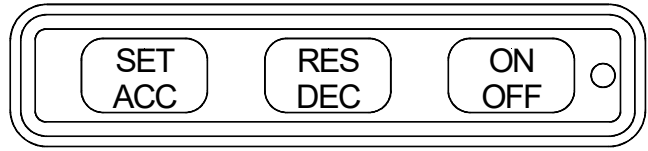


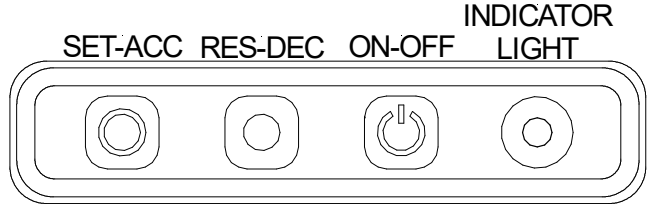
CRUISE CONTROL SWITCH OPTIONS.

MotorCycle Cruise Controls has three different control switches that can be supplied with the cruise control.

The earlier design has three large buttons and a small indicator light on the end of the switch next to the ON-OFF button. The buttons have text written on them for the functions. This switch was phased out in late 2020.



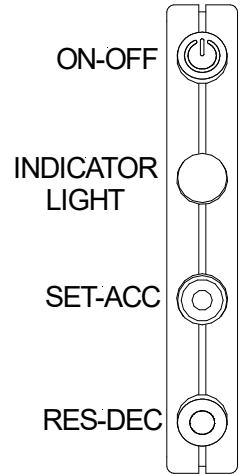
It has been replaced by this switch. The overall size of the switch is the same, it has the same mounting brackets and the same mounting holes. The text has been replaced by pictographs on the buttons. It is a direct replacement for the previous control switch shown above.



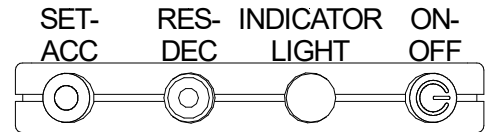
We also have another switch. This design has smaller buttons with no text, only pictographs on the buttons.

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

When it is mounted vertically on the handlebar, as shown here the orientation of the SET and RES buttons is as shown.



In some cases, this switch is mounted below the bike's switch gear, and is mounted horizontally, the position of the SET and RES button are swapped.



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.

WARNING

Motorcycle Cruise Controls has five different product ranges based on three different computers (electronics modules or electronics 'box').

These products all use the same electrical connector, BUT the wire positions are not compatible.

Under no circumstance should the 'computer' from one product be swapped for another without first contacting the manufacturer.

The 'best' case if a module is 'swapped' is a cruise control that will not work correctly. The most likely result is a 'blown' computer that is not repairable. The 'worst' case is that this could result in a dangerous situation that may result in injury or death.

**DO NOT UNDER ANY CIRCUMSTANCES
EXCHANGE ONE 'COMPUTER' FOR
ANOTHER WITHOUT CONTACTING US
FIRST.**

WARNING

A new, smaller, cruise control computer is now supplied in many of our cruise control kits. This unit is replacing our previous model computer in many cases.

Many of our instruction sets are written and photos taken using our previous model computer. This sheet shows the difference in mounting the cruise control computer and the differences in the wiring connections required.

The parts list in the second or third pages of the installation instruction set will show the part number for 'old' metal box computer as MCSU400C.

The new computer part number is MCS8000C. In cases where the cruise control was developed before the new computer was released this new computer will be supplied, but the old computer will still be shown in the parts list.

Functionally, both computers are almost identical, the new unit has some new designs and abilities, and is more compact and lighter. Actual performance of the cruise control is identical, as this is based on the 'firmware' loaded in the computer.

The previous model is the one in the metal 'box' at the rear of this photograph.

The new model is in a black plastic enclosure. This model is quite a bit smaller and lot lighter than the previous model, but still uses the same connector.

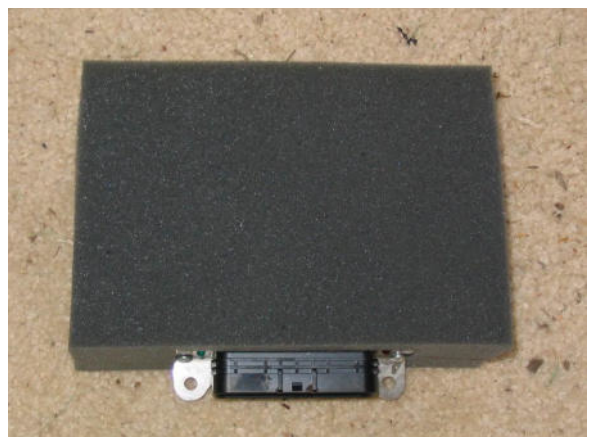
WARNING: - The wiring 'pin' positions on the new model are different to the old model and the units are NOT interchangeable without re-wiring the connector.



Mounting the new computer on installations that still show the previous model.

There are several different methods used to mount the previous model computer.

Some installations come with a foam block to mount the cruise control computer.

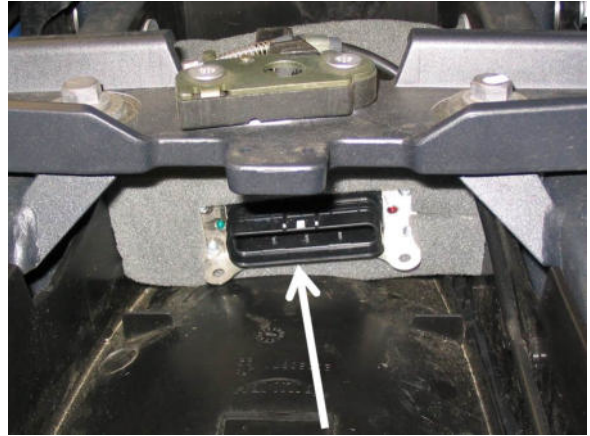


The foam block is then cut to suit the space on the bike.

This method can still be used with the new computer.

In some cases, double sided adhesive foam mounting tape will have been supplied.

In most cases Velcro mounting tape will also be provided in the cruise control kit. This may be used instead of the foam block or the foam mounting tape.



Apply the Velcro tape to the bottom of the computer and use the tape to attach the computer to the bike.

This method is also used where a metal mounting bracket is supplied in the kit to mount the computer.



Where a mounting bracket was supplied, the old computer was attached to the bracket using two or four screws.

The new computer is mounted to the bracket using Velcro mounting tape.

After it is attached using the Velcro tape, place a long cable tie (zip tie) around the bracket and the computer 'box' (arrowed).



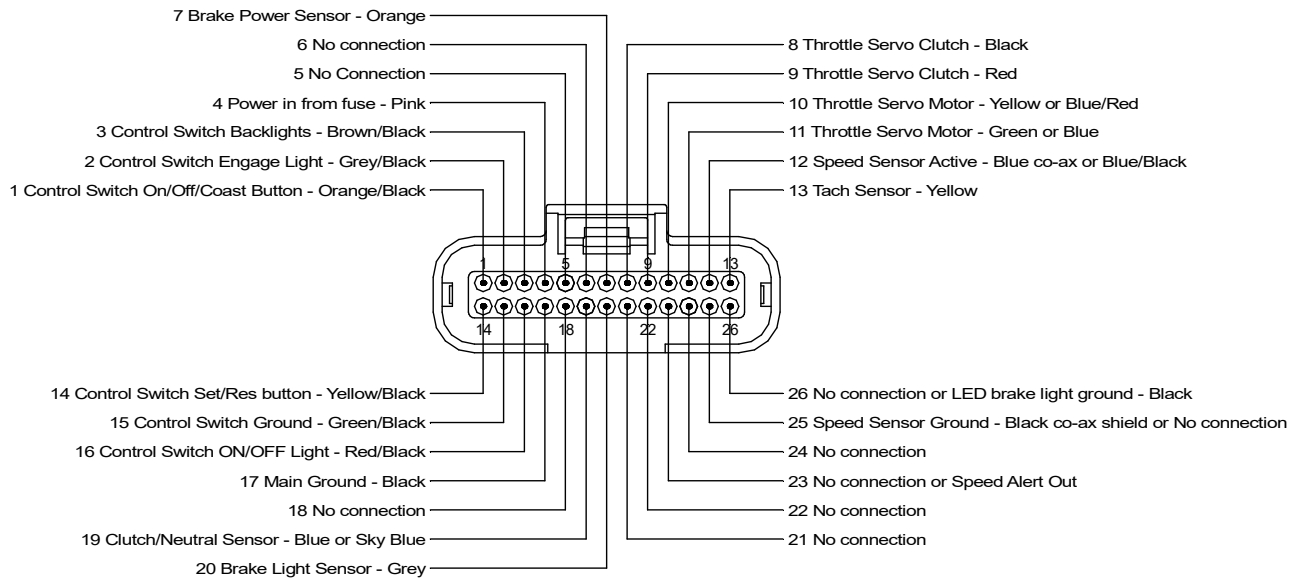
Changes to wiring pin positions.

In some installations, it is necessary to remove and insert some of the wiring pins in the 'main' cruise control computer plug. The connector is the same for the old and new computers, but the wiring positions (pin-outs) are different.

Take care to ensure that the instruction relate to the correct computer.

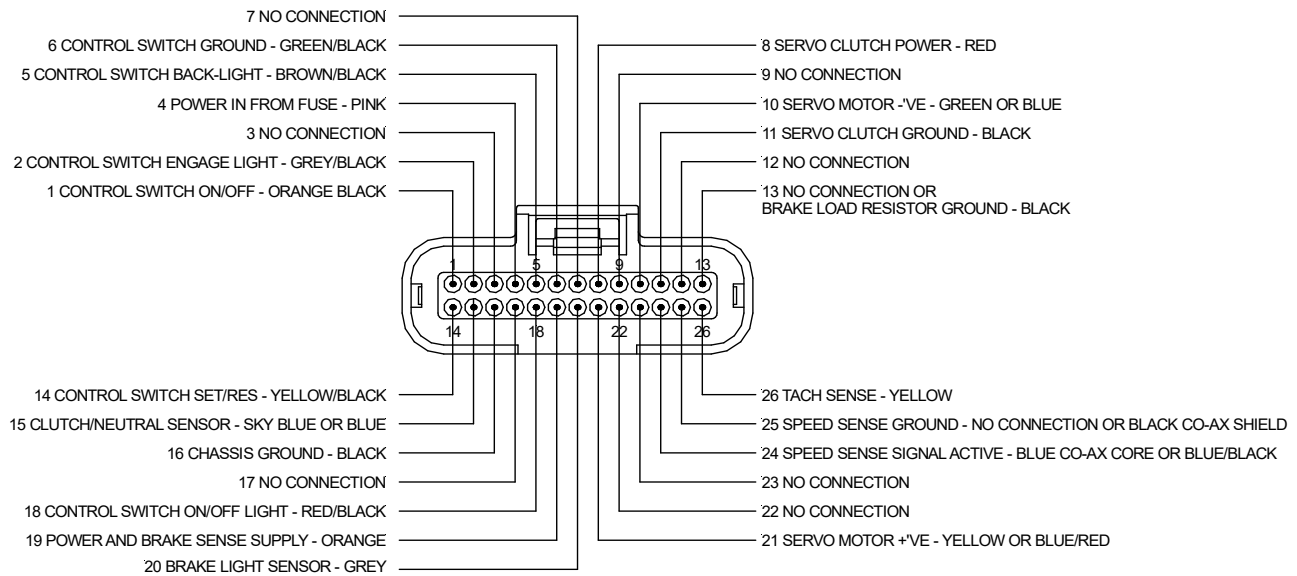
In most cases, you will not need this information, the wiring harness supplied is terminated to suit the computer supplied in the cruise control kit.

This diagram below shows the wiring positions for the 'new' compact black plastic box computer, Part Number MCS8000C.



NOTE: - In some cases, position 6 may be used for clutch sensing instead of position 19

The diagram below shows the wiring positions for the 'old' larger metal box computer Part Number MCSU400C.





**Motorcycle
Electronic Cruise Control
Information, Set up & Operation Manual ©
(Sections 1~5 & 8~12)**

Refer to the Installation Manual for Sections 6 & 7

19 July 2024

MOTORCYCLE CRUISE CONTROLS

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

Electronic Cruise Control Information, Set up & Operation Manual ©

READ THIS FIRST

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 precisely 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 motorcycle 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 installations and can be very heavy when full of fuel.

NOTE: - If the bike is fitted with a flasher device or 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 LED globe with a conventional globe. Contact us for ways to enable both your brake light flasher or LED brake light and the cruise control.

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- 1. INTRODUCTION**
 - 2. WARNINGS, CAUTIONS AND NOTES**
 - 3. TOOLS REQUIRED**
 - 4. PARTS LIST**
 - 5. OVERVIEW OF CRUISE CONTROL OPERATION**
Refer to the separate Installation Manual provided for your make and model of motorcycle for chapters 6 and 7.
 - 6. PREPARING THE BIKE FOR CRUISE CONTROL INSTALLATION**
 - 7. INSTALLATION**
 - 8. DIAGNOSTIC MODE OPERATION**
 - 9. CALIBRATION, ADJUSTMENTS & ROAD TEST**
 - 10. SAFETY ISSUES & FEATURES**
 - 11. TROUBLE SHOOTING**
 - 12. LIST OF SUGGESTED INITIAL SENSITIVITY SETTINGS**
- WARRANTY SHEET**
- SET UP & CALIBRATION PROCEDURES SUMMARY SHEETS AND MENU MAP (LAST PAGES)**

1. INTRODUCTION

Congratulations, you have purchased one of the most advanced cruise control systems in the world - and one that is built specifically for motorcycles. All functions are microprocessor controlled, which reduces the complexity of installation.

Before installing your cruise control, take the time to read and understand each step in this manual. Several steps are dependent on others, so it is important know where and how each component is to be mounted before installation commences.

This manual covers the cruise control in general terms, and provides information about set up, calibration and adjustment of the cruise control. You will also find a separate installation instruction set that covers fitting the cruise control to your specific model of bike.

2. WARNINGS, CAUTIONS and NOTES

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.

3. TOOLS REQUIRED

NOTE – not all of the tools listed will be required for your installation, but most will be necessary or very helpful to have at hand.

- Socket and/or spanner, hex key set and screwdriver set to suit your motorcycle.
- Torx driver set on some non-Japanese makes (HD, Triumph, BMW etc);
- Electrical Multimeter, Voltmeter or 12V test light (to check for electrical connections).
- Long nose pliers.
- A good quality flat file (useful to install the control switch for most installations).
- A vice with soft jaws or a rag (useful to install the control switch for most installations).
- Side cutters (to cut cable ties).
- Loctite '243' medium strength thread locking compound or equivalent.
- Hot air gun (to shrink heat shrink tube where required). We DON'T recommend the use of cigarette lighters!

- A sharp kitchen straight edge carving knife or similar (this is to cut the foam computer mount block on some applications. ‘Stanley’ or other types of utility knives DO NOT cut foam well).

The following tools are required for the installation on some cruise control kits, mostly non-Japanese models (BMW, HD, MotoGuzzi, Ducati etc.). These tools are not usually required for Triumphs.

- Electrical terminal ‘roll’ crimpers (to crimp electrical terminals supplied in the kit) Utilux No 61 and No 47A or No 147A crimpers will cover almost all motorcycle terminals in the known universe!
- Soldering iron and electrical solder (where crimpers are not available or not useable).
- Roll of insulation tape.

4. PARTS LIST

Check that all components depicted on the first pages of the separate **INSTALLATION MANUAL** 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;

5. OVERVIEW OF CRUISE CONTROL OPERATION

Cruise control function

The principles behind your cruise control's operation are very simple:

- The computer continuously monitors the frequency of electrical pulses generated by the magnets passing the sensor or pulses generated from the motorcycle's speedometer sender;
- When the SET key on the switch is pressed, the computer stores the pulse frequency at the time in memory and then continuously adjusts the throttle servo, which controls the throttle to maintain the pulse frequency at the same figure to which it was set. If the frequency drops below the set frequency, the computer applies more throttle. If the frequency is above the set frequency, the computer releases the throttle. The key is that the computer monitors and reacts to changes very quickly and smoothly so that the speed effectively remains nearly constant.

There are several major components in most installations: the computer, the throttle servo, the cable interface unit OR a linkage arrangement to connect to the bike's carburettor or throttle body, the speed sensor, the switch and the wiring harness. The functions of each are described below:

- The computer - monitors road speed, adjusts the throttle by controlling the throttle servo, monitors engine rpm, clutch and/or neutral detection, the brake system and the control switch for instructions from these components;
- The electric throttle servo - controls the throttle by pulling or releasing a cable which attaches to the throttle via the cable interface unit OR a special linkage provided in the kit;
- The Cable Interface Unit (CIU) - translates the motion from the throttle grip and the electric throttle servo to the throttle via a new cable supplied in the kit – most, but not all, installations use the CIU.
OR
The throttle linkage – allow safe operation of the normal throttle and control of the throttle by the cruise control;
- The speed sensor - generates electrical pulses when the bike is in motion. In many installations the bike's speedometer sender is used instead;

- The control switch - sends instructions from the rider to the computer; and
- The electrical wiring harness - which connects the switch, the computer, the throttle servo, the sensor, the brake system, the clutch and or the ignition system.

When the cruise control is operating, the throttle servo pulls directly on the carburetors or fuel injection throttle either via the Cable Interface Unit or via a direct linkage.

On bikes with two throttle cables (one to open the throttle, the other to close the throttle); this results in the twist grip rotating when the cruise control moved the throttle once all the free play is taken out of all the cables. As a result, the rider may notice the twist grip moving while the cruise is operating.

On bikes with twin throttle cables, it not possible to roll the throttle off by hand, (opposing the cruise control throttle servo). If enough force is applied, it may be possible to prevent the cruise control applying more throttle. We do not recommend manually forcing the throttle off while the cruise control is engaged.

On bikes with a single throttle cable, as the cruise control applies and releases the throttle the rider will notice the amount of free play in the throttle grip will vary.

If the throttle grip is twisted open while the cruise control is engaged the rider over-rides the cruise control. When the throttle is released, the cruise control will resume control, unless it has been disengaged by brake operation or if the motorcycle exceeds the current set speed by 130% such as during an overtaking manoeuvre or if the acceleration exceeds the pre-set limits in the cruise control. The cruise will also disengage if the speed drops to 70% of set speed such as when riding up hill. This is unlikely to occur on large capacity motorcycles.

Over Speed Alert Function

The cruise control now incorporates an Over Speed Alert function which can be connected to a beeper and/or light. This function is built into the cruise control computer. An optional connection 'kit' incorporating connecting wires and instructions to allow an LED light, normal 12V light globe or 12V beeper to be connected to the cruise control computer can be purchased either with the cruise control or after the purchase of the cruise control.

The Speed Alert can be set to any speed desired or turned off in a couple of seconds. When the vehicle speed reaches the alert speed, the light/beeper will start to operate. At first the operation is subtle with short flashes/beeps, but as speed increases up to 5kph over the alert speed, the duration of the flashes/beeps increase until the light/beeper is on almost continuously.

The speed alert output provides 12V for the light or buzzer and can provide up to 3 watts (0.25 Amp), so any light or buzzer that draws less than 0.25 Amp (250mA) at 12 Volts (3 watts) may be connected to the cruise control computer to be used as a speed alert.

How to operate the Over Speed Alert.

To enable the speed alert (turn it on), while riding the bike at any speed above 35kph (~22mph) and below 195kph (~120mph), check that the cruise control is turned OFF (no red light on the switch) and press SET for 2 seconds. After 2 seconds the light on the switch will flash green twice and the speed alert is turned on and set to your current speed. To change the alert speed, simply press the SET button for two seconds again at your desired speed and the new speed will be set in the speed alert.

To disable the speed alert (turn it off), while riding the bike (the bike must be moving) check that the cruise control is turned OFF (no red light on the switch) and press RES for 2 seconds. After 2 seconds the light on the switch will flash green once and the speed alert will be turned off.

The speed alert will default to OFF if the ignition is turned off and back on again. Note, on some motorcycles, if the cruise control is connected to the bike's auxiliary power, it may take a couple of minutes for the power to turn off after the ignition is turned off. The cruise control must turn off completely before the speed alert will turn off.

6. PREPARING THE BIKE FOR CRUISE CONTROL INSTALLATION

Refer to the separate installation instructions provided for your make and model of motorcycle.

Specific instructions for this will be provided in your 'model specific' parts kit, however usually the following components will have to be removed from most bikes and the following operations performed.

- Saddlebags (if fitted).
- The seat.
- Side covers.
- Fuel tank (not always necessary, but usually is).
- Some fairing parts (if fitted).
- Disconnect the battery negative lead.

Lubricating the throttle cable and throttle twist grip.

NOTE: - this is essential maintenance to ensure smooth operation of the cruise control and throttle grip.

- Undo and remove the right handlebar end weight (if fitted).
- Remove the screws clamping the right switch block/throttle hand grip/cable assembly to the handlebar.
- Disconnect the cable/s from the twist grip.
- Remove the twist grip from the handlebar and clean the inside of the twist grip and the handlebar.
- Apply a THIN film of engine oil to lubricate the throttle grip barrel where it contacts the handle bar.
- Run several drops of light oil (the sewing machine oil supplied in the kit is ideal – **DO NOT USE ENGINE OIL. It is too heavy!**) down the throttle cable/s.
- Re-assemble the twist grip/cable/switch block assembly.
- Replace the handlebar end weight (if fitted). Use a medium strength thread lock compound on the threads of the bolt.

7. INSTALLATION

Refer to the separate Installation Manual provided for your make and model of motorcycle.

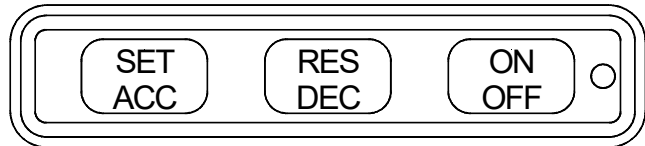
8. DIAGNOSTIC MODE OPERATION

Note: - Refer to the cruise control Menu Map at the back of this manual to see the menu structure for the various functions available on this cruise control.

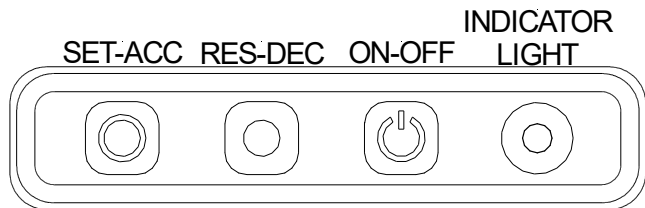
Diagnostic mode operation is used to confirm correct electrical and mechanical installation before actually riding the motorcycle. During diagnostic mode operation the speed control programme is disabled, and correct operation of most parts of the cruise control can be checked in safety while the bike is stationary. Confirmation that electrical connections are correct is provided by the indicator light on the control switch and by the GREEN indicator light on the front of the computer (next to the loom plug).

MotorCycle Cruise Controls has three different control switches that can be supplied with the cruise control.

The earlier design has three large buttons and a small indicator light on the end of the switch next to the ON-OFF button. The buttons have text written on them for the functions. This switch will be phased out in late 2020.



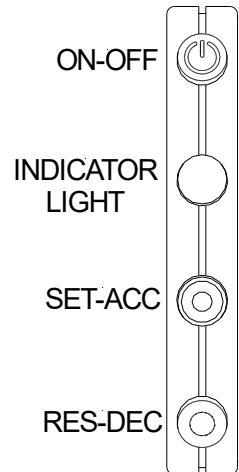
It will be replaced by this switch. The overall size of the switch is the same, it has the same mounting brackets and the same mounting holes. The text has been replaced by pictographs on the buttons. It is a direct replacement for the previous control switch shown above.



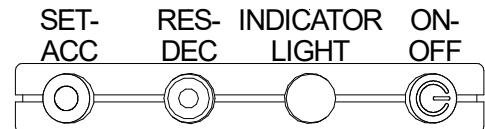
We also have another switch. This design has smaller buttons with no text, only pictographs on the buttons.

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

When it is mounted vertically on the handlebar, as shown here the orientation of the SET and RES buttons is as shown.



In some cases, this switch is also mounted below the bike's switch gear, and is mounted horizontally, the position of the SET and RES button are swapped.



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

There are also two lights on the cruise control computer. We have two different computers with the lights in different locations.

The computer with the aluminum box has two LED light on the front of the computer, one each side of the wiring harness connector. One is green, the other is red.

The computer that is in a translucent black plastic box had two lights inside the box. They are only visible when the lights are operating. The lights are visible from the sides of the box, near the connector end of the box.

During the diagnostic checks many of the features of the cruise control are confirmed by the GREEN light on the CONTROL SWITCH and the GREEN light on the COMPUTER operating. For example, the lights confirm brake switch operation.

While in diagnostic mode, the RED light on the COMPUTER is used to confirm correct tach sensing connection.

During normal operation the RED light on the COMPUTER displays stop and fault codes and is only used to diagnose problems. The control switch can also display the stop codes. See your troubleshooting guide for more details on this function.

- Place the bike on the centre stand (if it has one) and make sure it is in neutral.
- Turn the bike's ignition switch OFF
- Make sure that the bike's engine kill switch is ON (engine RUN position).
- Press and hold the SET and ON-OFF buttons.
- Turn ON the bike's ignition switch - DO NOT START the engine. **HOLD THE BUTTONS FOR AT LEAST 5 SECONDS or until you see the back lights behind the control switch buttons come on.** After 5 seconds (or the lights coming on) release the buttons.
- The cruise control is now in diagnostic mode. You may hear the throttle servo do its self-test on power up

NOTE: - The following pages explain a series of tests to be performed with the cruise control in Diagnostic Mode. If you turn the ignition switch OFF in between the tests, you will need to repeat the above procedure to re-enter diagnostic mode before performing the next test. If you do leave the ignition switch ON, the cruise control will stay in diagnostic mode.

- Check that the bike is in Neutral. If not, select Neutral (the indicator light MAY come on green. Ignore it for the moment).

WARNING: - Some bikes (scooters and similar) may have transmissions without a neutral position. If that is the case, at any time when the engine is running in diagnostic mode, make sure the bike is on the centre stand and the rear wheel is clear of the ground.

Testing the brake system

- Operate the rear brake pedal a few times. The indicator light on the cruise control switch should illuminate GREEN and the light on the computer should illuminate green when the pedal is depressed and go out when it is released. **Adjust the rear brake light switch so that the light comes on just before the brakes start to operate.** Note: - There may be a slight delay (~1 sec) before the light goes out when the brakes are released on some occasions. This is normal and is NOT a fault. **NOTE: - Some bikes use a pressure**

switch connected to the bike's brake fluid line instead of a mechanical switch connected to the brake pedal. It is important that the brake lights come on before significant braking effort occurs. If it takes more than light pressure, the switch is faulty and should be replaced.

NOTE: - If the brake switch is already ON (it is adjusted so that the switch never turns OFF or the switch is stuck on), then the light on the control switch will NOT COME ON AT ALL. The brake light switch must be OFF before applying the brake in order for the control switch light to work. If you cannot get the light to come on, check that your brake lights are not permanently on, and that they do actually work with brake application. If they are stuck on, back off the brake switch adjuster to ensure that the switch DOES TURN OFF. If the brake light globe is blown the light will not come on. In many cases if you have fitted an LED brake light or a brake light flasher system, this will prevent the cruise control detecting brake signal. THE CRUISE CONTROL WILL NOT WORK UNTIL THESE PROBLEMS ARE CORRECTED.

- Operate the front brake lever and the rear brake pedal a few times. The light on the switch should illuminate green when the brakes are used. This indicates that the cruise control will cancel when the brakes are applied. **NOTE: - We have noticed a number of bikes recently where the front brake must be pulled on quite hard before the brake lights turn on. Most of these switches are a spring-loaded plunger that is operated by the brake lever. In several cases we have had to file the end of the plunger to make it shorter, so the brake lights come on slightly before the brakes start to work. It is important that the brake lights come on before significant braking effort occurs.**

NOTE: - If the bike is fitted with LED light globes or a flasher device on the brake light system this may cause interference with the cruise control brake detection. If the cruise control will not work, try replacing the brake light globes with standard globes and/or disconnecting the flasher device. Contact us for information about LED brake modification to enable both your LED/brake light flasher and the cruise control.

Testing the control switch

- Depress the SET button. The switch light will go green and a noise may be heard from the throttle servo the FIRST time the button is pressed. This indicates that both the SET button and the throttle servo clutch are working correctly.
- Depress the RES button. The switch light will go green. This indicates that the RES button is working correctly.
- Press the ON-OFF switch. The switch light will go green when the button is pressed and go out when it is released. This indicates that the ON-OFF switch is working correctly.

Testing the throttle servo

- Pull on the brake lever (to ensure that the throttle servo is reset and the engine will idle), release the brake and start the engine.

NOTE: - If the battery is not in good condition or is not fully charged, the cruise control computer may 'reset' when the engine is started (drop out of diagnostic mode) due to the drop in voltage when the starter motor is used. If this happens, the cruise control will no longer show any lights in response to button presses or brake application. In order to re-start the computer in diagnostic mode, press and hold the SET and ON-OFF buttons while you start the engine and HOLD the buttons for 5 seconds after the engine starts. When the battery voltage recovers after the engine is started, the computer will 're-boot' in diagnostic mode.

- Press the SET key several times until the engine revs start to increase. Each press will increase the speed slightly.

NOTE: - there will be some delay with this operation. It will take several presses (5~10) before the engine speed starts to increase. If the engine speed gets too high, the brake lever or the ignition switch will disengage the throttle servo. The engine kill switch will turn the engine off BUT MAY NOT RELEASE THE THROTTLE as the throttle servo may still be engaged if the kill switch does not remove power to the brake light system. OPERATE THE BRAKE LEVER TO TURN THE THROTTLE SERVO OFF AND RELEASE THE THROTTLE.

NOTE: - The ignition switch will turn the cruise control off. This will also release the cruise from diagnostic mode. You will need to press and hold the SET and ON-OFF buttons while turning the ignition switch back ON to place the cruise in diagnostic mode again. Depress the brake lever to reset the throttle servo before restarting the engine and repeating the previous step.

- Press the RES key several times and the engine should gradually return to idle.
- Operate the brakes to reset the throttle servo.

Testing tach (engine over rev) sensing

- Observe the RED light on the COMPUTER and rev the engine a few times using the throttle. The red light should be flashing regularly and the flash rate should vary with the engine revs. In most cases, with the engine idling the flash rate will be around 2 flashes per second, but this may be different for different models.

Testing the speed sensor

WARNING: - MAKE SURE THAT THE BIKE IS SECURE ON THE CENTRE STAND, AND THE REAR WHEEL IS CLEAR OF THE GROUND BEFORE PROCEEDING WITH THE NEXT STEP.

NOTE: - This test can only be done on the centre stand if the speed sensor is fitted to the rear wheel or the bike's speedometer sender is driven from the gearbox or rear wheel. If the speed sensor is on the front wheel or the bike's speedometer sender is fitted to the front wheel, this test must be either skipped or performed while riding the motorcycle. Note that there are a number of bikes now where the speedometer signal is derived from the front wheel, particularly now that in many cases the speed signal comes from the ABS system which measures the speed of both wheels, so speed signal can be derived from either wheel.

- Engage 3rd or 4th gear and GENTLY release the clutch. Use the throttle to increase engine speed to about 1500~2000rpm. Watch the indicator light on the switch. The light should flash as the computer detects the speed signal. The pulse rate will vary depending on the speed. If an MCS speed sensor was fitted to the bike during installation, the flashing may not work until the wheel speed is 30~40 kph (20~25 mph) or greater. If the bike's speedometer sender is used, in most cases the light will flash at low speeds as well, but it may not flash if the wheel is turned slowly. The faster the speed, the faster the pulse rate from the light. The speed of the flash rate is set to the calibration of the speed signal. If the calibration is correct, the light will flash roughly 10 times every 5 seconds (twice per second) at 30~40kph. This indicates that the computer is detecting the speed signal. The green indicator light on the computer will also flash.

WARNING: - DO NOT ATTEMPT TO ENGAGE THE CRUISE CONTROL WHILE THE BIKE IS ON THE CENTER STAND.

THE CRUISE CONTROL WILL NOT WORK WITHOUT THE MASS OF THE BIKE BEING DRIVEN BY THE REAR WHEEL. THE CRUISE CONTROL WILL APPLY THROTTLE IF THE SET KEY IS PRESSED AND THIS MAY UNSETTLE THE BIKE ENOUGH TO DISLODGE THE CENTRE STAND.

Testing and configuring the clutch/neutral sensor (if connected)

NOTE: - Perform this test with the engine stopped (not running). In most cases, you can stop the engine with the 'kill' (engine stop) switch and leave ignition on and the cruise control will still be in diagnostic mode. Otherwise, turn the ignition off, and then re-enter diagnostic mode without starting the engine.

NOTE: - Because the bike's clutch, neutral, side stand and starter lockout circuits are often all linked together, this test is best done with the bike on the centre stand (if fitted) with the side stand up (retracted), and the bike in gear. If the side stand is down and the bike is in neutral, it may not be possible to configure and test this feature.

NOTE: - The polarity (12V or 0V) of the clutch sensor is configurable. This section is to configure and test this feature.

- Make sure that the cruise control is in diagnostic mode. Press any of the buttons on the control switch. If the indicator light comes on green at each button press, the cruise control is in diagnostic mode. If the light does not come on green, turn the ignition switch off and re-enter diagnostic mode.
- Operate the clutch lever. The indicator light on the switch may illuminate green when the clutch is disengaged and go out when it is released.
- If the light does come on **WHEN THE CLUTCH LEVER IS PULLED IN, AND GOES OUT WHEN THE LEVER IS RELEASED**, the test is complete. If it does not come on at all **OR** comes **ON WHEN THE CLUTCH LEVER IS RELEASED**, move to the next step.
- Press and hold the ON-OFF button (light goes green) and then press the SET button and hold BOTH buttons until the light changes to RED (after about 5 seconds). After the indicator light on the switch changes from GREEN to RED release both buttons. This sets the neutral sensor to high (12V) detection.
- Operate the clutch lever.
- If the indicator light comes on green **WHEN THE CLUTCH IS PULLED IN** and goes out when the clutch is released, the test is complete. If it does not, move to the next step.
- Press and hold the ON-OFF button (light goes green) and then press the RES button and hold BOTH buttons until the light changes to YELLOW (after about 5 seconds). After the indicator light on the switch changes from GREEN to YELLOW release both buttons. This sets the neutral sensor to low (0V) detection.
- Operate the clutch lever.
- If the indicator light comes on green **WHEN THE CLUTCH IS PULLED IN** and goes out when the clutch is released, the test is complete. If it does not come on at all you may have connected the clutch sensor wire to the wrong wire on the clutch switch, the clutch switch may be faulty (not uncommon) or it may be necessary to have the engine running during this test (very unusual). The bike's clutch switch usually has two wires going to it. Disconnect the cruise control clutch sensor wire from the bike's wire it is connected to and

connect to the bike's other wire and then repeat the above test. Swapping the positions on the switch usually will make no difference; the connection must be moved from one of the bike's wires to the other wire.

NOTE: - If the clutch switch is faulty or for any other reason you cannot get the clutch switch to configure, it is VERY likely that the clutch switch connection will prevent the cruise control from working. If you cannot configure the clutch sensing and the cruise control will not work, you may have to disconnect the clutch sensor wire from the clutch switch. Refer to the last page of the Trouble Shooting Guide, 'Diagnostic stop (error) codes'. If the cruise control will not engage due to a stop code 7 or 8 (neutral/clutch sensor fault), this indicates that the clutch switch cannot be configured, is configured incorrectly, is connected incorrectly or is faulty. You may have to disconnect the clutch sensor wire to enable the cruise control to operate, until the error can be corrected.

WARNING: - BE VERY CAREFUL TO ENSURE THAT THE REAR WHEEL IS CLEAR OF THE GROUND IF YOU INTEND TO TEST WITH THE ENGINE RUNNING, AS IN MOST CASES THE BIKE MUST ALSO BE IN GEAR TO TEST THE CLUTCH SWITCH.

Checking the throttle servo cable free play.

Refer to the installation manual for details about this.

Typically, the servo cable free play test follows this routine.

- Make sure that the cruise control is in diagnostic mode. Press any of the buttons on the control switch. If the indicator light comes on green at each button press, the cruise control is in diagnostic mode. If the light does not come on green, turn the ignition switch off and re-enter diagnostic mode.
- Start the engine. Apply and release the brakes (front or rear), make sure the light on the switch comes on green with brake application to check that the cruise control is still in diagnostic mode.
- Allow the engine to settle to normal idle speed.

NOTE: - Do NOT apply the brakes until instructed to do so, unless you need to disengage the cruise control because the engine rpm is too high and won't come back down.

- Press and release the SET button, about 1 press per second or slower, and count the number of presses until the engine just lifts off idle. Normally this should take 8 to 12 presses.
- Press the SET button a few more times to bring engine rpm up to 2,000~3,000rpm.
- Press the RES button at least as many times as you pressed the SET button, then 5 more times, the revs should drop to idle. If the engine does not return to idle, return to the section in the end of the installation manual about adjusting the servo cable free-play.
- Press and release the SET button, about 1 press per second or slower, and count the number of presses until the engine just lifts off idle. This should take 2~3 presses. If it takes more than 4 presses, return to the section in the end of the installation manual about adjusting the servo cable free-play.
- Repeat the last three lines (under lined) a few times to see if the results are consistent each time.
- Apply and release the brakes. The engine should return to idle instantly.

- Turn the ignition off. This will release the cruise control from diagnostic mode.

Re-assemble the motorcycle for road testing

CAUTION: - Check that no wires and control cables are crushed or caught by any of the fairing panels, seat or the fuel tank during re-assembly. Check that all wires and cables are restrained and will not be damaged by any moving or stationary parts. Check that the seat will not damage the wiring harness or computer.

9. CALIBRATION, ADJUSTMENTS & ROAD TEST

NOTE: - **Cruise control performs a brake test every time the ignition is turned on (power up). If the cruise control is turned ON (ON-OFF button pressed) BEFORE the brakes are applied AND released, the indicator light on the switch will flash red/green alternating and the cruise control will not engage. Apply and release the brakes and the light will change to red and allow normal operation.**

NOTE: - **There are several sheets at the end of this manual that can be removed and put in a pocket to assist with setup and calibration of the cruise control. One 'set' of sheets is the Menu Map showing the structure of the various menus that can be accessed to configure the cruise control. The other 'set' shows the various calibration procedures that can be performed and the order that they should be performed.**

Since the brakes are the fastest way to turn the cruise control off, it is ESSENTIAL that they be adjusted optimally to suit the rider AND that they activate the rear brake lamp as quickly as possible. It is recommended that both front and rear brakes be set up so that the brake lamp turns on as early as possible when either brake is applied. Naturally you have to ensure that the brake lamp does turn off - otherwise the cruise control will not work at all. Careful adjustment of the foot brake lever so that the rider's foot does not have to lift up to reach it is recommended. Next, adjust the brake switch so that it turns on with very little movement of the brake pedal. Repeat this process with the front brake lever if adjustment is available.

WARNING: - If there is any evidence of inconsistent operation or sticking of either brake light switch, replace the switch. The brake light switches are the main components used to disengage the cruise control.

It is recommended you adjust the rest position of the gear lever to match the foot brake lever for optimum rider comfort.

NOTE: - If the rear brake light filament or fuse breaks, or the brake light is on, **the cruise control will not work at all.** If your cruise control appears not to be working, these are the **first things to**

CALIBRATING AND ADJUSTING THE CRUISE CONTROL

NOTE: - In most cases, the computer will already be supplied configured for your bike. If this is the case, there will be a LABEL on the side of the computer stating what MODEL of bike it is configured for. This configuration is based on our tests with a similar bike to yours. You may be able to improve

the performance of the cruise control by performing the calibration procedures, or the performance may be satisfactory as supplied.

NOTE: - IN MOST CASES THE COMPUTER IS SUPPLIED CONFIGURED FOR YOUR BIKE.

YOU CAN ROAD TEST IT NOW WITHOUT PERFORMING THE CALIBRATION PROCEDURES.

IF AFTER ROAD TESTING, YOU FEEL THAT THE PERFORMANCE COULD BE IMPROVED, YOU MAY PERFORM ANY PART OF ANY OF THE PROCEDURES INDIVIDUALLY OR ALL OF THE CALIBRATION PROCEDURES AT ANY TIME.

NOTE: - If the computer has a label on the side stating that it is ‘Not Configured’, you will have to complete the calibration and adjustment. The cruise control will NOT ENGAGE until you have completed ALL the calibration procedures.

NOTE: - The following pages discuss in detail the procedures required to calibrate the cruise control. There is also a single page sheet at the back of this manual that shows the steps required in brief. READ the procedure detail first, then use the single sheet as a memory jogger when out doing the calibration.

There are several steps that must be performed to ‘tune’ the cruise control to your motorcycle. They are:

Speed sensor calibration.

This function teaches the cruise control computer how many pulses per wheel revolution it will receive from the speed sensor or the bike’s speedometer sender, so that the cruise control knows what speed the bike is doing. This must be done while riding the motorcycle at 70 kph (45 mph). **NOTE: - This procedure DOES NOT apply to bikes where the cruise control is connected to the bike’s CAN-BUS system. It is not possible to perform speed sensor calibration with CAN-BUS.**

Speed increment adjustment

This adjusts the speed increment on the SET/ACCElerate and RESume/DECelerate buttons when they are used to adjust the speed up or down. The default setting is 2kph per press of the buttons, so if, for example, you are ‘cruising’ at 100 kph, one press of the SET button will increase speed by 2 kph to 102 kph, and the RES button will decrease speed by 2 kph to 98 kph.

This function has four settings; 1kph, 2kph, 1mph and 2mph. #1 is 1 kph, #2 is 2 kph, #3 is 1 mph and #4 is 2 mph. This is entirely for personal preference and has no effect on the performance of the cruise control. The default is #2 (2 kph).

Initial throttle pull adjustment and calibration.

This function is only used to tell the cruise control how much throttle to apply when you first press SET or RES. The cruise control has a ‘map’ of throttle application versus speed curves and this must be set up or calibrated to suit your motorcycle, so the correct amount of throttle is applied by the cruise control at all speeds. This function has NO EFFECT at all on how the cruise control works in controlling the speed after the first 1~2

seconds, it is ONLY to tell the cruise control how much throttle to apply when the cruise control is first engaged. This is very important to ensure the cruise engages smoothly without pushing (too much throttle) or lagging (not enough throttle).

This calibration procedure can take a while if it is a bike we have not seen before, and you have to start from scratch. The process to take is as follows.

- Initial selection of the Initial Throttle Pull Curve number. This function selects a mathematical curve of throttle application versus bike speed. We suggest an initial setting in order to speed up the adjustment process. This should be set to our recommended settings before you perform the other calibration procedures. Low numbers are used on powerful and throttle responsive bikes, higher number on less powerful or less responsive bikes. The range of numbers available starts at 1 and goes to 15.
- Calibrate the initial throttle pull. This function teaches the cruise control computer how much throttle to apply when you first engage the cruise control so that the speed does not ‘push’ or ‘lag’ when the cruise is first engaged. This is done while riding the motorcycle at 70 kph (45 mph), and then the Curve you selected calculates the throttle pull required for speeds below and above 70 kph.

If you find that the cruise control engages well at one speed (for example at ‘in-town’ speeds) but does not apply enough throttle or applies too much throttle for ‘highway’ speeds after doing the single calibration (above) you can change the Initial Throttle Pull Curve number to improve the initial throttle pull across the speed range. Once you have selected the closest match available for your bike, if it is still not good at extremely low speeds below 60 kph (40 mph) or at high speeds above 110kph (70mph), the initial throttle pull calibration can be done at two different speeds to further improve the way the cruise control engages across the range. The ‘low’ speed would normally be done at a suitable ‘in-town’ speed of about 50 to 60 kph (30 to 40 mph) and the ‘high’ speed at 100 to 130 kph (60 to 80 mph). This will ‘customise’ the slope of the initial throttle pull curve to match the characteristics of the bike much more closely.

Operational Coarse Sensitivity or ‘Coarse Gain’ adjustment

This function is used to adjust how much the cruise control adjusts the throttle (apply more throttle or back off throttle) in response to speed variation (acceleration or deceleration) from the effects of wind or hills. This adjustment ONLY affects the operation of the cruise control AFTER the initial throttle application when the cruise control is controlling the bike’s speed. It has NO EFFECT on the initial throttle application when the cruise control is first engaged. The process to take is as follows

Initial selection of the Sensitivity or ‘Gain’ number. Normally the gain number used would match the Initial Throttle Pull Curve number as a start point. After this is done, the bike must be ridden to see how the cruise control behaves. If the number is too low, the bike will tend to wander and not control speed well, if it is too high, the cruise may be rough or tend to hunt (continuously apply and back off the throttle). The range of numbers available starts at 1 and goes to 15, a low number would be used on very responsive or powerful bikes, a high number would be used on less responsive or less powerful bikes. Note that a bike being responsive does not necessarily mean it is powerful, it is just very responsive to small throttle movements. Some quite powerful bikes are not very throttle sensitive and vice-versa. This number can in particular be used to control how well the cruise control works in transitions to uphill or downhill situations, but must also work in steady state flat road situations.

Operational Fine Sensitivity or ‘Fine Gain’ adjustment

This function also is used to adjust how much the cruise control adjusts the throttle (apply more throttle or back off throttle) but has the most effect in controlling the cruise controls response around set speed. If you cannot find a setting on ‘coarse’ gain that holds speed well in transition to uphill or down hill that also stops the cruise

control hunting or oscillation around set speed on flat going, this adjustment can help. This adjustment is mainly to allow the cruise control to 'settle' on speed without feeling like the cruise control is 'niggling' the throttle when on smooth flat roads. You can often achieve a smooth response in smooth flat running using the coarse gain, but sometimes the cruise becomes unresponsive in transitions to up or down hill. This adjustment can allow you to give good response in transitions with a relatively high coarse gain number, and then reduce the fine gain number to smooth the cruise control out in steady state (flat road) running.

The process to take is as follows:

Select a coarse gain number that gives good overall performance (see the previous section). This might still leave the cruise control feeling a little 'unsettled' in steady state smooth road situations. The fine gain default number is 5, the minimum is 1, the maximum is 10. Adjusting the fine gain modifies only one of the settings that the coarse gain adjusts (coarse gain changes many different settings). If the bike feels like the cruise is niggling at the throttle a lower number may help (speed control is quite good, but it never really feels 'smooth'). If the bike feels like the cruise is not really controlling the speed tightly (it just does not feel responsive), a higher number may help.

Acceleration Spread Gain adjustment

This adjusts how quickly and firmly the cruise control tries to get back to target speed if the speed varies. This is mainly a 'comfort' factor for the rider, but can also be used to improve performance of the cruise control on some bikes.

This function has 5 settings and the default is the mid-point setting of 3. Changing this setting to 1 will make the cruise control very 'relaxed' in 'pushing' the bike back to set speed, changing this to 5 will make the cruise quite aggressive in driving the bike back to set speed, however on some bikes a high number may also induce 'hunting'. Note that this setting does not directly affect the speed holding of the cruise control, which is controlled by the 'Gain' setting above, but it will change how aggressive the cruise control is in pushing the bike back to set speed.

The three previous adjustments (Coarse Gain, Fine Gain and Acceleration Spread) are all available from within one 'Gain Adjustment' procedure. It is not necessary to stop the bike and turn the ignition off and back on to make changes to these three settings, they are all easily accessible without stopping the bike and all can be adjusted 'live' with the cruise control engaged so you can 'feel' the result of a change instantly.

How to perform the calibration procedures

NOTE: - You will need a section of road that is relatively flat (no hills) on which you can safely ride at 70kph (45mph) to perform the speed sensor and initial throttle pull calibrations. Most cities and towns have major arterials or freeways (interstates) where this is possible without having to travel too far. In order to perform the initial throttle pull calibration you need to be able to engage the cruise control continuously on flat ground for 5 seconds at a time. You will probably need to do this at least 3 times and maybe up to 5 times to get a good result. We use a flat section of a dual lane road that is about 400m (1/4 mile) long with a median strip that allows us to do a 'U' turn at each end. A full calibration from scratch can usually be performed in two 'laps'.

Speed Sensor Pulse Rate Calibration

- 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.

- Ride the bike at 70 kph (45 mph) and hold the speed STEADY. The GREEN indicator light will be flashing as you ride the bike. The flash rate will vary with the bike's speed and the frequency of the pulses coming from the speed sensor, so the flash rate may be very slow or very fast or anywhere in between, in some cases it may be so fast you cannot see the flashing except at low speeds.
- Press and release the SET button once. The indicator on the switch will change to RED for two seconds and may flash yellow during this time. The computer will record the pulse rate of the speed signal. Hold the speed STEADY at 70 kph (45mph) for two seconds until the red light goes out. The light will resume flashing green from the speed signal after the red goes out.
- If you are not sure that your speed was correct or stable, adjust your speed to 70 kph (45 mph) again and simply press SET again. Each time SET is pressed the speed pulse rate will be recorded and saved overwriting the previous setting.
- Stop the bike and turn the ignition switch OFF, DO NOT TURN THE IGNITION OFF BEFORE THE BIKE HAS STOPPED MOVING. This completes the speed signal pulse rate calibration.

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.

Initial Throttle Pull Curve adjustment

- Turn the ignition switch OFF. Press and HOLD the SET button ONLY, turn the ignition switch ON, **HOLD THE SET BUTTON UNTIL THE SWITCH INDICATOR LIGHT COMES ON GREEN (a few seconds), then release the button.** The cruise control is now in initial throttle pull calibration mode.
- Press and HOLD the ON-OFF button. The indicator light will start flashing green about once per second. It will normally flash a number of times to display the setting (once for setting 1) then pause for a couple of seconds, then flash the number again. The default setting is 1 on a new un-configured cruise control computer. If it a cruise control for a particular model of bike, it could be anywhere from 1 to 15. On an un-configured cruise control (not for a particular model of bike) refer to the selection table at the back of this manual for a suggested start number. Powerful and responsive bikes will use a lower number (eg 1 to 8), less powerful and less responsive bikes will use a higher number (8 to 15).
- At this time, the number to use is a 'best guess', testing will confirm the selection or you can change it as needed.

Initial Throttle Pull Calibration

- Turn the ignition switch OFF. Press and HOLD the SET button ONLY, turn the ignition switch ON, **HOLD THE SET BUTTON UNTIL THE SWITCH INDICATOR LIGHT COMES ON GREEN (a few seconds), then release the button.** The cruise control is now in initial throttle pull calibration mode.
- Ride the bike at 70 kph (45 mph) on flat ground (no hills) and preferably with no wind and hold the speed **STEADY**. The GREEN indicator light will be on steady as you ride the bike.
- Press and release the SET button THEN release the throttle a fraction of a second (about ½ a second is ideal) AFTER pressing the SET button. The computer will apply a small amount of throttle and the GREEN light on the switch will go out. The bike may hold speed, decelerate or accelerate depending on how responsive to throttle and how powerful the bike is. **DO NOT APPLY THROTTLE OR BRAKES TO STOP EITHER ACCELERATION OR DECELERATION.** Let the bike slow down or speed up without applying throttle OR brakes.

NOTE: - You may apply the brakes BEFORE the 5 seconds are up (if you are blocked by another vehicle for example). This will cancel the calibration, and the result will NOT be recorded.

- After 5 seconds the green light will come back on and the throttle will be released and the bike will slow down.
- Manually apply throttle to move the speed back to 70kph (45mph) and hold it **STEADY**.
- Press and release the SET button and then release the throttle again. The bike's acceleration or deceleration should be less than before.
- Wait 5 seconds for the light to come back on and the throttle to be released then ride back to 70kph again.
- After performing this routine 3 to 5 times, the bike's speed should hold stable for 5 seconds at 70kph after you have pressed SET. Small bikes that use a lot of throttle may take more attempts to get right. Very powerful bikes may take a few attempts to get a consistent result. Note that the cruise control will not attempt to adjust the throttle position during the 5 seconds, it will ONLY hold the throttle position steady and after the 5 seconds have lapsed, the throttle will be released.

HINT: - If you are having difficulty getting a consistent result, check that you are holding the speed very steady with the throttle just before pressing the SET button, and that you are not releasing the throttle before the cruise control has applied throttle. You **MUST** wait at least ½ second after pressing SET before you release the throttle. If the transition from **YOU** holding the throttle to the **CRUISE CONTROL** holding the throttle is not seamless, the calibration may not work **accurately**. This effect will be much more pronounced on very powerful motorcycles.

NOTE: - You can repeat this procedure as many times as you want and at any time you want to re-calibrate the initial throttle pull. If you have changed the loads on the bike (pulling a trailer for example) you may want to re-calibrate the initial throttle pull to compensate.

- Once you are happy that the amount of throttle applied is correct to maintain the speed, stop the bike and turn the ignition switch OFF, **DO NOT TURN THE IGNITION OFF BEFORE THE BIKE HAS STOPPED MOVING.** This completes the basic initial throttle pull calibration.

Initial Throttle Pull curve testing and fine tuning the slope of the curve

Testing for the correct 'initial pull curve' requires riding the bike at various speeds to see how the initial throttle pull performs. It should now be correct at 70kph (45mph) because you performed the calibration at that speed, however if the curve selected does not suit the bike, the initial throttle pull may not be correct at higher or lower speeds. Testing and adjustment for this can be done now or later at any time.

- Put the cruise control in normal operating mode (just turn the ignition on without holding any buttons). Turn the cruise control on (press the ON-OFF button so the red indicator light comes on).
- Apply and release the brakes, the cruise control will not engage until it has received a signal from the brake detection circuit. **If the brakes have not been applied AND released, the light on the switch will flash red/green.**
- Ride the bike and engage the cruise control at various speeds, ranging from the lowest speed you expect to use the cruise (minimum allowable speed is 35 kph or approx. 22 mph) and up the highest speed you expect to use the cruise (maximum allowable speed is 180 kph or approx. 110 mph).
- Observe what happens at different speeds when you first engage the cruise control. Does the bike's speed drop when you first engage the cruise control, does it increase, or is the speed held steady? We are ONLY looking at what happens in the first 1 to 4 seconds AFTER you press the SET button.
- If the speed increases (pushes) when you engage the cruise at low speeds, and decreases (lags) at high speeds, then the initial pull curve number is too low. Enter initial pull calibrate mode, increase the number, and perform an initial pull calibration at 70kph (45 mph).
- If the speed decreases (lags) when you engage the cruise at low speeds, and increases (pushes) at high speeds, then the initial pull curve number is too high. Enter initial pull calibrate mode, decrease the number, and perform an initial pull calibration at 70kph (45 mph)
- If the push and lag is small (less than 0.5 kph speed change) then you will only need to change the curve number by 1 or 2, if the push or lag is quite pronounced (2kph speed change or more) you can change the number by 2, 3 or 4 numbers at a time. Change the curve number based on your tests.
- Put the cruise control in normal operating mode (just turn the ignition on without holding any buttons) and test the cruise again at various speeds to see if the curve selected is correct. This is an iterative process and it may take a few tries to get to the best result.
- Once you get a good result from the correct initial pull curve number, if you find that you cannot find a curve number to get really good performance across the entire speed range you wish to cover, you can then perform the initial pull calibration procedure at two different speeds to really fine tune your cruise control. The low speed initial pull calibration MUST be done at a speed lower than 70 kph (45mph), we suggest between 50 and 60kph (30~35mph). The high speed initial pull calibration MUST be done at a speed higher than 100 kph (60mph). We suggest 100 to 130kph (60 to 85 mph).
- The cruise control will now use your two reference speeds (low and high) and the shape of the curve to calculate the initial pull at all speeds, instead of just one reference speed and the curve.
- Further fine tuning is possible if needed. If you now find that the low speed initial pull is good and the high speed initial pull is good, but the middle speed range tends to 'push' or lag a bit, you can select a different curve number, then re-do the initial pull calibration procedure at the two speeds.

- If the cruise pushes at middle speeds (increase in speed), you need a higher curve number.
- If the cruise lags at middle speeds (decreases in speed), you need a lower curve number.

NOTE: - You will have to re-do the initial pull calibration procedure at both speeds every time you change the curve number, because changing the curve number forces a reset of the settings derived from the calibration procedure.

HINT: - If, after using the cruise control, you feel that the initial throttle pull is too light or too strong for your personal taste, you can ‘trick’ the cruise control by performing the initial throttle pull calibration on **slight** hills. If you want a GENTLER throttle application, calibrate the cruise control initial throttle pull on a **slight** DOWN hill. If you want a STRONGER throttle application calibrate the cruise control initial throttle pull on a **slight** UP hill.

Initial ‘Coarse Gain’ or ‘Coarse Sensitivity’ Adjustment

The ‘coarse gain’ or coarse sensitivity adjustment has 15 settings and the cruise control uses the indicator light on the switch to ‘flash’ this number, 1 through to 15. It will flash YELLOW the number of times corresponding to the Coarse Gain number, pause for a few seconds and then flash the number again.

Generally as a start point, the Gain number will be set to the same number as the Initial Pull Curve number. This usually gives a good starting point, and often will not need to be changed.

- Turn the ignition switch OFF. Press and HOLD the RES button ONLY, turn the ignition switch ON, **HOLD THE RES BUTTON UNTIL THE SWITCH INDICATOR LIGHT STARTS FLASHING RED/GREEN ALTERNATING OR YELLOW ON/OFF, then release the button. Apply and release the brakes, the light should now flash YELLOW.** The cruise control is now in gain adjustment mode.
- The indicator light will flash yellow about 1 flash per second, then pause for a few seconds and flash the number again. The gain number should be 1 on a new computer, unless the computer is pre-configured for a specific model.
- Either set the Gain number to the same setting as the Initial Pull Curve selected earlier, or refer to the Cruise Control Model Sensitivity list supplied with the cruise control and select an appropriate gain/sensitivity number for your bike.
- Press the SET button to increase the number or press the RES button to reduce number. Each press will change the number by one. Count the yellow flashes to confirm the setting.
- Turn the ignition switch OFF. This completes the initial ‘coarse gain’ or coarse sensitivity adjustment.

Testing and adjusting the gain setting (coarse gain, fine gain and acceleration spread).

The three gain settings can be accessed within one adjustment ‘menu’.

- To enter gain change mode, turn the ignition switch OFF. Press and HOLD the RES button ONLY, turn the ignition switch ON, **HOLD THE RES BUTTON UNTIL THE SWITCH INDICATOR LIGHT STARTS FLASHING RED/GREEN OR YELLOW, then release the button.**
- Apply and release the brakes. The indicator light should now be flashing yellow. The cruise control is now in gain/sensitivity adjustment mode, and is in Coarse Gain adjustment. The cruise is now in Coarse Gain adjustment mode and displays the gain number by flashing the YELLOW light on the control switch.

Testing and adjusting the Coarse Gain

- Ride the motorcycle at various speeds and press SET to engage the cruise control. The RES button does not work to engage the cruise control in this mode. Use the brake to disengage the cruise control and ride to a different speed, then press SET to engage the cruise control again.
- The cruise control should control the speed smoothly and without too much ‘wander’ in the speed.
- If the cruise control is too abrupt or hunts (applies and releases the throttle continuously), reduce the gain number.
- If the speed wanders too much and the response from the cruise control is slow, increase the gain number.
- Press the SET button to increase the number or press the RES button to reduce number. Each press will change the number by one. **You can make these adjustments either while riding with the cruise control engaged or with the bike stopped.** If you are stationary, each press of SET or RES will adjust the sensitivity. If you are riding between 35 kph and 180 kph, the first press of the SET button will engage the cruise. The RES will not work until the cruise control is engaged while moving. After the cruise control is engaged, the SET and RES buttons will adjust the sensitivity. **The Gain Number cannot be changed while the bike is moving with the cruise control disengaged, it can ONLY be adjusted when stationary OR when moving with the cruise control engaged.**
- **The minimum setting for Coarse Gain is 1, the maximum setting is 15.**
- If you do not wish to adjust the Fine Gain or the Acceleration Spread, stop the bike (the bike must be stationary) and turn the ignition switch OFF, **DO NOT TURN THE IGNITION OFF BEFORE THE BIKE HAS STOPPED MOVING.**

HINT: - The cruise control may ‘hunt’ on down hill sections as the cruise control tries to balance throttle against speed. This will be more pronounced at lower speeds where very small amounts of throttle movement can cause large changes in speed. This will apply particularly if the throttle is wound all the way off to idle position and then re-applied. You will need to balance the sensitivity number with the performance you want from the cruise control in different circumstances. It may take some time for you to become accustomed to the cruise control and achieve a final setting that you find suitable for all situations. Large changes in load (towing a trailer) may also require a change in the setting.

Testing and adjusting the fine gain

If the ignition is still on and the cruise control is in coarse gain adjustment mode:

- Press and hold the ON-OFF button for more than 2 seconds until the light changes from flashing .yellow to flashing RED. Release the ON-OFF button. The cruise is now in Fine Gain adjustment mode and displays the gain number by flashing the RED light on the control switch.

If the ignition switch has been turned off:

- Turn the ignition switch OFF. Press and HOLD the RES button ONLY, turn the ignition switch ON, **HOLD THE RES BUTTON UNTIL THE SWITCH INDICATOR LIGHT STARTS FLASHING RED/GREEN OR YELLOW, then release the button.**

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- Apply and release the brakes (the cruise control will not engage until it has received a signal from the brake detection circuit. The indicator light will now be flashing yellow. The cruise control is now in Coarse Gain adjustment mode.
- Press and hold the ON-OFF button for more than 2 seconds until the light changes from flashing yellow to flashing RED. Release the ON-OFF button. The cruise is now in Fine Gain adjustment mode and displays the gain number by flashing the RED light on the control switch.
- It will flash a number of times to displays the setting (once for setting 1) then pause for a couple of seconds, then flash the number again. The default setting is 5. The settings range from 1 to 10.
- Ride the motorcycle at various speeds and press SET to engage the cruise control. The RES button does not work to engage the cruise control in this mode. Use the brake to disengage the cruise control and ride to a different speed, then press SET to engage the cruise control again.
- The cruise control should control the speed smoothly and without too much ‘wander’ in the speed.
- If the cruise control feels like it is ‘niggling’ at the throttle (it is holding speed well, but never seems to quite ‘settle’, try reducing the fine gain number (press RES to decrease the gain number).
- If the speed does not feels like it is ‘locked in’, increase the gain number (press Set to increase the gain number).
- Press the SET button to increase the number or press the RES button to reduce number. Each press will change the number by one. **You can make these adjustments either while riding with the cruise control engaged or with the bike stopped.** If you are stationary, each press of SET or RES will adjust the sensitivity. If you are riding between 35 kph and 180 kph, the first press of the SET button will engage the cruise. The RES will not work until the cruise control is engaged while moving. After the cruise control is engaged, the SET and RES buttons will adjust the sensitivity.
- **The minimum setting for Fine Gain is 1, the maximum setting is 10.**
- If you do not wish to adjust the Acceleration Spread or make another change to the Coarse Gain, stop the bike (the bike must be stationary) and turn the ignition switch OFF, **DO NOT TURN THE IGNITION OFF BEFORE THE BIKE HAS STOPPED MOVING.**

Changing the Acceleration Spread adjustment

The last adjustment available is the Acceleration Spread. This adjustment is independent of the gain, but can have an effect on what gain number can be used.

If the ignition is still on and the cruise control is in fine gain adjustment mode:

- Press and hold the ON-OFF button for more than 2 seconds until the light changes from flashing red to flashing GREEN. Release the ON-OFF button. The cruise is now in Acceleration Spread adjustment mode and displays the gain number by flashing the GREEN light on the control switch.

If the ignition switch has been turned off:

- Turn the ignition switch OFF. Press and HOLD the RES button ONLY, turn the ignition switch ON, **HOLD THE RES BUTTON UNTIL THE SWITCH INDICATOR LIGHT STARTS FLASHING RED/GREEN OR YELLOW, then release the button.**

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- Apply and release the brakes (the cruise control will not engage until it has received a signal from the brake detection circuit. The indicator light will now be flashing yellow. The cruise control is now in Coarse Gain adjustment mode.
- Press and hold the ON-OFF button for more than 2 seconds until the light changes from flashing yellow to flashing RED. Release the ON-OFF button. The cruise is now in Fine Gain adjustment mode and displays the gain number by flashing the RED light on the control switch.
- Press and hold the ON-OFF button for more than 2 seconds until the light changes from flashing red to flashing GREEN. Release the ON-OFF button. The cruise is now in Acceleration Spread adjustment mode and displays the gain number by flashing the GREEN light on the control switch. It will flash a number of times to displays the setting (once for setting 1) then pause for a couple of seconds, then flash the number again. The default setting is 3.
- The settings range from 1 to 5. 1 will be very soft and the cruise control will be very ‘relaxed’ about getting back to the set speed. 5 will be much more aggressive, and the cruise will attempt to get back to set speed quite quickly. If the bike tends to hunt with the gain number you feel is right, try reducing the acceleration spread number, this will often ‘cure’ a bike that is prone to hunting. Other than that, the acceleration spread is mostly a matter of what ‘feels’ comfortable to you.
- Ride the motorcycle at various speeds and press SET to engage the cruise control. The RES button does not work to engage the cruise control in this mode. Use the brake to disengage the cruise control and ride to a different speed, then press SET to engage the cruise control again.
- Press the SET button to increase the number or press the RES button to reduce number. Each press will change the number by one. **You can make these adjustments either while riding with the cruise control engaged or with the bike stopped.** If you are stationary, each press of SET or RES will adjust the sensitivity. If you are riding between 35 kph and 180 kph, the first press of the SET button will engage the cruise. The RES will not work until the cruise control is engaged while moving. After the cruise control is engaged, the SET and RES buttons will adjust the gain.
- **The minimum setting for Acceleration Spread is 1, the maximum setting is 5.**
- If you do not wish to adjust make more adjustments to the Coarse Gain or Fine Gain, stop the bike (the bike must be stationary) and turn the ignition switch OFF, **DO NOT TURN THE IGNITION OFF BEFORE THE BIKE HAS STOPPED MOVING.**
- In order to ‘scroll’ through the three adjustments, press and hold the ON-OFF button for more than 2 seconds to change to the next adjustment. The cruise will always start in Coarse Gain (yellow flashing light), then Fine Gain (red flashing light) then Acceleration Spread (green flashing light), then back to Coarse Gain (yellow) and so on.

Road testing the cruise control

Start the bike.

NOTE: - THE CRUISE CONTROL COMPUTER TAKES A FEW SECONDS (LESS THAN 5 SECONDS) TO ‘BOOT UP’. AVOID PRESSING ANY BUTTONS FOR THE FIRST FEW SECONDS AFTER TURING THE IGNITION SWITCH ON OR STARTING THE BIKE.

To turn your cruise control ON, press the ON-OFF button once. The indicator light will come on RED to indicate power is ON. To turn the cruise control OFF, press the ON-OFF button again. The red indicator light

will go out. The light is reasonably bright, but will not be easily visible in full sunlight. ***The light may be flashing red/green if the brakes have not been applied.***

Apply the brakes at least once. The cruise control will not engage until it detects the brake have been applied.

When riding, pressing the SET or RES buttons will engage the cruise control and the indicator light will turn yellow.

If the bike's ignition switch is turned OFF, the cruise control will turn OFF. When the bike is started again next time, the cruise control will be OFF and SET or RES will NOT work. Press the ON-OFF button to turn the cruise control back ON (red indicator light will come on) to enable the SET and RES buttons.

- Press the ON/OFF switch once to turn the cruise control ON (red light ON);
- ***Apply the brakes at least once if the light is flashing red/green, it will then change to red.***
- Ride the bike to 60kph (35mph) and press the SET key. The cruise control should engage and smoothly maintain speed;
- Depress one of the brake levers to turn the cruise control off;
- Use the throttle to accelerate the bike up to 80kph (50mph) and press the SET key. The cruise control should engage and smoothly maintain speed within 2kph (about 1.5mph);
- Press the SET key 5 times. The cruise control should smoothly increase the speed by about 10 kph (6mph) (if the default speed increment is still used, otherwise it should change speed according to the selected increment of 1kph, 2kph, 1mph or 2mph).
- Press the RES key 5 times. The cruise control should smoothly decrease the speed by about 10 kph (6mph) again depending on the speed increment selected.
- Apply the brakes and slow down to about 60 kph (35mph). Press the RES key once. The cruise control should engage and smoothly accelerate to the previous SET speed and maintain speed within 2kph (about 1.5mph).

Testing the clutch and/or tach sensor.

The clutch and/or tach sensor may be road tested by setting the cruise on a suitable speed (ie. 60kph or 35 mph) while on a level road or slight uphill, and pulling in the clutch. The engine will rev higher initially but should drop quickly (within 1/2 second) back to idle. If this takes longer than this, check that there is no excess friction in the throttle mechanism that is slowing down the throttle and not allowing it to 'snap' shut or your clutch switch (if fitted) may be faulty or the clutch sensing not configured correctly or the tach sensor may not be connected. Ideally, BOTH of these items should be connected and working.

This completes the testing & adjustment procedure.

10. SAFETY ISSUES & FEATURES

Electrical 'Noise'.

Noise is a broad term used to describe the electromagnetic radiation of energy. Noise is generated during rapid changes in voltage or current levels or by radio transmitters (ignition systems, alternators, mobile phones and

other heavy current carrying wires). If noise gets coupled into the cruise control wiring harness it can create disturbances within the cruise control computer. The cruise control may drop out after engagement or not engage at all, but still pass all diagnostic tests.

The most likely causes of electrical noise interference on a motorcycle is faulty spark plug leads or fitment of non suppressed spark plug leads, or the electrical system could be in poor repair due to age or lack of appropriate preventative maintenance.

WARNING: - It is ESSENTIAL that the spark plug leads are radio suppression type leads and that they are in good condition. Inspect the spark plug leads for any cracks, and replace if required. All original equipment high-tension ignition leads, in optimal condition, should be acceptable, but the cruise control MUST NOT BE USED IF AFTERMARKET, SOLID CORE HIGH TENSION LEADS ARE FITTED.

Ideally all cruise control wiring should be kept as far as possible from all high voltage and high current wiring. This is often difficult to achieve on a motorcycle due to space limitations, so it is important to FOLLOW THE WIRING HARNESS INSTALLATION INSTRUCTIONS CAREFULLY.

Make sure that the bike's battery and charging system are in good condition and the battery electrolyte levels are correct and the battery connections are clean and tight. The battery acts as an electrical 'buffer' and absorbs electrical spike energy and stabilises voltage in the electrical system.

CruiseSafe throttle servo cut off.

As an additional safety measure, MotorCycle Setup has developed a new component for use on motorcycle cruise controls; the CruiseSafe cut off.

The MotorCycle Setup 'CruiseSafe' *throttle servo cut off* cuts power to the cruise control throttle servo whenever the brake is applied. This innovative safety device built in to the MCS product range and demonstrates the company's dedication to building product to the highest possible levels of safety, quality and reliability.

The 'CruiseSafe' cut off is a simple 'switch' incorporated into the brake circuit so that when the brake light switch operates, power to the cruise control throttle servo is shut down.

WARNING: - In order to stop the motorcycle in the event of cruise control electrical malfunction, simply pull on the brakes. This will remove power to the cruise control throttle servo after approximately 1 second delay.

WARNING: - In the event of a major malfunction, the cruise control may re-apply the throttle when the brakes are released. If this occurs, disconnect the loom computer plug from the cruise control computer until the cause can be found and remedied.

WARNING: - Any erratic behaviour from the cruise control should be regarded as suspicious, if the cruise control disengages at random or it fails to engage without turning the ignition switch off and back on, the cruise control computer should be disconnected until the cause can be found and remedied.

The 'CruiseSafe' protects you against accidental damage to the wiring loom or any sort of electrical failure or interference in the cruise control electronics causing a malfunction, because whenever the brakes are applied, the cruise control throttle servo is disconnected from power.

Its operation is failsafe, which means that if you lose power to the brakes, the brake light globes blow, a wire becomes disconnected or the 'CruiseSafe' fails, the power to the cruise control throttle servo is disconnected. The ONLY electrical failure it cannot protect against is if the brake light switch/s fail. Then you must turn the cruise control and the bike OFF using the bike's engine kill switch or ignition switch to kill the engine.

MotorCycle Setup has chosen to use a mechanical switch instead of an electronic device, because electrical interference cannot hinder its operation.

Other safety features.

The cruise control can be shut off by any of the following methods:

- Applying the brakes;
- Pulling in the clutch (as long as clutch and/or tach sensing are connected);
- Pressing the ON/OFF button to OFF;
- Accelerating to 130% of the SET speed or exceeding the maximum speed;
- Decelerating to 70% of the SET speed or running under the minimum speed (35kph, 22mph);
- Turning the engine kill switch OFF (this stops the engine but may NOT turn off the cruise control);
- Turning off the ignition key.

The cruise control will disengage if any of the connectors become separated, if the brake light filament breaks or the brake light system loses power - for example if a fuse blows.

There are numerous safety features designed into the computer and throttle servo to ensure that should one or more components fail there is still a way to turn off your cruise control.

For safe riding NEVER operate this cruise control in heavy traffic conditions or on wet roads or other hazardous conditions.

WARNING: Your cruise control is designed with numerous safety features, but only the motorcycle KILL SWITCH or the IGNITION KEY can overcome a runaway condition caused by a tangled or jammed carburettor linkage.

Regular inspection of control cables is recommended to prevent jamming of the throttle, which could occur if cables were frayed or damaged.

11. TROUBLE SHOOTING

A potential source of problems is electrical interference. Your kit has been developed based on testing to avoid this type of problem by installing the loom and computer in unaffected areas. However, as the speed rises the electrical fields generated by the bike increase. Also, older bikes tend to produce larger electrical fields from old spark plug leads or coils. If you experience this type of problem, check that you have followed the installation instructions precisely. Correct any obvious mistakes. If the problem persists call MotorCycle Setup for advice. As a last resort, we will refer you to our local installer if you are prepared to pay for him to check the installation and follow his recommendations. If our dealer/installer network is unable to make the unit work properly, you will receive a full refund of the cost of the cruise control (NOT including freight) on return of the kit. If the cruise control was purchased through a dealer (or other third party) it must be returned via that third party.

There is a separate trouble-shooting guide supplied with the kit. Refer to the trouble-shooting guide for detailed problem diagnosis.

The most common cause of problems is intermittent/dirty electrical connections. Check the connections for continuity at all connection points. Perform a diagnostic mode check (see the trouble shooting guide or section 8 in this manual), as this will provide an indication of what components are not working correctly.

Refer to the Operation and User Manual for more information on operating the cruise control.

12. SUGGESTED INITIAL SENSITIVITY SETTINGS.

This list gives an indicative sensitivity number to use when calibrating the cruise control computer. It is a start point ONLY to save time in setting up the computer to suit the bike AND the riders preferences.

The sensitivity number that suits a particular bike best comes from a number of different factors such as engine power AND power characteristics, weight, throttle response, rider preference and other factors. Older bikes (before 1990) often require much higher numbers than the modern equivalents due to a number of factors, including the tendency on newer bikes towards reduced throttle cable travel and MUCH larger carburettors (throttle bodies), particularly on sports bikes. This makes modern bikes MUCH more sensitive at small throttle openings, where the cruise control is operating most of the time.

<u>Motorcycle Make & Model</u>	<u>Recommended initial sensitivity numbers</u>			
	<u>Init Thrtl Pull</u>	<u>Coarse Gain</u>	<u>Fine Gain</u>	<u>Accel Spread</u>
BMW F650GS	10	7	4	3
BMW F700GS	8	8	5	4
BMW F800GS/ST	7	8	5	4
BMW R1100R	8	9	3	4
BMW R1200GS	5	5	1	3
Boom Trike Mustang Auto	4	5	3	4
Ducati ST4	4	4	4	4
Ducati Multistrada 1200S	4	2	2	3
Harley Davidson 883 Sportster	8	8	3	3
Harley Davidson 1200 Sportster	6	5	3	3
Harley Davidson Dyna/Softail	5	5	3	3
Honda CB500X	8	7	3	4
Honda VFR800FI 2014 (Interceptor)	4	5	4	4
Honda CB900RR 2000	2	3	4	4
Honda CFR1000 Africa Twin	5	8	4	4
Honda XL1000V Varadero	8	8	3	4
Honda CTX1300	6	7	3	4
Honda GL1800 F6B	4	5	4	3
Honda GL1800C Valkyrie	4	5	2	4
Kawasaki KLZ1000 Versys	5	7	3	3
Kawasaki ZX1000 Ninja	6	5	3	4
Kawasaki Z1400GTR Concours	4	5	5	4
Moto Guzzi Norge GT8V	7	6	4	4
Rewaco Trike Mitsubishi Turbo Auto	6	15	10	3
Suzuki DL1000 V-Strom 1 st Gen	6	5	5	4
Suzuki DL1000 V-Strom 2 nd Gen	5	6	4	4
Suzuki DL650 V-Strom 2 nd Gen2	7	5	5	4
Triumph Rocket III	4	5	5	4
Triumph Sprint GT	4	4	3	4
Yamaha MT-09 Tracer	4	7	2	4
Yamaha TDM900	8	7	5	3
Yamaha XT1200 Super Tenere	6	4	5	3

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MOTORCYCLE SETUP PTY. LTD.

12 MONTH CONSUMER SATISFACTION GUARANTEE REGISTRATION

Please keep this card and your receipt in a safe place. Copies of both are required if warranty service is needed.

Name: _____

Address: _____

Telephone Number: _____

Item Model Number: _____ Date Purchased _____

Name of Retailer: _____

Installed By: _____

Year, Make and Model of Motor cycle: _____

I have read the warranty agreement below and accept its terms.

Customer signature: _____

Warranty service requires a copy of the sales receipt.

12 MONTH WARRANTY

MotorCycle Setup Pty. Ltd., Unit 13,137-145 Rooks Road, Nunawading, Victoria 3131, AUSTRALIA, hereby warrant that it will repair or replace to the original purchaser products which prove to be defective under normal use and service in workmanship or material.

MotorCycle Setup obligation under this warranty is limited to the repair or replacement of the product at its option without charge for parts and labour at its warehouse located at the above address at Mount Waverley, when the product is returned with postal charges prepaid and examination of the product shall disclose it not to have been defective in the respects aforesaid during the warranty period.

The repairs or replacements will be made promptly and the repaired unit will be returned with all postal charges prepaid.

Coverage under this warranty is limited to the original purchase of the product at retail. When requesting warranty service a copy of the sales receipt or guarantee card must be submitted.

The warranty period for cruise controls is limited to a period of 12 months from the date of purchase. No warranty is implied for the installation and therefore MotorCycle Setup will not be responsible for installation or re-installation charges.

This warranty does not apply to products or equipment or components used in conjunction with the cruise control.

Warranty does not cover unauthorised repairs, improper installation or application, damage or misuse or product which has not been maintained or used in accordance with the operating specifications as set forth in the written instructions.

The warranty term shall not extend beyond its original term with respect to subsequent warranty replacement.

Under no circumstances shall MotorCycle Setup be liable for consequential damages or breach of this warranty or for any implied warranty.

MotorCycle Setup neither assumes nor authorises any person to assume for it or any obligation or liability other than herein expressly stated.

MOTORCYCLE SETUP CUSTOMER SERVICE POLICY

You will receive free consultation on any problem you might encounter in the assembly or use of MotorCycle Setup products. Just drop us a note, e-mail us at sales@mccruise.com or give us a call on +61 3 9808 2804.

You can obtain parts directly from MotorCycle Setup by writing to us or from your dealer. Use your packing list to describe your requirements.

If you are not satisfied with our service or with our products, write direct to the Managing Director, MotorCycle Setup Pty. Ltd., Unit 13,137-145 Rooks Road, Nunawading, Victoria 3131, AUSTRALIA. He will make certain your problem receives immediate personal attention.

The benefits conferred by this guarantee are in addition to all other rights and remedies in respect of the product, which the consumer has under the Trade Practices Act, and other State and Territory Laws.

Set up & Calibration procedures (MUST be performed in the following order)

NOTE: - In most cases these procedures do NOT need to be performed, the cruise control is already pre-calibrated for the bike it is fitted to.

Configure Clutch/Neutral Sensing.

- Enter Diagnostic mode (SET and ON-OFF held, turn ignition ON, **wait 5 seconds**, release the buttons) **DO NOT START THE ENGINE.**
- Raise the side (kick) stand.
- Engage a gear (not in neutral)
- Operate clutch.
- Press SET & ON-OFF and hold buttons for 5 seconds to configure to high sensing (red light after 5 seconds confirms selection). Press RES & ON-OFF and hold for 5 seconds to configure to low sensing (yellow light after 5 seconds confirms selection). Green light should come **on** when **clutch lever is pulled in** and go **off** when **clutch is released.**
- Turn ignition OFF.

SET/RES button speed increment adjustment.

- Enter Speed Pulse Rate Calibration mode (RES and ON-OFF held, turn ignition ON and start engine, wait for light to come on green, release buttons).
- Press and HOLD the ON-OFF button (green light flashes to display current increment number)
- While holding the ON-OFF button, press SET to increase the increment number (higher number), press RES to decrease the increment number (lower number). Count green flashes to read number.
#1 = 1kph incr. #2 = 2kph incr. #3 = 1mph incr. #4 = 2mph incr.
- Release ON-OFF button exit back to Speed Pulse Rate Calibration mode.
- Turn ignition OFF **OR** stay in mode for the next step.

Calibrate Speed Signal. NOTE: - Not for CAN-BUS cruise systems.

- Enter Speed Pulse Rate Calibration mode (RES and ON-OFF held, turn ignition ON and start engine, wait for light to come on green, release buttons).
- Ride to **steady** 70kph, (45mph). Green light flashing.
- Press SET, light goes red/yellow for 2 seconds.
- **Bring bike to a stop**, then turn ignition OFF to exit.

Initial Throttle Pull Curve selection

- Enter Initial Throttle Pull Calibration mode (SET held, turn ignition ON and start engine, wait for light to come on green, release button).
- Apply and release the brakes.
- Press and HOLD the ON-OFF button
- While holding the ON-OFF button, press SET to increase the curve number (higher number), press RES to decrease the curve number (lower number). Count green flashes to read number (curve numbers are 1 thru 15).
- Release ON-OFF button to exit back to Initial Throttle Pull Calibrate mode.
- Turn ignition OFF **OR** stay in this mode for the next step.

Calibrate Initial Throttle Pull.

- Enter Initial Throttle Pull Calibrated mode (SET held, turn ignition ON and start engine, wait for light to come on green, release button).
- Apply and release the brakes.
- Ride to **steady** 70kph, (45mph) on **flat and level road**. Green light on solid (NOT flashing).
- Press SET, release throttle. Light goes OFF for 5 seconds.
- After 5 seconds cruise releases throttle and green light comes on.
- Repeat as necessary until bike maintains **steady and stable** 70kph (45mph) after SET is pressed.

- **Bring bike to a stop, then** turn ignition OFF to exit.

Note: - Initial throttle pull can also be performed at two different speed, low speed (40 to 60kph) and high speed (100 to 160kph).

Coarse Gain/Fine Gain/Acceleration Spread Setting.

Coarse Gain setting.

- Enter Coarse Gain Adjustment mode (RES held, turn ignition switch ON, wait for light to flash red/green OR yellow, release button).
- **Apply and release brakes**, light flashes yellow to display Coarse Gain number.
- Press SET to increase gain (higher number), press RES to decrease gain (lower number). Count yellow flashes to read number (gain numbers are 1 thru 15).
- Ride at various speeds, press SET to engage cruise control, then use SET and RES to increase and decrease Coarse Gain as needed **while cruise control is engaged**.
- Use brakes to disengage cruise control.
- Press SET to re-engage cruise control at different speeds and make adjustments to gain/sensitivity using SET and RES.
- Adjustments may also be made when stationary using SET and RES if desired.
- If desired, Fine Gain and Acceleration Spread may be adjusted next (see next section) **OR**
- **Bring bike to a stop, then** turn ignition OFF to exit.

Fine Gain setting.

Already in Coarse Gain setting (see above), yellow flashing light.

- Press and HOLD the ON-OFF button for more than 2 seconds until light flashes red to display Fine Gain number (default = 5).
- Press SET to increase gain (higher number), press RES to decrease gain (lower number). Count red flashes to read number (gain numbers are 1 thru 10).
- Ride at various speeds, press SET to engage cruise control, then use SET and RES to increase and decrease Fine Gain as needed **while cruise control is engaged**.
- Use brakes to disengage cruise control.
- Press SET to re-engage cruise control at different speeds and make adjustments to gain/sensitivity using SET and RES.
- Adjustments may also be made when stationary using SET and RES if desired.
- If desired, Acceleration Spread may be adjusted next (see next section) **OR**
- **Bring bike to a stop, then** turn ignition OFF to exit.

Acceleration Spread Setting.

Already in Fine Gain setting (see above), red flashing light.

- Press and HOLD the ON-OFF button for more than 2 seconds until light flashes green to display Acceleration Spread Gain number (default = 3).
- Press SET to increase the Accel Spread number (higher number = high accel), press RES to decrease the Accel Spread number (lower number = low accel). Count green flashes to read number (numbers are 1 thru 5).
- Ride at various speeds, press SET to engage cruise control, then use SET and RES to increase and decrease Acceleration Spread as needed **while cruise control is engaged**.
- Use brakes to disengage cruise control.
- Press SET to re-engage cruise control at different speeds and make adjustments to Acceleration Spread using SET and RES.
- Adjustments may also be made when stationary using SET and RES if desired.
- If desired, Coarse Gain may be adjusted next (see next section) **OR**
- **Bring bike to a stop, then** turn ignition OFF to exit.

Return to Coarse Gain Setting.

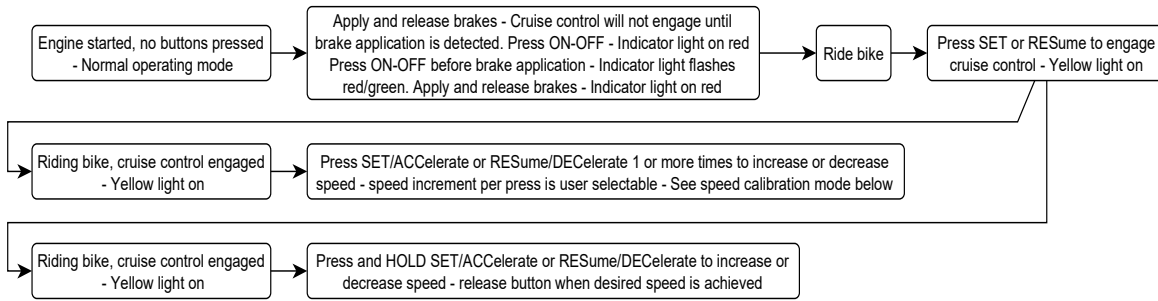
Already in Acceleration Spread setting (see above), green flashing light.

- Press and HOLD the ON-OFF button for more than 2 seconds until light flashes yellow to display Coarse Gain number.

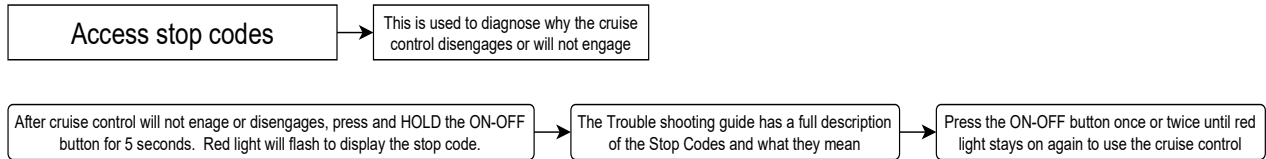
Cruise Control Menu Map

Menus for normal operation

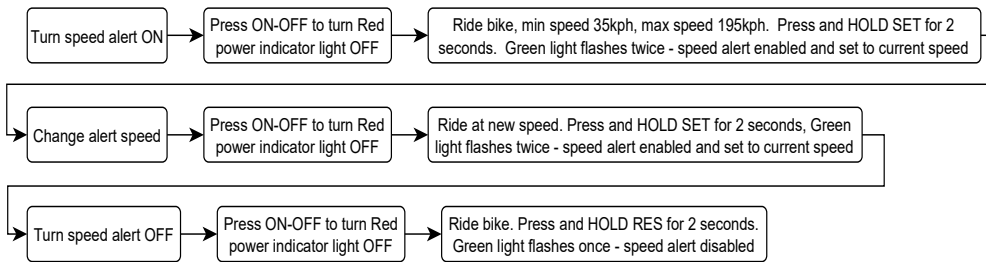
Normal cruise control operation



Access stop codes

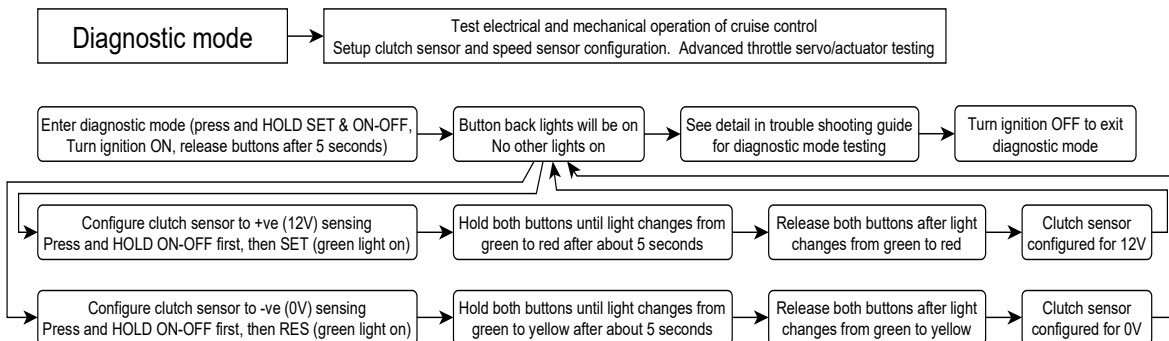


Speed Alert operation

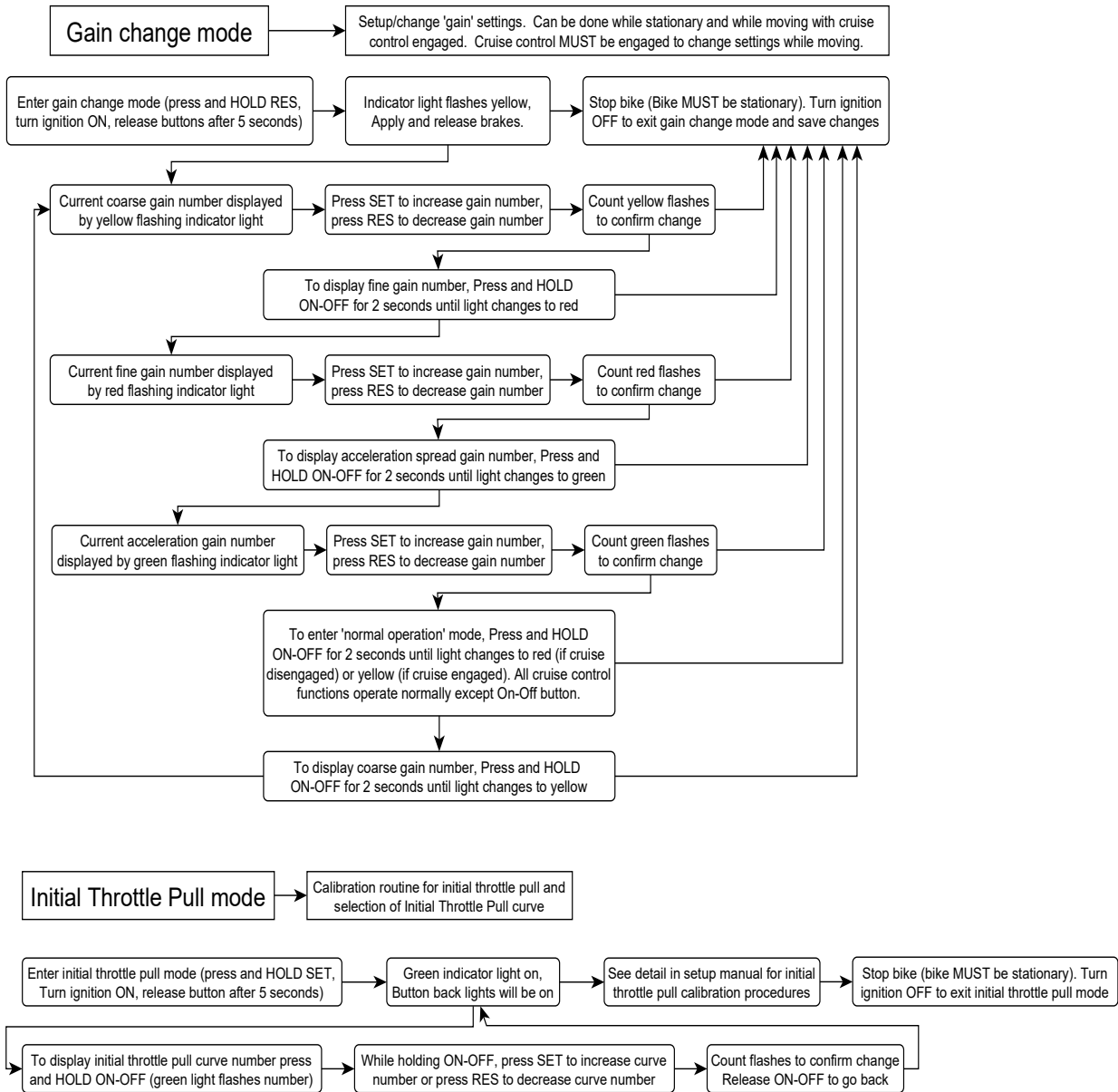


Menus for normal testing after installation.

Diagnostic mode

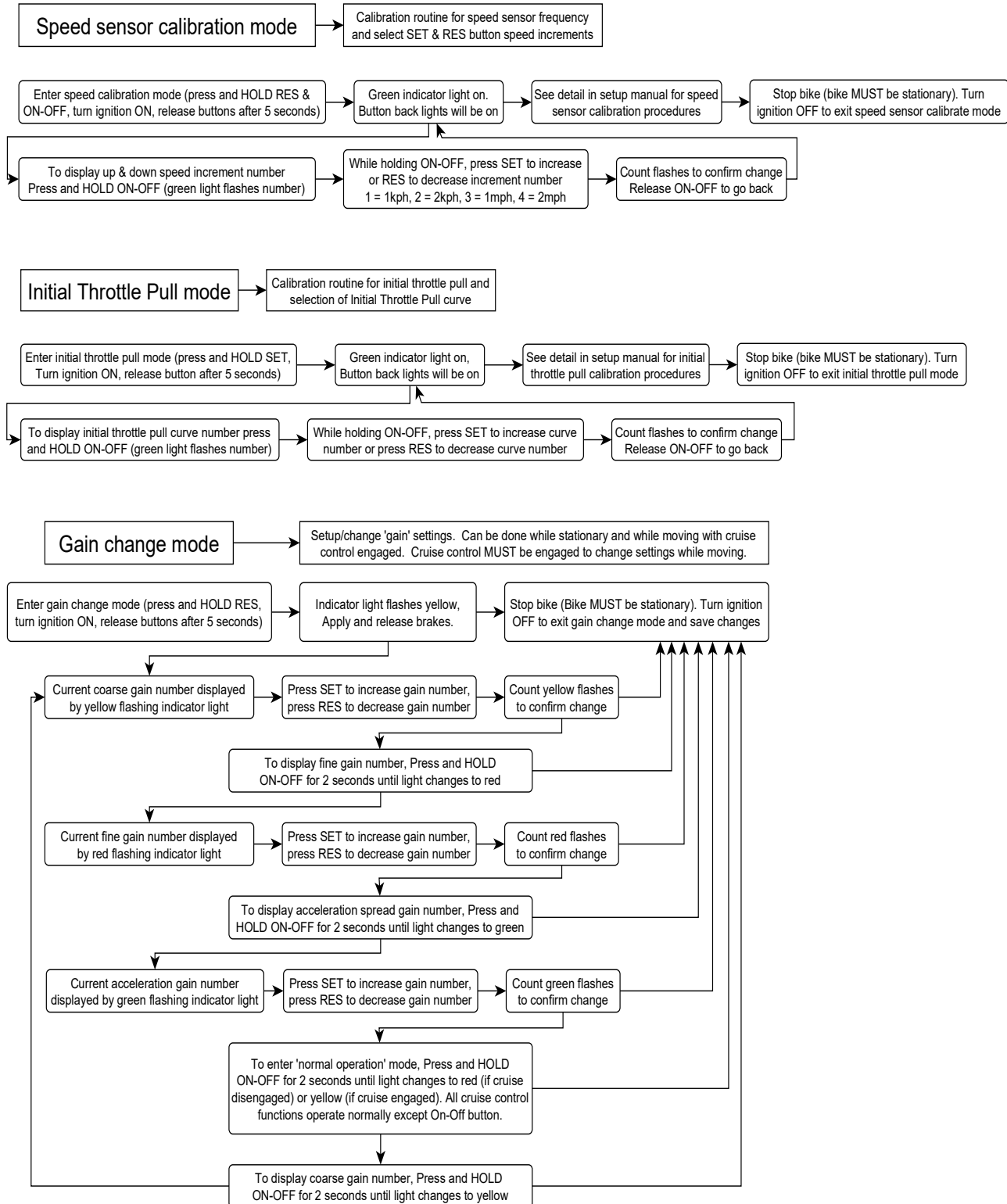


Menus for 'fine tuning' or adjusting the cruise control performance.



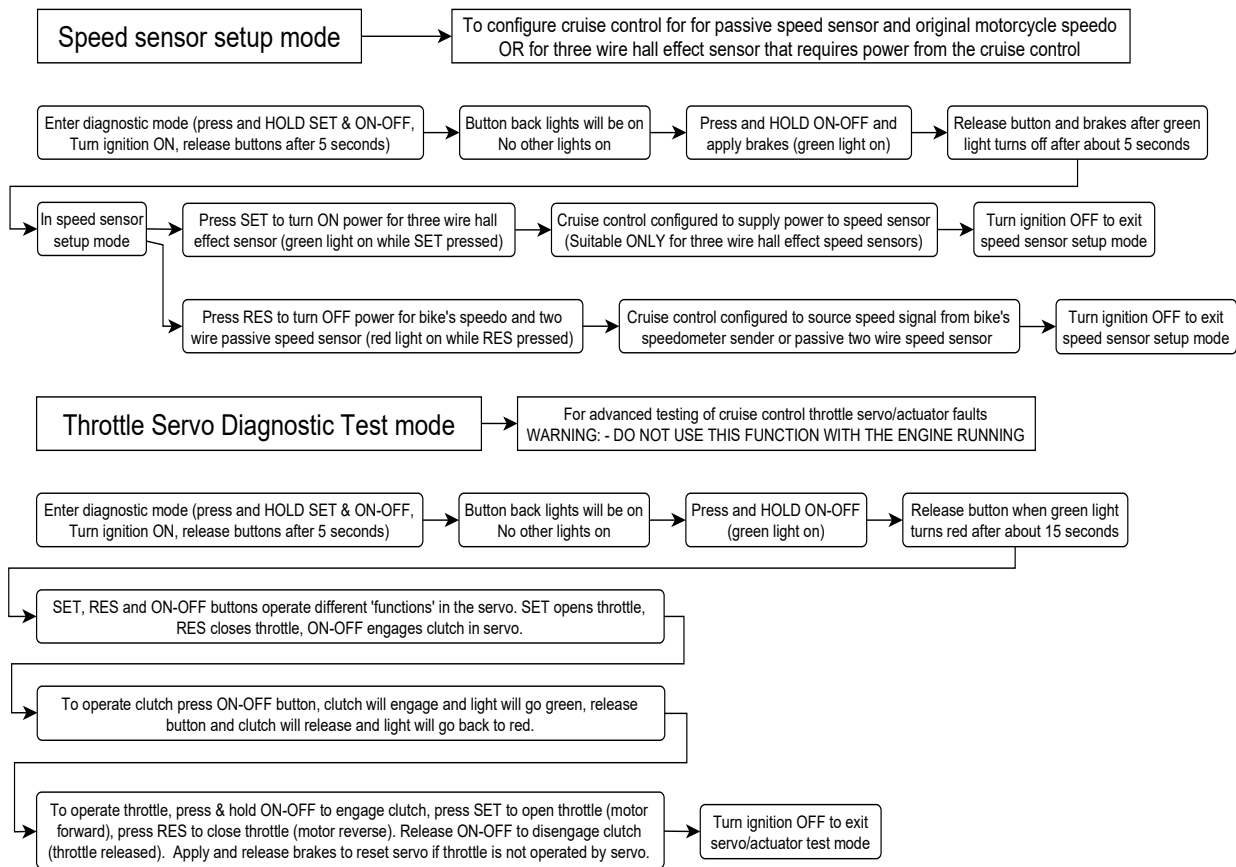
Menus for setting up the cruise control from 'scratch' (cruise control not pre-calibrated for the bike).

NOTE: - In most cases the cruise control is already calibrated to suit the bike and these procedures will not need to be performed.



Menus for 'out of the ordinary' functions.

Speed sensor setup and throttle servo diagnostics.



NOTES: -