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REF: Carburetor, Intake Manifold & Exhaust - Sub-01J

Mounting a Mikuni VM-38

With the VM38 there are several things you want to make sure you get with the carb, or purchase separately. ¹⁾

The 90° elbow and the correct throttle cable to go with it. The p/n for the cable is either 657-900 or 657-901.

The cable has a little longer inner cable (or a little shorter housing) due to the length of the elbow. This elbow allows the cable to be routed under the gas tank. The Sudco P/N is 007-729 for the 100° elbow and P/N 007-729 for the 90° elbow.

You can go to sudco.com and click on 'carburetors'. About half way down the page you will find a link 'Sudco Catalog Mukini Section PDF pages'.

You can D/L the pages and find the elbow on page 124.

The other items you will need is the carb to manifold adapter and an air cleaner assembly with a mounting bracket.

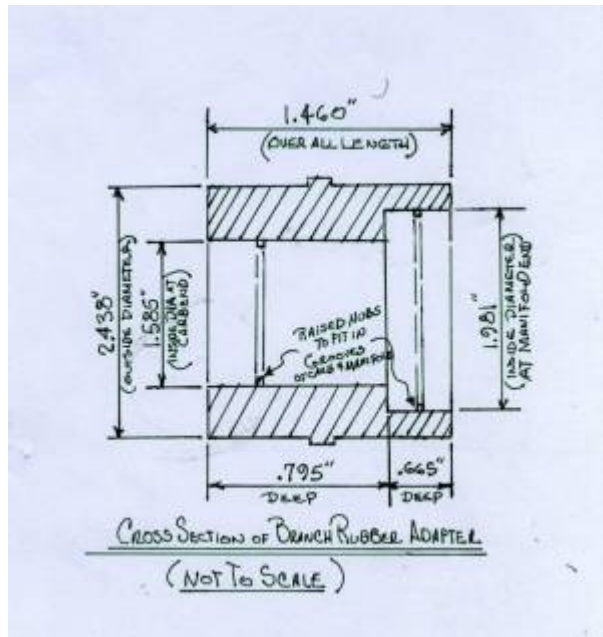
You can also make your own air cleaner and adapters but today it is far easier to simply purchase the VM38 as a kit.

It comes with everything except the elbow fitting.

The mounting angle for and aft inclination of the carb should not exceed app. 20° from horizontal.

The Mikuni VM-38 has a round venturi and mouth. You need an adapter to go between the round mouth carb and the manifold flange. ²⁾

There was like a piece of rubber hose and is circa 1973 which uses a different (non flanged) manifold and came with a K&N air filter.

Early branch fitting. ⁵⁾With flange, rubber and clamps. ⁶⁾

The late adapter (left two pics) has a hose end on one end and a flange on the other, thus enabling you to use the standard Harley manifold.

It comes with a standard hose clamp and tightening down too hard can easily cut into the rubber.

[Mikuni \(M-VM36-200K\) 36mm-38mm Rubber Flange Adapter For Harley-Davidson Spigot-Type Carbs](#)



7)



8)

This was bought off Ebay and is thicker than the Branch rubber one. It also has a better clamp.

[Mikuni \(KHS-004\) Rubber Mounting Flange - Typical Carb Size 36 - 40mm](#)



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11)

These type metal adapters are also available. ¹²⁾

(Right) - Carb Adapter, HRS-42 and OEM CV Carb To S-and-S Super E Manifold. ¹³⁾



Non press adapter. (requires stock CV seal)

Another way to mount the carb to manifold is by cutting a section of radiator hose with the carb end cut at a 45° T-bolt clamps were used to secure the hose.



14)

For the carb to intake connection, you'll need the KHS-004 as in above or a good friend with machine tools (unless you have your own) to produce a press on adapter. Be sure also to have a brace from the backing plate to one of the tappet bolts for added support/vibration dampening especially with the KHS-004 piece.



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Spacer for VOES

If you are running a VOES, you can add a tapped spacer between the manifold and carb for a vacuum line out.

There are spacers out there with the tap already in them.

You can also make your own tap for the VOES line. The hole in the piece needs only to be very tiny, like 1/16".¹⁷⁾

You can make a 1/16" hole thru the manifold or the flange of the carb, then make half the depth of that hole larger, say 1/8" or 3/16", for a tube.

You can then press in a 1" piece of fluted metal brake line into the manifold.

You can also tap in a vented hex head screw as in the this link at [McMaster-Carr](#).

You can try an 18-8 stainless steel vented set screw as in this link at [Amazon.com](#) (hex socket drive, 7/8" length, #10-32 Threads).



You can search online for a brass hose barb fitting part number (125-1U10-SB), Tubing ID: 1/16", Thread: 10-32 UNF.



18)

The line running to the VOES should run uphill so as not to allow condensation to run into it.¹⁹⁾

Air Cleaner

The best way to go is buy the Mikuni with the air cleaner. This is sold in kit form and without a doubt is the easiest way to attach a Mikuni.

Unless you have the air cleaner backing plate with the deep indentation, this thing is going to stick out like

a bull with an erection. ²⁰⁾

The Jerry Branch Flowmetrics kit (bought in 1973) came with the carb, air cleaner assembly (original hamcan cover used), replacement manifold and the rubber hose connector. ²¹⁾

The Branch steel air cleaner backing plate clamps to the inlet mouth of the carb and again you can see that in the pic.

In general, a standard metal backing plate off another brand of carb will not work without some extensive modification so that it can be attached to a Mikuni.

To minimize how much the carb sticks out, Branch made the backing plate out of cast aluminum.

This had a deep recess that put the air cleaner assembly further back toward the engine. See the pic below of the plate's backside showing the recess.

Mounting the VM carb is much easier with the Branch Flowmetrics backing plate, although they are not the easiest things to find.

What the Branch gives up at the manifold end it saves at the air filter end if you use their backing plate.

²²⁾

It's dished back around the carb vs the Harley backing plate that is flatter.

It also doesn't force the carb to stick out quite so far as the newer ones do.



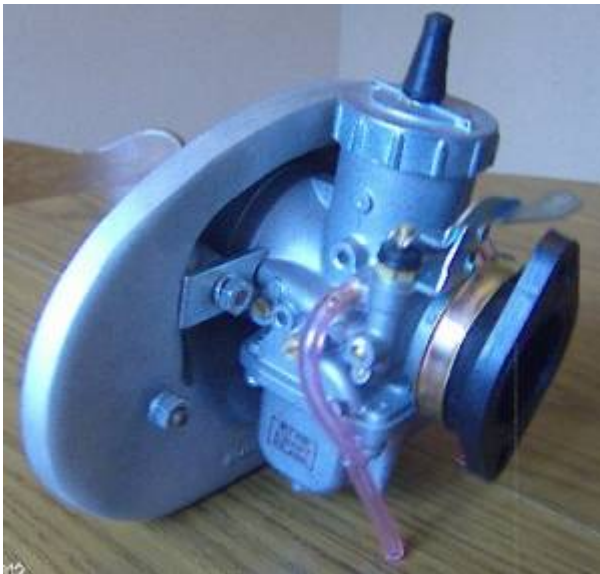
²³⁾



²⁴⁾



²⁵⁾



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The parts that hold the backing plate to the carb, you will probably have to make from scrap metal. It's not difficult, and they don't have to be pretty as they are nicely hidden from view. You can make the tabs from flat stock steel or aluminum. The steel is better as the aluminum bends too easily.



29)



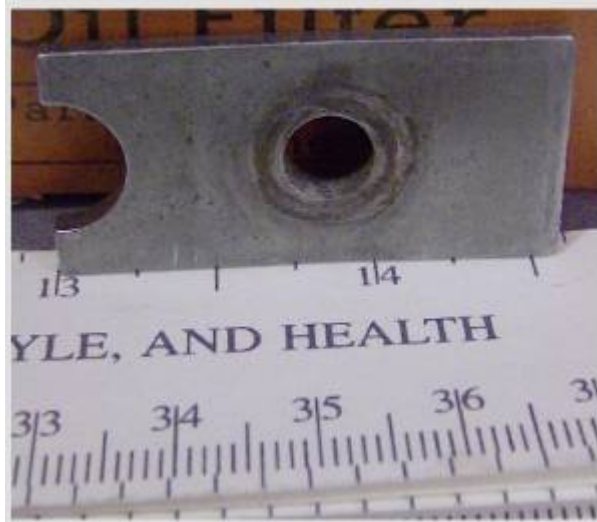
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31)

overall length: 1,9/16"
hole size: for 1/4" bolt
open end: 7/16" wide x 1/4" deep

1/8 inch thick



32)

You'll also need a carb brace. That is a very important thing to have attached. ³³⁾

The weight of the carb and air cleaner hanging out there will soon lead to more manifold leaks. Having a brace is the only way to prevent this from occurring.

The angle was slightly modified on this one to fit.



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38)

Or you can make your own bracket out of 1/8"x3/4" steel or aluminum, bent and drilled for a hole to bolt it down by the bottom of the lifters.

The air cleaner is usually attached to it.

Just drill the backing plate with a 1/4" drill bit and attach the carb bracket with a 1/4"-20 nut and bolt with washers.

For the bottom of the carb bracket you can do no better than using the 'studded' lifter base bolt.

You can make the carb bracket as a simple item or make it more complex if that suits you. Below is a simple solution.



39)



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Homemade Mounts

The manifold is installed first without the carb.

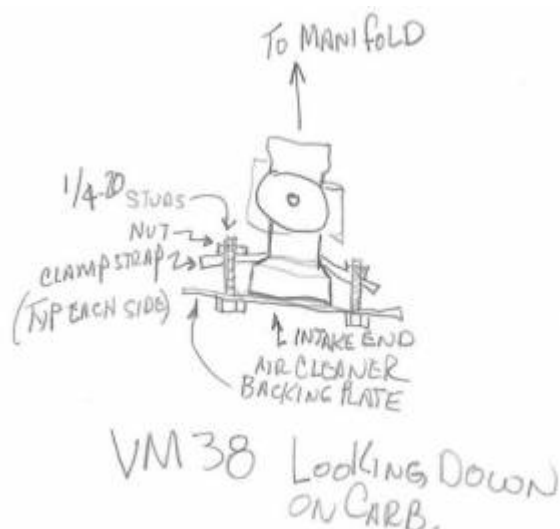
This allows you to feel around the O rings inside the manifold. If you feel any slight bump in the O-ring, then it is going to leak.

If the O-ring feels the same all around it then the seal is good then install the carb.

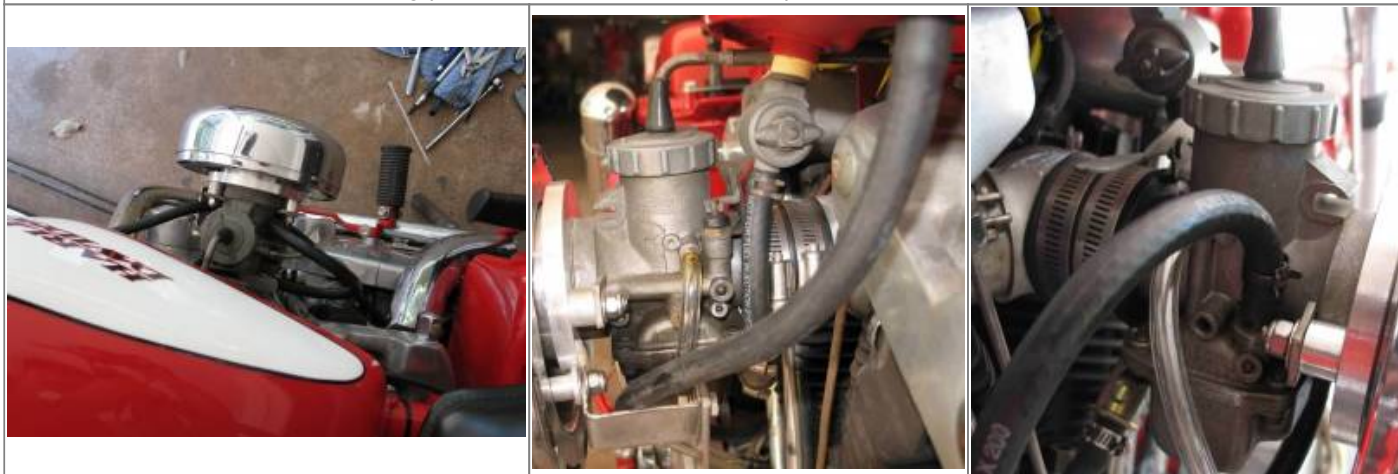
Also, you have to use a carb brace or else you will get leaks. This is a must do on a Sporty.

The air cleaner backing plate attaches to the carb with (2) clamp straps.

The mouth of the carb is bell shaped. Below is a sketch of the shape of the carb looking down on it.



Homemade backing plate made from an aluminum plate with a V-twin air cleaner. [42\)](#) [43\)](#) [44\)](#)



This was originally an old school VW filter modified to fit.



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Throttle Cable

This is IronMick's drawing of a new throttle cable made for the Mikuni VM38-9 on a 1978 with stock low buckhorn handlebars.

The universal cable made by Barnett for this application is Barnett part number 101-31-30901.

It is described as a 38" cable, and is about 4" too long for this bike setup so a new one was made.

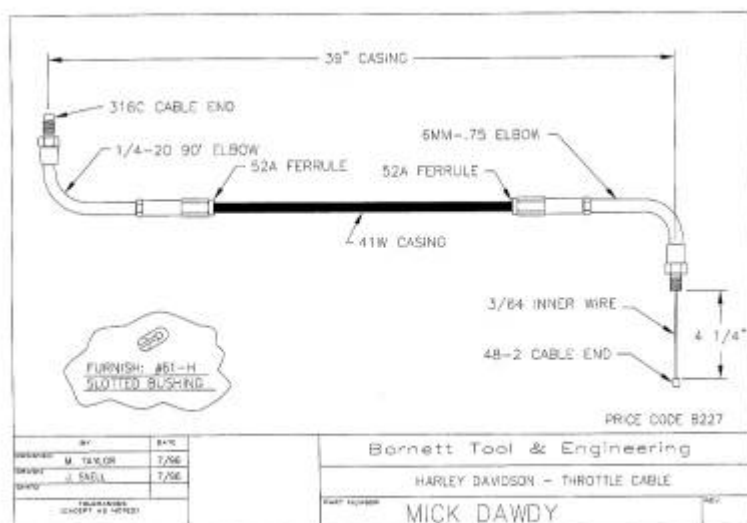
I do not understand how they calculate cable length but this must be a 34" cable as it is 4" shorter than the 38".

Here is the spec diagram for the 4" shorter throttle cable; if you need to get one special made you can use this as a guide.

53)

Note that the two 90° fittings are not the same. The one to the right is for the carb, the one to the left is for the throttle at the handlebar.

Click on a pic to enlarge:



54)

There are a couple of things you will have to consider regarding a Mikuni installation. First is the throttle control. ⁵⁵⁾

The Bendix uses a solid wire and the Mikuni needs a flexible braid cable.

So if you are now using the original enclosed hard wire in the handlebar you will need to swap for a drum type twist grip like the one below.

The Mikuni is a tall carb and as a result you will need a 90° elbow on the throttle cable to route the cable under the gas tank.

On a Sportster you must have this elbow. See the pics below. Trying to find this elbow with the proper throttle cable can sometimes be a chore.

The throttle cable has a shorter outer housing (shorter by length of the elbow) than what you will have on a cable not using the elbow.

You will need to connect the round carb body to the flanged manifold, so that requires an adapter.

All this uses hose clamps to do the job. See the pic below showing the 2 clamps around the adapter.



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57)

File any rough spots from the ball end and / or open up the ferrule a bit with a flat blade screwdriver. ⁵⁸⁾



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60)

The cable may be considerably longer than it needs to be. The correct length replacement cable has two adjusters, one at each end.

If you have an Indy make up the cable, ⁶¹⁾

Be sure to have him make the lead ball end of the cable (at the carb end) small enough to pass through the 90° elbow on the carb top.

If it will not pass through, that will be a real pain to correct.



62)



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64)

The single set screw on this cable assembly has nothing but the cable to tighten against.

A single screw to clamp the cable not only kinks it, but also causes the braid to separate somewhat. This mod was done to be able to clamp the cable and minimize damage to the cable.

If you used a set screw on either side of the cable, both would tighten on the cable and keep it more centered.

The cable below is a hard wire but may also work on braided cables if you have the room.

However, for this, a metal dowel was installed in the housing side opposite the set screw.

This allowed the set screw to tighten solid against something hard with the cable in between (same as a double set screw).

The dowel is on the bottom side and the set screw is on top side in the pic below.



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Other Pics of VMs Mounted



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Helpful Links

- Air Cleaner Basics, Exhaust System Basics, Cam Basics and Ignition Basics
- [Mikuni website \(VM page\)](#)
- [VM "Round Slide" Tuning Manual](#)
- [Rebuild Kit VM26-606 PDF](#)
- [PAT Upgrade Kit Installation Instructions PDF](#)
- [Genuine Mikuni jets for HSR series carbs](#)

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<https://secure.vulcanworks.net/store/Carb-Adapter-HRS-42-and-OEM-CV-Carb-To-S-and-S-Super-E-Manifold.html>

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