# Packing list for:
# HONDA XL750 Transalp
# MCS 7230TBW Kit - 2023 & 2024 models
# MCS 7230ATBW Kit - 2025+ models

Model year 2023-2024 ☐
Model year 2025+ ☐

Slim Switch ☐
Standard Switch ☐

Multiple Order ☐

**Pack in small kit carton (MCS 002)**

| Qty | Part Number | Description | |
|---|---|---|---|
| 1 | Installation Manual for XL750 Transalp | | |
| 1 | QR Code for MCS7000 | | |
| NOTE: | Slim switch installation manual not required – included in Installation Manual for XL750 Transalp | | |
| 1 | MCS 7230 TBW | Computer configured for XL750 | HW:_____ SW:_____ |
| 1 | | Self-adhesive Velcro 7cm long | |
| 1 | MCS 7234-830M | Switch assembly (medium parts bag) | ☐ |
| **OR** | | | |
| 1 | GT-1014-160 | Slim Control Switch | ☐ |
| 1 | | Double Sided Tape 8cm long | |
| 2 | CT300BLK | Cable Ties | |
| 1 | Parts bag | (See below for contents) | |
| 1 | MCS 7231 TBW | Wiring harness for 2023 & 2024 models | |
| 1 | MCS 7231 TPS | Throttle Position Sensor harness for 2023 & 2024 models | |
| **OR** | | | |
| 1 | MCS 7233 TBW | Wiring harness for 2025+ models | |
| 1 | MCS 7233 TPS | Throttle Position Sensor harness for 2025+ models | |

**Parts bag contents (medium parts bag)**

| | | |
|---|---|---|
| 10cm | HST3 | 3mm heat shrink tube |
| 1 | | Wire paper clip (terminal insertion tool) |
| 1 | | Dressmakers pin (terminal extraction tool) |
| 10 | | 100mm cable ties |
| 10 | | 150mm cable ties |
| 6 | | 200mm cable ties |
| 4 | | 380mm cable ties |

# Motorcycle
# Electronic Throttle-By-Wire Cruise Control Installation Manual ©

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

**For Honda XL750 Transalp**
**Model years from 2023**

**26 October 2026**

MOTORCYCLE CRUISE CONTROLS

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

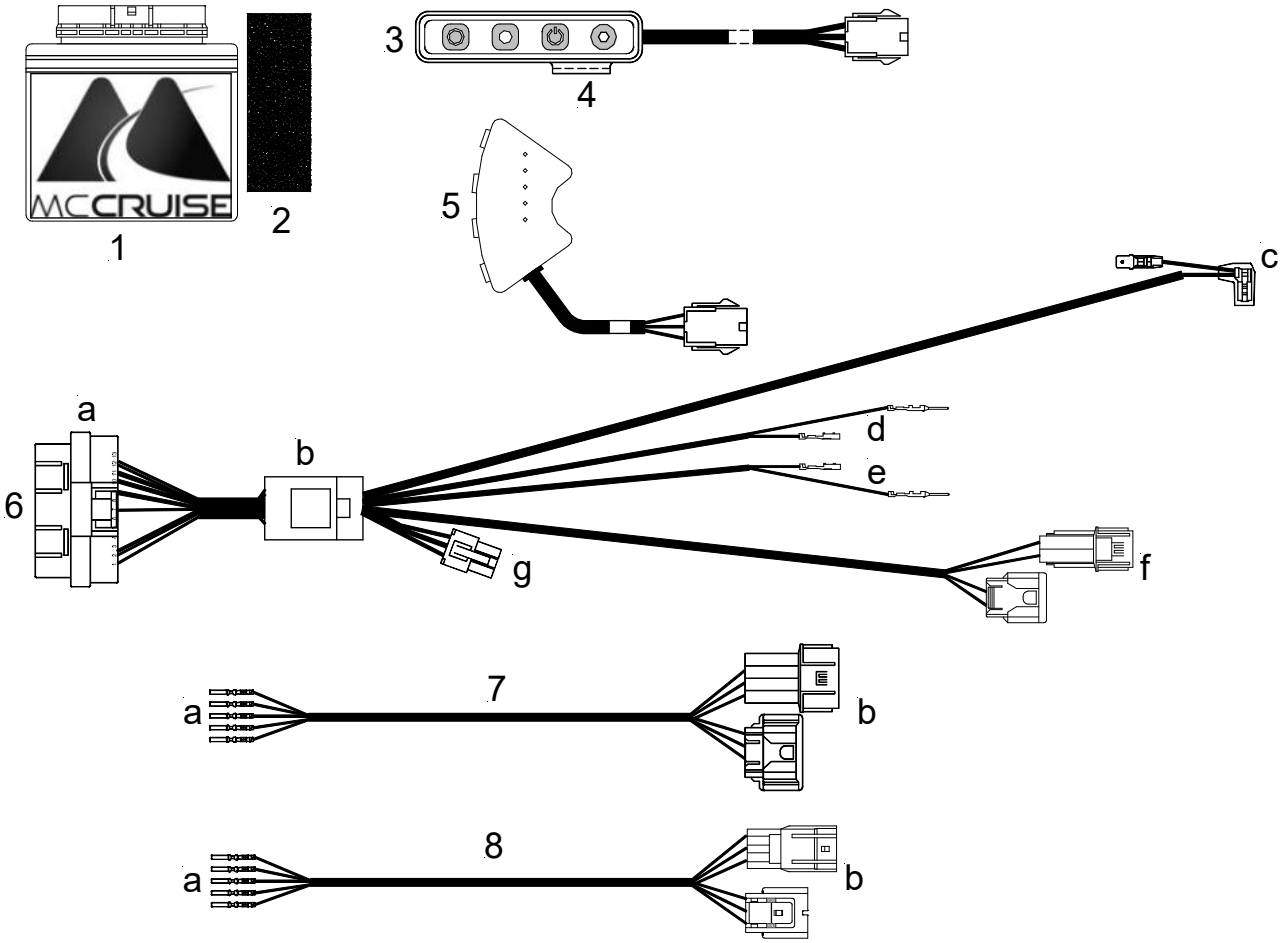
# HONDA XL750 Transalp (Throttle-By-Wire)

## Parts list for MCS 7230TBW kit 2023 & 2024

## Parts list for MCS 7230ATBW kit from 2025

| Item | Qty | Part Number | Description |
|---|---|---|---|
| 1 | 1 | MCS 7230TBW | Computer |
| 2 | 1 length | | Self-Adhesive Velcro 7cm long |
| | | | |
| | | MCS 7234 | Standard Mirror Mount Control Switch assembly |
| 3 | 1 | MCS 820-160 | Control Switch |
| 4 | 1 | MCS 830M | Switch bracket |
| | 4 | | 4 gauge x 1/2” pan head self tap screw |
| **OR** | | | |
| 5 | 1 | GT-1014-160 | Slim Control Switch. |
| | 8cm | | Mounting tape |
| | 2 | | 300mm cable ties |
| | | | |
| 6 | 1 | MCS 7231_TBW | Wiring harness 2023-24 |
| | OR | | |
| | 1 | MCS 7233_TBW | Wiring harness 2025 |
| a | | | Computer plug (26 pin) |
| b | | | Fuse holder (3 amp fuse) |
| c | | | Tach sensor (yellow wire) |
| d | | | Speed sensor (pink wires) |
| e | | | Clutch sensor (violet wires) |
| f | | | Power & brake sensor plugs (orange and grey wires) |
| g | | | Control switch plug (6 pin) |
| | | | |
| 7 | 1 | MCS 7231_TPS | Throttle Position Sensor Wiring Harness 2023&24 |
| | OR | | |
| 8 | 1 | MCS 7233 TPS | Throttle Position Sensor Wiring Harness 2025+ |
| a | | | Computer plug terminals |
| b | | | TPS connectors |
| | | | |
| | 10cm | HST3 | 3mm heat shrink tube |
| | 1 | | Wire paper clip (terminal insertion tool) |
| | 1 | | Dressmakers pin (terminal extraction tool) |
| | 10 | | 100mm cable ties |
| | 10 | | 150mm cable ties |
| | 6 | | 200mm cable ties |
| | 4 | | 380mm cable ties |
| | | | |
| | | | Information, Set up and Operation Manual |
| | | | Operation and User Manual |
| | | | Installation Manual |
| | | | Trouble shooting guide |

**Parts drawing over page**


MCCRUISE
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## Some background information for everyone on throttle-by-wire systems and cruise controls.

Frank and I at MCCruise are unapologetically conservative in our approach to this technology. The reasons are simple – even a cursory search for 'sudden unintended acceleration' on Google produces some startling results.

We cannot afford such events occurring on motorcycles – people will die – it is as simple as that. Consequently, we have made modifications and conducted exhaustive tests to ensure our kits will not cause dangerous situations. That said, with throttle-by-wire, we are totally in the hands of the motorcycle manufacturers' over-riding safety and limp-home systems kicking in appropriately. It is an area we have thought long and hard about before entering this market at all.

The other significant issue is what happens when a 'limp-home' event occurs on these vehicles. The most common response to ANY error in the signals from the twist grip/cruise control to the bike's engine management system is that the engine stops responding to throttle completely, and the engine drops to idle and sometimes stops altogether. This means that in the event of any error in signals from the twist grip and cruise control to the bike's engine management, the bike will no longer respond to throttle AT ALL, it behaves as if a throttle cable has broken. To restore control to the twist grip, the ignition switch must be turned off and back on again.

We think riders deserve to know the facts: corrosion, water ingress and electrical noise are serious potential threats on motorcycles and we do not take them lightly.

We still have some reservations generally about throttle-by-wire systems on cars and bikes, we have not heard of any safety issues with bike systems, but a search on Google will find a lot of issues with cars, and bikes use the same type of throttle-by-wire control methods that cars use.

The design of these throttle-by-wire systems means that we physically cannot build in some of the basic safety overrides we built into our previous model cruise controls (for mechanical throttle systems), so more than ever we are reliant on the integrity of the motorcycle manufacturers' throttle control systems and safety overrides and very careful installation on the part of the installer.

Researching all this, designing and testing takes time and costs money. The cost of our product reflects that. We have put a lot of time and effort into making this product as safe as we can, and as easy to install as possible.

From you, the users, point of view, if for some reason an issue does occur, pulling the clutch will prevent the bike accelerating if too much throttle is applied, and if the engine stops producing power, pulling the clutch will allow you to roll to a stop without the engine slowing the vehicle dramatically. The engine may sit on the rev limiter, but engine management systems prevent the engine over revving on all modern motorcycles. You can then use the 'kill', or engine stop switch. With the combination of clutch and kill switch YOU retain control of the motorcycle.

# 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.**

**NOTE: - If the bike is fitted with a flasher device or different LED brake light globe on the brake light system this may cause interference with the cruise control brake detection. If the cruise control will not work try disconnecting the flasher device or replacing the after market LED light with the original light. Contact us for ways to enable both your brake light flasher or different LED brake light and the cruise control.**

## 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
8. TPS CALIBRATION AND DIAGNOSTIC MODE TESTING

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

**NOTE for installers. This motorcycle is tightly packaged, there is not much space for fingers and hands, and very little space for additional components to be added to the bike. As a result, care must be taken when installing the cruise control to ensure that the cruise control components will not be damaged or may damage parts of the bike after installation is completed.**

**The installation of the cruise control also requires that small and delicate electrical terminals are backed out of connector housings. A suitable tool to do this is supplied in the kit (a dressmaker's pin). Backing out these terminals without a suitable tool is almost impossible.**

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

**Remove the rider's seat.**

Use the key lock to release the seat.

Lift the rear edge of the seat and pull to the rear to remove the seat from the bike.

**Disconnect the battery ground cable.**

Undo the bolt on the negative battery terminal (arrowed).

Pull the ground cable away from the battery to ensure it does not touch the terminal.

**Remove the left side-cover.**

Remove these two screws from the left side-cover.

Gently pull the front edge of the panel out to release the post and grommet fastener at the front edge of the panel.

**NOTE: - Do NOT TRY TO PULL THE PANEL OFF THE BIKE YET, this photo is to show the locations of the fasteners.**

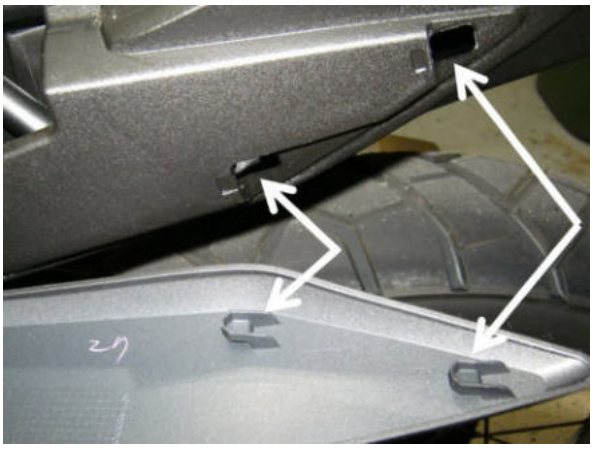
The left arrows show the post and grommet at the front edge of the panel.

The right arrows show the post and grommet in the centre of the panel.

Gently pull the middle section of the panel out to release the post and grommet fastener at the centre of the panel.

While holding the front edge of the panel out from the bike enough the clear the posts from the grommet, push the panel to the rear to release the tabs at the rear edge of the panel (see the next picture).

Remove the left side cover from the bike.



The two tabs and slots at the rear edge of the panel.

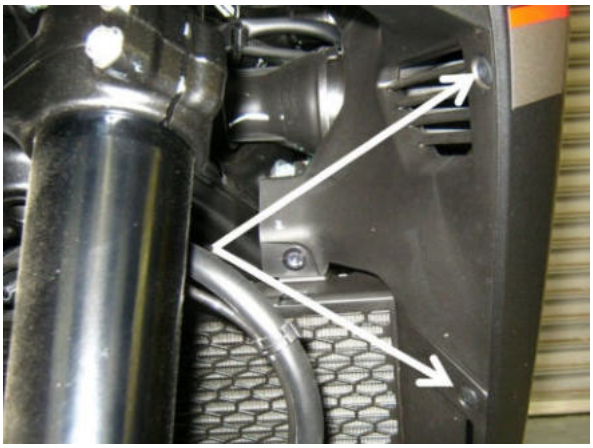
**<u>Repeat the process to remove the right side-cover.</u>**

**<u>Remove the left side fairing panel.</u>**

Remove the three screws holding the fairing panel (centre arrows).

Take note of the location of the three screws, each screw is different.

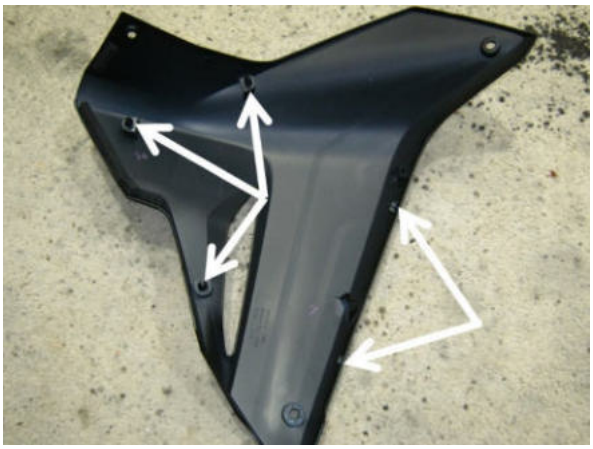
Remove the two expansion clips inside the leading edge of the panel (left arrows). See the next picture for more detail.



The two expansion clips inside the leading edge of the fairing panel.

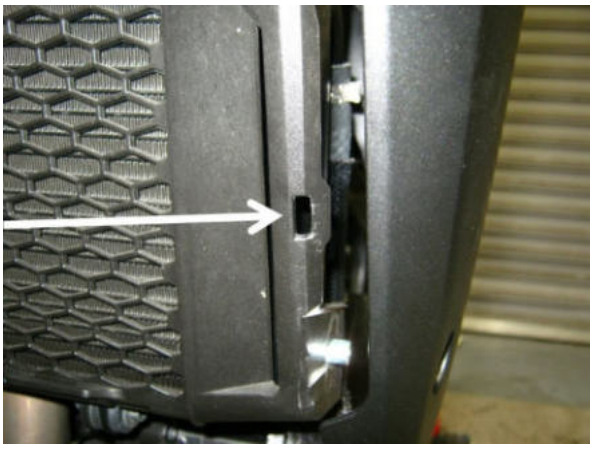
To release these clips, press the centre pin in, it will push in about 3mm (1/8”) and then the clip can be removed.

The fairing panel is held on by three post and grommet fasteners (left arrows) and two tabs on the leading edge (right arrows).



Press the inner panel **in** at the edge (arrowed) while gently pulling the edge of the fairing panel **out** (towards the front of the bike) to release the tabs on the leading edge.

There are two tabs to release, see the previous photo.

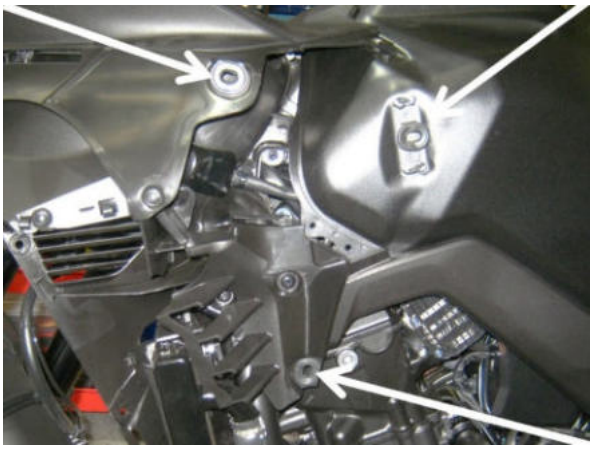


Carefully pull the panel away from the bike to release the three post and grommets fasteners.

The arrows indicate the location of the grommets.

Remove the fairing panel from the bike.

**Repeat the process on the right-side fairing panel.**



**Remove the left side inner trim panel or release it from the fuel tank.**

**NOTE: - It is not essential to remove the left side panel entirely, it just makes the installation easier with it removed. It must be disengaged from the fuel tank.**

It is necessary to remove the right side panel.

The inner panel is attached to the lower edge of the fuel tank and the inner fairing.

To release the panel from the fuel tank.

Remove the two screws indicated by the lower arrows.

Gently pull the panel outward to release the two post and grommet fasteners on the lower edge of the fuel tank (upper right arrows).

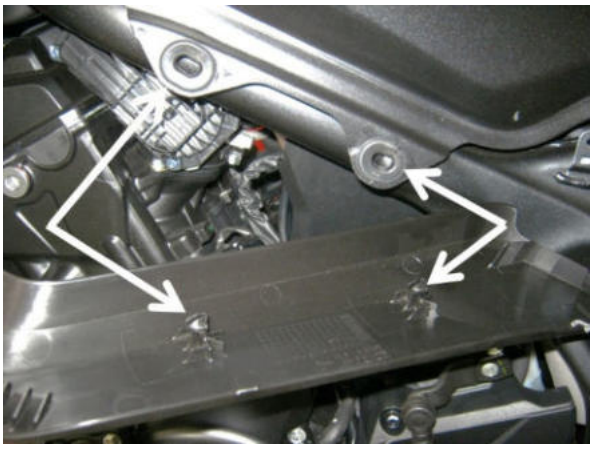
Allow the panel to hang on the remaining screws.

To remove the panel (this must be done on the right side panel).

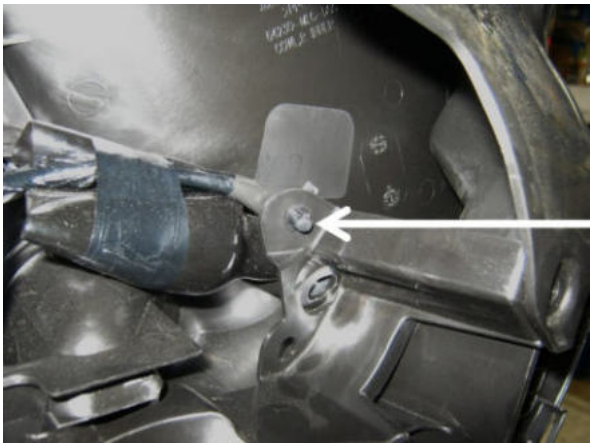
Remove the expansion clip indicated by the left most upper left arrows.

Remove the four screws indicated by the lower arrows and the second of the upper left arrows.

Gently pull the panel outward to release the two post and grommet fasteners on the lower edge of the fuel tank (upper right arrows).



The two post and grommet fasteners.



Repeat the process on the right-side inner trim panel.

**NOTE: - The right-side panel also has a clip for the wiring harness at the top front edge of the panel. Press the tabs in on the clip to release the clip from the trim panel.**

Then you can remove the panel from the bike.

**Remove the instrument panel.**

Remove the two screws indicated by the upper arrows.

Remove the two expansion clips indicated by the lower arrows.

The instrument panel is held by four post and grommet fasteners.

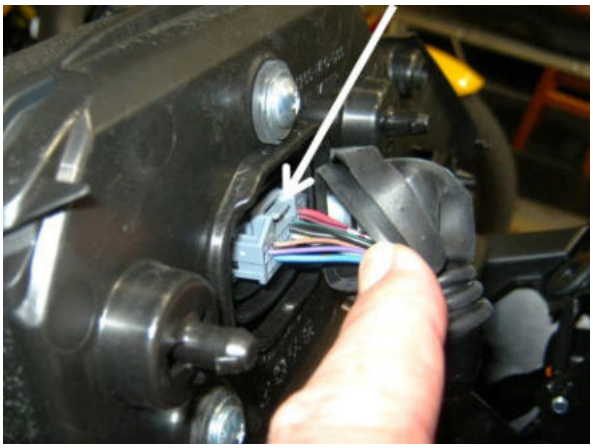
The arrows indicate the posts on the back of the instruments.

The four grommets in the fairing.

Gently ease the panel out of the fairing to release the posts from the grommets.

Pull the rubber cover back and press the release tab on the connector to disconnect the electrical plug on the back of the instruments.

Remove the instruments from the bike.



**Remove the inner fairing trim panel.**

This panel is at the front of the fuel tank and runs forward on both side to the front, below the instrument panel.

Lift the rear edge of the panel from the boss on the fuel tank (lower left arrow) on both sides.

Remove the two expansion clips on the inside edge of the panel (upper arrow) on both sides. See the next photo.

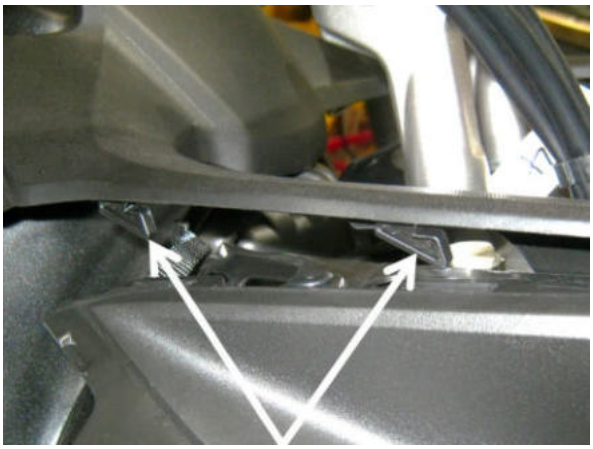
There are two clips, one each side on the inside of the panel. This photo shows the left side clip.

Remove the two screws at the front edge of the panel on both sides. This photo shows the right-side screw.

Release the wires from the hooks at the front of the panel on both sides.

Pull the panel to the rear and up to release the tabs and remove the panel (see the next photo).

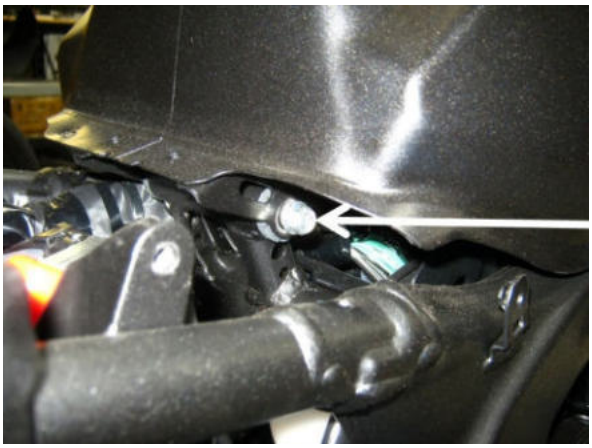
Pulling the panel to the rear will release these tabs on both sides of the panel.



**<u>Remove the fuel tank.</u>**

Loosen the pivot bolt at the rear of the fuel tank a couple of turns.

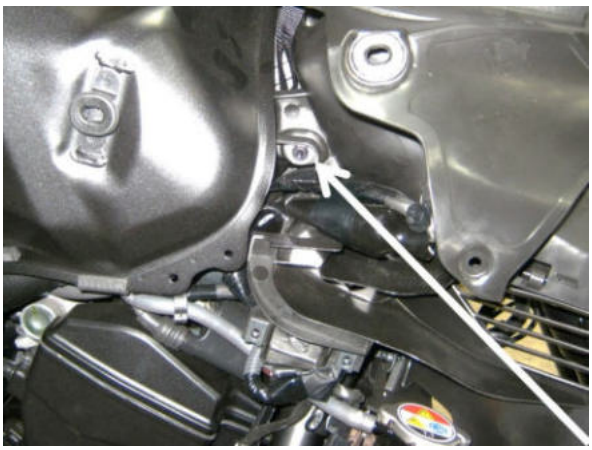
Do NOT remove the nut or bolt just loosen it 1~2 turns.



Remove the two screws - one each side - holding the inner plastic panels to the fuel tank. **See the next photo to find these screws.**

The partially hidden inner fairing panel screw, tucked in behind the leading edge of the fuel tank. Remove this screw on both sides.

Remove the two fuel tank mounting bolts – one each side - at the front of the fuel tank



Raise the front of the fuel tank and prop it up. There is a strap attached to the fuel tank to prevent the tank being lifted too high.

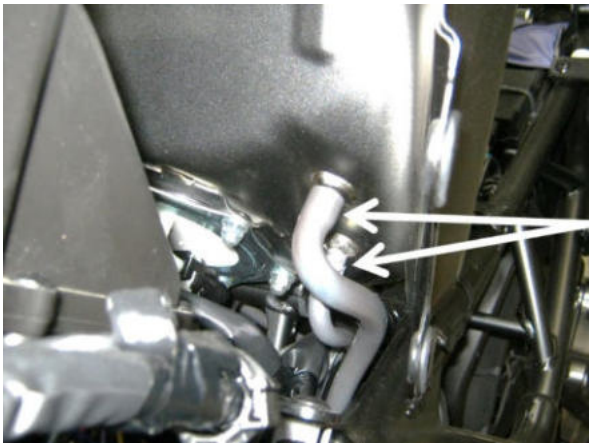
**NOTE: - Do NOT disconnect the strap and raise the tank higher until you have disconnected the wires and hoses from the fuel tank.**

Disconnect the fuel gauge connector.

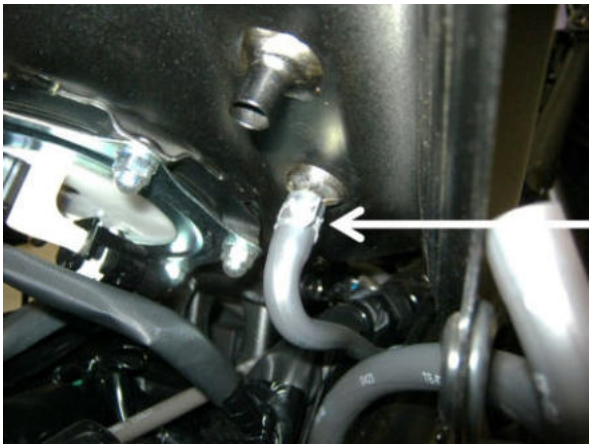
Press the release latch to disconnect the fuel pump/fuel gauge connector.

Disconnect the drain and breather hoses from the left side of the fuel tank.

See the next photo for the breather hose.



Disconnect the breather hose from the fuel tank.



Disconnect the fuel pressure hose from the fuel tank.

Press the release button (arrowed) in and disconnect the coupling from the fuel tank.

Disconnect the restraining strap from the fuel tank.

Remove the prop and lower the fuel tank.

Undo and remove the fuel tank rear pivot bolt.

Check for any wires or hoses still attached to the tank or caught on the tank.

Lift the tank and remove it from the bike.

## 7. INSTALLATION

**Installing the control switch**
**Original style switch.**

If the original style control switch is supplied in the kit, it will be installed on the left side mirror mount.

This photo shows the switch fitted to a 2023-24 bike.

This photo shows the switch fitted to a 2025+ bike.

**Installing the control switch**
**New Slim switch.**

If the new slim switch is supplied in the kit, it will be installed on the handlebar between the left side switch block and the clutch lever mount.

This photo shows the slim switch fitted to a 2023-24 bike.

This photo shows the slim switch fitted to a 2025+ bike.

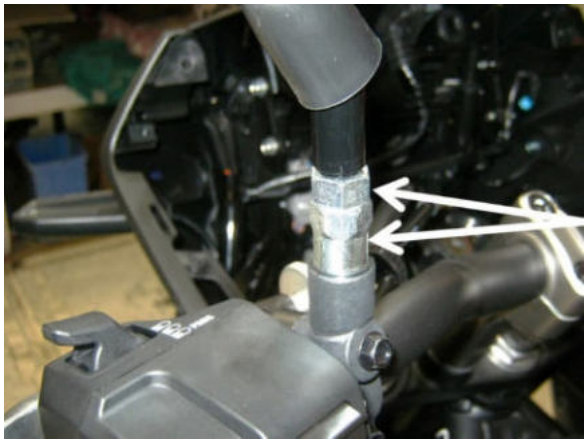
The installation is the same for all years.

**Installing the control switch**
**Original style switch.**

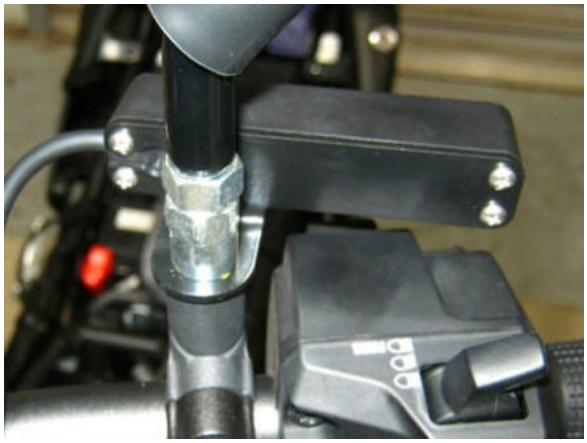
Slide the rubber cover up the mirror stalk.

Loosen the lock nut on the mirror stalk (upper arrow), this is usually a conventional right-hand thread.

Undo the mirror mounting adaptor that is screwed into the clutch lever mount (lower arrow) and remove the mirror from the clutch lever mount. This is usually a left-hand thread on the left side, so it will rotate the 'wrong' way to loosen.



Place the control switch on the mirror mount and replace the mirror.



We recommend positioning the switch on an angle as shown to make access to the buttons easier.

Tighten the mirror adaptor to hold the control switch in position.

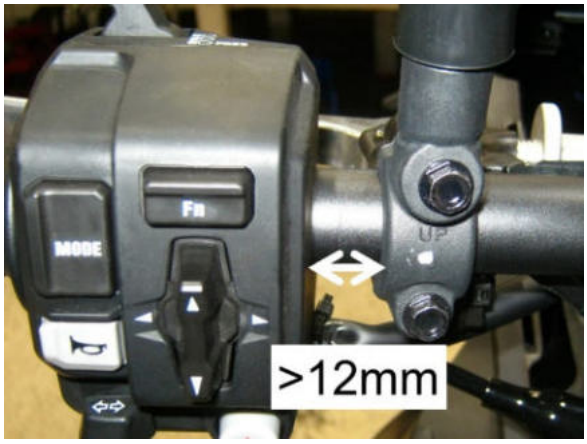
Position the mirror and tighten the lock nut on the mirror stalk.

Push the rubber cover back down to cover the mirror mount.

**<u>Installing Slim Control Switch</u>**

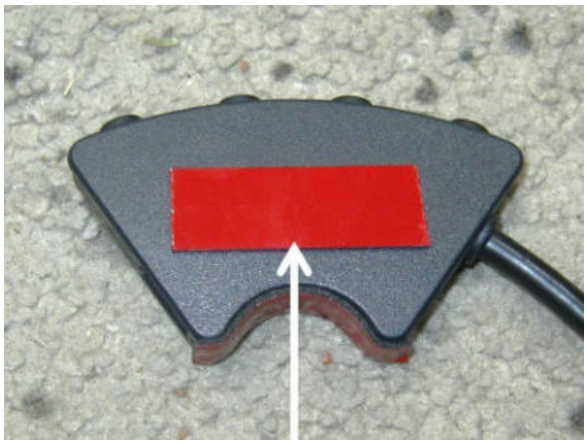
Loosen the two bolts on the clutch lever mounting clamp and slide the mount away from the bike's switch block to create a gap of at least 12mm (1/2").

Clean the side of the bike's switch block and the handlebar with suitable solvent.




Clean the faces of the switch before fitting the adhesive tape.

Locate the double-sided foam tape in the kit and cut a length to fit in the curve on the inside face the slim switch.



Place another short length of the tape on the side of the switch that will face the bike's switch block.

This will improve the stability of the switch.

Test position the switch on the bike.

Remove the backing plastic from the foam mounting tape.

Position the switch on the handlebar up against the bike's switch block so it is firmly pressed on the handlebar and against the side of the bike's switch block.

On the 2023-24 model, align the switch so the SET button (the circle) is roughly aligned with the middle of the bike menu selection switch (arrowed).

On the 2025+ model, align the switch so the RESUME button (the dot) is roughly aligned with the middle of the bike's turn signal switch (arrowed).

The switch comes with several cable ties. Insert one of these cable ties through the hole in the switch and wrap it around the handlebar, taking care to not 'capture' any of the bike's wires with the cable tie.

Tighten the cable tie to mount the switch firmly on the handlebar.

Trim the excess length of the cable tie.

Push the clutch lever mount across to ‘sandwich’ the switch between the clutch lever mount and the bike’s switch block.

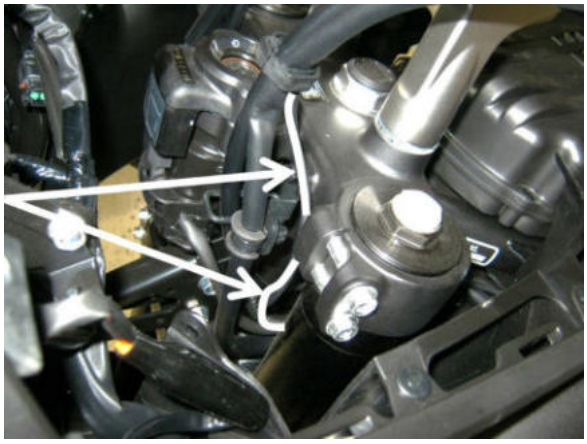
Check that the clutch lever does not make hard contact with the corner of the bike’s switch block when the clutch lever is pulled all the way into the grip.

This bike had original levers fitted, other types of clutch lever may have a different shape and may contact the switch block BEFORE the lever contact the grip. This may result in damage to the bike’s switch block over time.

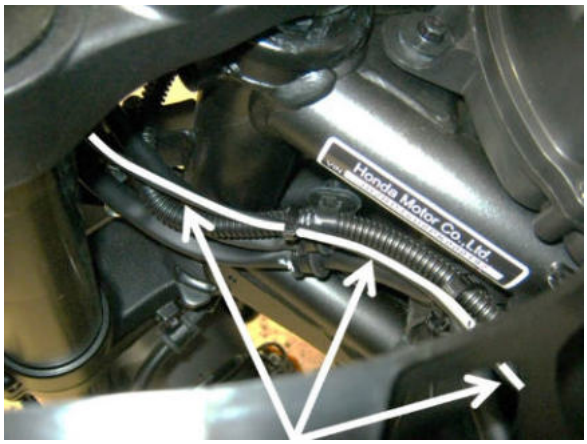
**<u>Routing the control switch wire – both switch types.</u>**

Route the switch wire down the handlebar with the bike’s wires using the clips and ties from the bike.

Route the switch wire to the rear beside the frame, between the frame and fork leg.



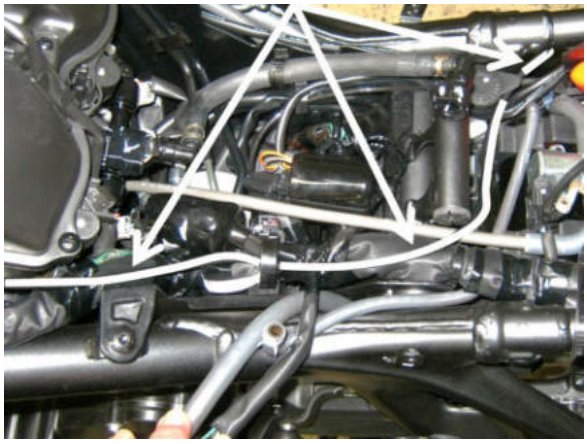
Route the switch wire to the rear on the left side of the steering head with the bike's wires.

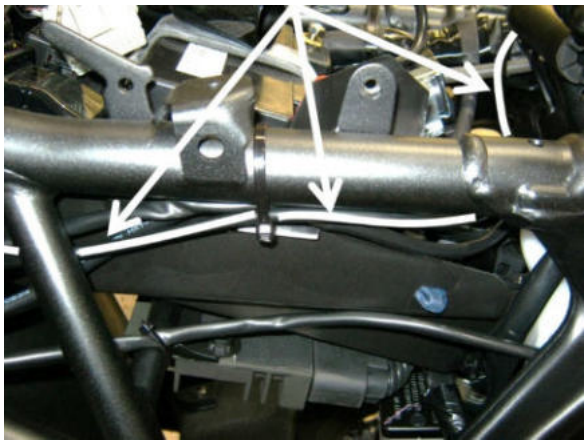



Route the switch wire against the frame (bottom arrows), ensure it is routed **below** the fuel tank front left mounting bracket (shown by the top arrow) to avoid damage when the tank is installed.

Route the switch wire to the rear on the left side beside the air filter housing.

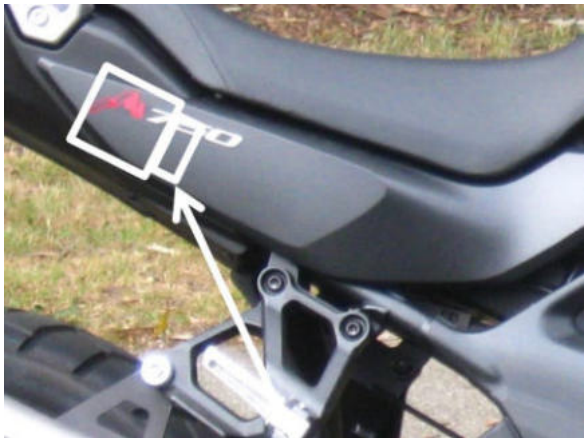
Route the switch wire to the rear on the left side, then across to the right side of the bike behind the rear fuel tank mount.





Draw the switch wire out below the upper frame tube on the right side, then route it to the rear below the upper frame tube.

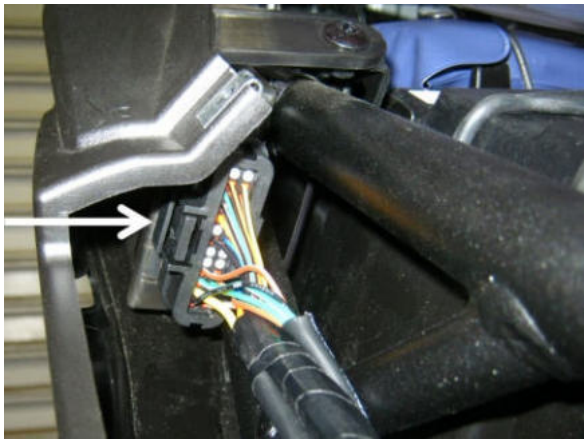
It will be connected to the cruise control wiring harness later.



**Installing the cruise control computer**

The computer is to be mounted on the right side of the bike, inside the side cover, in front of the passenger grab handle mount.

It is attached to the frame tubes using Velcro tape and a cable tie.



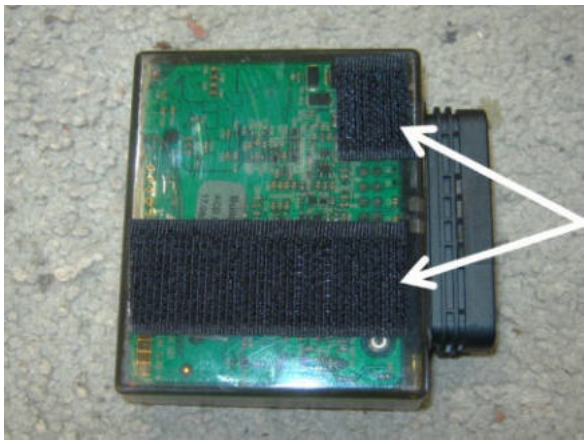
This shows the shows the computer with the wiring harness attached.

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

Cut the Velcro strip to fit the shorter side of the bottom of the box (lower arrow). You will be left with one short piece and one longer piece.

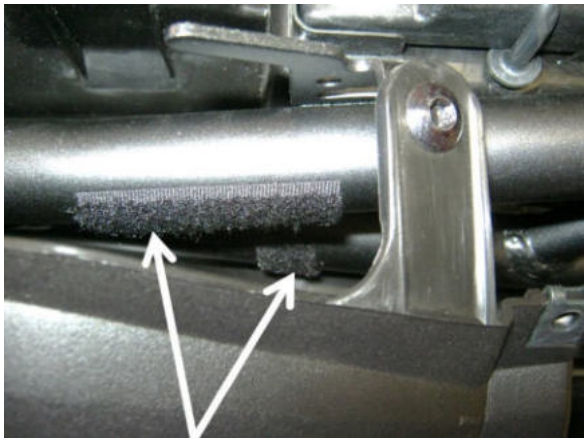
Clean the bottom of the computer with suitable solvent such as methylated spirits (denatured alcohol) and allow it to dry.

Fit the two pieces of the hook side of the Velcro tape to the bottom face of the computer as shown in the photo.



Clean the frame tubes with the solvent and allow to dry.

Fit two loop sides of the tape to the frame tubes on the right side of the bike as shown here inside the side panel, see the next photo.



Fit the computer to the frame tube, so the Velcro tape holds the computer to the frame tubes.

Fit the computer to the frame tube, so the Velcro tape holds the computer to the frame tubes.

Wrap one of the long cable ties from the parts bag around the two frame tubes and the computer as shown to hold the computer to the frame.

Ensure the cable tie is wrapped around both frame tubes.

Trim the excess length of the cable tie.

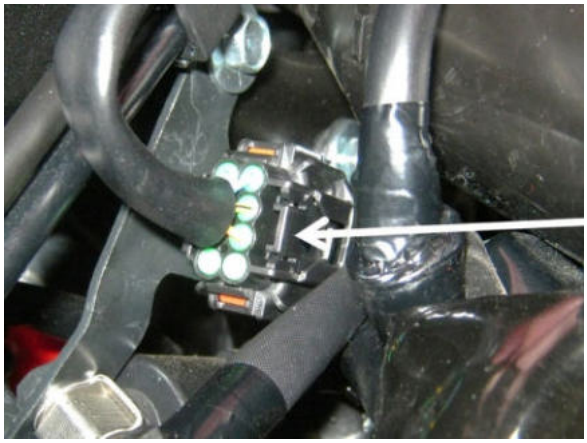
**Installing the Throttle-grip Position Sensor (TPS) harness, 2023 to 2024 models ONLY.**

**NOTE: - Go to ahead 2 pages for the 2025+ models.**

There is a cluster of connectors near the front right corner of the air filter housing.

The TPS connector is the connector the white arrow is pointing towards. It is slightly out of sight below other parts.

Loosen this cable tie and move the other harness parts aside to get access to the bike's TPS harness plug.

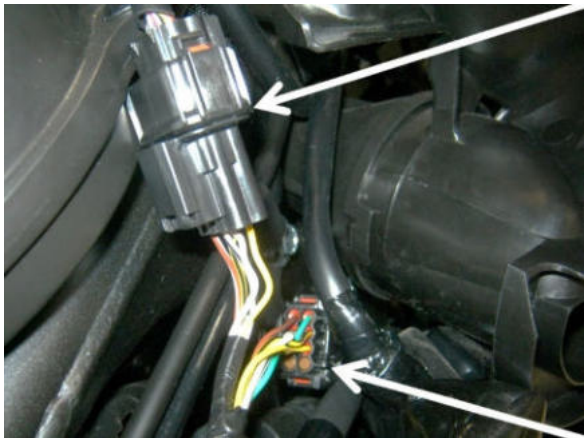


The wire colours coming into the top of the connector are blue/white, grey, yellow/black, white/black, yellow/red and white/red.

**NOTE: - Check that the connector has these wire colours. These wires should run to the throttle grip.**

Depress this latch and disconnect the TPS connector from the other half of the connector.

The two halves of the TPS plug disconnected.



Locate the cruise control TPS harness in the kit.

Connect the male connector on the cruise TPS harness to the bike's female connector (upper arrow).

Connect the female connector on the TPS harness to the bike's male connector (lower arrow).

The cruise control TPS harness will bridge the connection and take TPS signal to and from the cruise control computer.

The lower plug is mounted on a bracket on the bike and cannot be moved.

Position the upper plug above the bike's harness (arrow).

Replace the parts that were moved and re-connect the bike's cable tie.

Fit a cable tie to hold the second TPS plug in position. Do NOT pull the cable tie very tight, it is just to stop the plug moving around to prevent damage.

**Installing the Throttle-grip Position Sensor (TPS) harness, 2025 + models ONLY.**

There is a connector attached the bottom of the front right air duct (left arrow).

It is clipped to the air duct. Use pliers to release the clip from the duct (right arrow) and withdraw the connector from behind the air duct.

The Throttle-grip Position Sensor (TPS) connectors.

The wire colours coming into the left top of the connector (the male connector) are blue/white, yellow/black, yellow/red, white/red, white/black and grey. **NOTE: - Check that the connector has these wire colours. These wires should run to the throttle grip.**

The wire colours coming into the bottom right of the connector (the female connector) are yellow, black, blue, grey, black, and white.

Depress this latch and disconnect the TPS connector from the other half of the connector.

The two halves of the TPS plug disconnected.

Locate the cruise control TPS harness in the kit.

Connect the male connector on the cruise TPS harness to the bike's female connector (lower arrow).

Connect the female connector on the TPS harness to the bike's male connector (upper arrow).

The cruise control TPS harness will bridge the connection and take TPS signal to and from the cruise control computer.

Clip the original connector to the air duct (upper arrow).

Cable tie the new connectors to the original connector or to the harness to prevent the wires and connectors from damage.

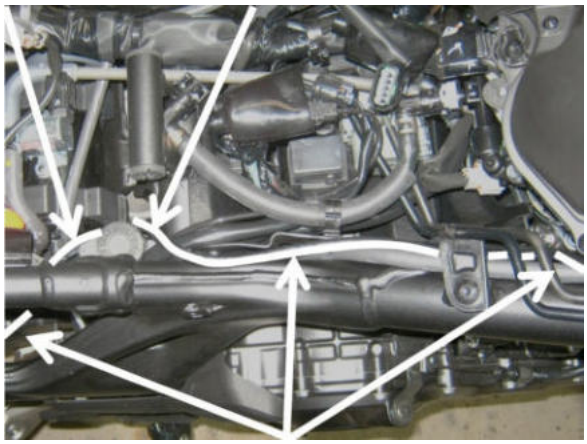
**<u>All years.</u>**

Route the TPS harness wires to the rear of the bike beside the air filter housing, then below the brake lines.

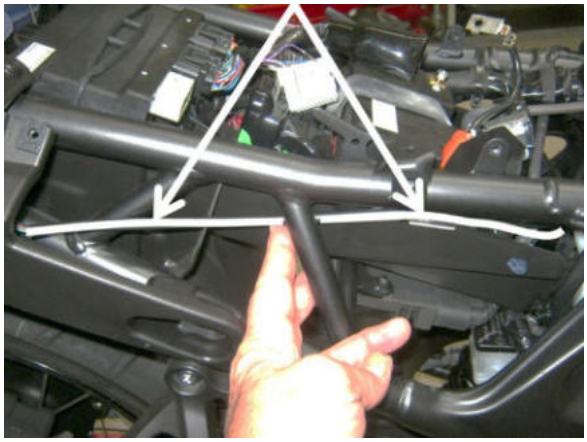
Route the wire as high as possible to keep the wires as far away from the bike's ignition coil and spark plug lead as possible.

Route the TPS harness wires to the rear of the bike, inside the frame, below the bike's brake lines, beside the rubber hose that follows the frame.

Route the TPS wires to the rear of the bike, around the inside of the coolant reservoir filler cap, then out on the right side of the bike, below the upper frame tube.



Route the TPS wires to the rear of the bike below the right side frame tube toward where the cruise control computer is mounted.



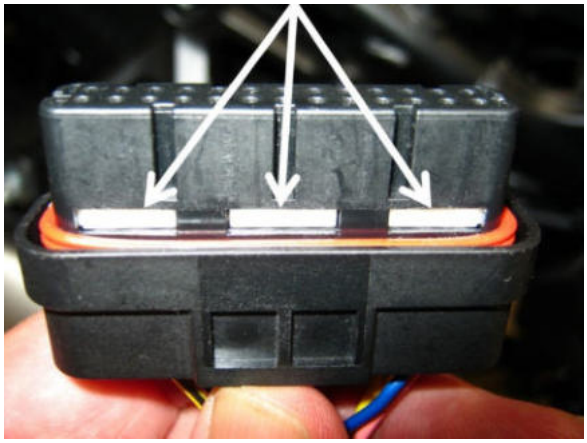
**<u>Connect the TPS harness to the cruise control main harness.</u>**

Locate the cruise control main wiring harness in the kit.

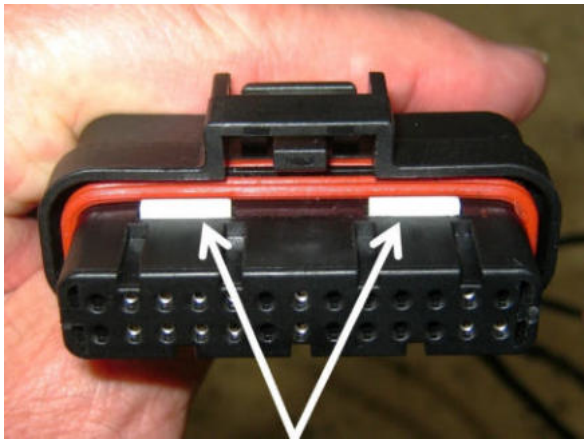
Use a suitable tool (the end of the screwdriver for example) to depress the three white rectangles on the bottom side of the cruise control harness plug.

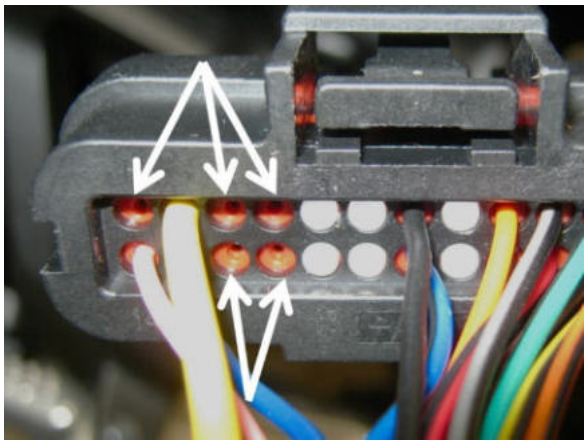
The white rectangles will depress about 3mm (1/8”).

**NOTE: - This unlocks the terminals; take care not to pull on the wires.**



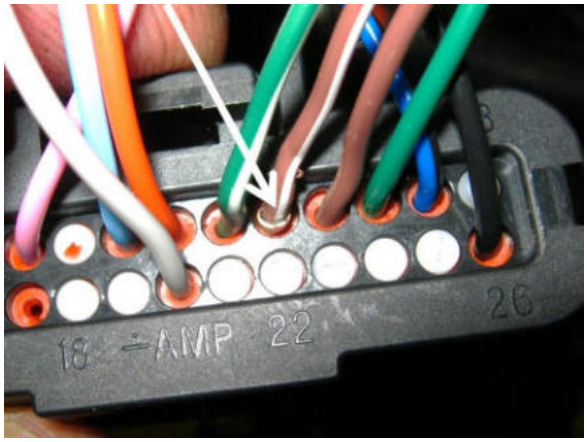
The two tabs on the other side of the plug will come out about 3mm (1/8”).





Note that there are 5 empty terminal holes in the cruise control main harness plug.

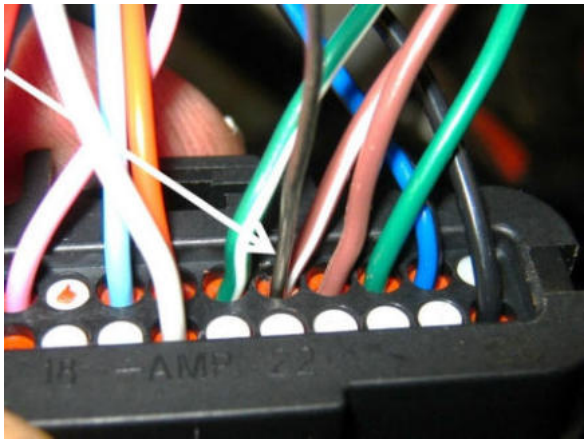
The TPS sensor harness terminals will be inserted into these holes.




See below for details on wire colours and positions.

Insert the terminals from the TPS harness into the empty holes. In some cases, the wire is not stiff enough to push the terminal all the way into the hole, see arrow showing one terminal not fully inserted.

**NOTE: - This photo shows an earlier cruise model with different wire positions.**

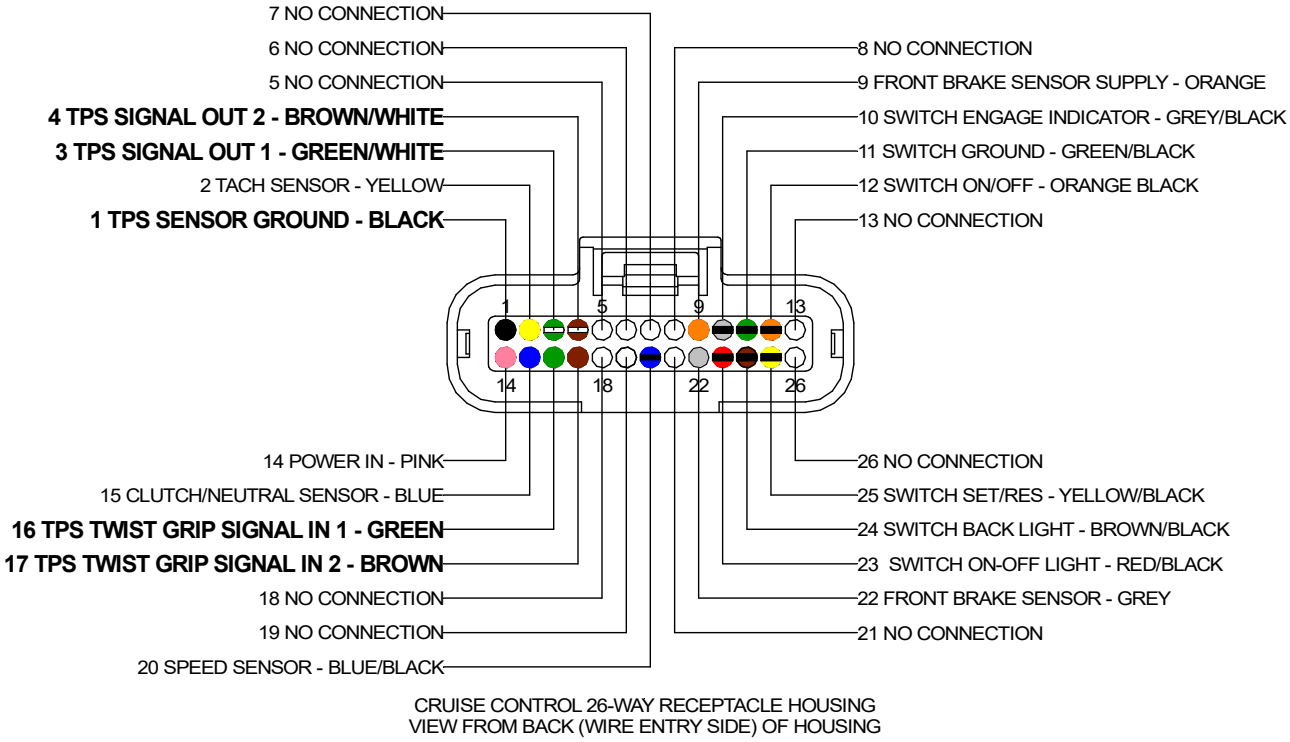


Use the supplied paper clip in the kit as a terminal seating tool.

Unbend the paper clip and place the end of the paper clip on the back of the terminal and push the terminal all the way into the plug.

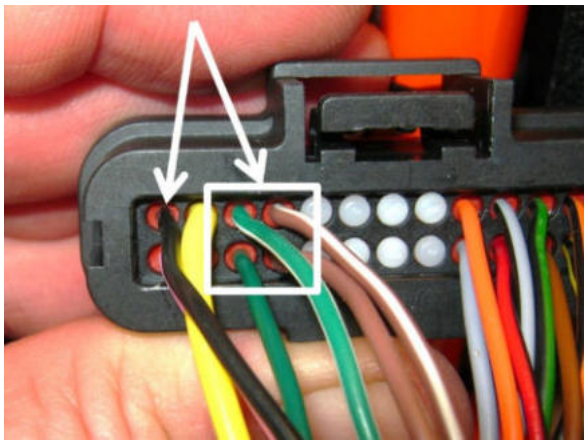
**NOTE: - This photo shows an earlier cruise model with different wire positions.**

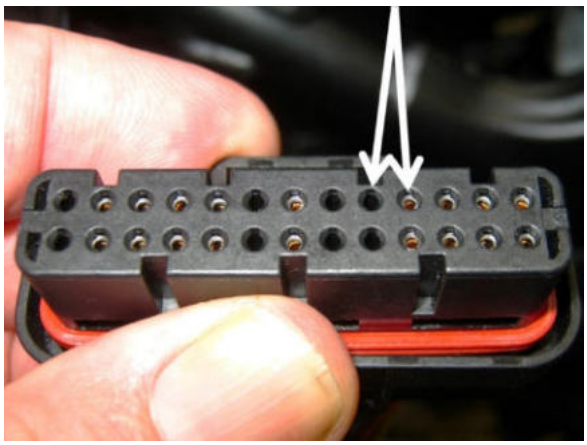
**<u>The following shows the final assembly of your computer plug, viewed from the rear (wire entry) side:</u>**




The black wire is in position 1.
The green/white wire is in position 3
The brown/white wire is in position 4.
The green wire is in position 16.
The brown wire is in position 17.

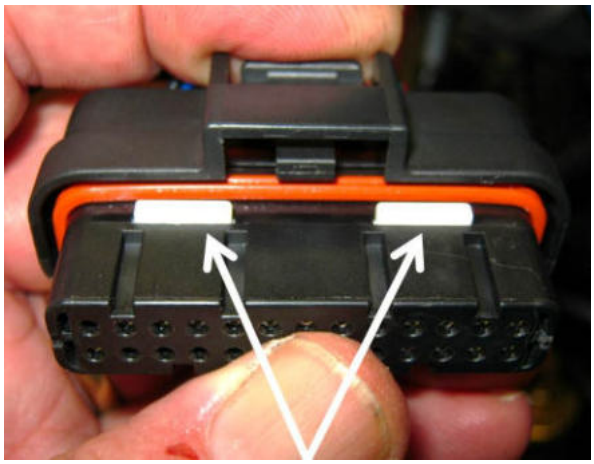
**CAUTION: - The wires MUST be inserted into the correct holes; if they are not neither the vehicle nor the cruise control will work.**





Check that all terminals are fully inserted. The terminal on every wire must be visible in the holes. The arrows show two holes, one with a terminal and one without.

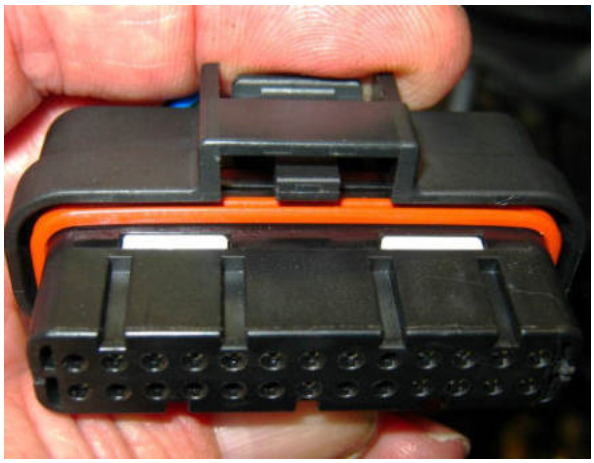
Gently push the two tabs back down so they are flush with the connector.



This will lock the terminals into the connector.

If the tabs do not press down easily, one or more of the terminals is not fully inserted.

Re-check that all terminals are fully inserted into the plug.



The main wiring harness plug with the TPS wires fitted to it.

**<u>Computer connection.</u>**

Connect the wiring harness to the cruise control computer.

The computer and harness viewed from above.

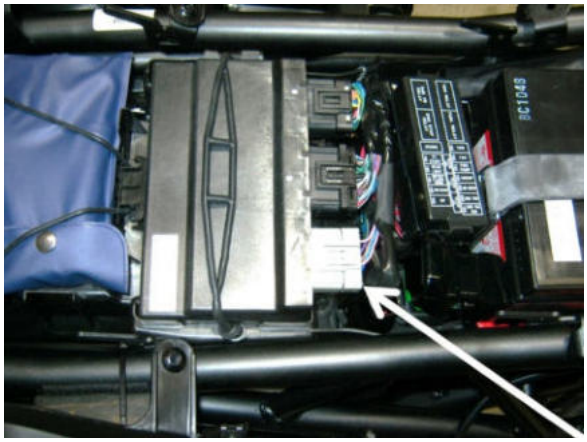
Route the wiring harness forward on the right side of the bike.

**Wiring harness installation**

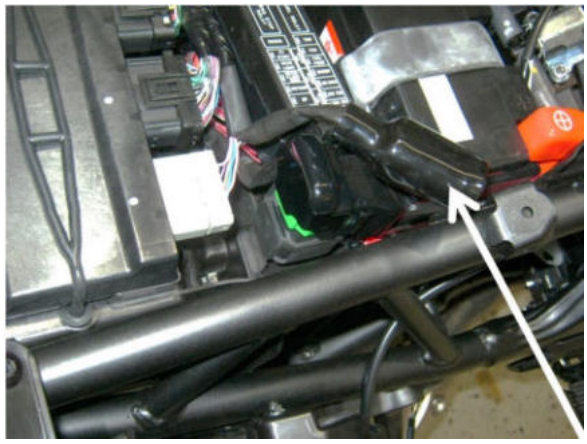
Preparation.

The bike's ECU is under the rider's seat, behind the fuse box.

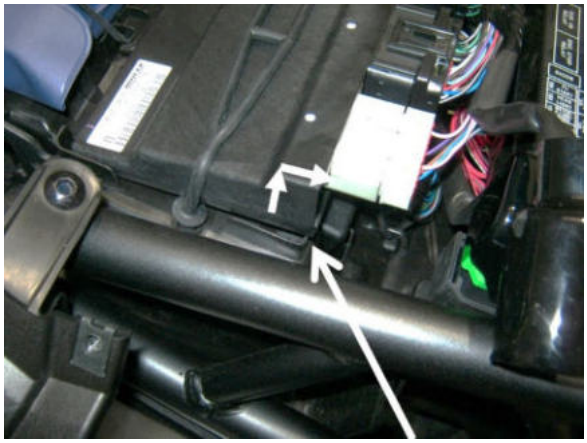
Two wires and terminals must be backed out of the grey connector on the bike's ECU for the cruise control installation.



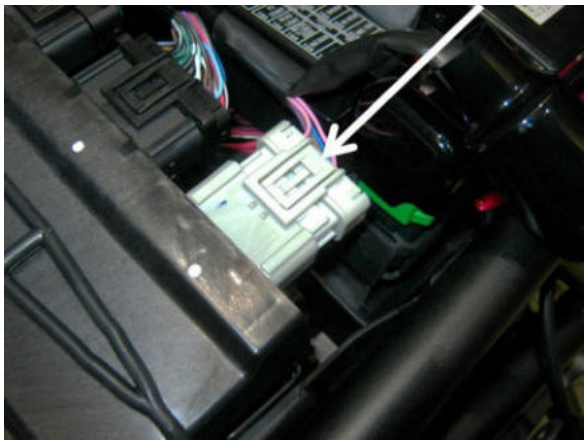
Pull the connector and plastic sleeve out and set it out of the way.



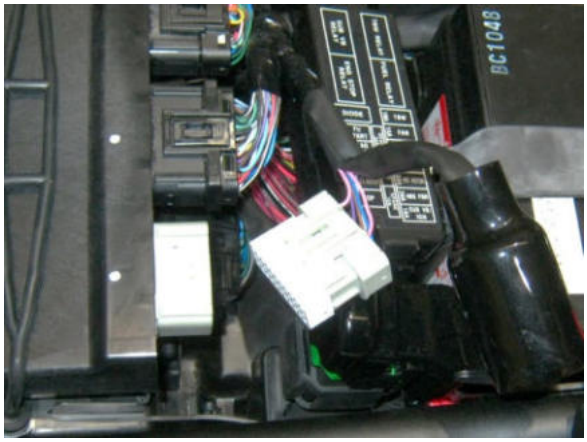
Lift the front edge of the ECU and slide it forward so the ECU is sitting on the 'wall' (arrowed) to allow better access to the ECU connecting plugs.



Depress the latch (arrowed) on the plug and disconnect the plug from the ECU.

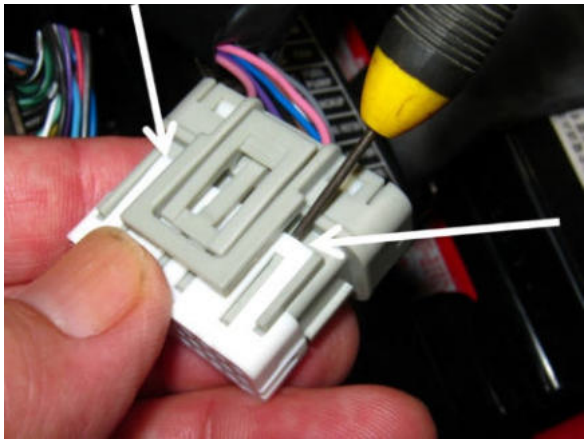


The plug disconnected from the ECU.

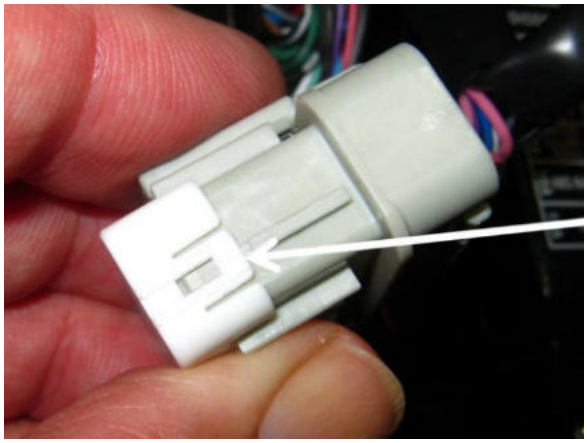


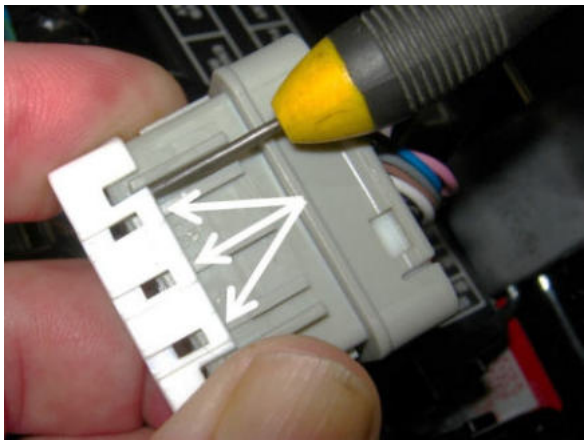
The plug has a retainer fitted to it; this must be removed to allow the terminals to be backed out of the connector housing.

Use a small jeweller's screwdriver or similar tool lift the edge of the tabs on the retainer to release the retainer. This must be done in at least 2 positions (arrowed) on the upper face of the retainer.

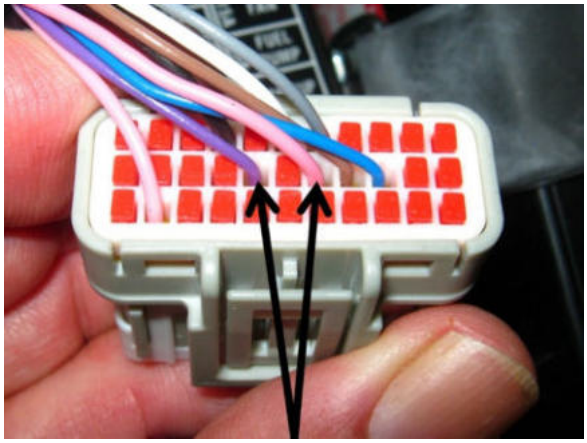


Release the tabs on each side of the connector.





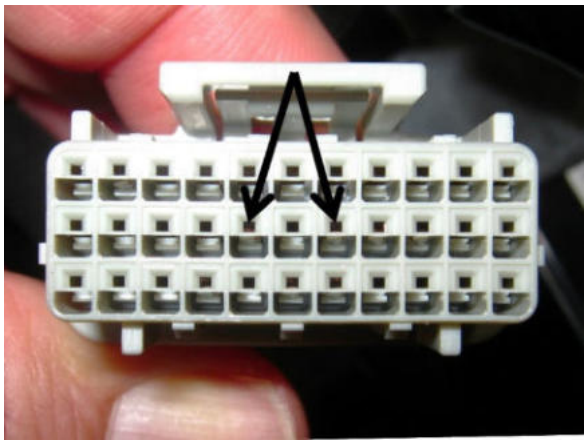
Release the three tabs on the bottom face of the connector and remove the retainer from the connector housing.



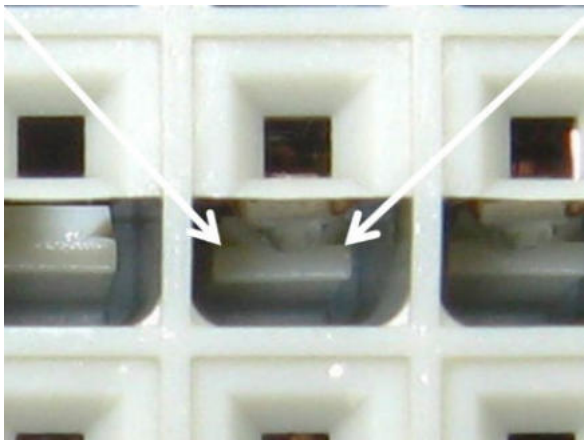
**NOTE: - This photo shows the earlier model, in later models the violet clutch wire has been changed to a green/red wire and the brown wire next to the pink speed signal wire has been changed to pink, so there are 2 pink wires next to each other. The wire positions and functions are the same. Use the wire positions indicated.**

The wires and terminals on the two wires shown here, the violet (or green/red) wire on the left side is for the bike's clutch switch and the pink wire on the right side is speed signal. Both wires and terminals must be backed out of the connector.

**NOTE: - The connector is 'upside down' in this photo, the latch is on the bottom in this photo.**

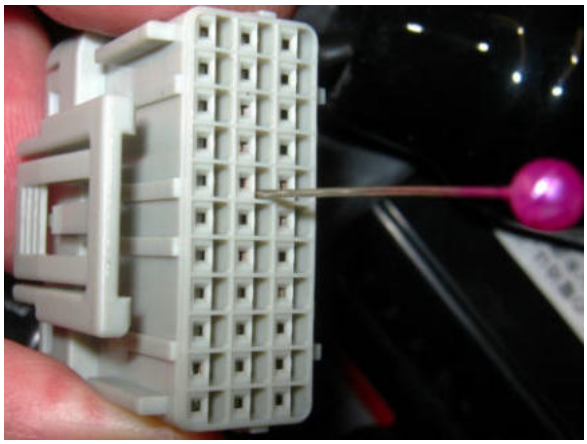


These are positions of the two wires from the terminal side of the connector.



Below the small terminal holes in the connector, there is a larger hole to access the latch that holds the terminal into the housing.

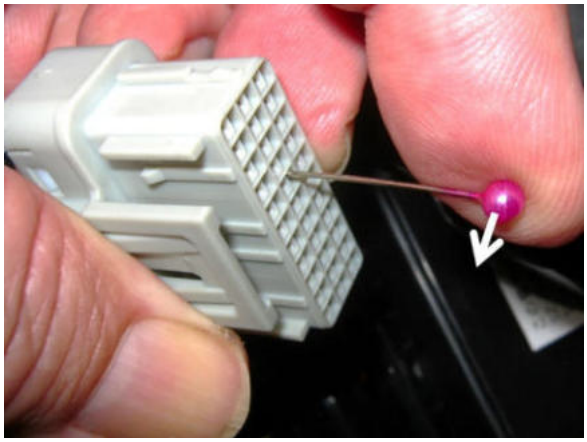
The latch is visible in the photo. The middle of the latch is partly blocked by the terminal, so the tool to release the latch must be used on either of the sides (arrowed) of the latch.



Locate the supplied dressmaker's pin on the parts bag.

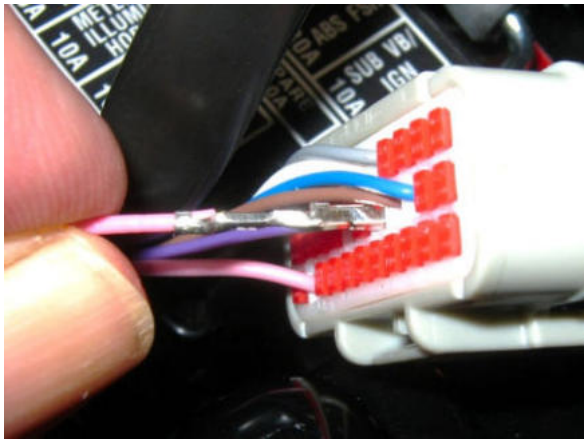
Insert the pin into either upper corner of the hole for the pink wire and terminal. In this case we have used the upper left corner, but either side will work.

Insert the pin into the corner of the hole and push it in GENTLY until it stops.



Push the pink wire firmly into the plug to ensure the terminal does not 'catch' on the latch and prevent it releasing.

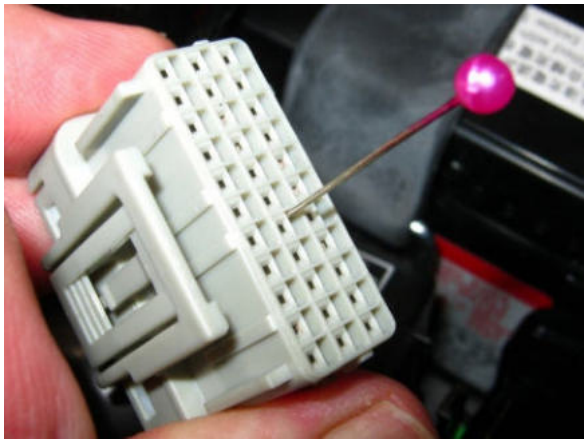
Gently push the end of the pin to lever the latch away from the terminal.




Gently pull on the pink wire while holding the latch with the pin.

**Note the orientation of the terminal as you pull the wire, the <u>crimped side of the terminal is facing away from the large release latch</u> on the housing, the <u>crimped side IS facing the latch</u> that holds the terminal in the housing.**

**NOTE: - The wire should come out without any significant force. If it will not come easily, push the wire in again to ensure the terminal is not preventing the latch releasing. There will be some drag on the wire from the rubber seal inside the connector.**



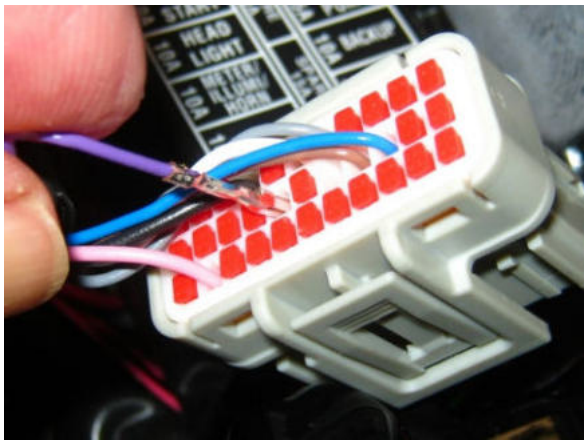
Insert the pin into either upper corner of the hole for the violet (or green/red) wire and terminal. In this case we have used the upper right corner, but either side will work.

Insert the pin into the corner of the hole and push it in GENTLY until it stops.

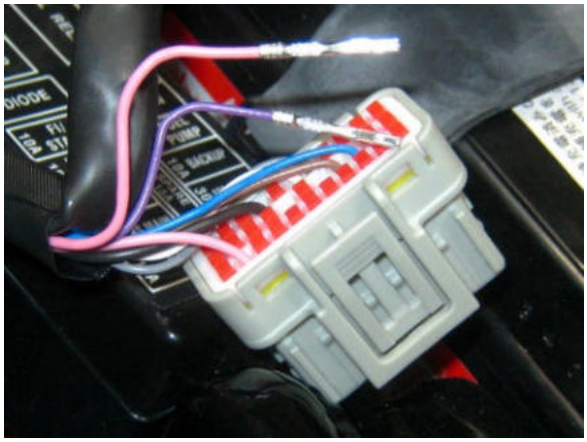
Gently pull on the violet (or green/red) wire while holding the latch with the pin.

Note the orientation of the terminal as you pull the wire, the crimped side of the terminal is **facing away from the main latch** on the housing.

**NOTE: - The wire should come out without any significant force. If it will not come easily, push the wire in again to ensure the terminal is not preventing the latch releasing. There will be some drag on the wire from the rubber seal inside the connector.**




The connector with the pink and violet (or green/red) wires and terminals out of the plug.



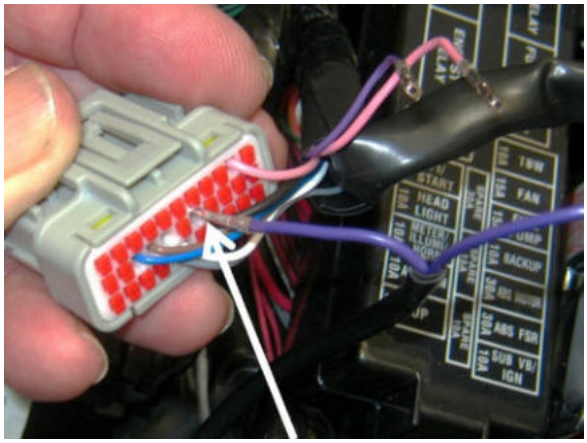
Speed and clutch sensor connection.

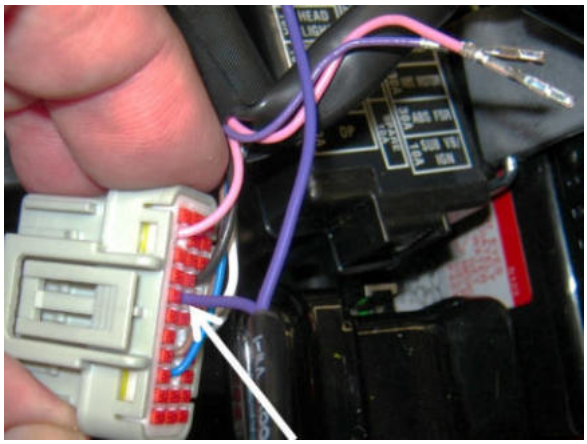
Identify the speed and clutch sensor branches on the cruise control harness, these branches have pink and violet wires fitted with bare terminals.

Draw them up inside the frame to the bike's ECU plug.

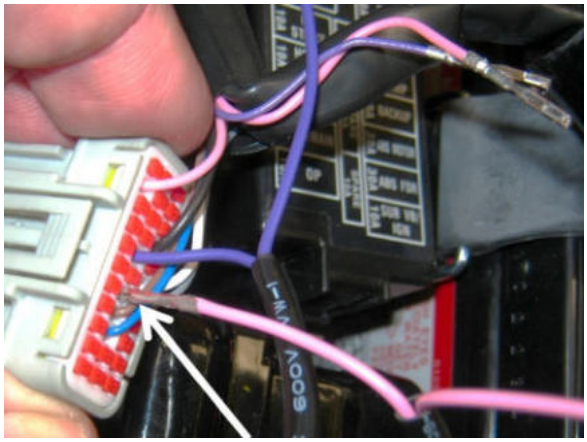
Insert the cruise control's violet clutch sensor wire (short wire with receptacle terminal) into the right-side hole that the bike's violet (or green/red) wire came out of.

**Make sure the terminal is oriented the right way. The <u>crimped side of the terminal is facing away from the main latch</u> on the housing, in this case facing down.**



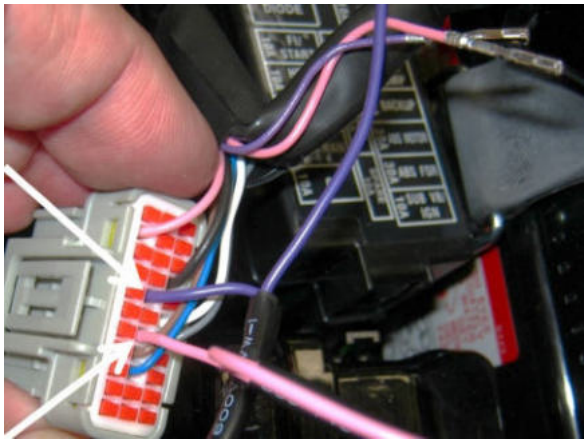


Insert the terminal all the way into the plug housing until it ‘clicks’ into place and is locked into the housing.

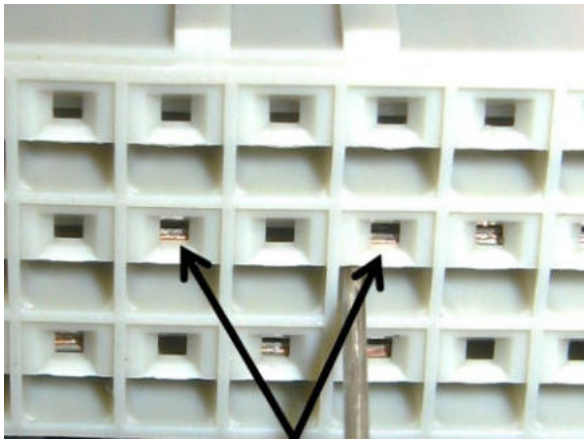


Insert the cruise control’s pink speed sensor wire (short wire with receptacle terminal) into the left-side hole that the bike’s pink wire came out of.

**Make sure the terminal is oriented the right way. The <u>crimped side of the terminal is facing away from the main latch</u> on the housing, in this case facing down.**

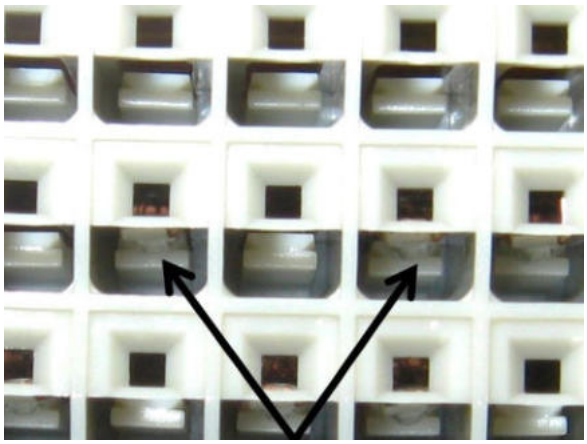


Insert the terminal all the way into the plug housing until it ‘clicks’ into place and is locked into the housing.



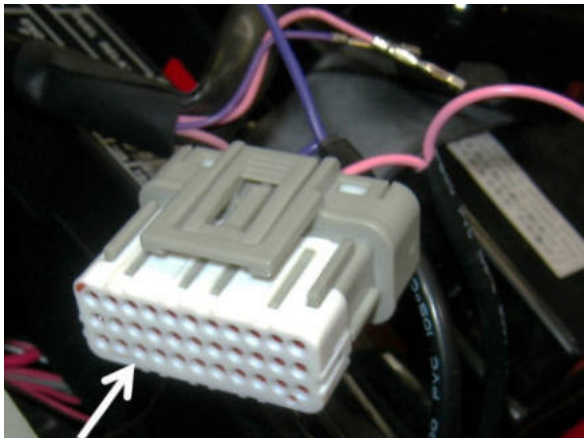
Check that you can see the end of the terminals in the housing and they are fully inserted.

**<u>NOTE: - This photo was taken during the terminal removal process and the removal pin is visible in this photo.</u>**



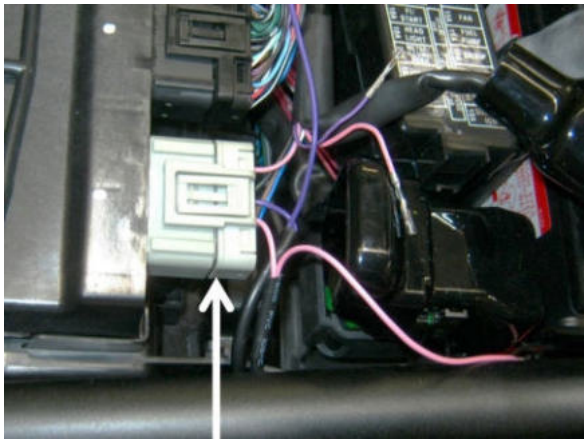
Check that the small 'bump' on the terminal is engaged in the tab that retains the terminal and the terminal is fully inserted.

**NOTE: - This bump is only on one side of the terminal, the same side as the wire crimp. If it is not visible, either the terminal is not fully inserted OR the terminal has been inserted upside down.**



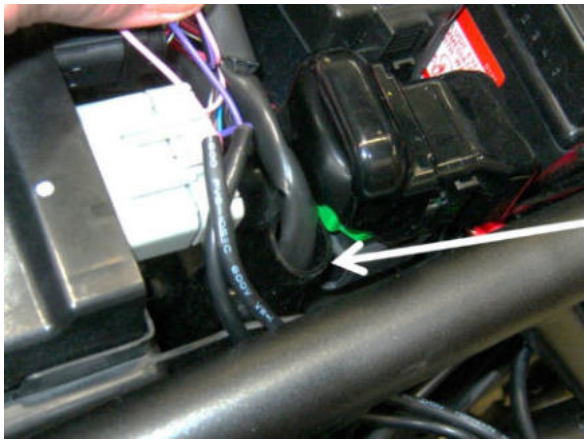
Re-fit the retainer to the plug.

**NOTE: - The retainer may not lock in if the terminals you inserted are not fully inserted and locked in position.**



Re-connect the ECU plug to the bike's ECU.

Push the ECU back into its correct position on the rear mudguard (fender).

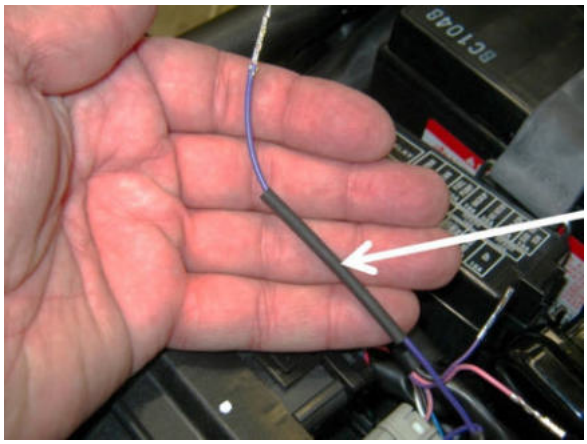


Tuck the connector in the plastic sleeve back in the cavity in front of the ECU.

Find the length of heat shrink tube in the cruise control kit parts bag.

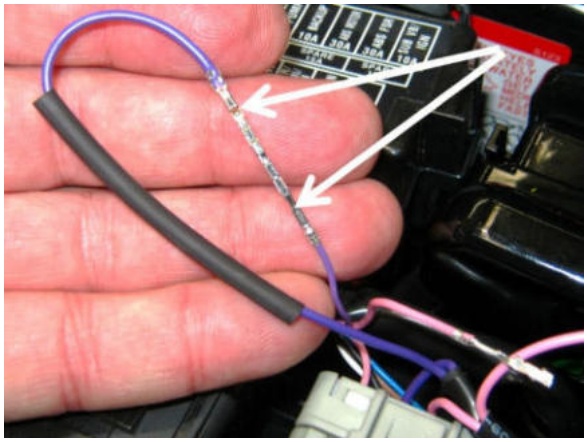
Cut a suitable length to cover the terminals (around 4cm or 1½” long).

Slide the heat shrink tube over the cruise control violet wire.

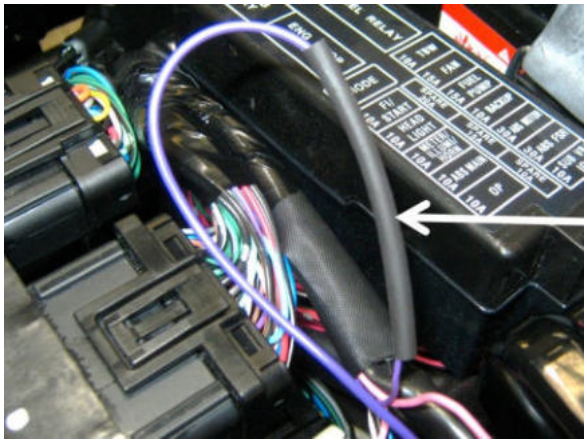


Connect the terminal on the violet cruise control clutch sensor wire to the bike’s violet (or green/red) ECU wire.

Make sure they are fully connected.

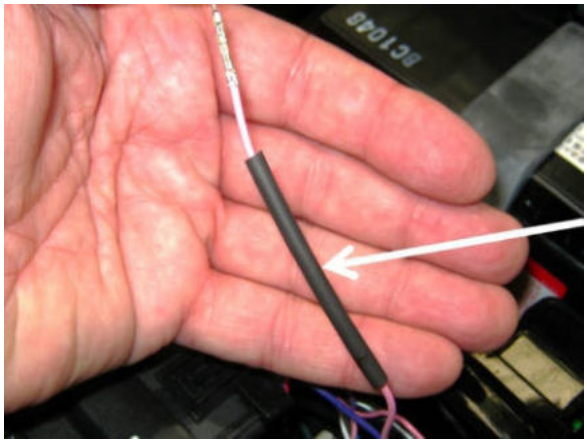


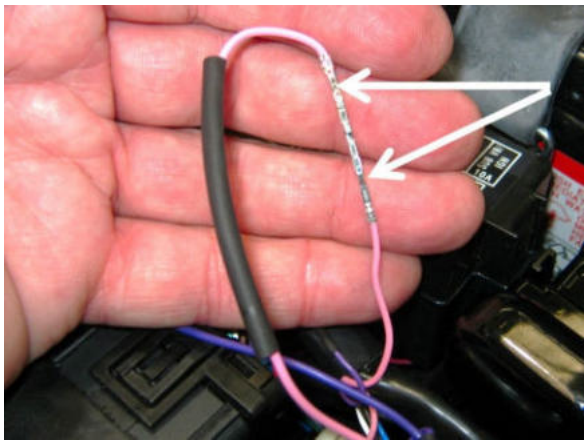
Slide the heat shrink tube over the terminals.



Cut a suitable length to cover the terminals (around 4cm or 1½” long).

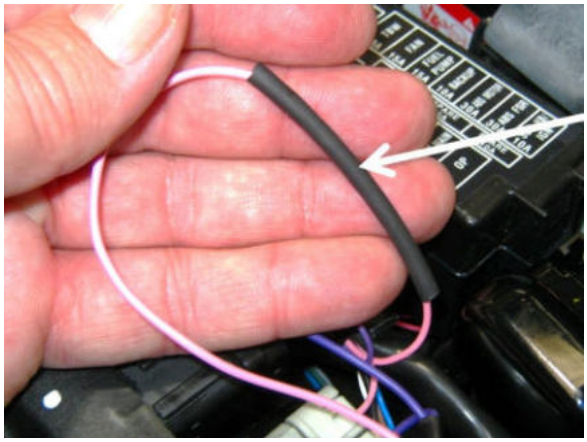
Slide the heat shrink tube over the cruise control pink wire.



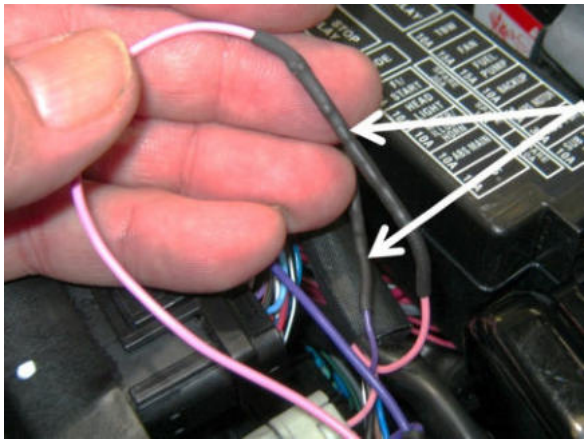


Connect the terminal on the pink cruise control speed sensor wire to the bike's pink ECU wire.

Make sure they are fully connected.



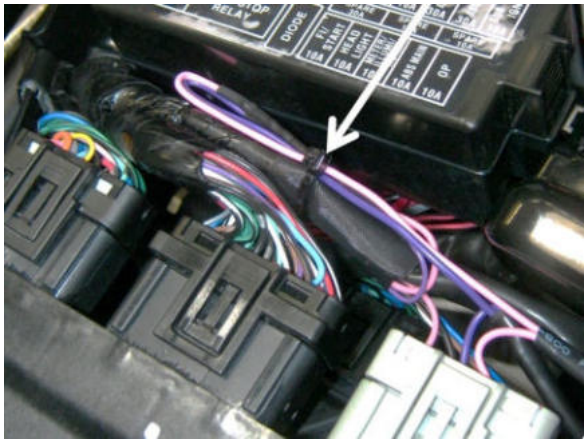
Slide the heat shrink tube over the terminals.



Make sure the terminals are fully connected.

Make sure the heat shrink tube is centred over the terminals.

Use a suitable heat source such as a hot air paint stripper gun to shrink the heat shrink tube over the terminals. The heat shrink tube will insulate the terminals and prevent them coming apart.



Lay the wires and terminals next to the bike's harness that goes to the grey ECU plug and fit a small cable tie to hold them in position.

**NOTE: - Do NOT pull the cable tie very tight, over tightening the cable tie may bent the terminals.**

Control switch connection.

Connect the 6-way plug on the wires from the cruise control switch to the matching plug on the cruise control wiring harness.

**NOTE: - Take care when connecting these plugs. Do not use force to push them together. You may need to 'wriggle' the plugs a bit to ensure the terminals mesh while pushing the two halves together. If you force the connection, it may push one or more of the terminals out of the plug. After making the connection check that all the terminals in both plugs have not been pushed backwards out of the plug.**

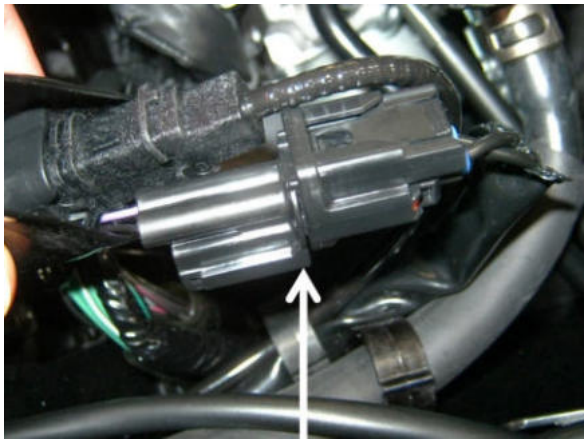
Power/brake sensor connection.

Identify the power/brake branch on the cruise control harness. This branch has two 2-way black connectors with orange and grey wires.

Route this branch forward with the TPS harness past the coolant bottle top, then into the area in front of the rear fuel tank mount.

This plastic pouch has electrical connectors in it, one of them is the rear brake light switch plug.

**CAUTION: - There are two similar plastic pouches in this area, both contain the same type of connectors. <u>Check the wire colours are correct to ensure you have the correct connector</u>. We have several installers who have connected to the wrong one and had to disassemble the bike again to fix it.**



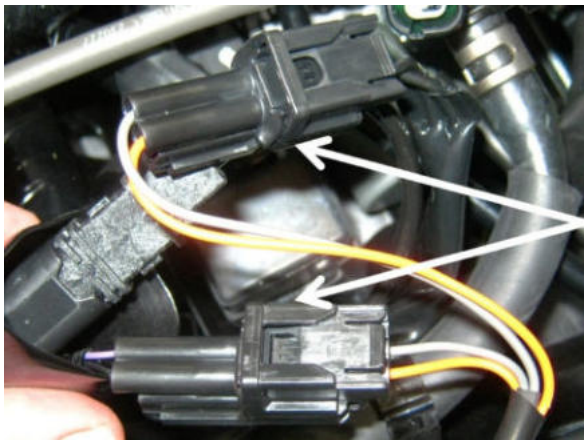
This is a 2-way connector, with two black wires at the end going to the brake switch

**<u>2023-24 models</u>** have **<u>black and violet</u>** wires at the other end.
**<u>2025+ models</u>** have **<u>black and green</u>** wires at the other end.

Disconnect these plugs.

**CAUTION: - There are two similar plastic pouches in this area, both contain the same type of connectors. <u>Check the wire colours are correct to ensure you have the correct connector</u>.**

The rear brake switch plugs disconnected.



Route the cruise control power/brake sensor plugs to the bike's rear brake switch plugs and connect the cruise control plugs to the bike's plugs.

**NOTE: - The cruise control grey wire MUST connect to the violet (2023-24) or green (2025+) wire. This is brake sensing.**
**The cruise control orange wire MUST connect to the black wire. This is power to the cruise control.**

**The wire positions are swapped for the 2025 model compared to the earlier model. This photo shows the earlier model.**

Place one of the connectors back in the plastic sleeve. There is not enough space for both plugs, so position the second plug as best you can in the area.

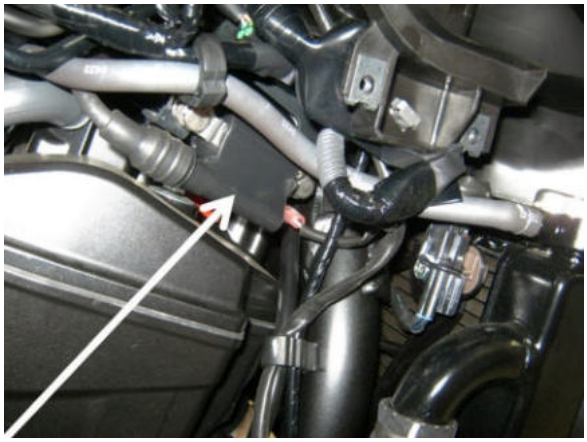
<u>Tach sensor connection.</u>

Identify the tach sensor branch. This branch has a pair of spade terminals with thick yellow wire.

Route the branch forward low, beside the battery box, then forward inside the frame towards the engine.

Route the tach sensor branch forward and up along the bottom of the frame spar and to the bike's right side ignition coil.

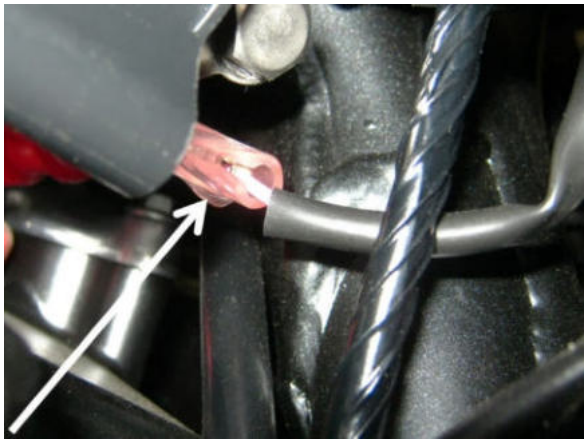
**NOTE: - This wire is routed this way to avoid potential electrical interference with the wires from the TPS connection. Do NOT route this branch beside the TPS branch.**



The ignition coil for the right cylinder.

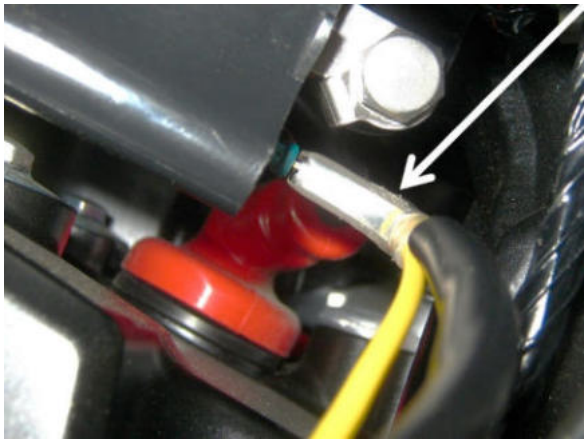
The ignition coil has two spade terminals on the front end of the coil.

The lower visible wire should be pink.

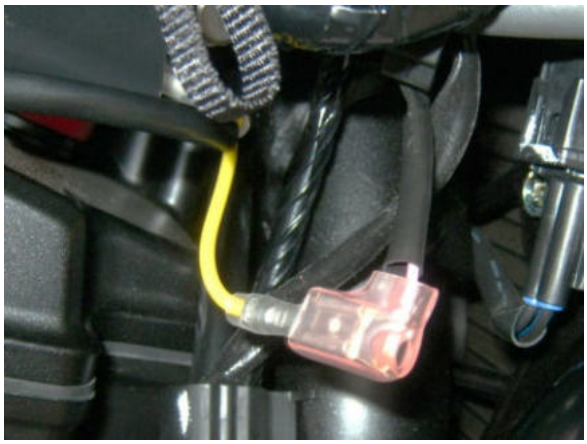


Disconnect the pink wire from the lower ignition coil terminal.

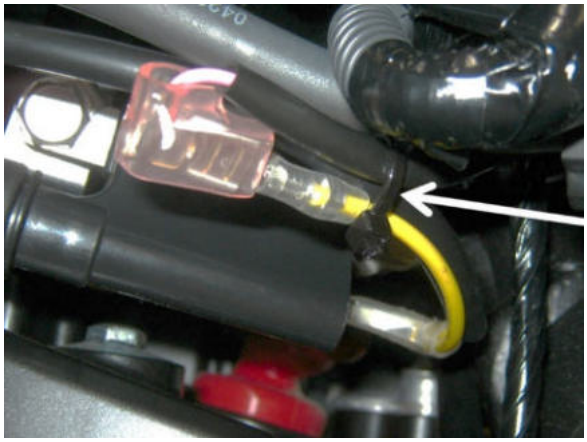
**NOTE: - If the wire is black, the wires have been connected to the coil incorrectly, and the upper terminal will have the pink wire. The cruise control MUST be connected to the pink wire, not the black wire.**



Route the cruise control yellow tach sensor wire to the coil terminal and connect the flag terminal to the tab on the coil.



Connect the tab terminal on the cruise control yellow link wire to the bike's ignition coil pink wire.



Fit a cable tie to hold the bike's wire and the link wire to the cruise control tach sensor branch.

Fit cable ties to the rubber hose and the frame in the locations arrowed to hold the tach branch in place.

Do not pull the cable ties too tight, they only need to hold the wire, not kill it.

Keep the tach sensor branch low as it runs to the rear of the bike to keep it away from the TPS branch.

Check where the tach sensor branch runs behind the frame for anything that might damage the tach sensor branch.

Fit a cable tie to hole the tach branch to the frame (arrowed).

**Finishing up.**

Check the routing of all wires and cables.

Make sure that they will not be damaged by any moving or stationary parts.

Fit cable ties to hold the loose plugs or wires in position.

**CAUTION: - Everything on this bike is a tight fit. Take extra care with routing of wires and double check during re-assembly to ensure that everything fits correctly and will not be damaged.**

**Replace the fuel tank on the bike.**

Take care to ensure that all connections to the fuel tank are made correctly and that wires or cables will not be damaged or cause damage.

Don't forget to fit the fuel tank strap when re-fitting the fuel tank (arrow).

**Reconnect the instrument panel.**

Temporarily connect the electrical plug to the back of the instruments and sit it in position in the fairing. The post and grommet fasteners can be used to hold in position.

**Check all wires and cables are fitted correctly and routed suitably.**

**Fit cable ties where necessary.**

Re-connect the negative battery terminal (arrowed).

**Your cruise control is now ready for TPS calibration and diagnostic testing!**

## 8. THROTTLE POSITION SENSOR CALIBRATION AND TESTING.

**Explanation:**

The cruise control must '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.

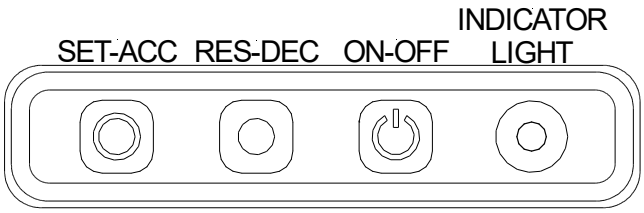
Usually this model responds quickly and does not need any 'free play' compensation.

**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.**

**Control switch buttons.**

The control switches have pictographs on the buttons.

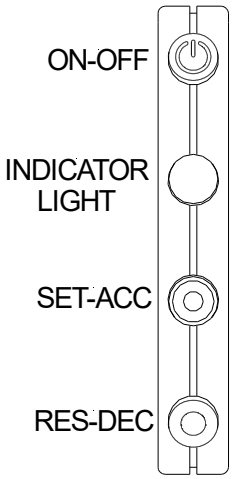



**NOTE: - When this control switch is mounted on the right side of the bike, the switch is inverted, so the button positions are reversed.**

These diagrams show the button positions and meanings.

The ON-OFF button has a 'standard' power switch pictograph on it.

The other buttons have a circle (SET button) and a dot (RESume button).




**Note: - The control switch has an indicator light next to the ON-OFF button. This light has three colours, RED and GREEN and YELLOW. RED indicates power on. YELLOW indicates cruise control engaged. GREEN is used to confirm the cruise control functions during the diagnostic checks and some calibration procedures.**

**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 6$^{th}$ 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(orange) 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(orange).

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(orange).

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

Less than idle (should not happen) – flashing red/yellow(orange) – 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(orange) 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 (orange).

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 (orange).

**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 (any gear other than neutral) 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. Select Neutral when finished;

5. **Manual shift only - 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. **DCT only – Neutral sensor test** – The bike must have the side stand up (retracted) with the engine running. Sit on the bike if necessary. Apply the rear brake to ensure the rear wheel will not rotate. This turns the green indicator light on. Press and release the ON-OFF button to turn the light off. Use the DCT shift switch to shift from in gear then Neutral several times. The light should come on green when Neutral is selected and go out when any other drive mode is selected. Select Neutral and release the rear brake when finished;

7. **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.**

**You can now re-assemble the motorcycle using the reverse of the disassembly instructions., then road test the bike.**

**TROUBLE SHOOTING NOTE: - We have seen a couple of instances where the installer has not fully inserted the wires and terminals for speed signal or clutch detection into the bike's ECU plug. If the speed signal wire and terminal is not fully inserted, the E-Clutch system on the later models will not work.**

**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 below.**

**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.

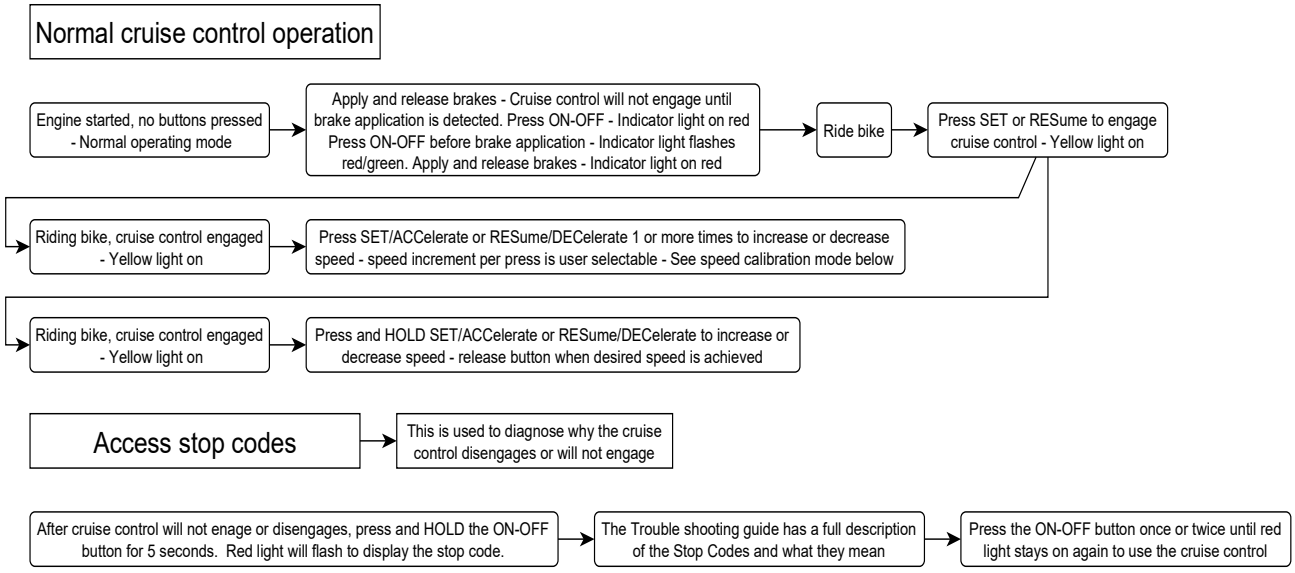
The second parameter is to select a momentary or latched ON-OFF switch. This setting is not relevant in this application.

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

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

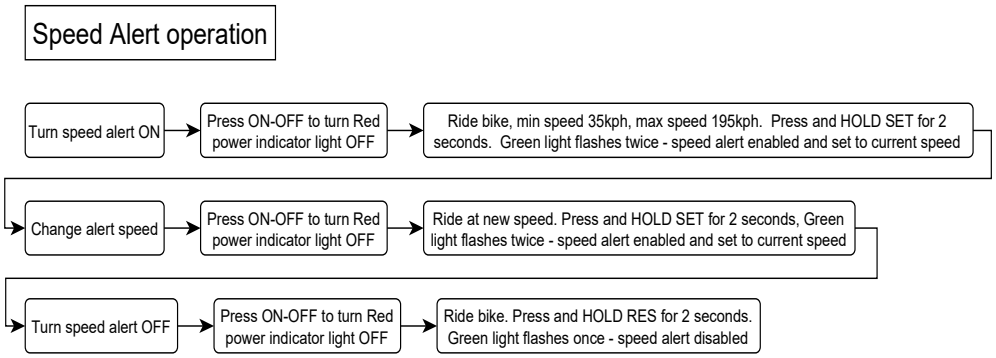
# Cruise Control Menu Map

## Menus for normal operation

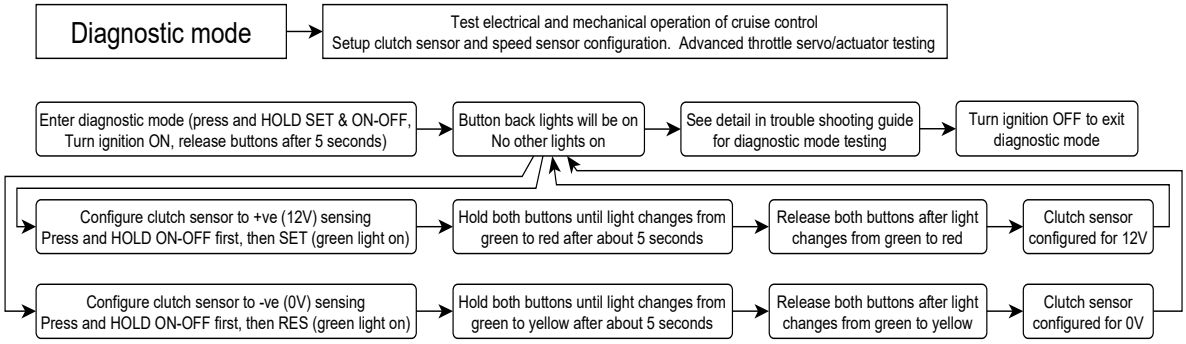




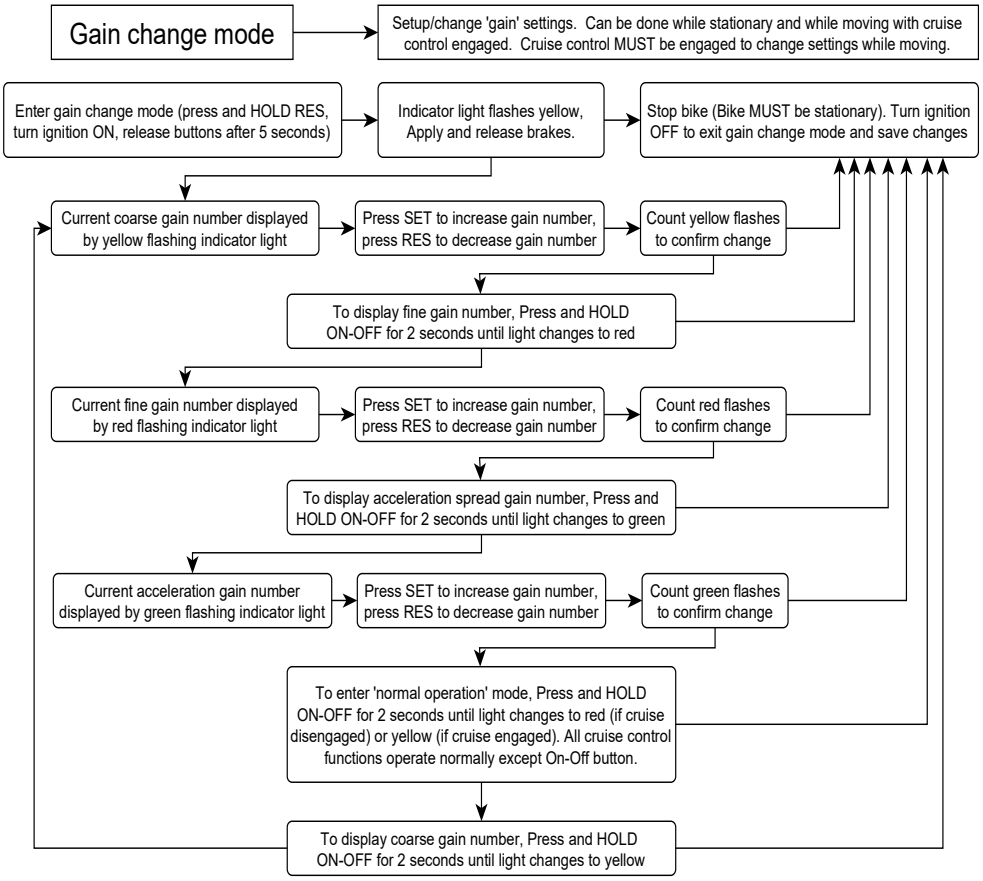





# Menus for normal testing after installation.



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




Notes: -