

Triumph Tiger 800 Round The World

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Tiger 800 stepper motor problem

in Bike / Bike Maintenance

Tiger 800 stepper motor problem

The stepper motor is an electromechanical device managed by the ECU to control Tiggers idle (tickover) speed. The Tiger 800 stepper motor problem is quite common. It seemed only a matter of time before we would have issues. Symptoms include erratic idling, stalling and sometimes difficulty in starting.

Since the beginning of this trip I have religiously kept the stepper motor clean during regular servicing. It's also essential to clean and lubricate the roller and throttle linkages that the stepper motor engages with. I'm convinced that problems people report are related to dirty roller and linkages and not inherently an issue with the stepper motor which continues to function. Actual failure of the stepper motor is quite rare.

For a couple of days Tigger had laboured after starting. Instead of leaping into life on the starter button and immediately settling down to a tickover of about 1,200 rpm he would labour at about 600 – 800 rpm and then increase slowly to 1,200. I made a mental note that next time the tank and air filter were off I'd have to give everything a thorough clean.

The next day, I had no idle at all. On starting I had to hold the throttle open to maintain any revs at all. Letting go would result in Tigger immediately cutting out. Hmmm, this would require a bit of investigation. It was safe to ride the bike but I'd rather not have to manage the throttle just to prevent stalling.

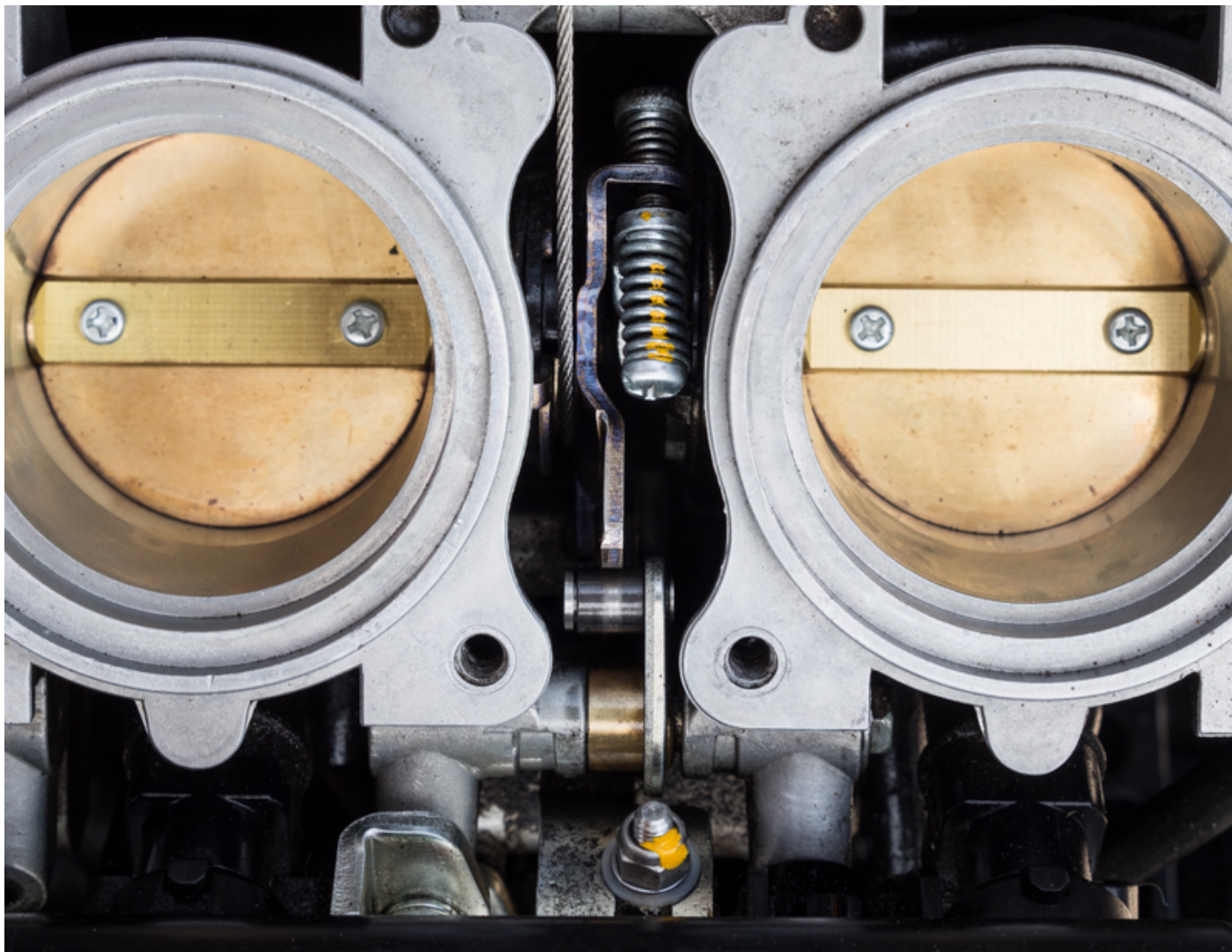
The failure occurred at 49,579 miles and is documented in the [full maintenance and repair log \(click to view, opens in a new tab\)](#).





Top of the stepper, throttle linkages and inlets. This whole area gets really dirty, this was a picture from Mexico about 3,000 miles after the last clean. It's the dirt and grime that causes poor idling and stalling.



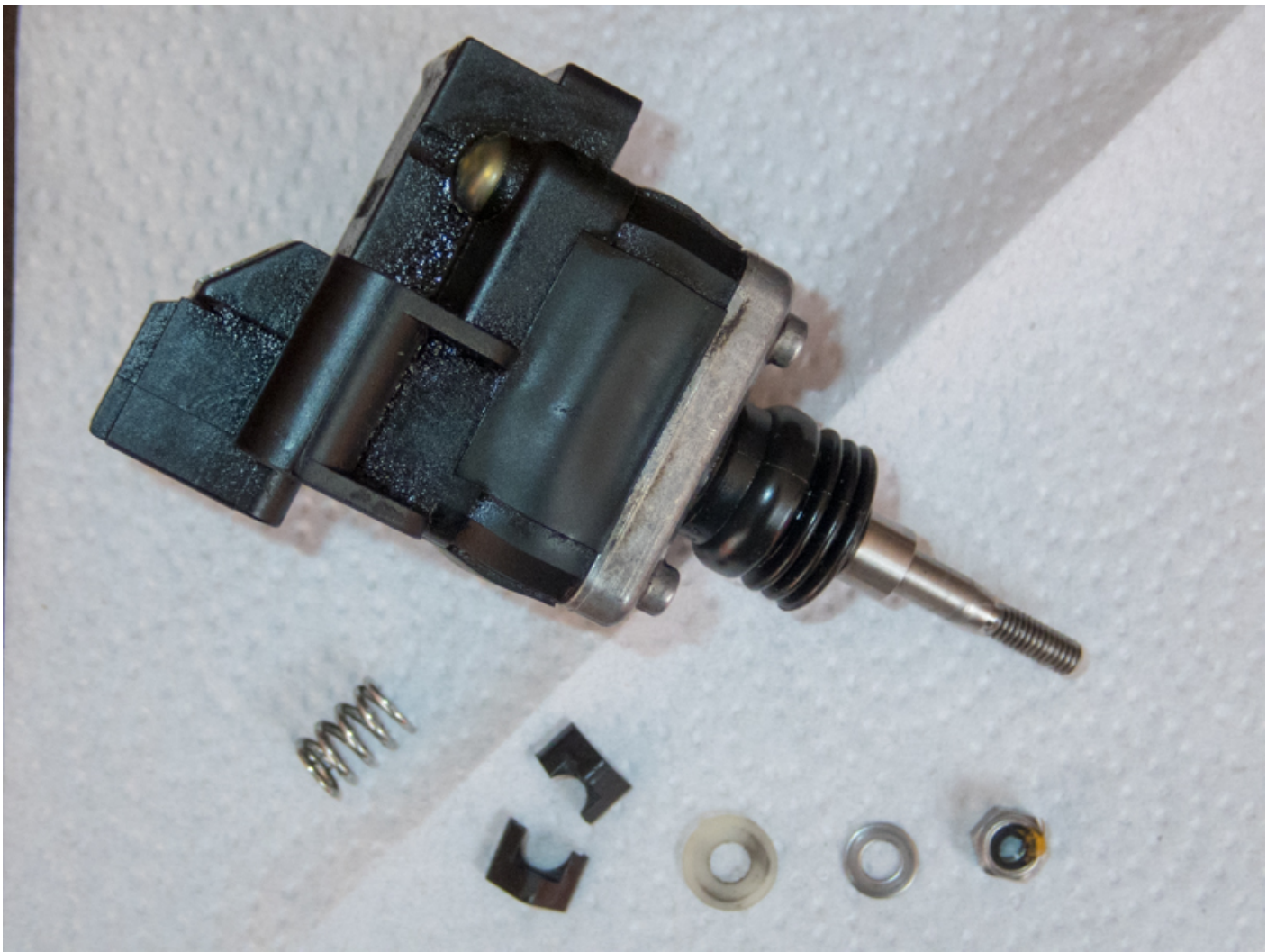


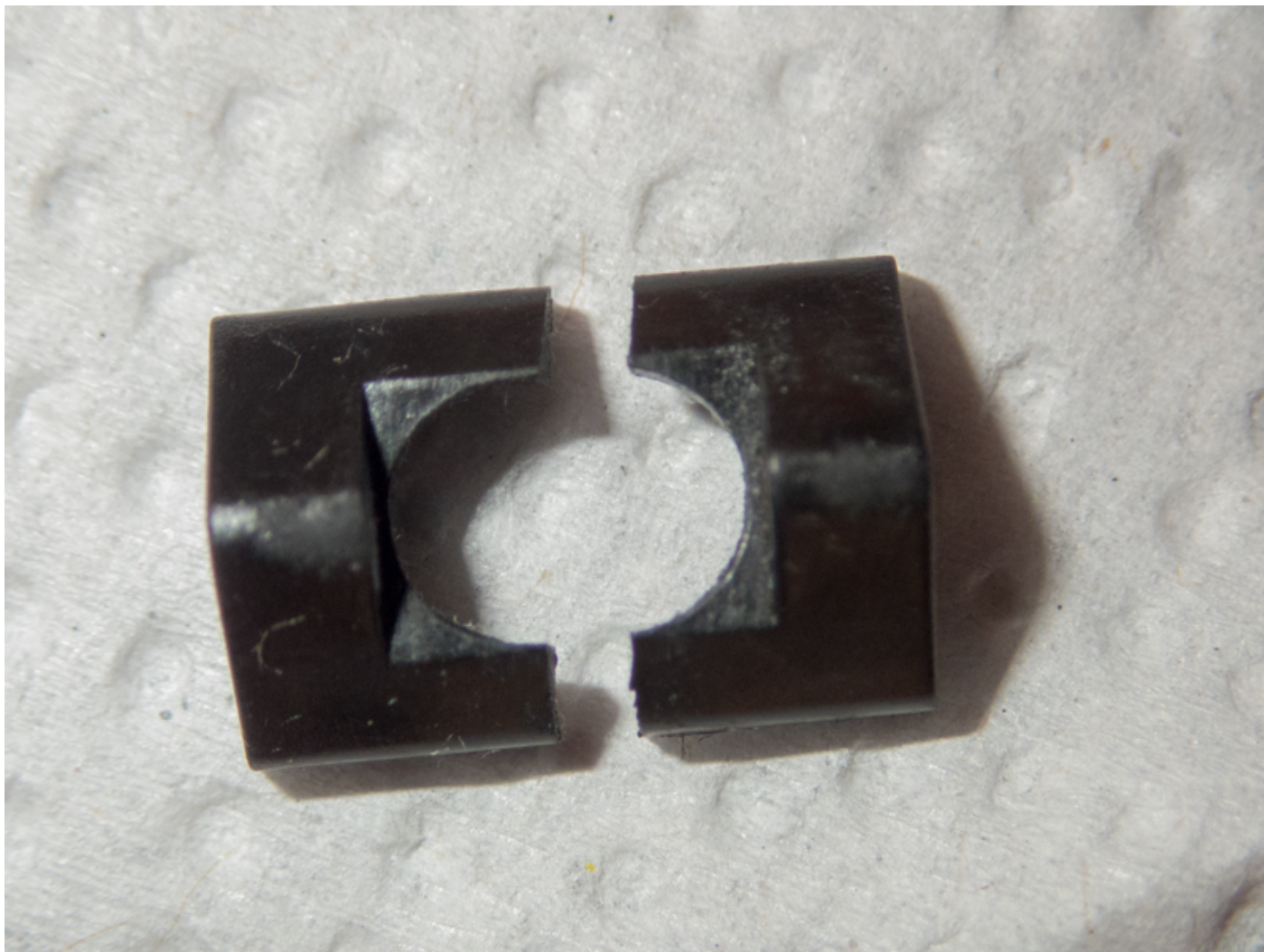
After a clean up. Usually enough to keep things nicely ticking over.

The diagnosis

We crossed the border back into Colombia (the crossing was just a reversal of the crossing in the opposite direction [documented in this blog entry](#)), and booked ourselves into the Hotel Avanty in Ipiales. With their secure underground parking this was an ideal place to work on the bike. On disassembly it was immediately obvious what the issue was. A small plastic part that pushes against the throttle linkage had broken. I've never seen this failure mechanism reported elsewhere. It's clear in the picture below what the issue was. Hint, the two small black parts at the bottom of the photo should be in one piece.







Not seen anyone report this kind of failure before.

The solution

How to solve the Tiger 800 stepper motor problem? My initial thought was to try and fix the piece that had broken. Thorough cleaning and subsequent gluing of the part with superglue was not a success. It lasted all of three seconds before falling apart again. In hindsight it was a stupid idea. Secondly, I tried shaping and using washers but these were easily bent and idle was not good. I did consider trying to get a new part made from aluminium in a small workshop but couldn't find anyone interested in taking the job on.

The answer was to completely bypass the stepper motor. This entailed removal of the offending device and replacing with a mechanical means of managing tickover. It's necessary to cable tie (zip tie) the stepper motor out of the way and keep it connected to the ECU. Not doing so would result in the ECU throwing lots of error codes at it looked for the stepper. The check engine light on the console would also be constantly illuminated.

I'd seen a solution many moons ago on [advrider.com](https://www.advrider.com) . Searches found the thread where the solution was discussed but all the photos had disappeared so it was difficult to visualise. Then I remembered that our friend Glen Cochrane from Australia had made the same repair to his bike  in Panama. An email to Glen and we had the details. Cheers Glen.

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Side note: We'd initially met Glen in Dawson City, in the Yukon, and met up again in Guatemala where we adjusted his valve clearances in a hotel car park :-).

Here's what we needed:

A piece of angle iron about 60mm in length

An M6 bolt 100mm in length

5 x M6 hex nuts

And somewhere to do some cutting and drilling 😊

Scouring the "workshop" part of town we eventually found a place that not only seemed to understand what I needed but could also do the job that afternoon. They didn't have angle iron so instead fabricated a piece by welding two pieces of metal together. What they produced wasn't pretty as you can see. Total cost was 40,000 Colombian pesos, About £10 GBP.

I fitted the new adjuster, made a best guess for adjustment, and replaced the airbox and fuel tank. One press of the starter and Tigger sprung into life and idled at a rather brisk 1,400 rpm. A few tweaks with a pair of open ended spanners and the idle was just where it needs to be. Note that it's possible to adjust the idle at the side of the road without removing any components from the bike. Nice.

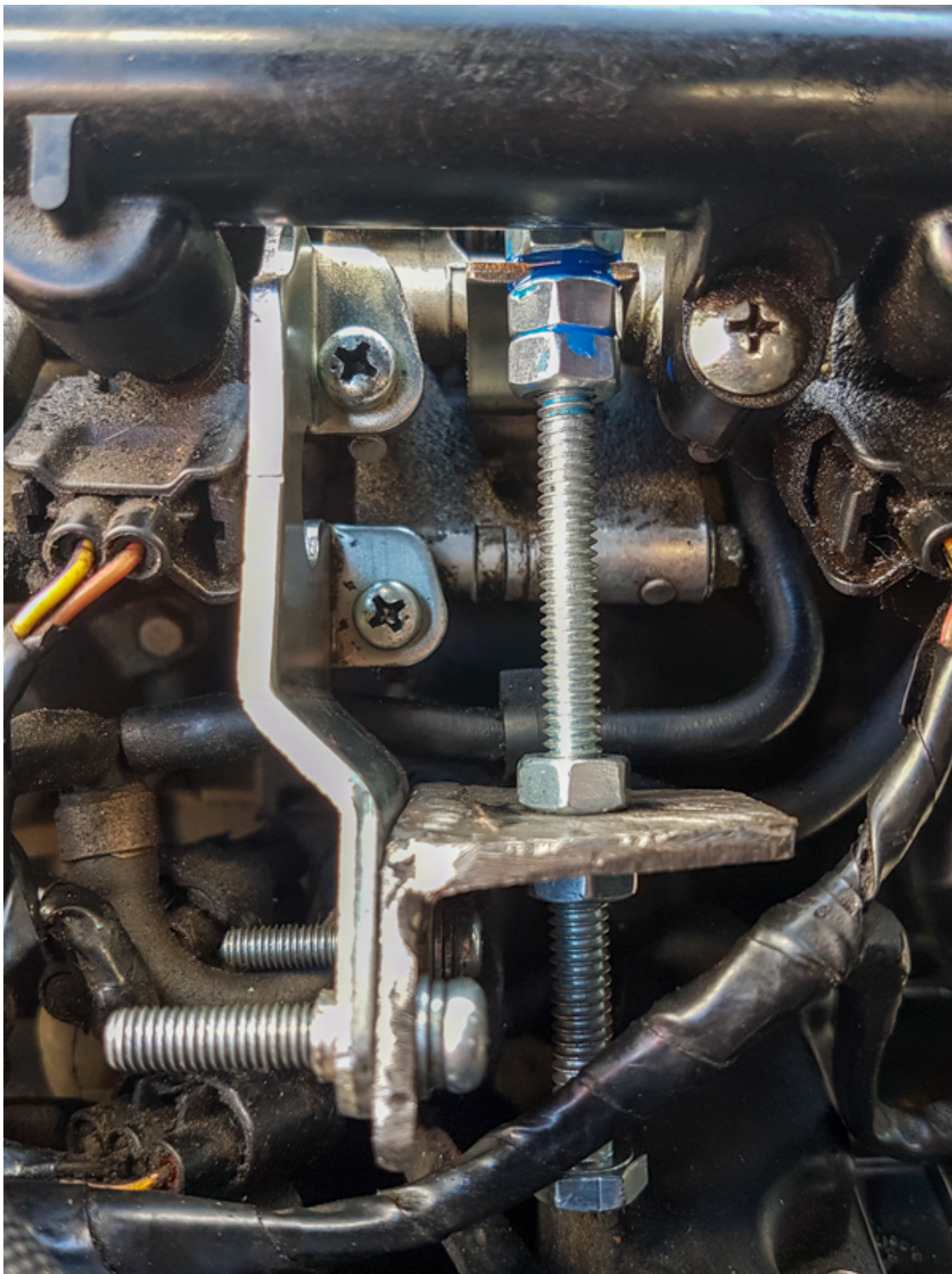




A few hours trying to find a workshop that understood what I needed and were willing to help and I was set. Took about 3 hours to make the manual adjuster and so far no issues at all. Not at all pretty though.



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Manual adjuster fitted in place of the stepper. The two longer screws towards the left, front and rear, are re-used from the stepper motor. Never know if I might need to refit one.





A few minor adjustments here and there.





Not sure why they didn't use their pillar drill?????



Since fitting the manual adjuster I've had no issues with Tiggers idle. Regardless of temperature or altitude, idle has held steady at 1,100 rpm. I couldn't be happier with the outcome as it effectively removes one electronic component from the bike. Highly recommended as a remedial solution or a pre-emptive strike before the dreaded stepper motor ruins your ride..

Saludos, Steve and Tigger.

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16 thoughts on “Tiger 800 stepper motor problem”



Anonymous

October 29, 2020 at 15:59

thank you very much for this awesome article!

Reply ↓



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**stevedouglas@hotmail.co.uk**

Post author

Reply ↓

October 29, 2020 at 16:02

You are very welcome 😊

**Anonymous***July 24, 2019 at 07:24*

It's working!

Reply ↓

**William Keating***March 13, 2019 at 20:56*

Thanks. Just did the same thing after continual low/no idle problems. Think my stepper motor is fine but the linkages are poorly designed and too susceptible to dirt and aging.

Reply ↓

**stevedouglas@hotmail.co.uk**

Post author

Reply ↓

March 13, 2019 at 21:11

Hi William, totally agree. I'm not entirely sure if the newer models have resolved the issues. I'm happy for now with my manual adjuster 😊

**Mick Lynch***October 2, 2018 at 12:49*

Steve – many thanks for the info, I have a similar problem and my Tiger won't hold the revs at tickover (started about 3k miles into a 4k mile tour of Europe). Mine is an intermittent fault though, not constant – do you think it could be the same thing or a different issue?

Mick

Reply ↓

**stevedouglas@hotmail.co.uk**

Post author

Reply ↓

October 2, 2018 at 13:56

Hi Mick, what year is your bike? The later bikes (I think 2015 onwards) don't suffer from the same issues. If yours is an older bike then yes the problem can be intermittent. Often good clean of the stepper motor and in particular the roller where the stepper motor pushes against the throttle is often enough to overcome the immediate problem. As a part of regular maintenance I always cleaned the stepper motor and roller and never had any idling issues. My issue arose when the small black piece you can see in the photo failed. A completely different issue.

Steve



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**Adrian Turner**

Reply ↓

April 20, 2018 at 10:24

Steve, You should have been a motorcycle mechanic or an AA man in your previous life!

**stevedouglas@hotmail.co.uk**

Post author

Reply ↓

April 20, 2018 at 14:39

I was an aircraft fitter in my first "career". Does that count?

Dave

Reply ↓

May 24, 2018 at 21:39

Ah yes...I did also think..."I'll bet this guy was a rigger or a fitter" ...or "hanger ape" as we RCAF types were fond of referring to those who kept us in the

skies 😊

BTW...why didn't you travel Canada? Sorry...the "left coast" is only a tiny sliver of our huge country 😊

Any time you find yourself on the right coast, give us a shout..we will smother you in lobster and beer 😊

stevedouglas@hotmail.co.uk

Post author

Reply ↓

May 25, 2018 at 22:10

Hi Dave, we had limited time to visit in the US and Canada. The US gives us six months per visit on our visa and did not stop the clock when we entered Canada. Therefore, from mid June, when we landed in Anchorage we were already time constrained. The weather also plays a part and certainly drove us south at times as campgrounds closed for the season.

We would love to see more of Canada and the US. Maybe we do that on our second lap RTW :-). I really fancy the idea of being smothered in lobster and beer.

Dave*May 25, 2018 at 22:33*

Just teasing 😊 Any time you just want to visit Nova Scotia, you will have a warm and welcoming place to stay.

teamelephant

Reply ↓

April 20, 2018 at 06:15

Well done. Good fix. We could have done some prettier engineering for you here on the GC but if it works it works.

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stevedouglas@hotmail.co.uk

Post author

Reply ↓

April 20, 2018 at 14:38

I think it would take very little effort to make something prettier. Bar has been set pretty low. I think you need a tougher challenge.

Glen Cochrane

Reply ↓

April 20, 2018 at 02:55

Looks are not important, none of us are here for a Fashion parade. Functionality is what counts. Give me plenty of warning of when you both plan to get to OZ, we will be waiting to welcome you

stevedouglas@hotmail.co.uk

Post author

Reply ↓

April 20, 2018 at 14:34

I agree on the function over fashion in a scenario like this. However, as an ex aircraft fitter I like things that are well engineered 😊 We're looking forward to visiting Oz, it might not be for a while though.

Post navigation

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