ELECTRICS

SECTION MP

MP.1 - COBRA VEHICLE SECURITY ALARM

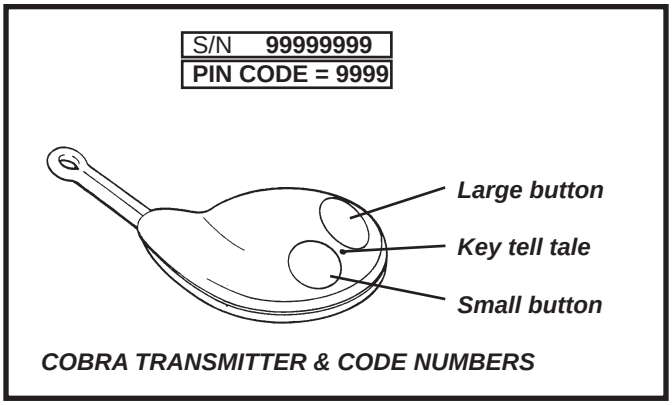
The Lotus Elise/Exige prior to '08 M.Y. is fitted as standard with a Cobra 8186 immobiliser/alarm which includes the following features:

- Elise 111R U.K. approval to Thatcham category 1.
- 'Dynamic coding' of the transmitter keys; Each time the transmitters are used, the encrypted rolling code is changed to guard against unauthorised code capture.
- Automatic (passive) engine immobilisation to prevent the engine from being started.
- Ingress protection using sensing switches on both doors, both front body access panels, and the engine cover.
- Personal protection by 'on demand' activation of the siren.
- Selectable cockpit intrusion sensing using a microwave sensor.
- Self powered siren to maintain protection if the vehicle battery is disconnected.
- Alarm/owner transmitter programming using a Personal Identification Number (PIN).

Transmitter Fobs

Two transmitter fobs are provided with the car to operate the immobiliser/alarm system. The two transmitters should be kept separate, and a replacement obtained immediately after any loss to ensure that a spare is always available.

Each individual alarm system has a unique serial number and an owner's Personal Identification Number (PIN), both of which are printed on a code card supplied with the vehicle. In order to allow replacement transmitters to be ordered, **it is essential that these numbers are recorded and kept safely with the vehicle documents**. If the code card is not available on receipt of the car, enquire with the dealer immediately.



COBRA TRANSMITTER & CODE NUMBERS

Engine Immobiliser

In order to provide a measure of automatic vehicle security, independent of any driver initiative, the system will 'passively' immobilise the engine's cranking and running circuits after the first occurring of the following approximate time delays:

i) Four minutes after switching off the ignition.
ii) Two minutes after a mobilising command (see below).
iii) One minute after switching off the ignition and opening the driver's door.

The immobilised state is indicated by the security tell tale in the tachometer upper face flashing continuously.

To mobilise the engine, press once, and for a full second, the larger of the two buttons on the transmitter fob. The security tell tale will be extinguished.

Valet Mode

If leaving the car for servicing or parking, the passive immobilisation feature may be switched off by; switching on the ignition, pressing the transmitter small button, and switching off the ignition. Two beeps will confirm 'valet' activation, and the security tell tale will flash continuously, even with the engine running.

At the next arming command, the valet mode will be switched off.

Arming the Alarm

Remove the ignition key, close (and lock) both doors, and check that the engine cover and front body access panels are secure. The roof may be either closed or open. Press once, and for a full second, the larger of the two buttons on the transmitter fob (on cars with CDL, this action will automatically lock both doors - see later). This command will be acknowledged by:

- Two flashes of the hazard warning lamps;
- Continuous flashing of the security tell tale.

Check that these indications occur. If not, press the button a second time, as the first press may have only switched off the passive immobilisation (see above).

Note that if the system is armed when a door or engine cover/front access panel is not fully closed, a continuous buzz will be heard as warning. If still open after expiry of the arming period, (see below) the alarm will be armed with that switch group (both doors, or front/rear access lids) excluded from the circuit.

After arming the system, the engine is immediately immobilised, but a period of approximately 45 seconds must elapse before all functions and sensors become fully active. After this time, the alarm will be triggered by any of the following actions:

- Interruption of the vehicle battery power supply.
- Energising the ignition circuit ('hot wiring').
- Opening a door;
- Opening the engine cover or a front access panel.
- Movement detected within the cabin.

When triggered, the hazard warning lamps will flash and the electronic wailing siren will sound for a period of approximately 30 seconds before closing down and resetting, ready for any further triggering input. If a trigger is continuously present, the alarm will repeat after a short delay, and continue in this sequence for about ten cycles.

To silence the siren when triggered, press once, and for a full second, the larger button on the transmitter fob. This will not affect the status of the alarm which will remain armed.

Disarming the Alarm

To disarm the alarm, press once, and for a full second, the larger button on the transmitter fob. This command will be acknowledged by:

- One flash of the hazard warning lamps;
- Extinguishing of the security tell tale.

If the alarm had been triggered during the last armed period, the disarm command will be acknowledged by the hazard lamps flashing 4 times, and the buzzer sounding 4 times. The security tell tale will then flash a code to indicate the triggering source:

- One pulse flashing: door, engine cover/boot lid or body front access panel. On USA cars, check that the interior lamp is not switched off.
- Two pulse flashing: movement detected in cabin by microwave sensor.
- Four pulse flashing: tampering with ignition circuit.
- Five pulse flashing: voltage drop.
- Six pulse flashing: interruption of battery supply.
- Seven/Eight pulse flashing: serial data fault; alarm harness including microwave sensor cables and immobiliser fuse in engine bay.

The coding will be deleted when the ignition is next turned on.

'Chirping'

'Chirping' is enabled/disabled by disconnecting power to the alarm controller, then re-connecting and pressing the transmitter button within 5 seconds.

Emergency Disarming/Mobilising

If the transmitter fobs are lost or damaged, the alarm system owner's unique PIN may be used to disarm the alarm and/or mobilise the engine ***provided that*** access is available to the cabin. Follow the transmitter fob programming instructions (see later) from step 3.

Intrusion Sensing

A microwave sensor is mounted behind the cabin rear bulkhead trim panel, and is able to detect substantial physical movement within the cockpit, and trigger the alarm. Microwave transmissions are blocked by metal objects, so it is important not to corrupt the signal by placing such items on the bulkhead ledge.

If desired, the alarm may be armed without the intrusion sensor or battery interruption circuits being active by arming the system in the usual way with the transmitter larger button, and within 20 seconds, pressing the smaller button twice.

Manual Activation of Horn/Siren

To enhance personal security, with the system in an armed state, the siren may be manually triggered by pressing the transmitter smaller button. The horn/siren will sound and the turn lamps flash for 15 seconds. To stop the alarm, press either of the two buttons.

Transmitter Fob Battery Replacement

The transmitter fobs will normally operate within a range of 5 metres from the car, but this may be reduced by the presence of other radio signals in the vicinity. A small LED tell tale on the transmitter fob will flash whilst the button is held down to indicate correct operation, but if the lamp flashes irregularly or only once, transmitter battery replacement is required.

The transmitters are powered by a long life 3V Lithium battery, type CR2032, which with normal use should last for 3 years. To ensure continuity of operation, it is recommended to renew the batteries every 12 months:

- Using a small screwdriver, prise open the case in the areas marked 'open'.
- Remove the old battery and wait for 10 seconds before inserting the new battery with +ve sign uppermost, and holding the battery only by the periphery.
- Align the locating studs, and firmly press the case together.
- The transmitter should now operate normally, but may require re-synchronisation with the control unit.

Transmitter Re-synchronisation

If at any time the transmitter does not function, and the battery is known to be good, carry out the following re-synchronisation procedure:

- Stand close to the car and hold down both buttons on the transmitter until the LED on the fob is extinguished (approx. 10 seconds).
- Release both buttons; the fob tell tale should come on constantly.
- Press the larger button for one second (the fob tell tale will flash). Synchronisation is complete.

Programming Additional Transmitter Fobs

Two transmitter fobs are provided with the new vehicle. If a transmitter is lost or damaged, a replacement should be obtained immediately from your dealer, and programmed to the vehicle alarm controller using the system owner's unique Personal Identification Number (PIN). Up to four transmitter fobs can be matched with the alarm system, but all fobs must collectively undergo the single programming operation:

a). Before programming the transmitters, the PIN should first be verified. If the PIN is incorrect and a working fob is prepared for reprogramming, all fobs may be disabled. To verify the PIN;
With the car immobilised (tell tale flashing), follow steps (3i) to (3iii) below (i.e. do not prepare any fobs). If the PIN is correct, the tell tale should be extinguished, and the system mobilised. If not, the PIN is incorrect.

b). Having verified the PIN as above, proceed as follows:

1. Press, simultaneously, both buttons on a transmitter fob until the fob tell tale stops flashing (approx. 10 seconds). On release of the buttons, the fob tell tale will light.
2. Repeat operation (1) for ALL the transmitter fobs required to operate the system.
3. If the system is immobilised (security tell tale flashing):
   i) Turn the ignition on and off 3 times within 7 seconds; the security tell tale in the tachometer will light for 3 seconds.
   ii) Enter the PIN: Immediately the tell tale goes out, switch ON the ignition and count the number of security tell tale flashes until equal to the first number of the PIN, then turn the ignition OFF, then back ON again.
   iii) Repeat operation (ii) for the remaining 3 digits of the PIN, remembering to turn the ignition OFF and back ON after each code number.
   Note: If at any time a mistake is made when entering the PIN, turn the ignition OFF for 10 seconds and re-commence entering the PIN.
   iv). If the PIN is correct, the security tell tale will be out. Carry on with step 4.
4. With the system mobilised (security tell tale out):
   i) Turn the ignition on and off 3 times within 7 seconds; the security tell tale in the tachometer will light for 3 seconds.

ii) Enter the PIN: Immediately the tell tale goes out, switch ON the ignition and count the number of security tell tale flashes until equal to the first number of the PIN, then turn the ignition OFF, then back ON again.

iii) Repeat operation (ii) for the remaining 3 digits of the PIN, remembering to turn the ignition OFF and back ON after each code number.

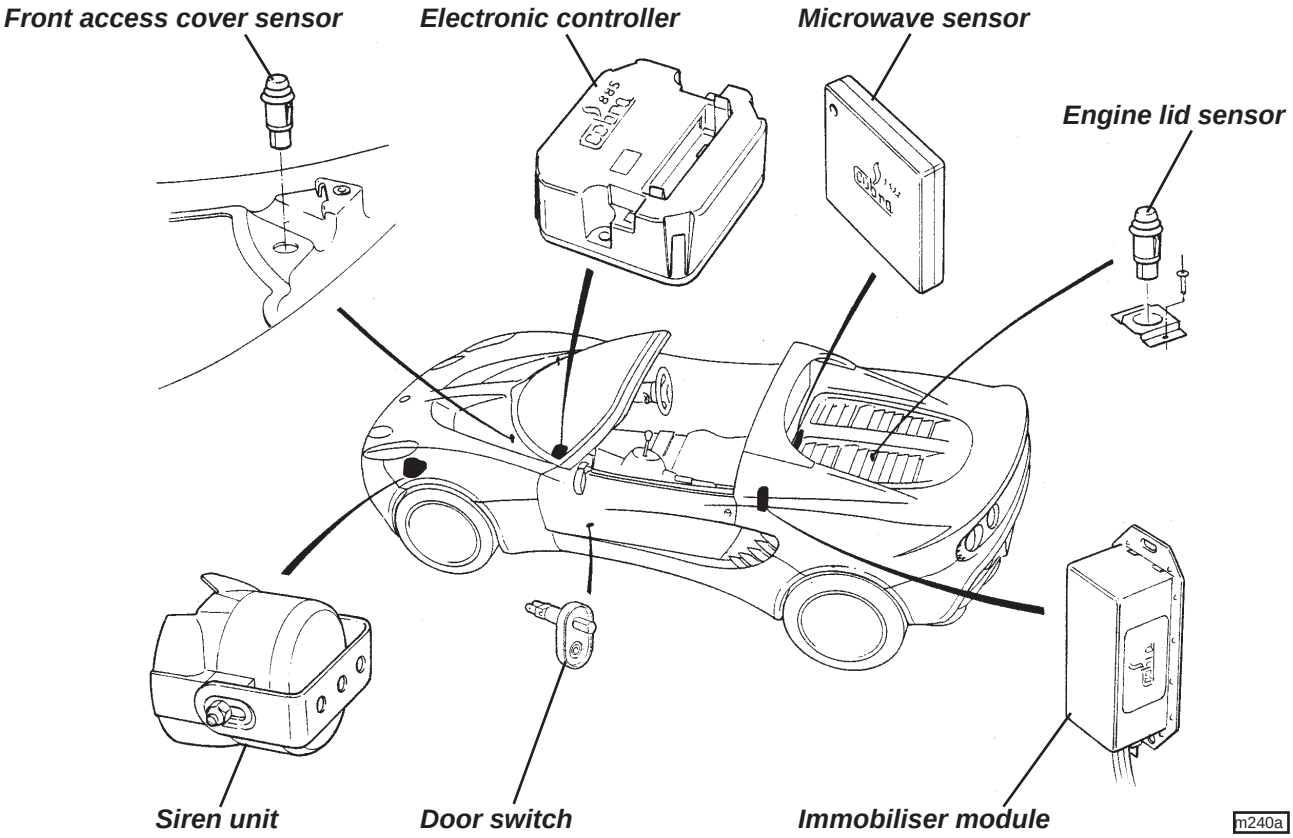
Note: If at any time a mistake is made when entering the PIN, turn the ignition OFF for 10 seconds and re-commence entering the PIN.

5. After finishing step (4) with the ignition on, within 7 seconds, press once the large button of each transmitter fob.
6. Turn off the ignition.
7. Test operation of each transmitter fob.

Location of Components

The alarm system components are located as follows:

- Electronic Controller: Mounted on top of the scuttle beam at LH extreme end. Accessible after removal of fascia top.
- Siren Unit: Mounted on front of radiator duct LH extension, beneath LHF turn lamp. Accessible only after removal of front clamshell.
- Immobiliser Module: Mounted on left hand end of cabin rear bulkhead. Accessible after removal of rear bulkhead trim panel.
- Microwave Sensor: Mounted centrally on cabin rear bulkhead, beneath trim panel.
- Engine Lid Sensor: Mounted on luggage compartment bulkhead, alongside latch.
- Front Access Panel Sensors: Mounted on brackets fixed to topshell at outboard edge of aperture.



Identification of alarm controller

Note that earlier Elise variants have used versions of the alarm controller with and without CDL functionality. For Elise 111R and Exige models with CDL, the controller should be printed with the identification 8185 4C8170AIB.

MP.2 - CENTRAL DOOR LOCKING (IF FITTED)

The central door locking (CDL) operates on the driver's and passenger's doors in conjunction with the security alarm system, which includes CDL circuitry in the Cobra 8186 alarm controller.

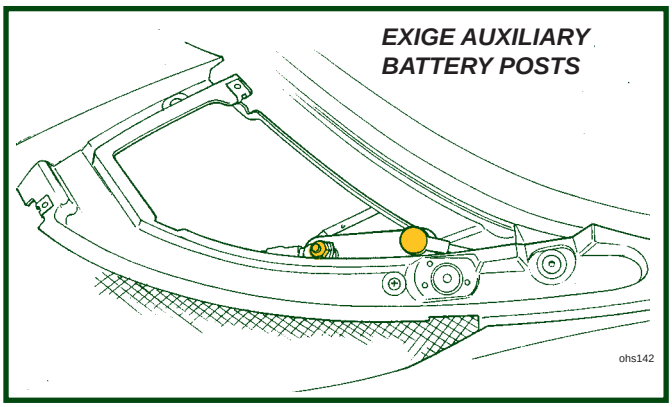
To lock the car, remove the ignition key, close both doors and check that the engine cover and front body access panels are secure. Arm the security alarm in the usual way by pressing once, for a full second, the larger of the two buttons on the transmitter key. This action will both arm the alarm and electrically lock the driver's and passenger's doors.

If it is desired to lock the doors from inside the vehicle, for example to deter highjack attempts, a CDL rocker switch is provided on the front of the gear lever shroud which should be pressed to the right to lock both doors with or without the ignition switched on. Alternatively, the doors can be locked individually by depressing the button at the rear end of each door sill. Note that whichever locking method is used, the doors will be 'deadlocked' such that the interior door release handles are inoperative.

To unlock the doors, press once, for a full second, the larger button on the transmitter key. The alarm will be disarmed and both doors unlocked. Alternatively, from inside the car, press to the left the rocker switch on the gear lever shroud to unlock both doors, or raise the sill button on each door. Note that in the event of a vehicle collision which causes the safety inertia switch to be tripped, the doors will automatically be unlocked.

Notes:

- In the event of a flat vehicle battery, the central door locking will not operate. The doors can be unlocked from outside only after:
  Elise; opening the engine cover and restoring power to the battery by substitution, re-charging or 'jumping' to a second battery.
  Exige; removing the front body passenger side access panel and providing a 12 volt supply to the auxiliary power point.



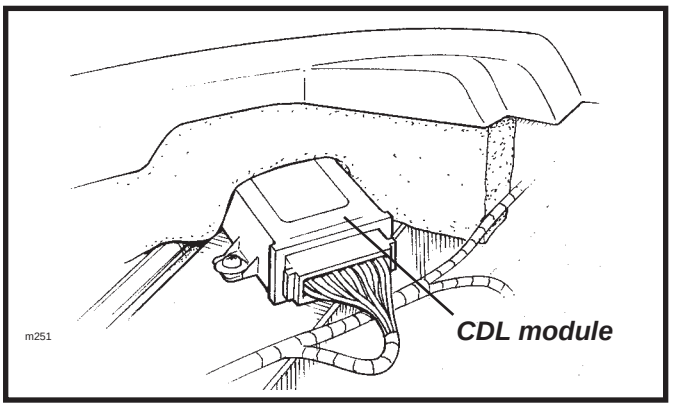
- To lock the car with a flat or disconnected battery, use the mechanical key in each exterior door button to disconnect each release button from the latch. This technique does not 'deadlock' the interior release handles, but does allow continued key access to the car until restoration of battery power.
- To deadlock the car with a flat vehicle battery, or without the use of the transmitter or mechanical key, close and lock one door using the sill button, and for the second door, hold the exterior release button pressed in and depress the sill button before closing the door. Access is now available only on restoration of electrical power.

Door Locking Actuator

A CDL actuator is screw fixed to the door shell below the latch mechanism, and uses a link rod which passes through the innermost hole on the latch lever, before continuing upwards to the door sill button. For replacement details, refer to sub-section BP.17.

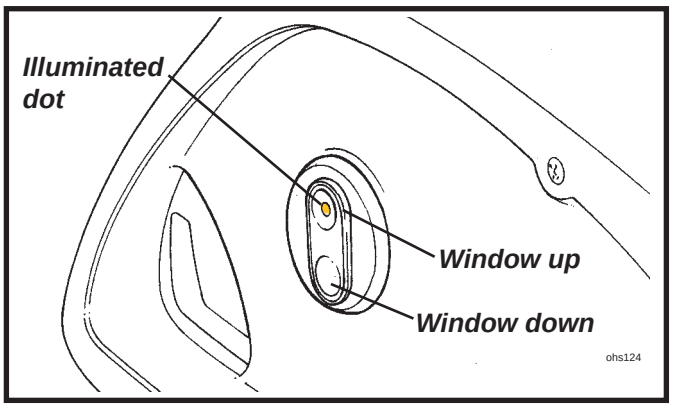
Modules, Fuses & Relays

A CDL module is mounted on the top of the scuttle beam at the extreme end on the RH side, accessible after removal of the fascia top trimmed panel and face level vent trunking (if fitted). A battery feed for the CDL system is provided from fuse A22 (7.5A).



MP.3 - ELECTRIC WINDOWS (if fitted)

On cars so equipped, switches for the electric windows are mounted in the front of the door trim panels, and are operative only with the ignition switched on. To help locate the switches in the dark, an illuminated dot is provided in the 'down' button which glows amber when the lights are switched on.



To lower a window, switch on the ignition and press the lower, dished end of the switch in the relevant door. Release the switch to stop window movement. To raise a window, press the upper, domed end of the switch. The electric window lift mechanismuses an electric motor and winder drum driving a steel cable around top and bottom guide pulleys to a lift block. The window glass is fixed to the lift block which is guided by a vertical rail.

The door harnesses to support CDL and electric windows are routed to the scuttle area via a grommet in the 'A' post area ahead of the door hinge post. Two 20A fuses for the window motors are tie wrapped to the harness above the passenger footwell. Modules for the hazard lamps and wash/wipe functions, and relays for the horn and inertia switch door open command, are mounted on the scuttle beam in the same area.

MP.4 - SWITCHES & INSTRUMENTS - DRIVER'S INFORMATION

Ignition Switch/Steering Lock

The switch/lock is located on the right hand side of the steering column.

I - Insert the key into the slot, and turn clockwise to position 'I' to unlock the steering column. If the key is reluctant to turn, wriggle the steering wheel to ease the load on the steering lock.

II - Turn to position 'II' to switch on the ignition and operate auxiliary equipment.

III - Turn further clockwise to 'III' against spring pressure to operate the starter motor. As soon as the engine starts, allow the key to return to position 'II'. For the correct starting procedure, see the later chapter 'Starting Procedure & Running In'. To stop the engine, turn the key back to 'I'.

Passive Immobilisation: If the ignition has been switched off for longer than four minutes, or longer than one minute after switching off the ignition and opening the driver's door, the passive immobilisation security feature will operate and disable the ignition and starter circuits. This condition is indicated by the security tell tale flashing continuously. To mobilise the engine, press once, and for a full second, the larger of the two buttons on the transmitter fob. The security tell tale will be extinguished.

B - To remove the key, turn fully counterclockwise to 'B' and withdraw. The steering column lock will be activated when the key is withdrawn but may not engage until the steering is turned and the mechanism is aligned.

DO NOT leave the ignition switched on for long periods without the engine running, since although the engine ignition system itself draws no current when the engine is stopped, a battery drain will occur through other circuits even when auxiliary equipment is not being used.

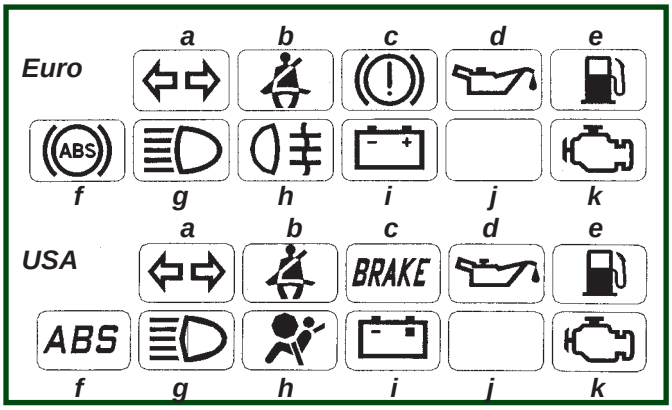
For security reasons, and to guard against battery drain, always remove the key when leaving the car.

WARNING:

- **Do not push or tow the car unless the key is first used to unlock the column and is then left in the lock.**
- **Never withdraw the key until the vehicle is stationary.**
- **To reduce the risk of theft, or danger to a child remaining in the vehicle, always remove the key when leaving a parked car.**

Tell Tale Lamps

A block of tell tale lamps is incorporated into the instrument cluster to indicate the operational status of various systems.



Bulb Check

In order to check that the warning systems are operative, all the tell tale lamps (except the 'security' tell tale; see Vehicle Security Alarm) should light for about six seconds following ignition switch on. If any lamp should fail to light, it is possible that the bulb or warning circuit may be faulty.

S.I.R. (Airbag) Tell Tale (USA h)

The Supplementary Inflatable Restraint system has a self-diagnostic facility which lights the red tell tale if a fault is detected. As a bulb and circuit check, the tell tale will light briefly when the ignition is switched on, and then go out. If the lamp lights at any other time, a fault in the S.I.R. system is indicated, which should be rectified without delay.

Turn Tell Tale (a)

When the left hand or right hand turn indicators are operating, this green tell tale flashes in unison. The flasher relay may also be heard to operate. If the tell tale fails to light, or flashes at an unusual or irregular rate, check the operation of the turn indicator lamps immediately.

Seat Belt Tell Tale (b)

The red seat belt tell tale is provided as a reminder that both driver and passenger should always wear the seat belts, no matter how short the journey. The lamp will light for about 8 seconds following ignition switch on, before being extinguished. On USA market cars, and other markets from December 2005, the lamp will flash until the driver's seat belt is fastened, accompanied for the first eight seconds by an audible chime.

Brakes Tell Tale (c)

This tell tale will glow red with the ignition switched on whenever the parking brake is applied. Driving the car with the brake not fully released will cause overheat damage to the rear brakes. Each time the parking brake is released, check that the tell tale is extinguished.

With the parking brake released, if the tell tale should light at any time after the check period, stop the car immediately, as the circuit has detected a dangerously low level of brake fluid in the master cylinder reservoir, possibly caused by a hydraulic leak in one of the separate front or rear brake circuits. There is a danger that air may enter the hydraulic system and cause spongy operation and extended pedal travel. The divided brake circuit should ensure that emergency braking remains, but the car should not be driven until the fault has been identified and rectified.

Oil Pressure Tell Tale (d)

This red tell tale warns of low engine oil pressure. The lamp will be lit whenever the ignition is on and the engine is stopped, but should extinguish as soon as the engine is started. If the lamp fails to go out after engine start up, or comes on when the engine is running, stop the engine immediately and do not restart until the cause has been investigated and rectified. Continuing to run the engine with little or no oil pressure could cause major internal damage, possibly resulting in seizure.

Low Fuel Level Tell Tale (e)

When only a single segment of the fuel gauge bar graph remains, representing approximately 5 litres, this amber tell tale will flash. Refuel at the next opportunity.

ABS Tell Tale (f)

This amber tell tale should light for about four seconds following ignition switch on, and then go out. If the lamp remains lit, or comes on whilst driving, a fault in the ABS is indicated. The base brake system will continue to operate normally, but without ABS regulation. The car can be driven but should be checked and repaired at the earliest opportunity.

Main Beam Tell Tale (g)

This lamp glows blue whenever the headlamp main beams are operating.

Rear Fog Lamps Tell Tale (Euro h)

This lamp glows amber whenever the rear fog lamps are operating (see ‘Rear Fog Lamp Switch’).

Battery Charging Tell Tale (i)

This red tell tale will light whenever the ignition is on and the engine is stopped. If it lights any time that the engine is running, the battery is not being charged, which may be due to a broken alternator drive belt, or an electrical fault. Urgent attention is required, but as the engine coolant pump is independently driven, the car need not be stranded, subject to battery condition and local circumstances.

Malfunction Indicator Lamp (k)

The engine Malfunction Indicator Lamp (MIL) is provided to warn the driver that the engine management system has detected a fault which may result in increased noxious emissions from the exhaust. In order to minimise emissions and potential engine damage, various operational limitations may automatically be applied.

i) If the MIL lights continuously whilst driving, immediately reduce speed and adopt a moderate driving style. Seek dealer advice without delay and avoid all unnecessary journeys.

ii) If the MIL flashes, an engine misfire has been detected which is likely to cause overheat damage to the catalytic converter. Slow down immediately and be prepared to stop.

- If the MIL then stops flashing, and is lit continuously, proceed with caution and seek dealer advice.
- If the MIL continues to flash, stop the vehicle as soon as it is safe to do so, and switch off the engine. Seek dealer advice.

Note:

- Continuing to drive the car with a flashing MIL may cause overheat damage to the catalytic converter and increased noxious emissions.
- In order to comply with emissions regulations, data regarding activation of the MIL is recorded in the engine electronic controller, and may be downloaded by Lotus dealers.

Security/RPM Tell Tale

The security tell tale is located at the top of the tachometer display, and indicates the status of the immobiliser and alarm.

- Tell tale out; engine is mobilised, and the alarm is off.
- Tell take flashing; engine is immobilised, or alarm is armed and engine immobilised.

For full details of the vehicle security system, refer to the earlier section 'Vehicle Security'. Note that the tell tale also functions as a high engine speed (rpm) warning - see 'Tachometer'.

Instruments

Speedometer

This instrument displays road speed in either MPH (with a secondary scale in km/h), or km/h according to market.

Tachometer

The tachometer indicates engine speed in revolutions per minute. A safeguard in the engine management system limits the maximum continuous engine speed to 8000 rpm once normal running temperature has been attained. Very short bursts up to 8500 rpm are allowed during maximum acceleration through the lower gears. A 6000 rpm limit is imposed on a cold engine in order to reduce possible damage from unsympathetic use. The use of wide throttle openings and/or high rpm before normal running temperature has been reached will result in premature wear and should be avoided. Do not run the engine continuously at its maximum speed, or allow overspeeding to occur on the overrun by changing down through the gears too early, as this imposes very high loads on engine components, resulting in premature wear and possible failure.

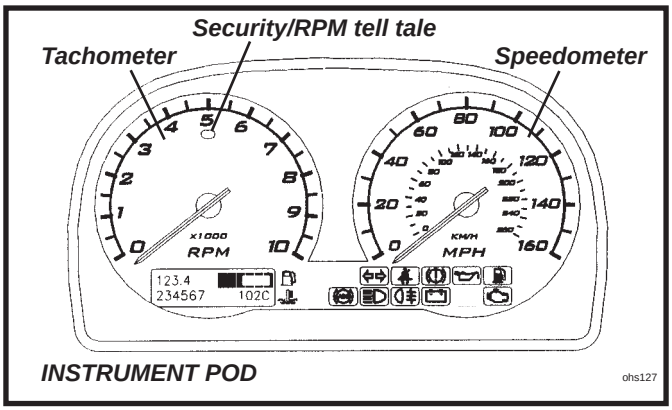
A red tell tale lamp in the top of the tachometer face lights at high rpm (dependent on gear engaged) to warn that maximum engine speed is being approached. When exploiting full acceleration, gearchange upshifts should be made immediately the tell tale lights. Note that this lamp also functions as a security system tell tale (see 'Vehicle Security').

Recalibration of the tachometer needle position will occur during a three second period following ignition switch on, but if a needle becomes 'stranded' outside of the re-calibration range, the following procedure should be followed:

With the vehicle stationary;

- On airbag equipped cars, first remove fuse C3 (beneath fascia);
- Open driver's door;
- Press and hold trip reset button on column shroud;
- Turn on ignition;
- Turn off ignition and refit fuse C3.

If this procedure should fail to zero the needles, the battery should be disconnected for 10 seconds.



INSTRUMENT POD ohs127

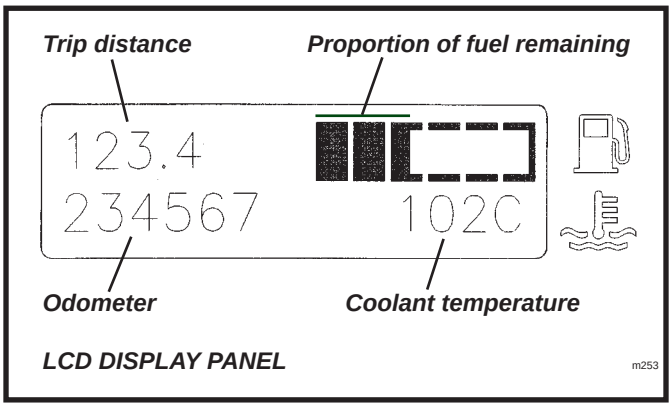
LCD Panel

A liquid crystal display (LCD) panel is provided below the instruments in order to display fuel level, coolant temperature, total mileage and trip functions. The panel is blank until the ignition is switched on.

Fuel Contents Display

An indication of the level fuel in the tank is displayed in the form of a bar graph at the right hand top of the LCD panel in the instrument cluster. When completely full (approximately 43.5 litres (9.6 U.K. gal), the display will show six black segments. As the fuel level falls, a white band will extend from the right to represent the empty portion.

When only a single segment remains, representing approximately 5 litres, the amber low fuel tell tale will flash. Refuel at the next opportunity.



Coolant Temperature Display

The engine coolant temperature will be displayed at the bottom right hand corner of the panel as soon as the temperature reaches 72°C. The running temperature will fluctuate a certain amount as the operating conditions change, and during periods of idling or in heavy traffic, the temperature may rise to over 100°C, with the cooling fans switching on at half speed at approximately 98°C and at full speed at approximately 103°C. The display will flash at temperatures over 110°C in order to prompt closer monitoring of high temperatures, but as the pressurised cooling system has a boiling point of over 120°C, only if the temperature approaches this level need there be any cause for concern. If this should occur, allow the engine to idle for a few minutes whilst monitoring the temperature, and if it continues to rise, switch off and seek qualified assistance.

After a heavy snowfall, ensure that the radiator cooling outlet grilles in the front body are cleared of snow before driving the car, or overheating may occur.

Odometer

An odometer (total distance recorder) reading is displayed at the bottom left hand corner of the panel, and is calibrated in the same units (miles or kilometres) as is the speedometer.

Trip Recorder

A trip recorder is provided at the top left hand corner of the panel, calibrated in the same units as is the speedometer.

In order to zero the trip display, switch on the ignition, and press for a moment (less than 1 second), the small button on the steering column shroud between the ignition switch and steering wheel. This dual function button also controls the panel illumination - see 'Instrument & Switch Illumination'.

Fascia Switches

Lighting functions are controlled by a vertical row of three push button switches mounted in the fascia outboard of the steering column. Each switch is pressed once to switch on, and pressed a second time to switch off. A symbol is positioned alongside each switch to indicate its function, and is backlit orange when the lights are switched on.

Sidelamp Switch

The topmost switch functions with or without ignition, and switches on the sidelamps. A tell tale in the switch button lights up green to indicate when the circuit is active. Note that the headlamps must be off before the sidelamps can be switched off.

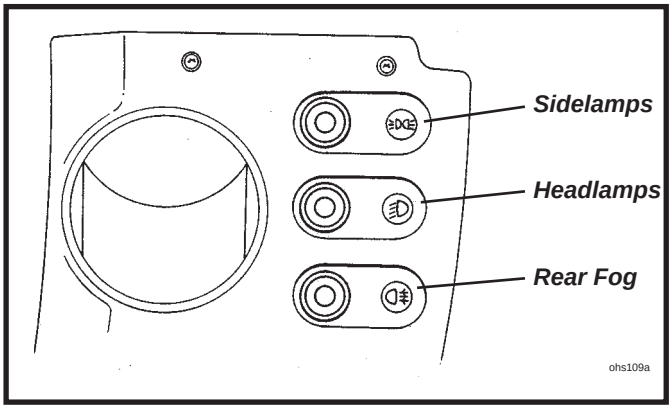
Headlamp Switch

The centre switch functions with or without ignition, and switches on the headlamps together with the side-lamps if not already selected by the sidelamps switch. A tell tale in the switch button lights up green to indicate when the circuit is active. The steering column lever switch (see later) is used to select main beam or dip.

Pressing the switch a second time will switch off the headlamps, but leave on the sidelamps.

Lights On' Buzzer

A 'lights on' reminder buzzer will sound if the lights are on when the ignition is switched off and the driver's door is opened.



Rear Fog Lamp Switch

The lowermost switch controls the two rear fog lamps (where fitted), and may be selected only after first switching on the ignition, and then the headlamps. A tell tale in the switch button lights up amber to indicate when the circuit is active.

Note that the switch will default 'off' whenever the headlamps or ignition are switched off, requiring re-selection if lamp acivation is again desired.

In some territories, rear fog lamps may be used legally only in conditions of 'seriously reduced visibility'. Be aware that indiscriminate or forgetful use of the rear fog lamps can cause distraction and discomfort to following traffic.

Hazard Warning Lamps Switch

The hazard warning switch is located immediately ahead of the gear lever in the centre shroud, and has an icon in the switch button which is back lit when the ignition is switched on. The switch is operative at all times, and when pressed flashes all the turn indicator lamps, and the switch tell tale, in unison. Press a second time to switch off.

This facility should be used when the vehicle has to be stopped on the highway in abnormal circumstances, where a warning to other traffic would be judicious. Use of the hazard warning lamps may be subject to local traffic laws, with which drivers should familiarise themselves.

Instrument Illumination

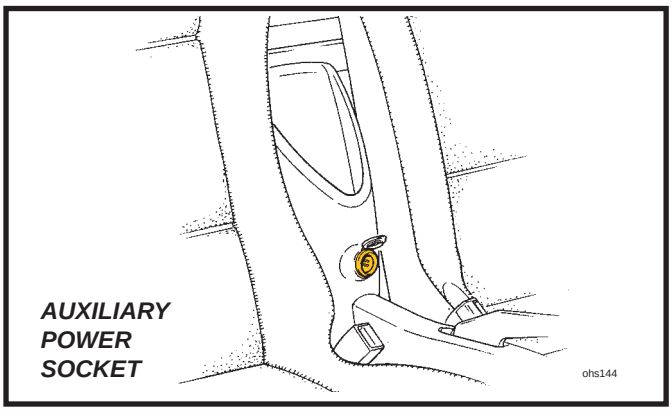
A small button is provided on the steering column shroud, between the ignition switch and steering wheel, by which the brightness of the instrument illumination may be adjusted. To cycle through the range of brightness, press and hold the button, and release at the desired setting.

This dual function button also resets the trip distance recorder - see 'Trip Recorder'.

Auxiliary Power Socket

An auxiliary power socket is fitted in the centre trim shroud below the oddments pocket on the rear bulkhead. The socket is operative at all times, and is provided with a protective hinged flap and an illumination ring which is backlit red when the lights are switched on.

The format of the socket allows a standard cigarette lighter element to be used, or other electrical accessories requiring this type of fitting. Maximum current draw should not exceed 15 amps.



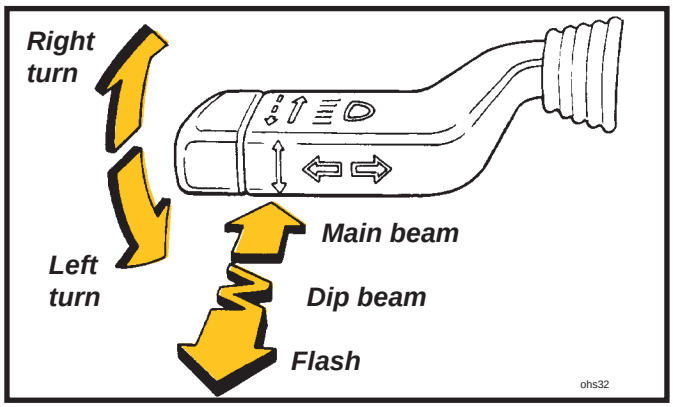
WARNING: Do not leave small children unattended in the car since careless interference with the power socket could be dangerous.

Headlamp Dipswitch/Flasher/Turn Indicators

The steering column left hand lever switch controls the headlamps main beam/dip, headlamp flash and turn indicators.

Headlamp Dipswitch: To switch on the headlamps, press the headlamp switch in the fascia outboard of the steering column. The left hand lever switch is then used to select main or dip beam. Main beam is obtained with the lever furthest forward, away from the steering wheel, and dip beam with the lever moved back towards the wheel. The main beam tell tale lamp in the instrument panel lights when main beam is operating.

Note: i) When main beam is selected, the dip beam lamps remain lit. ii) On cars equipped with optional auxiliary main beam lamps mounted in the radiator air intake, the auxiliary lamps operate in conjunction with the body mounted headlamp main beams.



Headlamp Flasher: The headlamp flasher is operative at all times. If the lever is pulled towards the steering wheel against spring pressure, the headlamp main beams will light.

Turn Indicators: The turn indicators operate only with the ignition switched on. Move the lever down to indicate a left hand turn, and up for a right hand turn. The switch will be cancelled when the steering wheel is returned to the straight ahead position.

For convenience, when signalling a lane change, lightly pressing the switch up or down will allow its return under spring action.

Windscreen Wiper/Washer

The steering column right hand lever switch controls the windscreen wiper and washer, and is operative only with the ignition switched on. Never use the wiper on a dry screen.

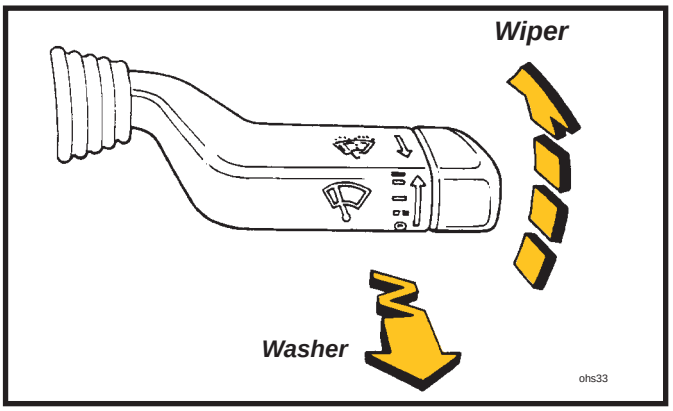
Windscreen Wiper: The wiper is controlled by the up/down position of the lever switch, which operates as follows:

Moved fully down, the wiper is switched off.

Move up to the first position for intermittent wipe. The wiper will make one sweep about every five seconds.

Select the next position for normal wiper operation.

Move fully upwards for quick wipe, to be used only in heavy rain.



Windscreen Washer: Two windscreen washer jets are provided, one each side of the wiper spindle. Pulling the control lever towards the steering wheel will operate both the washer pump and the wiper. When the switch is released, the wiper will continue for a further four sweeps.

Horn

The windtone horn, which functions at all times, is operated by a central button in the steering wheel boss.

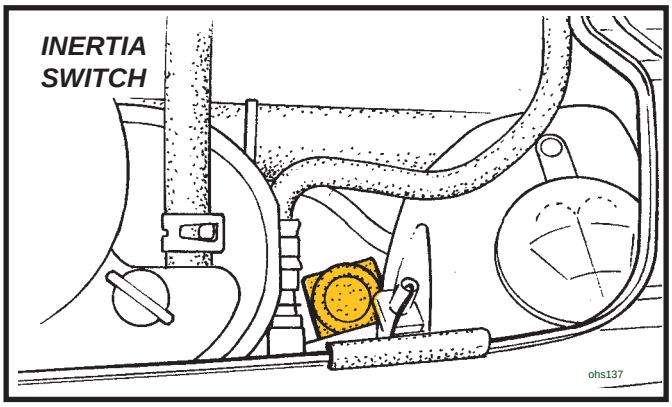
Interior Lamp

An interior lamp is mounted centrally in the rear bulkhead trim panel and is equipped with a three position rocking lens:

- Lens rocked upwards; lamp is switched off. **NOTE: On USA cars, arming the alarm with the interior lamp switched off may exclude the doors from activating the alarm.**
- Lens central; lamp is switched on, with or without ignition.
- Lens rocked downwards; a courtesy mode applies, where the lamp is switched on whenever a door is opened, and goes out when the doors are closed. In addition, the alarm disarm command will also light the interior lamp for a period of 30 seconds, or until the ignition is switched on.

Inertia Switch

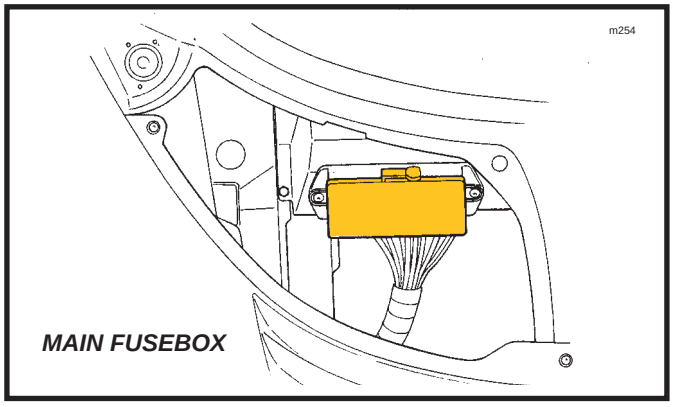
The safety inertia switch is designed to operate on impact, typified by vehicle collision, to switch off the fuel pump, and thus minimise any fire hazard. The inertia switch is mounted at the left hand rear corner of the engine bay, and is reset by pressing the rubber diaphragm button on the top of the unit.



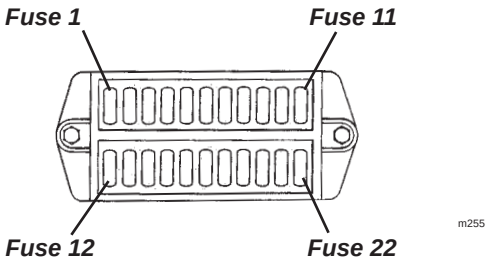
MP.5 - COMPONENT LOCATION & FUSE RATINGS

Main Fusebox

The main fusebox is located in the front services compartment, on the passenger side, and is protected by a plastic cover. For access, remove the passenger side front body access panel, and unclip the fusebox lid. Twenty two slots are provided for 'Littel' type fuses which are numbered, and coloured according to their amperage rating, and may be pulled out from their slots using the fuse extractor tool provided on the fusebox lid.



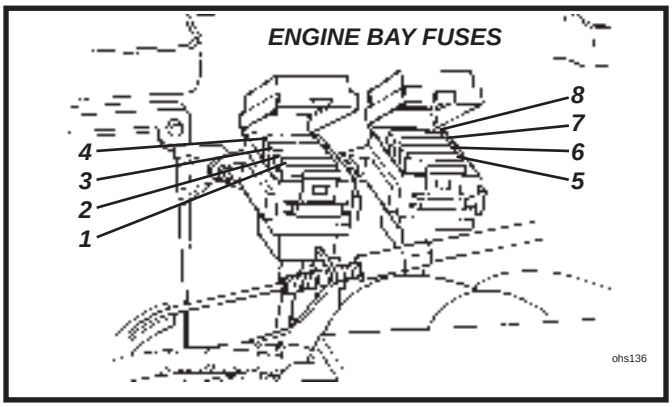
As viewed from in front of Elise:



Slot	*Rate*	*Circuit*
1	20A	Aux. power socket
2	2A	non USA: Alarm siren USA: Reverse lamps
3	20A	Driver window
4	20A	Passenger window
5	7.5A	Stoplamps non USA: Reverse lamps
6	7.5A	Turn indicators
7	10A	Ignition services
8	7.5A	Battery services
9	10A	Hazard lamps
10	7.5A	Horn
11	10A	Alarm power,interior lamp
12	10A	ABS
Slot	*Rate*	*Circuit*
13	3A	ECU ignition
14	20A	Rad. fans; 1&2 slow, 1 fast
15	7.5A	Radio, switch pack module
16	10A	Sidelamps non USA: Rear fog
17	10A	Dip beam LH
18	10A	Dip beam RH
19	20A	A.C. comp. relay, rad fan 2 fast
20	15A	Main beam LH
21	15A	Main beam RH
22	7.5A	CDL

Engine Compartment

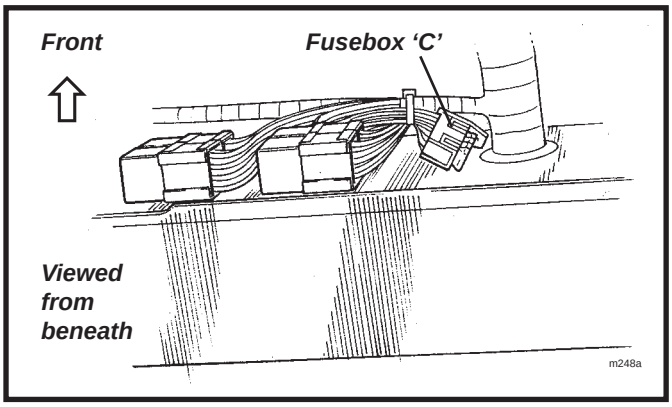
Fuses and relays associated with the engine management system are contained in two 4-position fuse holders located at the front of the engine bay on the cabin bulkhead, adjacent to the engine ECM. To access the fuses, unclip rear edge of the cover.



Fuse no.	*Rating*	*Circuit*
R1	20A	Fuel pump
R2	3A	Immobiliser
R3	5A	Alternator sense
R4	5A	ECU battery feed
R5	5A	O2 heaters
R6	7.5A	VSV's VVT, VVL, IAC
R7	10A	Injectors, ignition coils
R8	5A	Re-circ. pump

Interior Fuses & Relays

The wash/wipe module, turn/hazard flasher relay, horn relay and a relay for inertia switch activation of the central door locking, are mounted on the scuttle beam above the passenger footwell, with four fuses secured to the harness in that area.



Fuse no.	*Rating*	*Circuit*
C1	20A	Interior fan
C2	15A	Wiper motor
C3	7.5A	Audio key-in
C4	10A	A.C. compressor

A 60A Maxi fuse protecting the ABS circuit is located beneath the passenger side fascia top, adjacent to the positive post.

A multi-function relay unit containing the engine control relay, fuel pump relay and starter relay is mounted in the engine bay near the ECU. A similar relay unit is mounted in the front services compartment alongside the fusebox, and operates the a.c. compressor and radiator fans. **Important Note:** Although the two modules are identical in appearance, their function is different and they must not be transposed. The a.c. relay module A117M0038F has a brown label marked YWB100800; The engine relay module A111E6024F has a white label marked YWB100970.

For the location of the vehicle alarm system components, see sub-section MP.1.

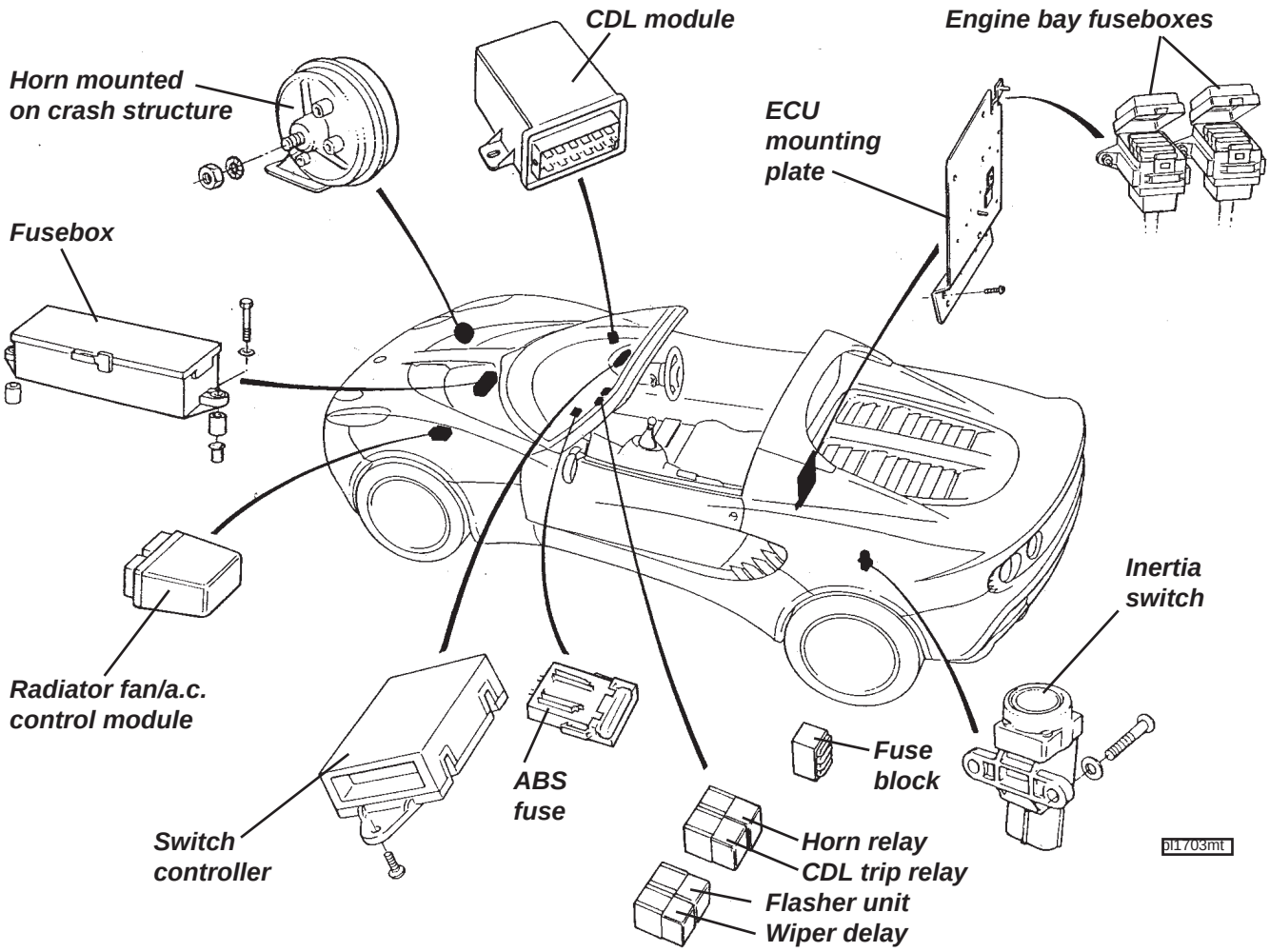
Fuse colours:

2A - Black 3A - Violet 4A - Pink 5A - Orange 7.5A - Brown 10A - Red
15A - Light Blue 20A - Yellow 25A - Clear

Relay Position

RHD:	Inboard top;	Wiper
	Inboard bottom;	Flasher
	Outboard top;	CDL trip
	Outboard bottom;	Horn
LHD:	Inboard top;	Flasher
	Inboard bottom;	Wiper
	Outboard top;	Horn
	Outboard bottom;	CDL trip

Component Location

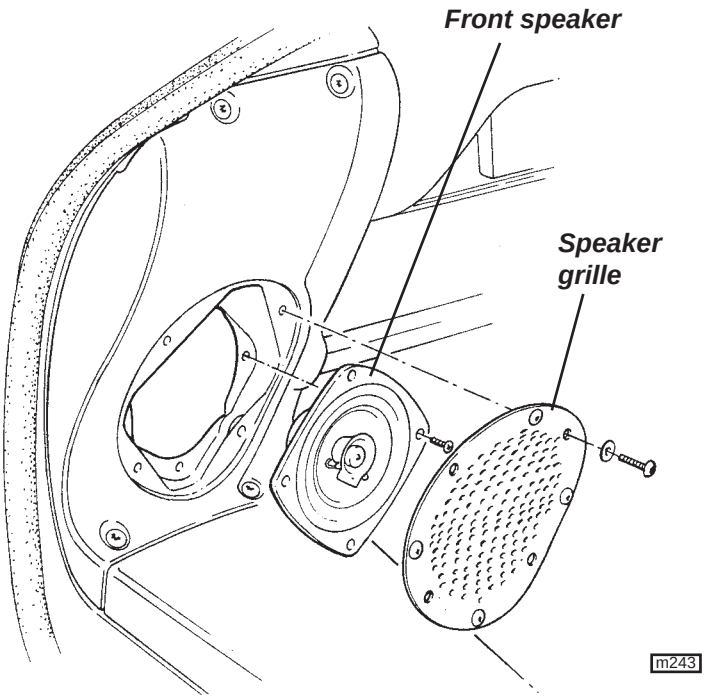


MP.6 - AUDIO EQUIPMENT

The Elise may be specified with various audio equipment options. All cars are fitted with a main wiring harness which includes: an ISO 16-way connector located behind the standard ISO size audio aperture in the dash panel; speaker wiring terminating behind the cabin LH rear corner trim panel; and an analogue di-pole aerial routed inside the front body. On cars factory built with a digital audio set, this aerial is supplemented by a digital di-pole aerial routed in a similar manner.

Speakers

'Two speaker' cars are fitted with a speaker in each cabin rear corner in a sound deadening full width rear bulkhead trim panel. An upgraded audio option uses the same rear speakers, in conjunction with a pair of front speakers, mounted one in each dash end panel. USA cars have the front speakers mounted in the fascia top panel.



Speaker specifications are as follows:
Rear: Blaupunkt GTX 542 2-way co-axial; 90W max; 30W RMS; 4 ohms impedance.
Front: Blaupunkt TSX 402 2-way co-axial; 105W max; 35W RMS; 4 ohms impedance.

To remove the rear bulkhead trim panel, remove the four screws securing the top edge of the panel to the bulkhead plinth, and ease the panel from behind the seat belt mounting frame at each side.

MP.7 - BATTERY, BATTERY CABLES & EARTHING POINTS

Battery

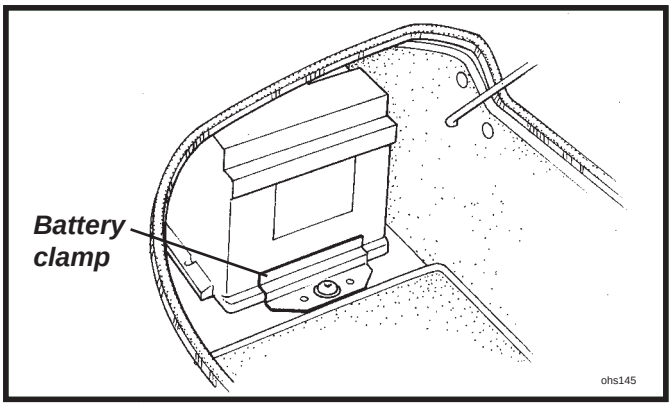
WARNING: POISON/DANGER - CAUSES SEVERE BURNS - KEEP OUT OF REACH OF CHILDREN. Contains sulphuric acid - avoid contact with skin, eyes or clothing. If in contact with skin or eyes; flush with copious amounts of water. Remove contaminated clothing. Seek immediate medical attention. If ingested; seek immediate medical attention . Do not induce vomiting or give fluids to drink. Batteries produce explosive gases. Keep sparks, flames and cigarettes away. Ventilate when charging or using in enclosed space. Always shield eyes when working near batteries.

Battery Access

The 45 Ahr Yuasa type 063/3 battery is located at the left hand front of the rear luggage compartment. No routine inspection or topping up of the electrolyte is required, but at intervals specified in the Maintenance Schedule, the battery terminals should be checked for security and condition, and protected with petroleum jelly.

To remove the battery, unhook the plastic cover, disconnect both battery cables (see below), and pull off the breather pipe (if applicable). Release the single screw securing the clamp bracket at the rear base of the battery, and manoeuvre the battery from the base retaining shoes at the front and right hand side. When lifting out the battery, be aware of the considerable weight, and take all appropriate precautions to safeguard personal health.

Refit the battery, with its terminals inboard, by reversing the above procedure. Remember to push on the breather pipe (if applicable), and reconnect the battery cables as detailed below.



Disconnecting the Battery

If the battery is to be disconnected, the following precautions should be taken:

i) Wait for at least ten seconds after switching off the ignition to allow the engine management system to adjust the setting of some components ready for re-starting.
ii) If the car is fitted with the upgraded security alarm, immediately before disconnection, mobilise the engine using the transmitter button with ignition off, and disconnect the battery within 25 seconds. If disconnected after this time, or when immobilisation is in effect, the alarm will be triggered.
iii) Ensure that all electrical loads (e.g. lights) are switched off.
iv) Disconnect the negative (earth; black; '-') battery cable first, and re-connect last. If the battery positive terminal is inadvertently earthed (e.g. when using a spanner) whilst the negative terminal is still connected, the resultant short circuit with heavy sparking and current flow could cause serious burns.
v) If the vehicle is fitted with security coded audio equipment, check that the code is available for entering after battery reconnection.

Battery Reconnection

i) Check again that all electrical loads are switched off.
ii) Connect the positive battery cable first, followed by the negative (earth) cable.
iii) Be aware that the vehicle security alarm may be triggered by the action of battery re-connection. Have the alarm transmitter key ready to disarm the alarm (see 'Vehicle Security Alarm').
iv) After reconnection, a change in the engine performance characteristics may be noted for a period whilst the computer controlled engine management system 're-learns' some of its settings.
v) If necessary, enter the security code into audio equipment.

Battery Charging

Under conditions of normal daily use, it should not be necessary to use external battery charging equipment. In a low usage regime, however, it is important to maintain the charge state of the battery using a trickle charger, or an automatic battery management charger such as that available through Lotus After Sales. Such devices, when connected to a vehicle battery, continuously monitor battery charge state and switch on and off automatically in order to maintain the battery in a fully charged state without danger of damage through overcharging.

If the battery becomes discharged to the extent that the vehicle cannot be started, the recommended course of action is to fit a substitute battery whilst the original battery is trickle charged. If, in an emergency, the vehicle has to be 'jump' started, the subsequent conditions of vehicle use may not allow for sufficient alternator charging of the battery to achieve a fully charged state. The battery should be trickle charged until 12.8 volts is recorded, which process may take 24 hours or longer. Putting the battery into service at a lower state of charge will reduce the time period for which the vehicle can be parked. A battery left in a fully discharged state for a prolonged period, may not be recoverable to its original condition.

Unless using an automatic battery management charger, the battery should be removed from the car for recharging, to a well ventilated area to avoid a build up of fumes in the luggage compartment and to prevent damage to the car's electrical system. Observe the safety precautions listed above when removing the battery and take care to avoid sharp knocks or shocks, keeping the battery as upright as possible. Beware of the considerable weight of a battery, and take necessary precautions against personal injury.

Check that the electrolyte level is between the upper and lower markers on the battery case, and if necessary add distilled water. The recommended bench charge rate is 4 amps. When the battery is fully charged (12.8 volts), allow the battery to stand for an hour before refitting into the battery well and reconnecting the leads - see above.

Quiescent Drain

With a fully charged battery, the current drain with all electrical equipment switched off (no radio fitted) should be as follows;

Immobiliser active	15 mA
Alarm set	20 mA

If current drain is found to be significantly in excess of these figures, the cause must be established by isolating components (e.g. at fusebox) and rectifying faults as necessary.

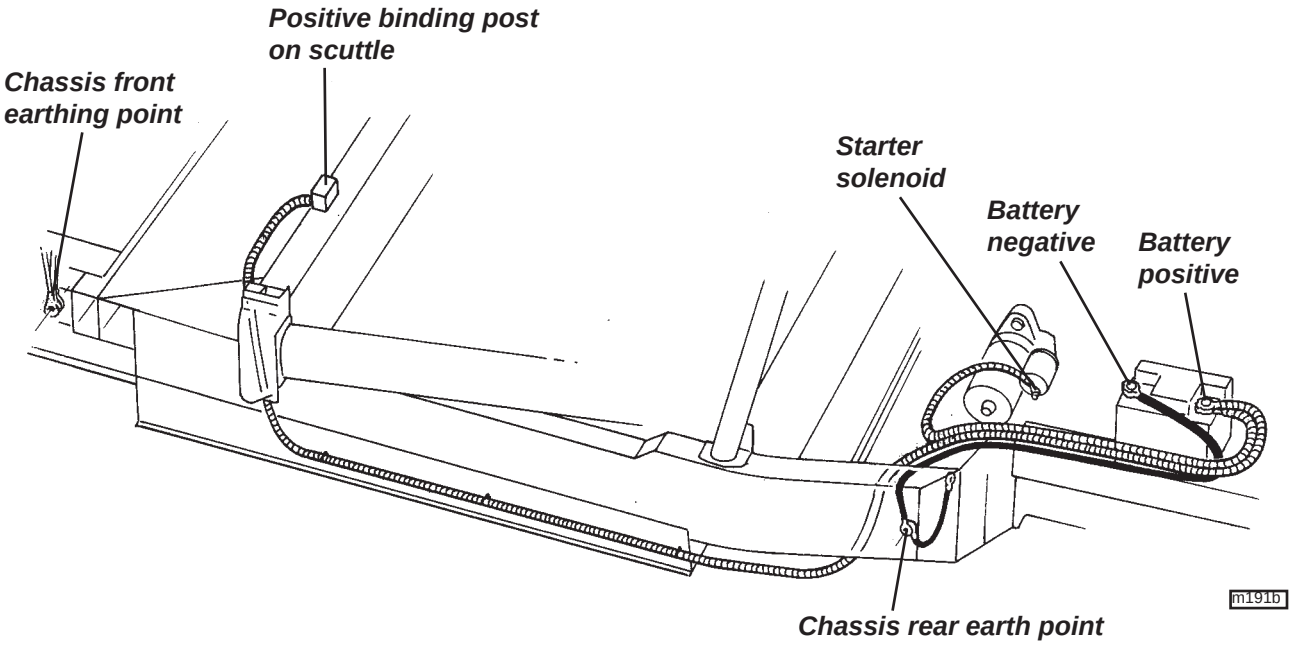
Battery Cables

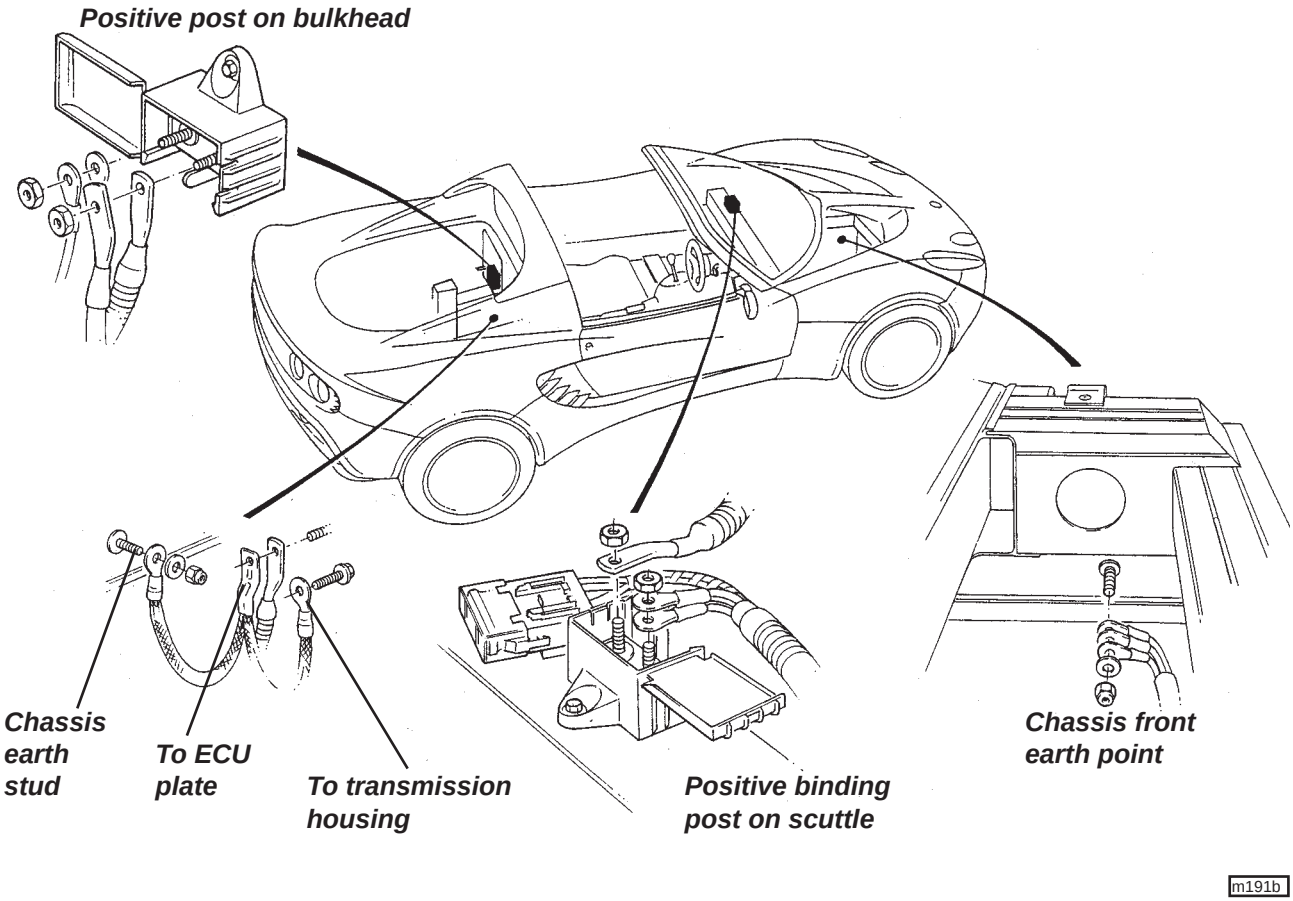
The main battery positive cable runs from the battery to a binding post mounted on the engine ECU plate, itself fixed to the engine bay bulkhead. From this post, one cable loops to the starter motor and then to the alternator, and another is routed through the LH sill, fixed to the outside of the chassis LH side rail together with the heater return pipe, clutch hydraulic hose and servo vacuum hose, and penetrates the scuttle baffle panel to a second positive post mounted on the top of the scuttle beam. This post is used to distribute power to the main fusebox and other front end circuits.

The battery earth cable connects to a chassis earth point on the inside surface of the LH chassis rail at the side of the engine bay, accessible from beneath. From here, an earth braid connects with the ECU plate and also with the transmission casing. A second earth point is used at the front of the chassis to provide for front mounted components, and is located within the front services compartment on the inside surface of the chassis LH siderail. Each chassis earth point uses an M8 threaded insert and on some cars, a special stepped washer which must be fitted the correct way round in order to contact the chassis (anodisation removed around insert). The chassis and cable earth terminals should be coated with petroleum jelly to protect from corrosion.

On the Exige, positive and negative posts are provided on the passenger side in the front services compartment in order to allow for jumper cable connection on a car with a flat battery, when release of the engine cover is not available.

Battery cables; positive & negative posts





MP.8 - WIPER MECHANISM

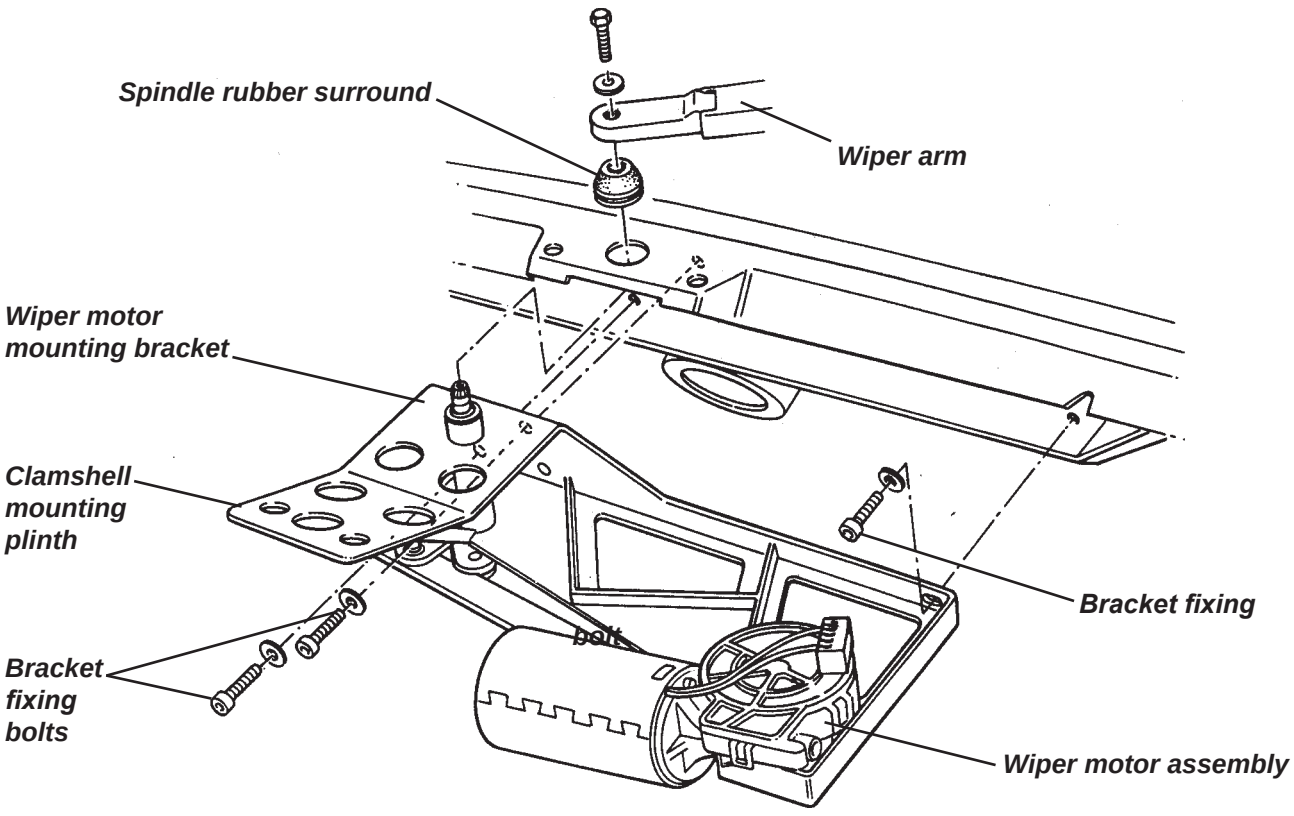
The windscreen wiper mechanism comprises a uni-directional motor with an external rotary link, a connecting rod, and a pair of actuating links which join the connecting rod to the arms of the wiper spindle. This mechanism provides the wiper with a motion which is slowed at each end of its travel in order to ease the inertia loads during direction changes, to the benefit of refinement and durability. The motor and wheelbox are mounted on a single fabricated steel bracket which is bolted to the windscreen scuttle panel.

To remove the wiper mechanism:

1. Remove the front clamshell (see sub-section BP.5).

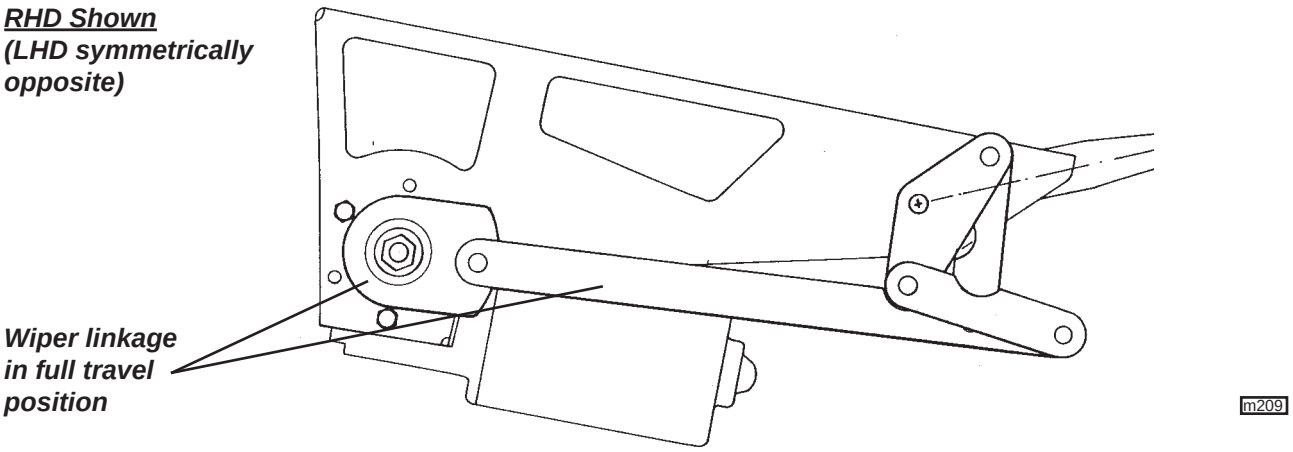
2. Remove the wiper motor protective cover by releasing the two screws into the windscreen buttress, and the patch of adhesive between the inboard end and the screen gutter. Disconnect the harness plug from the motor. Disconnect the washer tubing.

3. Remove the wiper arm from the spindle, and the spindle rubber surround.



4. Release the three screws securing the motor mounting bracket to the windscreen frame - one at each side of the spindle, one at the motor end, and withdraw the complete mechanism from the car.

5. If the motor is separated from the mechanism, the position of the rotary link should be marked against the motor shaft for reference when re-fitting. The motor should be in the 'park' position before fitting, and the mechanism at full travel so that the rotary link and connecting rod are aligned in the fully extended position.

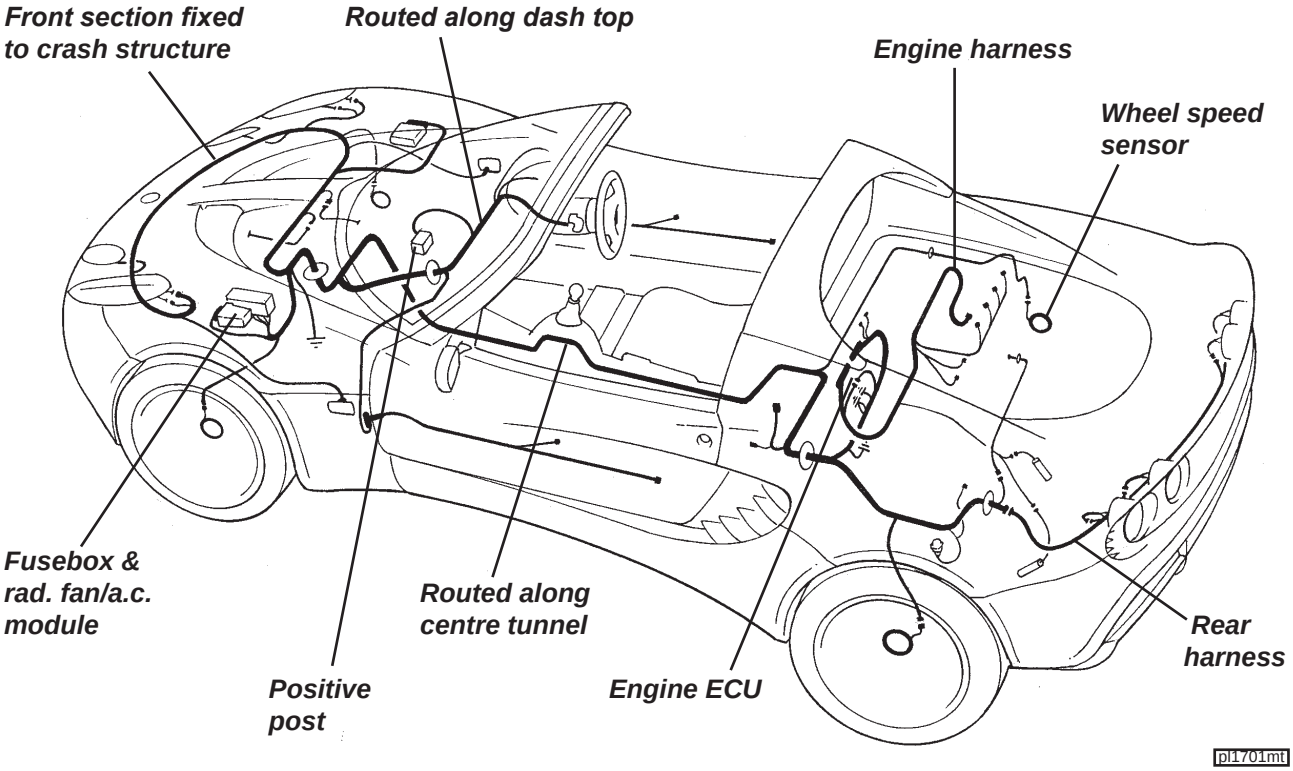


6. Re-assemble in the reverse order to removal, torque tightening the bracket bolts to 20 Nm.

MP.9 - HARNESS ROUTING

The main harness runs from the main fusebox/relay station at the passenger side of the front services compartment, and divides into three branches; one running forwards across the front of the chassis well to feed the interior fan motor, heater/a.c. functions, radiator fans and ABS controller, and then round the front of the crash structure to supply the horn and front lights. A second branch connects to the radiator fans/a.c. control module mounted on the passenger side wheelarch liner. The third brance runs rearwards through the scuttle where it divides again to run across the dash top, picking up on the positive post, and supplying the instrument pack and switchgear. The harness then runs along the cockpit centre tunnel to the rear of the cabin, over the top of the fuel tank bay, and through a grommet at the left hand rear corner of the cabin.

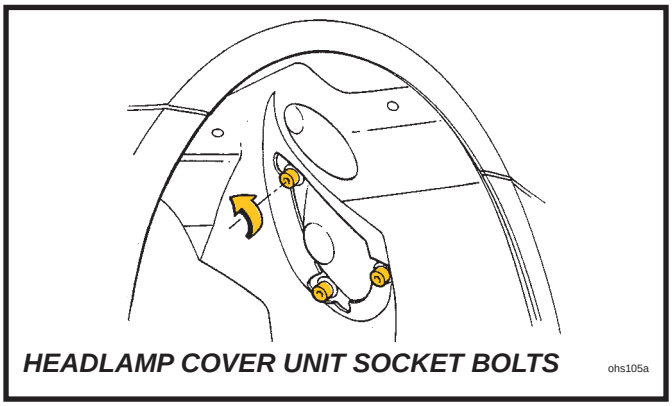
At the left hand front corner of the engine bay, one branch continues rearwards through a rear clamshell grommet to connect with the rear lighting harness routed inside the clamshell. Another branch runs across the engine bay/cabin bulkhead to the multi-function relay module and engine ECU. The engine harness connects to the ECU on the bulkhead.



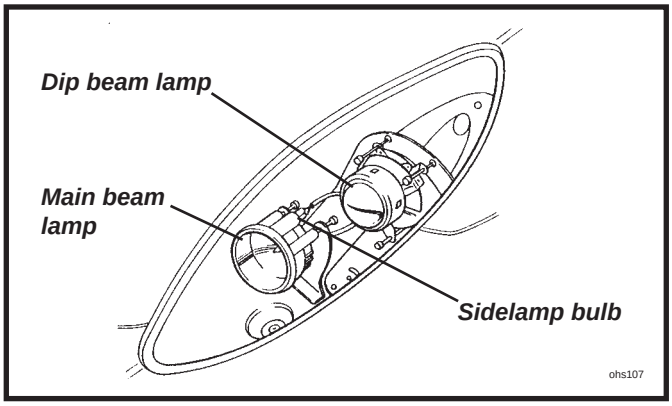
MP.10 - FRONT LAMP ASSEMBLIES

Headlamp Units - Prior '07 M.Y.

The front clamshell incorporates, at each side, a headlamp housing, in each of which are mounted a halogen projector type dip beam lamp (upper), and a halogen main beam lamp (lower), which also incorporates the sidelamp bulb. A moulded plastic mask and clear acrylic cover are bonded together and are fitted over each headlamp housing, with a rubber surround finisher, with the unit retained by three slotted thumbscrews accessible from within the front wheelarch. For access to the headlamps, release the three socket head screws and withdraw the headlamp cover assembly.



HEADLAMP COVER UNIT SOCKET BOLTS ohs105a



ohs107

Headlamp bulbs may be replaced after disconnecting the cables (Dip; blue/yellow, black. Main; blue/black, black) and releasing the spring clip. Both the 55W H1 dip beam bulb, and the 55W H7 main beam bulb incorporate orientation features which must be correctly located on re-fitting. The holder for the T4W bayonet fitting sidelamp bulb may be twisted to release from the main beam headlamp.

If the car is to be used temporarily in an opposite drive hand territory, a masking lever incorporated in each dip beam headlamp should be moved to provide a horizontal cut off and prevent dazzle.

Headlamp Beam Alignment

1. Using beam setting equipment compatible with ECE Regulation No.48 for 76/756/EEC, position the machine between 300 and 700mm in front of the LH headlamp, and parallel with the two headlamp units using the sight bar or similar device dependent on the machine design, to ensure cross car match. Use the guides provided on the machine to ensure the correct height and lateral setting.

2. Switch on the headlamp dip beams (uppermost lamps), and check the lateral beam alignment. The 'knee point' of the beam cut off line must lie within a tolerance of 2% to the passenger side, and 0%.
   Check the vertical alignment of the dip beam which must lie within a tolerance of -0.5% and -2%.

3. If adjustment is required, from within each front wheelarch, using a 5mm hexagonal key, remove the three socket head screws securing the headlamp cover/masks, and withdraw the covers complete with rubber seal.

4. To adjust the dip beam laterally, adjust the dome headed screw at the upper inboard side of the dip beam (uppermost) lamp, accessed from the front of the lamp. Turn clockwise to adjust the beam to the right. Optimum setting is 0%.
   To adjust the vertical aim of the dip beam, adjust the dome headed screw at the lower outboard side of the lamp, accessed from the front. Turn clockwise to raise the beam. Optimum setting is -1.5%.

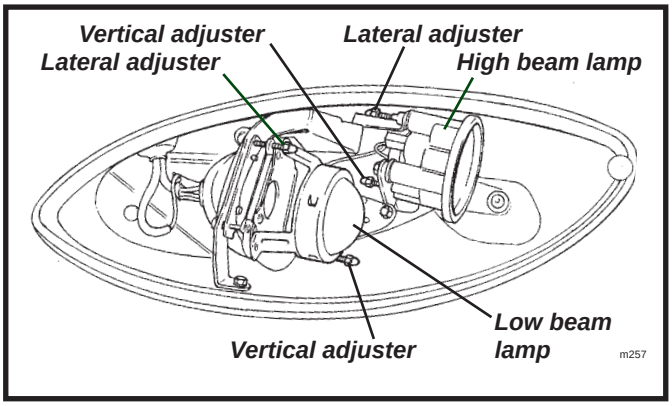
5. Repeat for the RH lamp.

6. Centralise the machine on the LH main beam (lowermost) lamp, and switch on the main beams. Check the main beam alignment which should be centralised with the marker dot on the machine screen or slightly below the horizontal. Optimum setting is 0%.
   - To adjust the main beam laterally, adjust the dome headed screw at the upper inboard side of the lamp,

accessed from behind the lamp. Turn clockwise to adjust the beam to the right.
- To adjust the vertical aim of the main beam, adjust the dome headed screw at the lower outboard side of the lamp, accessed from behind the lamp. Turn clockwise to raise the beam.

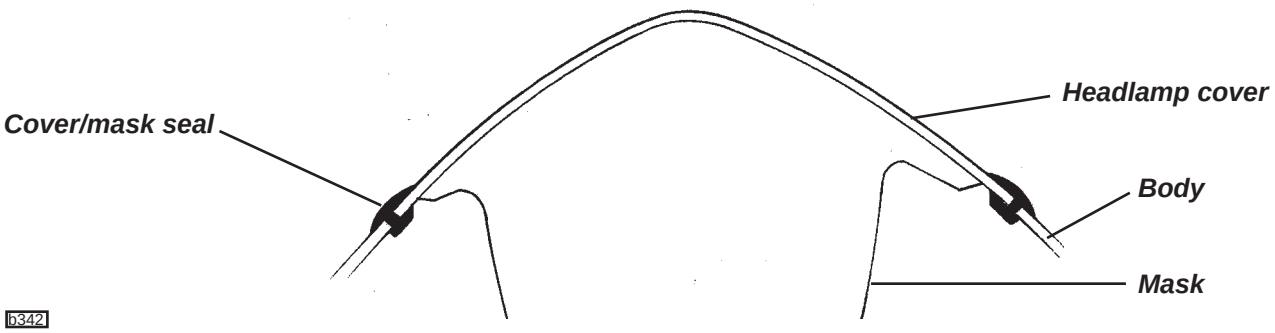
7. Repeat for the RH lamp.

8. Re-fit the cover/mask assemblies complete with edge seal to the body, and secure with the three socket head screws and washers.



Headlamp Cover Seal

The headlamp cover/mask is sealed to the body aperture by an extruded synthetic moulding, supplied in straight lengths. The seal needs to be cut to length to be a snug fit around the periphery of the lamp and the two ends bonded together using a suitable adhesive such as Permabond C2 or similar. The seal is then fitted to the headlamp cover with the narrower face uppermost, and with the longer leg of the lower face against the mask.



Headlamp Units - '07 M.Y. Onwards

New headlamp assemblies introduced for '07 model year are unchanged in styling, but are redesigned as sealed units to comply with legislative demands, and comprise main/dip/sidelamps with integral reflectors, mask and cover. An optical feature in the centre of the cover is designed to gather refracted light and prevent scatter above the dip beam cut off. Certain atmospheric conditions may result in some condensation inside the lamp unit, but this should disperse with the lamps in operation and cause no concern.

The main beam lamp is mounted lowermost as previously, and uses a free-form reflector and 55W H7U bulb. Above that is the projector type dip beam lamp with 55W H7U bulb, and at the top of the unit is the side/parking lamp with W5W bulb, the latter function formerly incorporated into the main beam lamp. Each complete lamp unit with hard coated polycarbonate cover is fitted to the body via a remodeled clamshell housing and is secured by three M10 and one M6 fixing. Note that the clamshell construction renders retrofitment of the new lamps to earlier models impracticable.

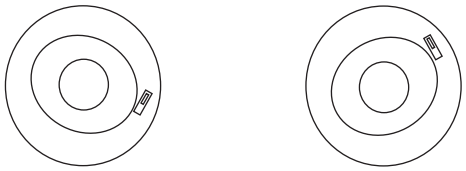
Access to the bulbs is available after removing the wheelarch liner front section, and then the appropriate grommet over the main or dip beam bulbs. The alignment relationship between main and dip beam lamps is fixed, but two cross-head adjusters are provided on the back of the headlamp housing by which the whole lamp unit may be adjusted. The outboard screw adjusts vertical alignment, and the inboard screw horizontal.

To remove a lamp unit from the car, remove the three M10 nuts and the single M6 nut securing the lamp assembly to the clamshell. On re-assembly, note that the jointline between lamp and body may be optimised via threaded collars on three of the lamp fixing studs.

Opposite Drive Hand Beam Masking: If the car is temporarily to be used in an opposite drive hand territory, the dip beam bias should be masked to prevent dazzle. The '07 model year lamps incorporate a masking lever within each dip beam lamp, accessible after removing the wheelarch liner front section and upper grommet. The lever incorporates a slot for a small flat bladed screwdriver, but is located in one of four different sites dependent on handing and market.

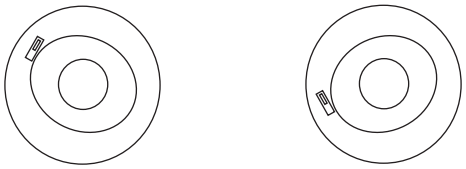
On RHD cars, the lever in both lamps should be turned clockwise to mask. ***The lever turns only a few degrees, requiring little force.*** Applying too much force or movement will damage the system. Feel for a slight click.

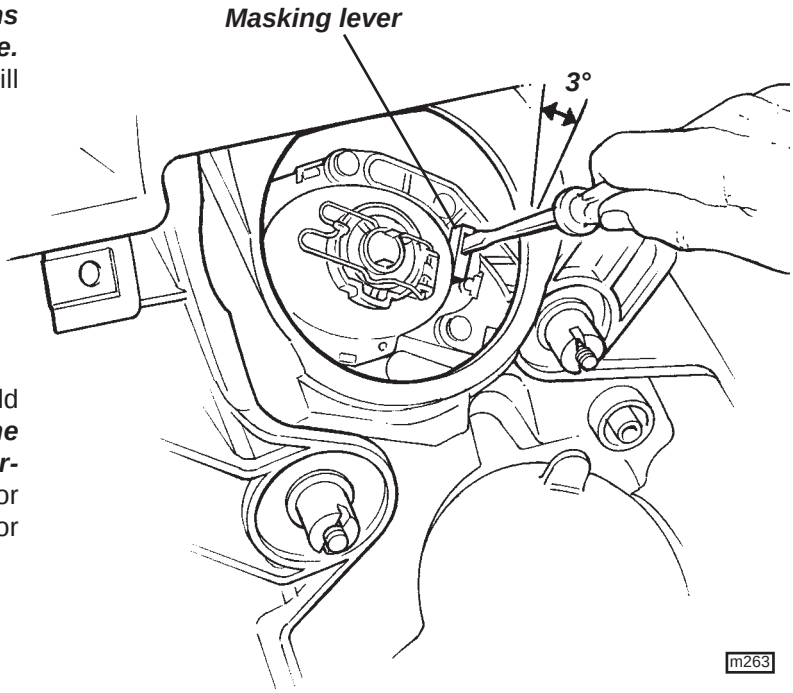
RH ***LH***



On LHD cars, the lever in both lamps should be turned counterclockwise to mask. ***The lever turns only a few degrees, requiring little force.*** Applying too much force or movement will damage the system. Feel for a slight click.

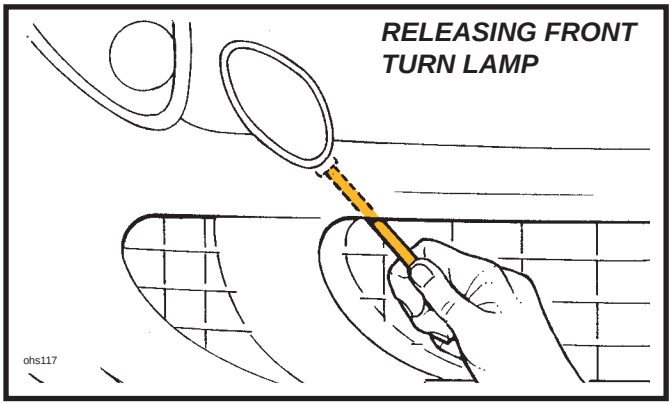
RH ***LH***





Front Turn Lamps

For access to the front turn indicator bulb, the lamp unit must be released from the body. Using a suitable stiff rod, via an access hole in the outer top corner of the air intake aperture, push backwards the retaining clip at the front corner of the turn lamp, and withdraw the lamp from the body. Introduced for the '06 M.Y. was a secondary security device in the form of an 'O' ring anchored to the crash structure and looped through the lamp front retaining clip.



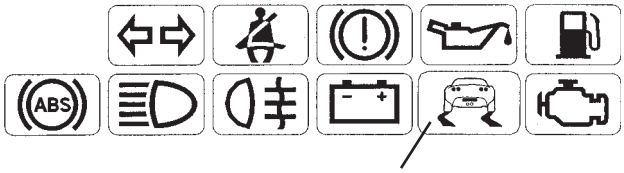
Twist the bulb holder counterclockwise to release from the lamp, and replace the bayonet fitting amber bulb. After replacing the bulb and holder, fit the seal around the periphery of the lamp, and engage the lamp unit top corner lip in the body aperture, before pressing the bottom corner until the spring clip is heard to engage. Ensure the lamp is securely fitted by attempting to extract the lamp from above, which should not be possible.

MP.11 - 2006 M.Y. SUPPLEMENT

Lotus Traction Control

Lotus Traction Control (LTC) is a software programme within the engine electronic control unit (ECU) which uses inputs from the wheel speed sensors to determine the degree of wheelspin occurring, and when necessary, modulate fuel injector delivery to control engine power output until grip is restored. If an LSD is fitted, the LTC also operates to stabilise high speed vehicle behaviour under high cornering loads or extreme manoeuvres.

An LTC tell tale is provided in the instrument panel, and if this lamp, together with the tell tale light in the LTC button (see below) is seen to flicker, this is an indication that traction control has been triggered and electronic intervention is taking place; the tractive limit has been reached and driving style should be modified accordingly. If the lamp is continuously lit, this is an indication that the LTC has been manually switched off (see below).

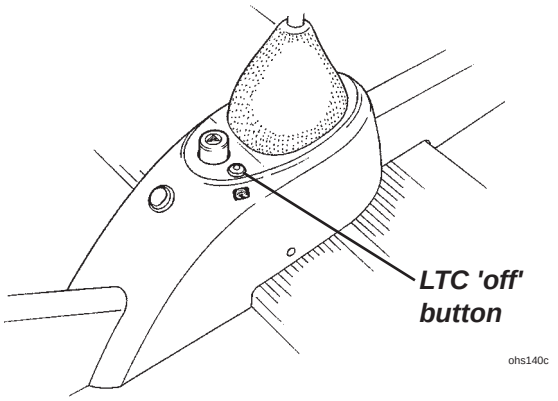


LTC tell tale (Euro shown)

WARNING: The enhanced vehicle control that this feature provides should not induce any relaxation of caution or vigilance by the driver. Physical limits of cornering and braking still apply, and excessive speed may result in loss of control and an accident. The driver is at all times responsible for the judgement of appropriate speed.

Lotus Traction Control 'Off' Button

In certain unusual circumstances, such as loose surfaces, deep snow or when 'rocking' the vehicle free from mud, it may be desirable temporarily to switch off the traction control. An LTC 'off' button is provided on the gear lever shroud, and should, with the ignition switched on, be held pressed for 2 seconds. Both the button tell tale and the LTC warning lamp in the instrument panel will light up amber to confirm system de-activation.



WARNING:

- **When an LSD is fitted, Lotus Traction Control should always be active when driving on the public highway in normal conditions.**
- **If the system is switched off when driving off-highway, be aware of the consequent change in vehicle behaviour and modify driving style accordingly.**

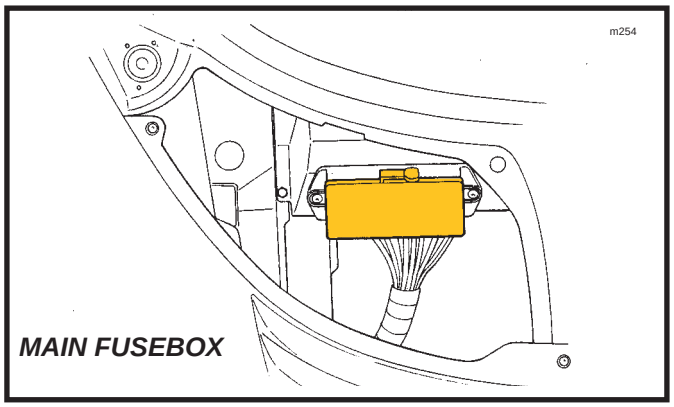
To re-activate LTC, press (momentarily) the button a second time and check that the tell tale lamps in both the switch button and instrument panel go out. Irrespective of the system status when the ignition is turned off, LTC will automatically be activated next time the ignition is switched on.

ECU Programming

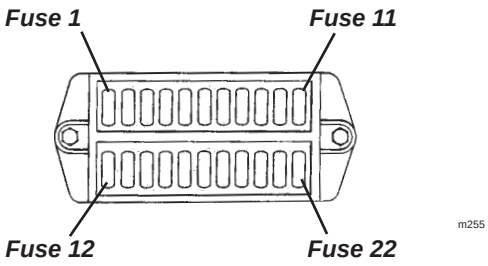
The ECU progamming for '06 M.Y. cars includes Electronic Throttle Control (ETC) and Lotus Traction Control (LTC), and may be identified by interrogation using the Scan tool; Non-USA: A120E0030H. USA: A121E0010H.

In order for LTC to be operative, a new ECU must detect the presence of the LTC 'off' switch within the first 5 ignition cycles. If no switch is detected (the switch does not need to be activated), the LTC programme will be locked out indefinately, and can only be reset by Lotus Cars.

Fuses



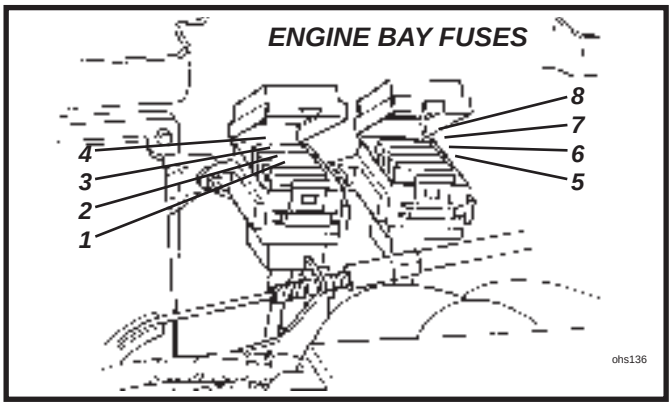
As viewed from in front of Elise:



Slot	*Rate*	*Circuit*	*Supply*	*Slot*	*Rate*	*Circuit*	*Supply*
1	20A	Aux. power socket	Battery	14	20A	Rad. fans; 1&2 slow, 1 fast	Battery
2	5A	Reverse lamps	Ignition				
3	20A	Driver window	Ignition	15	7.5A	Radio, switch pack module	Battery
4	20A	Passenger window	Ignition	16	10A	Sidelamps, rear fog	Battery
5	10A	Stoplamps	Ignition	17	10A	Dip beam LH	Battery
6	7.5A	Turn indicators	Ignition	18	10A	Dip beam RH	Battery
7	10A	Ignition services	Ignition	19	20A	A.C. comp. relay, rad fan 2 fast	Battery
8	7.5A	Battery services	Battery				
9	15A	Hazard lamps	Battery	20	15A	Main beam LH	Battery
10	7.5A	Horn	Battery	21	15A	Main beam RH	Battery
11	10A	Alarm power,interior lamp	Battery	22	7.5A	CDL	Battery
12	10A	ABS	Ignition				
13	3A	ECU, starter switch, immobiliser	Ignition				

Engine Compartment

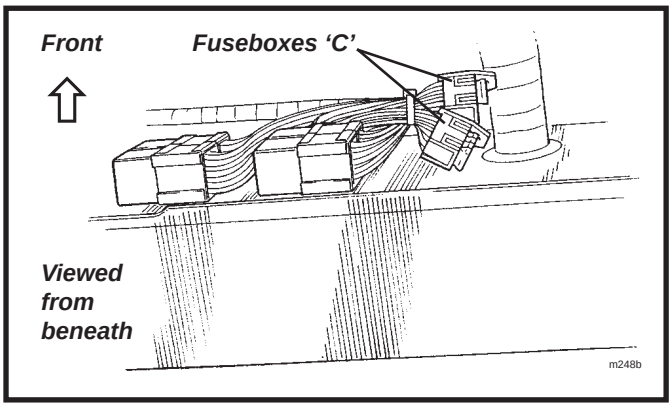
Fuses and relays associated with the engine management system are contained in two 4-position fuse holders located at the front of the engine bay on the cabin bulkhead, adjacent to the engine ECM. To access the fuses, unclip rear edge of the cover.



Fuse no.	*Rating*	*Circuit*	*Supply*
R1	20A	Fuel pump	Battery
R2	3A	Immobiliser	Battery
R3	5A	Alternator sense	Battery
R4	5A	ECU battery feed	Battery
R5	5A	O2 heaters	ECU
R6	7.5A	VSV's VVT, VVL, IAC	ECU
R7	10A	Injectors, ignition coils, ECU main pwr, ac module	ECU
R8	5A	Re-circ. pump	ECU

Interior Fuses & Relays

The wash/wipe module, turn/hazard flasher relay, horn relay and a relay for inertia switch activation of the central door locking, are mounted on the scuttle beam above the passenger footwell, with two 4-slot fuse holders secured to the harness in that area.



Relay Position

RHD:	Inboard top;	Wiper
	Inboard bottom;	Flasher
	Outboard top;	CDL trip
	Outboard bottom;	Horn
LHD:	Inboard top;	Flasher
	Inboard bottom;	Wiper
	Outboard top;	Horn
	Outboard bottom;	CDL trip

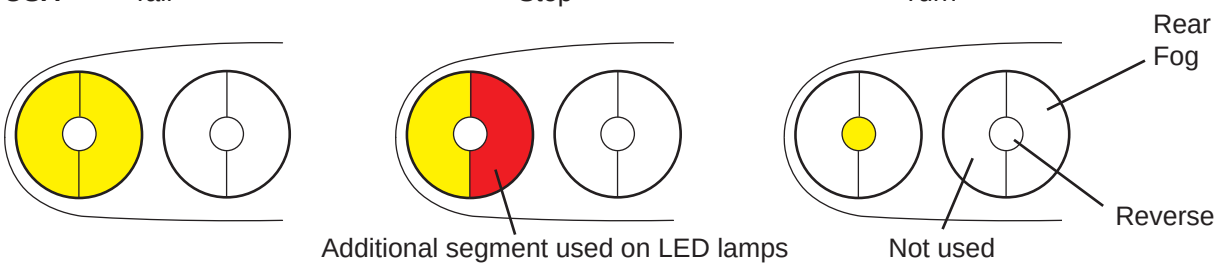
Fuse no.	*Rating*	*Circuit*	*Supply*
C1	20A	Interior fan	Start drop out
C2	15A	Wiper motor	Start drop out
C3	7.5A	Audio key-in	Key in
C4	7.5A	A.C. compressor	Ignition
C5	15A	Aux. Driving lamps	Battery

LED Rear Lamps

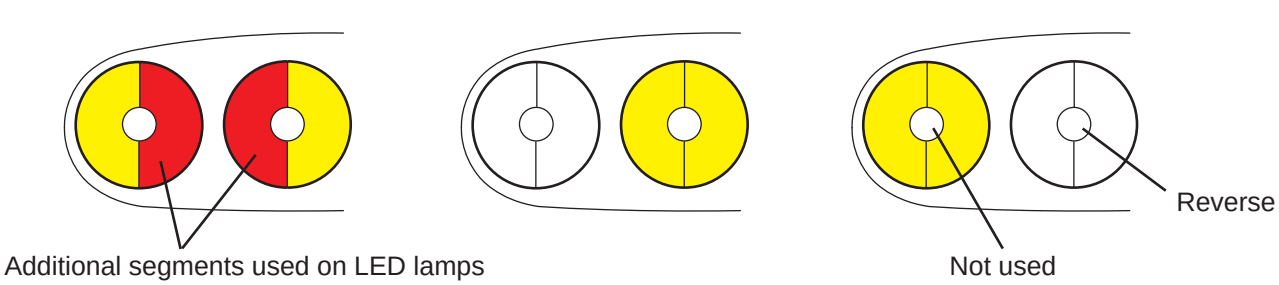
Introduced on all 6-speed Elise variants for '06 M.Y. are new rear lamp clusters incorporating LEDs in the annular segments of the lamps. The central elements continue to use filament bulbs. The non-USA Elise also adopts the USA centre high mounted stop lamp (CHMSL) featuring red LEDs behind a white lens. The light emitting diodes are extremely durable and are serviced only by lamp cluster replacement. The turn indicators in the centre of the outboard lamps, and the reverse lamps in the centre of the inboard units, use W16W bayonet fitting filament bulbs in twist release holders. Note that on USA cars, the outboard lamps are fitted with ballast modules secured by the lamp fixing nuts.

Lamp Configuration - filament bulb & LED types (LH lamps shown)

Non-USA



USA



MP.12 - 2008 M.Y. SUPPLEMENT

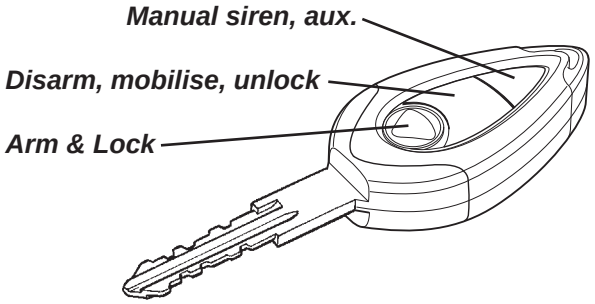
VEHICLE SECURITY ALARM

The Lotus Elise/Exige for '08 model year onwards is fitted as standard with a PFK 457 immobiliser/alarm which includes the following features:

- Lotus branded transmitter key.
- U.K. approval to Thatcham category 1.
- 'Dynamic coding' of the transmitter keys; Each time the transmitters are used, the encrypted rolling code is changed to guard against unauthorised code capture.
- Passive activation of immobiliser, central locking and alarm system.
- Ingress protection using sensing switches on the latches of both doors, the front body access panels, and the engine lid/tailgate.
- Selectable cockpit intrusion sensing using a microwave sensor.
- Self powered siren to maintain protection if the vehicle battery is disconnected.
- Personal protection by 'on demand' activation of the siren.
- Emergency alarm override and transmitter key programming using an alarm/owner specific Personal Identification Number (PIN).

Transmitter Keys

Two new Lotus designed and badged transmitter keys are provided with the car, and combine a mechanical key blade with a three button transmitter unit incorporated into the key head. The mechanical key operates the ignition switch, emergency manual door locks, fuel filler cap (not USA) and Elise engine/boot lid. The transmitter operates the electronic immobiliser, alarm system and the central locking. The two transmitter keys should be kept separate, and a replacement obtained immediately after any loss to ensure that a spare is always available.



TRANSMITTER KEY ohs128c

The 4-digit code for the mechanical key, the unique serial number of the immobiliser/alarm, and the vehicle owner's 5-digit alarm Personal Identification Number (PIN), are supplied on plastic tags attached to the key ring of a new vehicle. In order to allow replacement transmitter keys to be programmed, it is essential that these numbers are recorded and kept safely by the owner with the vehicle documents. It is also recommended that the dealer stress this issue to their customers and, in the interests of customer service, keep a record in their own database.

Replacement Keys: Additional or replacement transmitter keys may be purchased uncut/uncoded from Lotus under part number A120H0008S and will be supplied with a blank mechanical blade for copy cutting to an existing key. Alternatively, a cut key may be ordered from Bolton Lock Company, quoting the 4 digit 'L' key code, under part number A120H0009S (using form LSL482c). In either case, the transmitter will then need matching to the vehicle using the vehicle owner's 5-digit PIN, as described later in this bulletin.

Disarming the Alarm/Unlocking

When approaching the car, it is likely that the vehicle is locked and the alarm armed. The alarm red tell tale lamp in the speedometer face will be triple flashing. To disarm the alarm and unlock the doors:

- Press the central, unlock, button on the transmitter key. The first press will unlock just the driver's door. Two presses in quick succession will unlock both the driver and passenger doors.
- This command will be acknowledged by a double flash of the hazard lamps.
- The engine will be mobilised (see below).
- The interior lamp will fade on, and remain lit for up to 2 minutes (if set to the 'courtesy' position).
- The alarm tell tale will be extinguished.

If a door is not opened within 2 minutes, the doors will passively re-lock and the alarm system re-arm.

Passive Immobilisation

In order to provide a measure of automatic vehicle security, independent of any driver initiative, the system will 'passively' immobilise the engine's cranking and fuel pump circuits after the ignition has been turned off for 40 seconds, or a similar period has elapsed since the last mobilising command. With the ignition off, the alarm tell tale will indicate that immobilisation is in effect by briefly flashing every second. With ignition on, immobilisation is indicated by a continuously lit tell tale.

To mobilise the car (i.e. allow engine starting) with ignition on or off, press once the transmitter centre button; the alarm tell tale will be extinguished.

Arming the Alarm/Locking the Doors

To lock the doors and arm the alarm, remove the ignition key, close both doors, and check that the engine lid/tailgate and body front access panels are secure:

- Press once the raised logo button on the transmitter fob.
- This command will be acknowledged by a single flash of the hazard lamps.
- Both doors will be locked, the engine immobilised and the alarm system armed. A settling period of 40 seconds must expire before the ingress sensors become active.
- The alarm tell tale will repeatedly triple flash.

Note:

i) If the system is armed when a door is not fully shut, three **triple** beeps will sound as a warning and the doors will not be locked. Opening a door will *not* trigger the alarm.

ii) If the system is armed when the engine lid/tailgate or a front access panel is not fully closed, three warning **double** beeps will be heard, and the doors will not be locked. Opening a door in this instance *will* trigger the alarm.

iii) If one transmitter is used to disarm the alarm, and a second transmitter to re-arm, a system test mode will be initiated, and operational variations will occur. Allow an undisturbed period of 2 minutes to elapse to restore normal operation.

When fully armed, and after the settling period of 40 seconds has expired, the alarm will be triggered by any of the following actions:

- Interruption of the car battery power supply or siren cables.
- Energising the ignition circuit ('hot wiring').
- Opening a door;
- Opening the engine lid/tailgate or a front access panel.
- Movement detected within the cabin (unless de-selected).

If the alarm is triggered, the hazard warning lamps will flash and the wailing siren sound for a period of approximately 30 seconds before closing down and resetting, ready for any further triggering input. If a trigger is continuously present (e.g. door left open), the alarm will repeat for a maximum of eight 30 second cycles before excluding the triggering sensor for the remainder of the armed period.

To silence the siren, press once the central, disarm button on the transmitter key. If necessary, press a second time to disarm the alarm.

Alarm Tell Tale Summary

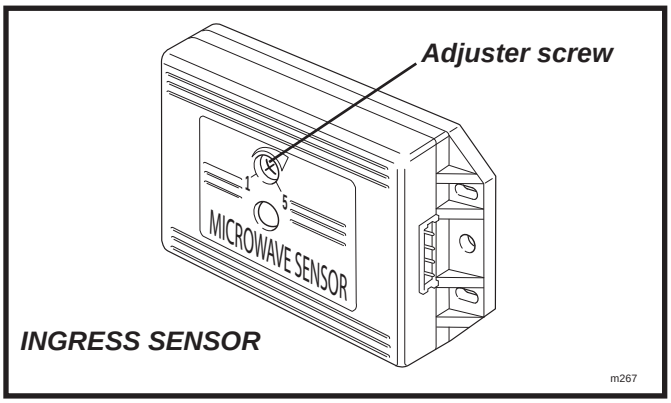
Tell tale off;	Alarm disarmed, engine mobilised.
Tell tale on;	Immobilised with ignition on.
Brief flash every second;	Immobilised with ignition off.
Repeating triple flash;	Alarm armed.

Interior Movement Sensor

A microwave sensor is mounted behind the cabin rear bulkhead trim panel, and is able to detect substantial physical movement within the cockpit, and trigger the alarm. Microwave transmissions are blocked by metal objects, so it is important not to shield the signal by placing such items on the bulkhead ledge.

If an animal is to be left in the vehicle, or if for any other reason it is desired to exclude the interior movement sensor when the alarm is set, press once the transmitter logo button in the normal way to set the alarm, and then press a second time (within 2 seconds) to exclude the interior movement sensor. A single beep will be heard as confirmation. This exclusion will be automatically cancelled when the alarm is disarmed.

The sensitivity of the sensor is factory set for the Elise/Exige, and should never need any adjustment. Such a faciltity is, however, provided on the unit, and is accessible after removal of the cabin rear bulkhead trim panel. Turning the adjustment screw clockwise will increase sensitivity. Be aware that the adjustment movement is extremely short, with only a fraction of a turn being needed.



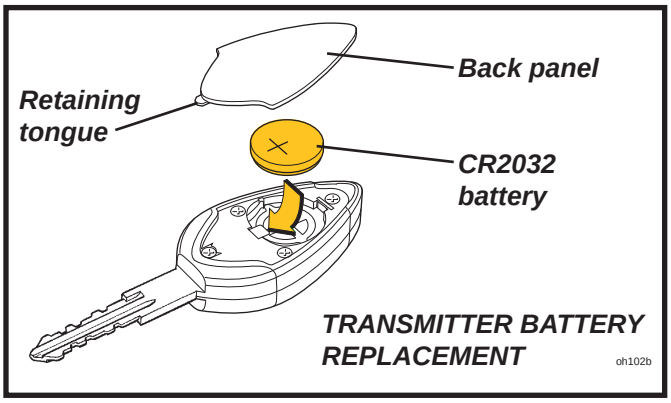
Manual Activation of Siren

If, for personal security reasons, it is desired to manually activate the siren at any time when the ignition is off, press for 3 seconds the transmitter auxiliary (3rd) button. The wailing siren will sound, and the hazard lamps flash for a period of 30 seconds. To stop the siren, press once any of the transmitter buttons.

Manual siren activation will not affect the status of the alarm arming.

Transmitter Key Battery Replacement

The transmitter keys will normally operate within a range of 5 metres from the car, but this may be reduced by the presence of other radio signals in the vicinity. The transmitters are powered by a long life 3V Lithium battery, type CR2032, which with normal use should last for 3 years. To ensure continuity of operation, it is recommended to renew the batteries every 12 months:



- Using a small screwdriver, prise open the back panel of the key case using the slot by the keyring hole.
- Remove the old battery and wait for 10 seconds before inserting the new battery with +ve sign uppermost, and holding the battery only by the periphery.
- Refit the back panel, engaging the retaining tongue, and pressing firmly to engage the clip.
- The transmitter should now operate normally.

Disconnecting the Vehicle Battery

In order to prevent the alarm being triggered, before disconnecting the vehicle battery, ensure that the alarm is disarmed.

Emergency Disarming/Mobilising

If the key head transmitters are lost or damaged, the alarm system owner's 5-digit PIN may be used to disarm the alarm and start the engine **provided that** the cabin is accessible, and a correct mechanical key blade is available. Note that if the alarm is armed, accessing the cabin, or turning on the ignition will trigger the alarm until completion of this emergency process.

- Turn on the ignition. The alarm tell tale will light.
- Within 10 seconds, turn the ignition off; the tell tale will begin to flash.
- After a number of flashes corresponding to the first digit of the PIN, turn on the ignition. Note that the first flash may not be of full duration (but is still to be counted) dependent on the waveform position at time of ignition switch off.
- Turn off the ignition and after a number of flashes corresponding to the second digit of the PIN, turn on the ignition. Repeat this process until all 5 digits have been completed. Note that 10 flashes correspond to a zero digit.
- If the PIN is entered correctly, the alarm will now be overridden and the engine mobilised. However, passive immobilisation will still occur after an ignition off time of 40 seconds, requiring a repeat of the above procedure to mobilise. Passive arming and passive door locking cannot occur until a transmitter is used to operate the alarm.

If, at any stage of the process, a number is entered incorrectly, the system will immediately revert to the start, so that the whole PIN must be re-entered.

Programming Additional Transmitters

A maximum of 6 transmitters may be programmed to the car, any thereafter overwriting the first to have been programmed.

- With the engine immobilised (tell tale flashes briefly once per second), turn on the ignition.
- Enter the PIN as detailed above, followed by the additional two digits 1, 1.
- The tell tale will flash rapidly for one second, then turn off.
- Within 8 seconds, press any button on the transmitter to be programmed. The tell tale will then pulse rapidly and the siren will beep.
- Within 10 seconds press any button on the next transmitter to be programmed (if applicable), and repeat this process for all remaining transmitters.
- When all transmitters have been programmed, wait for 10 seconds, or turn off the ignition.

To disable a lost or stolen transmitter from the system, use the above procedure to programme 6 transmitters, if necessary repeatedly reprogramming the same transmitter if less than 6 programmed transmitters are to be used.

Trigger Report Back and Feature Selection

A facility is provided to identify the source of an alarm triggering event (trigger report back), as well as allowing certain features of the system to be selected or de-selected. The same procedure described above to input a PIN is used, but in this case to input the programming code '123'; the tell tale will then flash rapidly for 1 second, then remain lit. Commencing within 10 seconds, continue this procedure to input the two digits of the feature code, after which the tell tale will flash rapidly for 1 second then beep once or twice to indicate the new status of that feature; one for 'ON', twice for 'OFF'. Selection will alternate each time that feature code is entered. Note that within 10 seconds, a second feature code (or repeat) may be selected from this point by entering only the 2-digit code. To exit programme mode, simply wait for 10 seconds.

Feature	*Code*	*Default*	*1 Beep*	*2 Beeps*
Revert to defaults	123 00			
Trigger report back	123 11	see below		
Unlock with ignition	123 33	OFF	ON	OFF
Lock with ignition	123 34	OFF	ON	OFF
Selective door unlock	123 41	ON	ON	OFF
Audible tones*	123 61	OFF	ON	OFF
Lock with auto re-arm	123 87	ON	ON	OFF
Door open audible warning	123 88	ON	ON	OFF

* When selected, a single beep will sound when the alarm is armed, and a double beep when disarmed. To silence for a single activation, press briefly the transmitter auxiliary (3rd) button prior to pressing the arm or disarm button.

Trigger report back: After the code 12311 has been entered, the tell tale flashes out a code(s) to indicate the source of the alarm trigger:

No. of flashes	*Triggering sensor*
1	Microwave movement sensor
2	Door, bonnet or boot lid
3	Ignition energisation
4	Manual siren activation

Quick Test

To facilitate testing of the alarm system, the unit can be placed into a 'Quick Test' mode by arming the alarm with one transmitter key, and disarming with another. In this mode, the system will shorten the siren time to 2 seconds, the immobiliser arm time to 5 seconds, and the settling time to zero. To exit this mode, simply wait for 2 minutes without any further inputs.

Note that in Quick Test mode, any movement detected by the microwave sensor will trigger only the tell tale and not the siren. The 2 minute timer will not be extended.

Component Location

The location of the PFK alarm components is unchanged from the equivalent earlier Cobra parts; the controller is mounted on top of the scuttle beam at the LH extreme end. Access requires removal of the fascia top. The immobiliser is incorporated into the controller as a single unit. The siren is mounted on the front of the radiator duct LH extension, beneath the LHF turn lamp. Accessible only after removal of the front clamshell. The microwave sensor is fixed to the cabin rear bulkhead, requiring removal of the rear bulkhead trim panel for access.

CDL Module; The Central Door Locking module is different on PFK cars, but is mounted in the same position as previously, on top of the scuttle beam at the RH extreme end. Note that this unit is specific to PFK cars, and does not require the inverter relay (on underside of scuttle beam) for inertia switch operation of the CDL.

TYRE PRESSURE MONITORING SYSTEM (TPMS) - USA ONLY

All USA Elise/Exige models from '08 model year onwards are fitted with a tyre pressure monitoring system. A sensor incorporated into each of the tyre valves monitors the air pressure inside the tyre, and supplies an onboard control module with this data by radio transmission. If any tyre pressure should fall below 75% of the recommended value, an alert message is sent to the instrument panel, and the tyre pressure tell tale  will light up amber. The fuel gauge display will then be overwritten with a message to indicate which tyre is concerned, with text such as: **LF Low** (left hand front tyre low pressure). This message will show for 5 seconds before the display reverts to the fuel level bar graph, but will repeat for 5 seconds at 30 second intervals.

The TPMS incorporates self-malfunction recognition, and if a fault is detected, the tell tale will flash for one minute and then remain constantly lit. The LCD panel will also flash 'TPMS FAULT' for 5 seconds, and repeat at 30 second intervals; no indication of low tyre pressure will be displayed.

Tyre fitters and service technicians should be made aware that TPMS is fitted, and that the tyre valves include pressure sensors. If the emergency tyre inflator aerosol has been used, it will be necessary to renew the tyre valve/pressure sensor. If a fault is indicated after wheel or tyre replacement, it is likely that a sensor has been incorrectly fitted or damaged. If a tyre valve is renewed, or is moved to a different wheel position, the TPMS module (at LH front of boot) will automatically identify the new configuration.

Note that the pressure sensors are powered by integral batteries, with an average service life of 10 years. It is recommended to renew all pressure sensors at this time interval.

WARNING 'TELL TALE' LAMPS

The instrument panel tell tales and LCD functionality have been revised for '08 M.Y. New features are described below:

Security Tell Tale

The security function is separated from the combined security/rpm tell tale and is moved into the face of the speedometer.

High RPM Tell Tales

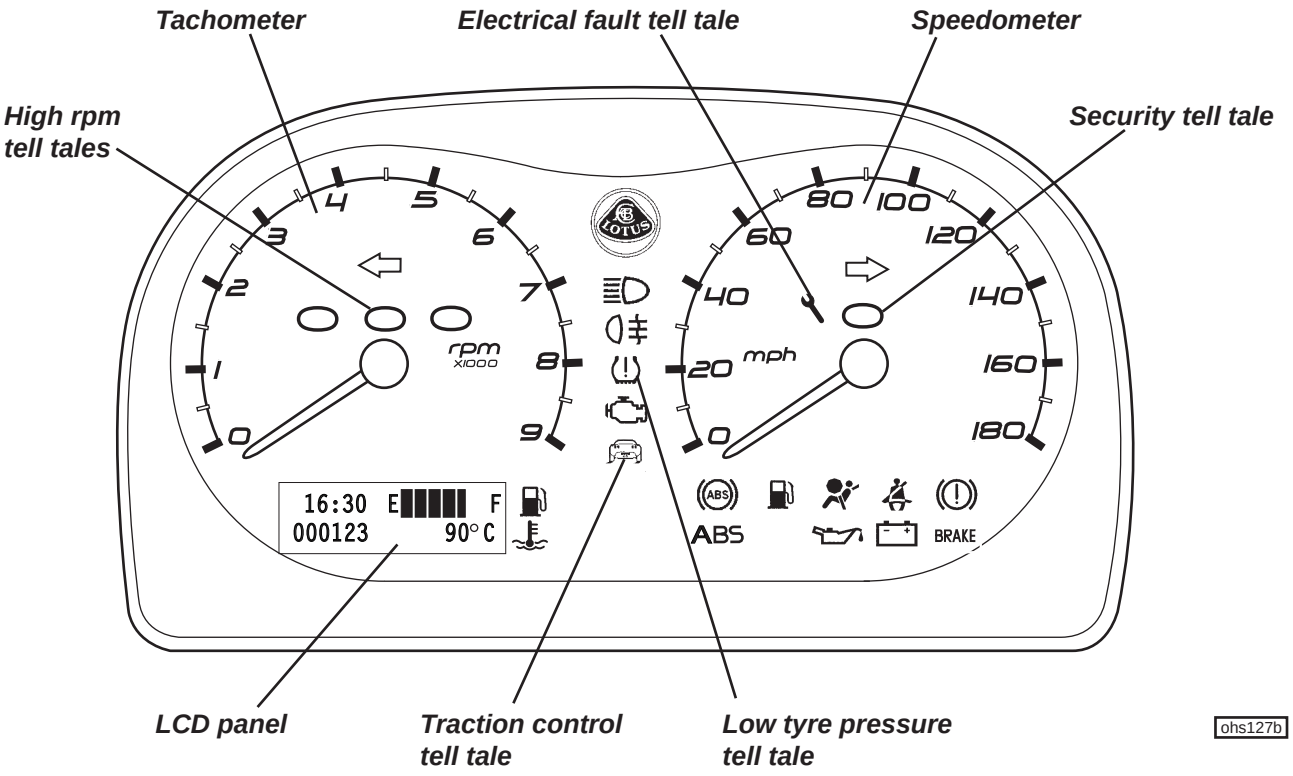
Three red tell tales are incorporated into the tachometer face to warn that maximum engine speed is being approached. Maximum transient engine speed in all gears at normal running temperature, is 8,500 rpm (7150 rpm for Elise S), at which point the engine is governed, but as the rate of rpm increase is potentially greater in the lower gears, the tell tale trigger points are tailored to accommodate the reaction time available. As maximum rpm is approached, the tell tales will light in the following left to right sequence:

- one red light
- two red lights
- three rapidly flashing lights

When exploiting maximum acceleration, gearchange upshifts should be made immediately the three flashing lights appear.

NOTICE:

- A 6,000 rpm limit is imposed on a cold engine to reduce possible damage and wear from an unsympathetic driving style.
- At normal running temperature, maximum continuous engine speed is 8,000 rpm (6,800 rpm Elise S).
- Using maximum rpm and the above tell tale facility should be restricted to occasions when maximum acceleration is required. Overuse will compromise powertrain service life.



- The engine is not protected from overspeeding caused by erroneous or premature downchanging. Such misuse could result in catastrophic failure, not covered by the vehicle warranty.

ELECTRICAL FAULT TELL TALE (IF FITTED)

The Engine Control Module (ECM) is also used to manage various related electrical systems, and is able to detect certain types of fault, which may or may not be apparent to the driver. If such a fault is detected, which has no detrimental effect on exhaust emissions, This amber tell tale will light for the first 30 seconds after turning on the ignition.

TRIP DISTANCE/DIGITAL SPEED DISPLAY/TIME CLOCK

The top left portion of the LCD panel may be cycled through the following displays:

- Trip distance (in same units as analogue speedometer).
- Digital road speed in alternative units to those indicated by the analogue instrument (either mph or km/h).
- Digital time clock (if fitted - this feature will not be available initially).

To cycle, one at a time, through these three displays, briefly press the small button on the right hand side of the steering column shroud. (Note that this button also adjusts the brightness of the instrument and HVAC panel illumination if held pressed when road speed is selected).

Trip distance: Units displayed are miles, and range from 000.0 to 999.9. To reset to zero; when the trip function is displayed, press the button on the column shroud for longer than 1 second.

Time Clock Setting: To adjust the 24 hour time clock (if fitted);

- when the time function is displayed, press the button on the column shroud for longer than 1 second. The hour display will then flash.
- Repeated brief presses of the button will increment the hour figure. Pressing the button for longer then 1 second will store the hour setting and start the minute display flashing.
- Further brief button presses will increment the minute figure.
- When the correct time is displayed, press the button for longer than 1 second to store the setting and start the clock.

Instrument pack version check

An improved calibration for the 2008 M.Y. Elise/Exige instrument packs was introduced at '08 M.Y. VIN serial number 0880. Improved tolerancing and CAN BUS filtering reduces the potential for frozen displays and enhances the accuracy of displayed data. To check the software version installed:

- Open the driver's door;
- Push in and hold the trip reset button on the column shroud;
- Still pressing the trip button, turn on the ignition (position 'II');
- Note the version number displayed at the top left hand side of the instrument pack LCD.

Early software is named VER.0.04 or VER.0.07. Latest software is VER.0.08.

The software and instructions are available on a CD part number T000T1501F, for downloading via the Lotus TechCentre.

VARIABLE TRACTION & LAUNCH CONTROL (IF FITTED)

Exige S models specified with the 'Performance Pack' option, include variable Lotus Traction Control (LTC), allied with Variable Launch Control (see below) and have a rotary control knob mounted on the left hand side of the steering column shroud.

Each time the ignition is turned on, normal full LTC is activated. To enable variable traction control, turn on the ignition and hold the LTC 'off' button pressed for 2 seconds. Check that the tell tale in the switch button is lit. Start the engine. Note that if the ignition is switched off (e.g. prior to a second start attempt), the above procedure must be repeated in sequence.

With the switch button tell tale lit and the engine running, the rotary knob may then be used to select the degree of traction control desired, with the setting shown on the instrument panel LCD in the form '#% SLIP', with a possible range between 0 and 9%. The display will revert to showing the fuel level after a few seconds.

- For maximum traction control (0% slip) turn the knob fully counterclockwise to 'MAX'.
- To reduce traction control (to allow up to 9% slip), turn the knob progressively clockwise.
- Fully clockwise ('0'), traction control is disabled, as indicated by the lighting of the instrument panel tell tale, and an LCD message of 'LTC OFF'.

If at any time during that ignition cycle, the control knob is turned, the LCD will again show the traction control setting for a few seconds.

When the ignition is next turned on, normal full LTC will be activated unless the above procedure is repeated.

Variable Launch Control

CAUTION: This feature is designed for competition use, and as such, its employment will invalidate vehicle warranty on any components subject to the extreme loads associated with racing starts.

Variable Launch Control allows the engine rpm to be limited during a competition start in order to balance engine power against available grip and provide a controlled degree of wheelspin for the first moment of acceleration, until superseded by the traction control system at around 6 mph.

To enable this feature, turn on the ignition and hold the LTC 'off' button pressed for 2 seconds. Check that the tell tale in the switch button is lit. Then;

- With ignition on, engine **stopped**, fully depress the throttle pedal for 5 seconds.
- Tacho will now show launch rpm. Turn the rotary knob as necessary to select any desired launch rpm between 2000 and 8000.
- Release throttle and start engine.
- Turn the rotary knob to select the desired level of traction control (see above), noting that the launch control setting will not be affected.
- Engage first gear, apply full throttle (ECU limits engine speed to selected launch rpm), and rapidly 'drop' clutch.
- Maintain full throttle throughout the transition from launch to traction control (at around 6 mph) until the first gear change is required.
- To disable launch control when variable traction control is still required, reset launch rpm to 8,000.

NOTE

- Do not attempt to slip the clutch during this process, as overheating or damage to the clutch mechanism

may occur. An instant clutch engagement is required to 'break' rear tyre traction and initiate wheelspin. Note that an hydraulic damper valve is incorporated into the clutch release pipework to protect the driveline from excessive shock loading when using this technique.

- Do not attempt LC starts in any gear other than first.
- Do not hold the engine at or near maximum rpm for more than a few seconds.
- Under no circumstances should this track feature be employed on the public road.
- **Use of Launch Control is an ultimate technique designed to produce the fastest possible race start. Always allow the clutch to cool and recover before repeating a launch controlled start. The extreme loads associated with such starts will result in reduced transmission component life cycles.**
- At the next key-on, the system will default to full LTC and Launch Control off. Turning on the ignition and holding the LTC 'off' button pressed for 2 seconds will restore the previous traction and launch settings.

Adjustment Tips

Note that the optimum settings for variable traction and launch control will differ for each set of track surface, tyre and ambient conditions. A suggested adjustment logic follows:

- Set the traction control to a mid position.
- Start with a low launch rpm e.g. 4,000 rpm.
- Trial launch and assess initial wheelspin control and transition into traction control.
- If launch control is set too low, the engine may 'bog down' and fall out of the power band. If set too high, too much initial wheelspin may result, with poor step off from the line.
- Similar logic applies to traction control adjustment when this system takes over above about 6 mph.

REAR LAMP CLUSTERS

A running change to the LED tail lamp clusters will occur shortly after '08 introduction. The new 'B' level lamps incorporate features allowing the previously separate radio supression inductor jump harnesses and (for USA cars) the ballast resistors to be deleted. The new lamps are identified by using a grey moulding for the lamp rear body instead of the previous black colour. If replacing black body lamps on any car with 'B' level grey body lamps, the inductor jump harnesses and ballast resistors (as applicable) may be discarded.

CAN BUS DIAGNOSTICS - LOTUS TECHCENTRE

Controller Area Network (CAN) is an electronic standard to allow high speed communication between modules and controllers, via a serial data bus. The bus is a circuit linking the modules to the controller, consisting of a pair of cables, twisted together to reduce electromagnetic interference, and carrying a square wave voltage signal corresponding to '0's and '1's, coded in such a way as to identify and prioritise the individual systems. On the Elise/Exige range, CAN based systems include; engine management system, instrument pack and tyre pressure monitoring system (USA).

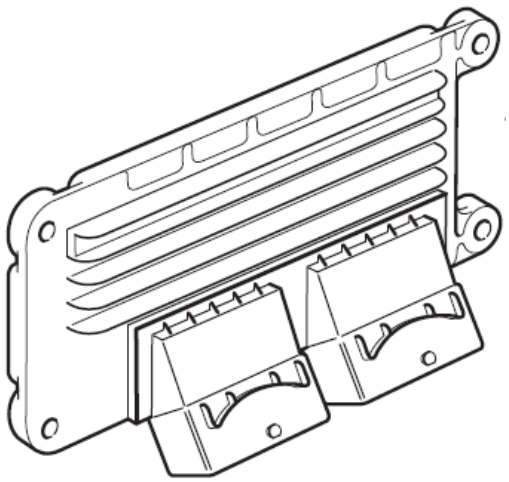
All USA market cars from '08 model year are required by legislation to use a CAN compliant on-board diagnostic system. This has been commonised for all Elise/Exige models. The Lotus Scan 3 tool is replaced by a 'stand alone' lap top PC loaded with 'Lotus TechCentre' software to allow the CAN based serial data to be read. The Vehicle Communication Device (T000T1472F) introduced for the Europa model is used to connect the vehicle to the laptop Lotus TechCentre. Engine programming, live data display, diagnostics of engine, ABS and airbag systems, and service tell tale lamp resetting are all carried out via the Lotus TechCentre.

The minimum specification of the laptop for installation of the Lotus TechCentre is as follows:

Processer 1.70 Ghz
1 GB RAM
40 GB HDD
CDRW DVD ROM
WIN XP PRO
USB interface
Ethernet or Wireless LAN

Note that this laptop should be dedicated totally to the Lotus TechCentre, with no other software loaded.

T4E ECM (Electronic Control Module)



m280

The Electronic Control Module (ECM) or Engine Control Unit (ECU) is a non serviceable unit incorporating microprocessors which process the inputs in real time, not only from the engine management sensors but various other sensors and modules within the vehicle such as the instrument pack, alarm system, Anti Lock Braking system (ABS) and Tyre Pressure Monitoring System (TPMS) etc.

The unit contains the hardware and software (firmware). The hardware consists of electronic components on a printed circuit board (PCB), ceramic substrate or a thin laminate substrate. The main component on this circuit board is a microcontroller chip (CPU). The software is stored in the microcontroller or other chips on the PCB, typically in Erasable Programmable Read Only Memory (EPROM) or flash memory so the CPU can be re-programmed by uploading updated code. This is also referred to as an (electronic) Engine Management System (EMS).

Firmware and calibration

At the time of assembly the vehicles ECM and Transmission Control Unit (TCU) (if fitted) are downloaded with their relevant firmware and calibration also referred to as its EMS programme or .CRP file. This ensures that the functionality of the ECM or TCU is correct in relation to its model, model year and the territory the vehicle is being sold into.

At this time a self adhesive label is also attached to the casing of the ECM. The label displays an actual label part number and homologation number which will identify the ECM assembly in relation to:

- Model Year
- Engine type, induction system and power output
- Designated vehicle territory
- Calibration number
- Vehicle designation i.e., Elise,Exige etc

ECM protection

To protect the ECM from subsequent incorrect programming which could cause poor, non-starting or engine performance issues etc, the EMS programme initially downloaded at the factory cannot be overwritten with any other programme. The only EMS reprogramming possible is to update the ‘level’ of the existing programme already installed in the ECM.

In the event that the EMS programme downloaded into the ECM that does not match its existing programme then the vehicle will fail to start, the (Malfunction Indicator Light) MIL will illuminate and a fault code will be stored in the ECM.

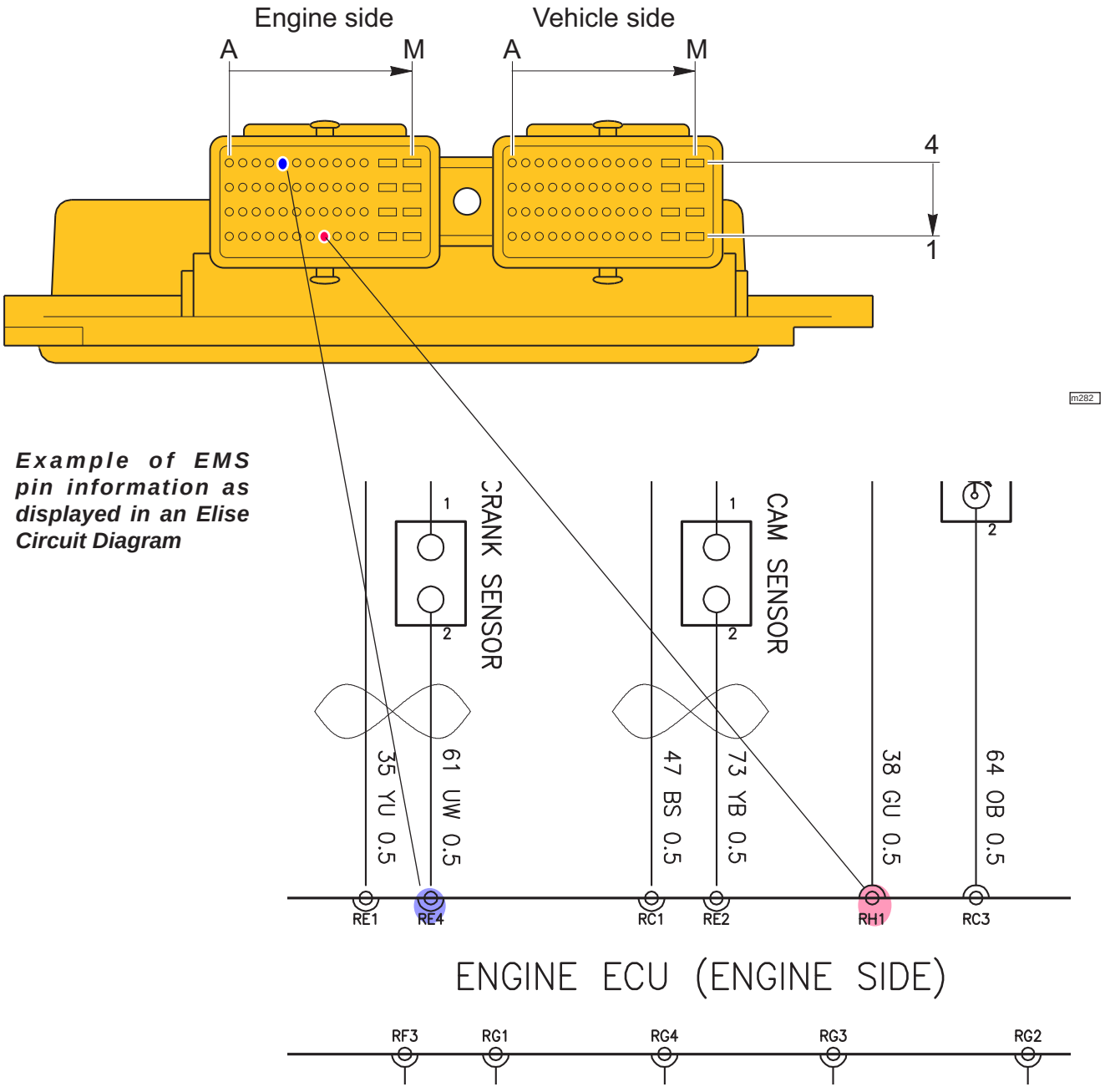
Harness connection and 'Pin out' identification

The '08 MY ECM uses 2 harness connector blocks. The engine harness has 1 multi-plug connector which connects to the left block (as the ECM is viewed in situ), with the vehicles main harness multi-plug connecting to the right block (as viewed in situ).

All harness connection information to the ECM is identified on the relevant circuit diagrams by either:

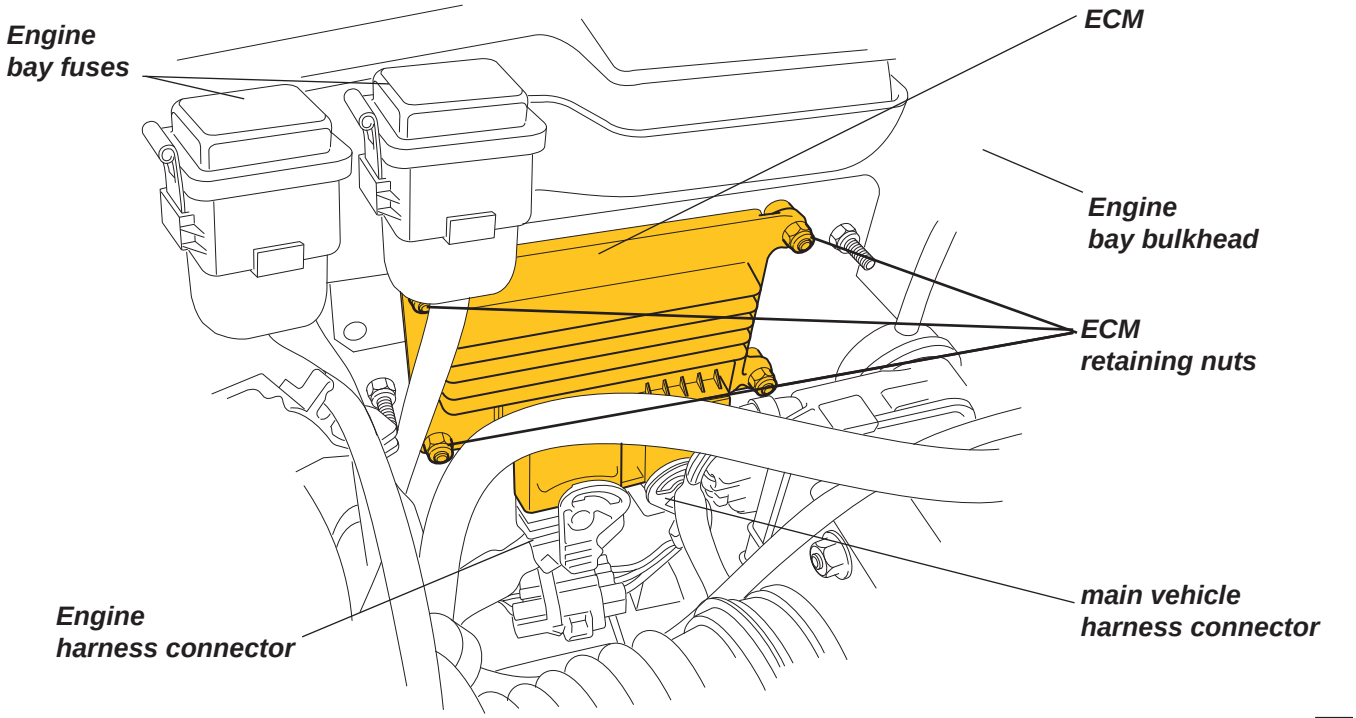
Engine Side
Vehicle side

Column letters are also stamped onto the ECM harness connector blocks as well as the actual harness multi-plugs



Example of EMS pin information as displayed in an Elise Circuit Diagram

The ECM is located to the left hand side of the engine compartment and retained to the rear bulkhead by a bracket with 4 integral studs that pass through machined holes within the ECM and retained with 4 nuts.



To remove the ECM

Note: If it is necessary to renew an ECM then it is highly recommended that before removing the existing unit that you note down its current firmware calibration (Program or .CRP file number) which can be obtained from the Lotus TechCentre vehicle information screen.

Before removing the ECM print out the vehicles performance history using TechCentre and file with the vehicles existing records or job card for future reference. This procedure should also be carried out before uploading a new programme as action of downloading a new level programme will delete the existing performance history.

Please note: Lotus Cars may request a copy of a vehicles performance history in the event of a warranty enquiry which is related to potential powertrain abuse.

Note: Do not disconnect the ECM harness connectors for at least 30 minutes after switching off the ignition to allow the engine management system and associated sensors to shut down in the correct sequence.

Unclip and detach the Engine and Vehicle harness connectors from the ECU.
Release the 4 nuts securing the ECM to its bulkhead bracket.

To refit the ECM

Reverse procedure from removal except for:

If the ECM has been renewed then re-enter the correct firmware calibration (Program or .CRP file number) using the ECU Reprogramming option on Lotus TechCentre.

For further information see the 'Lotus TechCentre User Guide', which can be downloaded from the Lotus Dealer Portal at:
http://dealers>Aftersales>Miscellanous Technical Information>TechCentre Information.

MP.13 - 2011 M.Y. SUPPLEMENT

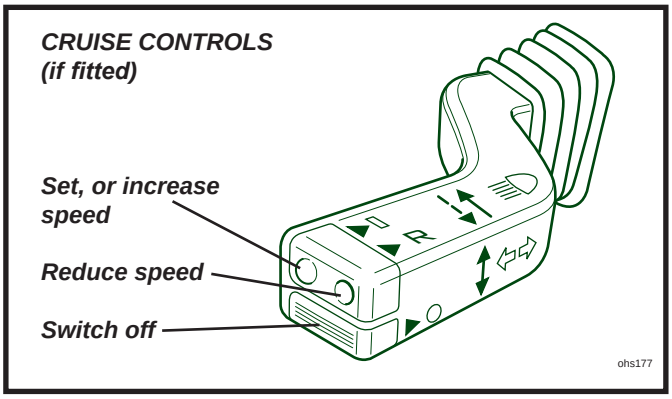
Cruise Control - optional fitment on 1.6 ltr Elise; not available on other models.

Caution: Cruise control should be used only when conditions are favourable; on straight, dry, open roads with light traffic.

The cruise control system is incorporated into the engine ECU programme, and allows the maintenance of a selected vehicle speed above 30 mph (50 km/h), without having to use the accelerator pedal. The tell tale lamp in the gear lever shroud is lit whenever cruise control is active.

Operating cruise control

Two switch buttons are provided on the end of the left hand steering column stalk; an upper rocker switch to set the speed, and a lower push button to switch off the cruise control.



Setting the vehicle speed

To engage cruise control, the vehicle must be travelling at 30 mph (50 km/h) or more. Accelerate to the desired cruising speed and then press once the 'I' end of the rocker switch with the raised pip. Cruise control will engage and the set speed maintained when the accelerator is released (road gradient and winds permitting). The accelerator may be used to increase speed temporarily without affecting the setting.

Cruise control automatically disengages when; the foot or parking brakes are applied, a gearchange is made, or when the vehicle's speed falls below 30 mph (50 km/h). To disengage it manually, press once the 'O' button.

Resuming a set speed

Caution: The resume function should be used only if the driver is aware of, and wants to return to, the set speed.

To resume cruising after braking, changing gear or slowing below 30 mph (50 km/h), press once the 'R' switch.

Changing the set speed

When cruise control is operating, press and hold the 'I' end of the rocker switch to accelerate the car. Release the switch when the desired new speed is attained. Alternatively, repeated brief presses of the switch will increase the setting by 1 mph (1.5 km/h) increments. Pressing the 'R', dimpled end of the switch will reduce the set speed in like manner.

Otherwise, the car may manually be accelerated or braked to the desired new speed, and the 'I' switch pressed once to set cruise at that speed.

Set speed cancellation

The set speed will be reset to zero when:

- The vehicle is stopped or;
- The parking brake is applied or;
- Reverse gear is selected or;
- The ignition is turned off.

Programming

Programming for the cruise control is incorporated into the 1ZR engine ECU programme.

Daytime Running Lamps (DRL) - Elise

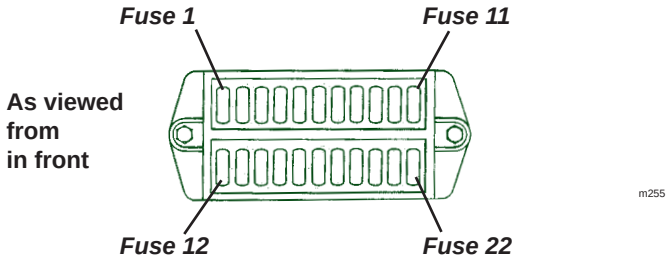
The 2011 Elise is fitted with headlamp assemblies incorporating amber LED string turn indicators, and dual intensity white LED string parking/daytime running lamps.

1.8 litre cars: When the ignition is turned on, the front and rear sidelamps will automatically be activated as daytime running lamps.

1.6 litre cars: When the engine is started, the front and rear sidelamps will automatically be activated as daytime running lamps, with the front sidelamps operating with an increased intensity.

When the ignition is turned off, the DRLs will switch off automatically unless they were manually selected.

Main Fusebox



Slot	*Rate*	*Circuit*	Slot	Rate	Circuit
1	20A	Aux. pwr. socket	14	20A	Rad. fans; 1&2 slow, 1 fast
2	5A	Reverse lamps	15	7.5A	Radio, switch pack module
3	20A	Driver's window	16	10A	Sidelamps; rear fog
4	20A	Pass. window	17	10A	Dip beam LH
5	10A	Stop lamps	18	10A	Dip beam RH
6	7.5A	Turn indicators	19	20A	A.C. comp. relay rad fan 2 fast
7	10A	Ignition services	20	15A	Main beam LH
8	7.5A	Battery services	21	15A	Main beam RH
9	15A	Hazard lamps	22	7.5A	CDL
10	7.5A	Horn			
11	10A	Alarm pwr., interior lamp			
12	10A	ABS			
13	3A	ECU ignition			

Footwell Sited Fuses

Eight fuses are secured to the main wiring harness just ahead of the scuttle beam and accessible from the passenger footwell.

Fuse	*Rating*	*Circuit*
C1	20A	Interior fan
C2	15A	Wiper motor
C3	7.5A	Audio key-in
C4	7.5A	A.C. compressor
C5	15A	Auxiliary driving lamps
C6	5A	*1.6 ltr.;* Alternator ign.
C7	5A	*1.6 ltr.;* Alternator sense
C8	5A	Daytime running lamps

Engine Compartment Fuses

Fuses associated with the engine management system are contained in two 4-position fuse holders located at the front of the engine bay on the cabin bulkhead, adjacent to the engine ECM. To access the fuses, unclip rear edge of the cover.

Fuse	*Rating*	*Circuit*
R1	20A	Fuel pump
R2	10A	*1.6 ltr.;* Coils
	3A	*1.8 ltr.;* TPMS
R3	5A	*1.8 ltr.;* Alternator sense
R4	25A	*1.6 ltr.;* Valve lift motor
	5A	*1.8 ltr.;* ECU battery feed
R5	7.5A	*1.6 ltr.;* O2 heaters
	5A	*1.8 ltr.;* O2 heaters
R6	7.5A	VSVs, VVT, VVL, purge
R7	10A	Injectors, coils, ECU power, a.c.`
R8	5A	Re-circ. pump

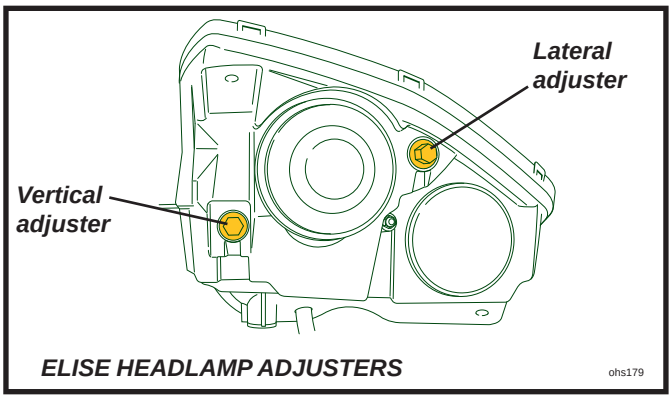
Lighting - Elise;

- New headlamp assemblies featuring Halogen main and dip beam lamps, LED amber string direction indicators, and LED white string daytime running lamps (for all markets). Headlamp units fitted from clamshell underside.
- Evora style side repeater lamps.

If adjustment to headlamp alignment is required, remove the access cover in the wheelarch liner. The alignment relationship between high and low beam lamps is fixed, but two adjusters are provided on the back of the headlamp housing by which the whole lamp unit may be adjusted.

To adjust the beam laterally, turn the outboard hexagonal adjuster screw. Optimum setting is 0%.

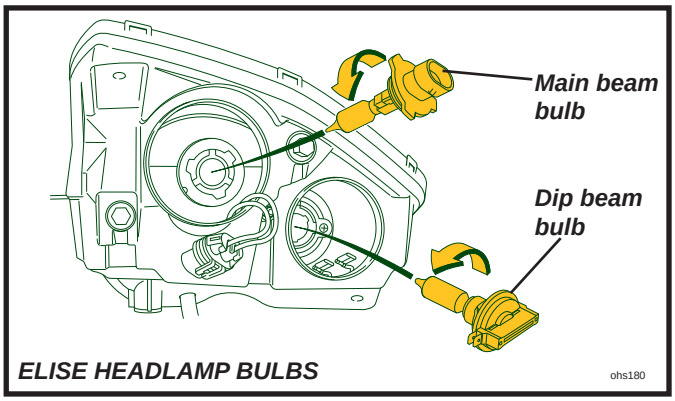
To adjust the beam vertically, turn the inboard adjuster screw. Optimum setting is -1.2%.



ELISE HEADLAMP ADJUSTERS ohs179

To replace the dip beam bulb, remove the protective boot from the back of the outboard lamp, twist the bulb holder counterclockwise, and withdraw from the lamp. Prise open the retaining barbs to allow the harness plug to be disconnected. Replace the 12V 60W type HB3A bulb, and reassemble in reverse order to disassembly.

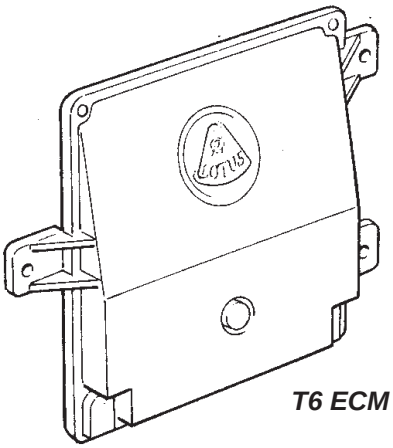
Replacing the main beam bulb from the inboard lamp is similar to the above except that the harness connection uses separate spade terminals (may be connected either way round). The main beam bulb is 12V 65W type H9B.



ELISE HEADLAMP BULBS ohs180

Note that retrofitment of the new headlamps to earlier models is not possible.

ECM (ELECTRONIC CONTROL MODULE)



T6 ECM - Electronic Control Module

The 2011MY Elise fitted with the 2ZZ-GE powertrain continues to use the T4E ECM that was first introduced at 2008MY. Vehicles fitted with the 1ZR-FAE powertrain utilise the same T6 ECM first fitted to the '09MY Evora.

This was necessary because of the greater processing power required to manage the VALVEMATIC system fitted to the 1ZR-FAE engine which was introduced to meet the requirements of the Euro 5 emission standards.

The T6 Electronic Control Modules (ECM) is a non serviceable unit incorporating microprocessors which process the inputs in real time, not only from the engine management sensors but various other sensors and modules within the vehicle such as the instrument pack, alarm system, Anti Lock Braking system (ABS) and Tyre Pressure Monitoring System (TPMS if fitted) etc.

Firmware and calibration

At the time of assembly the vehicles ECM is downloaded with the relevant firmware and calibration also referred to as its EMS programme or .CRP file. This ensures that the functionality of the ECM is correct in relation to its model, model year and the territory the vehicle is being sold into.

Vehicle configuration and variant code (T6 controller only)

The ECM is then 'configured' dependant on the additional options that the vehicle should be equipped with such as but not limited to fitment of such items as:

- Sports Mode button
- Tyre pressure Monitoring System (TPMS) (Federal and GCC cars only)
- Heated front seats
- Basic Traction control or Electronic Stability Control (ESP also referred to as Lotus Dynamic Perform ance Management)
- Speed Alert Buzzer (GCC cars only)

The selection of the relevant options will produce a 'variant code' for the vehicle which can be viewed in the EMS vehicle configuration screen using Lotus TechCentre and is also stored in the vehicles build book stored at Lotus Cars.

At this time a self adhesive label is also attached to the casing of the ECM. The label displays an actual label part number and homologation number which will identify the ECM assembly in relation to:

- Model Year
- Engine type, induction system and power output
- Designated vehicle territory
- Calibration number
- Vehicle designation i.e., Elise, Evora etc

ECM protection

To protect the ECM (T4E or T6) from subsequent incorrect programming which could cause poor, non-starting or engine performance issues etc, the EMS programme initially downloaded at the factory cannot be overwritten with any other programme. The only EMS reprogramming possible is to update the 'level' of the existing programme already installed in the ECM.

In the event that the EMS programme downloaded into the ECM that does not match its existing programme then the vehicle will fail to start, the (Malfunction Indicator Light) MIL will illuminate and a fault code will be stored in the ECM.

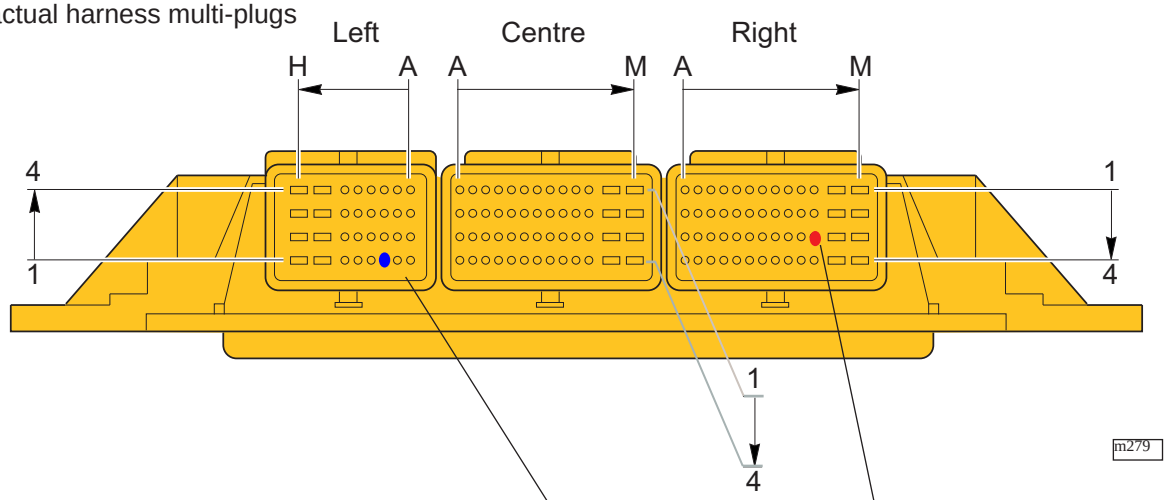
Harness connection and 'Pin out' identification (T6 ECM)

The ECM uses 3 harness connector blocks. The engine harness has 2 multi-plug connectors which connect to the central and left blocks (as viewed with the ECM in situ), with the vehicles main harness multi-plug connecting to the right block (as viewed in situ).

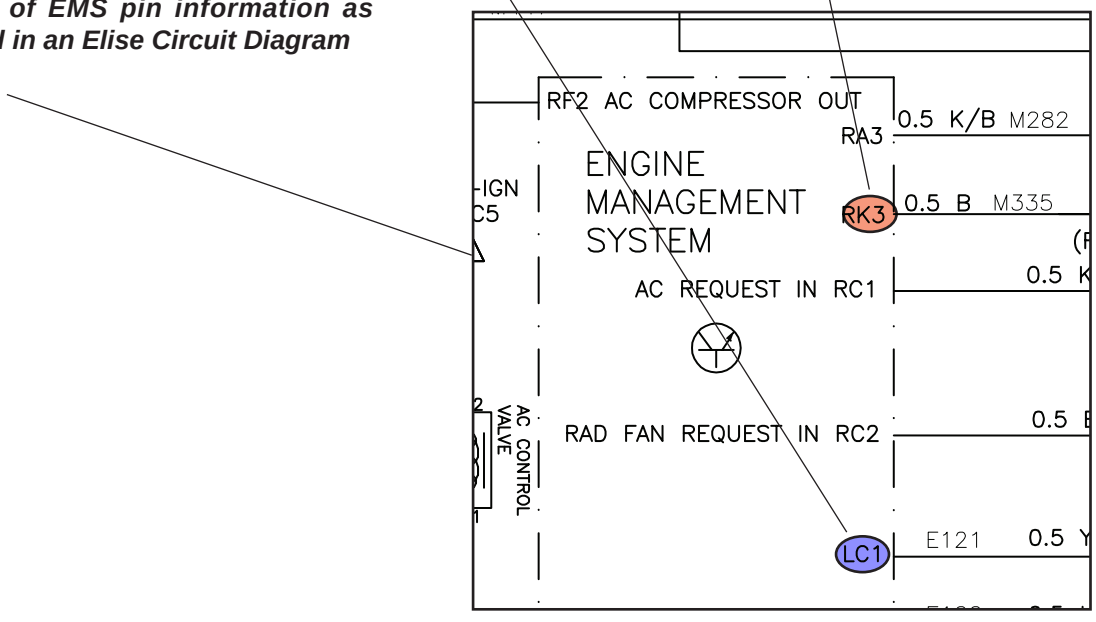
All harness connection information to the ECM is identified on the relevant circuit diagrams by:

Block: L – Left, C – Centre and R – Right
Column: 1 – 4
Row: A – M

Column and Row numbers and digits are also stamped onto the ECM harness connector blocks as well as the actual harness multi-plugs

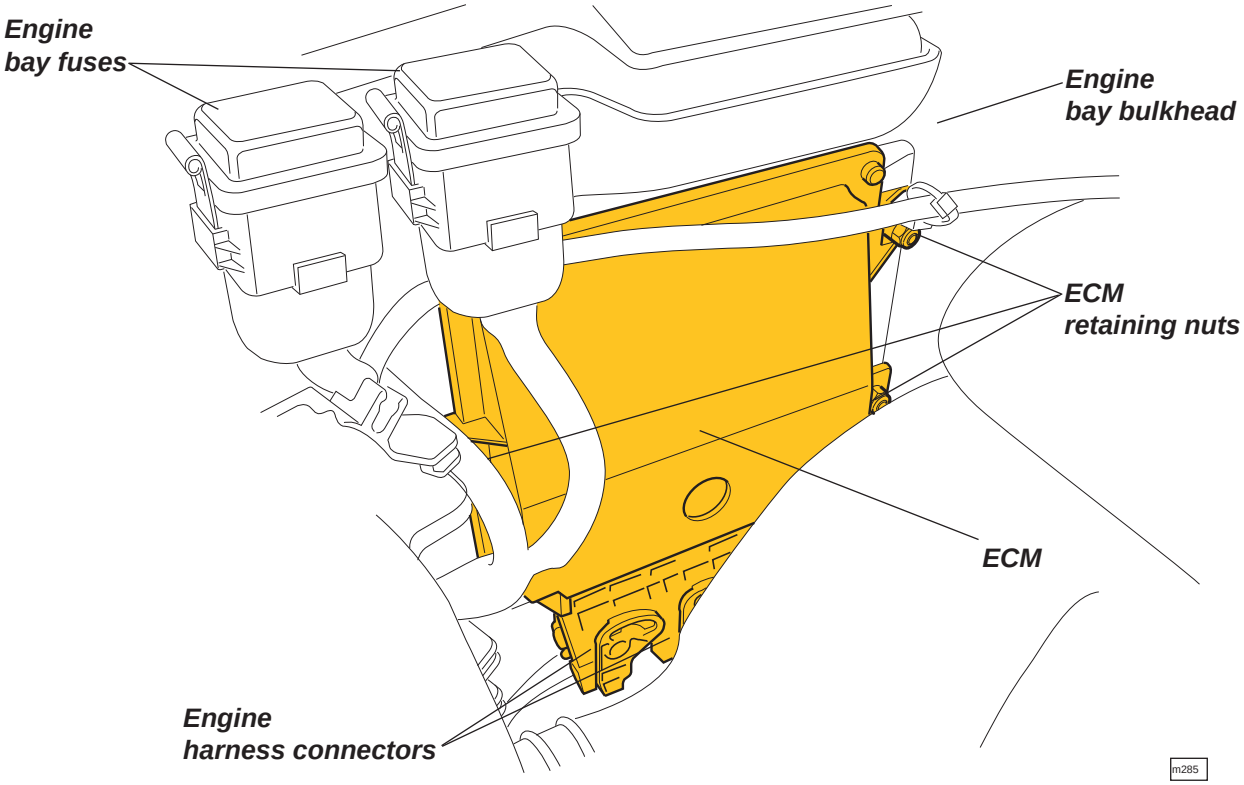


Example of EMS pin information as displayed in an Elise Circuit Diagram



ECM location

The ECM is located to the left hand side of the engine compartment and retained to the rear bulkhead by a bracket with 3 integral studs that pass through machined holes within the ECM and fixed retained with 3 nuts.



To remove the ECM

Note: If it is necessary to renew an ECM or TCU then it is highly recommended that before removing the existing unit that you note down its current firmware calibration (Program or .CRP file number) and the variant code (T6 only) which can be obtained from the Lotus TechCentre vehicle information and EMS configuration screens.

Before removing the ECM print out the vehicles performance history using TechCentre and file with the vehicles existing records or job card for future reference. This procedure should also be carried out before uploading a new programme as action of downloading a new level programme will delete the existing performance history.

Please note: Lotus Cars may request a copy of a vehicles performance history in the event of a warranty enquiry which is related to potential powertrain abuse.

Note: Do not disconnect the ECM harness connectors for at least 30 minutes after switching off the ignition to allow the engine management system and associated sensors to shut down in the correct sequence.

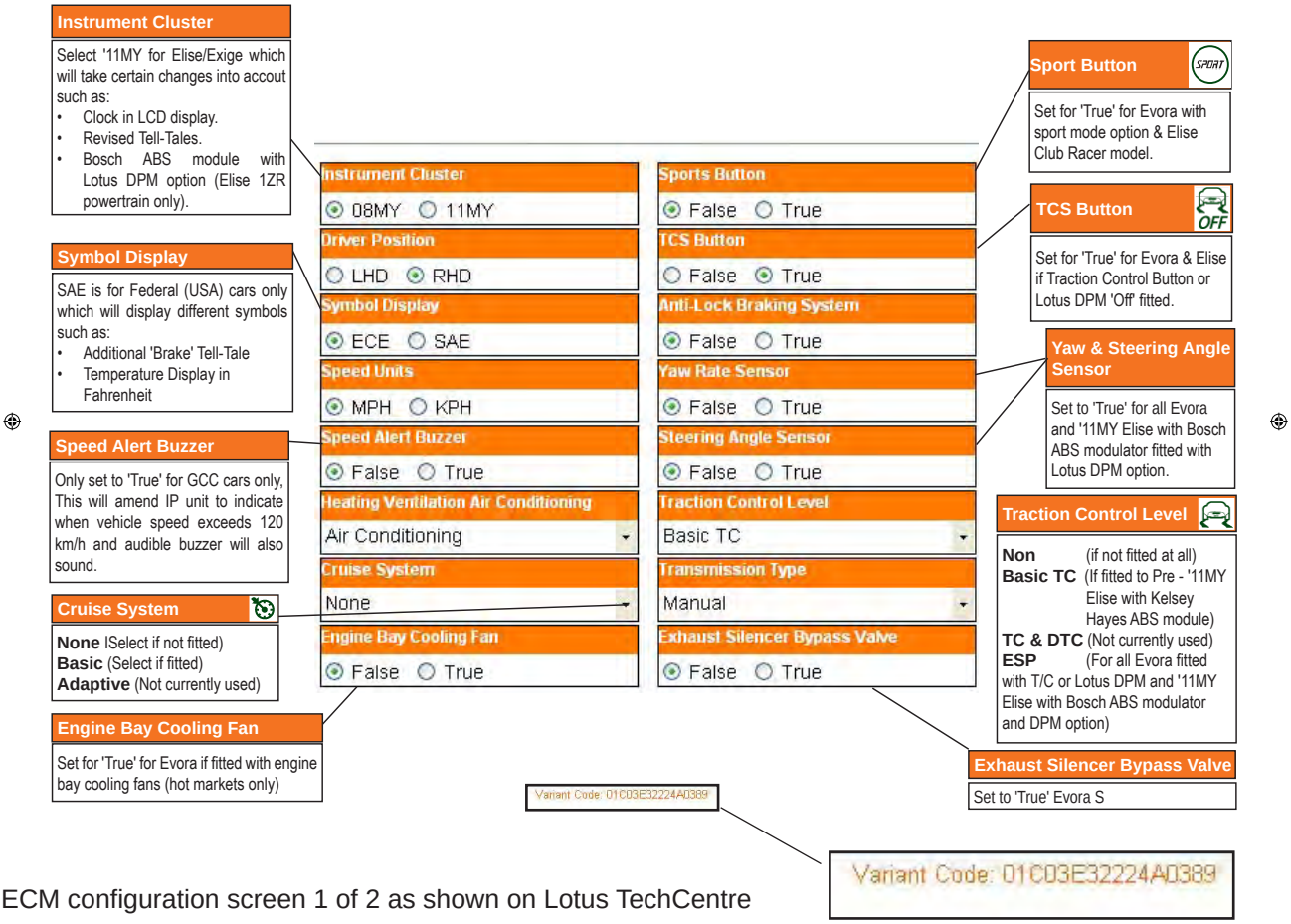
Unclip and detach the 2 Engine and1 Vehicle harness connectors from the ECU.
Release the 3 nuts securing the ECM to its bulkhead bracket.

To refit the ECM
Reverse procedure from removal except for:

If the ECM has been renewed then re-enter the correct firmware calibration (Program or .CRP file number) using the ECM Reprogramming option on Lotus TechCentre.

Variant coding

Once the replacement ECM contains the relevant program it will still be necessary to download the correct variant coding into the unit so that its functionality is correct relevant to the options fitted to the vehicle: The units current variant code can be identified using Lotus TechCentre.



ECM configuration screen 1 of 2 as shown on Lotus TechCentre

Check for any illuminated tell tales that may be displayed on the instrument pack and using Lotus TechCentre interrogate the ECM for any live or pending codes and erase.

Note: Although it is possible to manually enter the variant coding from the option screens available there is a risk of making an error if this option is selected which may affect the display and or functionality of the instrument pack.

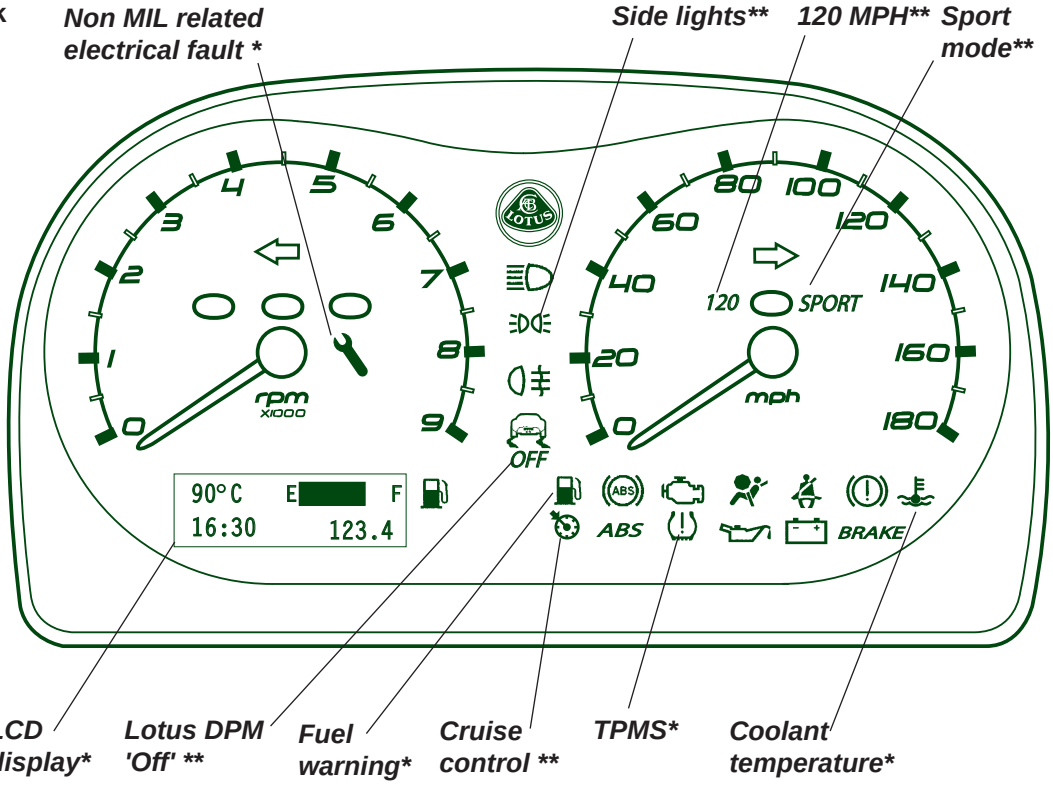
If the varient code has been recorded then it is recommended to use the guided routine option available on Lotus TechCentre.

If the variant coding has not been recorded or if the ECM will not communicate with Lotus TechCentre then it is advised to contact Lotus Cars Technical Publication Department stating the full vehicle VIN requesting the variant code information.

For further information see the 'Lotus TechCentre User Guide', which can be downloaded from the Lotus Dealer Portal at:

http://dealers>Aftersales>Miscellanous Technical Information>TechCentre Information.

Instrument Pack



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Revised '11MY Instrument Pack introduced as running change with introduction of Bosch ABS module

Revisions and enhancements to '11MY instrument pack

The existing '08MY instrument pack was initially carried over for the '11MY Elise, but at the introduction of the Bosch ABS module (1ZR powertrain vehicles built from September 2010 onwards at VIN: BH_10931) which incorporated Lotus Dynamic Performance Management, the instrument pack was updated to include new tell tales and a revised LCD display with auto shutdown.

After 20 minutes of inactivity and with the key in the ignition off position, the LCD display will automatically power itself down. The display will power up when the ignition is turned to the on position, or if certain driver operated controls are activated such as the side lights. (The alarm tell tale will still continue to illuminate even if the pack has powered down).

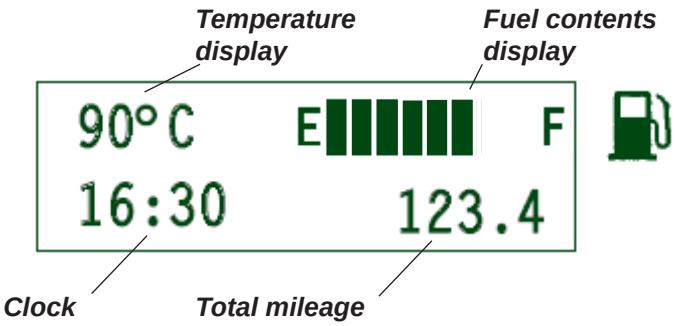
*Existing tell tales have moved position to allow for the addition of new tell tales.

Non MIL related electrical faults
Fuel warning
TPMS
Coolant temperature
Functions repositioned within the Liquid Crystal Display (LCD).

**New tell tales

Side lights
120 MPH
Sport Mode
Lotus DPM Off
Cruise control *(Early 1ZR vehicles with cruise control used a button on the gear lever shroud which would also illuminate if activated).*

LCD DISPLAY PANEL



The clock, coolant temperature, total mileage, trip functions and alternative speed displays have been repositioned in the Liquid Crystal Display (LCD). Driver controllable options remain the same except that the display will always default to alternative speed option when the ignition is initially turned on regardless of the last option selected during the previous drive cycle.

Fuel contents Display

An indication of the level of fuel in the tank is displayed in the form of a bar graph to the right hand top of the (LCD) panel. When completely full (approximately 43.5 litres {9.6 U.K. gal}), the bar will display six red segments. As the fuel level falls, the segments will gradually disappear from the right hand side of the display. The remaining seg¬ments represent an approximation of the remaining fuel. When only a single segment remains, representing approximately 5 litres of fuel, the amber fuel tell tale will flash.

Coolant Temperature Display

The engine coolant temperature is not displayed until it reaches 70°C. At that time the coolant temperature tell tale (blue in colour during engine warm up) will cease to illu¬minate and the temperature display will appear at the upper left hand of the (LCD) and will continue to display coolant temperature up to 120°C. If the displayed temperature exceeds 108°C, the coolant temperature tell tale will illuminate red in colour.

Side Light Tell Tale

This lamp glows green whenever the side lights are operating. And will remain illuminated when the dip and main beams are activated.

Coolant Temperature Tell Tale

This lamp will glow blue until engine coolant reaches normal operating temperature. The tell tale will glow red if coolant temperatures exceeds 108°C in order to prompt closer monitoring of high temperatures, but as the pressurised cooling system has a boiling point of over 120°C, only if the temperature approaches this level need there be any cause for concern.

Cruise Control Tell Tale (If fitted)

Re-located from the gear lever shroud, this lamp will glow amber whenever cruise control is enabled.

Lotus Dynamic Performance Management (Lotus DPM) / (TC)

Initially, to perform a bulb check, the tell tale will glow amber for approximately 3 seconds following ignition switch on. This indicates the system is working correctly. If however the warning lamp illuminates constantly, a fault has been detected. Whilst driving the tell tale may flicker amber, which is an indication that the Lotus Dynamic Performance Management (Lotus DPM) / (TC) has been triggered and electronic intervention is taking place; the tractive limit has been reached and driving style should be modified accordingly.

Also see service notes braking section JJ.18 for further information.

(Lotus DPM) / (TC) 'Off'

This lamp will glow amber if the (Lotus DPM) / (TC) have been manually switched off. (Lotus DPM) / (TC) should always be active when driving on public roads in normal conditions.

Also see service notes braking section JJ.18 for further information.

In common with all previous Instrument packs, the '11MY level version is a sealed non-serviceable unit and because the unit of vehicle speed is printed onto its face, instrument packs are produced as either MPH or KPH variants, and installed with non-erasable base software to make them compatible with vehicle by VIN range and airbag system fitted.

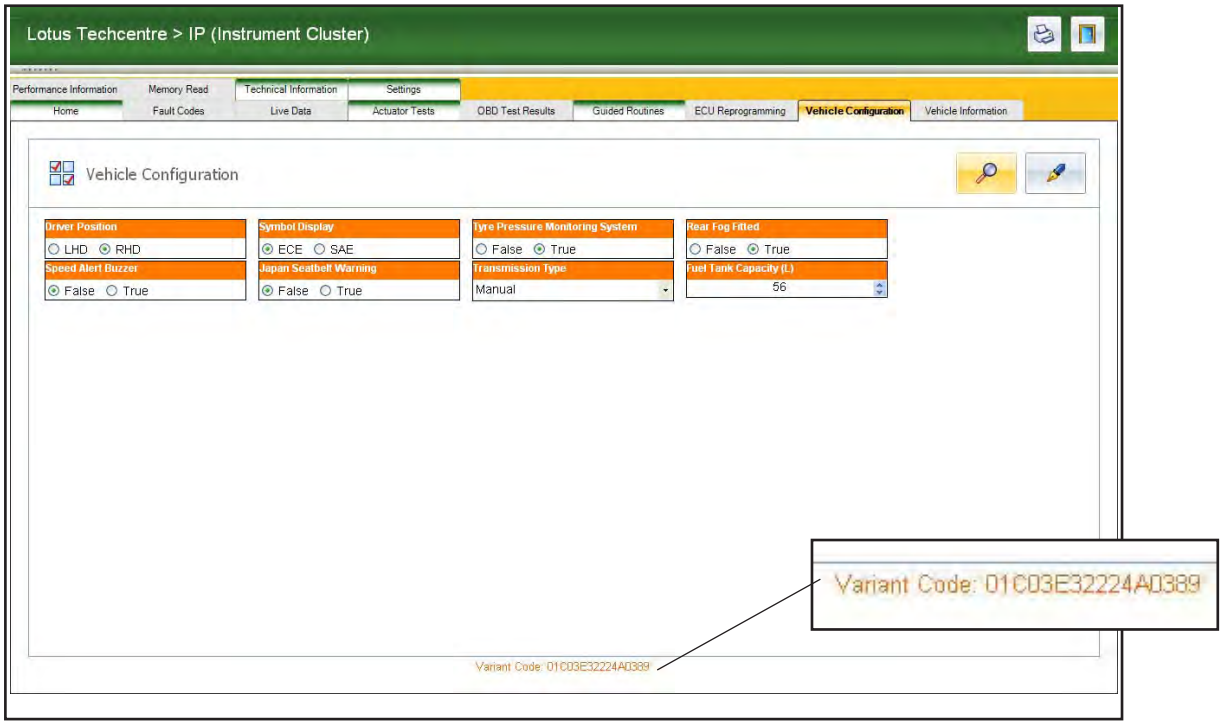
Vehicle Configuration

The instrument pack can provide the correct functionality and display options for any Elise production vehicle (fitted with a T6 ECM), regardless of its model type, tell tale display and options etc required.

The instrument packs functionality and displays are determined by the 'configuration' stored in the vehicles T6 Electronic Control Module (ECM) also referred to as its variant code (see section MP.13 2011MY Supplement>ECM information>variant coding for further information).

If the instrument packs display does not appear to be functioning correctly then check the configuration of both the instrument pack and ECM is correct using Lotus TechCentre before carrying out further diagnostic action.

Instrument cluster configuration screen as viewed using Lotus TechCentre



Instrument pack removal

If it is necessary to renew an instrument pack then it is highly recommended that before removing the existing unit that you note down its variant code and current mileage, as this information will have be downloaded onto the replacement pack using the Lotus TechCentre vehicle configuration screens.

Note: Although it is possible to manually enter the variant coding from the option screens available there is a risk of making an error if this option is selected which may affect the display and or functionality of the instrument pack.

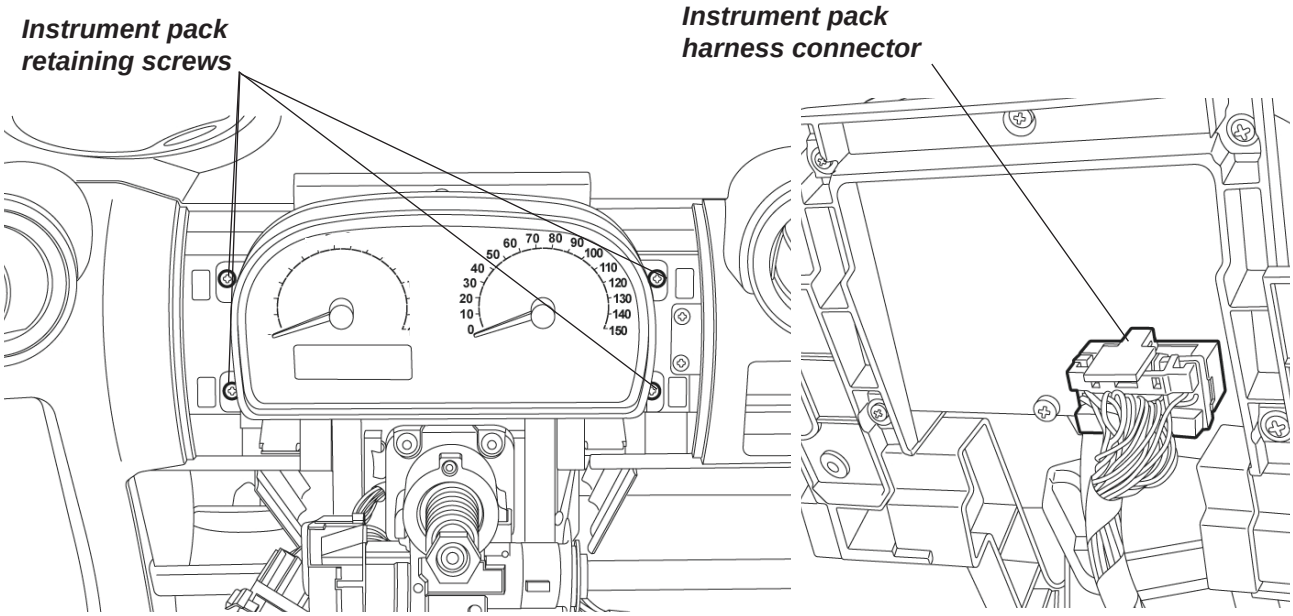
If the variant coding has not been recorded or if the instrument pack will not communicate with Lotus TechCentre then it is advised to contact Lotus Cars Technical Publication Department stating the full vehicle VIN requesting the variant code information.

Although vehicle mileage can be reset using Lotus TechCentre, to prevent potential abuse a limitation to this function has been imposed, once the mileage/kilometre display on the odometer exceeds 50 miles or 75 kilometres the odometer reading can no longer be altered.

1. Remove upper steering column and instrument shroud, see section BR.16 instrument binnacle & dash panel.

2. Remove screws x 4 securing instrument pack to dashboard mounting bracket, (steering wheel removed for clarity).

3. Disconnect harness connector from the rear of the instrument pack and remove pack.



Refitting

Reverse procedure of removal except that if a new instrument pack is being fitted then the current vehicle mileage and variant code must be re-installed into the new pack using Lotus TechCentre.

Note: This only applys to non 2ZZ/1ZZ applications and for vehicles fitted with a Bosch ABS module.

For further information see the 'Lotus TechCentre User Guide' which can be downloaded from the Lotus Dealer Portal at:

http://dealers>Aftersales>Miscellanous Technical Information>TechCentre Information.

Electrical Revisions with the introduction of '11MY Club Racer

The Elise CR was introduced as the entry level variant to the Elise range with the option of a 'Sport Mode' button and the fitment of the Exige Cup 260 lightweight 27 amp/hr sport battery with a battery isolator kit, which, at the customers request can be fitted by the dealer before delivery.

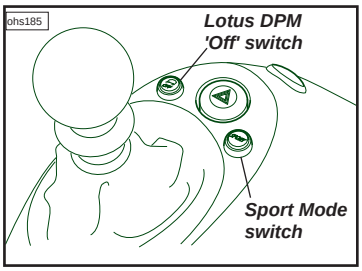
Once fitted the isolator switch allows the driver to disconnect the battery from the vehicles electrical system via the use of a remote lever inside the boot area eliminating the normal quiescent drain placed on the battery from the vehicles alarm and engine management systems etc.

Sport Mode

A Sport Mode button is also located in the centre console, providing increased power induced wheel slippage thresholds and no throttle reduction on detection of understeer.

WARNING ⚠

Be aware that selecting Sport Mode and/or Lotus DPM OFF, will alter the handling characteristics of the car. Drivers should exercise caution until familiarity has been gained in a controlled safe environment.



Selecting Sport Mode

Hold the button pressed for one second until the button surround lights up amber, accompanied by the amber 'SPORT' tell tale in the instrument panel. The vehicle will immediately engage Sports Mode.

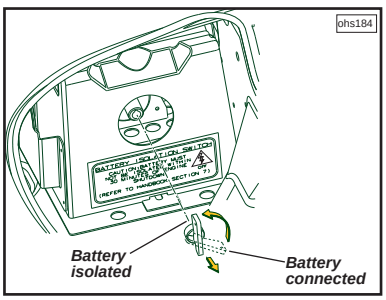
To Switch Off Sport Mode

Briefly press the button a second time.

Note that Sport Mode will always default to 'Off' at the next ignition cycle.

Battery Isolator Switch (if fitted)

Designed for use with the Lotus lightweight battery. this allows the battery to be disconnected from all of the vehicles electrical systems, eliminating the normal quiescent drains placed on the battery from the vehicles alarm and engine management systems etc.



To isolate battery

Note, Before doing so, please see the battery disconnection information as shown on page 5 and 24 to avoid accidental alarm siren activation and engine management problems.

- Ensure all electrical items have been turned off and the key is removed from the ignition switch.
- Using the release lever open the the engine cover/boot lid.

- Do not lock the vehicle using the buttons on the key fob (if central door locking if fitted), lock manually using the key or you will be unable to gain access to vehicle to open the boot once the battery has been isolated.

- Do **not** arm the alarm system.

- Turn the isolator switch lever 90° anti-clockwise, (lever located at the end of the switch inset in the aperture of the battery cover).

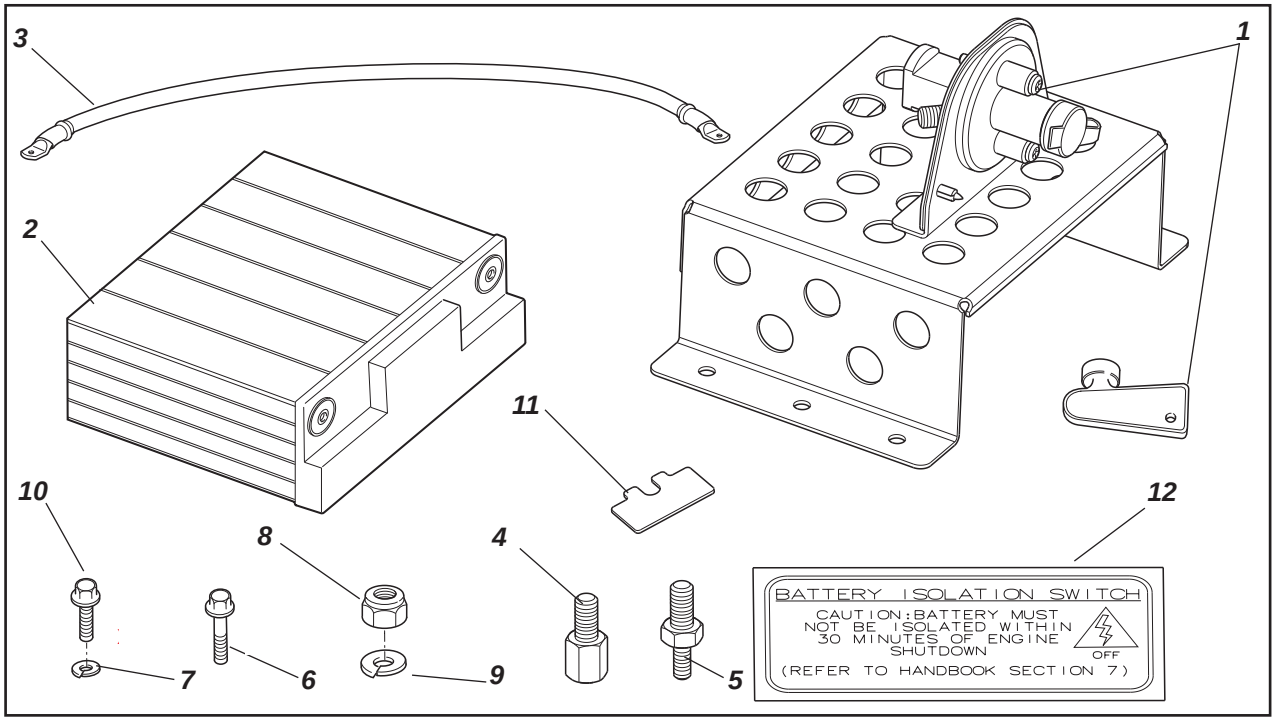
- The lever will detach itself from the switch and the battery is now isolated from the vehicles electrical systems.

To reconnect battery

- Insert the lever into the battery cover aperture, guiding the lever onto the isolator switch it self.

- Turn the switch 90° clockwise, the lever should now be horizontal facing towards the engine bulkhead is now locked into position.

Retrofitment of Lightweight battery and Isolator switch assembly



A120M0075J Battery Isolator Kit Contents

Item	Qty	Description	Part Number
1	1	Battery clamp/switch bracket/Isolator switch/lever	A120M0076F
2	1	Lightweight battery	A127M6004F
3	1	Battery cable	A120M0070F
4	1	M10 female/M8 male adaptor	A120M0068F
5	1	M8/M6male stud adaptor	A120M0069F
6	4	M6 X 20 flange headed bolts	A117W2203F
7	2	M6 spring washer	A075W4035F
8	2	M8 nut	A907E6284F
9	2	M8 spring washer	A075W4036F
10	1	M6 x 16 setscrew	A075W1028F
11	1	Battery clamp	A120M0074F
12	1	Warning label	A120X0001F

Although it is possible to fit this option to any Elise/Exige, please be aware that the rear clamshell has been modified to accept the lightweight battery clamp without any drilling or modification.

If you wish to fit this to a standard Elise/Exige it will be necessary to drill additional holes into the boot floor area to fit additional rivnuts.

Please also ensure that any owner who wishes to purchase this option is made aware that:

- Whilst the battery is isolated that the vehicles alarm system will not function.
- The lightweight battery requires external charging if the vehicle is not being used on a regular basis.

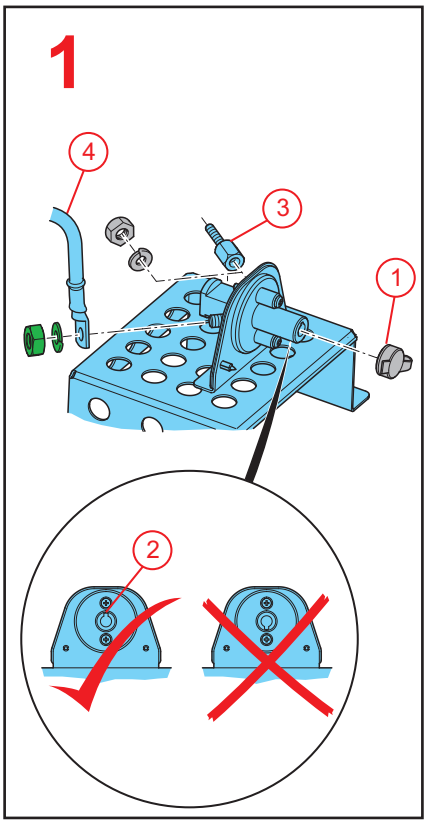
Step1. Isolator Switch Preparation

1. Remove and discard the switches protective end cap cover.

2. Ensure the switch is correctly positioned in the bracket so that detachable lever has to be positioned vertically to insert and turns clockwise to lock into position.
   If fitted incorrectly remove the M5 fixings and refit into correct position.

3. If fitted, remove original M10 nut and spring washer from left hand terminal of switch, (as seen from rear of switch), discard and replace with M10 to M8 thread step down converter.

4. Fit positive jump harness lead to isolator switches other terminal, fit original M10 spring washer and nut finger tight so that it is still possible to move the leads eyelet on the terminal.



Step 2. Vehicle Preparation

Notice: before disconnecting battery, ensure that the alarm is disarmed in order to prevent its being triggered. Then wait for at least 30 MINUTES after switching off the ignition to allow the ECU and associated sensors to shut down in the correct sequence. If the vehicle is fitted with central locking then please ensure vehicle is unlocked whilst carrying out this conversion.

1. Remove battery cover, remove isolator switch aperture grommet and discard.

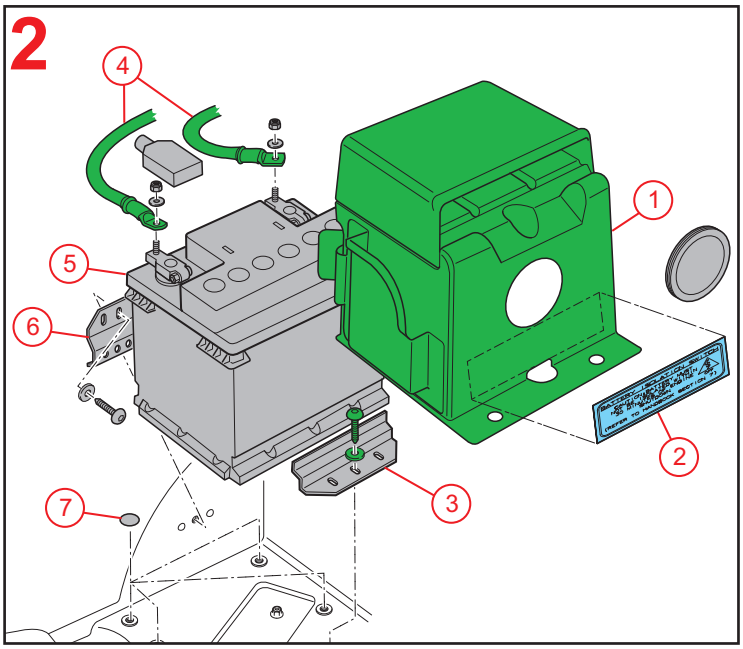
2. Fit warning decal centrally below the switch aperture.

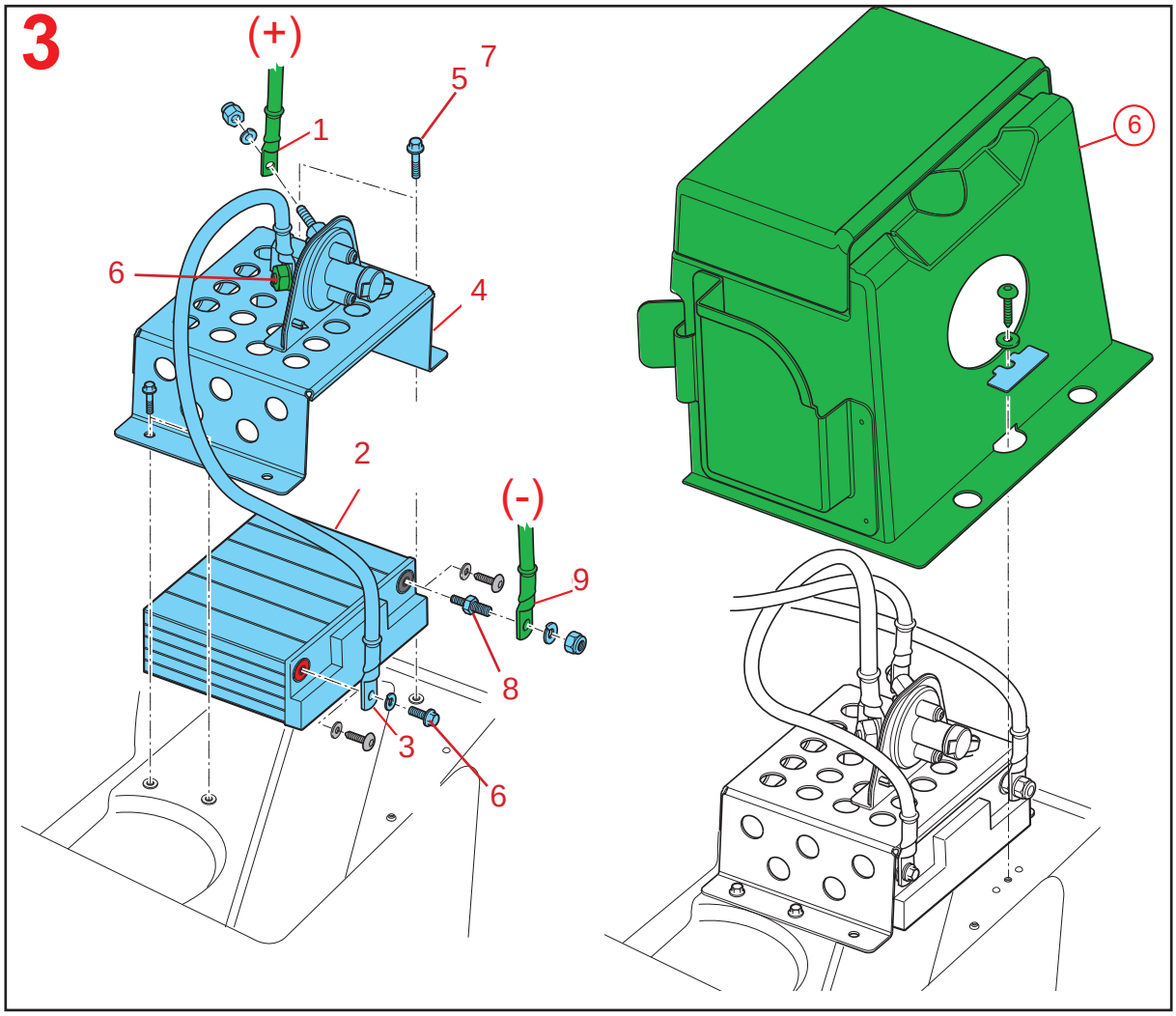
3. Remove front battery clamp and discard, (but retain its washer and screw).

4. Disconnect vehicles negative earth lead and positive leads from the batteries terminal clamps and discard.
5. Remove battery.

6. Remove rear battery clamp, fixings and discard.

7. Remove the 4 thread insert protection decals from the battery boot floor and discard.





Step 3. Isolator Switch Fitment

1. Fit the vehicles positive lead onto the isolator switch's converted M10 terminal, fit M8 washer and nut onto the end of terminal but only finger tight so that the leads eyelet can still move on the terminal.

2. Position the lightweight battery in place with its positive terminal rearward, closest to the rear of the vehicle.

3. Route the isolator switch jump harness around to the batteries positive terminal.

4. Position the battery clamp/isolator switch assembly over the battery, lining up the brackets mounting holes with threaded inserts on the boot floor.
5. Loosely retain in place using the 4 x M6 screw fixings and washers.

6. Tighten both the isolator terminal nuts and the positive battery terminal screws when you have determined that all leads are positioned free of kinks and will not foul battery cover once refitted.

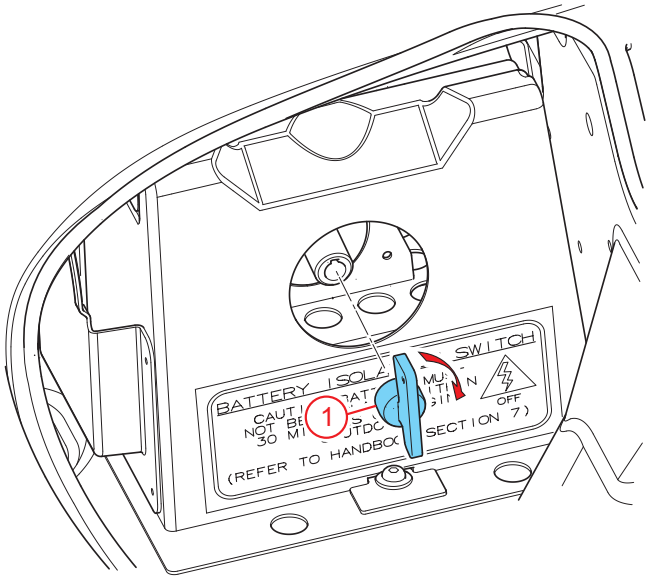
7. Secure the battery and battery bracket to the boot floor using the 4 M6 flange screw fixings to 10 Nm.

8. Fit M6/M8 thread converter to the batteries negative terminal.

9. Fit vehicles negative lead to batteries negative terminal and fit M8 spring washer and nut.

10. Refit battery cover and fix in place with battery clamp supplied in the kit using original washer and screw.

4



Step 4. Testing Isolator Switch

To ensure isolator switch is working correctly, attempt to start the vehicle with the isolator switch lever removed, none of the vehicles electrical items should work and the vehicle's engine should not turn over.

Fit lever into switch and turn 90° clockwise, the vehicle's electrical items should function and the engine should now turn over and the engine start. Do not turn the isolator switch off again until 30 minutes has elapsed from the time that the key has been ***removed*** from the ignition switch.

Ensure vehicle owner is aware of importance of correct operation and procedure for using the isolator switch as described in the Club Racer Supplement LSL586 and confirm that they are aware that one the isolator switch is activated the vehicles alarm will not function.