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PART NO. - CP601

Positive Feed Stepper Motor Controlled Processor for
Simple Mixer Ring Systems –

INSTRUCTIONS FOR – Variation 1

Dual Fuel Petrol Start

- 0-90 ohm push button switch gauge (7 leds, light dimmer)
- Dual fuel Petrol Start 0.3 secs. to 2.4 secs. - adjustable
- Single injector 'Cut' relay (see Special Notes for 2 wire injector 'cut')
- Fuel Pump 'Cut' Relay
- Safety Switch – if processor (Red Wire) powered from Fuel Pump Circuit
- Micro Processor Controlled Stepper Motor

This Processor can be 'wired' in different Variations with a number of features built in. It has been designed to provide a complete electronics package for an LPG Conversion for 'European' type systems. It is MicroProcessor Controlled with software modes for all engine load characteristics, this design eliminates the need for re-programming.

Features -

- The CP601 Fuel Processor is a MicroProcessor Controlled closed loop processor requiring oxygen sensor and TPS (Throttle Position Sensor) inputs.
- **YELLOW LED** - There is an adjustment incorporated in the unit for a closed loop software 'mode' at idle (enriches mixture when accelerating from idle). Adjusted by Trimpot
- **RED LED** - indicator led to show when the mixture is Rich and Lean when the Led is off.
- **GREEN LED** - illuminates when a rapid increase in acceleration detected. The CP601 utilises a highly efficient stepper motor to control gas flow, also incorporating a brass adjuster for tuning.
- The Stepper motor operates in such a way as to continually give rapid adjustment of fuel mixtures under varying load conditions. If there is an increase in load sensed via TPS it will operate at a much faster rate to give instant gas flow for high load conditions.
- Processor can be programmed for a specific purpose such as reverse TPS voltage, wider O2 signal band, specific fuelling trims for emission control etc. please enquire.
- If Red wire is not powered from fuel pump circuit a safety switch (CP30) must be installed
- Adjust Trimpot so Yellow Led is just on at idle. (Idle Software Mode still in Closed Loop)
- To Tune the vehicle turn the 'Rotary' switch to Position F, this Parks the Stepper Motor fully open. Rotary switch is located on the lower, right-hand front panel and is marked with No.'s 1-9 and Letters A-F on the Switch itself.

Rotary Switch Positions are as follows- for Dual Fuel Start

0 – Setup mode valve ¼ open (approx. stoich. Position at cruise)

| | |
|---------------|---------------------|
| 1 – 0.3 secs. | - Petrol Start Time |
| 2 – 0.6 secs | “ |
| 3 – 0.9 secs | “ |
| 4 – 1.2 “ | “ |
| 5 – 1.5 “ | “ |
| 6 – 1.8 “ | “ |
| 7 – 2.1 “ | “ |
| 8 – 2.4 “ | “ |

F - Parks Valve Fully open for Tuning

Notes on Fault Finding

- For Dual Inj. Cut setup, disconnect Inj. Cut 2 (yellow or yellow/black wire) to tune car on setting F
- **When adjusting 'Rotary Switch setting turn ignition off then on again to reset.**
- **Diagnostic/Fault Function – If O2 Signal is High or Low constantly for 1min 45secs, Red Led will 'blink' indicating Processor is now in default mixture control – Stepper approx. ¼ open (approx. stoich. Position at cruise)**
- **No Petrol operation – check Injector in and Out round the correct way.**
- **Mitsubishi Emulation – Early to mid 90's 5W 33ohm resistor join over the top of Orange and Orange/Blk Wires. 1999 Onwards use CP256 – Wire CP601 as per normal and 'T' in CP256 INJ IN to Orange Wire and 'T' INJ OUT to Orange/Blk Wire. Connect CP256 GND and Gas12V as per normal.**

****CP601 Instruction (Injector Cut and Dual Fuel Start variation)****

Black – Ground or EGO (O2 Sensor) Ground – Must be O2 ground for clean reference for emission compliance. Normal Ground in non-emission compliance

Note: If any unusual behavior from the processor run Black wire direct to EGO (O2 Sensor) Ground as the vehicle may have a higher earth resistance

Blue/Yellow Trace – TPS - Throttle Position sensor

Brown - EGO – O2 Sensor signal input

Orange/Black – To Injectors (injector cut)

Orange – +12V Injector power form ECU

White – Sender – 90 ohm signal

Green – Output 12V Gas power to Lock Offs

Yellow – 12V ECU power Side of Fuel Pump Cut

Yellow/Black – To Fuel Pump side of Cut

Red – +12V Fuel Pump pick up power (**Fused**) join to Yellow wire on Loom -12V side of Pump

Grey/Black – Do not connect

Brown/White – Do not connect

Adjust Trimpot so Yellow Led is just on at idle. (Idle Software Mode still in Closed Loop)

Rotary Switch is located in hole in sticker and marked with No.'s 1-9 & letters A-F.

Adjust 'Rotary' switch to position F for Tuning setup i.e. Parks Valve fully open

Adjust 'Rotary' switch to position 1 – 0.3 secs. for Petrol Start Time in 0.3 secs.

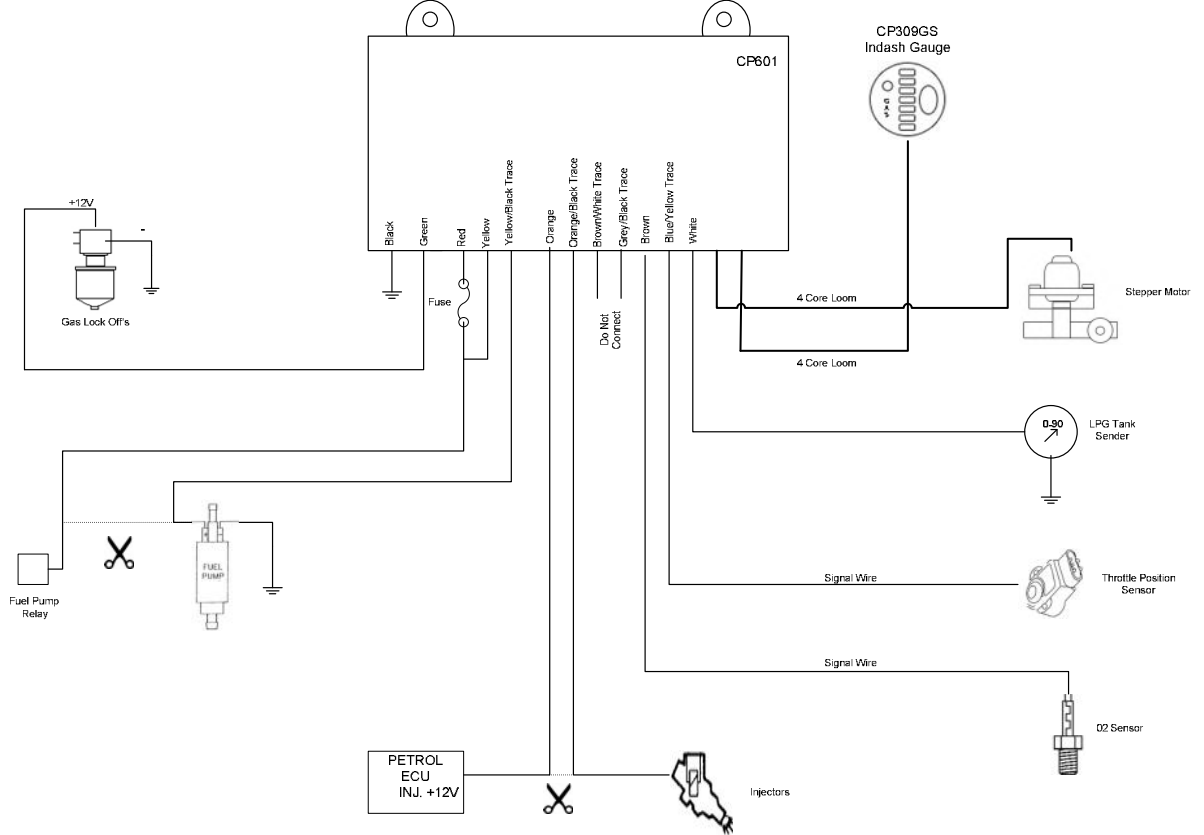
| | |
|------------|--------------|
| Increments | 2 – 0.6 secs |
| | 3 – 0.9secs |
| | 4 – 1.2 “ |
| | 5 – 1.5 “ |
| | 6 – 1.8 “ |
| | 7 – 2.1 “ |
| | 8 – 2.4 “ |

Green Led indicates rapid throttle movement for enrichment

Red Led on – Rich

Red Led Off – Lean

CP601 Injector Cut & Dual Fuel Start Variation

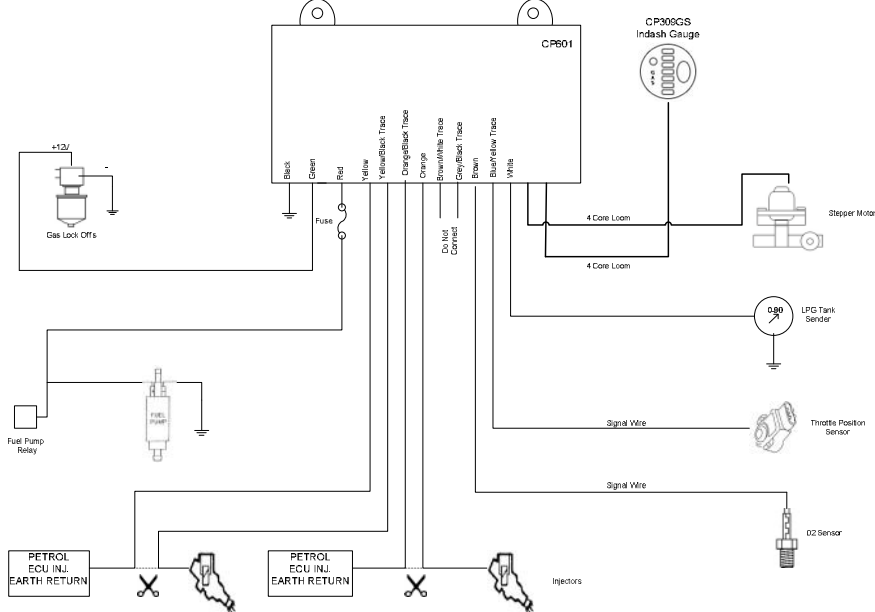


- Injector Cut requiring 2 x relays (VR Commodore, EL Falcon etc.) **See Diagram Below**
- Use Fuel Pump relay as 2nd Inj. Cut (May have to re-power Red wire 12V Processor feed)
- The Adjustable Petrol Start Facility will still be enabled.

Note: For Dual Inj. Cut setup, disconnect Inj. Cut 2 (yellow or yellow/black wire) to tune car on setting F

ie. 2 Injector Cut (Earth Return Wires) EL Falcon & VR Commodore etc.

CP601 Dual Injector Cut & Dual Fuel Start Variation

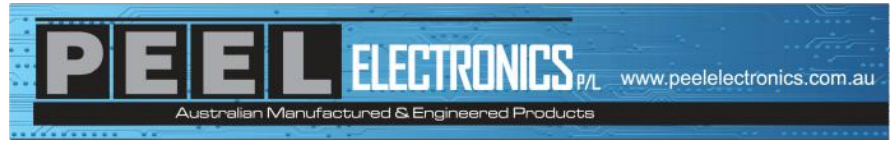


Note: Orange & Orange/Black Wires opposite for +12V Injector Cut

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PART NO. - CP601

Positive Feed Stepper Motor Controlled Processor for
Simple Mixer Ring Systems –

INSTRUCTIONS FOR – Variation 2

RPM Changeover Petrol Start

- 0-90 ohm push button switch gauge (7 leds, light dimmer)
- RPM Changeover Petrol Start with overlap – adjustable
- Single injector 'Cut' relay
- Safety Switch – if processor (Red Wire) powered from Fuel Pump Circuit
- Micro Processor Controlled Stepper Motor

This Processor can be 'wired' in different Variations with a number of features built in. It has been designed to provide a complete electronics package for an LPG Conversion for 'European' type systems. It is MicroProcessor Controlled with software modes for all engine load characteristics, this design eliminates the need for re-programming.

Features-

- The CP601 Fuel Processor is a MicroProcessor Controlled closed loop processor requiring oxygen sensor and TPS (Throttle Position Sensor) inputs.
- **YELLOW LED** - There is an adjustment incorporated in the unit for a closed loop software 'mode' at idle (enriches mixture when accelerating from idle). Adjusted by Trimpot
- **RED LED** - indicator led to show when the mixture is Rich and Lean when the Led is off.
- **GREEN LED** - illuminates when a rapid increase in acceleration detected. The CP601 utilises a highly efficient stepper motor to control gas flow, also incorporating a brass adjuster for tuning.
- The Stepper motor operates in such a way as to continually give rapid adjustment of fuel mixtures under varying load conditions. If there is an increase in load sensed via TPS it will operate at a much faster rate to give instant gas flow for high load conditions.
- Processor can be programmed for a specific purpose such as reverse TPS voltage, wider O2 signal band, specific fuelling trims for emission control etc. please enquire.
- If Red wire is not powered from fuel pump circuit a safety switch (CP30) must be installed
- Adjust Trimpot so Yellow Led is just on at idle. (Idle Software Mode still in Closed Loop)
- To Tune the vehicle turn the 'Rotary' switch to Position F, this Parks the Stepper Motor fully open. Rotary switch is located on the lower, right-hand front panel and is marked with No.'s 1-9 and Letters A-F on the Switch itself.

Rotary Switch Positions are as follows- RPM Changeover

- | | | | | | |
|----------|---|-----------------------------|--------|--------------|--|
| 9 | - | position for RPM changeover | 4 cyl. | - | Short overlap |
| A | " | " | " | 4 cyl. | - Long " |
| B | " | " | " | 6 cyl | - Banked injection (older EFI Systems, ie divides pulses by half) |
| C | " | " | " | 6 cyl | - Long overlap (ideal for Falcon) |
| D | " | " | " | 8 cyl | - Short " |
| E | " | " | " | 8 cyl. | - Long " |
- F - Parks Valve Fully open for Tuning**

Notes on Fault Finding

- **RPM Pulses** are picked up from the Injector ECU Side of wire, note Injector pulses may take 30-40secs. To come through for CP601 to pick up to changeover.
- **Injector Cut wires Orange and Orange/Blk must be around the correct way, as there is a component in the CP601 that picks up RPM Pulses**
- **When changing 'Rotary Switch setting turn ignition on then off again to reset.**
- **Diagnostic/Fault Function – If O2 Signal is High or Low constantly for 1min 45secs, Red Led will 'blink' indicating Processor is now in default mixture control – Stepper approx. ¼ open (approx. stoich. Position at cruise)**
- **No Petrol operation – check Injector in and Out round the correct way.**

****CP601 Instruction (Injector Cut and RPM changeover variation)****

Black – Ground or EGO (O2 Sensor) Ground – Must be O2 ground for clean reference for emission compliance. Normal Ground in non-emission compliance

Note: If any unusual behavior from the processor run Black wire direct to EGO (O2 Sensor) Ground as the vehicle may have a higher earth resistance

Blue/Yellow Trace – TPS - Throttle Position sensor

Brown - EGO – O2 Sensor signal input

Orange/Black – To Injectors (injector cut)

Orange – +12V Injector power from ECU

White – Sender – 90 ohm signal

Green – Join together with Yellow wire below

Yellow – Join together with Green wire above

Yellow/Black – 12V Output to Gas Lock Offs

Red – +12V Fuel Pump pick up power (Fused)

Grey/Black – Do not connect

Brown/White – Do not connect

Adjust Trimpot so Yellow Led is just on at idle. (Idle Software Mode still in Closed Loop)

Rotary Switch is located in hole in sticker and marked with No.'s 1-9 & letters A-F.

Adjust 'Rotary' switch to position F for Tuning setup i.e. Parks Valve fully open

Adjust 'Rotary' switch to **9** position for RPM changeover 4 cyl. - Short overlap

“ “ “ **A** “ “ “ 4 cyl. - Long “

“ “ “ **B** “ “ “ 6 cyl. – **Banked injection**

. **(older EFI Systems, ie divides pulses by half)**

“ “ “ **C** “ “ “ 6 cyl - Long overlap(ideal for

Falcon)

“ “ “ **D** “ “ “ 8 cyl - Short “

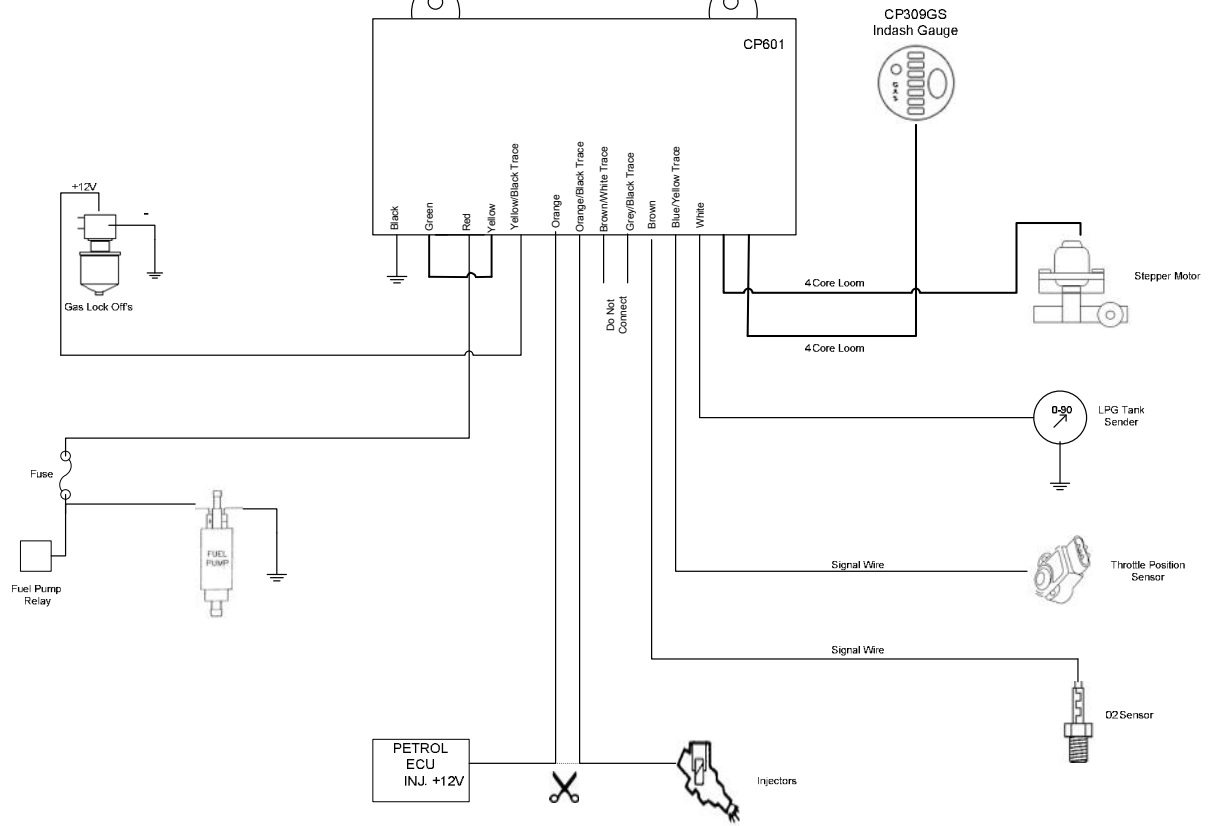
“ “ “ **E** “ “ “ 8 cyl. - Long “

Green Led indicates rapid throttle movement for enrichment

Red Led on – Rich

Red Led Off – Lean

CP601 Injector Cut & RPM Changeover



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PART NO. - CP601

Positive Feed Stepper Motor Controlled Processor for
Simple Mixer Ring Systems –

INSTRUCTIONS FOR – Variation 3

Dual Fuel Petrol Start and O2 Emulation

- 0-90 ohm push button switch gauge (7 leds, light dimmer)
- Dual fuel Petrol Start 0.3 secs. to 2.4 secs. - Adjustable
- Single injector 'Cut' relay (see Special Notes for 2 wire injector 'cut')
- O2 Sensor Voltage Emulation (Square Wave oscillating voltage)
- Or O2 Sensor Open Circuit i.e. No O2 Emulation
- Safety Switch – if processor (Red Wire) powered from Fuel Pump Circuit
- Micro Processor Controlled Stepper Motor

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Features-

- The CP601 Fuel Processor is a MicroProcessor Controlled closed loop processor requiring oxygen sensor and TPS (Throttle Position Sensor) inputs.
- **YELLOW LED** - There is an adjustment incorporated in the unit for a closed loop software 'mode' at idle (enriches mixture when accelerating from idle). Adjusted by Trimpot
- **RED LED** - indicator led to show when the mixture is Rich and Lean when the Led is off.
- **GREEN LED** - illuminates when a rapid increase in acceleration detected. The CP601 utilises a highly efficient stepper motor to control gas flow, also incorporating a brass adjuster for tuning.
- The Stepper motor operates in such a way as to continually give rapid adjustment of fuel mixtures under varying load conditions. If there is an increase in load sensed via TPS it will operate at a much faster rate to give instant gas flow for high load conditions.
- Processor can be programmed for a specific purpose such as reverse TPS voltage, wider O2 signal band, specific fuelling trims for emission control etc. please enquire.
- If Red wire is not powered from fuel pump circuit a safety switch (CP30) must be installed
- Adjust Trimpot so Yellow Led is just on at idle. (Idle Software Mode still in Closed Loop)
- To Tune the vehicle turn the 'Rotary' switch to Position F, this Parks the Stepper Motor fully open. Rotary switch is located on the lower, right-hand front panel and is marked with No.'s 1-9 and Letters A-F on the Switch itself.

Rotary Switch Positions are as follows- Dual Fuel Petrol Start

Rotary Switch Positions are as follows- for Dual Fuel Start

0 – Setup mode valve ¼ open (approx. stoich. Position at cruise)

1 – 0.3 secs. - Petrol Start Time

2 – 0.6 secs “

3 – 0.9 secs “

4 – 1.2 “ “

5 – 1.5 “ “

6 – 1.8 “ “

7 – 2.1 “ “

8 – 2.4 “ “

F - Parks Valve Fully open for Tuning

Notes on Fault Finding

- O2 Emulation can be provided or Open Circuit O2 Sensor can be provided
- **When changing 'Rotary Switch setting turn ignition on then off again to reset.**
- **Diagnostic/Fault Function – If O2 Signal is High or Low constantly for 1min 45secs, Red Led will 'blink' indicating Processor is now in default mixture control – Stepper approx. ¼ open (approx. stoich. Position at cruise)**
- **No Petrol operation – check Injector in and Out round the correct way.**
- **Mitsubishi Emulation – Early to mid 90's 5W 33ohm resistor join over the top of Orange and Orange/Blk Wires. 1999 Onwards use CP256 – Wire CP601 as per normal and 'T' in CP256 INJ IN to Orange Wire and 'T' INJ OUT to Orange/Blk Wire. Connect CP256 GND and Gas12V as per normal.**

**** CP601 Instruction (Injector Cut and Dual Fuel Start variation)
And O2 Sensor Emulation or O2 Sensor Open Circuit ****

Black – Ground or EGO (O2 Sensor) Ground – Must be O2 ground for clean reference for emission compliance. Normal Ground in non-emission compliance

Note: If any unusual behavior from the processor run Black wire direct to EGO (O2 Sensor) Ground as the vehicle may have a higher earth resistance

Blue/Yellow Trace – TPS - Throttle Position sensor

Brown - EGO – O2 Sensor signal input – Join to Yellow/Black wire

Brown/White – Join to Grey/Black wire (O2 Out)

Orange/Black – To Injectors (injector cut)

Orange – +12V Injector power from ECU

White – Sender – 90 ohm signal

Green – Output 12V Gas power to Lock Offs

Yellow – ECU Side of O2 Sensor 'Cut'

Yellow/Black – Join to Brown wire

Red – +12V Fuel Pump pick up power (**Fused**)

Grey/Black – Join to Brown/White

Adjust Trimpot so Yellow Led is just on at idle. (Idle Software Mode still in Closed Loop)

Rotary Switch is located in hole in sticker and marked with No.'s 1-9 & letters A-F.

Adjust 'Rotary' switch to position F for Tuning setup i.e. Parks Valve fully open

Adjust 'Rotary' switch to position 1 – 0.3 secs. for Petrol Start Time in 0.3 secs.

Increments 2 – 0.6 secs

3 – 0.9secs

4 – 1.2 “

5 – 1.5 “

6 – 1.8 “

7 – 2.1 “

8 – 2.4 “

Green Led indicates rapid throttle movement for enrichment

Red Led on – Rich

Red Led Off – Lean

******For no O2 Emulation (ie open circuit O2 on Falcon) do not join the Grey/Black wire******

Wiring Schematic Overleaf

CP601 Injector Cut & Dual Fuel Start Variation & O2 Sensor Emulation or O2 Sensor Open Circuit

