# Packing list – Quad Cruise for:
# Polaris Sportsman Ute 570

| | |
|---|---|
| Spray Power Kit | ☐ |
| No Spray Power Kit | ☐ |

## MCS 5010 kit

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

| Qty | Part Number | Description | |
|---|---|---|---|
| 1 | MCS 10000C TBW | Computer configured for Ute 570 | |
| 2 lengths | | Velcro mounting tape 7cm long | |
| 1 | MCS 5014-835H | Control Switch assembly **with** spray switch (note: JST connector) | ☐ |
| **OR** | MCS 5014-836H | Control Switch assembly **without** spray switch (note: JST connector) | ☐ |
| OPTIONAL | | | |
| 1 | MCS 5010SPK | OPTIONAL Spray Power Kit (switch, relay & harness) | ☐ |
| Over page for contents of Spray Power Kit | | | |
| 1 | MCS 5011 | Wiring harness (MCS10000TBW Computer) | |
| 1 | Parts bag | (See below for contents) | |
| 1 | Information, Set up and Operation Manual | | |
| 1 | Operation and User Manual | | |
| 1 | Installation Manual for POLARIS Sportsman Ute 570 | | |
| 1 | Trouble Shooting Guide | | |

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

| | | |
|---|---|---|
| 1 | 33471-0301 | Molex MX150 3-way receptacle housing (TPS sensor) |
| 1 | | 50mm Paperclip (terminal extractor) |
| 10 | | 150mm cable ties |
| 10 | | 200mm cable ties |
| 10 | | 300mm cable ties |

**Contents of OPTIONAL MCS 5010SPK Spray Power Kit**

| | | |
|---|---|---|
| 1 | MCS 5011SPH | Spray power wiring harness |
| 1 | JD 046 | Spray power plug |
| 3 | H 3555 | Terminals for above |
| 1 | JD 045M | Spray power socket |
| 3 | H 2832 | Terminals for above |
| 3 | | 8g x 3/8 self-tapping screws (power plug & relay mount) |
| 1 | | M5 x 16 pan head screw (relay mount) |
| 1 | | 5mm flat washer (relay mount) |
| 1 | | M5 Nyloc nut (relay mount) |

# “*QuadCruise*”

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

## For POLARIS Sportsman Ute 570
## Model Years from 2017
## Throttle by wire only (not cable throttle)

**27 August 2024**

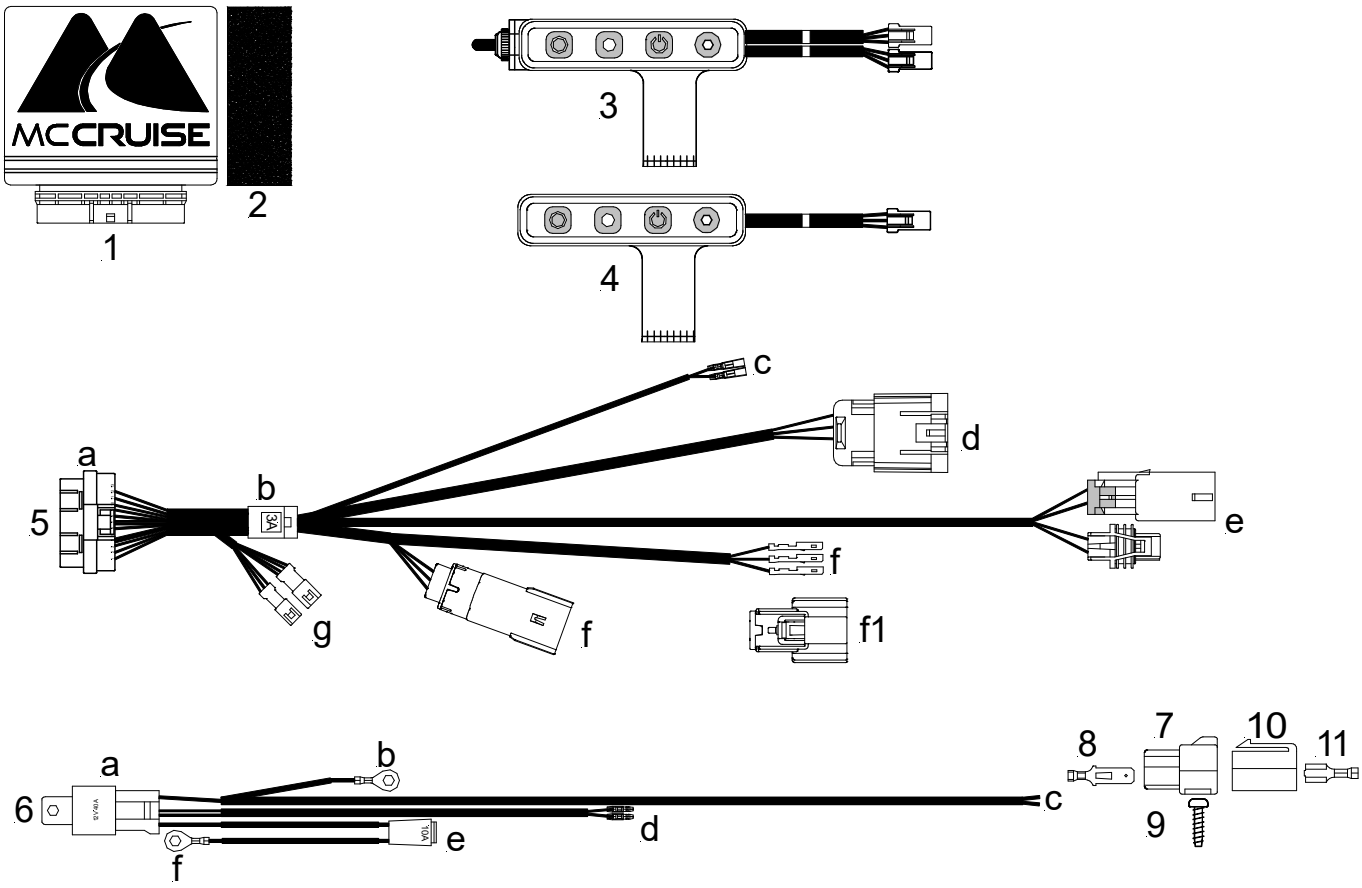
MOTORCYCLE CRUISE CONTROLS

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

# POLARIS Sportsman Ute 570 from 2017 (TBW)

## Parts list for MCS 5010 TBW

| Item | Qty | Part Number | Description |
|---|---|---|---|
| 1 | 1 | MCS 10000C TBW | Computer |
| 2 | 2 lengths | | Velcro mounting tape 7cm long |
| | | | |
| 3 | | MCS 5014-835H | Control Switch assembly with OPTIONAL spray switch |
| | 1 | MCS 822-90 | Control Switch |
| | 4 | | 4 gauge x 1/2” pan head self-tap screws |
| | 1 | MCS 835H | Switch bracket with spray switch |
| | 1 | MCS 823-90 | Spray switch |
| **OR** | | | |
| 4 | | MCS 5014-836F | Control Switch assembly without spray switch |
| | 1 | MCS 822-90 | Control Switch |
| | 4 | | 4 gauge x 1/2” pan head self-tap screws |
| | 1 | MCS 836H | Switch bracket without spray switch |
| | | | |
| 5 | 1 | MCS 5011 | Wiring harness |
| a | | | Computer plug (26 pin) |
| b | | | Cruise Control Power Fuse (3 amp fuse) |
| c | | | Terminals for optional Spray power harness (pink & blue wires) |
| d | | | CAN-BUS Diagnostic plug connector |
| e | | | Brake switch connectors (orange & grey wires) |
| f | | | TTPS connectors (3 way plug & terminals) |
| f1 | | | TTPS connector housing (3 way) |
| g | | | Control switch plugs (6 way & 3 way) |
| | | | |
| **OPTIONAL** | | MCS 5010SPK | Spray Power Kit |
| 6 | 1 | MCS 5011SPH | Spray Power Harness |
| a | | | Spray control relay |
| b | | | Ground supply terminal (black wire) |
| c | | | Output power and ground wires (yellow & black wires) |
| d | | | Relay control terminals (pink & blue wires) |
| e | | | Spray power fuse (10 amp fuse) |
| f | | | Power supply terminal (red wire) |
| | | | |
| 7 | 1 | JD 046 | Spray Power Plug |
| 8 | 3 | H 3555 | Terminals for above |
| 9 | 3 | | 8g x 3/8 self-tapping screws (relay/power plug mount) |
| | 1 | | M5 x 16 pan head screw (relay mount) |
| | 1 | | 5mm flat washer (relay mount) |
| | 1 | | M5 Nyloc nut (relay mount) |
| 10 | 1 | JD 045M | Spray Power Socket |
| 11 | 3 | H 2832 | Terminals for above |
| | | | |
| | 1 | | Paper clip (terminal removal tool) |
| | 10 | | 150mm cable ties |
| | 10 | | 200mm cable ties |
| | 10 | | 300mm cable ties |


MCCRUISE
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# WARNING

**The Quad Cruise has been designed to provide smooth, low-speed control over flat ground, ploughed fields and rough terrain - uphill and down dale.**

**The slow speed, however, can be deceiving!**

**The cruise control does NOT alter the inherent stability or centre of gravity of the ATV in any way. It is VITAL that you always follow the load restrictions advertised by the manufacturer and ride the ATV in a safe and responsible manner. Please take into consideration the slope of the ground and the total mass and distribution of any load when using your ATV - with or without the cruise control.**

**Your safety is at stake - please heed these warnings.**

# 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 & ATV applications. Testing has resulted in programming to deliver safe, reliable operation on a variety of vehicles. 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 or ATV!**

**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.**

## CONTENTS

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

**6. PREPARING THE VEHICLE 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 VEHICLE FOR CRUISE CONTROL INSTALLATION

The following disassembly operations must be performed to prepare the bike for cruise installation:

- Raise the rear tilt tray;
- Remove the seat;
- Open the front compartment and remove the centre inner panel;
- Remove the headlight/instrument panel top cover;
- Remove the side body panels;
- Disconnect the battery.

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

**Raise the rear tilt tray.**

Pull the release latch up and raise the tray.


**Remove the seat.**

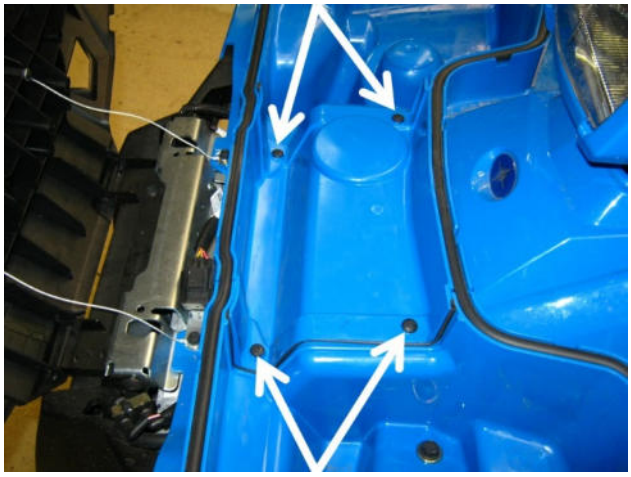
Lift the rear of the seat and pull it to the rear.

Remove the seat from the vehicle.

**Open the front compartment.**

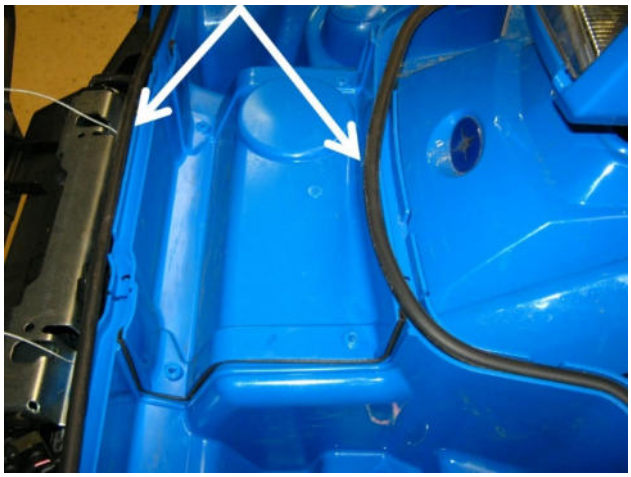
Release the latches, one each side and open the front storage compartment lid.

Remove the four screws for the centre panel of the front body.



Lift the rubber sealing strip out of the grooves in the centre panel.

Lift the panel out and remove it from the vehicle.



The front of the vehicle with the panel removed.

**Remove the headlight/instrument cluster cover.**

Undo the two screws in the top corners of the instrument panel.

Undo the screws on the side of the cover, one screw each side.

Lift the cover off.

The back of the instrument cluster and headlight with the cover removed.

**Remove the side body panels.**

Release the expansion plug on the lower left side panel.

Undo the two expansion plugs at the rear of the upper left side panel.

Lift the panel up at the rear and disengage the tabs at the front of the panel and remove the upper and lower panels.

Undo the two expansion plugs at the rear of the upper right side panel.

Lift the panel up at the rear and disengage the tabs at the front of the panel and remove the upper panel.

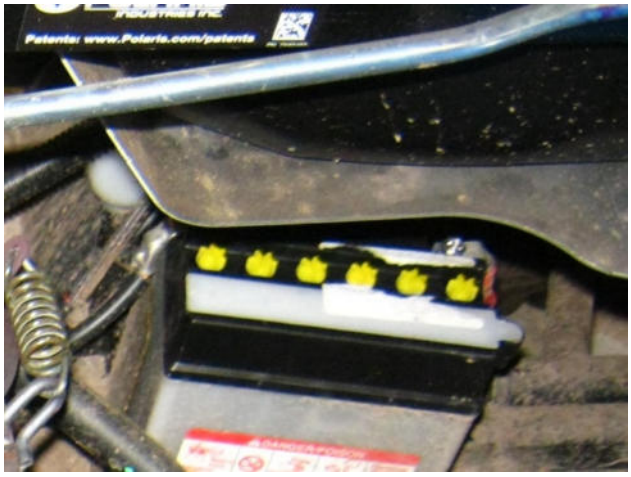
After the right panel is removed, lift out this smaller panel.

**<u>Disconnect the battery negative cable from the battery.</u>**

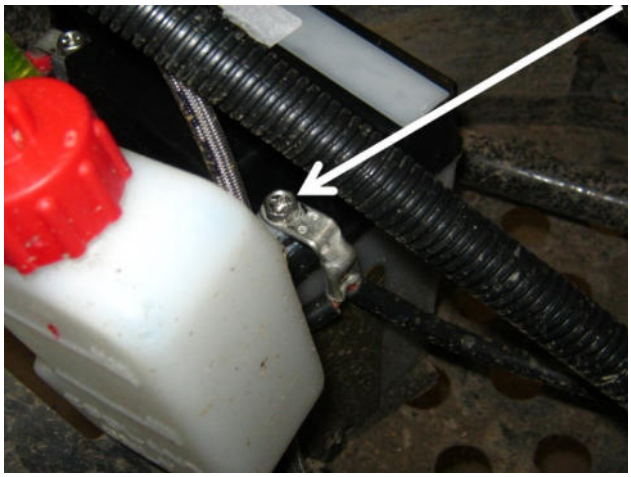
The battery is in front of the motor viewed from the right side of the vehicle.

Release the battery hold down strap.

The strap was missing on this vehicle.



Lift the black plastic cover off the battery.



This photo is taken from the left side of the vehicle, next to the coolant reservoir.

Disconnect the negative battery cable from the battery.

Ensure that the cable cannot touch the battery terminal.

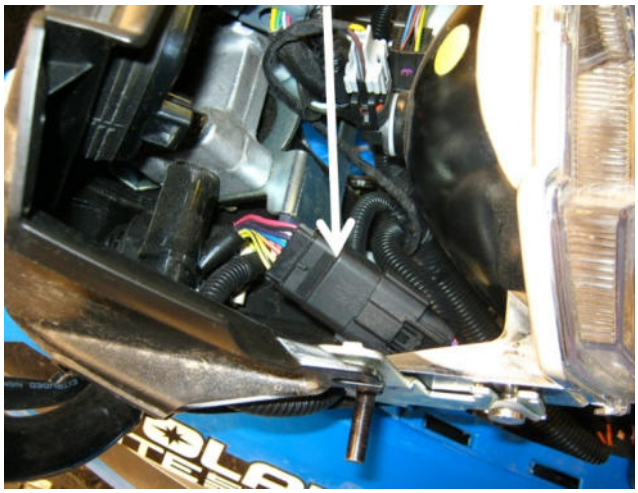
## 7. INSTALLATION

**<u>Preparing for wiring harness installation.</u>**

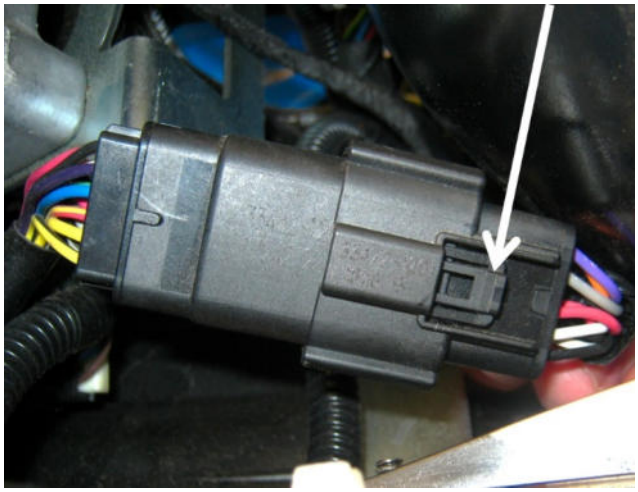
Locate the bikes connecting plug for the right side handlebar switch assembly.

This is located on the right side of the headlight/instrument ‘pod’ or nacelle.

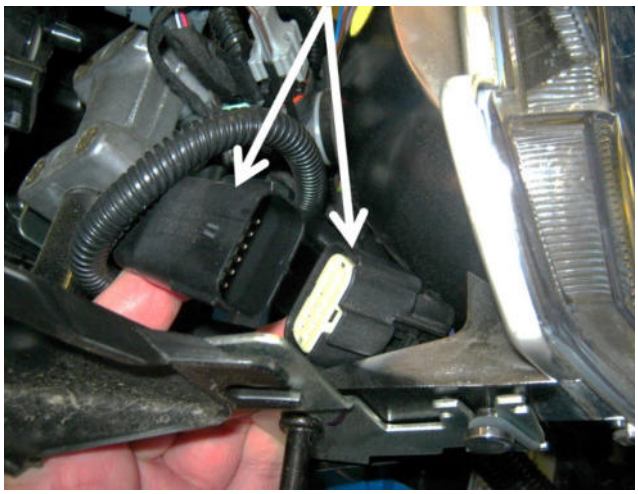
Draw the plug up so you can access it.



Depress the latch on the plug to disconnect the two halves.

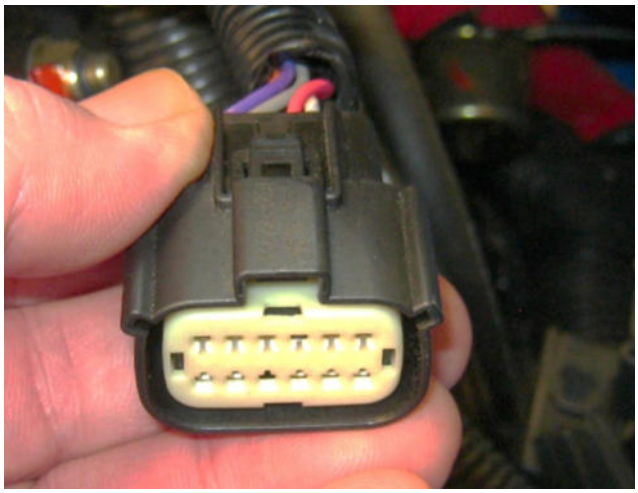


The plug disconnected.

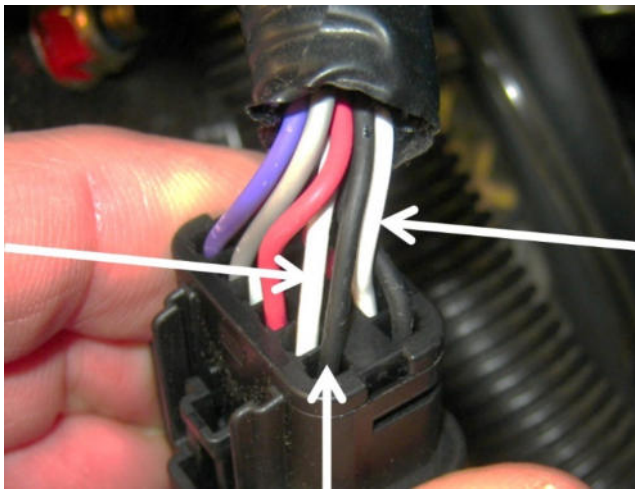


**<u>Preparing for connecting the wiring harness to the vehicle.</u>**

Draw the receptacle plug out of the headlight shell.



The cruise control must connect to three wires in the plug:
The black wire in the top left position (lower arrow).
The two white wires in the upper and lower positions next to the black wires (left and right arrows).

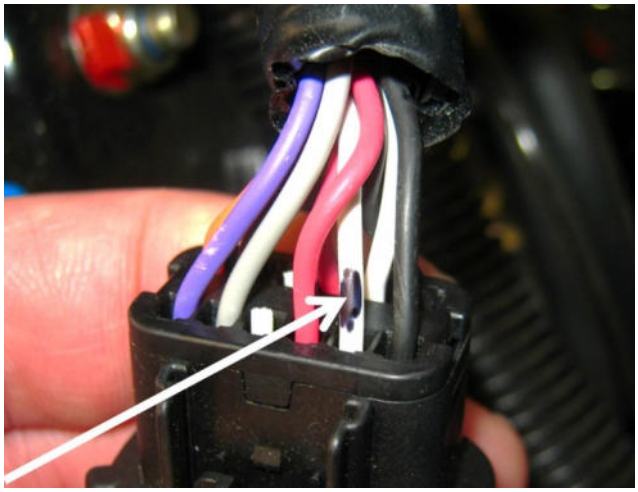


These wires and terminals must be backed out of the plug.

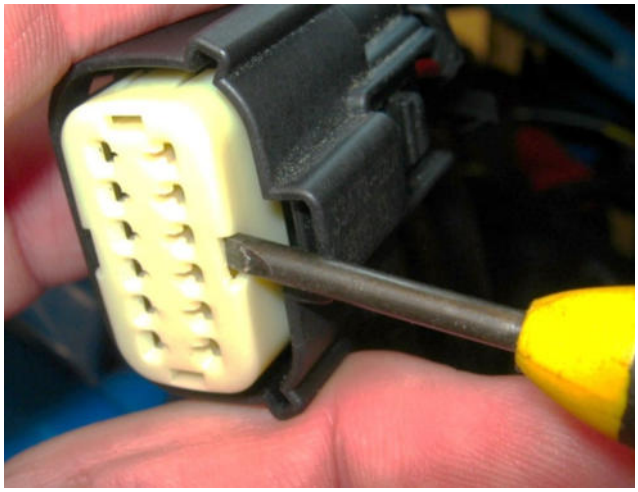
These wires are for the position sensor on the throttle trigger.

One of the white wires must be marked so you can tell the two white wires apart. Mark the white wire in the upper (latch side) of the plug. We used a black marker pen to mark the wire.

**NOTE: - Use a permanent marker, not a white board marker that can be rubbed off.**



Use a small screwdriver to gently lever the terminal secondary retainer out of the plug, it will move out about 5mm and stop.

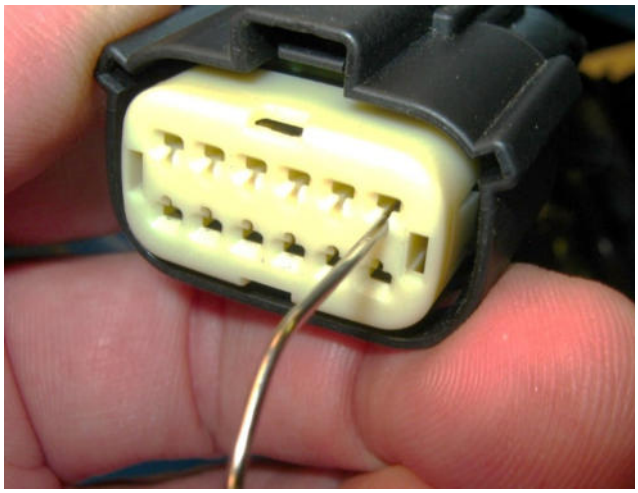


Locate the paper clip in the kit.

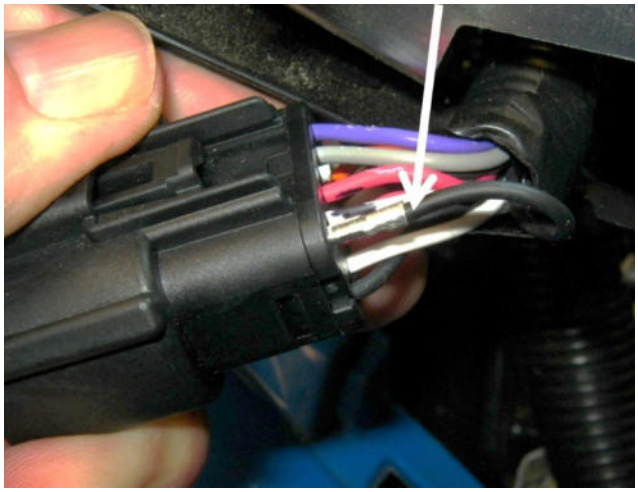
Unbend the paper clip as shown.

This will be used as a terminal extractor tool.

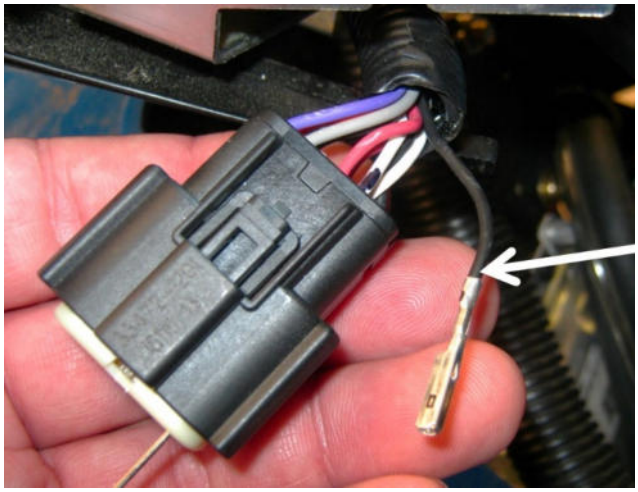
Insert the end of the paper clip into the small slot for the terminal on the upper left black wire.



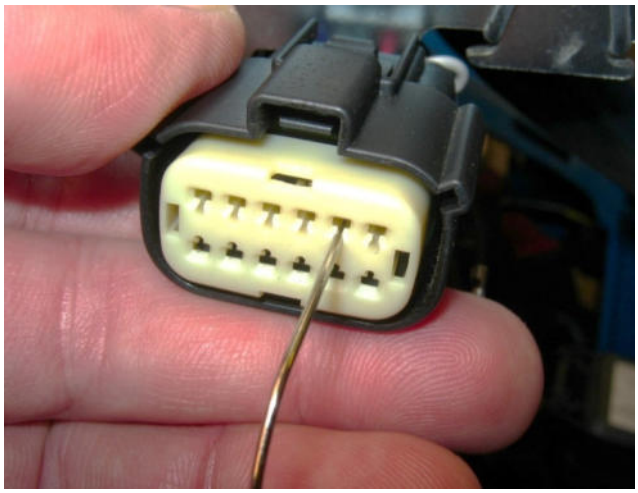
Gently push the black wire IN first to ensure the terminal latch can release, then pull the wire and terminal out of the connector.



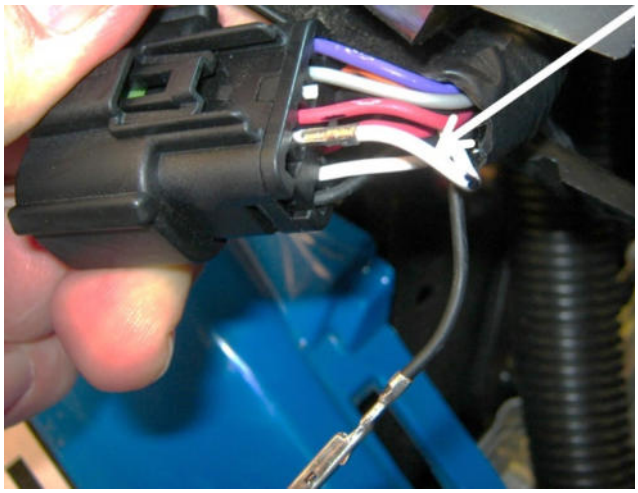
The black wire and terminal out of the connector.



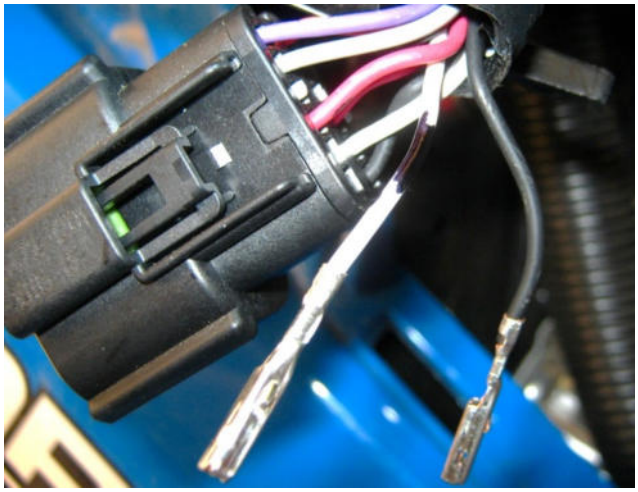
Insert the end of the paper clip into the small slot for the terminal on the 2nd upper left hole with the white wire. This is the wire you marked.



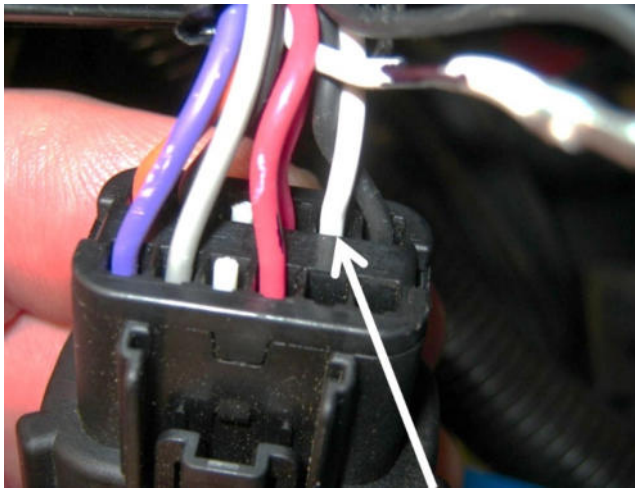
Gently push the white wire IN, then pull it out of the connector.



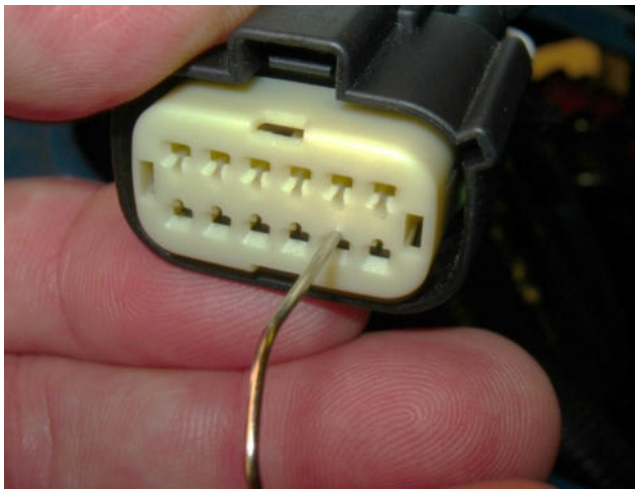
The marked white wire and terminal out of the connector.



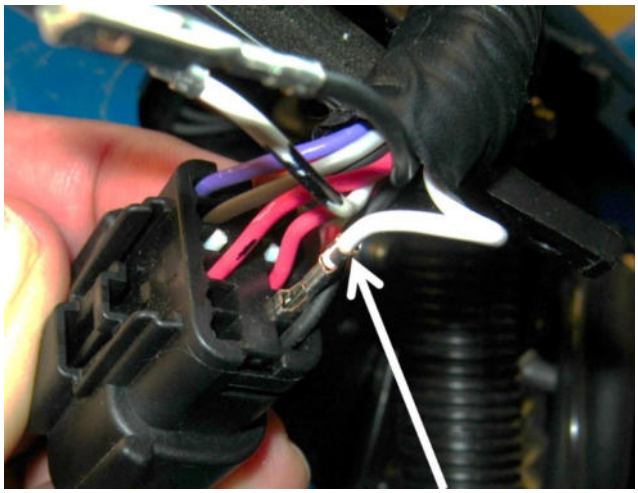
This leaves the white wire in the 2nd hole on the lower row.



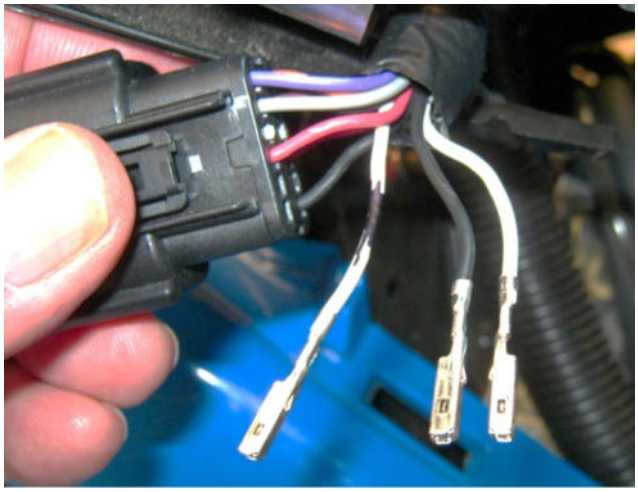
Insert the end of the paper clip into the small slot for the terminal on the 2nd hole in the lower row for the white wire.



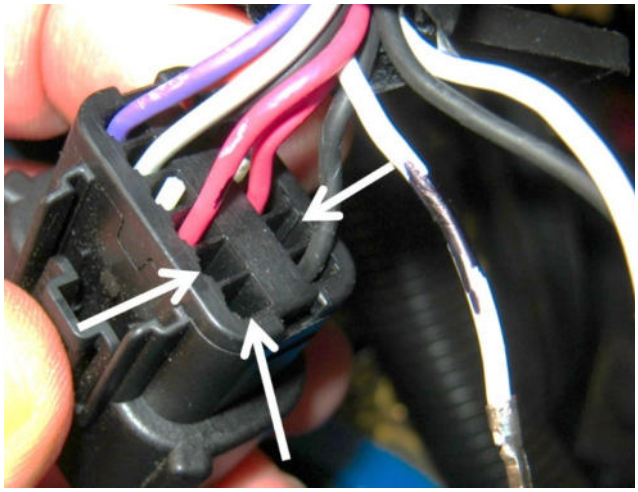
Gently push the white wire IN, then pull it out of the connector.



All three terminals and wires out of the connector.

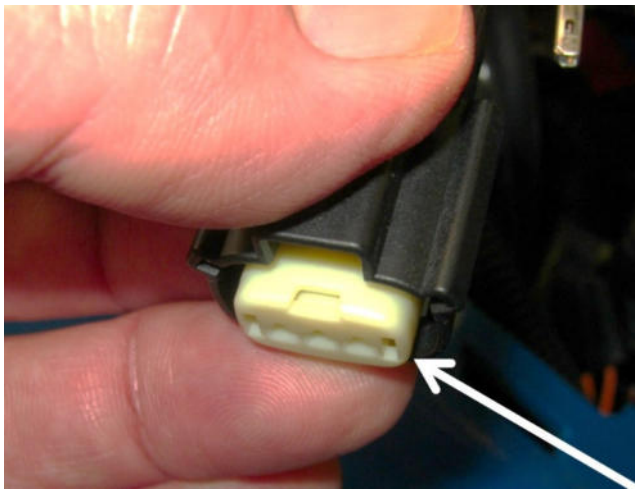


The three empty holes in the connector.



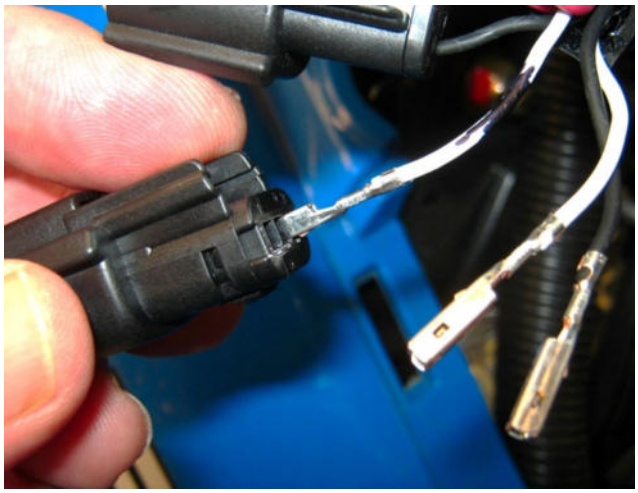
Locate the black 3-way connector in the cruise control parts bag.

Use a small screwdriver to pull the secondary terminal lock out of the connector, as you did for the bike's connector.

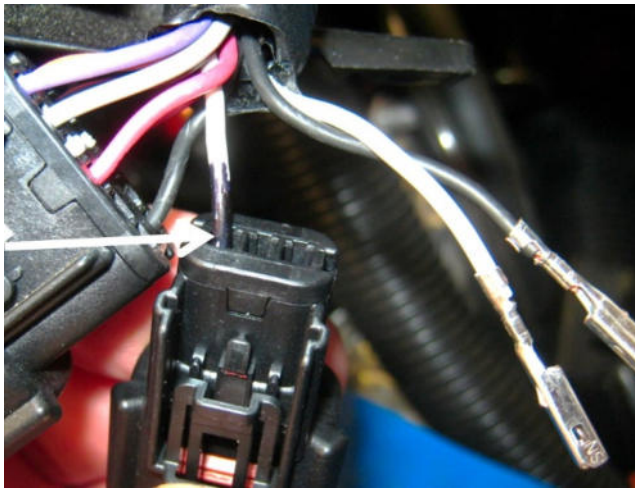


Insert the bike's marked white wire and terminal into the hole marked '3' in the back of the connector.

Note the orientation of the terminal.



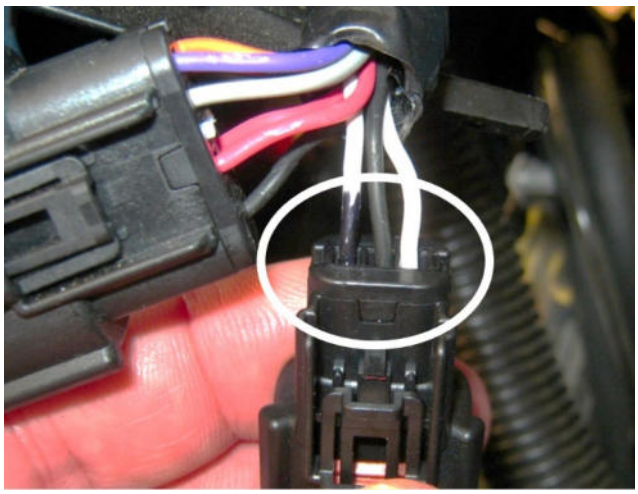
The marked white wire inserted into the left hole, position 3.



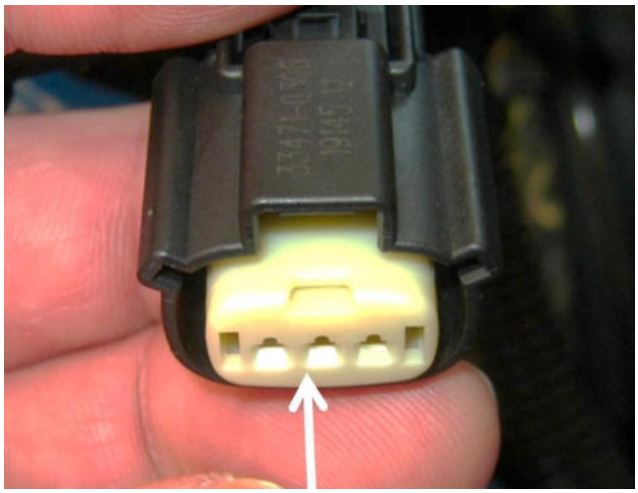
Insert the black wire into the middle hole, position 2.

Insert the unmarked white wire into right hole, position 1.

**CAUTION: - It is CRITICAL that these wires are inserted into the correct positions.**



Push the secondary lock in. Note that this will not push in if any terminals are not fully inserted.



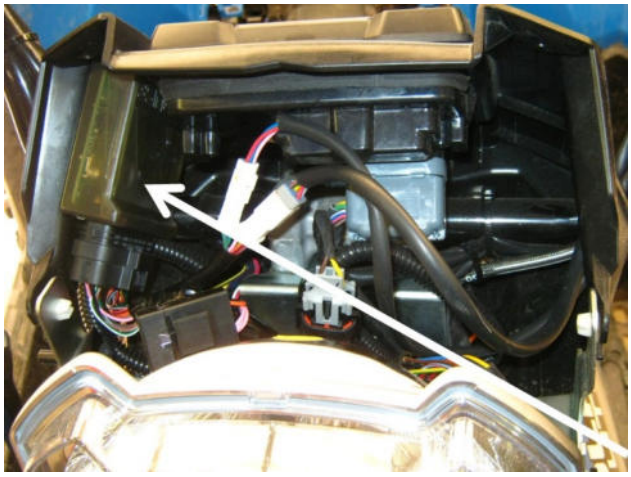
The secondary lock in the locked position.

## Installing the wiring harness

Locate the wiring harness in the kit.

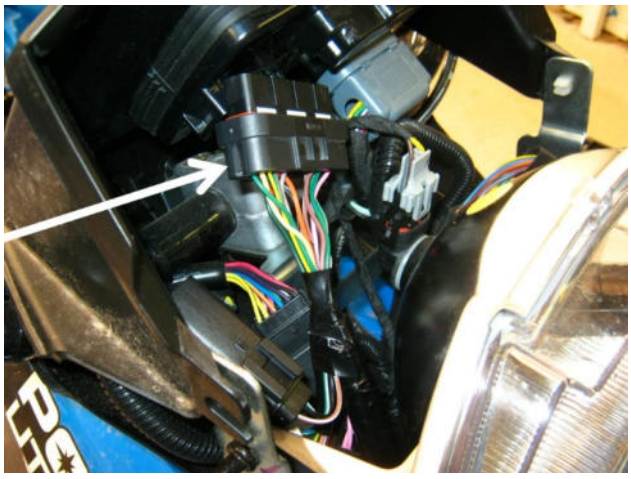
The cruise control computer will be fitted in the headlight nacelle later, next to the instrument cluster.

The main connector on the harness connects to the computer.



Feed the main harness from below the headlight up into the area between the headlight and the instrument cluster.

The main connector should be resting on the handlebar mounts.

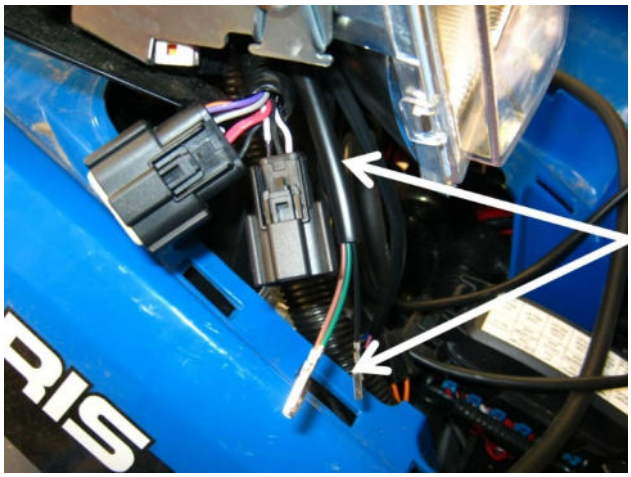


<u>Throttle Trigger Position Sensor connection.</u>

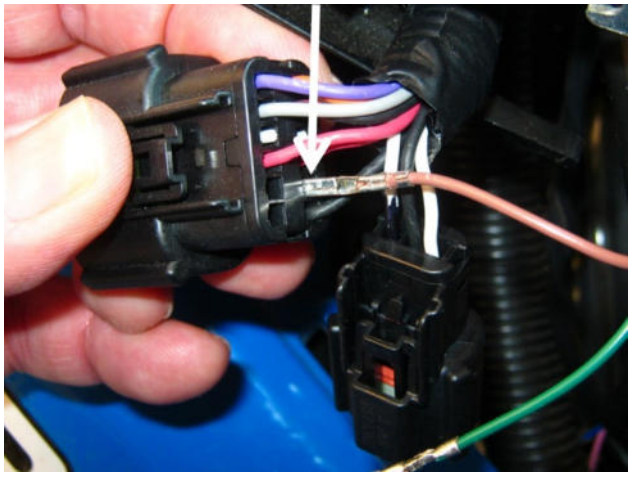
Identify the Throttle Trigger Position Sensor wire on the cruise control harness.

This branch has three wires, one green, one brown and one black fitted with terminals.

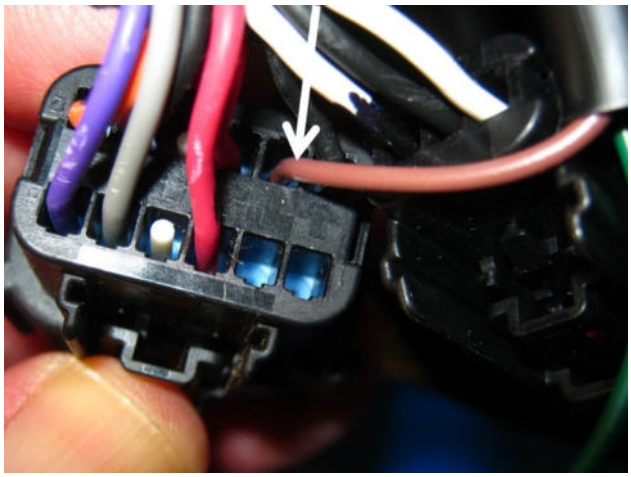
Route this branch to the connecting plug for the right side handlebar switch assembly that you removed the three wires from.



Insert the cruise control brown wire into the hole the white wire came from.



Push the brown wire and terminal all the way in until the terminal ‘latches’ into the plug and won’t pull out.

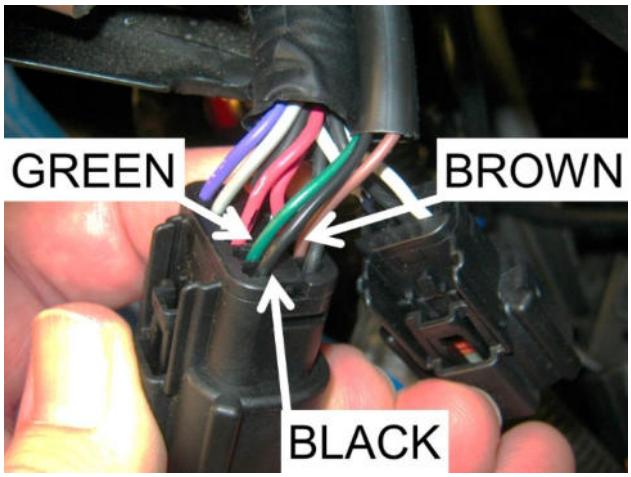


Repeat the operation on the other two wires.

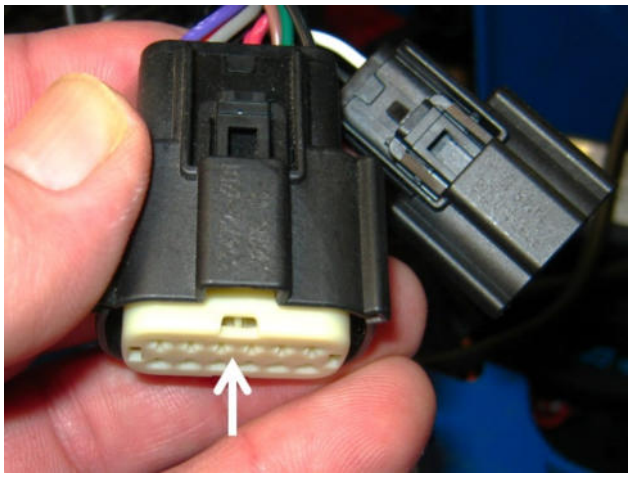
The green wire goes into the hole the marked white wire came from.

The black wire goes into the hole the black wire came from.

**CAUTION: - It is CRITICAL that these wires are inserted into the correct positions.**



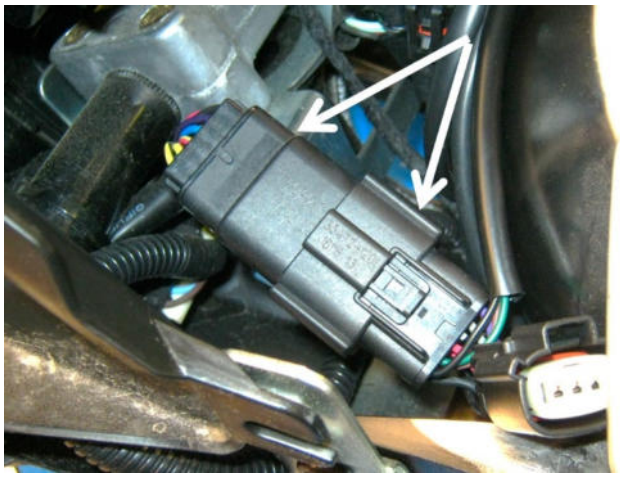
Push the secondary lock in. Note that this will not push in if any terminals are not fully inserted.



The secondary lock in the locked position.

Feed the connectors back into the headlight pod space.

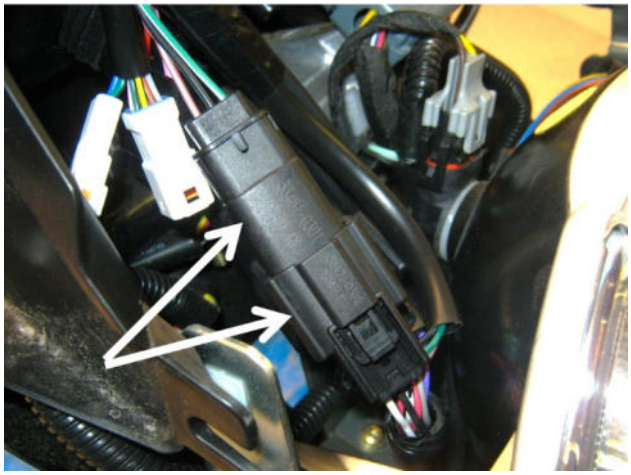
Re-connect the two multi-way connector for the right side handlebar switch assembly.



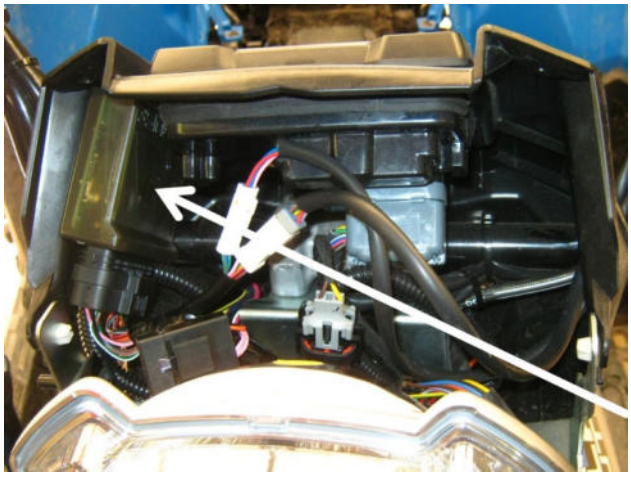
Connect the 3-way connector you fitted to the vehicle's white and black wires to the matching 3-way connector on the cruise control harness. This plug has three wires, green/white, brown/white and black.

Check which wires connect via the 3-way plugs.

The **green/white** wire MUST connect to the vehicle's **marked white** wire.
The **brown/white** wire MUST connect to the vehicle's **un-marked white** wire.
The **black** wire MUST connect to the vehicle's **black** wire.



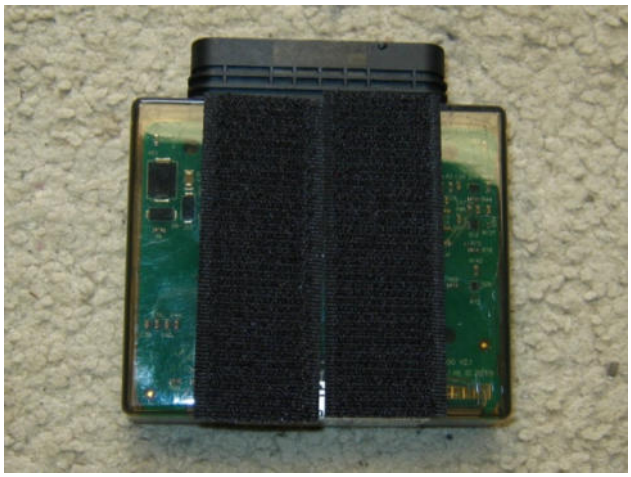
Tuck the connectors in behind the headlight,



**<u>Installing the cruise control computer.</u>**

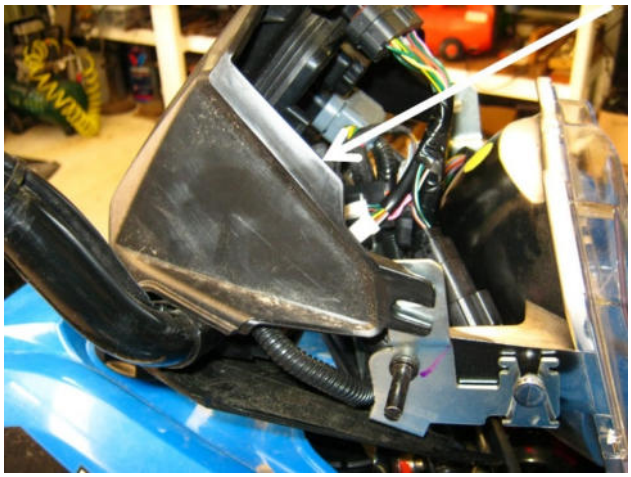
The cruise control computer will be mounted in the right side of the headlight pod, beside the instrument cluster.

Velcro mounting tape is used to attach it.



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

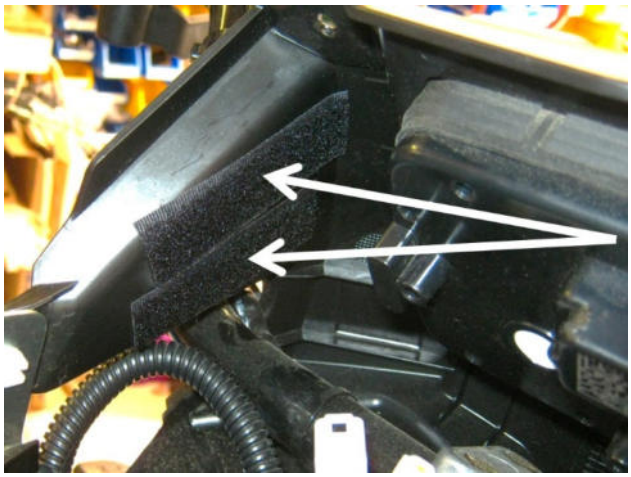
Apply the two Velcro strips to the bottom of the computer.



The computer will be mounted on the inside of the right wall of the pod.

Clean the flat face on the wall with suitable solvent.

Place the other half of the Velcro strips on the inside face of the wall.

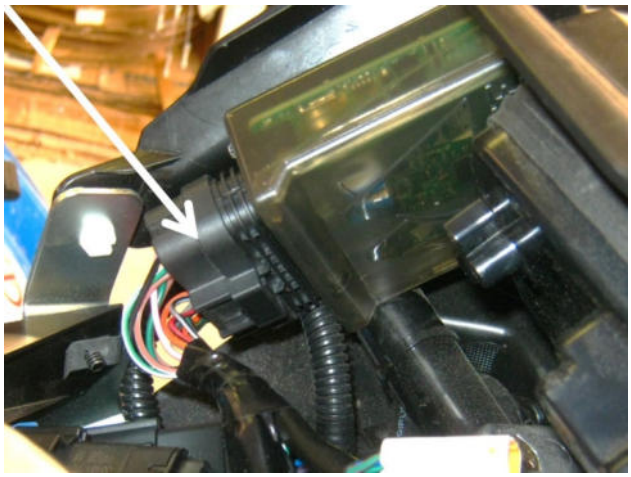


Position the computer on the Velcro tape.

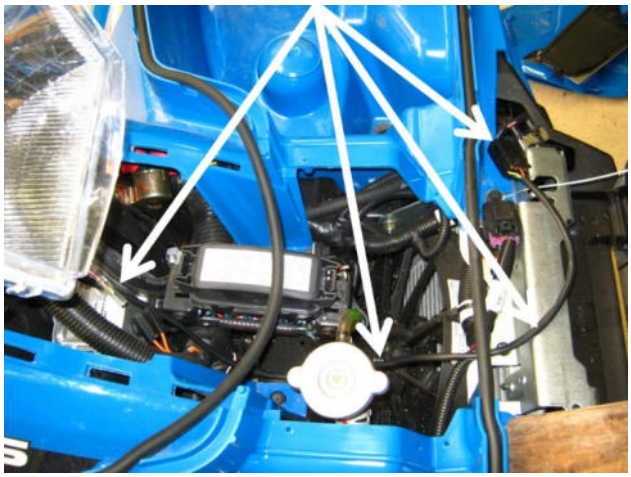
Press the computer firmly onto the Velcro tape to mount it securely

**Installing the wiring harness (continued).**

Connect the cruise control harness to the cruise control computer.



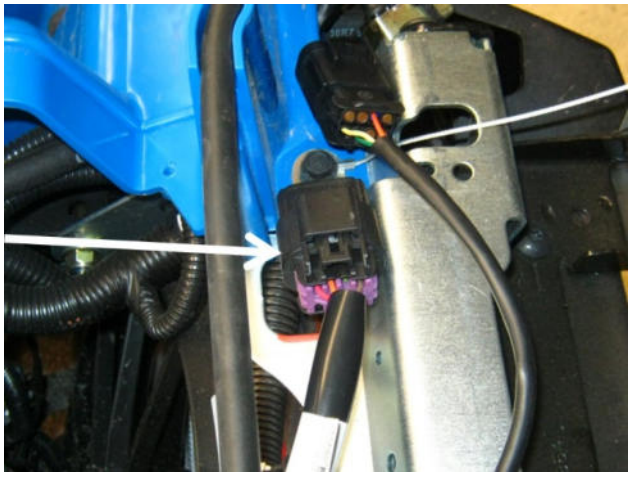
Fit a cable tie around the vehicle's harness and the cruise control harness on the steering 'spindle'.



CAN-BUS diagnostic plug connection.

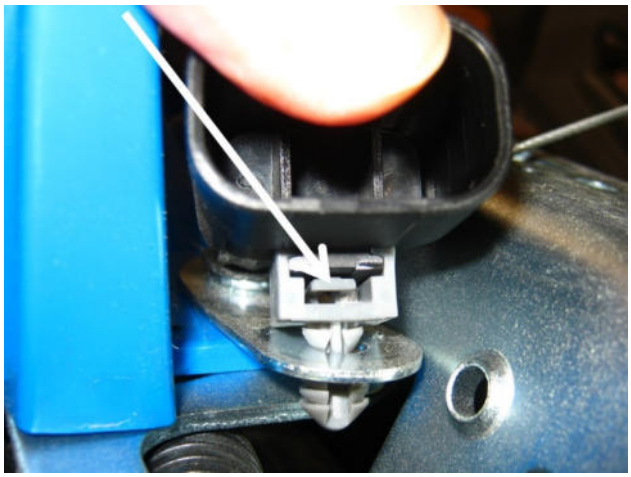
Identify the cruise control CAN-BUS connector. This is an 8-way connector with three wires, orange, yellow and green.

Route this branch to the front of the vehicle to the vehicle's diagnostic plug.



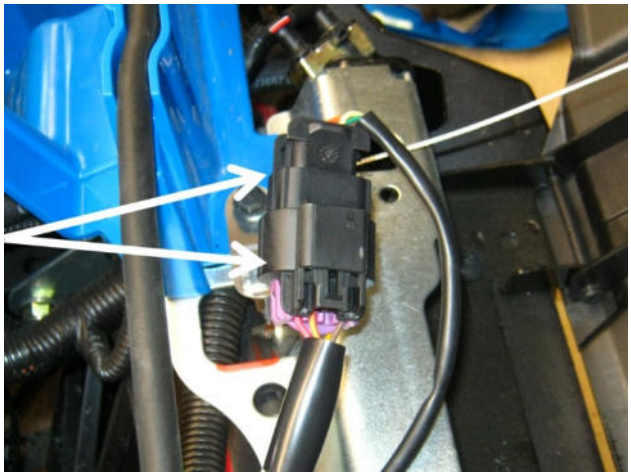
The vehicle's diagnostic plug.

Disconnect the diagnostic plug from the blanking plug.



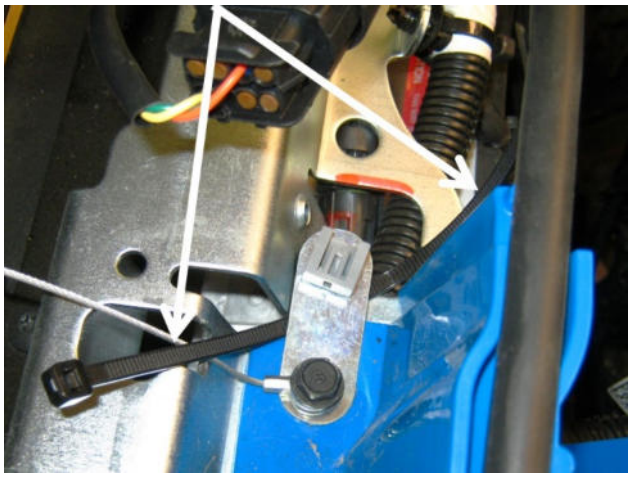
Release the latch (arrowed) and remove the blanking plug from its mount.

Store the blanking plug as it will not be re-used.



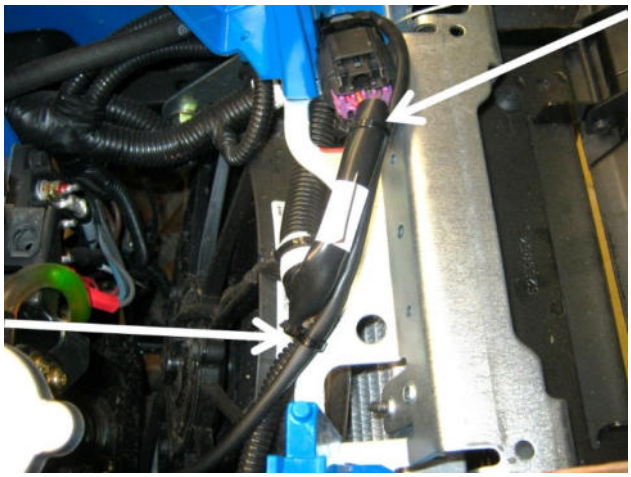
Connect the cruise control CAN-BUS plug to the vehicle's diagnostic plug.

Feed long cable tie under the blanking plug mount.



Place the CAN-BUS plug on the blanking plug mount and fix in place with the cable tie.

Fit cable ties to hold the cruise control CAN-BUS harness to the vehicles' diagnostic plug harness.



<u>Rear brake light switch connection.</u>

Locate the rear brake light switch on the vehicle.

This is a pressure switch fitted to the brake master cylinder and is accessible from the rear wheel arch, in front of the wheel.

Lift the latch on the brake light switch plug and disconnect the plug from the pressure switch.

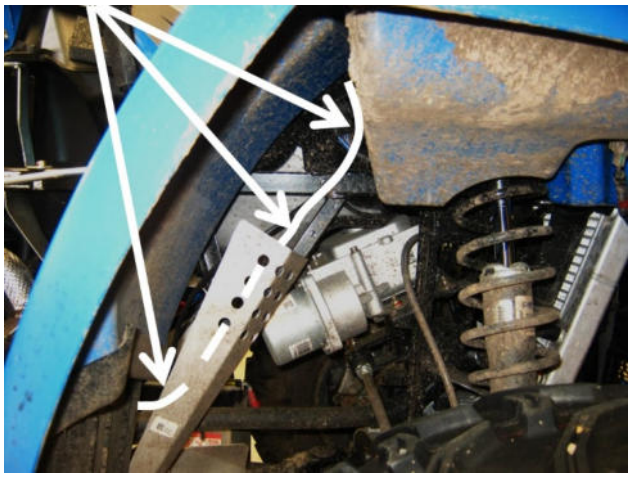
The plug disconnected from the switch.

Identify the brake switch branch of the cruise control wiring harness.

This branch has two 2-way plugs on orange and grey wires.

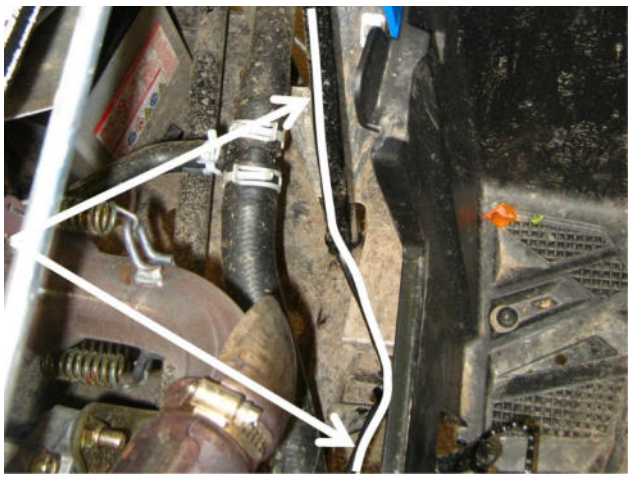
Route this branch down into the right front wheel arch.

Route the wire down the frame tube inside the front right wheel arch.

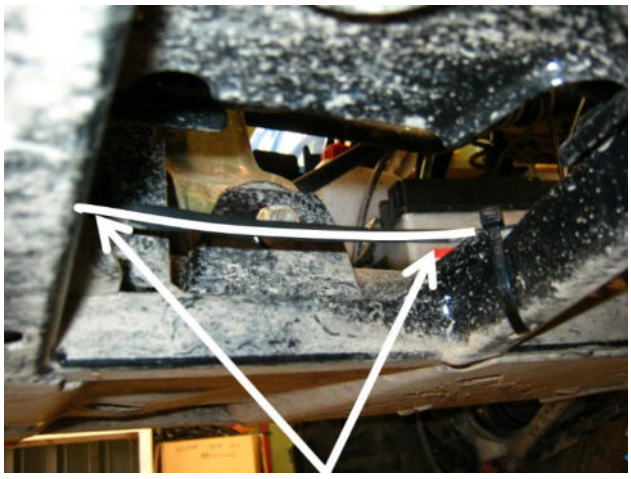


Route the wire down the frame in front of the gear shift lever.

Route the wire down the frame tube, then to the rear on top of the bottom right frame tube.



Route the wire to the rear to the brake switch on top of the bottom right frame tube.



Route the wire past the brake master cylinder to the brake switch.

Connect the cruise control brake switch plugs to the vehicles brake pressure switch (lower arrow) and to the vehicle's brake switch connector (upper arrow).

Cable tie the extra connector to the brake pressure switch/master cylinder.

Fit cable ties to tie the branch to the frame tubes at regular intervals.


**<u>Mounting the Control Switch.</u>**

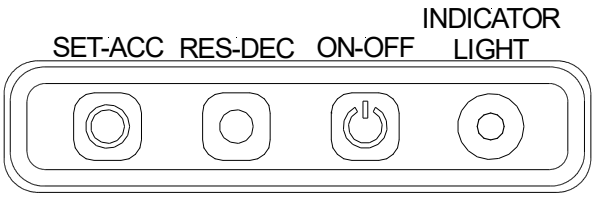
There are two switch options available. The switch shown here has the Spray Control Switch option fitted. The Spray Control Switch is the small toggle switch on the left of the switch assembly.

This type of switch is also available without the spray control switch option.

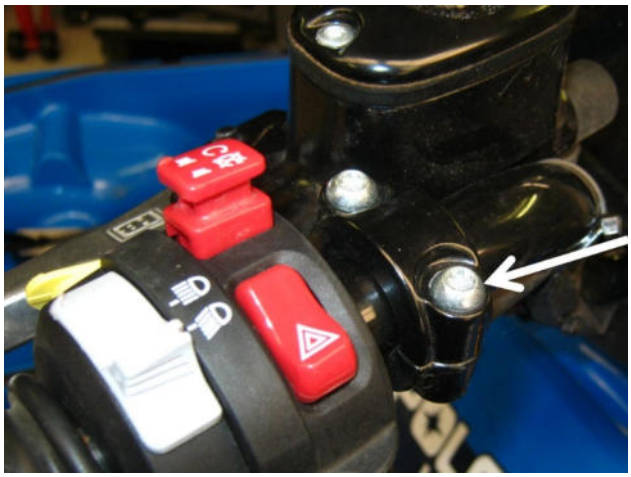
This switch is mounted on the left side handbrake lever mount.

The photographs show our old control switch which has recently been replaced by our new switch. The new switch is the same size as the old, and is a direct swap, but the buttons are different.

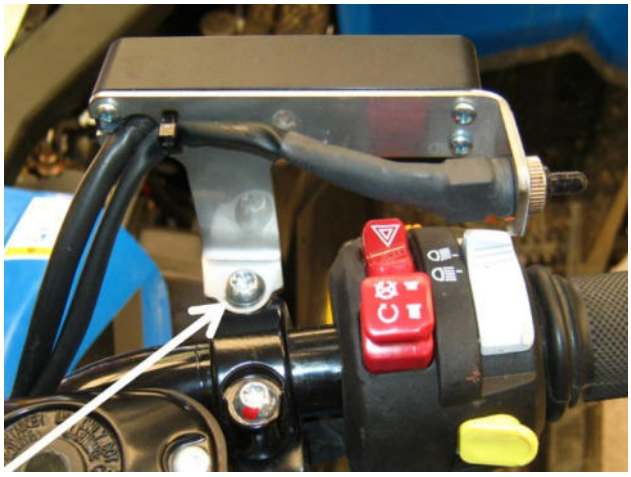
This diagram shows the new control switch buttons and their functions.



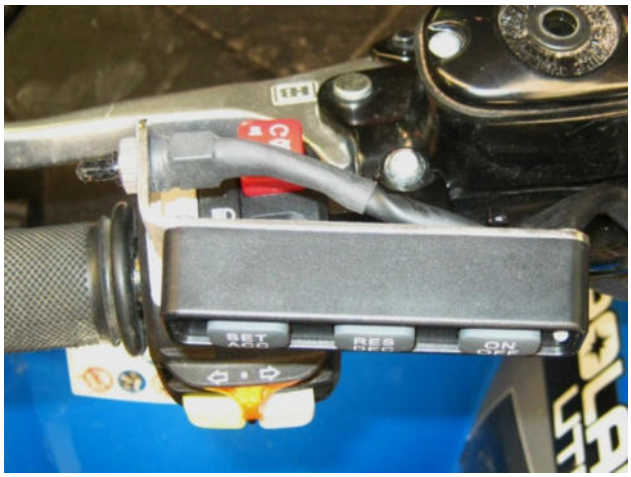
Remove this brake lever mounting bolt.



Fit the control switch on the bolt and replace it in the brake lever mount and tighten firmly.

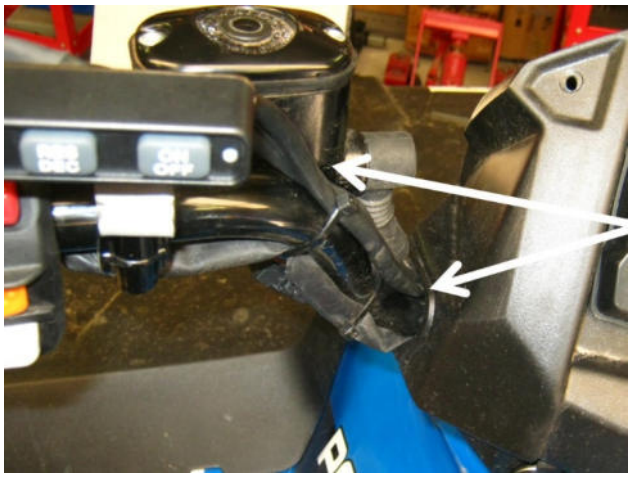


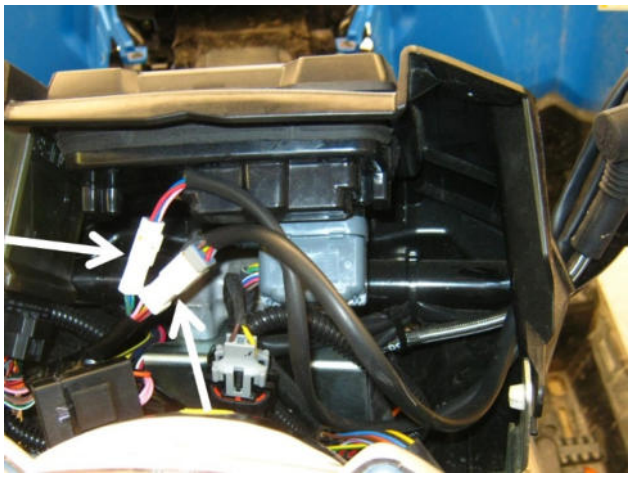
We suggest angling the switch slightly towards the grip to make using the switch easier.



Route the control switch wires down the handlebar and into the headlight pod.

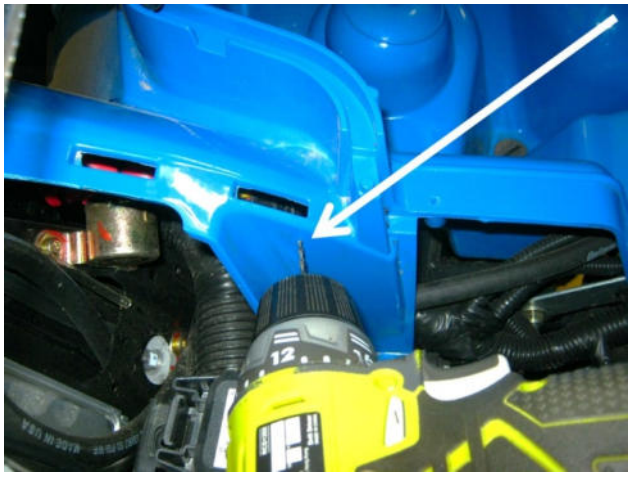
Fit cable ties to the wires.





Connect the plug/s on the switch wires to the matching plug/s on the cruise control harness.

**NOTE: - If your cruise control has the optional Spray Power Harness, you will have both switch plugs shown here on the control switch. If you do not have the optional Spray Power Harness, there will only be one plug on the wires for the control switch.**

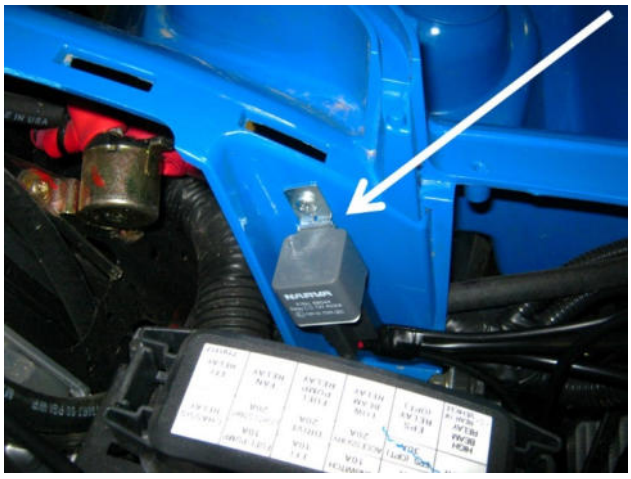


**<u>Fitting the Optional Spray Power Harness.</u>**

Locate the Spray Power Harness in the kit.

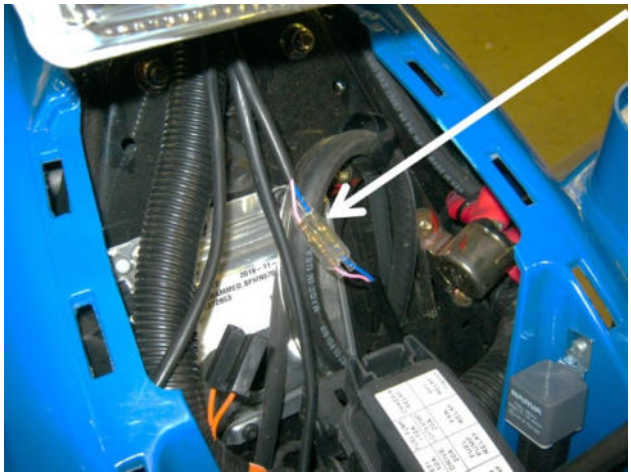
The relay on the harness has a mounting tab on the top of the relay.

Drill a small (2~2.5mm) hole in the body panel near the vehicle's fuse box for a mounting hole for the relay. Be careful not to damage any parts behind the panel.



Use the supplied self-tapping screw to mount the relay on the panel.

There is also a 5mm screw, washers and Nyloc nut in the kit that can used if desired instead of the self-tapping screw.



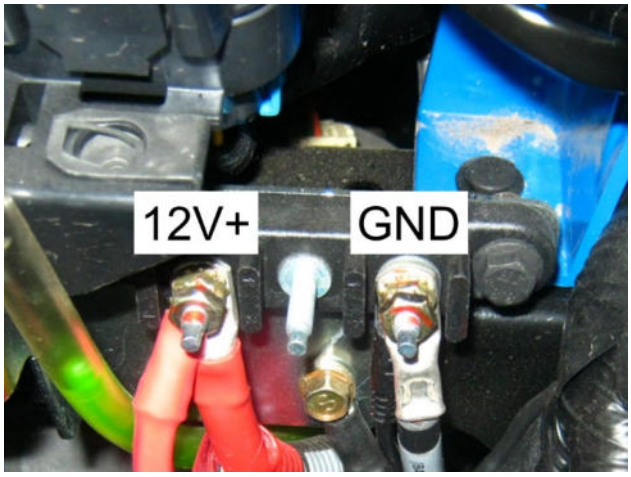
Identify the signal wires on the relay harness. These are blue and pink and are fitted with bullet terminals.

Route these wires to the branch of the cruise control harness with pink and blue wire fitted with bullet receptacles

Connect the relay wires to the cruise control wires.

The vehicle has a bus-bar next to the fuse box.

The bus bar has cables from the battery to two of the threaded posts.

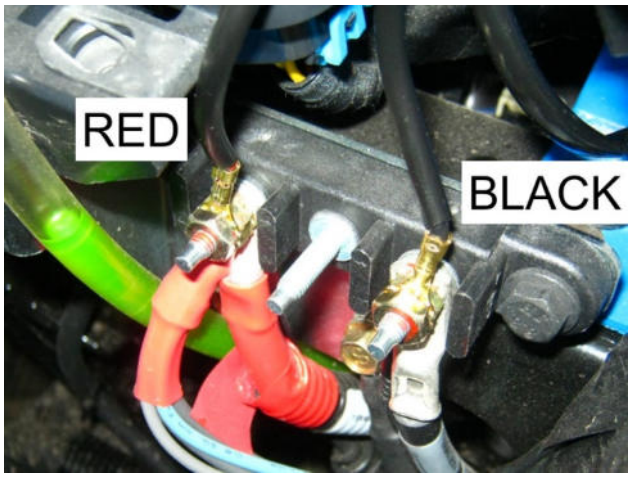



Route the red and black power wires from the relay to the bus bar.

Connect the ring terminal on the red wire to the 12V positive post on the bus bar.

Connect the ring terminal on the black wire to the ground or negative post on the bus bar.

If desired cable tie the fuse holder to a suitable location such as the relay.




The third branch has the black and yellow wire.

Route the yellow and black wires from the relay to the desired connection location for the accessory or spray system that you wish to power. This is normally at the rear of the vehicle.

A suitable mountable power outlet plug and terminals are provided in the kit to fit to these wires as well as a matching plug and terminals to fit to the spray/accessory.

Self-tapping screws are also provided to mount the connector.

The two-way power outlet socket is connected to the battery via a 10-amp fuse and can be controlled using the 'SPRAY' switch on the cruise control switch. The switch controls the relay on the Spray Harness.

This can be used to power spray equipment or any other powered accessory that have a current draw of up to 10 amps (12V, 120W). Matching terminals and a terminal housing are supplied in the kit. If desired another type of plug may be fitted.

The yellow wire is the positive (power) connection and the black wire is the negative (ground) connection.

This power outlet is controlled by the 'SPRAY' switch on the cruise control switch. The centre position is 'OFF', the upper 'ON' position supplies power to the plug continuously (while the ignition switch is ON) for spot spraying applications and the lower 'AUTO' position supplies power to the plug ONLY when the cruise is engaged - for boom spraying applications. The brakes and RES button can be used to control the speed and the spray simultaneously with ease. Flow rates can be set for the speed and the operation (on or off) of the spray is controlled by the cruise control.

**Finishing up.**

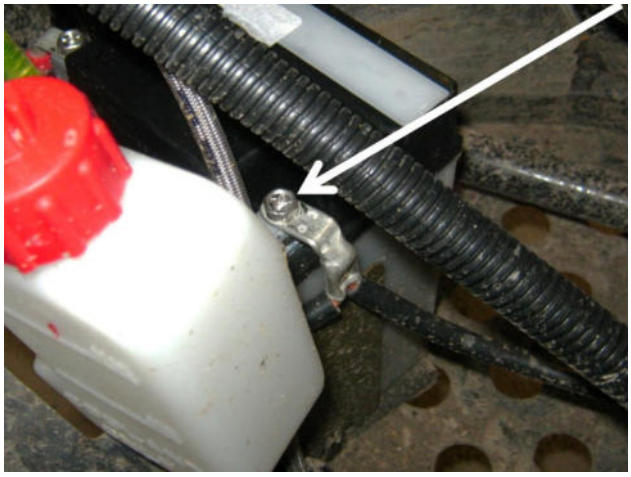
**CAUTION: - Carefully check all connections are complete.**

**Fit cable ties where necessary to prevent damage to the cruise control harness or any of the vehicle's parts.**

**Ground connection.**

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

The cruise control does not require a separate ground connection.



**THROTTLE POSITION SENSOR CALIBRATION AND TESTING.**

**Explanation:**

The cruise control must 'learn' how the throttle trigger works electrically. The calibration process 'teaches' the cruise control what signals to send to duplicate the operation of the throttle trigger.

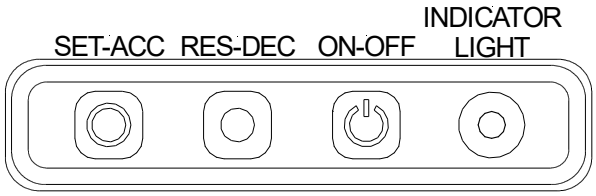
Good cruise control response and operation requires that the cruise control knows exactly the point where the engine speed is about to increase from idle. On many TBW (Throttle By Wire) vehicles, the engine does not respond to the throttle until some 'free play' is taken up in the grip. In order to respond 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 perform, and test, the throttle trigger calibration procedure.

**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.**

This diagram shows the new control switch buttons and their functions.




**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 to the 'lights off' position. 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 brakes, 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. 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 brakes.

**Enter TPS Calibration 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 trigger 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.

Push the throttle trigger 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 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.

**Calibrating throttle 'free-play'.**

**Note: - This procedure is to establish the exact point where the engine starts to respond to throttle movement, which is usually a significant amount away from the trigger rest position.**

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

Make sure the Park or Neutral gear position is selected.

Start the engine (apply the foot brake and turn the key).

**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.**

**Recharge or replace the battery before attempting to do this procedure. You will have to start again at the start of the calibration procedure.**

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

The SET and RES buttons will apply (SET) and release (RES) the throttle slightly 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, but the engine will not respond until all the trigger 'slack' or 'free-play' is taken up. It will typically take 10 to 20 presses (usually around 14 to 16) before the engine speed starts to increase.

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

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.

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 brakes.

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.

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. That completes the TPS calibration.

## 8. DIAGNOSTIC MODE OPERATION

**Refer to Chapter 8, Diagnostic Mode Operation, in the Set Up Manual.**

We suggest that you re-assemble the vehicle AFTER the diagnostic test is complete.

NOTES: