# Kawasaki Z900 Z1000 Carburettors

One of the biggest pains when trying to get you Z running properly is the carburettors, with the most common issue being running rich and fowling plugs. This is intended to cover sorting out your carburettors on a standard set up (standard pipes, an airbox, a new air filter and standard pilot and main jets as per the manual), it may help if you have K&N pods and a 4 into 1, but that becomes a whole different challenge.

If you have a problem with your carburettors, this attempts to cover the wear and age related problems that we have seen. There are so many contradictory different schools of thought out there; it hard to know what may work and what is a waste of time. This is intended to capture current thinking – you make your own mind up. It starts with the easy ones!

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### 1. Background to Z carbs

There were many variations of carburettor from 1972 through to the 1978 but the most fundamental difference was the use of the air screw or a fuel screw.

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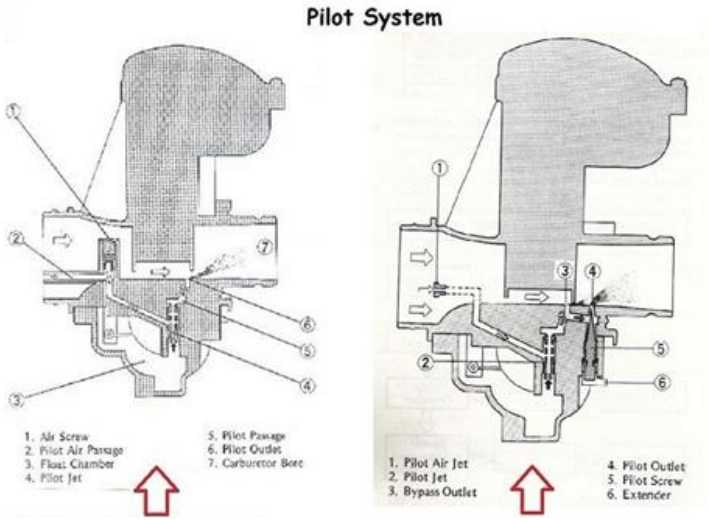
|---|---|---|
|  | Z1 / A4 and on the later 28mm ones on Z1R, MK2 and ST have and air screw.<br>The air screw will always be behind the slide (air intake side) | **Backing out an air screw adds more air to the circuit** |
|  | The Z1000 A2 had a fuel screw. The fuel screw will always be in front of the slide (inlet manifold side) Z1000 | **Backing out a fuel screw will add more fuel to a circuit**<br>Screw it in to reduce the amount of fuel and make it less rich |




The average base line for the air screws is between 1 -1/4 to 1-3/4 turns out from lightly seated but given their age and possible wear they may be happier well above or below that.

The usual procedure is to start with them midway at 1-1/2 turns out and go from there.

In theory, when setting up your carburettors:

- If your **air screw** is in further than 1 turn, you may need a richer pilot.
- If your **fuel screw** is out further than 3 turns, you need a richer pilot.

But if you have a standard setup and have put the correct jets in as per the manual, it could be another reason….

## 2. Difficult to Start – Fowled Carb Bowl

| | |
|---|---|
|  | The choke mechanism draws fuel from the float bowl via a hole as shown here.<br>If that hole becomes blocked (and it does!) then the choke mechanism can't work.<br>Carb cleaner will normally unblock it. |

## 3. Float Heights – Running Rich, Overflow

You may not think that float height is critical, but it is; so it comes first. It's also a relatively easy and inexpensive thing to check. This explanation was posted on-line by qadsan (with small edits). It is a bit technical – but then again, so are carburettors!

*Fuel delivery depends on the differential of pressure between the venturi and float bowl, which is vented to the outside world. The air pressure in the venturi decreases as air flows through it and because the float bowl is vented to the outside world which is at a higher pressure, it causes fuel to be pushed through a jet and into the venturi.*

*The amount of fuel going into the venturi through the jet depends on the size of the jet and the pressure difference. If the float level is too high, then it may block certain air passages that allows the carb to depressurize and if this happens, the carb will deliver too much fuel causing your engine to bog* (and run rich). *If float level is too low, then the engine will obviously starve for fuel and run lean.*

Kawasaki state that the float height for the Z1 Z1a Z1b should be 24mm.

For the later A4 and Z1000 models a range of 24 to 26mm is specified.

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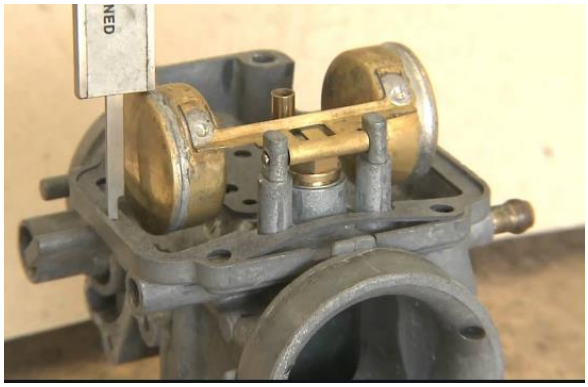
|  | In practice, you can get a reasonably good check by allowing the floats to rest held down by their own weight (gravity), when upside down for measuring.<br><br>Ideally, a Vernier is needed.<br><br>Note: some patent float valve needles too short and it's just not possible to get the float height right with them. It you have this problem, replace them. |

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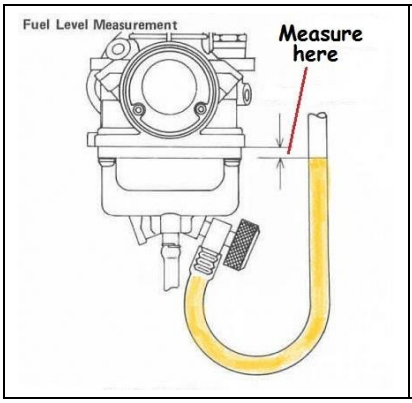
|  |  |

In theory the float height should be set using a manometer, or "float height adjustment tool". Carbs wear, patent float valves are a little different. There are lots of variables and this is the only way to be sure (eg, if you are still having over flow problems after setting the float height)

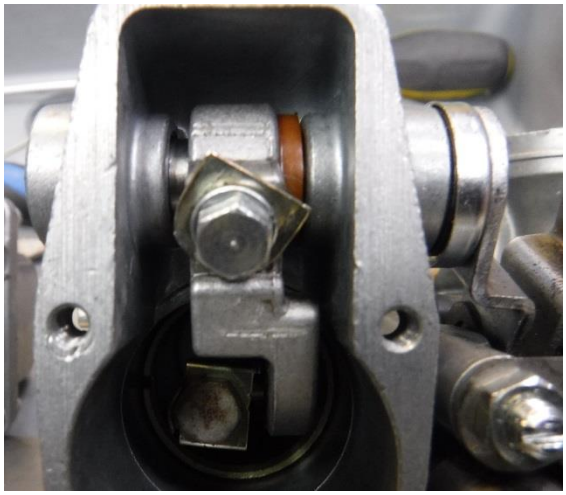
http://www.z-power.co.uk/carb-float-height-tool-z1z1a.

When using one you will need to take the carbs off to make the adjustment and then check again, and repeat.

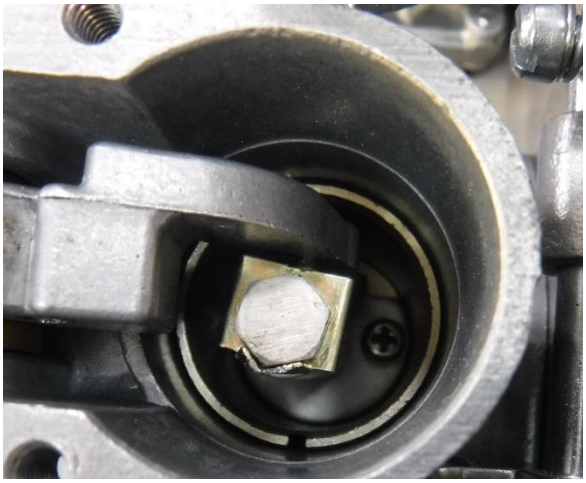
## 4. Needle Setting. Slide Height

Don't underestimate just how much effect changing the needle height by just one notch has on the carburettors. It's relatively easy to do.

Take the top off the carb body and



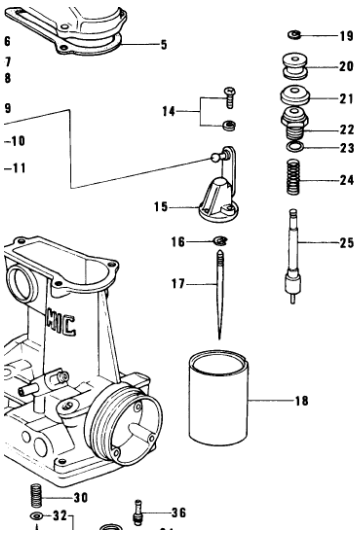
Remove the bolt that holds the slide lifter to the arm (this is a Z1 carb – 7mm bolt)



There are 2 screws that secure the slide to the bottom of the lifter; remove them and the slide will come out of the tops. The needle is then just tipped out.

Kawasaki publish the position of the circlip on the needle. For reasons that I don't understand, Kawasaki specify that the circlip of the slide needle be positioned on notch three for Z1a models and notch two for Z1b models.

The physics is relatively simple. The taper on the needle acts as a "stopper" in the needle jet. With the circlip raised, the needle is lowered and more fuel is "stopped", making it leaner.




The slide height is adjusted by removing the needle and moving the circlip up, or down the locating groves on the needle.

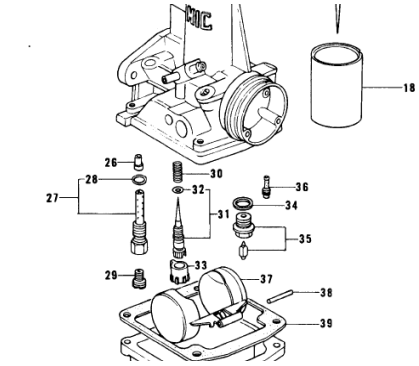
Lowering the clip position richens the mid-range.

Raising the clip up lean's it out (weakens the mixture).

Considered wisdom is that if you are using replacement carb kits with slightly different needle and main jet set them all on notch three.

It may be a bit fiddly, but you may be able to fix a running rich issue without even spending any money!

## 5. Fuel Overflow – Float Valve




If the float float heights is correct and you still have carbs that overflow, the next most likely source of the problem is the float valve and seat, shown as number 35 on the diagram.

You can sometimes get away with cleaning them and re-seating the needle but most carb kits come with replacements.

The genuine one is still available from Kawasaki.

## 6. Running Rich & Erratic Idle - Damaged Fuel Screws / Seat

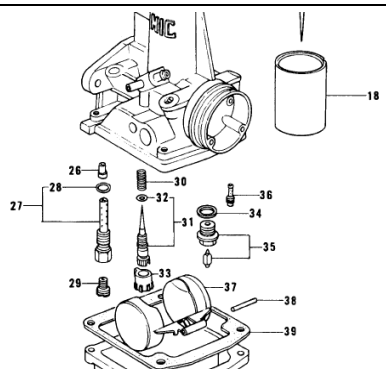
**Pilot or Air Screw is BLUNT -Fuel Screw is POINTED**

If the fuel screw is blunt (as shown on the right) then it is very likely that the point has snapped off, possibly when over tightened.

Make sure that the hole that they locate into is clear and these are well lubricated when rebuilding and reinserting them.

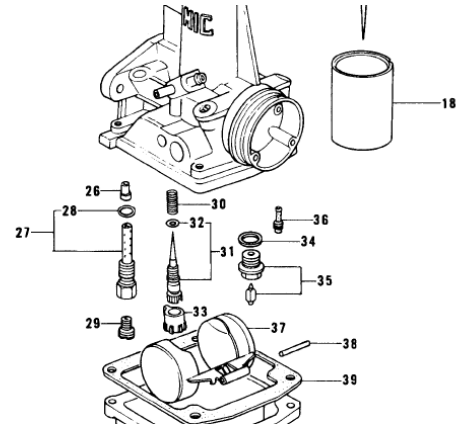
If it has been snapped off in the hole and you can't get it out then the carb body is scrap. If you drill it out and make the hole larger in the process the carbs will not run correctly.

It has been suggested that as the carbs age, the hole for the pilot screw gets bigger and the screw itself needs to be screwed in further but the springs are too long (when fully compressed) to enable it to go in far enough. Check it without the spring.




It has also been suggested that Erratic idle can be caused by one or more missing "O" rig that sits on the fuel screw shown as 32 in this diagram

## 7. Running Rich – Worn Needle Jet /Seat




Shown on the Z1 carb here as no 26 is the Needle Jet.

It is an interference fit in the body of the carb and can be tapped out/in.

Over time, it can wear and become oval rather than round and as a result more fuel can pass.

They only come in the Kymer carb repair kits.

## 8. Running Rich & Erratic Idle - Choke plunger failing to seal

The effect that high ethanol levels in modern fuels have on the rubber components in carburettors is well documented. If the rubber in the end of the choke plunger (arrow on the right) goes hard and fails to seal the choke, allowing air to bleed past, then it is effectively running with choke on all of the time.

Kyster include replacement choke plungers in its top of the range carb kits which supports this theory. Interesting that there is no needle to seat the plunger on them (shown on the left).

An alternative to the Kyster plungers is to get Rob Meggitt zed.1015@yahoo.co.uk to repair the plungers with ethanol resistant rubber for you (£50 + return P&P for all 4 at the time of writing).

## 9. Maybe It's Not Your Carbs?

Wired George (https://www.wgcarbs.com/index.php) suggests a very quick check to see just how much voltage is getting to the coils.

*Get a multimeter and put the POSITIVE probe on the coil power wire. This wire is attached to a lug on your coil and will be either yellow/red, pink or red (depending on Kawasaki model).*

*Put the NEGATIVE probe on a frame or engine ground. Put the multimeter in VDC scale. Turn the key on with the kill switch in the RUN position. You do not have to start the bike. If you get less than 12 VDC, your coils are being robbed of power.*

When I have done this, even on a bike with a brand new loom, I don't get 12 volts.

Wired George has published a fix that enables the coils to get their power directly from the battery.

https://www.wgcarbs.com/index.php/using-joomla/extensions/components/content-component/article-categories/89-coils