LLAMS Throttle Closer for modules with DIP switch bank

This module is used to close the 2.7L/3.0L TDV6/SDV6 and the 3.6L/4.4L TDV8/SDV8 EGR throttle butterf seconds every time the ignition is switched off so as to stifle a runaway engine that is fueled by oil from a turbo seal. The 3.6L TDV8 requires 2 modules, 1 for each throttle butterfly motor.

The throttle motor wires are connected to the ECM via the normally-closed contacts of the module's rela disconnected from the ECM for the duration of the close operation. The module waits 500 ms after the i switched off before commencing. If the close operation is still in progress when the ignition is switched b then the close is immediately aborted.

The module requires a permanent 12V supply which should be via a 5A-15A fuse, a 5A fused ignition supp earth. The two throttle motor power wires need to be intercepted and sent via the module's relay. The 3.0L TDV6/SDV6 throttle motors require a different butterfly motor power strategy to the 3.6L and 4.4L TDV8/SDV8 throttle motors which is configured by setting the appropriate switches.

The pcb is fitted with a 3-pin header (in the top right corner of the above picture) for the power and eart and two 2-pin headers (bottom right) for the two butterfly motor wires. Also fitted are two 2-pin loop-ba headers (centre right) for the butterfly motor plugs, to be used to bypass the module if diagnosing a fault the throttle motor or the module.

The module's pcb is fitted with a test button switch to allow confirmation that the throttle motor plugs a correctly fitted. Pressing the button switch provides an ignition signal (to the module only) and upon rele butterfly should close if the butterfly wire plugs are fitted the correct way and switches appropriately set butterfly doesn't close and the switch settings have been checked then swap the two plugs then re-test. button can be repeatedly pressed to simulate switching the ignition on and off. The LED illuminates whil relay is energized, whether that be by the test switch having been released or by the ignition having beer switched off. Changed switch settings will take affect when the module next operates the throttle, eithe test button or when the ignition is switched off. Note that the throttle butterfly motor will not buzz if co wired and switches have been correctly set for a TDV6/SDV6 engine.

INSTALLATION

The 2 butterfly motor wires can be intercepted at the throttle motor connector or at the relevant ECM co

	3.0L D4 and L320 RRS	**2.7L D3 and D4**	**3.6L RRS & L322**	**4.4L L322/L40**
Throttle Motor wire 1	Green / Purple	Red/Orange	Green/Red	Green/Purple
Throttle Motor wire 2	Brown	Slate/Purple	Black/Orange	Brown (L3
Throttle connector plug positions	3 & 4 (5 is empty)	3 & 4 (5 is empty)	3 & 5 (1 is empty) both throttle motors	4 & 5 (6 is e the 2 large

All 3.0 TDV6/SDV6 in all LR models use wires 3 and 4 of the connector as the same throttle body and thro motor is used, although wire colours may be different for L405/L494/L462 vehicles.

The throttle motor connector for the 2.7L engine in a D3.

If intercepting the wires at the throttle motor connector, remove the insulation tape and pull back enoug split tubing to cut the 2 throttle motor wires (NOT the other 3!) and join them to the Llams throttle close Cut and fit the heat-shrink as required. **The Llams wires must be kept in the same pairs as fitted to the connectors and must be correctly connected to the ECM and throttle motor**.

1. Llams green wire => wire 1 at the ECM end
2. Llams red wire => wire 1 at the throttle motor end
3. Llams black wire => wire 2 at the ECM end
4. Llams yellow wire => wire 2 at the throttle motor end

If intercepting the wires at the ECM plugs, disconnect and remove the backing of the relevant ECM plugs later in these instructions, identify the correct wires then cut and join the wires as per 1-4 above.

Connect the power wires:

1. Red wire to a fused permanent 12V supply – 7.5A fuse for 3.6L, 5A fuse for other engines.
2. Black wire to earth.
3. Other colour (green, yellow or white) to a fused ignition sense supply, normally 5A.

Caution: Best not have the power connector fitted until after the throttle motor connectors have been

The 2.7L/3.0L/3.6L throttle motor normally requires the plug with black/yellow wires to be fitted to the with the other plug next to it whereas the 4.4L throttle motor normally requires the plug with green/red be fitted to the A. However swap if needed as indicated by testing.

Check the butterfly operation using the test button.

1. The 2.7L/3.0L butterfly motor directly drives the butterfly. If wired correctly, light sounds of the b can be heard when closing and again when returning to the open position. If not wired correctly, sounds are heard. As the motor is powered by full 12V, the motor is silent when the butterfly is c
2. The 3.6L/4.4L butterfly motor drives the butterfly via gears and the motor is powered using a PW If wired correctly, the gears can be heard turning for about 1 second when closing then a light sou re-opening, but no gear or closing sounds if wired incorrectly. A light buzzing sound can be heard the motor while it is powered due to the pulsed 12V signal. As the 3.6L uses two throttle motors therefore requires two closer modules, each butterfly should be tested separately.

Switch settings for engines. Only switches 1 and 2 are used.

1. PWM 12V 60% duty cycle for 4.4L TDV8/SDV8 – switches 1 and 2 both OFF
2. PWM 12V 70% duty cycle – switch 1 OFF, switch 2 ON
3. PWM 12V 80% duty cycle – switches 1 and 2 both ON
4. Analogue 12V (100% duty cycle) for 2.7L/3.0L TDV6/SDV6 – switch 1 ON, switch 2 OFF

Use the lowest duty that positively closes the butterfly, noting that the butterfly must fully close to be

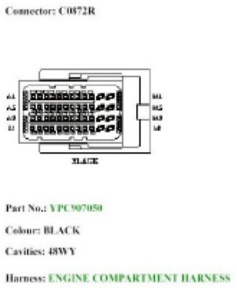
ECM connector wires

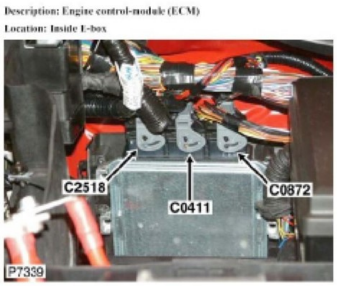
For Discovery 3 and 4 and L320 RRS, difficult access to the ECM connectors makes a connection at the E connectors unlikely.

Connectors usually have their positions identified on the mating face at the beginning and end of each ro Confirm the wire colours where noted above.

The ignition sense wire could be sourced using a piggy-back fuse-holder in the passenger compartment fu ignition fuse, possibly from an engine bay ignition switched fuse, eg heated seats in D3 and MY06-09 RRS fuse 7E) or from the ignition sense wire in an ECM connector.

ECM connectors for 2.7L and 3.6L engines





2.7L TDV6 – 3 connectors, all 12x4 rows

Throttle body motor – C2518, pins J2 & K2 (row 2, pins 9-10)

Ignition sense – C0872 pin K3 (white on RRS)

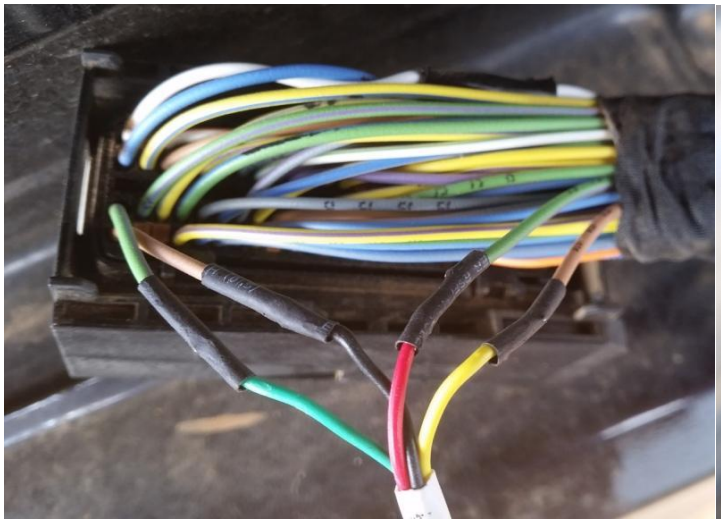
3.6L TDV8 – 3 connectors, all 12x4 rows

Throttle body motors – C0411, pins C1 & D1, E1 & F1 (row 1, pins 3-6)

Ignition sense – C0872 pin K3 (white on RRS)

ECM connectors for 3.0L TDV6/SDV6 and 4.4L TDV8/SDV8

Whilst the left picture below showing the intercepted throttle motor wires is from a 4.4 TDV8, the ECM connectors for all 3.0 TDV6/SDV6 and 4.4 TDV8/SDV8 are identical and that the 2 throttle motor wires ar same positions. The right picture shows the cavity numbers which are at the start and end of each row.



3.0L TDV6/SDV6 – 2 connectors

Throttle body motor – larger connector, pins 72 & 96 (end wires in adjacent rows)

Ignition sense via 5A fuse – smaller connector, pin 15 (D4 white/yellow)

4.4L TDV8/SDV8 – 2 connectors

Throttle body motor – larger connector, pins 72 & 96 (end wires in adjacent rows)

Ignition sense via 5A fuse – smaller connector, pin 15 (L322 white/red)

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