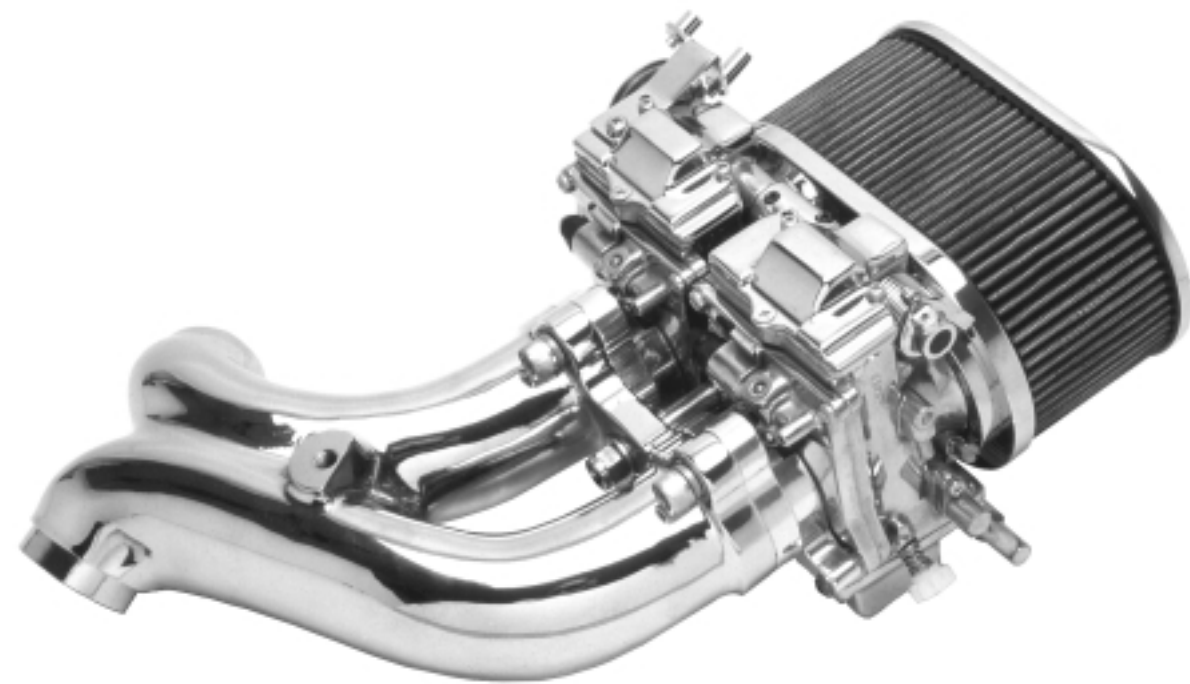




INSTALLATION INSTRUCTIONS

***For Rivera Engineering's Dual 42mm Mikuni Carburetor kit
with DUAL RUNNER INTAKE MANIFOLD***



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DUAL RUNNER MANIFOLD DUAL CARBURETOR INSTALLATION

INSTALLATION INSTRUCTIONS

for RIVERA ENGINEERING'S

DUAL CARBURETOR DUAL RUNNER INTAKE MANIFOLD KIT

SAFETY PROCEDURES NOTES, CAUTIONS and WARNINGS

Instructions preceded by these words are important.

NOTE

Information that can make a job easier.

CAUTION

The possibility of damage to the vehicle exists.

WARNING

The possibility of injury to yourself or others exists.

Read the installation instructions thoroughly prior to the installation of this Rivera dual-carb kit. All procedures should be followed exactly as described in this manual, paying particular attention to the following:

WARNING

1. THIS MIKUNI VERTICAL SLIDE THROTTLE VALVE CARBURETOR REQUIRES THE USE OF A PULL OPEN / PULL CLOSED THROTTLE ASSEMBLY to assure positive closing of the throttle valve (slide). The high vacuum encountered, as well as dirt or other particles ingested into the carburetor when the motor is running without an air filter, may prevent the throttle slide from closing promptly and or completely.

2. On installation, the THROTTLE CABLES SHOULD BE ROUTED FREELY (WITHOUT SHARP BENDS) BETWEEN THE THROTTLE TWIST GRIP AND THE CARBURETOR. The throttle cables should not be pinched by the installed fuel tank, and they should not be pinched, pulled or restricted by the motorcycle body work and/or the front fork assembly when it is turned through the full range of motion.

3. GASOLINE IS EXTREMELY FLAMMABLE & IS EXPLOSIVE UNDER CERTAIN CONDITIONS. Before attempting to install or service your Rivera dual-carbs, follow these fire safety procedures:

- Make sure your work area is well ventilated and free from any source of flame or sparks, i.e., appliances with pilot lights, such as water heaters, clothes dryers or space heaters, etc.

- Before removing the motorcycle fuel tank, be sure the fuel petcock is in the "OFF" position and the cross-over fuel line is well clamped. Clean up any fuel spills immediately.

4. Never look directly into the bores of the carburetors while the engine is running as injury may result from possible backfire.

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CAUTION

Be patient. Due to the very limited clearances between the manifold and cylinders extra care must be taken to ensure that the manifold bolts are installed correctly, and not cross threaded. The gas tank and top motor mount must be removed to allow installation. A moderate degree of mechanical skill is required to properly install this dual-carb dual runner intake manifold kit. If after reading these instructions you have any doubts about your ability to perform a proper installation, it is recommended that you have a professional mechanic install it for you. If you install the kit yourself we recommend that you refer to the appropriate and or applicable maintenance or shop manual for your particular model motorcycle.

TOOLS REQUIRED

These are the tools typically required to remove the stock carburetor and install the Rivera dual-carb kit.

1. Allen wrenches, 1/8", 5/32", 1/4" & 5/16"
2. Standard wrenches, 7/16 1/2", 9/16", 12 point 1/4" & 5/16" wrenches (a 5/16 wrench for limited space).
3. Diagonal cutters (dykes)
4. Slotted and #2 Phillips screwdrivers
5. Blue Loctite or equivalent
7. Shop Manual (for your model)

DISASSEMBLY

1. Disconnect the negative (-) battery terminal.
2. Turn the fuel petcock to the "OFF" position.
3. Remove the gas tank from the motorcycle, and the top motor mount.
4. Remove the existing (OEM) air cleaner assembly.
6. Remove vacuum hoses & fuel hose from the carb.
7. Remove the carburetor assembly (and choke cable assembly) from the motorcycle. The throttle cable adjusters will need to be loosened to allow the cables to be disconnected from the carburetor. The Rivera dual-carb was designed to be operated with standard 1990 and later Harley-Davidson throttle cables.
8. Remove the OEM intake manifold and flanges; these parts will not be reused.

DUAL RUNNER MANIFOLD INSTALLATION

- A. Attach the Rivera dual-carb manifold using the enclosed

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CAUTION

Some after-market tappet guide blocks use recessed screw holes for the attaching screws. If yours are of this type, spacers will be needed to keep the lower support bracket from damaging the blocks as the mounting screws are tightened.

CARBURETOR INSTALLATION

A. Attach the carburetor assembly to the intake manifold with the 4 each 3/8" x 1" socket head bolts and thin 3/8" lock-washers and flat washers, tighten them securely.

CAUTION

With rubber mounted motors, check the clearance between the gas tank and the carburetors, there should be a minimum of 1/2" at the closest point. If the clearance is less than this amount, place the 1/8" thick chrome spacer, included in the kit, between the intake manifold boss and the support bracket to create more gas tank clearance.

Having less than 1/2" gas tank clearance may allow the carburetors to contact the gas tank as the engine moves during normal operation.

THROTTLE CABLES CAUTION

The Rivera dual-carb kit was designed to use 1990 and later OEM throttle cables. Before attaching the throttle cables, assure that they are in good operating condition and well lubricated.

A. Check to assure that the throttle cable adjusters are completely backed-off. Insert the end of the opening cable into the throttle wheel in the position indicated; do-not insert the cable housing into the cable bracket at this time. Insert the end of the closing cable in the remaining throttle wheel hole (hold the opening cable out of the way as necessary) and insert the cable housing into the cable bracket.

B. Insert the opening cable housing into the cable bracket. The cables overlap in the throttle wheel between the two holes but do-not rub against each other during operation.

ATTACHING THE THROTTLE CABLES

C. Check the throttle for smooth operation. Open the throttle to the full open position and look into the bore of the carburetors to verify that the throttle valves are fully raised out of the bores. If they are not, adjust the opening throttle cable until the throttle valves clear the bores.

D. Adjust the throttle "free-play" to approximately 1/8" as indicated by using the closing throttle cable adjuster to remove excess cable play.

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flange, seals and 12 point 5/16" cap screws. The rear cylinder flange is marked with "R" and the front with "F". Place 2 of the 12 point cap screws in the flanges then slip the flanges and seals and onto the manifold. Loosely secure the manifold to the cylinder heads with all four cap screws. This is where a 12 point 5/16" wrench designed for limited space is required; for tightening the two manifold bolts on the side of the manifold away from the horn. These 4 bolts can be a bit tedious to tighten, but with the correctly shaped wrench can be tightened with a minimum of effort.

B. Attach the manifold top support bracket to the cylinders in the appropriate method for your type engine:

NOTE

The top support bracket also incorporates a cylinder head breather system which includes 2 tube vents tubes attached to the backside side.

Pre 1992 motor use 2 each 5/16" x 1" bolts, 2 each 5/16" conical washers from this kit.

1992 & up motors (with 1/2" mounting/ breather holes) use 2 each 1" hollow socket head bolts from this kit.

Twin Cam kits use 2 3/8" hollow breather bolts which are included.

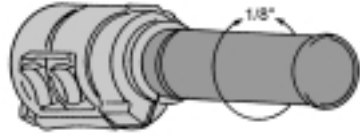
C. Once you have determined the correct support bracket mounting for your model, attach the bracket loosely and secure the manifold to the support bracket with the enclosed 3/8" x 1 1/2" bolt, flat and lock washers. A spacer is included to place between the top support bracket and the intake manifold to allow for proper gas tank/carburetor clearance. Use additional spacers as required to keep the carburetors from contacting the gas tank. Tighten the intake manifold bolts and top mount bracket.

D. A lower support assembly is included in each kit to further support the weight of the manifold and carburetor assembly. This support consists of a 2 piece bracket assembly; one piece attaches to the boss on the underside of the manifold and the second attaches between the tappet guide blocks. The 2 pieces are bolted together, forming the lower support assembly. Use the stock tappet block bolts to secure the bottom piece of the bracket assembly with the 2 each 1/4" flat-washers from the kit placed between the bracket and the guide block casting*. Twin Cam models use the 2 mounting bolts nearest the cylinders. EVO models use the 2 mounting bolts furthest from the cylinders. Attach the long portion of the mounting bracket to the boss on the underside of the intake manifold with the 3/8" bolt, flat and lock-washers from the kit. Use the enclosed 5/16" bolt, flat-washer and flanged nut to join the two pieces of the bracket together. The bracket holes are slotted to allow for differences in engine dimensions.



DUAL RUNNER MANIFOLD DUAL CARBURETOR INSTALLATION

ADJUSTING THROTTLE FREE-PLAY



HOSES

A. FUEL HOSE - Connect the enclosed fuel hose to the pet-cock and secure it with an hose clamp (included). Route the fuel line between the cylinders, below the intake manifold. Cut off any excess hose before attaching it to the carburetors. Secure the hose with the remaining clamp (included).

B. V.O.E.S - As required, attach the vacuum hose for the V.O.E.S. to either of the vacuum fittings on the intake manifold. The remaining vacuum fitting should be kept plugged or capped.

C. VENT HOSE 1992 AND LATER- Connect the remaining fuel hose to the open fittings on the top manifold support bracket. The hoses may be teed together and run as one over the rear cylinder head, and then down between the engine and transmission. Cut the hose off flush with the bottom of the engine.

D. CARBURETOR DRAIN HOSES - Route the two carburetor drain hoses along the front push rod tube and in front of the crankcase. Secure them as necessary with cable ties from the kit.

E. MAP SENSOR - As applicable on Twin Cam models, attach the MAP Sensor from your stock manifold to the Rivera manifold.

5. AIR CLEANER ASSEMBLY

A. Attach the air cleaner backing plate to the carburetor assembly with the enclosed 3/8 x 5-1/2" bolt, flat & lock-washers and self locking nut. Place the air cleaner element into the groove in the backing plate and finish the assembly by screwing on the cover plate; be sure that the sleeves are in place on the screws to prevent crushing the air filter.

CAUTION

USE BLUE LOCTITE ON THE AIR CLEANER SCREWS TO KEEP THEM FROM VIBRATING LOOSE.

TUNING

A. This set of Dual Mikuni carburetors is unlike others in that each carb supplies fuel air mix to one cylinder and are required to be jetted independently. Testing has shown that if a jet change is made in one carburetor the other will

respond favorably with the same sized jet.

B. Carburetor synchronization is pre-set and under normal operation should not need re-adjustment. Idle synchronization is required for smooth idling. Each carb has an idle adjuster screw located at the bottom.

Perfectly synchronized idle can be achieved by use of a "manometer" or "carb stick" (available from Rivera Engineering). The manometer must be connected to the 2 vacuum fittings on the intake manifold then can be tuned by following the directions supplied.

If a manometer is not available, satisfactory results can be achieved by simply adjusting each of the idle screws and feeling the exhaust pulses at the ends of the mufflers until they feel equal in strength and the desired idle speed is achieved.

C. Because the carbs do not use a common intake chamber, higher than normal vacuum signal strength is generated within the carburetors compared with a single carburetor or even dual carburetors feeding into a single manifold. This is good for performance! Tuning of these carburetors is effected in the following ways:

1. Idle can be adjusted easily to be very smooth. Or, because the carburetors can be adjusted independently, can be adjusted for a lumpy "Drive-in" idle.

2. Large displacement engines will probably require smaller than stock sized main jets. The stock jet is a 160 in each carb, which is good for stock engines. An engine of over 96 cubic inches may require a main jet size as small as 140. Refer to the Mikuni Tuning Manual for tips on determining the correct main jet size for your engine.

D. Starting a cold motor is made easier by engaging the dual choke mechanism (unique to the Rivera dual carb kits). The choke knob matches the idle screw knobs and is located near the top right hand side of the carburetors (with the rider seated on the motorcycle). To apply the choke, slide the knob fully to the left stop. As the engine warms, slide the knob progressively to the right. To increase or decrease the sliding pressure on the mechanism slightly tighten or loosen either one of the assembly screws. With the screws adjusted correctly the knob should stay in the set position.