



Date: 01.10.2013

Model: Evora/Elise/Exige
(Fitted With Cruise Control)

Number: 2013/15

Copy files should be maintained by:

Service Manager		Service Reception		Supervisor		Parts Manager	
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TITLE:

Potential causes of cruise control deactivation without intentional driver intervention.

REASON:

Cruise control will be deactivated and normal manual speed control using the vehicles throttle pedal will be restored when any of the following actions occur:

- The brake pedal is depressed, *(controlled by the brake light switch, actuated by the brake pedal)*.
- The clutch pedal is depressed, *(controlled by the clutch potentiometer, actuated by the clutch pedal)*.
- The cruise control on/off/cancel button is pressed, *(located on the steering wheel)*.
- The driver de-activates Lotus Dynamic Performance Management System *(controlled by pressing the Lotus DPM 'Off' switch)*.
- Driver selection of either 1st or 2nd gear.

The actions shown above indicate to the vehicles EMS (Engine Management System) that cruise control has been intentionally deactivated by the driver.

ACTION:

In the event that a vehicle owner reports that the cruise control system has 'dropped out' i.e., resumed normal manual speed control *without* the driver intentionally deactivating the system, then the following course of diagnostic fault finding action should be carried out in a process of elimination to determine the correct cause of the problem.

1. Compile a chronology

Before examining the vehicle, ask the driver to confirm the frequency of unintentional deactivation and if there are any regular driving conditions that cause it to happen, this may be an aid to determine the cause of the fault.

2. Unintentional driver deactivation

If the cruise control has deactivated whilst travelling over rough ground or uneven road surfaces but the electrical fault tell tale light is not illuminated then ask the driver to confirm that their foot was not resting over either the clutch or brake pedal at that time.

It is possible that the drivers foot has accidentally touched either pedal whilst the vehicle was being rocked/jolted over rough ground and therefore deactivated the cruise control.

3. Lotus TechCentre

Connect Lotus TechCentre to the vehicle, enter the vehicles details in the normal manner and check for fault code generation in all of the vehicles management systems (i.e., EMS, ABS, SRS, TPMS & IP).

Note: If the electrical fault tell tale light is not illuminated and no fault codes have been generated, then this indicates possible unintentional deactivation either by the driver or due to rough road conditions.

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Generation of P0571 Cruise Control/Brake Switch A Circuit: An electrical fault within the brake light switch, light circuit or the incorrect setting of the plunger within the switch can generate this code illuminating the Service tell tale lamp. Please refer to Technical Service Bulletin TSB 2013/04 for further information.

Although unintentional driver deactivation of the cruise control function can occur due to a fault with any related system or component, generation of one or more of the codes shown below indicates the fault is contained within the clutch potentiometer circuit, i.e. wiring harness, electrical connector or within the potentiometer itself.

DTC Description

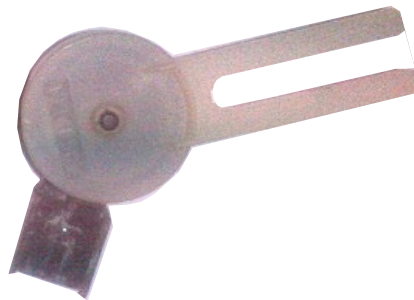
- P0806 Clutch Position Sensor Circuit Range/Performance
- P0807 Clutch Position Sensor Circuit Low
- P0808 Clutch Position Sensor Circuit High
- P1809 Clutch Position Sensor Noisy

Refer to the relevant service notes sections for the vehicle EMR (Evora) EMQ (Exige S) or EMP (Elise) for further information on these codes.

Note: As per the information listed in TSB 2013/11 please ensure that all relevant performance, freeze frame and live data is saved before clearing any fault codes.

Note: If any of the above codes are generated then the clutch potentiometer should be also inspected to confirm which version of potentiometer is currently fitted to the vehicle. Although the part number has not changed, internal modifications to the latest potentiometer fitted make it less susceptible to the generation of the fault codes displayed above.

The latest level of potentiometer can be identified by its solid white coloured arm; previous versions have either a translucent white arm and very early versions had a solid black coloured arm.



Early level clutch potentiometer with either black or translucent coloured arm



Latest level clutch potentiometer with solid white coloured arm

If the vehicle is fitted with a potentiometer with either a black or translucent arm, then it is recommended to replace it with the latest level assembly with a solid white arm in the first instance.

Upon removal the potentiometer terminal pins within the main harness connector should be inspected. Instances of grease seeping out of the potentiometer housing onto the terminals or corrosion on the terminals has been determined as a potential cause of DTC fault generation.

If the terminals are found to be contaminated then a small amount of a suitable electrical degreaser should be applied to the terminals and allowed to dry off before reconnecting the harness connector to the potentiometer.

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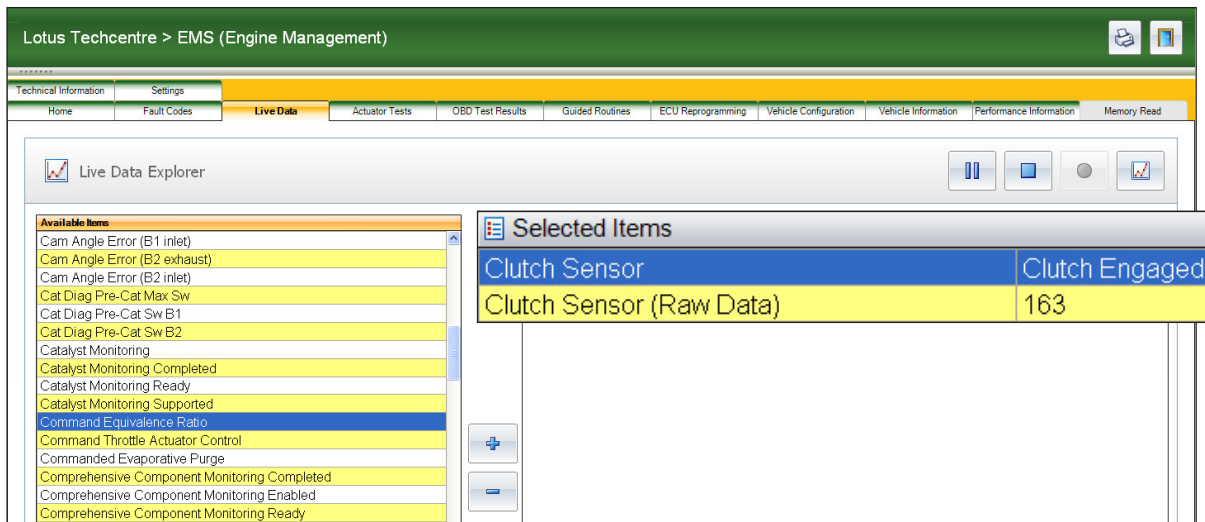
Testing clutch potentiometer operation using Lotus TechCentre

Code P0806 - Clutch Position Sensor Circuit Range/Performance

With Lotus TechCentre connected to the vehicle, the clutch pedal/potentiometer position can be reviewed by:

- Selecting the ECU Live Data tab.
- From the list of options displayed select 'Clutch Sensor' and 'Clutch Sensor (Raw Data)' .
- Click on the  'Play' tab.

With the clutch pedal released (pedal in fully upwards position) a 'raw' data value* reading of between 100 - 160 bits should be displayed.



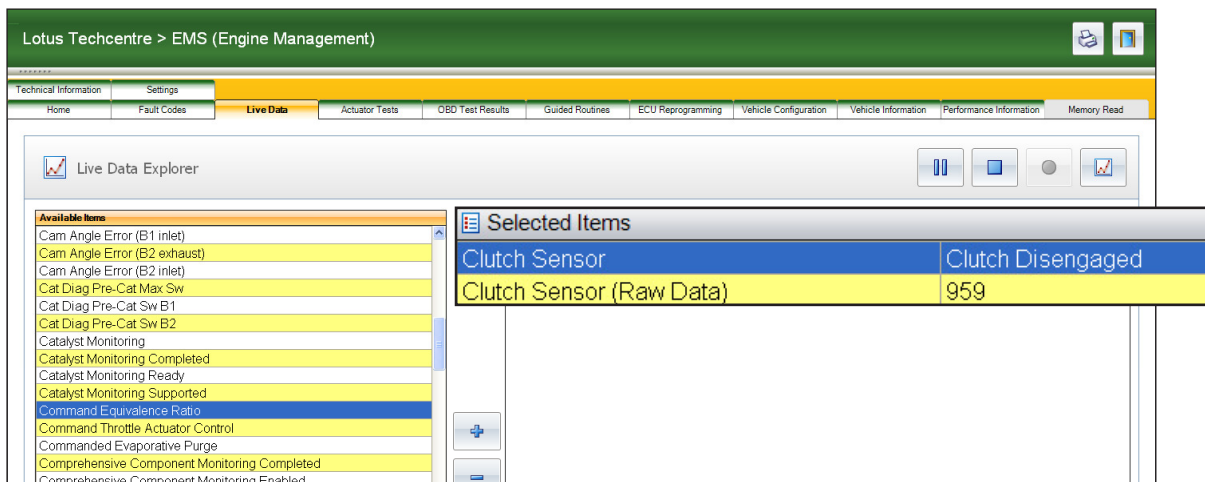
Lotus Techcentre > EMS (Engine Management)

Technical Information Settings **Live Data** Actuator Tests OBD Test Results Guided Routines ECU Reprogramming Vehicle Configuration Vehicle Information Performance Information Memory Read

Live Data Explorer

Available Items	Selected Items
Cam Angle Error (B1 inlet)	Clutch Sensor Clutch Engaged
Cam Angle Error (B2 exhaust)	Clutch Sensor (Raw Data) 163
Cam Angle Error (B2 inlet)	
Cat Diag Pre-Cat Max Sw	
Cat Diag Pre-Cat Sw B1	
Cat Diag Pre-Cat Sw B2	
Catalyst Monitoring	
Catalyst Monitoring Completed	
Catalyst Monitoring Ready	
Catalyst Monitoring Supported	
Command Equivalence Ratio	
Command Throttle Actuator Control	
Commanded Evaporative Purge	
Comprehensive Component Monitoring Completed	
Comprehensive Component Monitoring Enabled	
Comprehensive Component Monitoring Ready	

With the clutch pedal depressed (pedal in fully downward position) a 'raw' data value* reading of between 900 - 990 bits should be displayed.



Lotus Techcentre > EMS (Engine Management)

Technical Information Settings **Live Data** Actuator Tests OBD Test Results Guided Routines ECU Reprogramming Vehicle Configuration Vehicle Information Performance Information Memory Read

Live Data Explorer

Available Items	Selected Items
Cam Angle Error (B1 inlet)	Clutch Sensor Clutch Disengaged
Cam Angle Error (B2 exhaust)	Clutch Sensor (Raw Data) 959
Cam Angle Error (B2 inlet)	
Cat Diag Pre-Cat Max Sw	
Cat Diag Pre-Cat Sw B1	
Cat Diag Pre-Cat Sw B2	
Catalyst Monitoring	
Catalyst Monitoring Completed	
Catalyst Monitoring Ready	
Catalyst Monitoring Supported	
Command Equivalence Ratio	
Command Throttle Actuator Control	
Commanded Evaporative Purge	
Comprehensive Component Monitoring Completed	
Comprehensive Component Monitoring Enabled	

*This is defined as being when the digital (bits) rather than the analogue (volts) signal values are displayed on Lotus TechCentre.

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If the readings displayed are not within these limits then this indicates that the voltage difference between maximum and minimum clutch positions is not within the acceptable limits and the clutch potentiometer should be renewed to eliminate it as a cause of fault code generation.

DTC Description

P0807 - Clutch Position Sensor Circuit Low

P0808 - Clutch Position Sensor Circuit High

Both of these codes could also be generated in the event of a clutch potentiometer or clutch pedal failure as well as specific potential failure modes shown below:

P0807 code generation: Indicates the clutch potentiometer sensor wiring is open circuit or shorted to ground. This code has a failure setting of < (Less than) 0.21V which is displayed as < 43 when viewed on Lotus TechCentre.

P0808 code generation: Indicates the clutch potentiometer sensor ECU input circuit shorted to 5V or 12V. This code has a failure setting of > (more than) 4.93V which is displayed as > 1009 when viewed on Lotus TechCentre.

All relevant wiring circuits and harness connectors should be checked using a suitable multi-meter to ensure the correct voltage values are displayed before replacing the clutch potentiometer.

Refer to the applicable cruise control EMS circuit diagrams within the service notes sections for further information.

Care point: Do not to exert excessive force when inserting multi-meter probes or other test equipment into the terminals of a harness plug as this may open up or damage the terminals which can also cause poor electrical connections/high resistance within the circuit upon harness plug reconnection.

CHARGES:

Information only, no specific charges are associated with this bulletin, normal warranty terms and conditions apply.

Ends.