

DETERMINING WHETHER THE UNIVERSAL CRUISE CONTROL CAN BE FITTED TO YOUR MOTORCYCLE

It is essential to assess the feasibility of, and level of difficulty in, fitting the cruise control to your bike - preferably BEFORE purchasing the cruise control, but definitely before commencing installation. This document is a work in progress and will evolve into a full installation instruction set for the Universal Cruise Control. People interested in the 'Universal Cruise Control' are advised to print out and read these instructions carefully with your bike, so that you can assess whether you are mechanically capable of, and prepared for, all the work involved in fitting a cruise control safely to your bike. If these preparatory questions cannot be answered, or the language and concepts are foreign to you, you would be most unwise to attempt to fit a cruise control to your bike personally. Under these circumstances, we suggest you employ a capable mechanic to undertake the installation on your behalf.

The following points need to be considered before attempting to fit the MCS Universal Cruise Control. Schematic drawings and dimensions will be developed later to assist you in the process:

1. **Determine whether your bike has an adequate vacuum source** – the cruise control uses manifold vacuum to drive the cruise control actuator (throttle servo). Most bikes have carburettor balance ports or vacuum operated fuel taps, which provide a ready source of vacuum. These sources are usually not restricted and therefore provide sufficient volume of vacuum to operate the cruise control. If your bike does not provide relatively ready access to vacuum, we recommend against trying to fit our cruise control.
 - **Examples of vacuum sources included in any full installation manual PDF file on our bike range page at http://mccruise.com/bike_range.html ;**
2. **Determine whether there is enough space for the cable interface unit (CIU) to be mounted within 500mm (preferably within 200mm) of the bike's throttle cable attachment to the carburettor/s or throttle body** – the CIU is made of a nylon-like material (acetyl), which is stable within the temperatures generally experienced in close proximity to most motorcycle engines. We recommend against mounting the CIU in close proximity to single exhaust pipes close to the head however.

The CIU measures 80mm x 80mm x 35mm. Where you mount the CIU is dictated by:

- A space on your motorcycle large enough to fit the CIU **and** within reach of the existing throttle cable;
- Whether you will accept having the CIU visible on the bike;
- Access to the CIU for the existing throttle cable, the new carburettor cable and the actuator cable;
- Note that you need enough access to fit the cables and internal spools during installation and access to adjust them in final setup. You also need to make allowance for any routine mechanical work which may need to be done later – valve clearance tappet adjustment, carburettor balancing, general tune-up and maintenance;
- Note also that the cable routing to the CIU is crucial. There must be no sharp bends or kinks in the cables. However fairly tight radius (greater than 2.5cm (1")) smooth curves seem to be acceptable as long as the cables are Nylon lined and lubricated properly.

- 3. Determine whether there is enough space for the vacuum actuator to be mounted on the bike within 800mm (32") of the CIU** – the actuator cable is about 800mm (32") long. This dictates the radial distance within which you must find a space to mount the actuator. The actuator itself is 170mm long (7") from the tip of the nose cone to the back of the cylinder, but the main bulk of the actuator consists of a cylinder 100mm long by 100mm diameter (4" by 4"). The cylindrical part of the actuator must be accessible to electrical wiring and a vacuum hose.

Our company manufactures spun aluminium covers for the actuator for use in situations where the actuator cannot be hidden out of site under fairing panels for sport bikes and cruisers. Many examples can be seen on our web site - on a Harley Davidson FLSTC at http://mccruise.com/bike_intro.html and also on the bike range page in PDF files for the Yamaha FJR1300A and Honda ST1300 at

http://mccruise.com/PDF_Bin/FJR1300Silver_actuator.JPG and http://mccruise.com/PDF_Bin/Honda%20St1300_B.pdf

The covers are currently available in either satin black or metallic silver powder coat finish.

- 4. Determine whether your bike has a digital speedometer and active (hall effect) sender unit and whether the speed signal is accessible** – many modern bikes now have digital speedo and electronic pulse generators. If your bike has one, you may be able to tap into the signal and use it to drive your cruise control. To do so, you need to determine whether it has a break in the wiring loom between the sender unit and the speedo (a connector), whether you can get at it easily and whether the plugs match the ones we can supply. Some bike manufacturers use electrical connectors we cannot source or which are prohibitively expensive – notably BMW. If you cannot access the speed pulses, you need to consider where you can mount our Passive Speed Sender unit.

- **Example at**

[http://mccruise.com/PDF_Bin/Honda%20VTX%20speed%20sender%20plug%20ID%20US%20ltr%20\(350\).PDF](http://mccruise.com/PDF_Bin/Honda%20VTX%20speed%20sender%20plug%20ID%20US%20ltr%20(350).PDF)

- 5. Determine where you could mount our Passive Speed Sender unit and magnets in the event that you have a cable driven speedo or you cannot get access to the digital speedo signal** –

- **Mounting the magnets** – MotorCycle Setup sources magnets which can fit in the hexagonal heads of the socket head capscrews which usually mount the brake disks on motorcycles. You need to ensure that you either have such capscrews and measure the width of the hex between the flat sides, or if you do not have capscrews, whether one or more of the bolts holding the brake disk could be replaced by socket head capscrews;
- **Mounting the Passive Speed Sender unit** – determine whether there is any bolt already on the bike to which you could securely mount the speed sender unit in close proximity to the arc through which the magnets are going to turn. The gap between sensor and magnets needs to be 1-3mm (1/16th to 1/8th inch). The sensor dimensions are given in the drawing.
- **Example at** http://mccruise.com/bike_intro.html

- 6. Determine whether there is enough space to mount the cruise control computer on the bike away from sources of electrical interference** – the cruise computer dimensions are: 100mm long, 82mm wide and 28mm deep (4"x3"x1 1/4"). You need to locate the computer in a dry place as far away as possible from electromagnetic sources such as ignition coils, spark

plug leads, rectifiers alternators, etc. If you can't avoid close proximity, try to put frame rails or other electrically shielding parts of the bike between the cruise computer and potential sources of interference.

- **Example at** http://mccruise.com/bike_intro.html

7. **Assess where you want to mount the cruise control switch** - above or below the left hand handlebar (recommended, although it can be on the right hand side) and whether there is clearance between the switch location and the fuel tank (or top shelter on some bikes) when the steering is on full left (or right) lock.

- **Example at** http://mccruise.com/bike_intro.html

8. **Determine where you propose to run the loom wires** – once you have defined where you think the individual components can be located, you need to consider how you are going to connect them without increasing electrical interference within the system. You need to try to ensure all the loom wires are kept as far away as possible from electromagnetic sources such as ignition coils, spark plug leads, rectifiers alternators, etc. If you can't avoid close proximity, try to put frame rails or other electrically shielding parts of the bike between the cruise loom wires and potential sources of interference.

9. **Radios, CB radios, intercoms and mobile phones** – all these items function using electromagnetic radiation and some are strong emitters of electromagnetic radiation. None of your cruise control components or wiring loom should be co-located with or installed in close proximity to such equipment.