

**Packing list for:
HONDA CB1000R from 2018 to 2020
MCS 7070TBW kit**

Standard Above Switch <input type="checkbox"/>
Slim Switch <input type="checkbox"/>
Below Switch <input type="checkbox"/>
Terminal Tools <input type="checkbox"/>

Pack in small kit carton (MCS 002xs)

<u>Qty</u>	<u>Part Number</u>	<u>Description</u>	
1 2 lengths	MCS 7070C TBW	Computer configured for CB1000R (med parts bag) Self-adhesive Velcro 7cm long	
1 OR	MCS 7074-8300 Hi	Standard Above Control Switch assembly	<input type="checkbox"/>
1 OR	GT-1014-160	Slim Control Switch	<input type="checkbox"/>
1	MCS 7074-830C Lo	Below Control Switch assembly	<input type="checkbox"/>
1	Parts bag	(See below for contents)	
1	MCS 77071T	Wiring harness	
1	Information, Set up and Operation Manual (TBW)		
1	Operation and User Manual		
1	Installation Manual for CB1000R		
1	Trouble shooting guide (TBW)		
NOTE:	Slim switch installation manual not required – included in Installation Manual for CB1000R		

Parts bag contents (medium parts bag)

<u>OPTIONAL</u>			
		Terminal extractor tool set	Supply tools <input type="checkbox"/>
1	7283-8852-30	Yazaki RH025 3-way receptacle housing (TPS connection)	
1		Retainer for above	
1	Sum 6189-0940	Sumitomo MT090 1-way receptacle housing (speed sensor connection)	
10		150mm cable ties	
6		200mm cable ties	



**Motorcycle
Electronic Throttle-By-Wire Cruise
Control Installation Manual ©
(Sections 6 & 7)**

**Refer to the Information Setup & Operation Manual for
Sections 1~5 & 8~12**

**For Honda CB1000R
Model years from 2018 to 2020**

7 April 2025

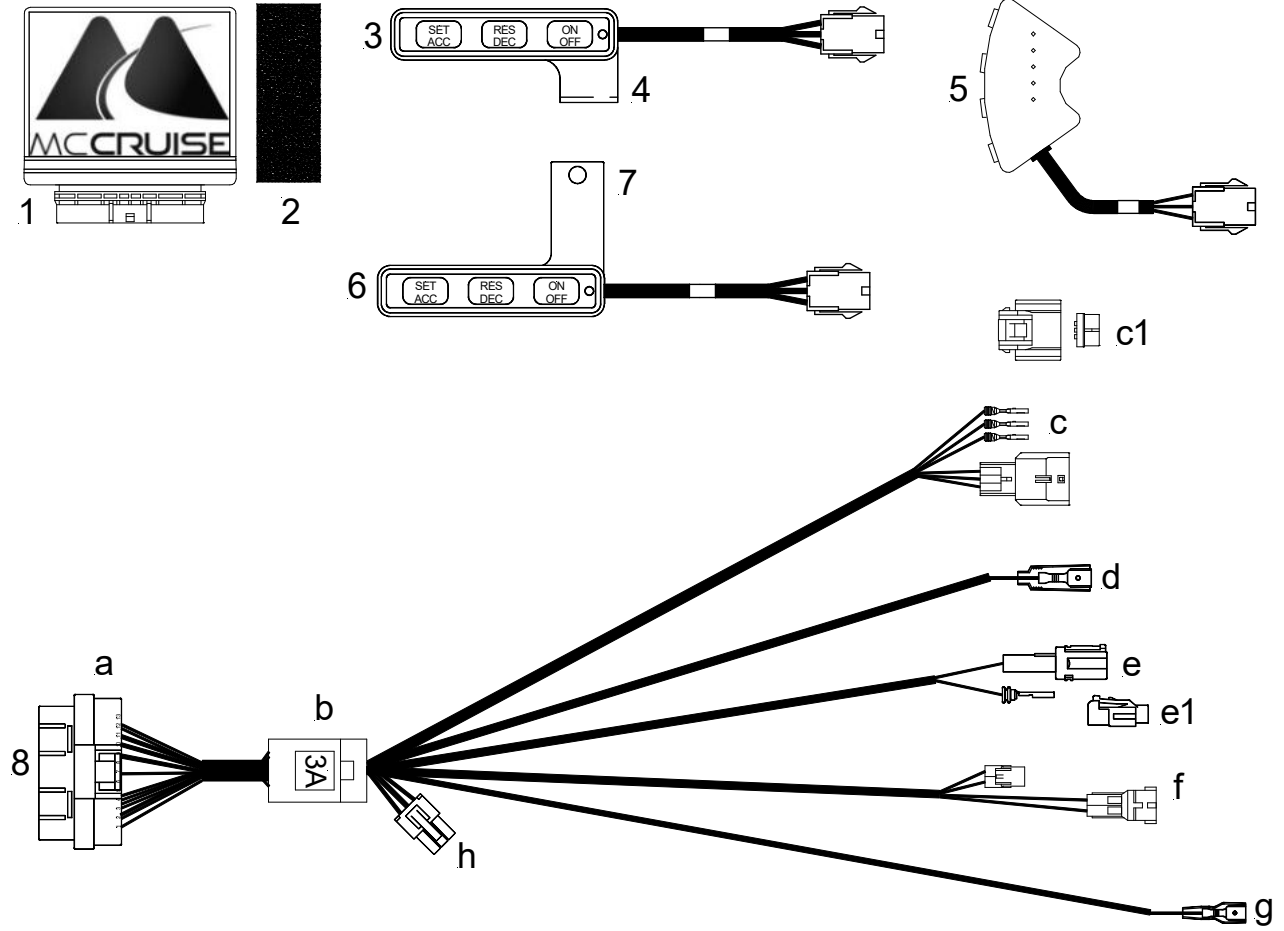
MOTORCYCLE CRUISE CONTROLS

**MotorCycle Setup Pty. Ltd.
A.B.N. 94 798 167 654
AUSTRALIA**

HONDA CB1000R from 2018 to 2020

Parts list for MCS 7070T kit

Item	Qty	Part Number	Description
1	1	MCS 7070TBW	Computer
2	2 lengths		Self-adhesive Velcro 7cm long
		<u>MCS 7074-830O</u>	<u>Standard Above Control Switch assembly</u>
3	1	MCS 820 - 160	Control Switch
4	1	MCS 830O	Switch bracket (standard above bar mounting)
	4		4-gauge x 1/2" pan head self-tap screw
		<u>OR</u>	
5	1	<u>GT-1014-160</u>	<u>Slim Control Switch</u>
	8cm		Foam mounting tape
	2		300mm cable ties
		<u>OR</u>	
		<u>MCS 7074-830C</u>	<u>Below Control Switch assembly</u>
6	1	MCS820 - 160	Control Switch
7	1	MCS 830C	Switch bracket (optional below bar mounting)
	4		4-gauge x 1/2" pan head self-tap screw
8	1	<u>MCS 7071T</u>	<u>Wiring harness</u>
	a		Computer plug (26 pin)
	b		Fuse holder (3 amp fuse)
	c		TPS connectors (3 pin)
	c1		TPS connector housing and retainer
	d		Tach sensor (yellow wire)
	e		Speed sensor connectors (blue/black wire)
	e1		Speed sensor connector housing
	f		Power & brake sensor (orange and grey wires)
	g		Clutch sensor (blue wire)
	h		Control switch plug (6 pin)
	10		150mm cable ties
	6		200mm cable ties
OPTIONAL			Terminal extractor set
			Information, Set up and Operation Manual
			Operation and User Manual
			Installation Manual
			Trouble shooting guide



Electronic Cruise Control Installation Manual ©

REFER TO THE INFORMATION, SET UP AND OPERATION MANUAL FOR INFORMATION ABOUT THE CRUISE CONTROL, SETTING UP, CALIBRATING AND USING THE CRUISE CONTROL

The cruise control computer used has been purpose built for motorcycle applications. Testing has resulted in programming to deliver safe, reliable operation on a variety of motorcycles, from 250cc up. It is essential that you install the cruise control in accordance with the advice in the installation instructions precisely so that electrical interference does not cause the unit to behave erratically or be rendered inoperative.

We strongly recommend against fitting off-the-shelf motor car cruise controls to any motorcycle!

WARNING: - This cruise will function properly only if your vehicle has resistor type (radio suppression) ignition wires (spark plug leads). The cruise control may not function properly if aftermarket SOLID CORE spark plug wires are installed. Please read Section 11, Safety Issues & Features before fitting & using the cruise control.

If, after reading these instructions, you feel you are not competent to install this kit, we strongly urge you to seek the assistance of your local dealer.

NOTE: - It is recommended that on most motorcycles the fuel tank is less than 1/4 full before attempting to fit the cruise control. The fuel tank must be lifted for most installation and can be very heavy when full of fuel.

CONTENTS

Chapters 1 to 5 and 8 to 11 are contained in the separate Information, Set up and Operation manual.

- 6. PREPARING THE BIKE FOR CRUISE CONTROL INSTALLATION**
- 7. INSTALLATION**

This manual contains several **cautions**, **warnings** and **notes**, which are prominently displayed. The convention used is:

A **warning** applies whenever injury could result from ignoring the warning;

A **caution** applies whenever damage to the bike or cruise control could result from ignoring the caution; and

A **note** applies where other aspects should be considered before any action to do with installation is undertaken.

EXAMPLES:

WARNING: - Always ensure the bike is properly supported on the side or centre stand and cannot accidentally fall off either stand.

CAUTION: - Before drilling any holes, make sure there are no components that may be damaged on the other side of the surface being drilled. Double check for any wiring harness that might be easily damaged by a drill bit.

NOTE: - Lay the wiring harness in place and connect the components before cable tying the harness in place.

PARTS LIST

Check that all components depicted in the parts list are included in the cruise control kit. Please phone (03) 9808 2804 within Australia, international (61 3) 9808 2804 or e-mail sales@mccruise.com for advice, if any parts are missing;

6. PREPARING THE BIKE FOR CRUISE CONTROL INSTALLATION

The following directions may be used to prepare the bike for cruise installation:

Remove the pillion seat.

Use the key to unlock the seat.

Lift the back of the seat up then pull the seat to rear to remove the seat from the bike.



Remove the rider's seat.

Undo the two screws at the rear of the seat.

Pull the seat to rear and remove the seat from the bike.



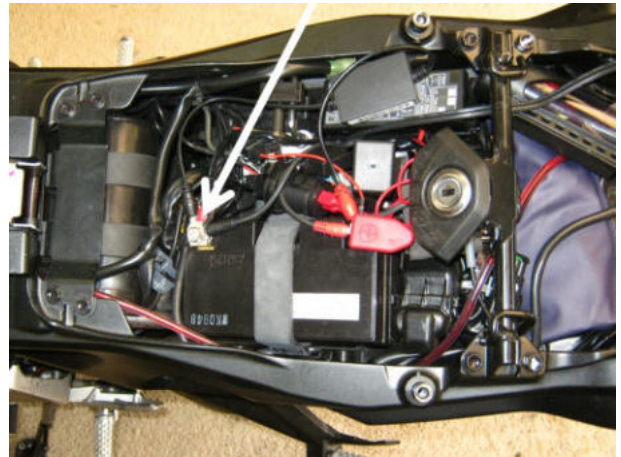
Disconnect the negative battery lead.

If the bike has just been running in the last hour or so, don't disconnect the battery yet, wait until the fuel tank is raised and the fuel pump disconnected.

If the engine has not been running for a few hours, you can disconnect the battery now.

Disconnect the lead from the negative battery terminal.

Ensure that the lead cannot touch the battery terminal.



Remove the fuel tank.

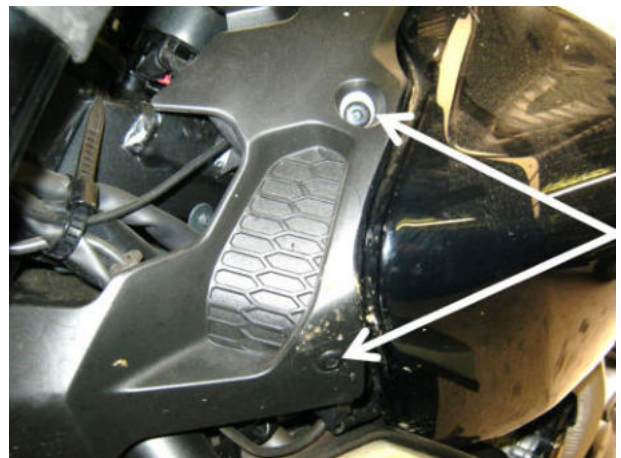
Undo the two screws at the top of the fuel tank front trim panel.



Remove the four clips, two each side, that hold the trim panel to the fuel tank.

The photo below shows how to release the clips.

After the clips are removed, remove the panel from the bike.



In order to release the clips for removal, push the centre pin in about 5mm as shown with the clip on the left.

To set the clip for re-insertion, set the centre pin about 5mm up from the clip body as shown with the clip on the right.

To lock the clip, push the centre pin in flush with the body, as shown with the clip in the centre.



Undo the two bolts at the front of the fuel tank. Take care not to drop the large flat washers on the bolts.



Loosen, but do NOT remove the bolt and nut at the rear of the fuel tank.



Carefully lift the front of the fuel tank.

Note that the wires for the fuel gauge sender and the fuel pump are not very long. Take care not to raise the tank too far, as this may break the wires at the connection to the fuel tank.

Prop the tank with a suitable prop.

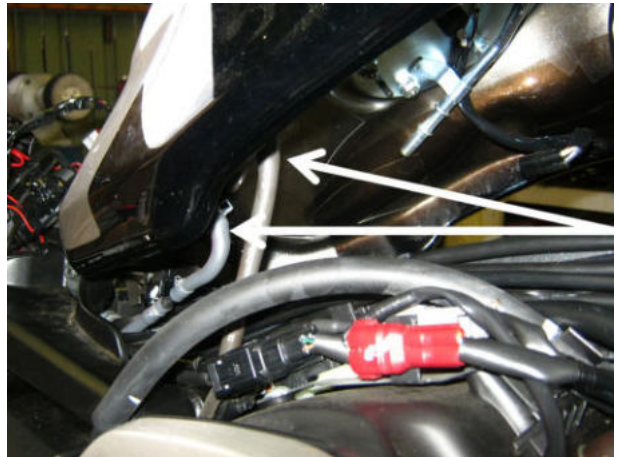


Disconnect the fuel gauge sender and fuel pump electrical plugs.

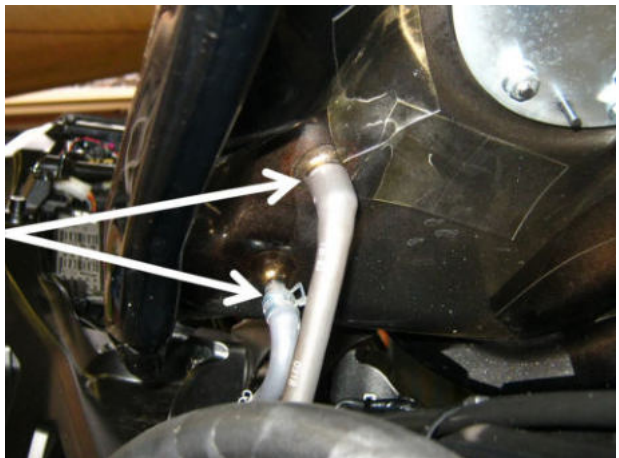
These connections are on the left side of the bikes central frame 'spine'.



There are two hoses on the right side of the fuel tank.



Disconnect the breather and overflow hoses from the tank.

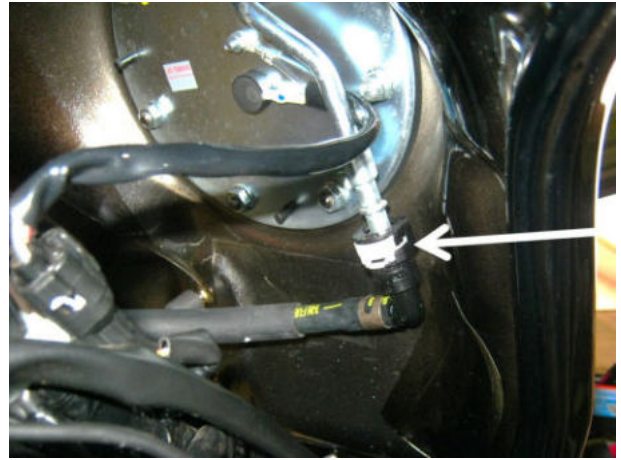


If the battery is still connected, turn the ignition on and try to start the motor. It may start momentarily, if not, crank the engine for a few seconds. This will bleed down any remaining fuel pressure in the pressure hose from the fuel tank.

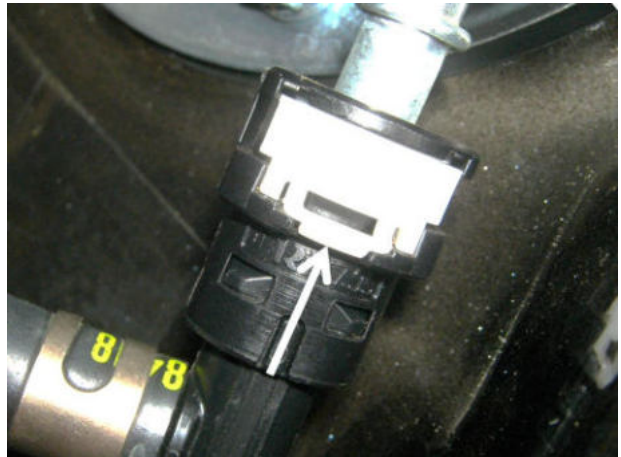
Turn the ignition off.

Disconnect the cable/s from the negative terminal of the battery.

Release the fuel pressure hose at the coupling on the fuel tank.

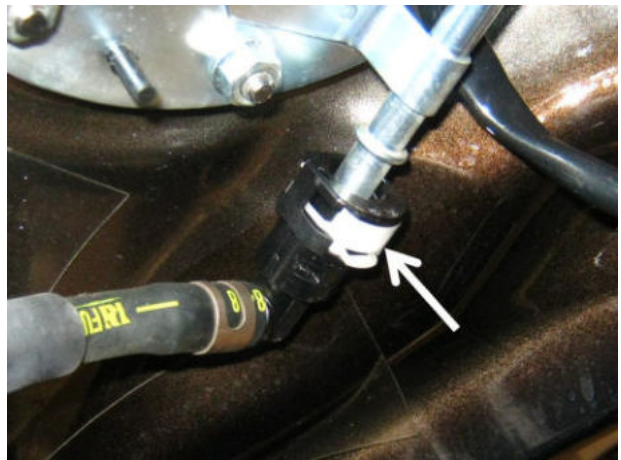


Push the tab on the white clip up.....



....then depress the white clip.

Pull the coupling off the fuel pipe.



Remove the prop and lower the fuel tank.

Undo and remove the bolt at the rear of the fuel tank.

Remove the fuel tank from the bike.



Remove the left side air snorkel cover.

Undo the two screws holding the cover (arrowed).



The lower cover screw.

Remove the cover.



Release the tabs on the snorkel, one on the top...



....another on the bottom.

Pull the snorkel out of the air filter housing.



There is a plastic sleeve behind the snorkel with electrical connectors in it.

This will be accessed later during the installation.



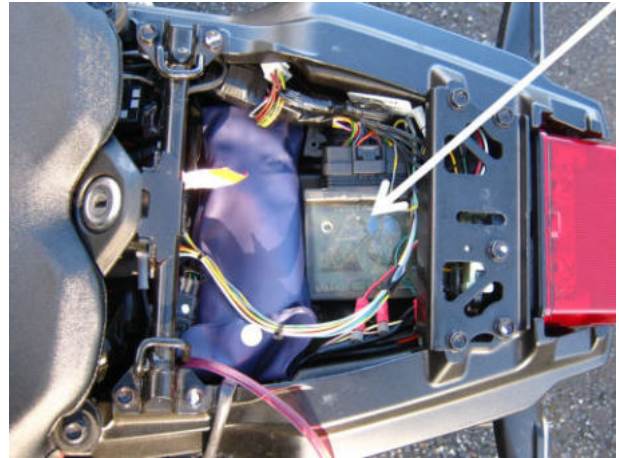
7. INSTALLATION

Installing the cruise control computer.

The cruise control computer will be installed under the passenger seat at the rear of the bike, in the under-seat storage area.

Velcro tape is used to mount the computer. Two strips of Velcro are supplied in the kit, one is attached to the computer, the other to the harness connector.

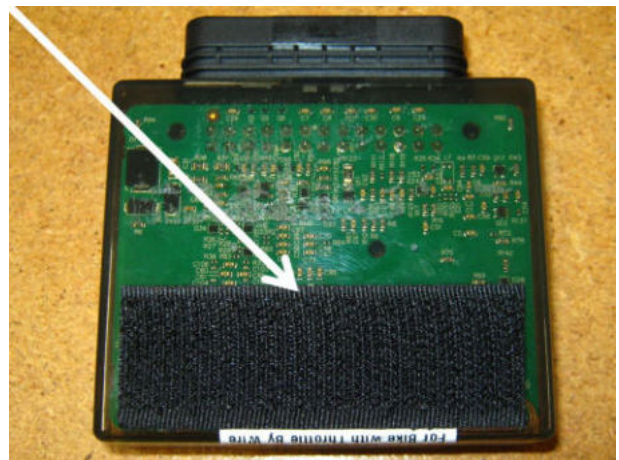
This particular bike has several other accessories fitted to it. Much of the electrical wiring in the photo belongs to these accessories. The cruise control wiring is at the top of the photo, running to the front of the bike on the right side of the bike.



Locate the cruise computer and the Velcro mounting tape in the kit.

Clean the bottom of the cruise control computer with suitable solvent such as methylated spirits or denatured alcohol.

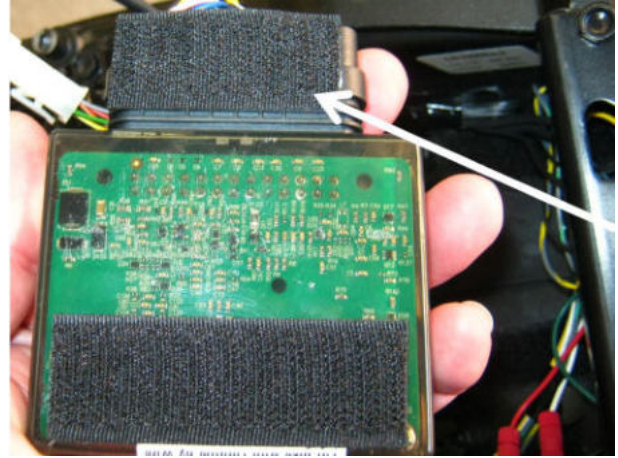
Apply one of the strips of Velcro mounting tape to the bottom (flat) side of the computer, at the end closest to the label.



Locate the wiring harness in the kit.

Connect it to the cruise control computer.

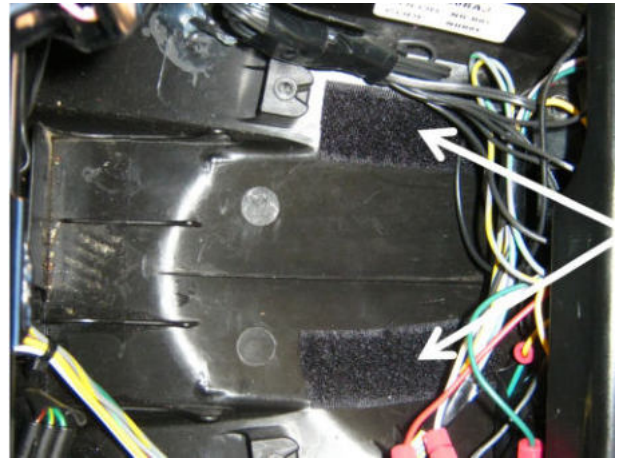
Place the other strip of Velcro to the harness connector.



Clean the floor of the compartment with suitable solvent such as methylated spirits or denatured alcohol.

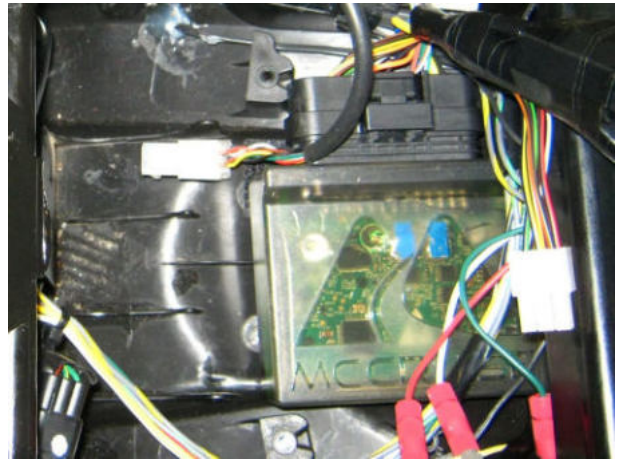
Apply the opposite sides of the Velcro tape to the compartment floor.

Pay close attention to the positions of the Velcro tape to match the Velcro on the computer.



Position the computer in the storage compartment as shown on the Velcro tape.

Leave the computer and harness for the moment.



Installing the standard cruise control switch above the handlebars, on the mirror mount.

The standard switch in this kit is mounted on the mirror mount.

This bike has mirror extension brackets fitted, but this does not change the installation of the switch



Loosen the mirror mounting nut or bolt.

Remove the mirror or bolt from the bike.



Replace the mirror with the cruise control switch on the mount.

Angle the switch so the switch buttons can be reached with the riders thumb easily and tighten the mirror mount.



The switch bracket on the mirror mount.



Slim line switch installation.

Our slim switch is also an option on this bike.

The switch may be mounted on the inside of the clutch lever/mirror mount as shown.

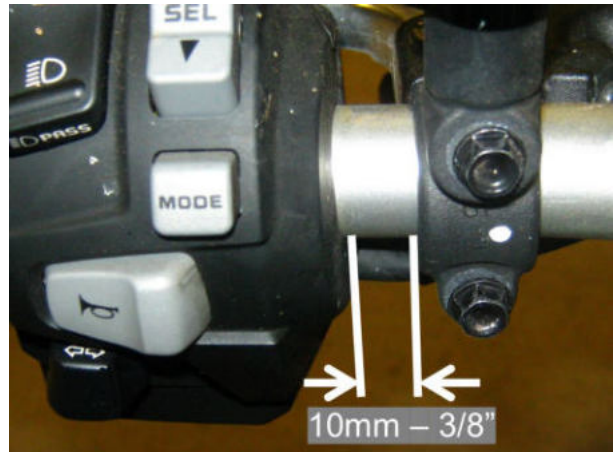
This mounting method does not effect clutch operation at all, but the reach to the switch is long.



Another possible mounting location for this switch is between the clutch lever clamp and the bike's switch block.



This is preferable for cruise control operation, BUT to do this the clutch lever mount must be moved across to make space for the cruise control switch.



The standard clutch lever will contact the bike's switch block before it contacts the handlebar grip, resulting in reduction in lever travel.

An after-market clutch lever with a different shape that clears the switch block would restore full lever travel if one can be found.



The housing has slot that runs through the switch for a cable tie, the cable tie straps the switch to the handlebar.



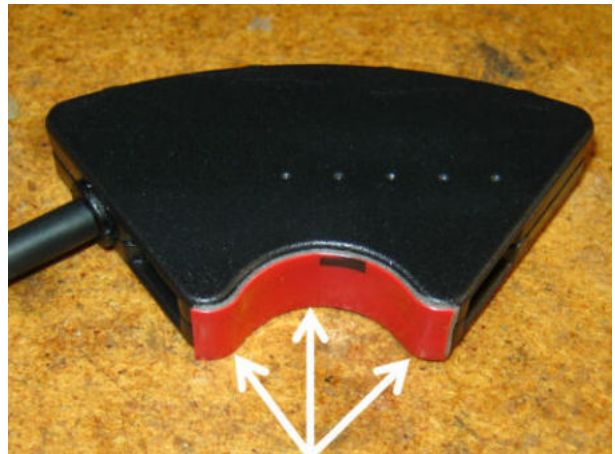
To mount the switch on the handlebar, feed one of the supplied long cable ties through the switch housing.

Clean the face (arrowed) with a suitable cleaning fluid (Methylated Spirits, Denatured Alcohol, bandage remover or similar). Allow it to dry.



Cut a suitable length of the double-sided tape from the parts bag to fit the curved surface of the switch.

Apply the double-sided tape to the inside curve on the switch housing.



Clean the handlebar with a suitable cleaning fluid (Methylated Spirits, Denatured Alcohol, bandage remover or similar). Allow it to dry.

Feed the switch wire and electrical connector below the handlebar.

Feed the cable tie around the handlebar.

CAUTION: - Take care to ensure the cable tie is routed between the handlebar and the wires from the bike's switch gear. Don't wrap the cable tie around the bike's wires or the wires will be damaged when the cable tie is tightened.



We suggest aligning the switch so the bike's indicator switch is roughly half way between the cruise control SET button and RESUME button on this bike.

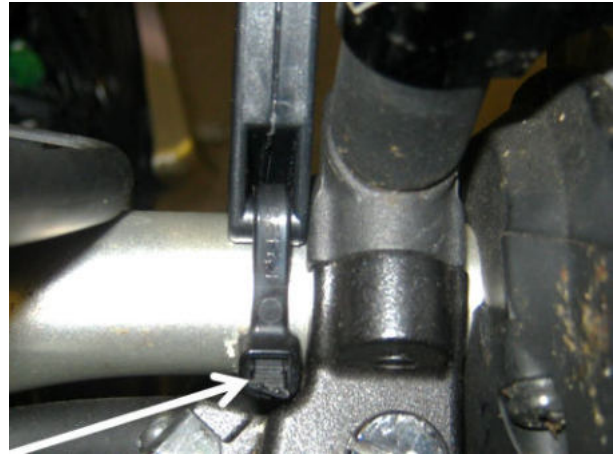
Trial fit the switch before peeling off the covering tape to find the best position.

Remove the covering tape and press the switch against the handlebar, so the double-sided tape holds the switch in position.



Connect the ends of the cable tie and pull it tight to hold the switch firmly to the handlebar.

Trim the excess length of the cable tie.



The operation of the switch is the same as our other control switch.

Press the ON-OFF button to enable the cruise control, and the indicator light will come on red – or red/green flashing if the brakes have not been applied since the ignition was turned on.

When the cruise control is engaged the light will change to yellow.

The SET/ACC and RES/DEC buttons work the same as the buttons on our older switch.

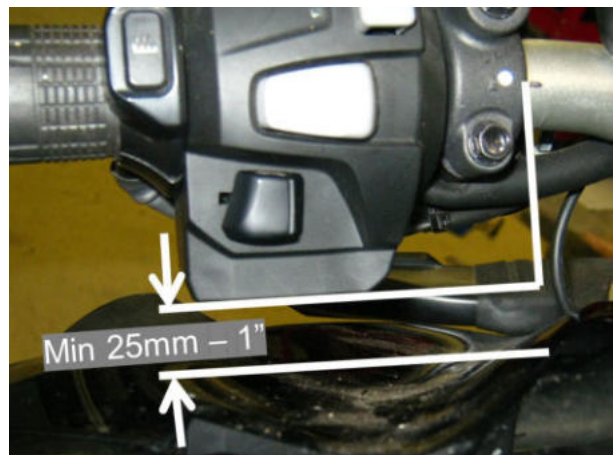


Standard switch below bar installation.

The last option is mounting our standard switch below the handlebars.

On this bike, with the standard handlebars, there is not enough space on full left turn, a bit less than 20mm (3/4”). The switch and bracket will contact the fuel tank.

If higher bars are fitted, or bar risers, there should be plenty of space for the switch. There needs to be approx. 25mm (1”) to ensure the switch will not contact the fuel tank.



This photo shows the switch with standard bars. It is not possible to turn full left without damaging the fuel tank.

Fitting this design is shown below.



Remove the two bolts clamping the clutch lever assembly to the left handlebar and remove the clamp. Rest the clutch lever assembly on a cloth on the fairing.

Use a flat file and a vice with soft jaws (the fastest and easiest way to do this), sand paper or a grinder to remove material from the **bottom** inner face of the clutch lever clamp equivalent to about 0.5mm LESS than the thickness of the control switch bracket (1~1.2mm or 0.040~0.050”). File material from the ‘down’ side of the clamp. Ensure that the new surface is flat and parallel to the original surface.

Position the clutch lever assembly back on the handlebar and loosely install the clamp and the upper clamp bolt but do not tighten the bolt.

Position the cruise control switch bracket between the lower clamp faces and insert the upper bolt. Align the clutch lever assembly with the punch mark on the handlebar and tighten the lower bolt.

Tighten the upper bolt.

Check that there is a gap between the upper faces of the clamp. The gap should be as small as possible, while still allowing the clamp to grip the handlebars tightly. Check that the clutch lever assembly is firmly attached to the handlebars and will not rotate around the bars.

If it is not firmly clamped to the bars, remove the clamp and remove more material from the lower face of the clamp.

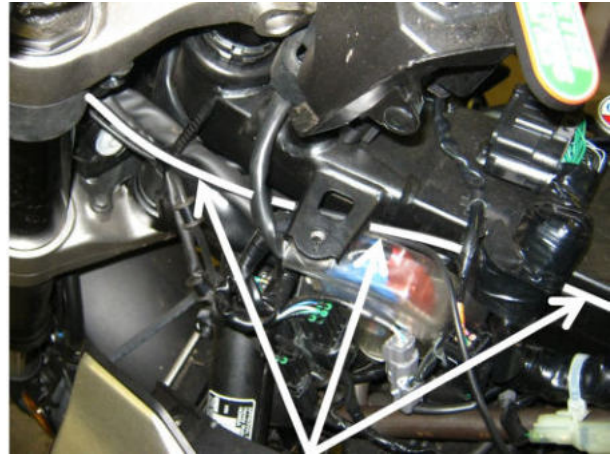
CAUTION: - Do not remove material from the upper face of the clamp.

Routing the switch wire for all switch versions.

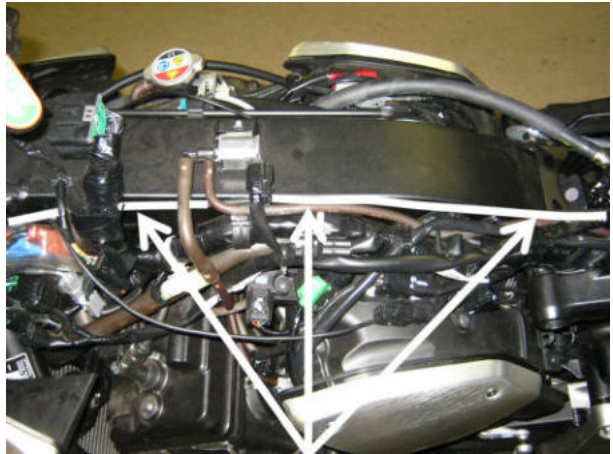
Route the switch wire down the handlebar with the bike’s wires.



Route the wire to the rear of the bike on the left side of the frame central spine.



Route the wire to the rear of the bike on the left side of the frame central spine.



At the end of the frame central spine, route the wire to the right side of the bike.

Routing the switch wire to the rear is tight due to the location of the evaporative emissions charcoal canister.

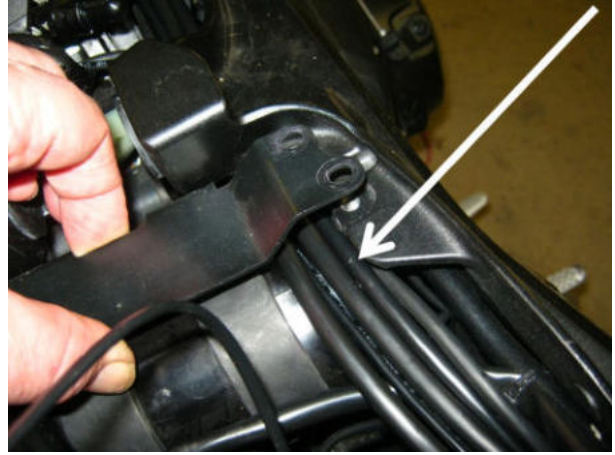
The main harness wires will be routed here later as well, so undoing the mount for the charcoal canister will assist with routing the switch wire and routing the main harness wires later as well.



Undo the four bolts on the canister mount.



Gently lift the mount plate up to assist with routing the switch wire. This photo shows the switch wire and the cruise control main harness wire branches as well.

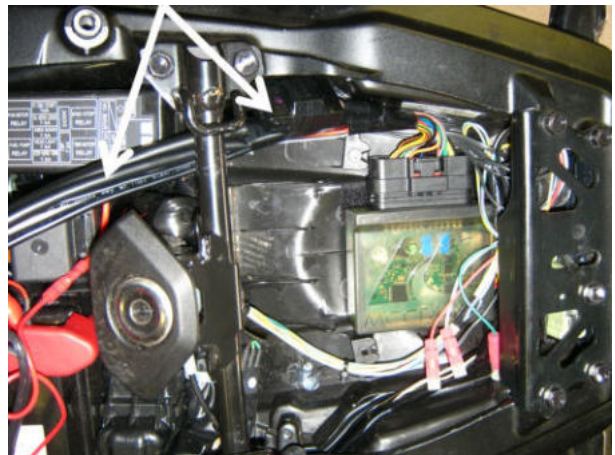


Route the switch wire to the rear of the bike past the fuse box into the rear compartment, next to the cruise control computer.



Installing the wiring harness.

Route all branches of the wiring harness forward on the right side of the bike, follow the routing of the switch wire forward.



Control switch connection.

Connect the plug on the end of the wires from the control switch to the matching plug on the main wiring harness.

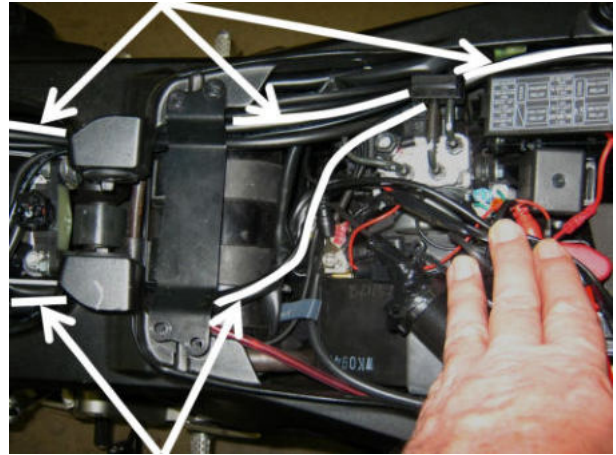


Route the rest of the wiring harness forward on the right side of the bike with the control switch wire between the frame and the fuse box.

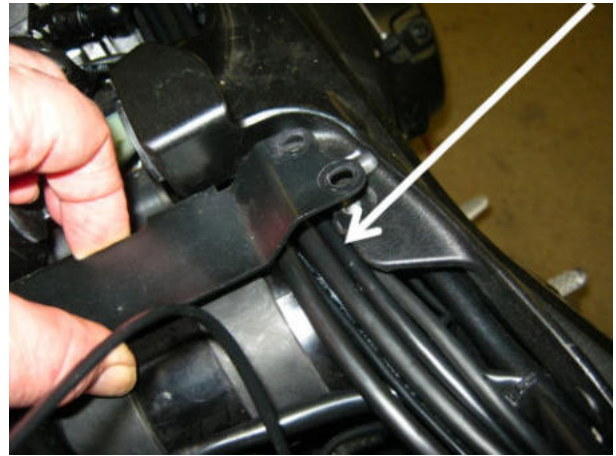
Identify the speed sensor branch. This branch has blue/black wires with a one-way connector on one wire and a terminal on the other.

Route this branch across to the left side of the bike then forward above the left side of the charcoal canister (lower arrows).

Route all other branches forward on the right side (upper arrows).



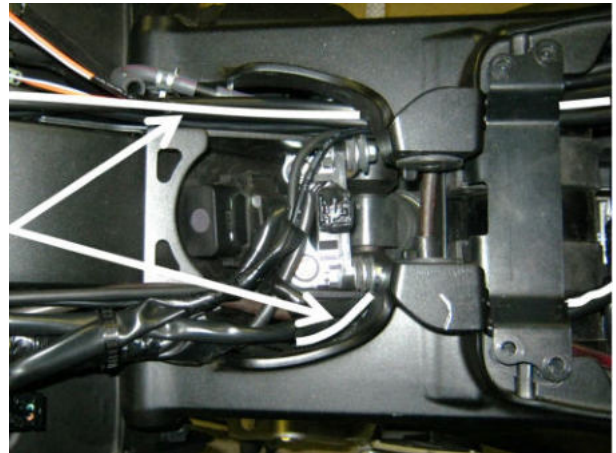
Lift the charcoal canister brackets to assist in routing the wires past the charcoal canister.



Route all branches except the speed sensor wire forward on the right side of the bike (upper arrow).

Leave them for the moment.

Route the speed sensor branch forward on the left side of the bike (lower arrow), then down next to the upper shock absorber mount.



Draw the speed sensor wire down on the left side of the shock absorber.



Speed sensor connection.

The bike's speedometer sender plug is inside this plastic sleeve, located on the left side of the bike behind the air filter housing.

Draw the sleeve out.

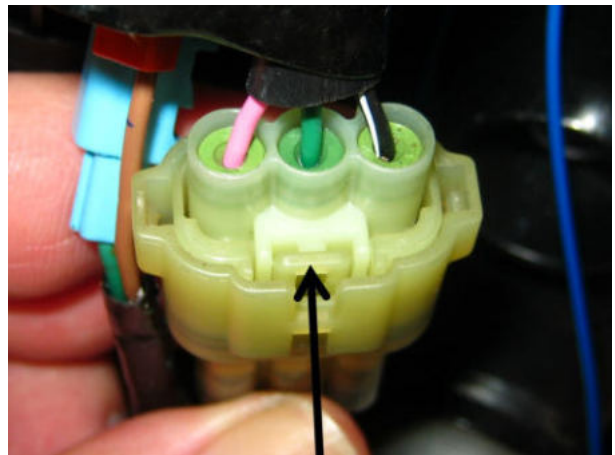


Slide the sleeve up the wires to reveal the connectors inside.

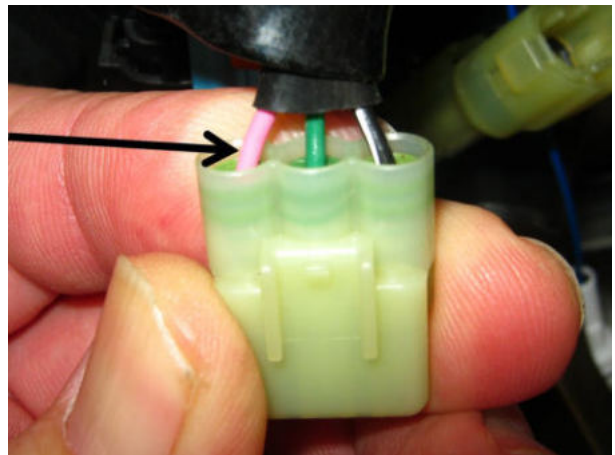
The speedometer sender plug is a white (natural) three way connector with black, green and pink wires.



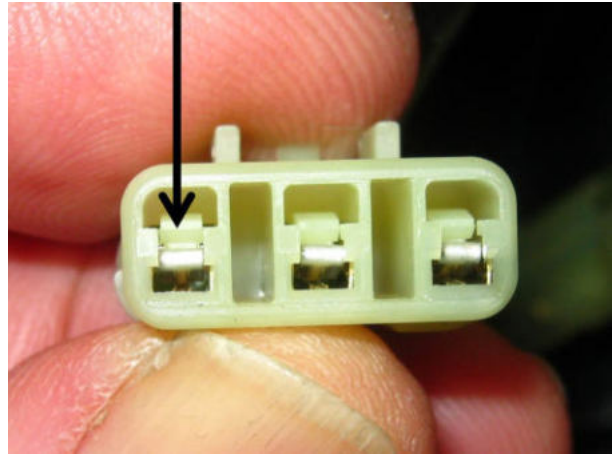
Lift the latch (arrowed), and disconnect the two halves of the plug.



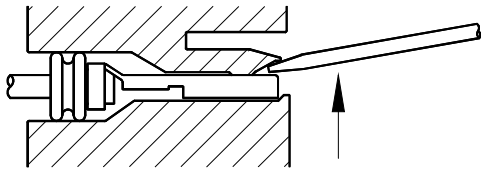
The speed signal wire is the pink wire. The wire and terminal must be backed out of the connector.



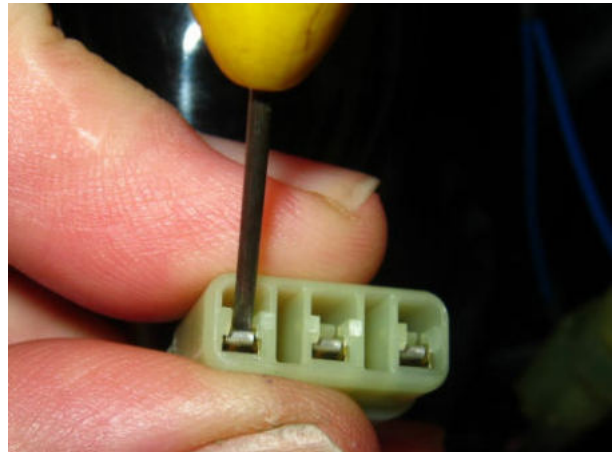
The terminal is retained in the connector by this latch. The latch must be lifted away from the terminal to release it.



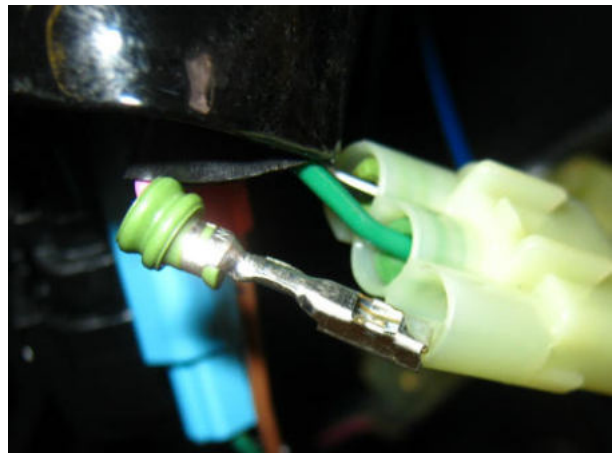
Lift the latch with a jeweller's screwdriver to release the terminal. Gently pull on the pink wire while releasing the latch in the connector.



NOTE: If the wire does not come out fairly easily, the lock has not been released. There will be some drag from the wire seal, but not much.

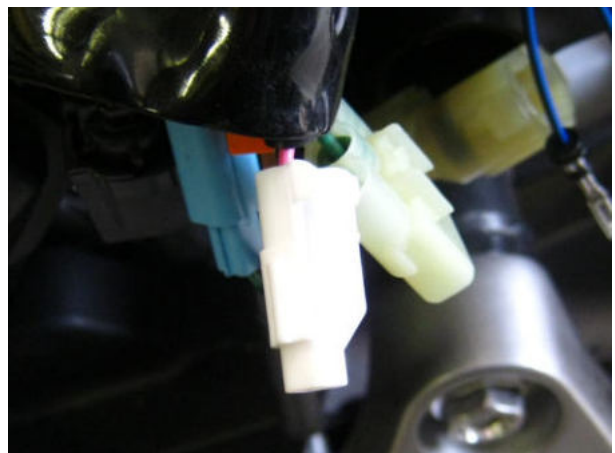


The terminal and pink wire out of the connector.



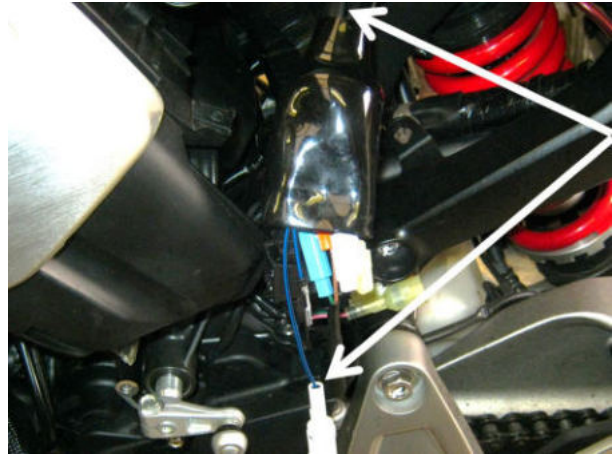
Locate the white one-way connector in the kit parts bag.

Fit the connector to the bike's pink wire and terminal.

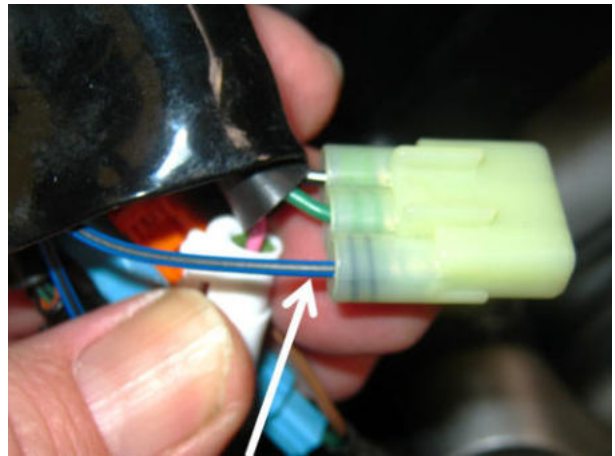


Locate the cruise control blue/black wires that should be nearby.

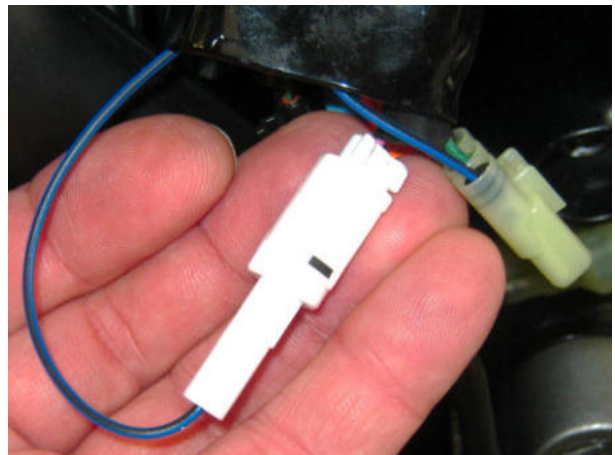
Feed the wires through the plastic sleeve from the top (upper arrow) so they come out next to the bike's speedo sensor plug (lower arrow).



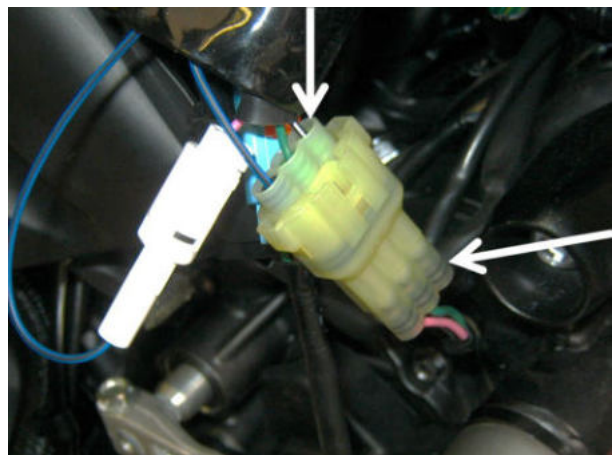
Insert the terminal on the cruise control blue/black wire into the empty hole in the bike's speedo sender plug, where the pink wire was fitted.



Connect the white one-way connector on the blue/black wire to the bike's pink wire the you fitted the one-way connector to.



Re-connect the bike's three-way speedometer sender plugs.



Fit all the connectors inside the plastic sleeve.



Position the sleeve and connectors into the space behind the air filter housing.

The connectors are a neat fit, you may need to manipulate the connectors a little to make it fit.



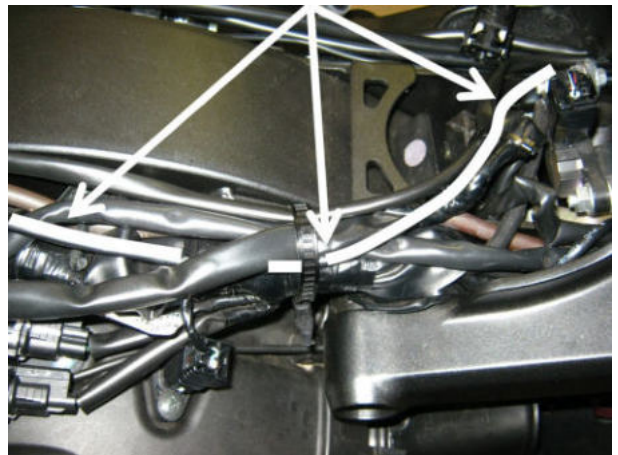
Replace the snorkel on the air filter housing.



Clutch switch connection.

Identify the clutch sensor wire. This is a blue wire fitted with a 'piggyback' spade terminal.

Separate this branch from the other branches and route this with the cruise control switch wire to the left side handlebar.



Route this with the cruise control switch wire to the left side handlebar.

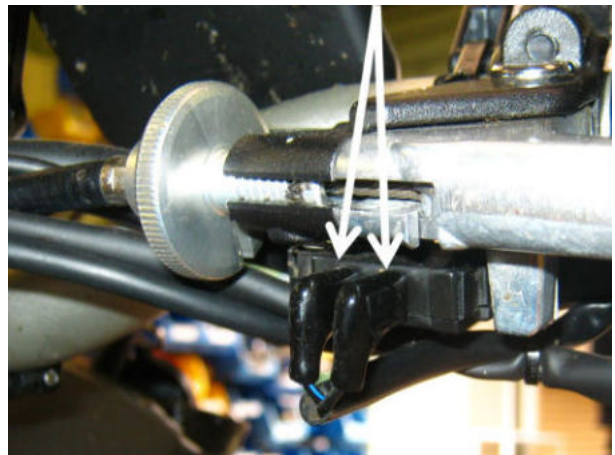


Route this with the cruise control switch wire to the left side handlebar.



Locate the bike's clutch switch. The switch is located under the clutch lever, below the clutch cable adjuster.

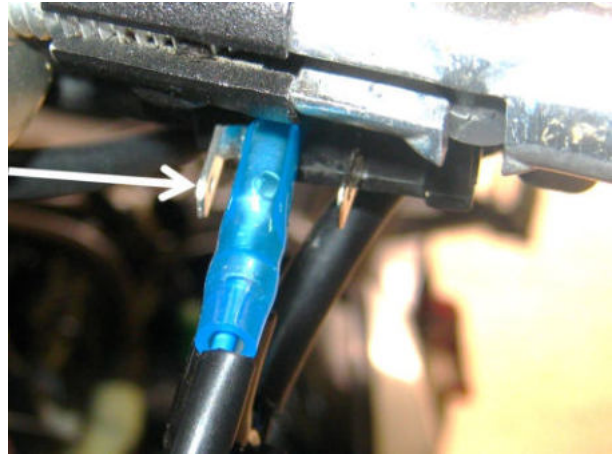
It has two wires with spade connectors attached to the switch.



Disconnect both wires from the clutch switch.

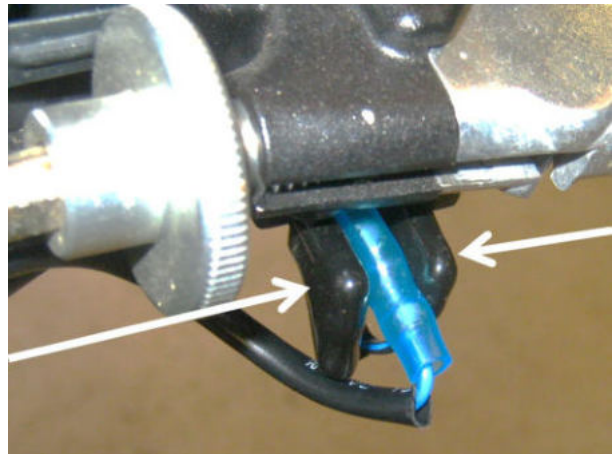


Route the cruise control blue wire to the clutch switch and connect it to one of the clutch switch terminals. The easiest connection is the left terminal, leaving the right terminal unconnected. Connect the blue wire so the 'piggyback' terminal is opposite the other clutch switch terminal (arrowed).



Connect the bike's black wire to the cruise control piggyback terminal (left arrow).

Connect the bike's black/blue wire to the second clutch switch terminal.



Routing the wiring harness.

Route the last three branches forward on the right side of the centre frame spine.



Power/brake connection.

The bike's rear brake light switch plug is located on the right side of the frame, above the air filter housing.



It is a black two-way plug. One end has two black wires going to the rear brake light switch.



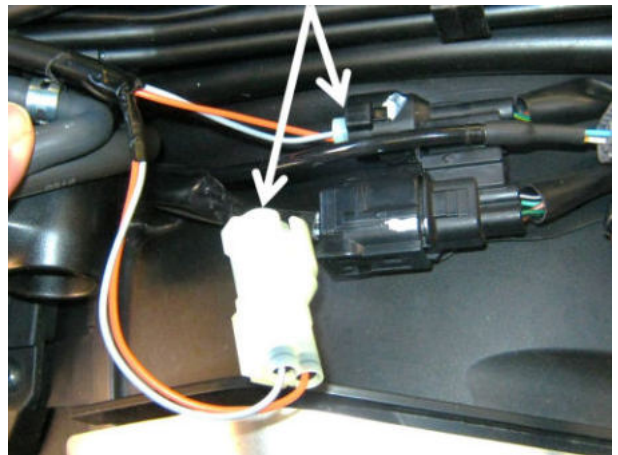
Disconnect the plug.



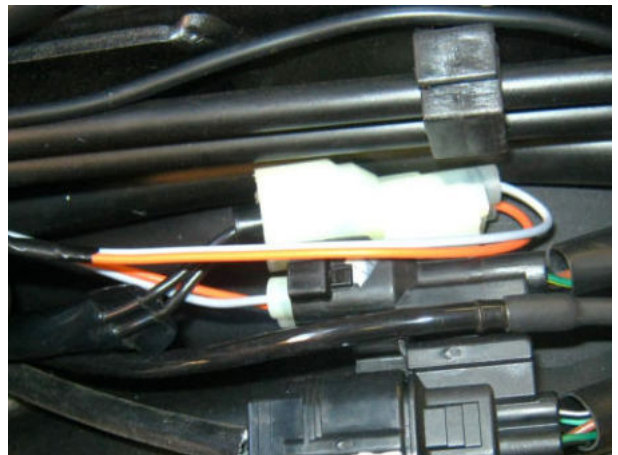
Identify the cruise control power/brake sensor branch.

This branch has a pair of two-way plugs on orange and grey wires.

Connect these plugs to the bike's brake light switch plugs.



Tuck the new connectors next to the bike's brake light switch plug.



Tach sensor connection.

Locate the bike's ignition coil on the right side of the frame spine, near the coolant pressure cap.

Check the wire going to the upper terminal on the coil (arrowed).



The wire should be pink.

If the wire is black/white, check the wire on the other terminal on the same ignition coil, one wire is pink, the other black/white.



Disconnect the pink wire from the ignition coil.



Identify the cruise control tach sensor wire. This is a thick yellow wire fitted with a 'piggyback' spade terminal.

Route the cruise control tach sensor wire to the bike's pink ignition coil wire.

Connect the pink wire to the piggyback terminal.



Connect the yellow tach sensor wire to the ignition coil terminal.



Throttle-grip Position Sensor (TPS) Connection.

There is a couple of connectors on the right side of the bike, behind the frame front downtube.

Among these is a black 6-way connector. This connector is the TPS sensor connector.



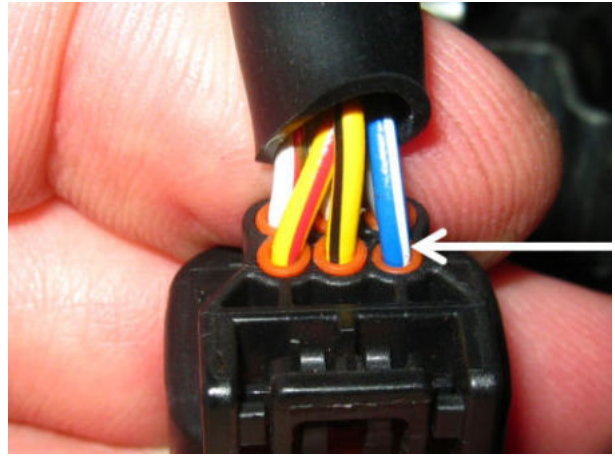
The TPS sensor connector.



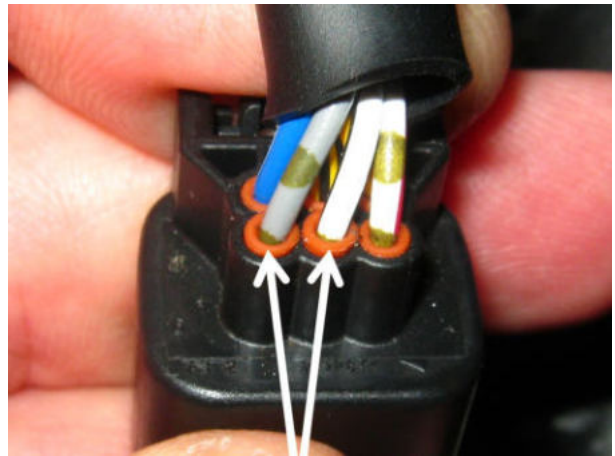
Disconnect the TPS plug.



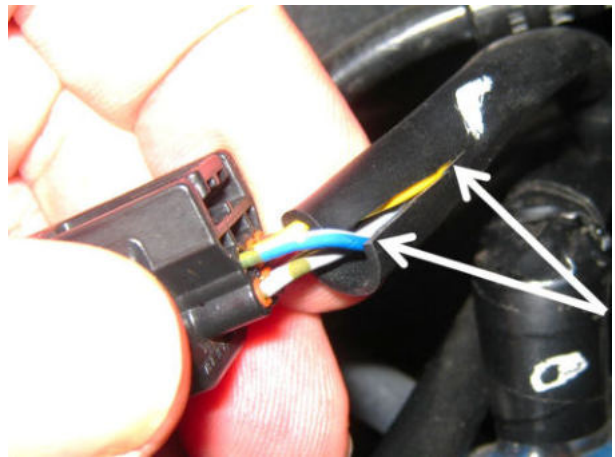
The blue/white wire in the top row must be backed out of the plug.



The grey and white/black wires must be backed out of the bottom row of the plug.



Carefully slit the plastic tubing covering the wires so you have some room to back out the three terminals.

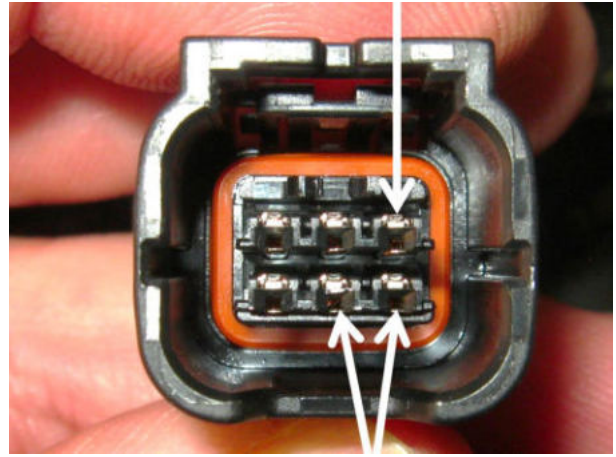


Use a small screwdriver to gently lever out the white terminal retainer from the plug. Remove the retainer from the plug.



The three terminals to be removed

The top right has the blue/white wire.
The bottom right has the grey wire.
The bottom middle has the white/black wire.

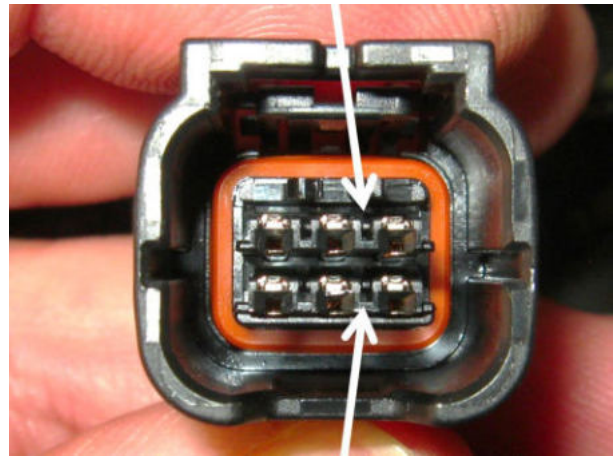


The terminal extractor tools must be inserted into the slots on either side of the terminal to be removed.

The upper slot arrowed is used to back out the upper right terminal on the blue/white wire.

The lower slot arrowed is used to back out the other two terminals on the grey and white/black wires.

If you purchased the tools from Motor Cycle Cruise Controls, the tool needed is marked with red paint.

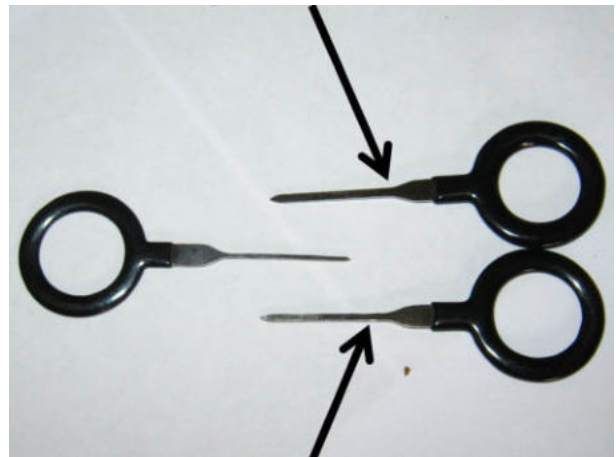


Locate the terminal extractor set in the cruise control parts bag if you purchased the set.

There are three of these extractors in the set, you want the two with the widest blades (arrowed).

Use the widest blade on one side of the terminal. If you cannot remove the terminal with one blade, use the second blade in the slot on the other side of the terminal being removed.

The width of the blade on this tool is 1.4~1.5mm and the thickness of the blade is 0.5~0.6mm.



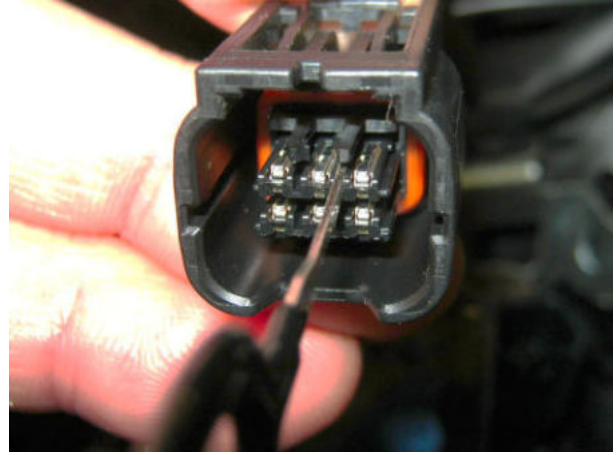
NOTE: - Trying to get consistent sourcing for these tools is difficult, and the quality of the tools is also not consistent. The end of the tool should have a smooth curve on both sides coming to a point. We have observed in some cases the tool tip is not formed correctly, and sometimes have a blunt end instead of the point. If your tool has a blunt end, use a fine file to form the end into a curve to a point. It may be better to curve only one side of the tool and leave the other side flat. This may make the tool easier to use in this application.

Insert one extractor in the slot beside the terminal to be extracted.

Insert the tool so the tip of the tool is pointed down slightly.

It has to make contact with a latch inside the connector and lift the latch up away from the terminal.

You will probably feel some resistance as the tool is inserted when it contacts the latch.

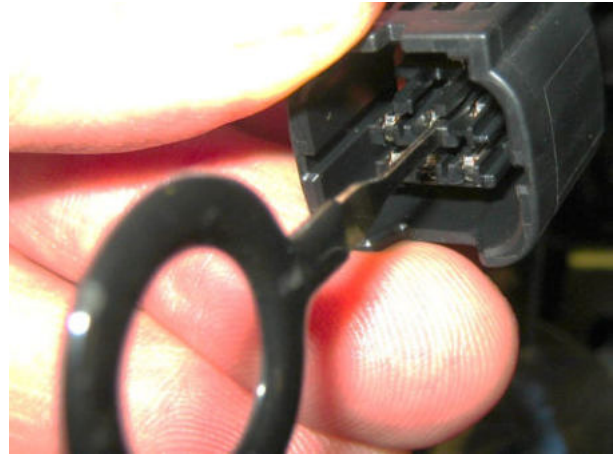


GENTLY force the tip of the extractor under the latch so it can lift it away from the terminal.

While pushing the tools inward, also lift the handle end of the tool up slightly to help lift the latch.

While doing this, gently push the wire in to encourage the latch to release from the terminal.

You may hear a slight 'click' when the latch is released from the terminal.

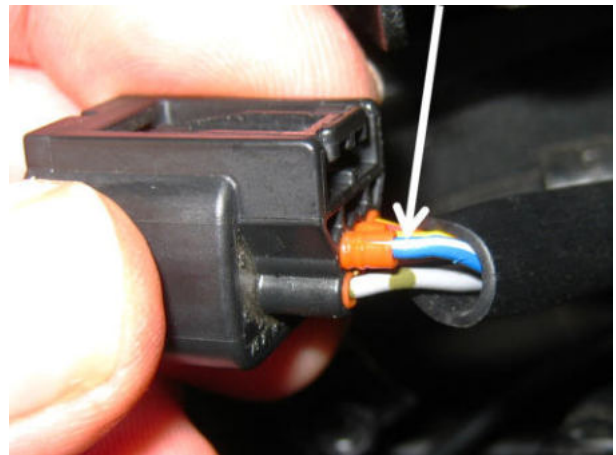


Gently pull on the blue/white wire to extract the terminal from the connector.

If necessary, use the second tool on the other side of the terminal, but it should not be necessary.

While working the tools to release the latch, GENTLY push and pull on the wire until it is released, and the wire and terminal will come out of the housing.

DO NOT PULL HARD ON THE WIRE. Once the latch is released the wire will come out quite easily.

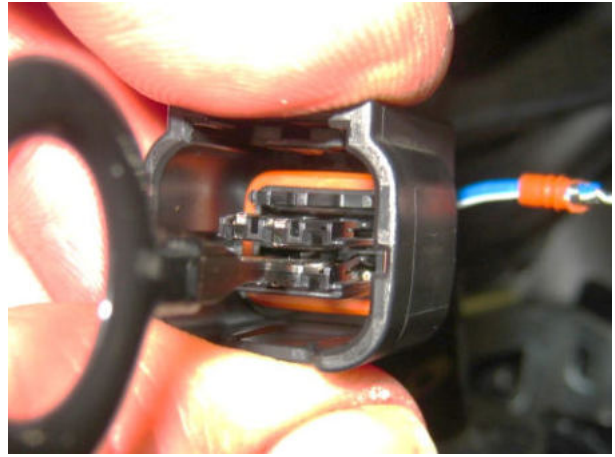


The blue/white wire and terminal out of the plug.

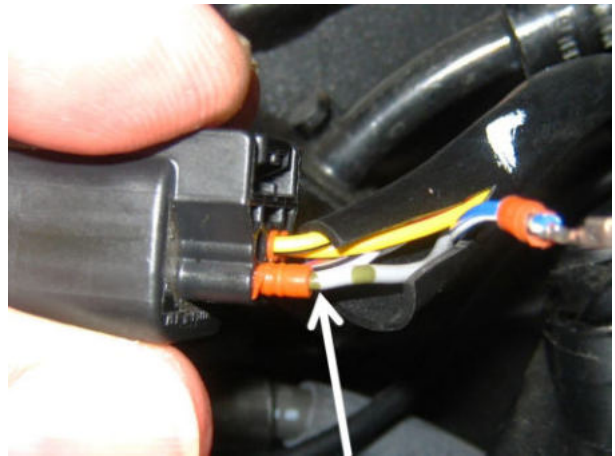
Remove the extractor tool from the housing.



Insert the tool into the slot between the grey and white/black wires.



Gently pull the grey wire out of the connector.



Gently pull the white/black wire out of the connector.

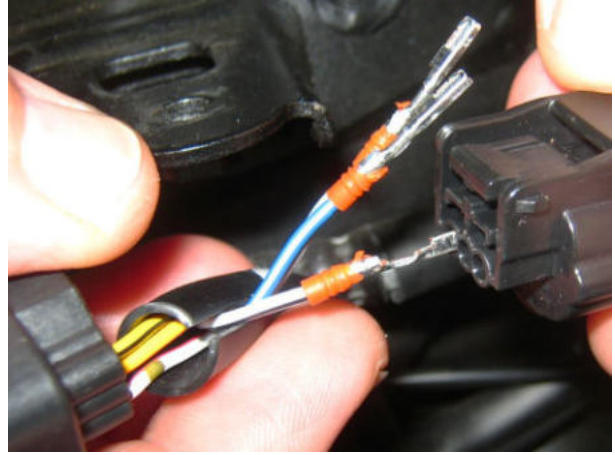


The three wires out of the connector.



Locate the 3-way terminal housing the parts bag.

Insert the bike's wires and terminals from the 6-way plug into the 3-way plug.



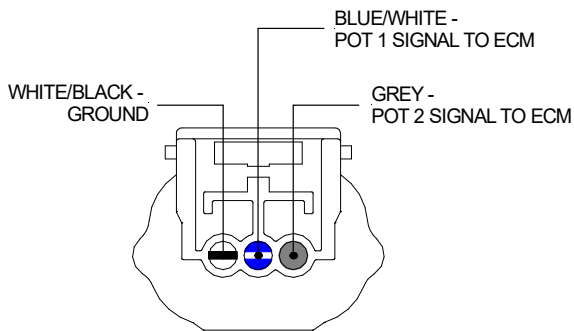
With the **latch** on the **top** of the plug (latch side up):

Insert the white/black wire into the left hole.
Insert the blue/white wire into the centre hole.
Insert the grey wire into the right hole.

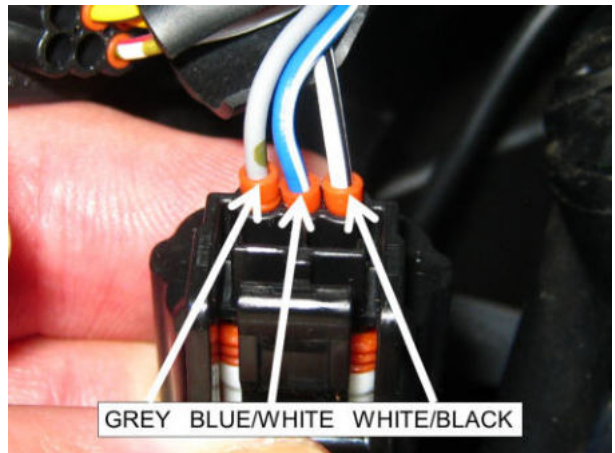
NOTE: - These wire positions are critical. The bike's throttle will not work if they are not correct.



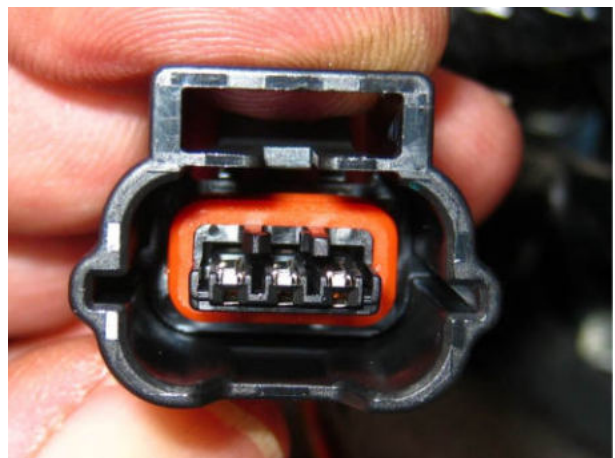
The three wires and terminals in the new plug with the latch wide towards you.



VIEW FROM REAR (WIRE-SIDE ENTRY) OF PLUG

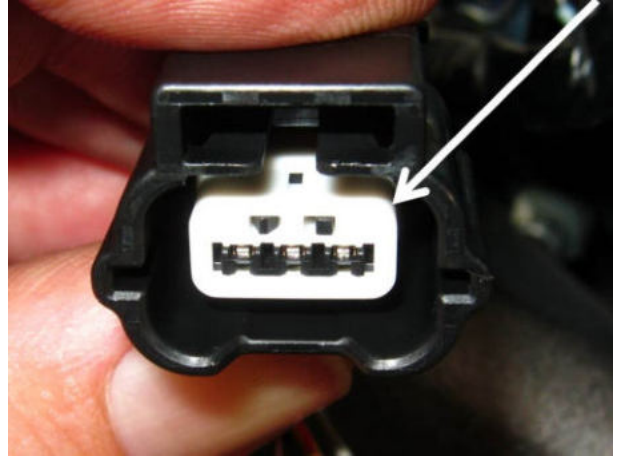


The three wires and terminals inserted into the plug.



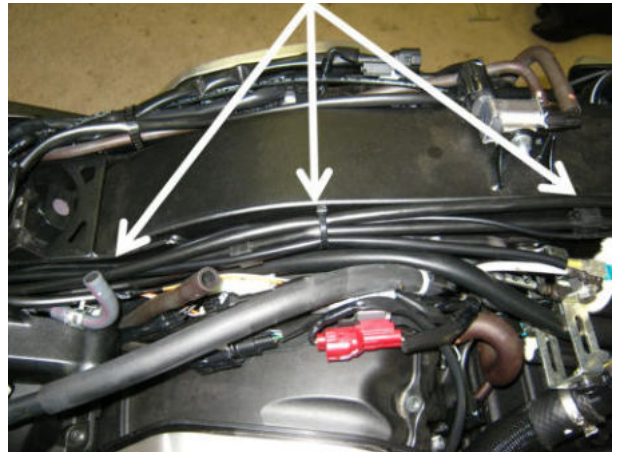
Locate the secondary terminal retainer in the parts bag and insert it into the plug.

NOTE: - The retainer will not go all the way in if any of the terminals are not fully inserted.



Route the cruise control TPS branch to the bike's TPS plug.

Route the wire as high as possible along the right side of the frame centre spine to keep the branch as far away from the ignition coil as possible.



Route the wire as high as possible along the right side of the frame centre spine to keep the branch as far away from the ignition coil as possible.



The bike's 6-way plug with the three empty terminal holes.

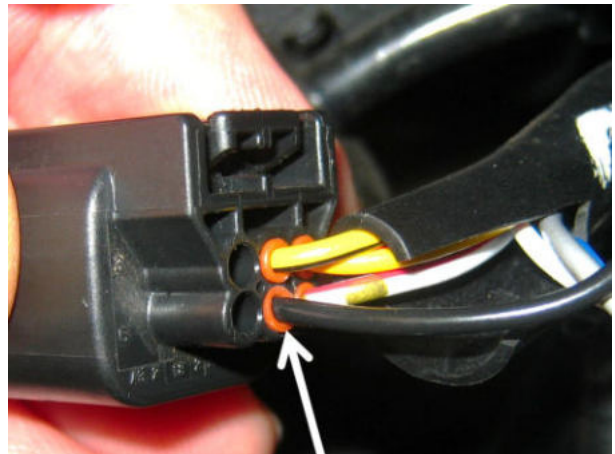


Route the cruise control TPS branch to the bike's TPS plug.

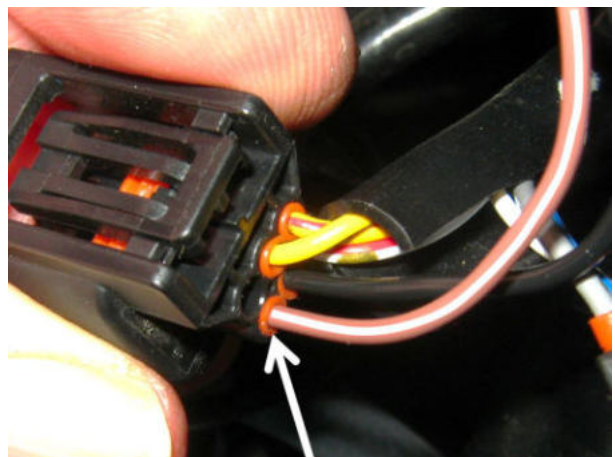
Insert the black wire into the hole that the white/black wire was fitted to.



Insert the terminal all the way and ensure it 'locks' into the housing.



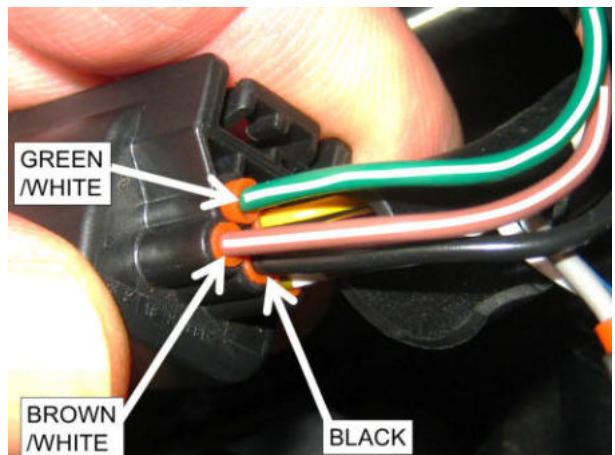
Insert the brown/white wire into the hole that the grey wire was fitted to.



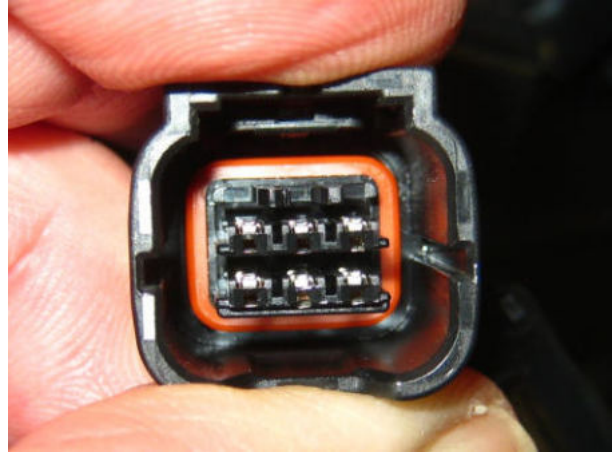
Insert the green/white wire into the hole that the blue/white wire was fitted to.

Check the positions of the wires compared to the photo.

NOTE: - These wire positions are critical. The bike's throttle will not work if they are not correct.

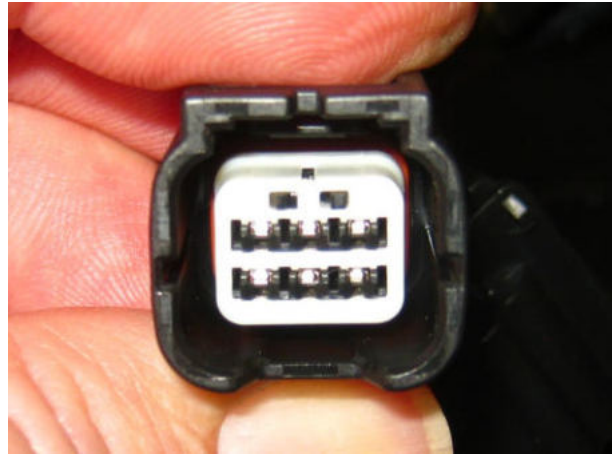


Check that all three terminals are fully inserted and locked into the plug.



Replace the white terminal retainer in the plug.

NOTE: - The retainer will not fit if the terminals are not fully inserted.



Connect the two halves of the 3-way plug provided in the cruise control kit.

Take careful note of the wire colours.

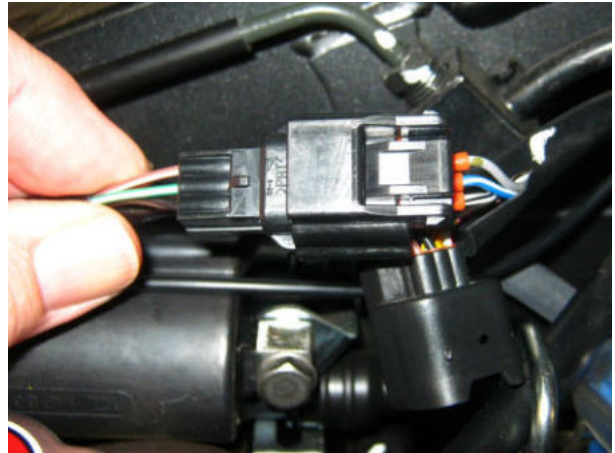
The bike's white/black wire should connect to the cruise control's black wire.

The bike's blue/white wire should connect to the cruise control's green wire.

The bike's grey wire should connect to the cruise control's brown wire.

If these are not correct, disconnect the plug and back out and replace the wires in the correct positions.

NOTE: - These wire positions are critical. The bike's throttle will not work if they are not correct.



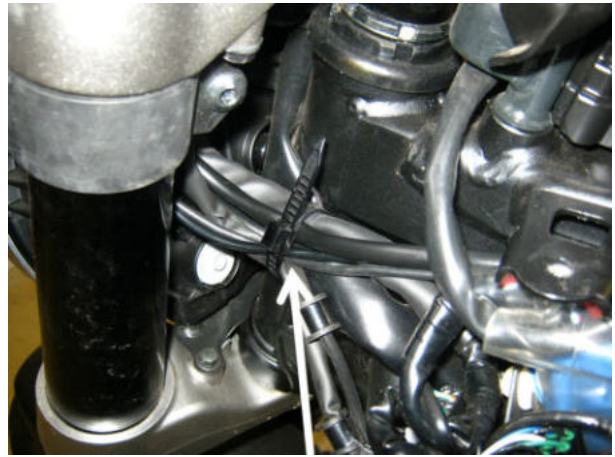
Re-connect the bike's 6-way TPS plugs



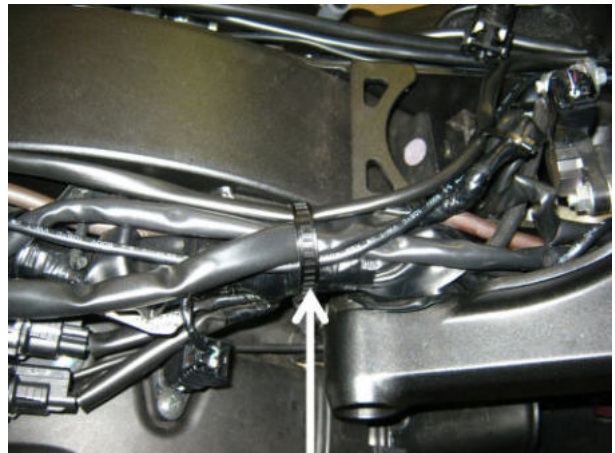
Finishing up.

Fit cable ties where necessary to hold the wires and cables in position. Take care to ensure that the wires will not be damaged by any moving or stationary parts.

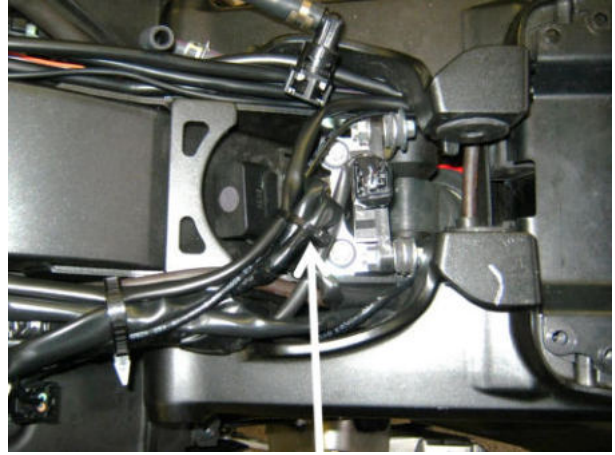
Use the bike's cable tie to hold the control switch and clutch sensor wires next to the steering head.



Use the bike's cable tie to hold the control switch and clutch sensor wires at the rear of the frame central spine.



Fit a cable tie here above the ABS modulator.



Fit at least one cable tie to hold the TPS harness to the fluid pipe to hold the TPS wires as high as possible next to the central frame spine. This is to keep the wires as far away as possible from the bike's ignition coil.



Fit a second cable tie to hold the TPS harness to the fluid pipe to hold the TPS wires as high as possible next to the central frame spine. This is to keep the wires as far away as possible from the bike's ignition coil.



Check and fit cable ties to prevent damage by any moving or stationary parts.

Re-fit the fuel tank to the bike.

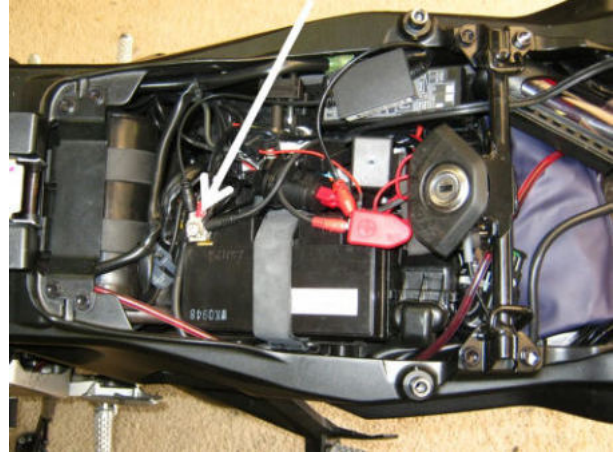
Lower the fuel tank and fit the mounting bolts if desired.

Ground connection.

Check for any of the bike or cruise control wires not yet connected or re-connected.

Re-connect the battery cable to the negative terminal of the battery.

Note: - The cruise control does not have a separate ground connection wire to the battery, ground is sourced via the TPS connection.



Your cruise control is now ready for calibration and testing!

8. THROTTLE POSITION SENSOR CALIBRATION AND TESTING.

Explanation:

The cruise control has to ‘learn’ how the throttle twist grip on the bike works electrically. The calibration process ‘teaches’ the cruise control what signals to send to duplicate the operation of the throttle twist grip.

Good cruise control response and operation requires that the cruise control knows exactly the point where the engine speed is about to increase from idle. On many TBW (Throttle By Wire) vehicles, the engine does not respond to the throttle until some ‘free play’ is taken up in the grip. In order to respond quickly at low speeds, the cruise control must ‘know’ where the ‘free play’ stops and the engine actually starts to respond to throttle.

The following procedure is designed to do, and test, the throttle twist grip calibration procedure.

Usually this model responds quickly and does not need any ‘free play’ compensation.

NOTE: - During this procedure, the engine must be started while the cruise control is in a calibration mode. If the battery voltage drops too much while starting the engine, the cruise control will ‘reboot’ (turn off and back on again), and this will ‘drop’ the cruise out of calibration mode. This is NOT a disaster, there is an alternate procedure if this happens, but it is simpler if the cruise does stay powered up while the engine is started. In most cases, if you start the engine and warm it up before you perform the following procedures, this will make the cruise more likely to stay powered up, as a warm engine requires less power from the battery to start, AND running the engine will boost the battery voltage bit as well.

For those reasons, we recommend you start the engine and warm it up for a couple of minutes before doing the TPS Calibration and Testing.

Enter diagnostic mode:

Make sure the ignition switch is OFF & the Engine Stop switch (Kill switch) in the ‘ON’ or ‘Engine Run’ position;

Ensure the ‘Engine Stop (Kill) Switch’ is in the ‘Engine Run’ position.

Press and HOLD the SET and ON-OFF buttons on the cruise control switch. Turn the ignition switch on. DON'T START THE ENGINE. Wait until the indicator light on the switch comes on green momentarily or the back lights behind the buttons come on, then release the SET and ON-OFF buttons. Do NOT start the engine.

Apply and release the front brake, the light on the switch should come on green while brakes are applied and turn off when the brakes are released. If the light does not come on, turn the ignition off and try again from 'Enter diagnostic mode'.

Press and release the SET, RES, and ON-OFF buttons, one at a time, don't press each button more than once or twice as this may cause the bike's engine management to produce a throttle sensor fault. Make sure the light on the switch comes on green when each button is pressed and goes off when the button is released. This test confirms that the buttons are working correctly.

Apply and release the front brake.

Do NOT turn the ignition off, move to the next section below.

Enter TPS (Throttle Position Sensor) Calibration mode:

While still in diagnostic mode, press and HOLD the ON-OFF button (green light). While holding the ON-OFF button, press and release the SET button six (6) times. The green light will go out on the first press, and at the 6th press the light will come back on red. Release the ON-OFF button when the light comes on red.

Make sure the throttle is fully released (idle position).

Press and release the SET button. The light will change to green when the button is pressed and go back to red when released.

Twist the grip to apply full throttle and hold it.

Press and release the RES button. The light will change to yellow when the button is pressed and go back to red when released.

Release the throttle.

If you are not happy that the throttle position is correct in either position, you can repeat the procedure (move the throttle to the appropriate position, hold it there, press SET for idle position or RES for full throttle position).

Do NOT turn the ignition off, move to the next section below.

Confirming the calibration.

Press and HOLD the ON-OFF button until the red light changes to green (about 2 seconds).

Slowly apply the throttle. When the throttle position moves from fully released (idle) the light will start to flash green. It will continue to flash green as you apply more throttle.

At full throttle the light will change to solid yellow.

The calibration is correct if:

Throttle released – the light is solid (not flashing) green.

Between fully released and full throttle – flashing green.

Full throttle – solid (not flashing) yellow.

Past full throttle (should not happen) – flashing red/yellow – This should not occur; it means the calibration is NOT correct.

Less than idle (should not happen) – flashing red/yellow – This should not occur; it means the calibration is NOT correct.

Release the throttle.

Do NOT turn the ignition off, move to the next section below.

Checking throttle operation.

Press and HOLD the ON-OFF button until the green light changes to red (about 2 seconds).

Make sure that the bike is in Neutral gear position.

Observe the red light on the control switch and start the engine.

NOTE: - The light on the switch should remain solid red while starting the engine. If it does not, the battery does not have enough charge to maintain cruise operation during engine starter operation. If the light does go out, there is an alternative procedure over the page marked with an asterisk (*) that can be used to complete the calibration procedure.

If the red light stays on while starting the engine:

Wait for the engine to run/warm enough to idle at its normal idle speed.

The SET button will apply a small amount of throttle with each press; the RES button will release the throttle a small amount with each press.

Press and release the SET button slowly and regularly (about 1~2 presses per second). Each press will apply a small amount of throttle. The engine will usually start to increase speed within 1 to 3 presses, but some bikes may take more presses (up to 20 or more).

Once the engine is above idle speed, press and release the SET and RES buttons to make sure the engine responds predictably and repeatedly to the SET (increase engine speed) and RES (decrease engine speed) button operation.

Checking throttle ‘free-play’.

Note: - This procedure is to establish the exact point where the engine starts to respond to throttle movement.

Apply and release the front brake, the engine should return to idle.

Press and release the SET button slowly and regularly (about 1~2 presses per second). The engine will usually start to increase speed within 1 to 6 presses. **If it takes more than 3 presses to lift the engine off idle, keep the engine running and continue with the rest of the procedure below.**

Usually on this bike, the engine will respond (rpm will start to increase) within 1 to 3 presses, if that is the case there is no need to go any further, you can turn the ignition off. This completes the throttle calibration.

Calibrating throttle ‘free-play’.

If it takes more than 3 presses of the SET button to lift the engine off idle keep the engine running and continue with the rest of the procedure below.

If the engine speed gets too high, apply and release the front brake, the engine will return to idle.

Use the buttons to put the engine speed slightly above idle speed, then press the RES button until the engine JUST drops to idle, then press RES one (1) more time.

Press and release the ON-OFF button, the light will change to green while the button is pressed, then go back to red. The cruise control will record the throttle position.

Apply and release the brake.

Press and release the SET button, the engine speed should start to increase within 1~3 presses. Pressing the RES button a few times should return the engine to idle reliably. Applying the front brake will release the throttle completely.

Repeat the last two lines a couple of times to ensure the result is predictable and repeatable.

NOTE: - If the engine does not return to idle using RES or it takes more than 3 presses of SET to lift off idle after brake application, return to the start and repeat the calibration procedure from the start.

Apply and release the brake. Turn the ignition off. This completes the throttle calibration.

Move on 3 pages to ‘DIAGNOSTIC MODE TESTING’.

If the red light does NOT stay on while starting the engine.

If the indicator light on the control switch turns off while starting the engine, it means power to the cruise control is turning off while the starter motor is in operation. This will re-boot the cruise control in its normal operating mode. It will retain the calibration you have done, but the rest of the calibration procedure is unable to be completed.

The following different procedure allows you to complete the calibration and test the free play.

Because the cruise is ‘turned off’ while starting the engine, we now have to make sure the cruise control re-starts in diagnostic mode after the engine is started.

With the ignition switch OFF;

Press and HOLD the SET and ON-OFF buttons on the cruise control switch. While holding the buttons, turn the ignition switch on and start the engine. Wait until the indicator light on the switch comes on green momentarily or the back lights behind the buttons come on, then release the SET and ON-OFF buttons.

Apply and release the front brake, the light on the switch should come on green while brakes are applied and turn off when the brakes are released. If the light does not come on, turn the ignition off and try again.

Wait for the engine to warm enough to idle at its normal idle speed.

The SET button will apply a small amount of throttle with each press; the RES button will release the throttle a small amount with each press.

Press and release the SET button slowly and regularly (about 1~2 presses per second). Each press will apply a small amount of throttle. The engine will usually start to increase speed within 1 to 3 presses, but some bikes may take more presses (up to 20 or more).

Once the engine is above idle speed, press and release the SET and RES buttons to make sure the engine responds predictably and repeatedly to the SET (increase engine speed) and RES (decrease engine speed) button operation.

Note: - This next procedure is to establish the exact point where the engine starts to respond to throttle movement.

Apply and release the front brake, the engine should return to idle.

Press and release the SET button slowly and regularly (about 1 press per second) and count the number of presses until the engine JUST lifts off idle. The engine will usually start to increase speed within 1 to 6 presses.

Press the RES button ONCE, check that the engine returns to idle. If the engine has not returned to idle, press RES ONCE again.

The **‘free play count’** you need to remember is the number of presses of SET, less the number of presses of RES (for example, 6 SET minus 1 RES = 5 presses).

Apply and release the front brake.

Press and release the SET button slowly and regularly (about 1 press per second) the number of times of our **‘free play count’**. Check that the engine speed has not increased.

Now press the SET button one more time. The engine speed should just start to increase. If it does, this confirms that your **‘free play count’** is correct. DON'T turn the ignition off.

If the **‘free play count’** number is 1~3, you have finished the procedure.

If the **‘free play count’** number is 4 or above you should follow the rest of this procedure to allow for this in the throttle calibration.

DON'T turn the ignition off. Stop the engine using the ‘engine stop’ or ‘kill’ switch.

Turn the ‘engine stop switch’ back to the ‘run’ position.

Apply and release the front brake. You should get a green light with the brake applied, and it should go out when the brake is released. This confirms that the cruise control is still in diagnostic mode.

Enter TPS calibration mode. While still in diagnostic mode, press and HOLD the ON-OFF button (green light). While holding the ON-OFF button, press and release the SET button six (6) times. The green light will go out on the first press, and at the 6th press the light will come back on red. Release the ON-OFF button when the light comes on red.

Make sure the throttle is fully released (idle position).

Press and release the SET button. The light will change to green when the button is pressed and go back to red when released.

Twist the grip to apply full throttle and hold it.

Press and release the RES button. The light will change to yellow when the button is pressed and go back to red when released.

Release the throttle.

If you are not happy that the throttle position is correct in either position, you can repeat the procedure (move the throttle to the appropriate position, hold it there, press SET for idle position or RES for full throttle position).

Confirm the calibration. Press and HOLD the ON-OFF button until the red light changes to green (about 2 seconds).

Slowly apply the throttle. When the throttle position moves from fully released (idle) the light will start to flash green. It will continue to flash green as you apply more throttle.

At full throttle the light will change to solid yellow.

The calibration is correct if:

Throttle released – the light is solid (not flashing) green.

Between fully released and full throttle – flashing green.

Full throttle – solid (not flashing) yellow.

Entering the ‘free play count’. Press and HOLD the ON-OFF button until the green light changes to red (about 2 seconds).

Apply and release the front brake.

Press and release the SET button slowly (~1 press per second) the number of times you got in the ‘**free play count**’. Press and release the ON-OFF button, the light will change to green while the button is pressed, then go back to red. The cruise control will record the throttle position. Apply and release the brake. Turn the ignition off.

Confirm the ‘free play count’. With the ignition switch OFF;

Press and HOLD the SET and ON-OFF buttons on the cruise control switch. While holding the buttons, turn the ignition switch on and start the engine. Wait until the indicator light on the switch comes on green momentarily or the back lights behind the buttons come on, then release the SET and ON-OFF buttons.

Apply and release the front brake, the light on the switch should come on green while brake is applied and turn off when the brake is released. If the light does not come on, turn the ignition off and try again.

Wait for the engine to warm enough to idle at its normal idle speed.

Press and release the SET button slowly and regularly (about 1 press per second). Each press will apply a small amount of throttle. The engine should now start to increase speed within 1 to 2 presses, 3 is also OK, but it should be 1~2 presses.

Press and release the RES button to reduce speed back to idle.

If the engine speed increases within 1~3 presses or SET, and pressing RES returns the engine to idle, the throttle calibration is complete.

Apply and release the brake. Turn the ignition off. This completes the throttle calibration.

DIAGNOSTIC MODE TESTING.

This procedure tests all the electrical connections other than the TPS sensor connection that was calibrated and tested in the previous procedure.

Enter diagnostic mode:

With the ignition switch OFF;

Press and HOLD the SET and ON-OFF buttons on the cruise control switch. Turn the ignition switch on. DON'T START THE ENGINE. Wait until the indicator light on the switch comes on green momentarily or about 3~5 seconds then release the SET and ON-OFF buttons. Do NOT start the engine.

Apply and release the front brake, the light on the switch should come on green while brakes are applied and turn off when the brakes are released. If the light does not come on, turn the ignition off and try again from 'Enter diagnostic mode'.

Test electrical connections:

1. **Button test** - Press and release the SET, RES, and ON-OFF buttons, one at a time. Make sure the light on the switch comes on green when each button is pressed and goes off when the button is released. This test confirms that the buttons are working correctly.
2. **Front brake test** – (Repeated) Apply and release the front brake, the light on the switch should come on green while brakes are applied and turn off when the brakes are released;
3. **Rear brake test** - Apply and release the rear brake, the light on the switch should come on green while brakes are applied and turn off when the brakes are released;
4. **Manual shift only - Clutch test** – *The motorcycle must be in gear and the side stand (kick stand) retracted (up) for this test on most motorcycles.* Apply and release the clutch, the light on the switch should come on green while clutch is pulled in and turn off when released.

If the light does NOT come on or comes on when the clutch is released, disconnect BOTH wires from the clutch switch. Disconnect the cruise control BLUE wire from the bike's black wire, and re-connect it to the OTHER black wire. Then connect the wires to the clutch switch. It does NOT matter which terminals the wires are on.

Apply and release the clutch, the light on the switch should come on green while clutch is pulled in and turn off when released. Select Neutral when finished;

5. **Tach signal test** – *The motorcycle must be in neutral to conduct this test.* Start the engine and watch the RED LED inside the cruise control computer, next to the wiring harness plug. It should start flashing and flash faster as the engine revs are increased using the throttle;
6. **Speed signal test** – *This test can be done on most bikes with the motorcycle on the centre stand, with the rear wheel clear of the ground – HOWEVER, this may cause a fault flag on the bike’s stability control system. As a result, this test is best done by riding the bike.* Engage 4th or 5th gear and use the throttle to drive the rear wheel at about 30 to 40kph (or ride the bike), observe the light on the switch, it should flash regularly with speed signal, the flash rate will change with speed. Remember that operating other controls (brake, clutch etc) will also make the green light come on as well.

This completes the diagnostic tests. Turn the ignition off to exit diagnostic mode.

This completes the installation and testing of your new Throttle-by-Wire Cruise Control.

NOTE: If you are happy with the unit set to 2 KPH speed increment (speed bump) adjustments, no other calibration or setup is required.

If you need the unit set to 1 or 2 MPH or 1 KPH speed increments please see over the page to change the settings.

Speed increment adjustment

- Turn the ignition switch OFF. Press and HOLD the RES and ON-OFF buttons, turn the ignition switch ON, **HOLD THE BUTTONS UNTIL THE SWITCH INDICATOR LIGHT COMES ON GREEN (a few seconds), then release the buttons.** The cruise control is now in speed pulse rate calibration mode.
- Press and HOLD the ON-OFF button. The indicator light will start flashing green. It will normally flash a number of times to display the setting (twice for setting #2) then pause for a couple of seconds, then flash the number again.
- While HOLDING the ON-OFF button, press SET to increase the number, press RES to decrease the number. #1 = 1 kph (0.6 mph). #2 = 2 kph (1.2 mph). #3 = 1 mph (1.6kph). #4 = 2mph (3.2 kph).
- Count the number of flashes to confirm your selection.
- Release the ON-OFF button when you are finished making this adjustment (the light will go back to green, no flashing), then turn the ignition switch OFF. This completes the speed increment adjustment.

Changes to customise the operation of the original cruise control switch.

The only ‘useful’ change here is to allow the cruise control to ‘remember’ if it was turned on or not when the ignition switch was last turned off. Normally the cruise control is turned ‘off’ when the ignition is turned on, but it can be configured to ‘remember’ if it was turned on or off and stay that way the next time the ignition is turned on.

There are also calibration routines available to 'calibrate, the cruise control computer to the SET and RES buttons on the cruise control switch, but it should never be necessary to use this function with the original control switch.

How to configure the cruise control switch functions.

Turn the ignition switch off.

Connect the new control switch to the cruise control wiring harness.

To enter control switch configure mode:

Observe the lights on the cruise control computer. The indicator light on the cruise control switch (if fitted) may illuminate at various times during this procedure. Ignore them, these lights are irrelevant.

There are red and green lights are INSIDE the cruise control computer on the PCB. The lights are visible through the plastic on each side of the wiring harness connector. The Green light is also visible from above, but the Red light is only visible from the side.

Apply and hold the brakes (front or rear brake).

Turn the ignition switch ON. Wait for the RED computer light to start flashing and/or the GREEN computer light to come on (1~2 seconds after ignition on). Hold the brakes.

Within the next 10 seconds, press and release the cruise control ON-OFF button 5 times.

Both the red and green computer LED's will come on and stay on when you have completed 5 switching operations.

Release the buttons and the brakes.

Note: -If both the red and green computer LED's are not on steady (must be on steady, not flashing), return to the start.

You are now in control switch configuration mode.

The following table shows the functions to be configured, the procedure and the light sequence of the red and green lights on the cruise control computer.

The RED LED flashes to show which parameter is being setup.

The GREEN LED flashes to show the current selection within the parameter.

Apply and release the brakes to move to the next parameter. **The number of RED flashes indicates which parameter is being adjusted.**

Use the ON-OFF button to choose the selection. Press and release the ON-OFF button to change the selection. **The number of GREEN flashes indicates the selection.**

The first parameter is to 'save' or 'not save' the ON-OFF state of the cruise control when the ignition is turned off. If you have a latched switch this parameter is irrelevant, the switch overrides this parameter.

The second parameter is to select a momentary or latched ON-OFF switch. This setting is not relevant in this application.

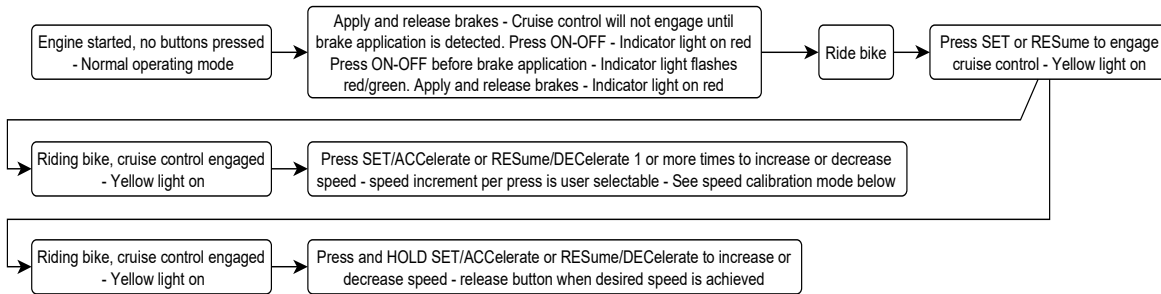
The third parameter is to assign the SET and RESume buttons to Accelerate and Decelerate function. This setting is not relevant in this application.

<u>Parameter</u>	<u>Procedure</u>	<u>Computer LED operation</u>
<p>Enter Control Switch Configure mode.</p> <p>Enter configuration sequence.</p>	<p>Apply and HOLD brake. Turn ignition ON. Wait for red and/or green computer light to come on. HOLD brake.</p> <p>Press and release ON-OFF 5 times in first 10 seconds. Release brake.</p> <p>Apply and release brake to move to the first parameter.</p>	<p>RED light flashing. GREEN light ON.</p> <p>RED light ON. GREEN light ON. Note: - if RED and GREEN lights are not on, turn ignition off and return to start.</p>
<p>1st parameter – Save last ON-OFF state.</p> <p>Last ON-OFF not saved.</p> <p>Last ON-OFF saved.</p>	<p>Press and release ON-OFF button to toggle between saved and not saved.</p> <p>→</p> <p>→</p> <p>Turn ignition switch off to save settings.</p>	<p>RED flash once.</p> <p>GREEN flash once.</p> <p>GREEN flash twice</p>

Cruise Control Menu Map

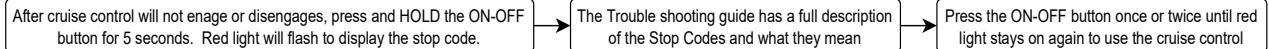
Menus for normal operation

Normal cruise control operation

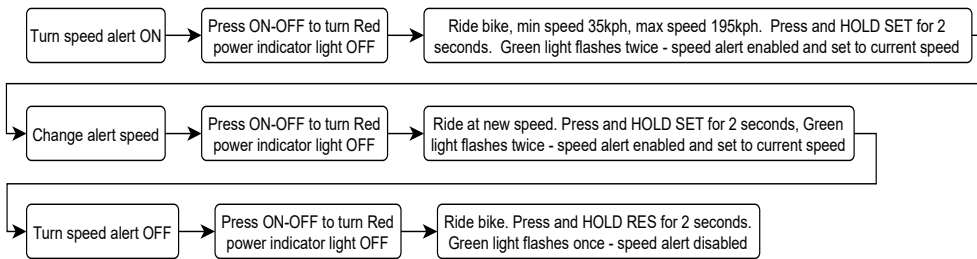


Access stop codes

This is used to diagnose why the cruise control disengages or will not engage



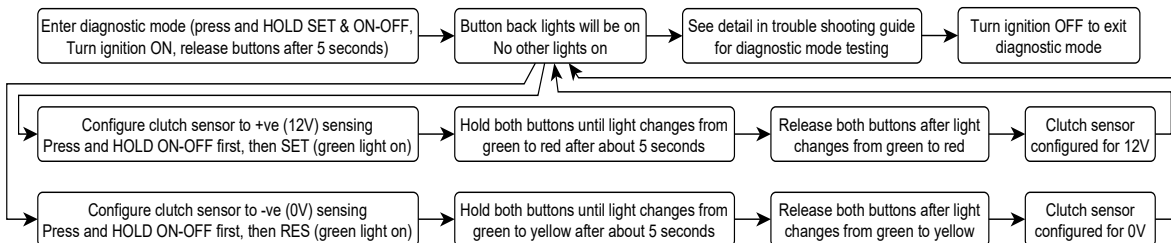
Speed Alert operation



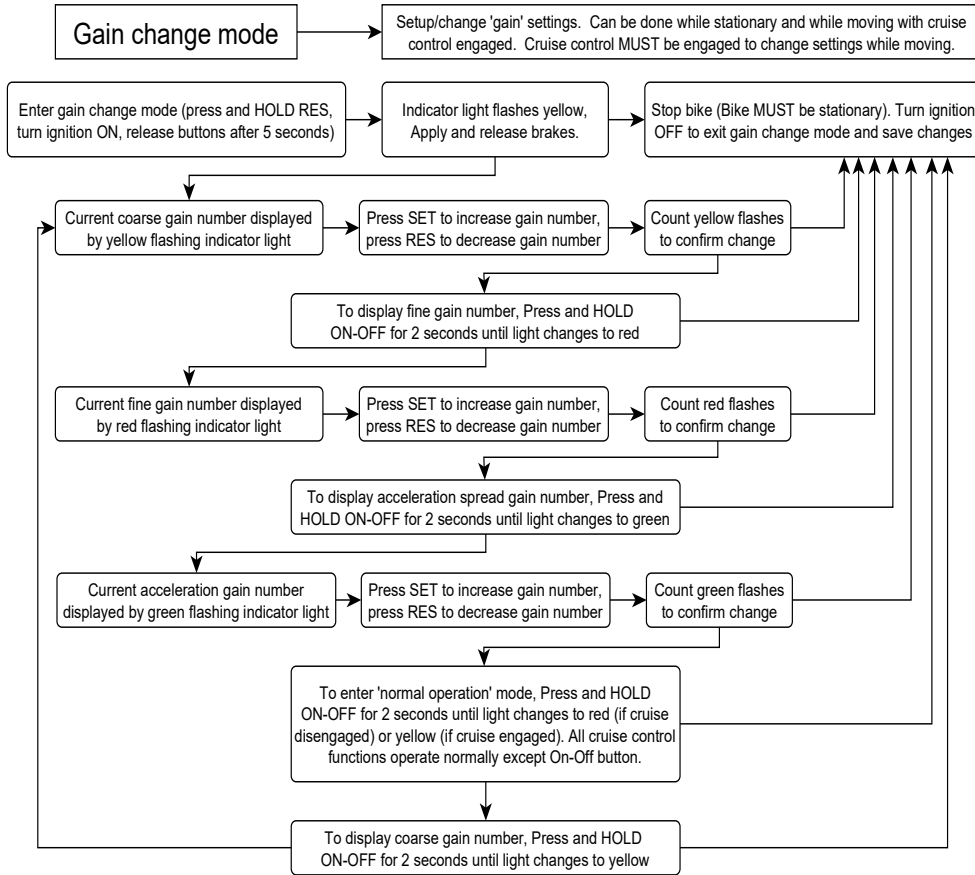
Menus for normal testing after installation.

Diagnostic mode

Test electrical and mechanical operation of cruise control
Setup clutch sensor and speed sensor configuration. Advanced throttle servo/actuator testing



Menus for ‘fine tuning’ or adjusting the cruise control performance.



Notes: -

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