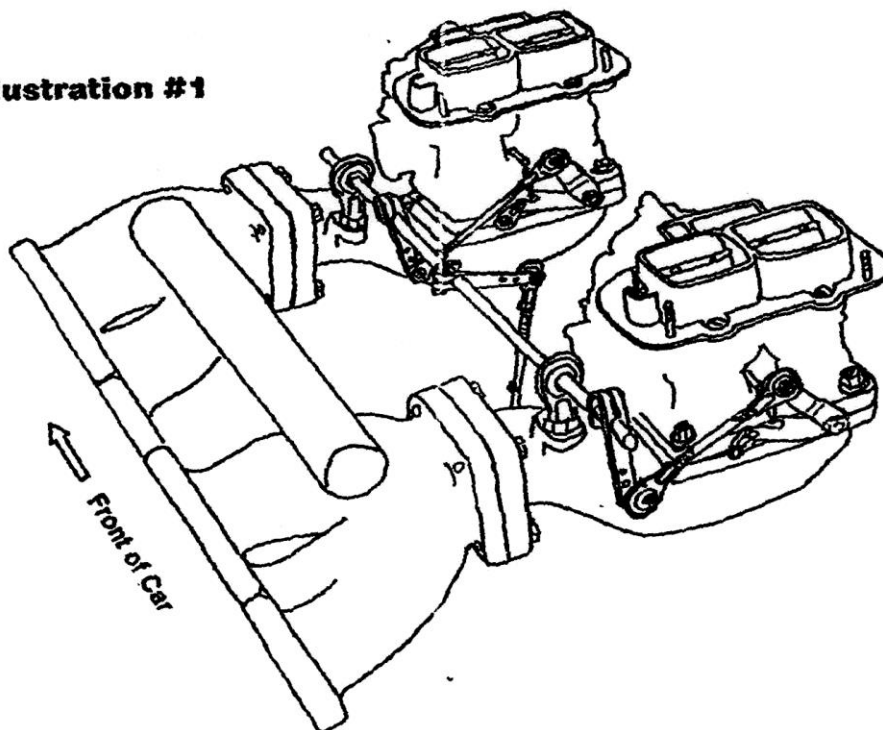
## WEBER Typical Model DGEV FAST IDLE ADJUSTMENT

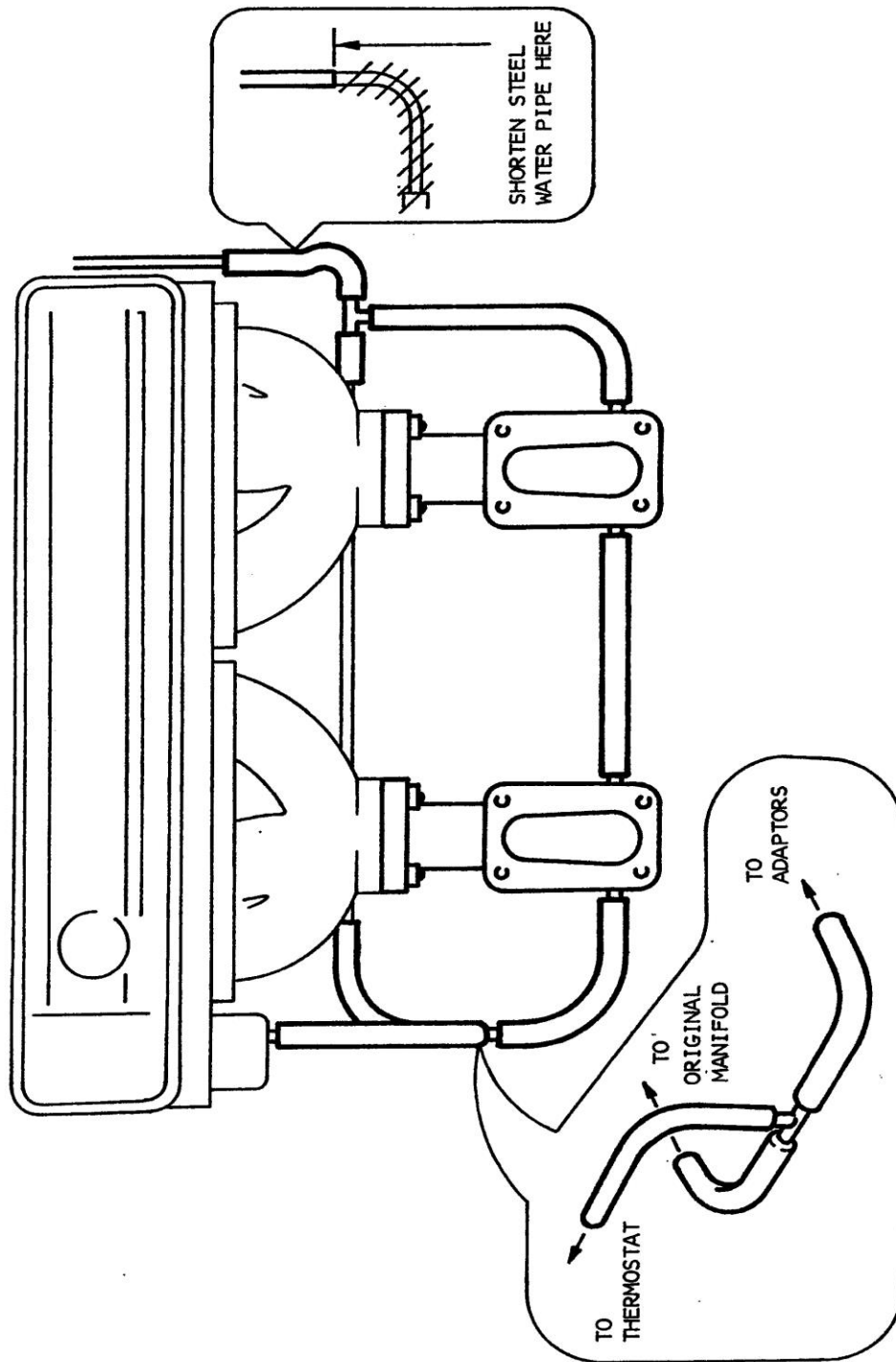
With the engine warmed up and turned OFF, open the throttle and manually engage the choke plates (butterflies). Release the throttle, and then release the choke plates. The fast idle cam should now be activated and the fast idle speed screw should be positioned on the cam shoulder. Start the engine **DO NOT DEPRESS THE THROTTLE PEDAL OR THE CHOKE WILL BECOME INOPERATIVE.** To adjust the fast idle speed screw "in" (clockwise) to increase speed and "out" (counterclockwise) to decrease the speed.

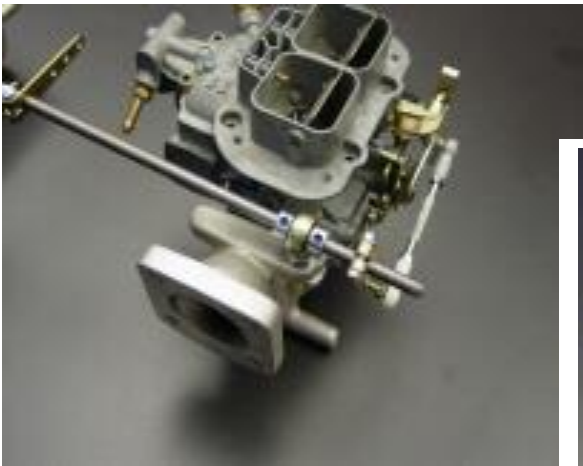
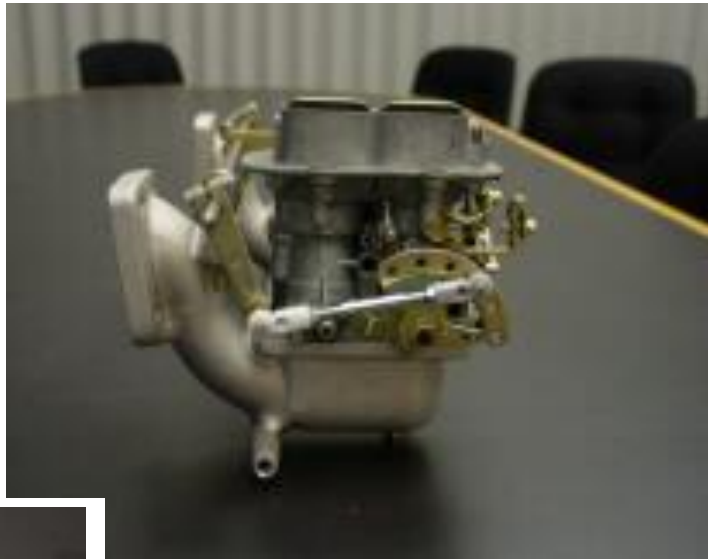
### IMPORTANT

- Legal in California **only** for racing vehicles which may **never** be used upon a highway.
- As such these parts are offered without any warranty, whatsoever, expressed or implied.
- Redline will always make every possible effort to provide needed assistance, if any difficulties arise. Our first agent in that assistance is your distributor.
- Experience shows that the most common problems encountered that are not the fault of the carburetor are:
  - a. Incorrect idle mixture and setting.
  - b. Dirt in carburetor (usually the result of carburetor installation and use without a fuel filter).
  - c. Incorrect fuel pressure (proper pressure at carburetor fuel inlet should be 2½-4 psi).
  - d. Incorrect installation of vacuum and/or return lines.
  - e. Overtightening of throttle lever.
  - f. Low voltage to carburetor electrical circuits, i.e. choke and idle cut-off solenoid.
- Should further assistance be required, you can contact our technical liaison through your distributor.

**Illustration #1**



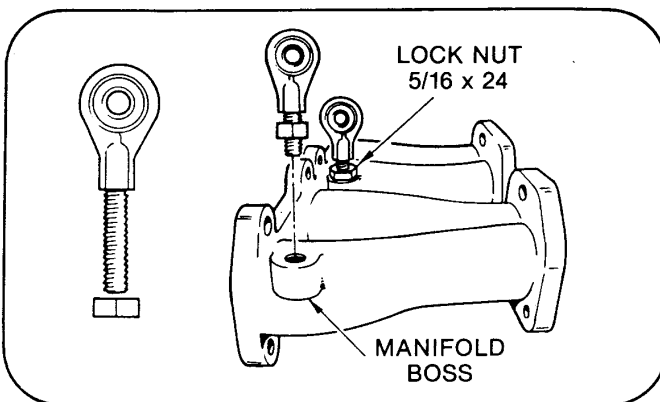




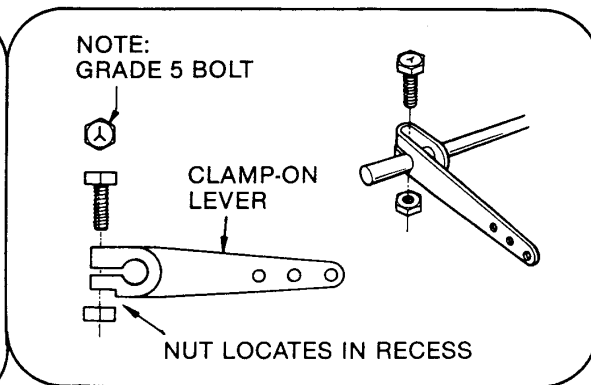


## ASSEMBLING YOUR CANNON INTAKE MANIFOLD AND LINKAGE

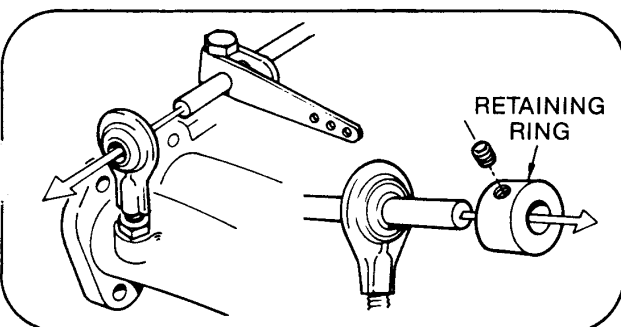
(NOT 3801 3805 3821 3822 3823 3846)



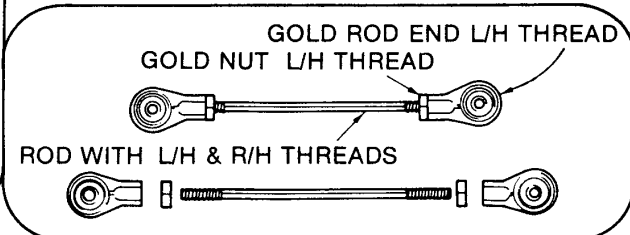
- ① Locate 5/16 rod ends and 5/16 x 24 nuts. Install nuts on rod end shanks. Screw rod ends into bosses provided on manifold castings and lock in place with nuts.



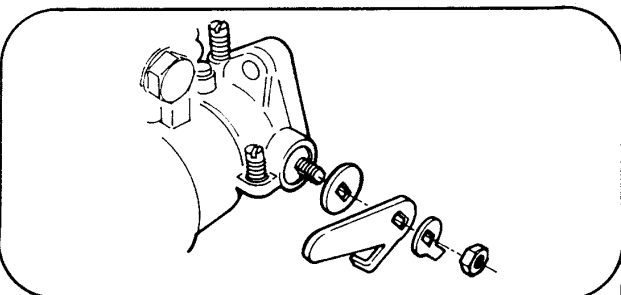
- ② Refer to assembled linkage diagram provided to determine position of clamp-on levers on linkage cross bar. Slide appropriate number of levers onto bar and install in 5/16 rod ends. Levers are clamped with one inch, grade 5, 10/32 screws and nuts.



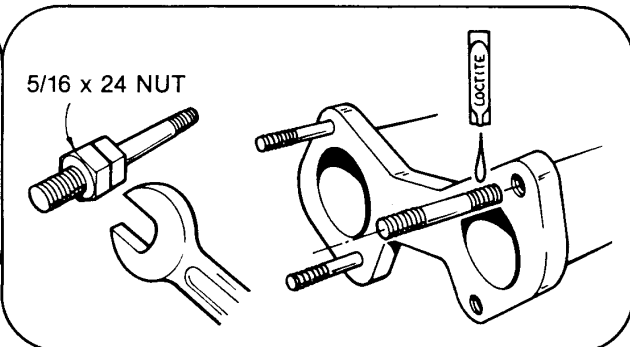
- ③ Levers shown positioned on the outside of the rod ends, can now be installed as can shaft retaining collars. Leave lever clamping screws loose at this time.



- ④ Assemble adjustable linkage rods as shown. Gold nuts and rod ends have left hand threads.



- ⑤ Determine from assembly diagram on which side of the carburetors the throttle levers supplied should be fitted. Install levers, with the large shaft washers supplied, on the appropriate end of the throttle shaft taking care not to overtighten the shaft nuts. After fitting the levers check that throttles open and close smoothly. Transfer idle stop screw to lever side of carburetor if necessary.



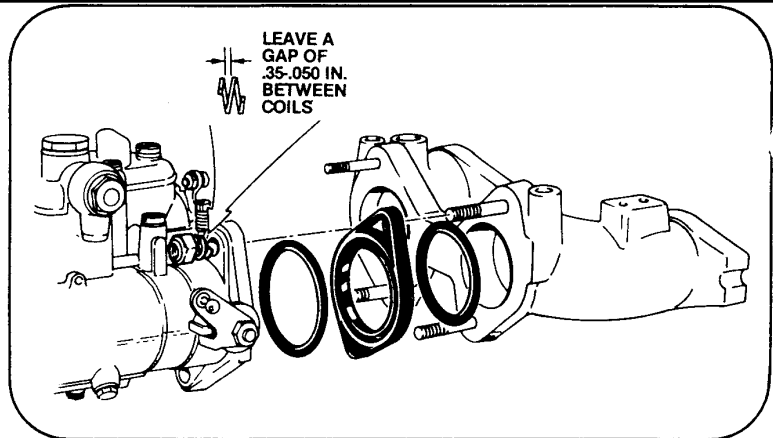
- ⑥ Using the Loctite in the capsule supplied, install the carburetor mounting studs in the manifold. (Note: The coarse threaded end of the stud screws into the casting.) If a stud installation tool is not available obtain 2 5/16 x 24 plain nuts and use these to tighten the studs.

# General LINKAGE and SOFTMOUNT INSTALLATION

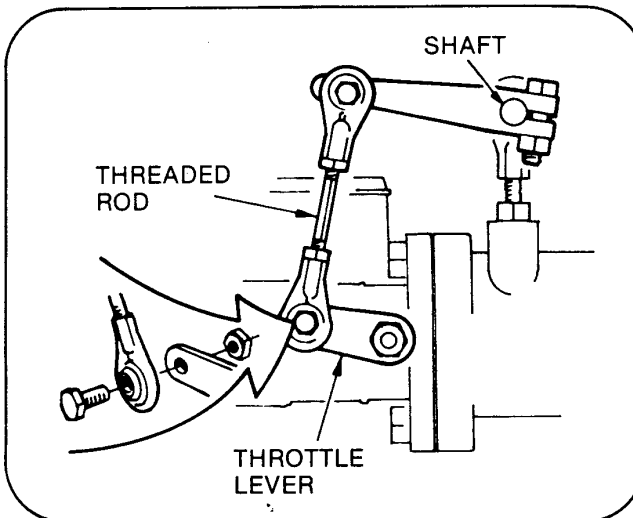


Clean manifold flange faces on cylinder head. Using a fresh gasket install the inlet manifold on the cylinder head. Torque bolts to manufacturers specifications.

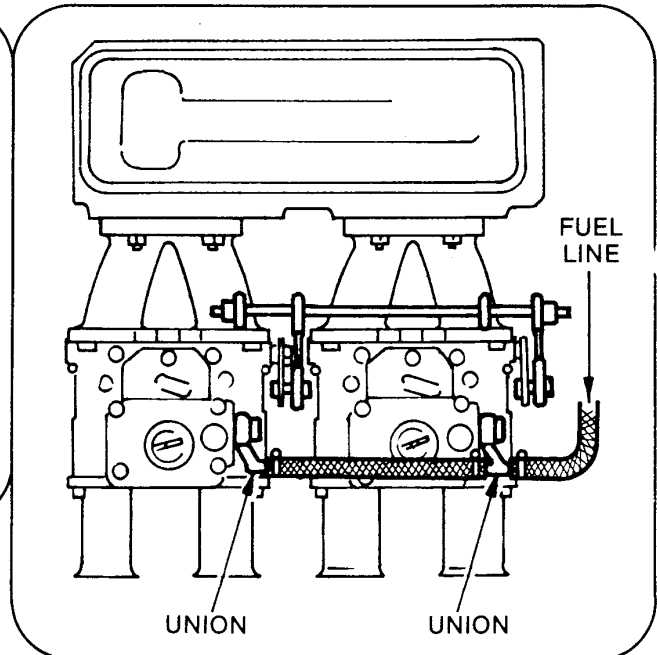
Fit power brake hose to threaded boss provided, using (in most cases) stock fittings from manifold. Where fitted install thermostat and housing from original inlet manifold. Where applicable, some original water hoses may need to be either blocked or re-routed.



- ⑦ Assemble anti-vibration mounts as on diagram and fit over carb mounting studs. Install carburetors and retain on studs with coil spring washers and 5/16 x 24 Nyloc nuts. Note: Gap in coil spring washer essential for proper vibration damping.



- ⑧ Install adjustable linkage rods between clamp-on levers on cross bar and throttle levers on carburetors using 3/4 x 10/32 screws provided. Adjust linkage length by rotating threaded rod until both are equal length (not necessary on single carb application). Lock in place with left and right jam nuts. Ensure that throttles are closed. Tighten lever clamping screws on cross bar. Refer to assembly diagram for connections to stock linkage.



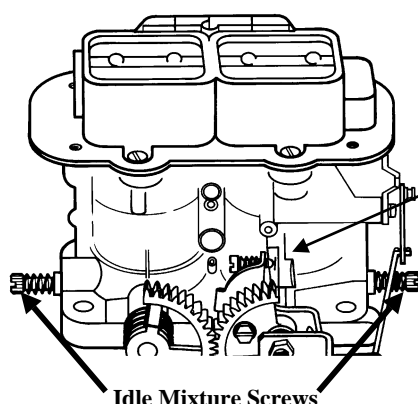
- ⑨ Install fuel union(s) provided, using gaskets supplied with fuel union bolt. Do not use the blank fuel union provided on some Weber DCOE's as these will not retain a fuel line. The carburetor closest to the fuel supply should have the dual union.

**Most late model engines employ a vacuum advance distributor control. Most Weber High Performance carburetors have no provision for this control. It is recommended that a centrifugal advance distributor be installed or that the original distributor be modified for full centrifugal advance operation. Do not attempt to modify the carburetor for vacuum advance or connect the original vacuum pipe to the inlet manifold, as this will not provide correct operation of the vacuum advance mechanism.**



## 38-DGES GENERAL TUNING GUIDELINES

### LOW SPEED CIRCUIT CALIBRATION



#### Base line Settings

Speed Screw: 1/2 turn in Max.

Mixture Screws: 1 turn out

#### Note Final Settings:

Idle Speed Screw \_\_\_\_\_

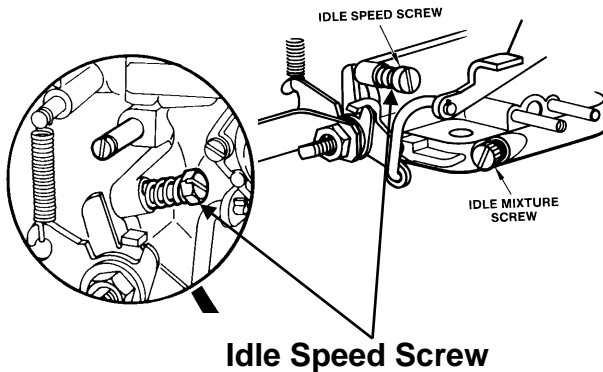
Idle Mixture Screw \_\_\_\_\_

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

\* All settings are done with engine warmed up so that the choke is fully opened and disengaged.

1. Back out the Idle Speed Screw until it does not touch the throttle lever. Cycle or Snap the linkage again to be sure that the linkage and lever comes to complete close. (Checking for linkage bind) Turn the idle speed screw in until it contacts the throttle lever, then continue to turn the idle speed screw in 1/2 turn maximum.
2. Set the mixture screws by turning each screw in until it **lightly** seats. Then back out the mixture screws 1 full turn. **DO NOT FORCE THE MIXTURE SCREW, AS THIS WILL CAUSE DAMAGE TO THE SCREW AND IT'S SEAT IN THE BODY OF CARBURETOR.**
3. \* With the engine at operating temperature, the choke fully open and engine running, turn each mixture screw in until the engine starts to run worse, then back out the screw (recommend 1/8 turn at a time) until the engine picks up speed and/or begins to smooth out. Back out 1/8 turn more, or until the screw does nothing or runs worse then turn back to the point where it ran its best. We are looking for the Lean Best Idle or the "sweet spot".
4. Recheck timing and vacuum hook ups. Then, recheck mixture screws to lean best idle again. If all is still the sweet, best and smoothest idle then confirm and note the final settings.
5. If the mixture screw is out more than 1 1/2 turns, then the Idle jet is too lean (too small). If the mixture screw is 3/4 of a turn or less, then the Idle jet is too rich (too large). These assumptions are based on the fact that the idle speed screw setting is not more than 1/2 turn in. If the speed screw has to be opened 1/2 or more turns then this is also an indication of a lean condition usually requiring jet change. "At times" it may appear to be showing signs of richness or flooding this could also be the float level is too high, plastic float 18mm from gasket surface to the top of the float (don't depress ball and spring in needle valve when measuring float height), then, set the float drop to 2mm of "needle" travel, check the fuel pressure, **MAX. 3-PSI.** **USE** a pressure regulator #31800.063!

# 32/36 Progressive GENERAL GUIDELINES LOW SPEED CIRCUIT TUNING



## Base line Settings

Speed Screw - **1 1/2 turns in Max**

Mixture Screw - 1 1/4 to 1 3/4 turn

### Final Settings:

Idle Speed Screw \_\_\_\_\_

Idle Mixture Screw \_\_\_\_\_

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

\* All settings are done with engine warmed up so that the choke is fully opened and disengaged.

1. Back out the Idle Speed Screw until it does not touch the throttle lever. Cycle or Snap the linkage again to be sure that the linkage and lever comes to complete close. (Checking for linkage bind) Turn in the idle speed screw until it contacts the throttle lever, then continue to turn the **idle speed screw in 1 1/2-turn maximum.**
2. Set the Idle Mixture Screw by turning it in until it **lightly** seats. Then back out the mixture screw 2 full turns out. **DO NOT FORCE THE MIXTURE SCREW, AS THIS WILL CAUSE DAMAGE TO THE SCREW AND ITS SEAT IN THE BODY OF CARBURETOR.**
3. \* With the engine at operating temperature, choke fully open and engine running, turn in the mixture screw until the engine starts to run worse, then back out the screw (recommend 1/4 turn at a time) until the engine picks up speed and/or begins to smooth out. Back out 1/4 turn more, or until the screw does nothing or runs worse then turn back to the point where it ran its best. We are looking for the Lean Best Idle or the "sweet spot".
4. Recheck timing and vacuum hook ups. Then, recheck mixture screws to lean best idle again. If all is still the sweet, best and smoothest idle then confirm and note the final settings.
5. If the mixture screw is out more than 2 turns, then the Idle jet is too lean (too small). If the mixture screw is out 1 1/4 of a turns or less, then the Idle jet is too rich (too large).

These assumptions are based on the fact that the Idle Speed Screw is not more than 1 1/2 turns in. If the Idle Speed Screw has to be opened more than 1 1/2 turns then this is also an indication of a lean condition usually requiring jet change. "At times" it may appear to be showing signs of richness or flooding this could also be the fuel level is too high in the float bowl. Set the **plastic** float 18mm from gasket surface to the tip of the float not depressing the ball & spring in the needle valve. Check the fuel pressure, MAX. 3 PSI. **USE** a pressure regulator #31800.063!

## **TECH SUPPORT**

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 the 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.

# Progression Hole's Throttle Plate Adjustment Diagram



## SPECIAL NOTE:

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

### Progressive Carburetors: 32/36, DGV, DGAV, DGEV, DFAV, DFEV etc.

Shown in Figure "A", the idle speed screw isn't turned in more than 1 ½ turns. The throttle plate (F) is below the enriching progression holes (2), the carburetor would be at "curb" idle. **Also, there would be ZERO vacuum at the distributor "ported" vacuum source with the 32/36 DGEV.**

NOTE:

Shown in Figure "B", the idle speed screw IS more than 1 ½ turns in. The throttle plate IS exposing the enriching progression holes. Also, you would have vacuum at the distributor "ported" vacuum source. The extra fuel at curb idle, from the exposed enriching holes, is 95% of the tuning problems we experience. The Idle Speed Screw **CAN NOT** be turned in more than 1 ½ turns MAXIMUM, or, you will experience a rich idle condition, a stumble of idle and at around 1800 RPM.

### Synchronized Carburetors: 38-DGES, 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. **Also, there would be ZERO vacuum at the distributor "ported" vacuum source with the 38-DGES**

NOTE:

Shown in Figure "B", the idle speed screw IS more than a ½ turn in. The throttle plate IS exposing the enriching progression holes. The extra fuel at curb idle, from the exposed enriching 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.

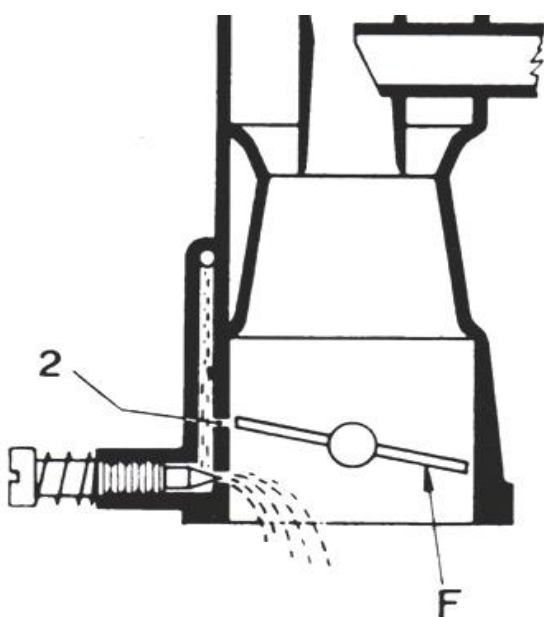


Figure A  
**Correct** Throttle Position

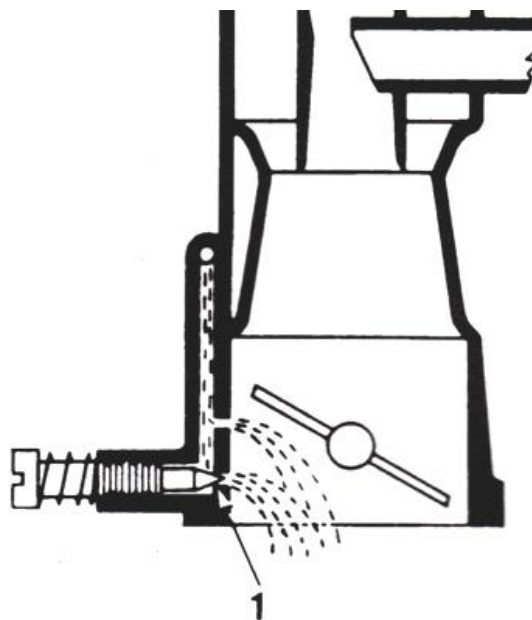


Figure B  
Enriching Holes **Exposed**



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



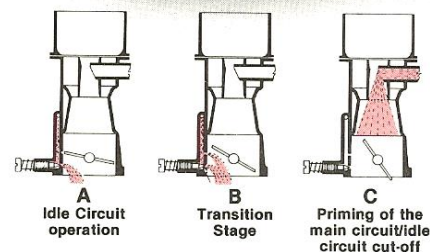
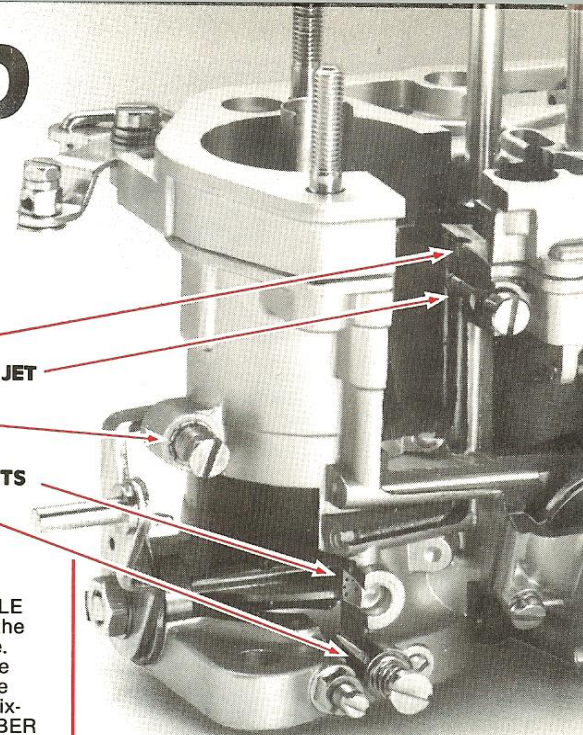
Idle Speed Fuel Jet

**IDLE SPEED AIR JET**  
**IDLE SPEED FUEL JET**  
**IDLE SPEED ADJUSTER SCREW**  
**TRANSITION PORTS**  
**IDLE VOLUME SCREW**

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 finer-like management of complete mixture and engine speed.

## 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 manufacturing 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.



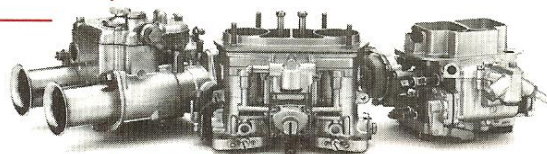
## COPIES DON'T WORK AS WELL AS THE ORIGINALS!

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



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# Trouble shooting guide

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This guide is 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 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)
9. Spark plug heat range too cold

### BLISTERED, BURNED ELECTRODES

1. Spark plug range too hot
2. Timing improperly adjusted
3. Engine overheating
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 electrode
2. Engine overheating
3. Spark plug heat range too 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

# REDLINE SYNCHROMETER

## Calibrated synchronizing instrument

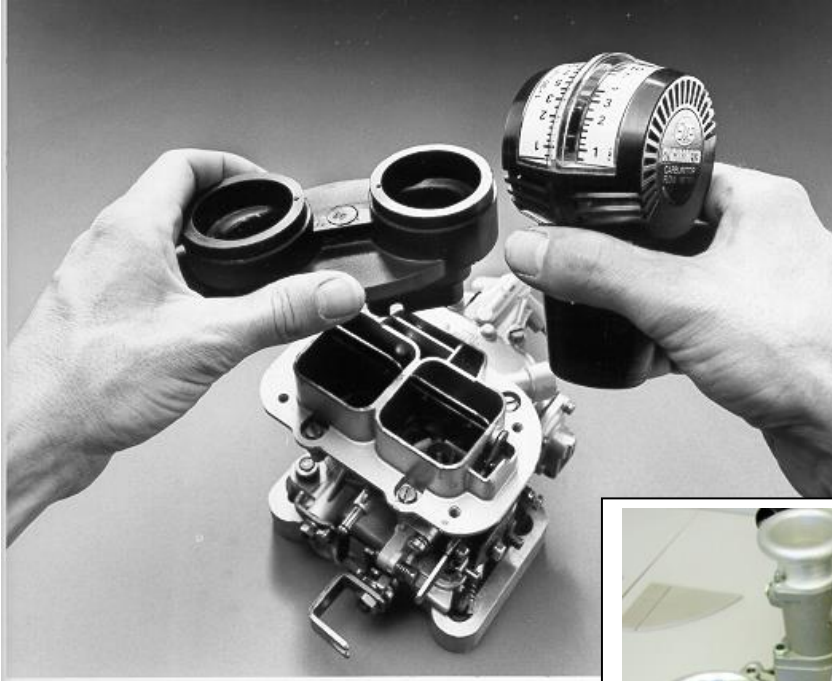
**No restriction full flow carburetor balancing tool !**

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 STE SK & STE BK



**STE SK**

## 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 1/2" similar to the STE SK and allow for higher RPM air flow and synchronization. (Most universal combination)



**STE BK**



PRO Tuner set



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



# SYNCHROMETER ADAPTER'S



## **“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 1/2"  
O.D. 2 1/4"  
Use with STE BK



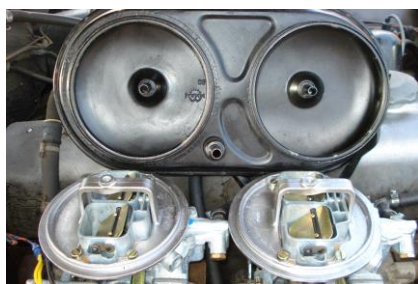
**STE 18**  
O.D. 1 1/8"  
O.D. 2 1/4"  
Use with BK & SK  
or STE 8, DCO



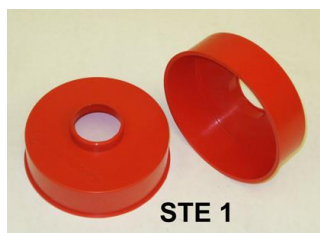
**STE 10**  
O.D. 2 7/8"  
I.D. 1 1/2"  
Use with BK & SK

## **“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 3/4"  
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



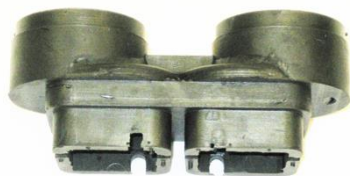
**STE 8**

**Large opening:**  
Use with STE BK and STE SK

**Smaller opening:**  
Use adapter STE 18 for multiple  
inlets, 40 -55 DCOE 2 1/4" max.

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## **Weber “DG & DF” Family of adapters, Jaguar, Nissan 240Z, Triumph TR6 & TR7**



**STE 40**

32/36 DGEV  
38 DGES



**STE 49**

32/36 DFEV

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# SYNCHROMETER TUNER SET, OPTIONS

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## PRO-TUNER SET



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## GENERAL REFERENCE OPTIONS

DUAL IDF's



V8 48-IDA's



DUAL  
34-ICT's  
Volkswagen

