

IAP Sensor Vacuum Modification

By: Kiwi_ER-6F (www.ninja650.com)

Many owners complain of "throttle jerkiness" or hesitation in the lower RPM range and the sensation of engine surging with a steady throttle below 5000 RPM.

The theory is that this modification will smooth out the Inlet Air Pressure (IAP) Sensor readings and balance out the vacuum pulses between the two throttle bodies (TB), there are a variety of mod configurations currently be trialed by owners in an attempt to provide a more stable and balanced vacuum signal of twice the current (OEM configuration) frequency to the IAP sensor.

Before carrying out any modifications ensure that throttle body synchronisation has been carried out in accordance with the Service Manual. Without carrying out synchronisation there may only be marginal benefits with any of the modification detailed below.

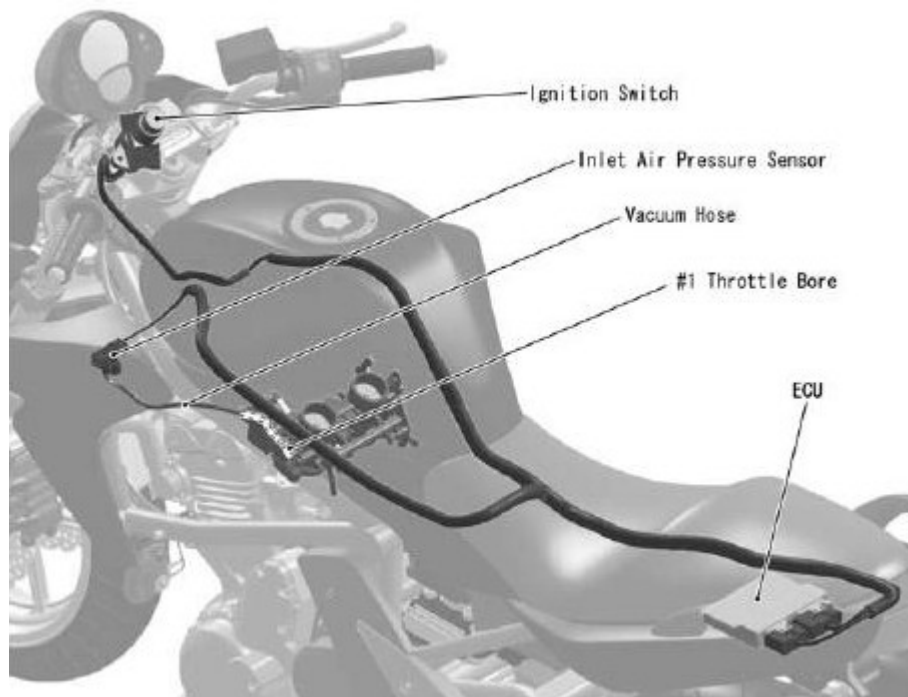
From my research on various Kawasaki Forums, configuration #1 and #3 appears to be the most popular and have achieved the most positive responses. Configuration #2 has had some good feedback as well but a lot of owners have now returned to #1 or #3. On Configuration #3 if the IAP Sensor port and synchronisation ports on TB #1 are not connected internally inside the TB housing then IMHO I cannot see how it would achieve the desired improvement without vacuum just bleeding from one TB across to the other.

Owners report throttle control and tractability at low rpm has improved, and there has been a smoother and cleaner response with less hesitation, jerkiness and abruptness. Some also note that engine braking and fuel consumption is reduced.

The forums suggest that these modifications can be done in a few minutes with long slim needle nose pliers, usually without removing fairings, fuel tank or the airbox. Again IMHO this may be possible on the ER-6N and Versys but on the Ninja 650R removal of the L/H fairings would be advantageous.

OEM Configuration

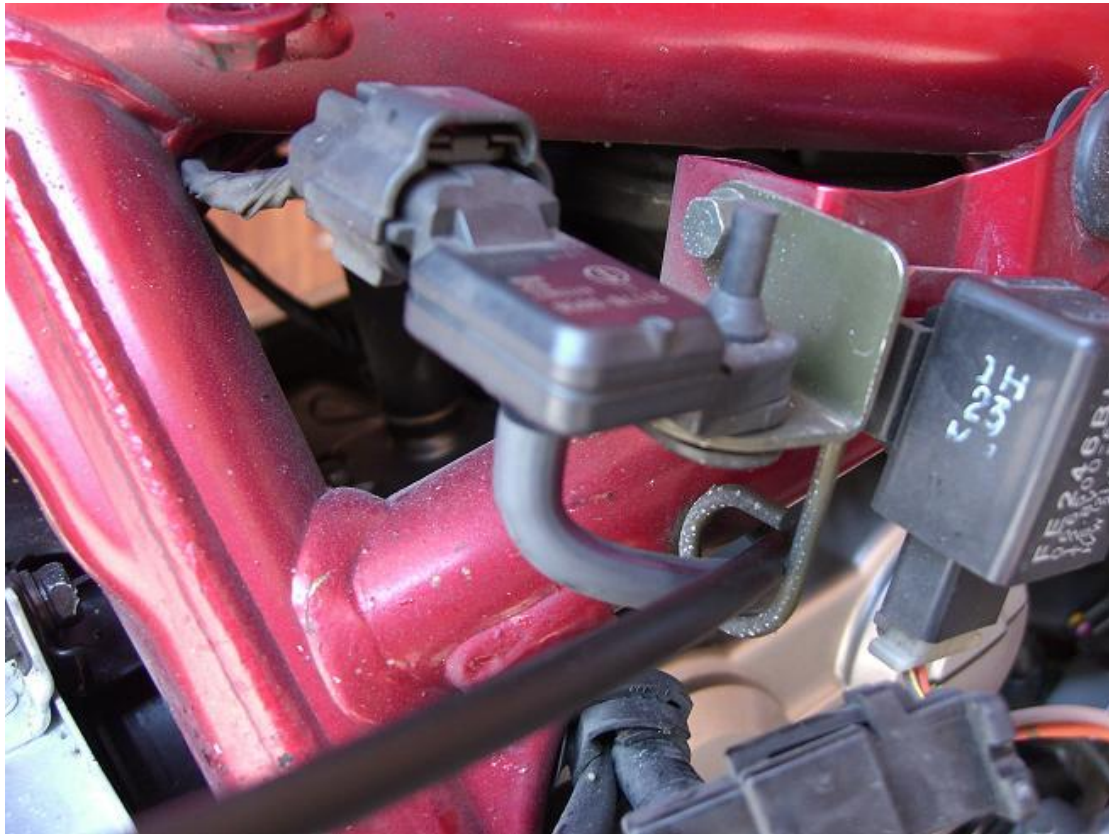
The OEM configuration has the vacuum hose connected to a port on the #1 cylinder throttle body and the two synchronisation test ports blanked with rubber caps.



Layout – Service Manual



OEM Configuration



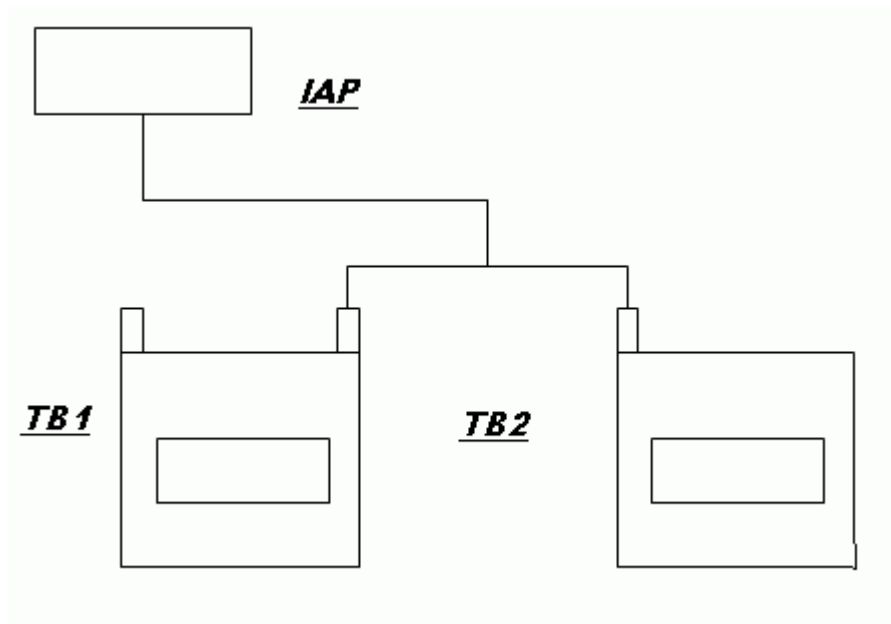
IAP Sensor

Configuration #1

This modification consists of two hoses that connect both throttle bodies at the synchronisation fittings with the OEM hose to the IAP Sensor.

Parts required:

- 1 x 5/32" (3.8 mm) Vacuum T Fitting (Goodyear P/N 65614 or equivalent)
- 2 x 4" (100 mm) lengths of 5/32" (3.8 mm) Vacuum Hoses (Goodyear or equivalent)



Configuration 1



T Fitting & Hoses



T Fitting & Hoses



Configuration 1



Configuration 1

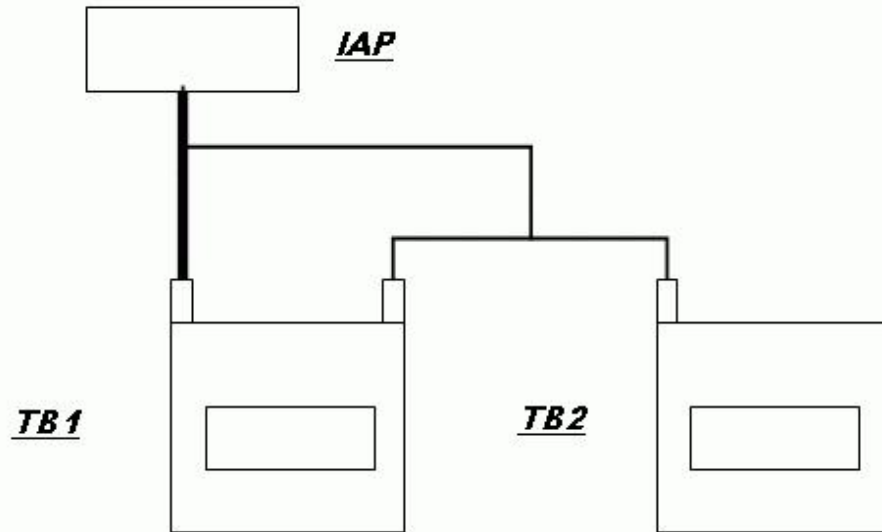
* Note in the last picture a clear hose was used, if you intend carrying out this, or any of these modifications please ensure that you use fuel and heat resistant vacuum hose designed for the application.

Configuration 2

This modification consists of two hoses that connect both throttle bodies at the synchronisation fittings, these two hoses connect through a T fitting to a central hose which in turn is connected through another T fitting to the original (OEM) hose to the IAP Sensor which is retained.

Parts required:

- 2 x 5/32" (3.8 mm) Vacuum T Fitting (Goodyear P/N 65614 or equivalent)
- 2 x 4" (100 mm) lengths of 5/32" (3.8 mm) Vacuum Hoses (Goodyear or equivalent)
- 1 x 8" (200 mm) length of 5/32" (3.8 mm) Vacuum Hoses (Goodyear or equivalent)



Configuration 2



Configuration 2



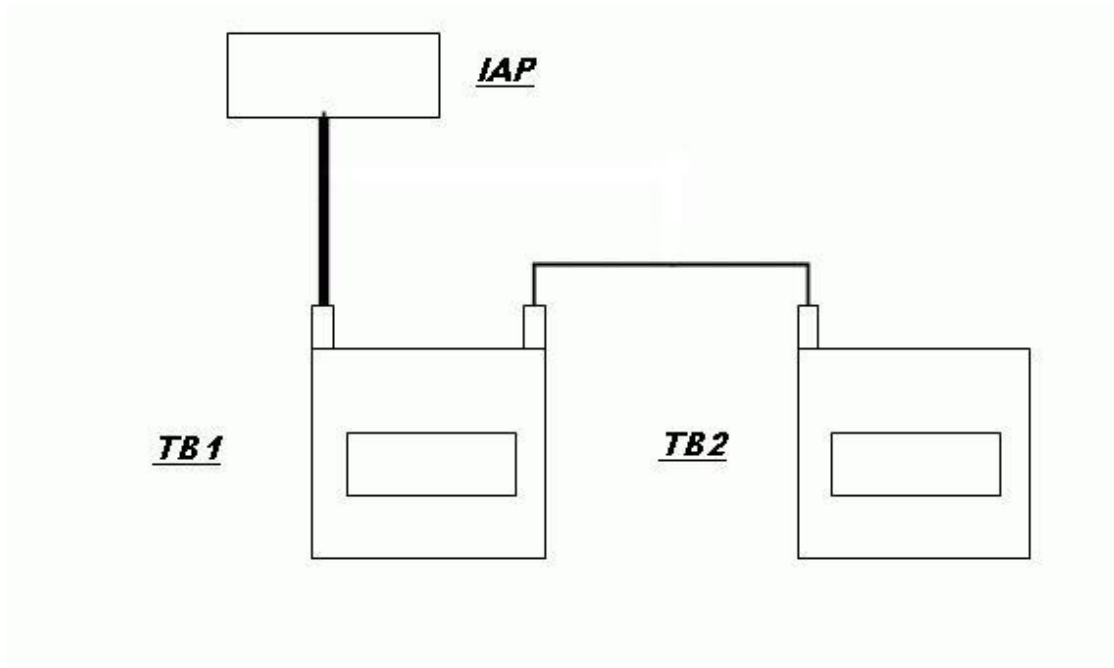
Configuration 2

Configuration 3

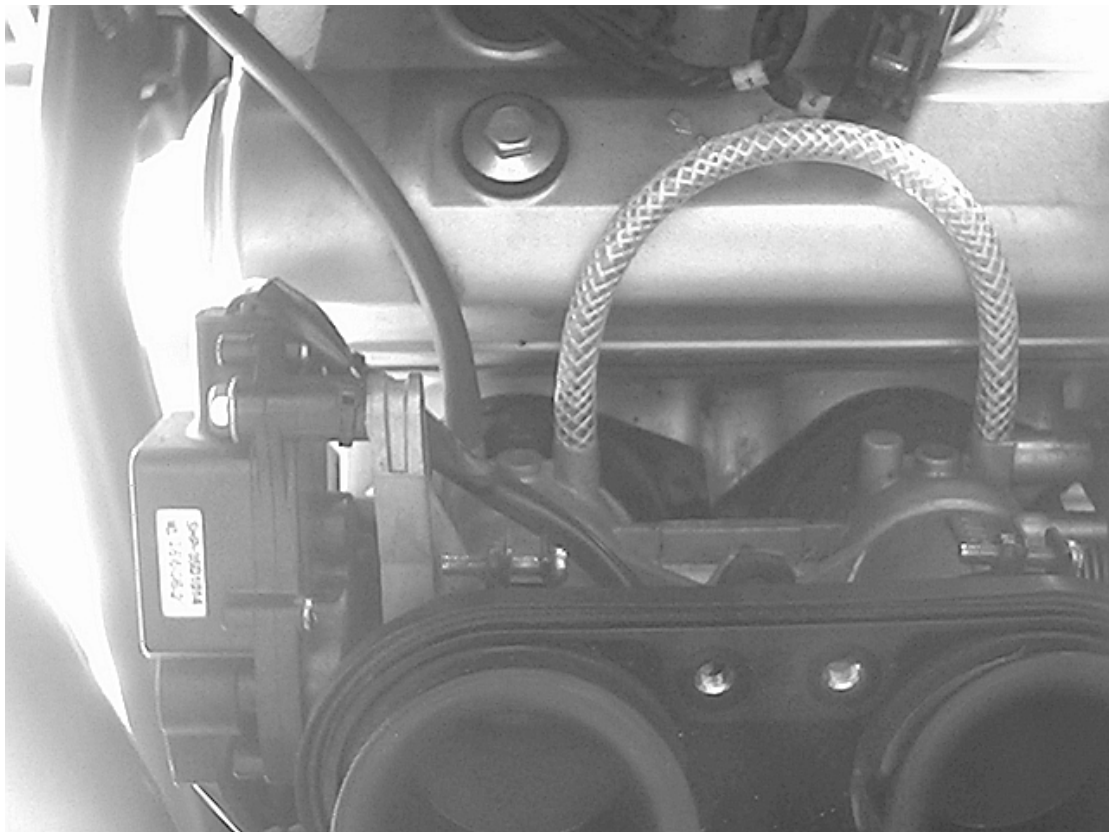
This modification consists of one hose that connects both throttle bodies at the synchronisation fittings with the hose to the IAP Sensor. The original (OEM) hose to the IAP Sensor is retained.

Parts required:

- 1 x 8" (200 mm) length of 5/32" (3.8 mm) Vacuum Hoses (Goodyear or equivalent)



Configuration 3



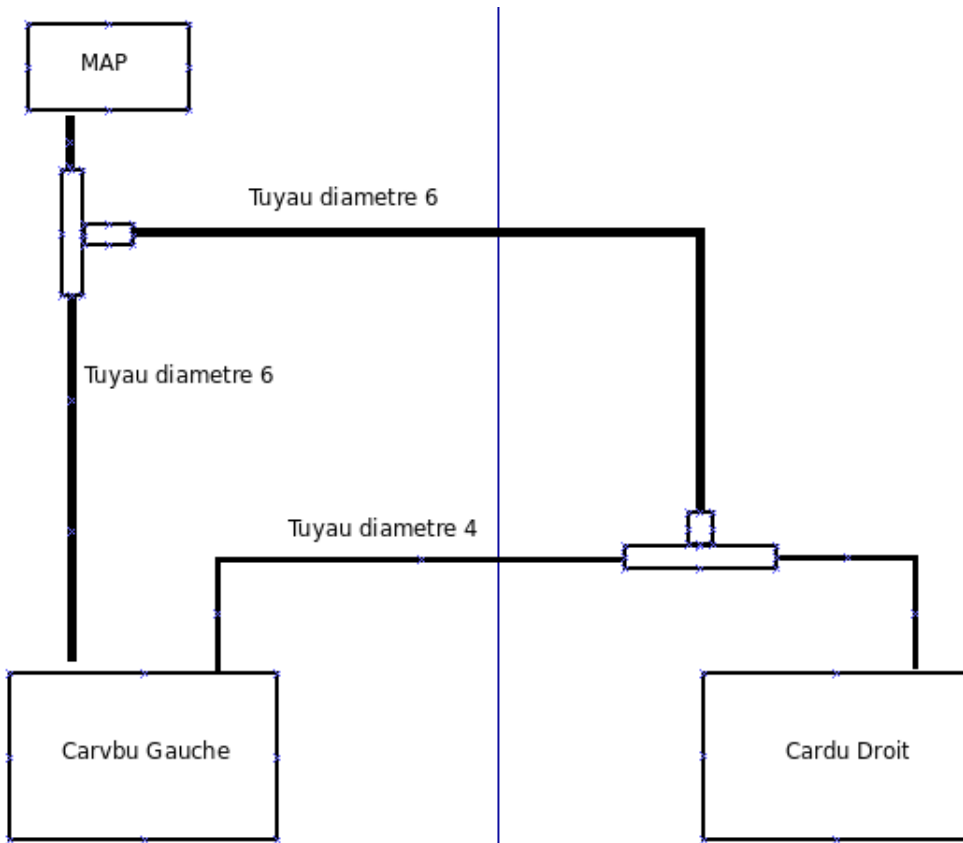
Configuration 3



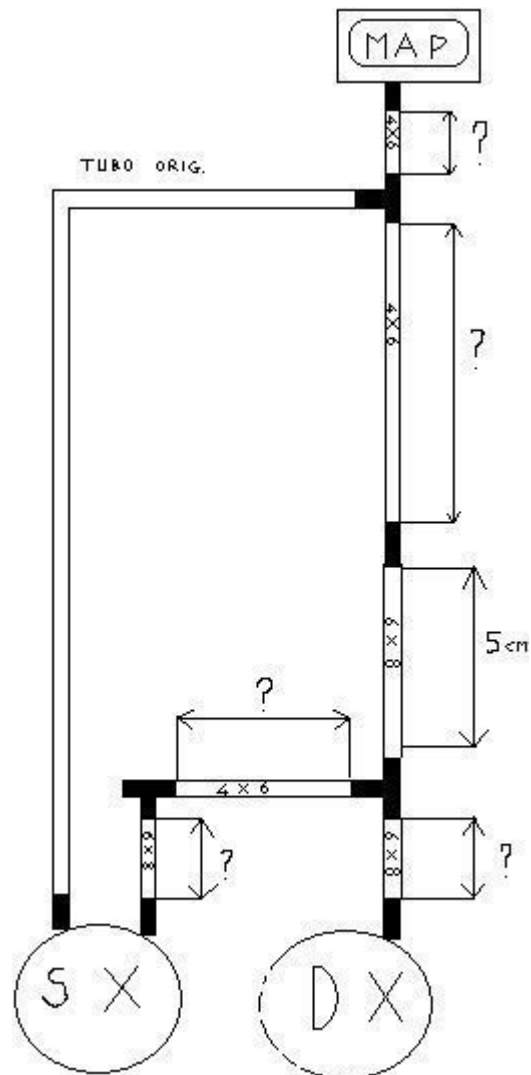
Configuration 3

Additional Information

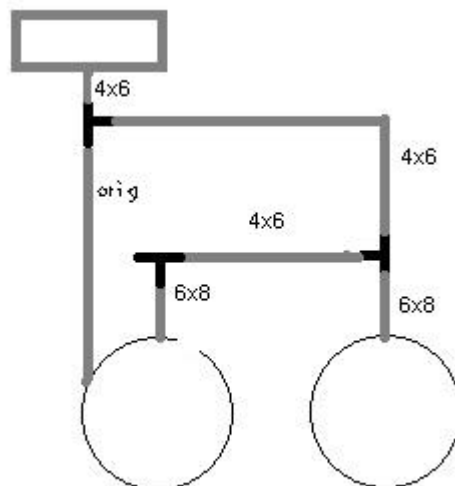
Some owners have experimented with hose sizing and lengths in an attempt to better tune the vacuum pulses to IAP Sensor, below are some diagrams detailing various lengths and hose sizes.



Configuration 2



Configuration 2



Configuration 2

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