

# *PTO Cruise*

## *Electronic Cruise Control for Tractor Power Take Off*



The 'PTO Cruise' is a new version of the electronic cruise control manufactured by MotorCycle Cruise Controls for tractors. It is designed to control the output speed of an agricultural tractor's power take off. The speed range of the cruise is from engine idle speed up to the maximum allowable PTO speed.

The "PTO Cruise" has been developed to control the speed of the PTO to drive implements that require precise maintenance of PTO rpm. It can be used to control the PTO speed for use with sprayers, fertiliser spreaders, seeders and slashers, in fact any implement that is driven with a PTO. Because the PTO speed is controlled by engine rpm, the cruise can also be used to control the ground speed accurately, simply by choosing the appropriate gear and engine rpm and setting the cruise control to maintain that engine rpm.

Because the cruise actually monitors PTO rpm in most cases, the PTO must be engaged to control engine rpm, even if an implement is not connected.

The main cruise control switch has three buttons, ON-OFF, SET/ACCElerate and RESume/DECelerate.

An additional 'RESUME' button is provided in most applications. This works in the same way as the RESume/DECelerate button on the main control switch but can be mounted separate to the main control panel.

Because the brakes are sometimes used to assist with turning the vehicle, the cruise control is not normally connected to the brake pedal. Instead a 'STOP' button is provided to disengage the cruise control.

The extra 'RESUME' button and the 'STOP' button are typically mounted in the most convenient location.

The cruise control can be set to a specific rpm by pressing the 'SET' button when the engine is at the required rpm, and disengaged with the 'STOP' button, (or by applying the vehicle brakes if the cruise control is connected to the brake system). Either 'RESUME' button can be used to set the PTO speed back to the previous rpm.

To engage the cruise control, the driver manually accelerates the engine to the desired rpm and presses the 'SET' button. The driver can accelerate the engine further, if desired, by using the throttle. When the throttle is released the cruise control will take over again at the previous set speed.

To increase the set speed, the 'SET' button may be pressed and held. The speed will gradually increase until the key is released. The speed control will then maintain the new speed. Alternatively the "Tap up" feature allows the speed to be increased by about 5 rpm at the PTO, each time the 'SET' button is momentarily pressed.

To decrease the set speed the 'RES' button may be used in the same way as the 'SET' button, but this will reduce the speed instead of increasing it.

After the correct PTO speed is established, the cruise control set speed may be 'locked' easily to prevent accidental changes to the set speed by pressing the RESUME or SET buttons. All SET and RESUME buttons then only act as a resume button only and will not adjust the speed. The set speed lock can be 'unlocked' at any time easily.

If the cruise control is disengaged by the 'STOP' button, it may be resumed by pressing the 'RESUME' button. The engine will resume back to the previous set speed provided the PTO rpm is still in the 'allowable' range (from engine idle speed to maximum allowable PTO speed (typically about 630 engine rpm on a 540 rpm PTO)). The cruise control will not engage outside these rpm limits, so it is not possible to accidentally engage the cruise control when the PTO is turned off or if it is over maximum PTO rpm. The cruise control will also hold the last 'SET' speed in memory, even if the vehicle ignition switch is turned off.

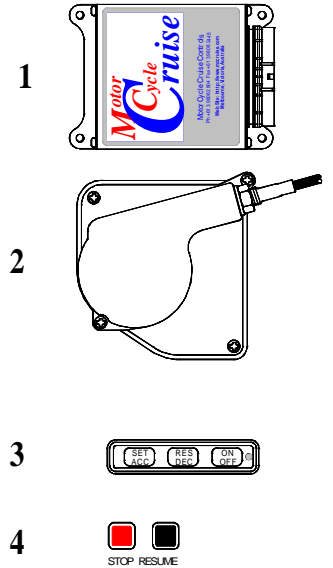
The principles behind the cruise control are very simple:

- The computer monitors the frequency of electrical impulses generated by the PTO speed sensor;

- When the 'SET' button is pressed, the computer stores the pulse frequency at the time in memory and then continuously adjusts the electric actuator (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 backs the throttle off. The computer monitors and reacts to changes very quickly and smoothly so that the speed effectively remains nearly constant.

There are six major components in most kits, the computer, the electric actuator, the main cruise control switch, the STOP button and a separate RESUME button and the wiring harness.

1. The computer – monitors ground speed, adjusts the throttle by controlling the electric actuator and monitors the control switch, brake system and neutral gear selection for instructions from these components;
2. The electric actuator – controls the throttle by pulling or releasing a cable which attaches to the carburettor (or throttle body) via the cable;
3. The control switch – sends instructions from the operator to the computer;
4. The additional RESUME button – duplicates the RESume button on the main control switch, but may be mounted in a more convenient location;  
&  
The STOP button – to disengage the cruise control. This is usually mounted near the additional RESUME button.
5. The electrical wiring harness – connects the computer, the actuator, the control switch and other switches to the vehicle's electrical system.



Mounting brackets and other components are made to suit specific tractor models. Most brackets supplied with the cruise control are laser cut from '304' grade stainless steel. The calibration of the computer is also set up to suit the specific model of tractor.

If the tractor does not come with a suitable electric speed sensor for the PTO, engine rpm may be monitored or the kit may come with a suitable PTO speed sensor.

Alterations to the tractor are minimal and generally easy, if required. Electrical connection is usually simply a matter of plugging the cruise control loom into the vehicle's wiring harness in most cases, as the same type of electrical connectors as those used on the vehicle are provided. If alterations to the vehicle loom are required, all terminals for connection are supplied in the kit. In most cases, electrical components for the cruise control are placed in the cabin or under the dashboard.

The installation instructions provided with the cruise control are very detailed and have photographs of every step of the installation. A comprehensive trouble-shooting guide is also provided, including a full electrical schematic diagram.

**See your dealer, our web site or phone us, for full details of models and prices**

MotorCycle Setup P/L ABN 94 798 167 654 Trading as:

**MotorCycle Cruise Controls**

6 Kinston Street  
Mount Waverley VIC 3149  
AUSTRALIA

Web Site: <http://www.mccruise.com>

International: Phone (International Access Code) 61 3 9808 2804

Fax (International Access Code) 61 3 9808 2445

Australia: Phone (03) 9808 2804

Fax (03) 9808 2445

E-mail: sales@mccruise.com